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THE ILLUSTRATED

Annual Register

OF

RURAL AFFAIRS,

FOR

1861.

—
One Hundred and Forty Engravings.
—

ALBANY:

LUTHER TUCKER & SON.

1861.

LOSSING-BARRITT.

RURAL PUBLICATIONS

TO
Record, Impart,
AND
ILLUSTRATE
THE BEST
PRACTICE;
TO
Advancement



IN
Rural Economy
AND
RURAL TASTE;
TO
IMPROVE
THE
Soil and the Mind.

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Albany, N. Y.**

THE
ILLUSTRATED ANNUAL
REGISTER OF RURAL AFFAIRS
AND
CULTIVATOR ALMANAC,
FOR THE YEAR 1861,

CONTAINING PRACTICAL
SUGGESTIONS FOR THE FARMER AND HORTICULTURIST,
EMBELLISHED WITH ONE HUNDRED AND FORTY ENGRAVINGS,
INCLUDING HOUSES, FARM BUILDINGS, IMPLEMENTS,
POULTRY, FRUITS, &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: SAXTON & BARKER, 25 PARK ROW.

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PUBLISHERS' ADVERTISEMENT.

THE ILLUSTRATED ANNUAL REGISTER OF RURAL AFFAIRS is issued in advance of the commencement of each year, and is designed to present, together with the usual Calendar pages of an Almanac, an Illustrated Record of the Agricultural and Horticultural Progress of the times, in a convenient and attractive form, and so treated as to convey the most PRACTICAL INFORMATION upon Rural Subjects, that can be condensed within its allotted compass.

In presenting to the public the Seventh Number, for 1861, the Publishers may call attention to the opening article on WORKINGMEN'S COTTAGES, as nearly all original, both in its Designs, Descriptions, and Illustrations, and as calculated to advance the Farmer's interests by divesting farm labor of its usual inconveniences; the hints that follow on LAYING OUT GROUNDS will doubtless prove useful to many, and the descriptions of NEW AGRICULTURAL IMPLEMENTS point out several valuable auxiliaries in farm operations. The Chapter on WEEDS will be found to contain descriptions of many of the most troublesome of these intruders, in simple and distinct language, with accurate portraits, and the best modes yet discovered for their extirpation. The comprehensive article on POULTRY, from the pen of one of the best American writers on this subject, embraces more in relation to the different Breeds, and the general management of Domestic Fowls, than has probably ever before been presented within similar compass. The HORTICULTURAL ARTICLES,—on *Plums, Dwarf Pears, Strawberries, Green House Structures, Ward Cases, Training Roses, &c.*, all amply and beautifully illustrated, cannot fail to be acceptable; while many valuable hints on General Farm Management and Fruit Culture, Feeding Cattle, Constructing Filters, Domestic Economy, &c., constitute the remainder of the Number.

Two years since, a List of the principal Nurseries of the United States, Canada and Europe, the most complete one of the kind that had then appeared, with Descriptive Notes and Illustrations, was given in the REGISTER, gathered from an extensive correspondence, and wholly original matter. Several lists have since appeared in other publications, (some copying freely from the ANNUAL REGISTER without indicating the source of the information,) and it therefore appears hardly necessary at present to devote farther space to this purpose.

The contents of the successive Numbers of the ANNUAL REGISTER are continuous in character, although each forms a separate and distinct work in itself. Either of the previous Numbers may at any time be had by enclosing 25 cents to the Publishers, LUTHER TUCKER & SON, at Albany, N. Y. The Six Numbers are also issued in Two Volumes, printed upon larger paper of very superior quality, with the omission of Calendar pages and Advertisements, and with new and full Indexes—price \$1 each, sold separately or together as may be desired. These Two Volumes contain no less than 886 Illustrations, and no others are known, devoted to RURAL AFFAIRS, equally comprehensive in design and complete in execution, offered at so low a price.

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THE CULTIVATOR ALMANAC, FOR 1861.

ASTRONOMICAL CALCULATIONS IN EQUAL OR CLOCK TIME.

ECLIPSES FOR THE YEAR 1861.

There will be but four Eclipses this year, as follows :

I. An annular Eclipse of the Sun, January 10, invisible in America.

II. An annular Eclipse of the Sun, July 7, invisible in America.

III. A partial Eclipse of the Moon, December 17--16^h in California—early in the morning. Visible. Size only 2.22 digits, or about one-fifth of the Moon's disc. See the following table.

Names of places.	Begins.	Middle.	Ends.	Names of places.	Begins.	Middle.	Ends.
	H. M.	H. M.	H. M.		H. M.	H. M.	H. M.
Portland, Me.,	2 46	3 37	4 28	Charleston, S. C., ...	2 7	2 58	3 49
Boston, Mass.,	2 43	3 34	4 25	Havana, Cuba,	1 53	2 49	3 40
New-York,	2 31	3 22	4 13	Detroit, Mich.,	1 55	2 46	3 37
Philadelphia, Pa., }	2 27	3 18	4 9	Cincinnati, Ohio, ...	1 59	2 41	3 32
Utica, N. Y.,				Chicago, Ill.,	1 37	2 28	3 19
Baltimore, Md.,	2 21	3 12	4 3	Mobile,	1 34	2 25	3 16
Washington, D. C., ..	2 19	3 10	4 1	New-Orleans, La., ...	1 27	2 18	3 9
Rochester, N. Y., ...	2 16	3 7	3 58	St. Louis, Mo.,	1 26	2 17	3 8
Buffalo, N. Y.,	2 12	3 3	3 54	Austin, Texas,	56	1 47	2 35
Raleigh, N. C.,	2 12	3 3	3 54	Oregon City, Dec. 16	11 23	14	1 5
Panama, N. G.,	2 10	3 1	3 52	San Francisco, do.	11 17 ^e	8	59

IV. A total Eclipse of the Sun, but *only partial* in the United States, December 31. The *Sun rises eclipsed*, and the obscuration will be visible in all the States east of the Mississippi river, and in those States adjacent to it on the west, except Iowa. It ends at Washington at 8h. 36m. In Texas, Arkansas, Missouri, Illinois, and Wisconsin, the Eclipse *ends* just at sunrise, and east of Maine it begins at sunrise. Size in the Atlantic States about 6 digits.

MERCURY.

This planet being rarely seen, may be discovered in the west soon after sunset about February 24, June 22, October 17, and in the east just before sunrise about April 15, August 13, and December 2.

EQUINOXES AND SOLSTICES FOR 1861.

	D. H. M.		D. H. M.
Vernal Equinox, ... March	20 9 40 m		Autumnal Equinox, Sept.
Summer Solstice, .. June	21 6 27 m		Winter Solstice, ... Dec.
			22 8 40 e
			27 2 27 e

TRANSIT OF MERCURY.

There will be a transit of Mercury over the Sun's disc, November 12, invisible in America.

MORNING AND EVENING STARS.

Venus will be Morning Star until May 11, then Evening Star the rest of the year. Mars will be Evening Star until August 27, then Morning Star the rest of the year. Jupiter will be Morning Star until February 10, then Evening Star until August 30, then Morning Star the rest of the year. Saturn will be Morning Star until February 24, then Evening Star until September 5.

LEAP-YEAR.

Every year the number of which is divisible by 4 without a remainder, is a leap-year, except the last year of the century, which is a leap-year only when divisible by 400 without a remainder. Thus the year 1900 will not be leap-year.

DURATION OF THE SEASONS, &c.

D. H. M.			D. H. M.		
Sun in Winter Signs,	89	1 9	Tropical Year,	365	5 44
Sun in Spring Signs,	92	20 35	Sun North of the Equator,....	186	10 48
Sun in Summer Signs,	93	14 13	Sun South of the Equator,....	178	18 56
Sun in Autumnal Signs,.....	89	17 47	Difference,.....	7	15 52

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	Machias,.....	add 1 54	Portland,.....	add 3 12
Amboy,.....	sub. 0 39	Marblehead,.....	add 1 49	Portsmouth,.....	add 3 10
Annapolis, Md.,... add 8 25		New-Bedford,....sub. 0 16		Providence,.....sub. 0 41	
Annapolis, N. S., add 1 49		New-Haven,..... add 3 3		Richmond,..... add 8 15	
Baltimore,..... add 10 20		New-London,.... add 1 15		Salem,..... add 3 0	
Bridgeport,..... add 2 58		Newport,.....sub. 0 28		Sand's Point,.... add 3 0	
Cape Split,..... add 2 0		New-Rochelle, ... add 3 9		Sandy Hook, N. J., sub 0 44	
Eastport,..... add 2 9		Norfolk,.....sub. 0 41		Sunbury,..... add 0 19	
Hellgate,..... add 1 41		Oyster Bay,..... add 2 54		Throgg's Neck, .. add 3 7	
Holmes' Hole,.... add 3 30		Plymouth,..... add 2 19		Windsor,..... add 2 49	

OCCULTATION OF MARS.

Mars will be eclipsed by the Moon May 12, at 7h. 30m. evening, at Washington, and reappear at 8h. 32m. Visible generally.

CHRONOLOGICAL CYCLES.

Dominical Letter, F; Golden Number, 19; Jewish Lunar Cycle, 16; Epact, 18; Solar Cycle, 22; Roman Indiction, 4; Julian Period, 6574; age of the world, 5864.

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.

NOTE.—The Sun's declination is given in the monthly tables, for the *instant his center is on the meridian of Washington*.

MOON'S PHASES.		Boston.	N. York.	Wash'ton	Sun on Meridian or Noon Mark.		
	D	H M	H M	H M	D	H M S	
THIRD QUARTER,	3	9 11 e	8 59 e	8 47 e	1	12 4 4	
NEW MOON,	10	10 43 e	10 31 e	10 19 e	9	12 7 37	
FIRST QUARTER,	18	11 16 e	11 4 e	10 52 e	17	12 10 34	
FULL MOON,	26	0 22 e	0 10 e	11 58 n.	25	12 12 44	

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

Hints for First Month, January.

Let saving be the watchword for this month: Feed often, and in small quantities;
 Save the flesh of animals by attending to their comfort; Shelter cattle from sweeping winds;
 Keep them warm, sheltered, and clean; Shelter sheep from driving storms;
 Feed and water them regularly; Shelter swine in clean warm beds;
 Give wholesome food, and pure water; Avoid the waste of using wet wood;
 Keep stables clean, and ventilated; Fill the woodhouse for summer use;
 Watch animals, and supply all wants; Save chips and cobs for kindling;
 Save fodder, by good feeding racks; Protect trees from mice by treading snow about them;
 Never allow hay to be wasted in mud; Subscribe for Agricultural Papers,
 Racks save their cost every month; And suggest the same course to others.

MOON'S PHASES.		Boston.	N. York.	Baltimore	Sun on Meridian or Noon Mark.			
	D	H M	H M	H M	D	H M S		
THIRD QUARTER,	2	5 16 m	5 4 m	4 52 m	1	12 13 56		
NEW MOON,	9	3 20 e	3 8 e	2 56 e	9	12 14 31		
FIRST QUARTER,	17	7 35 e	7 23 e	7 11 e	17	12 14 15		
FULL MOON,	24	11 59 e	11 47 e	11 35 e	25	12 13 14		

DAY OF MONTH	DAY OF WEEK	Sun's declens. S.	CALENDAR For Boston, N. England, New-York State, Mi- chigan, Wiscon., Iowa and Oregon.				CALENDAR For N. York City, Phi- ladelphia, Conn., New Jersey, Penn'a, Ohio, Indiana and Illinois.				CALENDAR For Washington, Mary'ld, Virg'a, Kent'y, Miss'ri, and California.			
			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	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	F	16 57 5	7 14 5	14 morn	4 3	7 10	5 18	morn	ov. 49	7 6	5 22	morn		
2	S	16 39 42	7 12 5	15 55	5 2	7 9	5 19	50	1 48	7 5	5 23	45		
3	S	16 22 1	7 11 5	17 2 7	6 11	7 8	5 20	2 2	2 57	7 4	5 24	1 56		
4	M	16 4 3	7 10 5	18 3 14	7 18	7 7	5 21	3 8	4 4	7 3	5 25	3 2		
5	T	15 45 48	7 9 5	19 4 14	8 25	7 6	5 22	4 8	5 11	7 2	5 26	4 1		
6	W	15 27 17	7 8 5	21 5 3	9 26	7 5	5 24	4 57	6 12	7 1	5 27	4 51		
7	T	15 8 30	7 7 5	22 5 44	10 19	7 4	5 25	5 39	7 5	7 0	5 28	5 34		
8	F	14 49 28	7 6 5	24 6 17	11 1	7 3	5 26	6 13	7 47	6 59	5 29	6 8		
9	S	14 30 11	7 5 5	25 sets	11 40	7 2	5 28	sets	8 26	6 58	5 30	sets		
10	S	14 10 40	7 3 5	26 6 40	morn	7 0	5 29	6 42	9 5	6 57	5 31	6 43		
11	M	13 50 54	7 2 5	27 7 42	19	6 59	5 30	7 42	9 41	6 56	5 32	7 43		
12	T	13 30 5	7 1 5	29 8 40	55	6 58	5 32	8 39	10 16	6 55	5 34	8 39		
13	W	13 10 43	7 0 5	30 9 41	1 30	6 56	5 33	9 39	10 47	6 54	5 35	9 37		
14	T	12 50 18	6 58 5	31 10 40	2 1	6 55	5 34	10 37	11 25	6 53	5 36	10 34		
15	F	12 29 41	6 57 5	32 11 41	2 39	6 54	5 35	11 37	morn	6 51	5 37	11 32		
16	S	12 8 52	6 55 5	33 morn	3 22	6 53	5 36	morn	8	6 50	5 38	morn		
17	S	11 47 51	6 54 5	34 41	4 9	6 51	5 37	36	55	6 49	5 39	31		
18	M	11 29 39	6 52 5	36 1 41	5 2	6 50	5 38	1 35	1 48	6 48	5 40	1 29		
19	T	11 5 17	6 51 5	37 2 38	6 6	6 49	5 39	2 32	2 52	6 47	5 41	2 26		
20	W	10 43 45	6 49 5	39 3 32	7 7	6 47	5 41	3 26	3 53	6 45	5 42	3 20		
21	T	10 22 3	6 48 5	40 4 20	8 13	6 46	5 42	4 14	4 59	6 44	5 43	4 8		
22	F	10 0 11	6 47 5	41 5 0	9 16	6 44	5 43	4 56	6 2	6 43	5 44	4 51		
23	S	9 38 10	6 45 5	43 5 37	10 12	6 43	5 45	5 33	6 58	6 42	5 46	5 30		
24	S	9 16 1	6 43 5	44 rises	10 59	6 41	5 46	rises	7 45	6 40	5 47	rises		
25	M	8 53 43	6 42 5	45 6 46	11 43	6 39	5 47	6 46	8 29	6 39	5 48	6 47		
26	T	8 31 18	6 41 5	46 8 5	v. 30	6 38	5 48	8 4	9 16	6 38	5 49	8 2		
27	W	8 8 45	6 39 5	47 9 22	1 14	6 37	5 49	9 20	10 0	6 36	5 50	9 17		
28	T	7 46 4	6 38 5	48 10 39	1 59	6 36	5 49	10 35	10 45	6 34	5 51	10 31		

Hints for second Month, February.

Continue the labors of winter, and prepare for the coming season:—
 Continue care to domestic animals;
 Diligence only can be successful;
 Neglect will certainly end in loss;
 See constantly to their comfort;
 Keep them well sheltered;
 Avoid the discomfort of dirt;
 Avoid the waste from bad food;
 Avoid the loss from bad water;
 Save by chopping up fodder;
 Save by grinding fed grain;
 Save by mixing with roots;
 Fill ice-houses with ice;
 Encase in a foot of sawdust;

Provide ventilation above;
 Drainage without ventilation below;
 Cut grafts for spring use;
 Secure only the best varieties;
 Let them be well marked or labelled;
 Pack them in damp moss or sand;
 Lay plans for the season;
 Improve the arrangement of fields;
 Improve the structure of buildings;
 Improve the comforts of the dwelling;
 Arrange a better rotation of crops;
 Arrange the forces of the farm;
 Provide every resource for manure;
 Provide ample resources for knowledge, by taking Agricultural Papers.

MOON'S PHASES.	Boston.			N. York.			Wash'ton			Sun on Meridian or Noon Mark.			
	D	H	M	H	M	H	M	D	H	M	S		
THIRD QUARTER,.....	3	2	33 e	2	20 e	2	8 e	1	12	12	29		
NEW MOON,.....	11	8	53 m	8	41 m	8	29 m	9	12	10	39		
FIRST QUARTER,.....	19	0	48 e	0	36 e	0	24 e	17	12	8	24		
FULL MOON,.....	26	9	31 m	9	19 m	9	7 m	25	12	5	59		

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

Hints for Third Month, March.

Finish the jobs of winter, and prepare for spring labor in earnest;
 Procure rails for repairing fences;
 Finish cutting fuel for summer;
 Clean grain for spring crops;
 Clean grass seed for spring seeding;
 Nail loose boards in board fences;
 Repair hinges in sagging gates;
 Repair defects in stone walls;
 See that tools are ready for work;
 Paint and grease carts and wagons;

Examine and replace harrow teeth;
 Put rakes, forks, and scythes in order;
 Put chains, clevises, and hoes in place;
 Let a place be provided for every tool;
 And every tool snugly in its place;
 Make hot beds late in the month;
 Fork over manured asparagus beds;
 Graft cherries before the month ends;
 Plant sprouted potatoes for early use;
 Sow clover seed on thin snow;
 Give special care to cows with calf.

MOON'S PHASES.		Boston.	N. York.	Baltimore	Sun on Meridian or Noon Mark.			
	D	H M	H M	H M	D	H M S		
THIRD QUARTER,.....	2	1 40 m	1 28 m	1 16 m	1	12 3 49		
NEW MOON,.....	10	2 12 m	2 0 m	1 48 m	9	12 1 30		
FIRST QUARTER,.....	18	2 1 m	1 49 m	1 37 m	17	11 59 27		
FULL MOON,.....	24	5 39 e	5 27 e	5 15 e	25	11 57 48		

DAY OF MONTH	DAY OF WEEK	Sun's declens. N.	CALENDAR For Boston, N. England New-York State, Michi- gan, Wiscon., Iowa and Oregon.				CALENDAR For N. York City, Phi- ladelphia, Conn., New Jersey, Penn'a, Ohio, Indiana and Illinois.				CALENDAR For Washington, Mary'ld, Virg'a, Kent'y, Miss'ri, and California.			
			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	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	M	4 43 55	5 43 6 26	5 55	4 38	5 45 6 24	6 49	1 24	5 46 6 22	6 43				
2	T	5 6 53	5 41 6 27	1 41	5 41	5 42 6 25	1 36	2 27	5 44 6 23	1 03				
3	W	5 29 56	5 40 6 28	2 20	6 43	5 41 6 26	2 15	3 29	5 43 6 24	2 11				
4	T	5 52 48	5 38 6 29	2 50	7 39	5 39 6 27	2 47	4 25	5 41 6 25	2 43				
5	F	6 15 35	5 36 6 30	3 17	8 30	5 37 6 28	3 14	5 16	5 39 6 25	3 12				
6	S	6 38 14	5 34 6 31	3 39	9 16	5 35 6 29	3 38	6 2	5 38 6 26	3 36				
7	S	7 0 47	5 32 6 32	4 1	9 58	5 33 6 30	4 1	6 44	5 37 6 27	4 1				
8	M	7 23 13	5 30 6 33	4 23	10 35	5 31 6 31	4 23	7 21	5 35 6 28	4 25				
9	T	7 45 32	5 29 6 34	4 46	11 9	5 30 6 32	4 48	7 55	5 33 6 29	4 49				
10	W	8 7 42	5 27 6 35	sets	11 45	5 28 6 33	sets	8 31	5 31 6 30	sets				
11	T	8 29 45	5 25 6 36	8 25	acrn	5 26 6 34	8 29	9 11	5 29 6 31	8 16				
12	F	8 51 39	5 24 6 37	9 23	25	5 25 6 35	9 18	9 50	5 28 6 32	9 13				
13	S	9 13 24	5 22 6 38	10 22	1 4	5 24 6 36	10 10	10 31	5 27 6 33	10 10				
14	S	9 34 59	5 21 6 39	11 17	1 45	5 22 6 37	11 11	11 15	5 25 6 34	11 5				
15	M	9 56 25	5 19 6 40	morn	2 29	5 21 6 38	12 0	morn	5 24 6 35	11 54				
16	T	10 17 42	5 17 6 41	6	3 20	5 20 6 39	morn	6	5 23 6 35	morn				
17	W	10 38 48	5 16 6 42	5 9	4 14	5 18 6 40	45	1 0	5 21 6 37	39				
18	T	10 59 43	5 15 6 43	1 28	5 1	5 16 6 41	1 23	1 58	5 20 6 38	1 19				
19	F	11 20 27	5 13 6 44	2 0	6 1	5 15 6 42	1 57	2 59	5 19 6 39	1 54				
20	S	11 41 0	5 12 6 46	2 30	7 15	5 13 6 44	2 28	4 1	5 17 6 40	2 26				
21	S	12 1 22	5 10 6 47	2 57	8 12	5 11 6 45	2 57	4 58	5 15 6 41	2 56				
22	M	12 21 32	5 8 6 48	3 25	9 10	5 10 6 46	3 25	5 56	5 14 6 42	3 25				
23	T	12 41 29	5 6 6 49	3 53	10 3	5 9 6 47	3 55	6 49	5 13 6 43	3 57				
24	W	13 1 15	5 4 6 51	rises	10 5	5 7 6 48	rises	7 39	5 11 6 44	rises				
25	T	13 20 47	5 3 6 52	8 22	11 4	5 6 6 49	8 17	8 28	5 10 6 45	8 12				
26	F	13 40 27	5 2 6 53	9 38	v 35	5 5 6 50	9 32	9 24	5 9 6 46	9 26				
27	S	13 59 13	5 1 6 54	10 42	1 31	5 3 6 51	10 36	10 17	5 7 6 47	10 30				
28	S	14 18 5	4 59 6 56	11 36	2 2	5 2 6 52	11 30	11 8	5 6 6 48	11 25				
29	M	14 36 43	4 57 6 57	morn	3 19	5 1 6 53	morn	sv. 5	5 4 6 49	morn				
30	T	14 55 7	4 56 6 58	19	4 15	5 0 6 51	14	1 15	5 3 6 50	9				

Hints for Fourth Month, April.

Active field labors now commence, and should be vigorously pursued;
 Clear, pick, roll, and plaster meadows;
 Finish repairing and staking fences;
 Nail board fences, and lay up walls;
 Draw out manure for spring crops;
 Harrow it fine before plowing in;
 Sow barley and oats early;
 Pull red-root and cockle from wheat;
 Enrich the soil well for root crops;
 Mix it thoroughly, and pulverize fine;
 Avoid hasty and superficial work;

Destroy weeds early, when easily done;
 Graft plums, apples and pears;
 Set out young orchards in time;
 Cut back the shoots to induce growth;
 Keep the earth mellow and cultivated;
 Cut back budded trees of last year;
 Transplant strawberries early;
 Sow grass seed soon in the month;
 Keep all animals off of meadows;
 Keep working horses in good order;
 Plant plenty of garden seed;
 Purify cellars on rainy days.

MOON'S PHASES.		Boston.	N. York.	Wash'ton	Sun on Meridian or Noon Mark.			
	D	H M	H M	H M	D	H M S	H M S	H M S
THIRD QUARTER,.....	1	2 48 e	2 36 e	2 24 e	1	11 56 54		
NEW MOON,.....	9	6 23 e	6 11 e	5 59 e	9	11 56 13		
FIRST QUARTER,.....	17	11 19 m	11 7 m	10 55 u.	17	11 56 9		
FULL MOON,.....	24	1 22 m	1 10 u	0 58 m	25	11 56 39		
THIRD QUARTER,.....	31	5 41 m	5 29 m	5 17 m				

DAY OF MONTH.	DAY OF WEEK.	Sun's declens.		CALENDAR For Boston, N. England, New-York State, Mi- chigan, Wiscon., Iowa and Oregon.				CALENDAR For N. York City, Phi- ladelphia, Conn., New Jersey, Penn'a. Ohio, Indiana and Illinois.				CALENDAR For Washington, Mary'ld, Virg'a, Kent'y. Miss'ri, and California.			
		°	'	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	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	
1	W	15	13	17	4 54	6 59	5 52	5 11	4 59	6 55	49	1 57	5 26	6 52	44
2	T	15	31	11	4 53	7 0	1 20	6 8	4 58	6 56	1 17	2 54	5 16	6 53	1 14
3	F	15	48	50	4 51	7 1	1 48	6 57	4 57	6 57	1 46	3 44	5 06	6 54	1 44
4	S	16	6	14	4 50	7 2	2 6	7 44	4 56	6 58	2 6	4 31	4 59	6 55	2 5
5	S	16	23	21	4 49	7 3	2 27	8 31	4 55	6 59	2 27	5 17	4 58	6 56	2 28
6	M	16	40	13	4 48	7 4	2 50	9 17	4 54	7 0	2 51	6 3	4 57	6 56	2 53
7	T	16	56	47	4 47	7 5	3 13	9 59	4 53	7 1	3 15	6 45	4 56	6 57	3 18
8	W	17	13	5	4 46	7 6	3 37	10 38	4 52	7 2	3 41	7 24	4 55	6 58	3 45
9	T	17	29	6	4 45	7 7	sets	11 17	4 51	7 3	sets	8 3	4 54	6 59	sets
10	F	17	44	49	4 44	7 8	8 17	12 0	4 50	7 4	8 11	8 46	4 53	7 0	8 6
11	S	18	0	14	4 43	7 9	9 12	morn	4 49	7 5	9 6	9 30	4 52	7 1	9 0
12	S	18	15	21	4 42	7 10	10 4	44	4 48	7 6	9 58	10 15	4 51	7 2	9 52
13	M	18	30	10	4 41	7 11	10 49	1 29	4 47	7 7	10 44	10 58	4 50	7 3	10 38
14	T	18	44	40	4 40	7 12	11 27	2 12	4 45	7 8	11 23	11 47	4 49	7 4	11 18
15	W	18	58	51	4 39	7 13	morn	3 1	4 44	7 9	11 58	morn	4 48	7 5	11 54
16	T	19	12	43	4 38	7 14	2	3 52	4 43	7 10	morn	38	4 47	7 6	morn
17	F	19	26	15	4 37	7 15	33	4 46	4 42	7 11	30	1 32	4 46	7 7	28
18	S	19	39	28	4 36	7 16	59	5 42	4 41	7 12	57	2 28	4 45	7 7	56
19	S	19	52	20	4 35	7 17	1 26	6 41	4 40	7 13	1 26	3 27	4 44	7 8	1 26
20	M	20	4	52	4 35	7 18	1 51	7 39	4 39	7 14	1 52	4 25	4 44	7 9	1 54
21	T	20	17	4	4 34	7 19	2 21	8 40	4 38	7 15	2 24	5 26	4 43	7 10	2 26
22	W	20	28	56	4 33	7 20	2 56	9 39	4 37	7 16	3 0	6 25	4 42	7 10	3 4
23	T	20	40	24	4 32	7 21	rises	10 35	4 36	7 17	rises	7 21	4 42	7 11	rises
24	F	20	51	33	4 31	7 22	8 21	11 25	4 35	7 18	8 15	8 11	4 41	7 12	8 9
25	S	21	2	26	4 30	7 23	9 22	ev. 23	4 35	7 19	9 16	9 9	4 40	7 13	9 10
26	S	21	12	46	4 29	7 24	10 8	1 16	4 34	7 20	10 3	10 2	4 40	7 14	9 58
27	M	21	22	50	4 28	7 25	10 50	2 4	4 33	7 21	10 46	10 50	4 39	7 14	10 41
28	T	21	32	31	4 28	7 26	11 21	2 55	4 33	7 22	11 18	11 41	4 38	7 15	11 14
29	W	21	41	51	4 27	7 27	11 47	3 43	4 32	7 23	11 45	ev. 29	4 38	7 16	11 43
30	T	21	50	47	4 26	7 28	morn	4 32	4 31	7 24	morn	1 18	4 37	7 16	morn
31	F	21	59	21	4 26	7 28	10	5 18	4 31	7 25	9	2 4	4 37	7 17	8

Hints for Fifth Month, May.

The prominent labors of this month are planting, and completion of sowing; Prepare ground thoroughly for corn; Plant in straight even rows; Secure seed corn from crows by tar; Half a pint to a peck is enough. If the seed is scalded and then tarred; Do every job in the very best manner; Plant early kinds for fall feeding; It will be nearly as good as old corn;

Fresh, unripe ears, are worth little; Replant with early sorts only; Make compost of coarse long manure; It will do for the wheat crop in fall; Pull red-root and cockle from wheat; Cut mulleins and thistles in pastures; Destroy early weeds in the garden; Plant field beets, carrots, and parsnips; They will make fine stock food in winter; Mellow the soil about fall-planted trees.

MOON'S PHASES.	Boston.			N. York.			Baltimore			Sun on Meridian or Noon Mark.		
	D	H	M.	H	M	H	M	H	M	D	H	M S
NEW MOON,.....	8	8	54 m	8	42 m	8	30 m	8	30 m	1	11	57 32
FIRST QUARTER,.....	15	5	32 e	5	20 e	5	8 e	5	8 e	9	11	58 56
FULL MOON,.....	22	9	39 m	9	27 m	9	15 m	9	15 m	17	12	0 36
THIRD QUARTER,.....	29	9	57 e	9	45 e	9	33 e	9	33 e	25	12	2 19

DAY OF MONTH	DAY OF WEEK	Sun's declens. N.	CALENDAR For Boston, N. England, New-York State, Mi- chigan, Wiscon., Iowa and Oregon.				CALENDAR For N. York City, Phi- ladelphia, Conn., New Jersey, Penn'a, Ohio, Indiana and Illinois.				CALENDAR For Washington, Mary'ld, Virg'a, Kent'y, Miss'ri, and California.			
			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. W.
			H	M	H	M	H	M	H	M	H	M	H	M
1	S	22 7 33	1 25 7 29	31	6 8	4 31 7 24	31	2 54	4 36 7 18	32				
2	S	22 15 20	4 24 7 30	58	6 57	4 39 7 25	53	3 43	4 36 7 19	54				
3	M	22 22 45	4 24 7 30	1 26	7 45	4 30 7 25	1 28	4 31	4 35 7 19	1 30				
4	T	22 29 46	4 23 7 31	1 41	8 36	4 29 7 26	1 44	5 22	4 35 7 20	1 47				
5	W	22 36 24	4 23 7 32	2 9	9 23	4 29 7 27	2 13	6 9	4 35 7 20	2 18				
6	T	22 42 38	4 23 7 33	2 44	10 11	4 28 7 27	2 49	6 57	4 34 7 21	2 54				
7	F	22 48 28	4 22 7 33	3 28	10 57	4 28 7 28	3 34	7 43	4 34 7 21	3 39				
8	S	22 53 54	4 22 7 34	sets	11 39	4 28 7 28	sets	8 25	4 34 7 22	sets				
9	S	22 58 56	4 22 7 35	8 47	morn	4 28 7 29	8 41	9 14	4 34 7 22	8 36				
10	M	23 3 34	4 22 7 35	9 29	28	4 28 7 29	9 24	9 58	4 34 7 23	9 19				
11	T	23 7 47	4 22 7 36	10 6	1 12	4 28 7 30	10 0	10 42	4 34 7 24	9 56				
12	W	23 11 34	4 22 7 37	10 35	1 56	4 28 7 30	10 32	11 25	4 34 7 25	10 29				
13	T	23 15 0	4 22 7 37	11 3	2 39	4 28 7 31	11 1	morn	4 34 7 25	11 0				
14	F	23 18 0	4 22 7 38	11 29	3 28	4 28 7 31	11 29	14	4 34 7 26	11 28				
15	S	23 20 35	4 22 7 38	11 55	4 18	4 28 7 32	11 56	1 4	4 33 7 27	11 56				
16	S	23 22 46	4 22 7 38	morn	5 11	4 28 7 32	morn	1 57	4 33 7 27	morn				
17	M	23 24 31	4 22 7 39	22	6 10	4 28 7 33	24	2 56	4 33 7 28	26				
18	T	23 25 52	4 22 7 39	53	7 12	4 28 7 33	56	3 58	4 33 7 28	1 0				
19	W	23 26 49	4 23 7 39	1 28	8 16	4 29 7 34	1 33	5 2	4 33 7 28	1 38				
20	T	23 27 20	4 23 7 39	2 13	9 22	4 29 7 34	2 18	6 8	4 34 7 28	2 24				
21	F	23 27 27	4 23 7 39	3 8	10 24	4 29 7 34	3 14	7 10	4 34 7 28	3 20				
22	S	23 27 9	4 23 7 40	ises	11 17	4 29 7 34	rises	8 3	4 34 7 29	ises				
23	S	23 26 26	4 23 7 40	8 44	ev. 12	4 29 7 35	8 40	8 58	4 34 7 29	8 35				
24	M	23 25 18	4 24 7 40	9 18	59	4 30 7 35	9 15	9 45	4 35 7 29	9 11				
25	T	23 23 46	4 24 7 40	9 47	1 41	4 30 7 35	9 45	10 27	4 35 7 29	9 42				
26	W	23 21 49	4 24 7 40	10 12	2 23	4 30 7 35	10 11	11 9	4 35 7 29	10 9				
27	T	23 19 28	4 25 7 40	10 33	3 5	4 30 7 35	10 33	11 51	4 35 7 29	10 33				
28	F	23 16 41	4 25 7 40	10 56	3 47	4 31 7 35	10 57	ev. 33	4 36 7 29	10 58				
29	S	23 13 31	4 25 7 40	11 20	4 31	4 31 7 35	11 22	1 17	4 36 7 29	11 23				
30	S	23 9 55	4 25 7 40	11 42	5 17	4 31 7 35	11 45	2 3	4 36 7 29	11 48				

Hints for Sixth Month, June.

<p>Stirring the soil and destroying weeds will be the chief labors of this month:— Weeds will now appear by myriads; Take them in hand early and easily; If delayed the labor will be great; In growing from an inch to a foot, a weed increases a thousand fold; Would you avoid an invading army? Then destroy on their first approach; One weed will sow seed for a thousand; Then never allow them to ripen; Stir the soil often among crops; Let the horse cultivator pass often;</p>	<p>Depend less on hoeing by hand; Hoes will work best if ground sharp; Sow corn in thick drills for fodder; It may occupy any vacant ground; Sow ruta bagas early in the month; Transplant early cabbages and celery; Attend daily to the curculio; Thin roots, and cultivate them well; Replant corn with only early sorts; Examine for borers in orchards; Destroy caterpillars on fruit trees; Provide beehives for swarming; Cultivate and mulch newly set trees.</p>
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MOON'S PHASES.	Boston.			N. York.			Wash'ton			Sun on Meridian or Noon Mark.			
	D	H	M	H	M	H	M	D	H	M	S		
NEW MOON,	7	9	28 e	9	16 e	9	4 e	1	12	3	31		
FIRST QUARTER,	14	10	4 e	9	52 e	9	40 e	9	12	4	54		
FULL MOON,	21	7	22 e	7	10 e	6	58 e	17	12	5	50		
THIRD QUARTER,	29	3	7 e	2	55 e	2	43 e	25	12	6	11		

DAY OF MONTH	DAY OF WEEK.	Sun's declens. N.	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, Mary'd, Virg'a, Kent'y, Miss'ri, and California.			
			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	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	
1	M	23 5 56	4 26 7 40	morn	6 8	4 31 7 35	morn	2 54	4 37 7 29	morn				
2	T	23 1 32	4 26 7 40	10	7 1	4 32 7 35	13	3 47	4 37 7 29	18				
3	W	22 56 44	4 27 7 40	41	7 54	4 32 7 35	46	4 40	4 38 7 29	51				
4	T	22 51 32	4 27 7 39	1 19	8 51	4 33 7 34	1 24	5 37	4 38 7 28	1 30				
5	F	22 45 56	4 23 7 39	2 4	9 46	4 33 7 31	2 10	6 32	4 39 7 28	2 16				
6	S	22 39 56	4 29 7 39	2 58	10 36	4 34 7 34	3 4	7 22	4 40 7 28	3 10				
7	S	22 33 32	4 29 7 39	sets	11 21	4 34 7 34	sets	8 7	4 40 7 23	sets				
8	M	22 26 45	4 30 7 38	8 5	morn	4 35 7 33	8 1	8 55	4 41 7 27	7 56				
9	T	22 19 35	4 31 7 38	8 37	9	4 36 7 33	8 34	9 39	4 42 7 27	8 31				
10	W	22 12 2	4 31 7 38	9 7	53	4 37 7 33	9 5	10 21	4 42 7 27	9 2				
11	T	22 4 6	4 32 7 37	9 34	1 35	4 38 7 32	9 33	11 3	4 43 7 26	9 33				
12	F	21 55 47	4 33 7 37	9 59	2 17	4 39 7 32	10 0	11 48	4 44 7 26	10 0				
13	S	21 47 6	4 34 7 36	10 27	3 2	4 39 7 31	10 29	morn	4 45 7 25	10 30				
14	S	21 38 2	4 35 7 36	11 5	3 51	4 40 7 31	11 8	37	4 45 7 25	11 11				
15	M	21 28 36	4 36 7 35	11 28	4 45	4 41 7 30	11 32	1 31	4 46 7 24	11 37				
16	T	21 18 49	4 37 7 34	morn	5 47	4 42 7 29	morn	2 33	4 47 7 21	morn				
17	W	21 8 40	4 38 7 34	9	6 56	4 43 7 29	14	3 42	4 48 7 23	19				
18	T	20 58 9	4 39 7 33	58	8 5	4 43 7 28	1 4	4 51	4 49 7 23	1 10				
19	F	20 47 17	4 39 7 32	1 57	9 13	4 44 7 27	2 3	5 59	4 50 7 22	2 9				
20	S	20 36 5	4 40 7 32	3 3	10 13	4 45 7 27	3 9	6 59	4 50 7 22	3 15				
21	S	20 24 31	4 41 7 31	rises	11 2	4 46 7 26	rises	7 48	4 51 7 21	rises				
22	M	20 12 37	4 42 7 30	7 47	11 49	4 47 7 25	7 44	8 35	4 52 7 20	7 41				
23	T	20 0 23	4 43 7 29	8 14	v 35	4 48 7 24	8 12	9 1	4 53 7 19	8 10				
24	W	19 47 48	4 44 7 28	8 37	1 12	4 49 7 23	8 36	9 58	4 53 7 18	8 35				
25	T	19 34 54	4 45 7 27	8 59	1 49	4 49 7 22	8 59	10 35	4 54 7 17	8 59				
26	F	19 21 40	4 46 7 26	9 22	2 25	4 50 7 22	9 23	11 11	4 55 7 16	9 24				
27	S	19 8 7	4 47 7 25	9 45	3 5	4 51 7 21	9 48	11 51	4 56 7 15	9 50				
28	S	18 54 15	4 48 7 24	10 10	3 47	4 52 7 20	10 14	v. 33	4 56 7 14	10 17				
29	M	18 40 4	4 49 7 23	10 40	4 34	4 53 7 19	10 45	1 20	4 57 7 14	10 49				
30	T	18 25 34	4 50 7 22	11 15	5 22	4 54 7 18	11 20	2 8	4 58 7 14	11 25				
31	W	18 10 47	4 51 7 21	11 56	6 22	4 55 7 17	morn	3 8	4 59 7 13	morn				

Hints for Seventh Month, July.

Continue to cultivate well, till arrested by the labors of haying and harvesting.	It will rapidly season and dry;
Continue the war against weeds;	Its durability will be at least doubled.
"A stitch in time will save" thousands;	Keep your orchards well cultivated.
Cut hay at the medium season;	Their growth will increase ten fold.
If too early it will lack substance;	Mulch newly transplanted cherries;
If too late it will be hard and woody;	It will save many from dying by drouth.
Cut wheat a week before dead ripe;	Cut the black-knot often from plums;
The grain will weigh more and be better;	Taken early it is a sure remedy.
The straw will be brighter and richer.	Thin fruit on over-bearing trees;
Cut timber by the middle of summer;	Bud standard pears, cherries and plums.
	Perform thumb-pruning on young trees.

MOON'S PHASES.	D	Boston.		N. York.		Wash'ton		Sun on Meridian or Noon Mark.			
		H	M	H	M	H	M	D	H	M	S
NEW MOON,	6	8	10 m	7	58 m	7	46 m	1	12	6	0
FIRST QUARTER,	13	2	32 m	2	20 m	2	8 m	9	12	5	11
FULL MOON,	20	7	7 m	6	55 m	6	43 m	17	12	3	46
THIRD QUARTER,	28	8	39 m	8	27 m	8	15 m	25	12	1	48

DAY OF MONTH.	DAY OF WEEK.	Sun's declens. N	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, Mary'ld, Virg'a, Kent'y, Miss'ri, and California.							
			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	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M
1	T	17 55 41	4 52 7	20 morn	7 21	4 56 7	16	2	4 7	5 07 12	8													
2	F	17 40 18	4 53 7	19 46	8 22	4 57 7	15	52	5 8	5 17 11	58													
3	S	17 24 37	4 54 7	18 1 42	9 21	4 58 7	14	1 48	6 7	5 27 10	1 54													
4	N	17 8 39	4 55 7	16 2 47	10 15	4 59 7	13	2 52	7 1	5 27 9	2 57													
5	M	16 52 25	4 56 7	15 3 54	11 1	5 07 12	3 59	7 47	5 37 8	4 3														
6	T	16 35 54	4 57 7	14 sets	11 45	5 17 11	sets	8 31	5 47 7	sets														
7	W	16 19 7	4 58 7	13 7 36	morn	5 27 10	7 35	9 17	5 57 6	7 34														
8	T	16 2 5	4 59 7	11 8 2	31	5 37 9	8 2	9 58	5 67 4	8 3														
9	F	15 44 47	5 07 10	8 30	1 12	5 47 8	8 31	10 39	5 77 3	8 33														
10	S	15 27 13	5 17 9	8 58	1 53	5 57 6	9 0	11 24	5 87 1	9 3														
11	N	15 9 26	5 27 8	9 31	2 38	5 67 5	9 34	morn	5 97 0	9 39														
12	M	14 51 23	5 37 7	10 8	3 31	5 77 3	10 13	17	5 106 59	10 19														
13	T	14 33 7	5 47 5	10 55	4 29	5 87 2	11 0	1 15	5 116 58	11 6														
14	W	14 14 37	5 57 4	11 51	5 34	5 97 0	11 57	2 20	5 126 57	morn														
15	T	13 55 53	5 67 2	morn	6 46	5 106 59	morn	3 32	5 136 55	3														
16	F	13 36 56	5 77 1	54	7 56	5 116 58	59	4 42	5 146 54	1 5														
17	S	13 17 46	5 87 0	2 1	9 1	5 126 57	2 6	5 47	5 156 53	2 11														
18	N	12 58 24	5 96 58	3 10	9 57	5 136 55	3 14	6 43	5 166 52	3 18														
19	M	12 38 49	5 106 56	4 18	10 43	5 146 54	4 21	7 29	5 176 50	4 24														
20	T	12 19 2	5 116 55	rises	11 21	5 156 53	rises	8 7	5 186 49	rises														
21	W	11 59 4	5 126 54	7 2	ev. 2	5 166 51	7 2	8 48	5 196 48	7 2														
22	T	11 38 54	5 146 52	7 25	40	5 176 50	7 26	9 26	5 206 46	7 27														
23	F	11 18 32	5 156 51	7 48	1 14	5 186 49	7 50	10 0	5 216 45	7 52														
24	S	10 58 0	5 166 49	8 13	1 50	5 196 47	8 16	10 36	5 216 43	8 19														
25	N	10 37 18	5 176 48	8 41	2 26	5 206 45	8 45	11 12	5 226 42	8 49														
26	M	10 16 25	5 186 46	9 12	3 9	5 216 43	9 17	11 55	5 236 41	9 23														
27	T	9 55 22	5 196 44	9 51	3 57	5 226 41	9 56	ev. 43	5 246 39	10 2														
28	W	9 34 10	5 206 42	10 37	4 49	5 236 40	10 43	1 35	5 256 38	10 49														
29	T	9 12 49	5 216 41	11 29	5 48	5 246 38	11 35	2 34	5 266 36	11 41														
30	F	8 51 18	5 226 39	morn	6 50	5 256 36	morn	3 30	5 276 34	morn														
31	S	8 29 39	5 236 37	29	7 5	5 266 34	35	4 39	5 286 33	40														

Hints for Eighth Month, August.

Finish up haying and harvesting.
 Cut oats before the straw is full yellow;
 It will waste less, and be better fodder.
 Secure the gleanings by a horse rake.
 Drag stubble while wet, to start weeds.
 Carefully house all harvest tools.
 Carefully secure the best seed wheat;
 Thoroughly winnow out the fowl seeds,
 Never sow any chaff.
 Allow no weeds to go to seed.
 Cut up briars to destroy them.

Keep roots thoroughly clear of weeds.
 Cut underdrains through wet lands.
 Drain muck swamps for the manure;
 Cut it out in large heaps for compost.
 Draw out all the manure for the wheat;
 Break it up well by harrowing;
 Let it be thoroughly mixed with the soil.
 See no weeds go to seed in the garden;
 Gather the seeds of vegetables.
 Allow swine to eat fallen apples;
 Their growth will rapidly increase.

MOON'S PHASES.		Boston.	N. York.	Baltimore	Sun on Meridian or Noon Mark.		
	D	H M	H M	H M	D	H M S	
NEW MOON,.....	4	5 29 e	5 17 e	5 5 e	1	11 59 44	
FIRST QUARTER,.....	11	8 32 m	8 20 m	8 8 m	9	11 57 6	
FULL MOON,.....	18	9 18 e	9 6 e	8 54 e	17	11 54 18	
THIRD QUARTER,.....	27	1 40 m	1 23 m	1 16 m	25	11 51 30	

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

Hints for Ninth Month, September.

Put land in the best order for wheat;
 Let it be well enriched and made mellow;
 Let the seed be sown with a drill;
 Destroy smut by brining the seed.
 Feed all fattening animals regularly.
 Let the apartments of swine be kept clean;
 Never keep them waiting for food;
 Never let them squeal off their flesh.
 Grub up bushes and briars;
 Cut up straggling thistles in pastures;
 Pull up scattered mulleins by roadsides.

Carefully select the best seed corn.
 Sow timothy for next season's crop.
 Drain bogs if the weather is dry.
 Harvest buckwheat as soon as it ripens.
 Soil and feed cows if pastures are short.
 Clean and ventilate cellars rainy days.
 Examine and repair all fences.
 See that root crops are cleaned of weeds.
 Clear meadows of all scattered stones.
 Pick pears before mature, for ripening.
 Pick all fine fruits carefully by hand.

MOON'S PHASES.	Boston.		N. York.		Wash'ton		Sun on Meridian or Noon Mark.			
	D	H M	H M	H M	H M	D	H M S	H M S	H M S	
NEW MOON,	4	2 13 m	2 1 m	1 49 m	1	11 49 32				
FIRST QUARTER,	10	5 25 e	5 13 e	5 1 e	9	11 47 12				
FULL MOON,	18	1 54 e	1 42 e	1 30 e	17	11 45 21				
THIRD QUARTER,	26	5 11 e	4 59 e	4 46 e	25	11 44 8				

DAY OF MONTH.	DAY OF WEEK.	Sun's declens. S.	CALENDAR For Boston, N. England, New-York State, Mi- chigan, Wiscon., Iowa and Oregon.				CALENDAR For N. York City, Phi- ladelphia, Conn., New Jersey, Penn'a, Ohio Indiana and Illinois.				CALENDAR For Washington, Mary'ld, Virg'a, Kent'y, Miss'ri, and California.			
			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	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	
1	T	3 21 58	5 56	5 43	2 43	9 15	5 56	5 43	2 45	6 1	5 56	5 44	2 47	
2	W	3 45 16	5 57	5 42	3 56	10 7	5 57	5 42	3 57	6 53	5 57	5 42	3 57	
3	T	4 8 31	5 58	5 40	5 11	10 54	5 58	5 41	5 10	7 40	5 58	5 41	5 9	
4	F	4 31 42	5 59	5 39	sets	11 37	5 59	5 39	sets	8 23	5 59	5 39	sets	
5	S	4 54 51	6 1	5 38	6 4	morn	6 0	5 37	6 8	9 15	6 0	5 38	6 12	
6	S	5 17 56	6 2	5 36	6 37	29	6 1	5 36	6 42	10 6	6 1	5 37	6 57	
7	M	5 40 57	6 3	5 34	7 39	1 20	6 2	5 34	7 44	10 57	6 2	5 35	7 50	
8	T	6 3 53	6 4	5 33	8 39	2 11	6 3	5 33	8 45	11 56	6 3	5 34	8 50	
9	W	6 26 44	6 5	5 31	9 45	3 10	6 4	5 31	9 51	morn	6 4	5 32	9 56	
10	T	6 49 31	6 6	5 29	10 54	4 11	6 5	5 29	10 58	57	6 5	5 31	11 3	
11	F	7 12 11	6 8	5 28	morn	5 13	6 6	5 28	morn	1 59	6 6	5 30	morn	
12	S	7 34 46	6 9	5 26	2	6 16	6 7	5 26	6	3 2	6 7	5 29	10	
13	S	7 57 14	6 10	5 24	1 9	7 14	6 8	5 25	1 11	4 0	6 8	5 27	1 14	
14	M	8 19 36	6 11	5 22	2 12	8 5	6 9	5 23	2 13	4 51	6 9	5 25	2 15	
15	T	8 41 50	6 12	5 20	3 14	8 54	6 10	5 22	3 15	5 40	6 10	5 24	3 15	
16	W	9 3 57	6 13	5 19	4 15	9 39	6 11	5 20	4 15	6 25	6 11	5 22	4 13	
17	T	9 25 56	6 14	5 17	5 15	10 19	6 12	5 19	5 13	7 5	6 12	5 20	5 11	
18	F	9 47 47	6 15	5 16	rises	10 56	6 13	5 17	rises	7 42	6 13	5 19	rises	
19	S	10 9 30	6 17	5 14	5 15	11 30	6 14	5 16	5 19	8 16	6 14	5 17	5 24	
20	S	10 31 4	6 18	5 13	5 50	ev. 12	6 15	5 15	5 55	8 58	6 15	5 16	6 1	
21	M	10 52 28	6 19	5 11	6 30	52	6 16	5 13	6 35	9 38	6 16	5 15	6 41	
22	T	11 13 43	6 21	5 10	7 16	1 34	6 18	5 12	7 22	10 20	6 17	5 14	7 28	
23	W	11 34 47	6 22	5 7	8 9	2 16	6 19	5 10	8 14	11 2	6 18	5 13	8 20	
24	T	11 55 42	6 23	5 8	9 7	3 4	6 20	5 8	9 12	11 50	6 19	5 12	9 17	
25	F	12 16 25	6 24	5 5	10 9	3 55	6 21	5 7	10 14	ev. 41	6 20	5 10	10 18	
26	S	12 36 57	6 25	5 4	11 15	4 49	6 22	5 5	11 19	1 35	6 21	5 9	11 22	
27	S	12 57 18	6 27	5 2	morn	5 46	6 24	5 4	morn	2 32	6 22	5 7	morn	
28	M	13 17 26	6 28	5 1	22	6 43	6 25	5 3	25	3 29	6 23	5 5	27	
29	T	13 37 22	6 29	5 0	1 32	7 41	6 26	5 2	1 33	4 27	6 24	5 4	1 34	
30	W	13 57 5	6 31	4 58	2 44	8 40	6 27	5 0	2 44	5 26	6 25	5 3	2 44	
31	T	14 16 35	6 32	4 57	3 59	9 34	6 28	4 59	3 58	6 21	6 26	5 2	3 56	

Hints for Tenth Month, October.

Finish harvesting autumn crops.
 Let potatoes be always put away dry;
 They will be less affected by rot;
 Keep them ventilated and cool.
 Ventilate all roots buried in heaps.
 Carefully hand-pick winter apples;
 Handle them about as carefully as eggs;
 Avoid bruising the trees by ladders.
 Give care to fattening animals;
 Feed regularly, and just enough;
 Avoid waste, dirt, and surfeit.

Paint buildings and out-houses;
 The paint will now harden and last;
 The sun will not dry it to powder.
 Prepare new orchard ground for spring;
 Drain, subsoil, and plow deep;
 Work in compost or old manure.
 Plant hardy trees only, in autumn;
 Protect them securely against winds.
 Gather in all farming tools;
 Let them be thoroughly cleaned;
 Pack them all snugly in their places.

MOON'S PHASES.	D	Boston.		N. York.		Baltimore		Sun on Meridian or Noon Mark.			
		H	M	H	M	H	M	D	H	M	S
NEW MOON,	2	11	20 m	11	8 m	10	56 m	1	11	43	42
FIRST QUARTER,	9	6	0 m	5	48 m	5	36 m	9	11	44	1
FULL MOON,	17	8	23 m	8	11 m	7	59 m	17	11	45	13
THIRD QUARTER,	25	6	23 m	6	11 m	5	59 m	25	11	47	18

DAY OF MONTH	DAY OF WEEK	Sun's declina. S.	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, Mary'd, Virg'a, Kent'y, Miss'ri, and California.			
			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	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	F	14 35 51	6 33	4 55	5 16	10 28	6 29	4 59	5 13	7 14	6 27	5 1	5 10	
2	S	14 54 53	6 34	4 54	sets	11 18	6 30	4 58	sets	8 4	6 28	5 0	sets	
3	S	15 13 40	6 35	4 53	5 24	morn	6 31	4 57	5 29	8 59	6 29	4 59	5 35	
4	M	15 32 12	6 36	4 52	6 22	13	6 32	4 56	6 28	9 55	6 30	4 58	6 34	
5	T	15 50 29	6 37	4 50	7 28	1 9	6 33	4 55	7 33	10 46	6 31	4 57	7 39	
6	W	16 8 30	6 39	4 49	8 39	2 0	6 35	4 53	8 44	11 42	6 32	4 56	8 49	
7	T	16 26 14	6 40	4 48	9 50	2 56	6 36	4 52	9 54	morn	6 33	4 55	9 58	
8	F	16 43 42	6 41	4 47	10 58	3 52	6 38	4 50	11 1	38	6 35	4 54	11 4	
9	S	17 0 53	6 43	4 45	morn	4 46	6 39	4 49	morn	1 32	6 36	4 53	morn	
10	S	17 17 46	6 44	4 44	5	5 40	6 40	4 48	7	2 26	6 37	4 52	9	
11	M	17 34 21	6 45	4 43	1 7	6 32	6 41	4 47	1 7	3 18	6 39	4 51	1 9	
12	T	17 50 38	6 47	4 42	2 9	7 24	6 43	4 46	2 8	4 10	6 40	4 50	2 8	
13	W	18 6 37	6 48	4 41	3 9	8 11	6 44	4 45	3 8	4 57	6 41	4 49	3 6	
14	T	18 22 16	6 49	4 40	4 8	8 59	6 45	4 44	4 5	5 45	6 42	4 48	4 3	
15	F	18 37 36	6 51	4 39	5 7	9 44	6 47	4 43	5 4	6 30	6 43	4 47	5 0	
16	S	18 52 37	6 52	4 38	6 7	10 26	6 48	4 42	6 2	7 12	6 44	4 46	5 58	
17	S	19 7 17	6 53	4 37	rises	11 5	6 49	4 41	rises	7 51	6 45	4 46	rises	
18	M	19 21 36	6 54	4 36	5 14	11 47	6 50	4 40	5 20	8 33	6 46	4 45	5 26	
19	T	19 35 35	6 55	4 36	6 4	ev. 33	6 51	4 40	6 10	9 19	6 47	4 44	6 16	
20	W	19 49 12	6 56	4 35	7 1	1 14	6 52	4 39	7 6	10 0	6 48	4 44	7 12	
21	T	20 2 28	6 58	4 34	8 2	1 56	6 54	4 38	8 6	10 42	6 49	4 43	8 11	
22	F	20 15 22	6 59	4 33	9 6	2 40	6 55	4 38	9 9	11 26	6 50	4 42	9 13	
23	S	20 27 53	7 0	4 33	10 11	3 29	6 56	4 37	10 14	ev. 15	6 51	4 42	10 16	
24	S	20 40 2	7 1	4 32	11 18	4 18	6 57	4 36	11 19	1 4	6 52	4 41	11 21	
25	M	20 51 48	7 3	4 31	morn	5 10	6 58	4 36	morn	1 56	6 53	4 41	morn	
26	T	21 3 10	7 4	4 31	26	6 6	6 59	4 35	26	2 56	6 54	4 41	26	
27	W	21 14 8	7 5	4 30	1 36	7 4	7 0	4 34	1 35	3 50	6 55	4 41	1 34	
28	T	21 24 43	7 6	4 29	2 48	8 5	7 1	4 34	2 46	4 51	6 56	4 40	2 44	
29	F	21 34 53	7 7	4 29	4 6	9 7	7 2	4 33	4 3	5 53	6 57	4 40	3 59	
30	S	21 44 38	7 9	4 29	5 25	10 8	7 4	4 33	5 20	6 54	6 58	4 40	5 16	

Hints for Eleventh Month, November.

This month closes up the autumn work, and prepares for the winter.
 Hurry up with harvesting roots;
 Speedily secure ruta bagas and beets;
 Carrots should follow closely after.
 Transplant hardy fruit trees;
 Stake them up against the wind;
 Shelter them if in windy positions.
 Trees removed may be safely heeled in;
 Bury the roots and most of the tops;
 Pack the earth solid among the roots.
 Bank smoothly a foot about young trees;

It will securely protect them from mice.
 Lay down raspberries and grapes;
 Cover with two inches of earth;
 The crop will be certain, and better.
 Mulch all tender trees with manure;
 But avoid inviting the mice.
 Cover asparagus and strawberry beds.
 Cut tender grafts for next spring;
 Pack them in damp moss or sand.
 Prepare ample shelter for cattle;
 Have all in good order for winter.
 Gather leaves for compost and bedding.

MOON'S PHASES.		Boston.	N. York.	Wash'ton	Sun on Meridian or Noon Mark.		
	D	H M	H M	H M	D	H M S	
NEW MOON,.....	1	9 33 e	9 21 e	9 9 e	1	11 49 24	
FIRST QUARTER,.....	8	10 26 e	10 14 e	10 2 e	9	11 52 46	
FULL MOON,.....	17	3 24 m	3 12 m	3 0 m	17	11 56 34	
THIRD QUARTER,.....	24	5 8 e	4 56 e	4 44 e	25	12 0 33	
NEW MOON,.....	31	9 10 m	8 58 m	8 46 m			

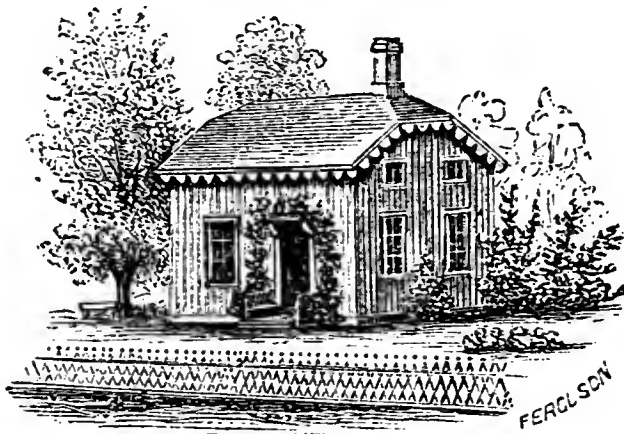
DAY OF MONTH.	DAY OF WEEK.	Sun's declens. S.	CALENDAR For Boston, N. England, New-York State, Michigan, Wiscon., Iowa and Oregon.				CALENDAR For N. York City, Philadelphia, Conn., New Jersey, Penn'a, Ohio, Indiana and Illinois.				CALENDAR For Washington, Mary'ld, Virg'a, Kent'y, Miss'ri, and California.			
			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	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	
1	S	21 53 58	7 10 4	29 sets	11 3	7 5 4	34 e's	7 49	6 59	4 40	sets			
2	M	22 2 53	7 11 4	29 5 5	12 0	7 6 4	34 5 10	8 46	7 0 4	39 5 16				
3	T	22 11 23	7 12 4	28 6 14	worn	7 7 4	34 6 19	9 41	7 1 4	39 6 25				
4	W	22 19 27	7 13 4	28 7 28	" 55	7 8 4	33 7 33	10 31	7 2 4	39 7 37				
5	T	22 27 4	7 14 4	28 8 21	1 45	7 9 4	33 8 25	11 18	7 3 4	38 8 28				
6	F	22 34 15	7 15 4	28 9 50	2 32	7 10 4	33 9 52	worn	7 4 4	38 9 54				
7	S	22 41 0	7 16 4	28 10 56	3 22	7 11 4	33 10 57	8	7 5 4	38 10 58				
8	S	22 47 18	7 17 4	28 11 59	4 9	7 12 4	33 11 59	55	7 6 4	38 11 59				
9	M	22 53 9	7 18 4	28 worn	4 58	7 13 4	33 worn	1 44	7 7 4	38 worn				
10	T	22 58 33	7 19 4	28 1 0	5 47	7 14 4	33 59	2 33	7 8 4	38 59				
11	W	23 3 30	7 20 4	28 2 1	6 36	7 15 4	33 1 58	3 22	7 9 4	38 1 53				
12	T	23 7 59	7 21 4	28 2 59	7 29	7 15 4	33 2 56	4 15	7 10 4	39 2 53				
13	F	23 12 0	7 22 4	28 3 58	8 17	7 16 4	33 3 54	5 5	7 10 4	39 3 50				
14	S	23 15 34	7 22 4	28 4 57	9 8	7 17 4	34 4 52	5 54	7 11 4	39 4 47				
15	S	23 18 40	7 23 4	28 5 55	9 58	7 17 4	34 5 49	6 44	7 11 4	39 5 44				
16	M	23 21 18	7 24 4	28 rises	10 44	7 18 4	34 rises	7 30	7 12 4	39 rises				
17	T	23 23 28	7 24 4	29 4 55	11 27	7 18 4	34 5 0	8 13	7 12 4	40 5 6				
18	W	23 25 10	7 25 4	29 5 55	ev. 12	7 19 4	35 6 0	8 58	7 13 4	40 6 5				
19	T	23 26 24	7 25 4	29 6 58	55	7 19 4	35 7 2	9 41	7 13 4	40 7 6				
20	F	23 27 10	7 26 4	30 8 4	1 36	7 20 4	36 8 7	10 23	7 14 4	41 8 10				
21	S	23 27 27	7 26 4	30 9 9	2 17	7 20 4	36 9 11	11 3	7 14 4	41 9 13				
22	S	23 27 15	7 27 4	31 10 16	3 1	7 21 4	37 10 17	11 47	7 15 4	42 10 18				
23	M	23 26 36	7 27 4	31 11 23	3 47	7 21 4	37 11 23	ev. 33	7 15 4	42 11 22				
24	T	23 25 28	7 28 4	32 worn	4 38	7 22 4	38 worn	1 24	7 16 4	43 worn				
25	W	23 23 52	7 28 4	32 33	5 32	7 22 4	38 31	2 18	7 16 4	43 29				
26	T	23 21 47	7 29 4	33 1 44	6 34	7 23 4	39 1 43	3 20	7 17 4	44 1 40				
27	F	23 19 14	7 29 4	34 3 0	7 41	7 23 4	39 2 56	4 7	7 17 4	45 2 52				
28	S	23 16 14	7 29 4	34 4 16	8 49	7 24 4	4 4 11	5 35	7 18 4	45 4 6				
29	S	23 12 45	7 29 4	35 5 29	9 55	7 24 4	40 5 23	6 41	7 18 4	46 5 18				
30	M	23 8 48	7 30 4	36 6 35	10 53	7 25 4	41 6 29	7 38	7 19 4	47 6 23				
31	T	23 4 23	7 30 4	37 sets	11 45	7 25 4	42 sets	8 31	7 19 4	48 sets				

Hints for Twelfth Month, December.

Prepare ample shelter for animals;
 Protect them against beating winds;
 Keep them dry and well littered;
 Avoid the exposure of wet;
 Avoid the discomfort of dirt.
 See that hay is not wasted under foot;
 Thrift and filth are eternal opponents.
 Let stock be regularly salted;
 Give sheep good shelter, hay and roots.
 Balance accounts for the season;

Calculate the amount of fodder needed.
 Lay plans for the future;
 Arrange the farm for regular rotation;
 Arrange a plan of systematic labor;
 Study the success of other farmers.
 By taking the best Agricultural Paper,
 Provide good fuel for the kitchen;
 Remember that the fruits of bad fires,
 Are, "smoky kitchen, gloomy face, eyes red,
 Work deranged, meals delayed, sour bread."

THE
ILLUSTRATED ANNUAL REGISTER
OF
RURAL AFFAIRS.



WORKINGMEN'S COTTAGES.



THE INQUIRY has been often anxiously made, why so many of our young men leave the farm for other pursuits, and why farmers' daughters so frequently prefer to marry men of other professions. There is no question that the want of domestic seclusion and comfort, occasioned by the apparent necessity of boarding hired men, renders the farmer's home unnecessarily repulsive to young people. Girls, especially, must regard with no little dread, a prospective life of drudgery in providing three meals a day for ten or twenty hungry, hard-working, dusty men, and in furnishing room for them for all days of the week. They know very well from observation that the wives of mechanics and shopkeepers often preserve the bloom and elasticity of youth, long after farmers' wives of the same age have become pale, wrinkled and bent, under the accumulated labors of kitchen life.

We have repeatedly urged on former occasions, the true remedy, as we regard it, for these very serious evils—namely, the Erection of Cottages, for the occupancy of the workmen who do the labors of the farm. Having actually tried the experiment for twenty years, we earnestly commend it to others; and we are sure that if farmers' daughters, before they give an affirmative answer to the young men who apply for their heart and hand, would require the erection of such cottages as a condition of matrimonial engagement, a reformation would rapidly take place.

There are many advantages in hiring men with families. They are generally

more steady, reliable and uniform. They will usually take a portion of their wages in provisions for their family supplies. Their wives, having comparatively little to do, can provide their meals at less cost than the same can be done by the hired "help" of the farmer, and consequently such laborers generally charge but little more for their own board than the actual cost of the provisions.

Laborers' cottages differ essentially in some respects from larger dwellings. A leading object is to have them small, compact and cheap. The farmer who erects several, must study economy in construction. The rooms must be few, and no space allowed for waste or ornament. In sheltered positions they need not have a front entry. They should, like all other houses, have a door in the rear; and the common use of this obviates the necessity of using often the front door, especially in winter. All should have a cellar, where the ground will admit it, not only for the economy of keeping roots, provisions, &c., but because a cellar is the cheapest apartment, costing only the digging and stone wall. They should all have room enough above stairs for sleeping apartments, and for this reason the height above the second floor to the eaves should be three or four feet. The roof being rather steep, will give more space, and be less liable to leakage.

The bed-room should not open into the entry where there happens to be any, but into the living-room, that it may become readily warmed in winter.

DESIGN I.

This Design is for a cottage of the smallest size, built where a cellar cannot be excavated, or where it would not be an object sought. The deficiency is in part supplied by a spacious pantry. A perspective view is given on the previous page, forming the vignette of this article. The plan (fig. 2,) nearly explains itself. A good closet, opening into the bed-room, is made under the stairs. Two rooms may be made above stairs, by running a board partition across the middle, and passing through one to enter the other.

This cottage is covered with vertical plank, matched and battened, and lathed within on corresponding battens. The only timbers are the sills and plates. In exposed situations, where more stability would be required to resist the force of wind, pieces of plank about two by three or two by four inches should be made to constitute the inner battens. This is effected by erecting these first, or before the siding is nailed on, by setting them up perpendicularly on the top of the sill, nailing them to the sill, and fastening them at the top by laying an inch board flat upon their upper ends, and nailing every one to its place through this board. The joists for both floors are simply nailed to these vertical plank, the lower joists resting on the sills, and the upper resting on a board extending around inside and let into these plank. This will make a solid and strong frame with little material and a small amount of labor.

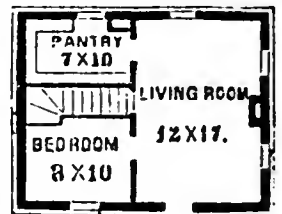


Fig. 2—PLAN.

If planed and painted, this cottage, which is only 18 by 23 feet, would cost about two hundred and fifty dollars; if made of rough boards outside and whitewashed, about two hundred dollars—varying, however, more or less, according to the price of lumber, labor, and other causes.

DESIGN II.

This is a small but complete cottage of its kind, (fig. 3.) It has a front entry as a protection from cold winds, and for proper seclusion; a small closet on the left of this entry; a bed-room and living-room, the latter with two closets; and a wood-house in the rear, which may be built with the house or added afterwards. A portion of this wood-house may



Fig. 3—PERSPECTIVE VIEW.

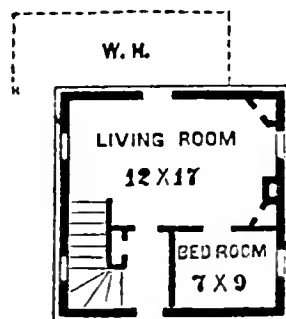


Fig. 4—PLAN.

be fitted up as a sort of summer kitchen, to which the cooking stove may be removed during dog-days. The cellar beneath is reached by a flight of stairs from the living-room, under the entry stairs. The bedroom on the principal floor may open into the entry, if desired; but it will be more comfortable in cold weather if immediately connected with the living-room and receiving of its warmth. The stairs to the chamber, land under the highest part of the roof, consequently there is no danger of striking one's head against the rafters. There are two rooms and a spacious closet above.

There being no windows on the side of the entrance, it is intended that this side be mostly covered with prairie roses or other running plants, kept several inches or a foot from the outside boards by means of a frame or lattice-work trellis, made for their support.

This cottage is nearly square, or 18 by 20 feet outside, affording an economical enclosure of space; and the roof having considerable ascent, furnishes plenty of chamber room. The ceiling is $7\frac{1}{2}$ feet high, and the eaves about 3 feet above it. It may be built with a cellar under the whole, and with a rough board wood-house, for about three hundred dollars.

It should be observed that the window-hoods for this and the other cottages, should not be made of inch boards as is sometimes done, which gives them a flimsy appearance, but of plank at least two inches thick, and better if three inches.

DESIGN III.

This is intended as one of the better class of workingmen's cottages, or for a small and cheap farm-house, (fig. 5.) It is well adapted for a young farmer beginning business, and is especially intended for future enlargement, as may be necessary.

There are three rooms on the principal floor (fig. 6)—the larger one to answer the general purposes of living-room or kitchen, dining-room and parlor. Of the two bed-rooms adjoining, the front one is intended to be neatly fitted up with carpet and a few chairs, for the mistress and one or two of her female friends to occupy when on a visit, if desired.

The stairs being placed under the eaves or lower part of the chamber, (fig. 7,) do not encroach upon the space above needed for rooms—and a dormer window being placed in the rear, over the landing, serves to light the upper entry, and to allow room for the head on ascending. There are three good bedrooms above stairs, each amply supplied with closet room. If desired, a small closet at the head of the stairs, accessible from the entry, may be taken from the closet in the smaller room.

No front entry is provided for this house. If the situation is a sheltered one, it will scarcely be needed with the cover afforded by the broad hood over the door; but if it should become necessary at any future time

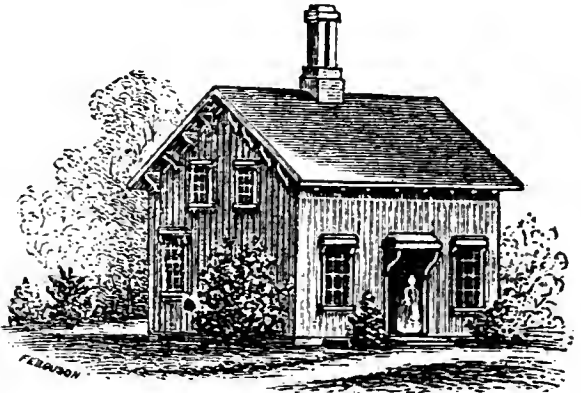


Fig. 5—PERSPECTIVE VIEW.

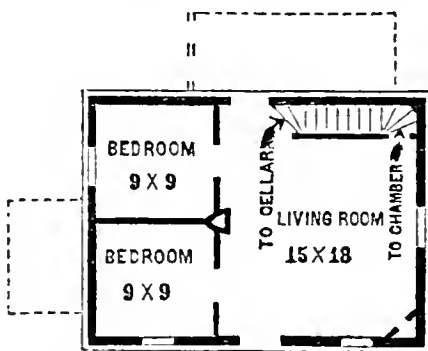


Fig. 6—PRINCIPAL FLOOR.

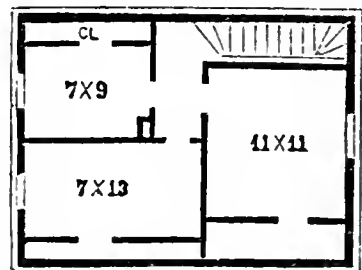


Fig. 7—CHAMBER.

as the house may be enlarged, it may be obtained by adding a box portico in front.

This house may be enlarged by adding a wood-house in the rear, as indicated by the dotted lines, or both wood-house and kitchen; at the same time running the stair-case partition across as far as the rear bed-room, and inserting a door, so as to make a rear entry between the new kitchen and the living-room, from which there is access to the cellar. Another bed-room may be added on the left end of the house, at the dot-

ted lines, and the present front bed-room converted into a library, office or study room.

The cost of this house, built of wood, the lower rooms eight feet high, the upper four feet at the eaves, and with a good cellar, would vary from five to six hundred and fifty dollars; and the additions of new kitchen, bed-room and wood-house, would be about two hundred and fifty or three hundred more.

DESIGN IV.

A Design is here presented of one of the larger and more complete workmen's cottages, or which may be built as a cheap farm-house for a small family, where some taste of exterior is an object, (fig. 8.) The points in

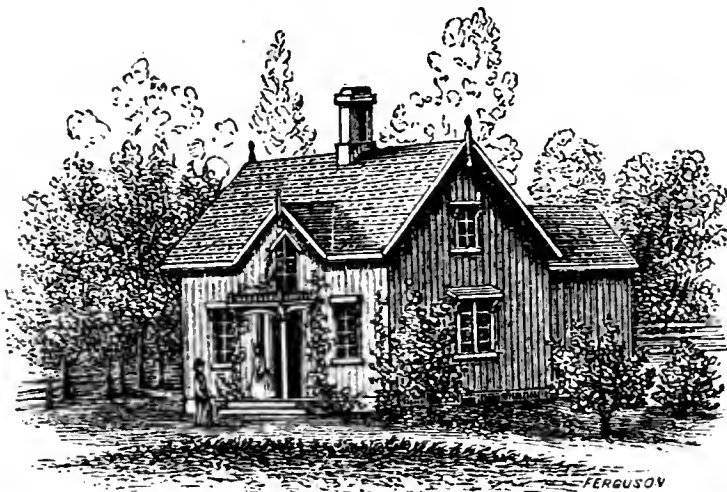


Fig. 8—PERSPECTIVE VIEW.

which it excels some of the larger plans already given, are, the entries for both front and rear door, a wing furnishing pantry and wood-house, and a portico, which is surmounted with a small balcony, entered from the upper passage through the glass door. There is also a large amount of closet room up stairs, in which may be neatly packed away much of the material that is commonly thrown promiscuously

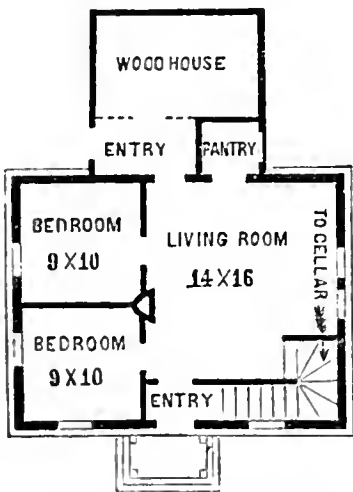


Fig. 9—PRINCIPAL FLOOR.

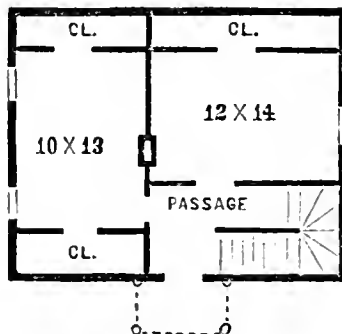


Fig. 10—CHAMBER.

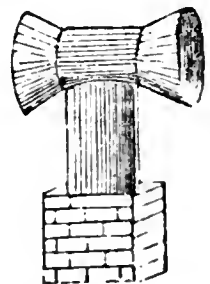


Fig. 11—CHIMNEY.

in garrets; while the rougher articles of this class may go to the wood-house chamber. By making the wood-house a little longer, a greater length may

be given to the pantry, and the back entry may then be made large enough to receive the cooking stove in the heat of mid-summer, the smoke being carried up into a brick chimney built for this purpose. This chimney need be carried up to but a moderate height above the roof if surmounted with the cap represented by fig. 11.

This design is remarkable for its compactness of arrangement. The front entry is smaller than would be practicable, but for the room given in the stairway. The lower portion of the stairs being under the lowest part of the roof, do not occupy valuable chamber room. The same economy of space is observed in the places assigned to the upper closets. The single chimney may be made to warm every room. The front bed-room may be made, if desired, to open into the front entry, instead of into the living-room. It will be an advantage which many would deem valuable, that the two rooms above mentioned, may open either into the living-room or out of doors, by the front and rear entry.

The cost of this house well built of wood, with a cellar under the whole, would be six or seven hundred dollars—but by finer material, slight enlargement of the rooms, and better finish, it would cost a thousand.

DESIGN V.

The accompanying Design of a neat and ornamental laborer's cottage, was furnished by LAWRENCE B. VALK, architect, New-York. The views and plans supply of themselves all the necessary information in relation to it,

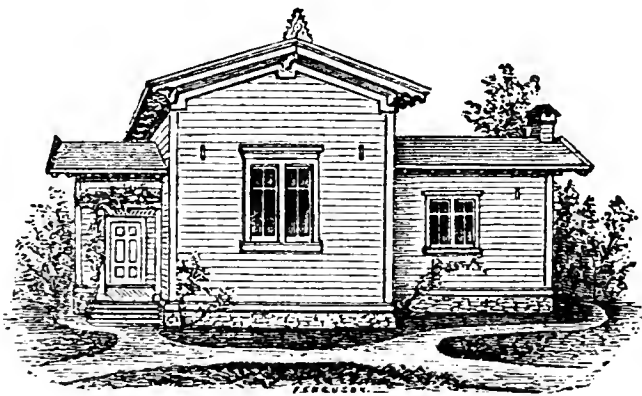


Fig. 12—PERSPECTIVE VIEW.

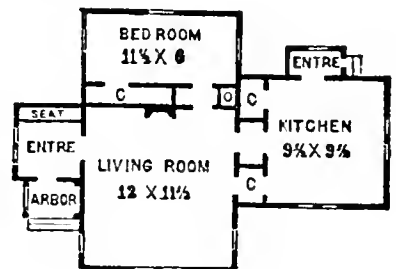


Fig. 13—PLAN.

being but one story. He assures us it was actually erected for three hundred and sixty dollars for the owner in New-York.

DESIGN VI.

A correspondent* has forwarded a plan for a workingman's cottage or cheap house, (fig. 14,) which he thinks a "fair" one for the size and amount of room given. This plan is given in fig. 15 for the purpose of showing how easily several important improvements may often be made in such plans. Fig. 16 represents the same as improved by a single alteration, without adding to the cost, but securing several advantages. The alteration consists merely

* J. M. WADE, of Rhode Island.

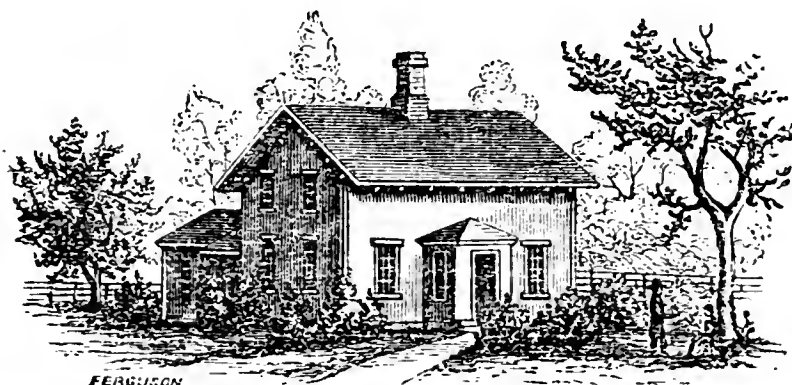


Fig. 14—PERSPECTIVE VIEW.

in removing the stairs from the corner to a more central part of the house, as will be perceived by comparing the two plans. In the original design, the stairs must be necessarily very steep, from the short space they occupy—only eight feet in length in the sketch furnished by our correspondent; while in the improved design they may be ten feet long without crowding. The improvement accomplishes the following advantages:

1. In ascending to the chamber, there is no danger of striking the head against the low roof of

the story-and-half house near the caves, the landing being under the highest part.

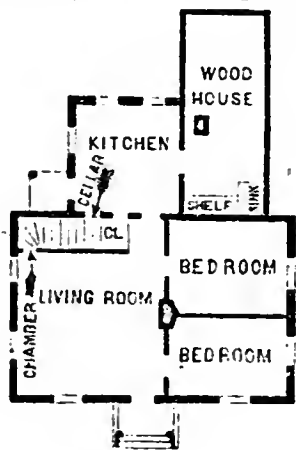


Fig. 15—ORIGINAL PLAN.

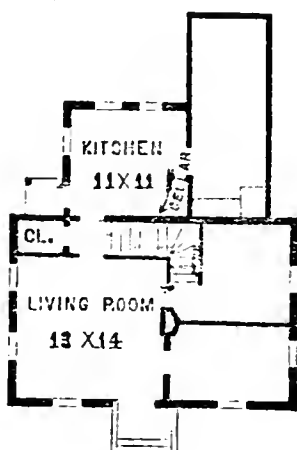


Fig. 16—PLAN AS IMPROVED.

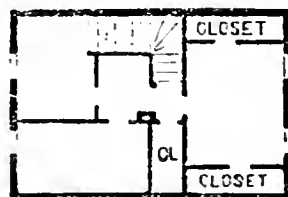


Fig. 17—CHAMBER.

2. By landing near the middle of the chamber, a small entry is easily made from which every room is entered, without passing through another. A closet is also furnished at the head of the stairs for bedding, &c.

3. The entrance below is also nearer the middle of the cellar, and not at one remote corner.

4. The closet or pantry between the kitchen and dining-room is larger, and is more convenient.

5. The entrance to the stairs is more convenient, especially from the kitchen, as it is not necessary to pass through the living-room for this purpose.

5. The entrance to the stairs is more convenient, especially from the kitchen, as it is not necessary to pass through the living-room for this purpose.

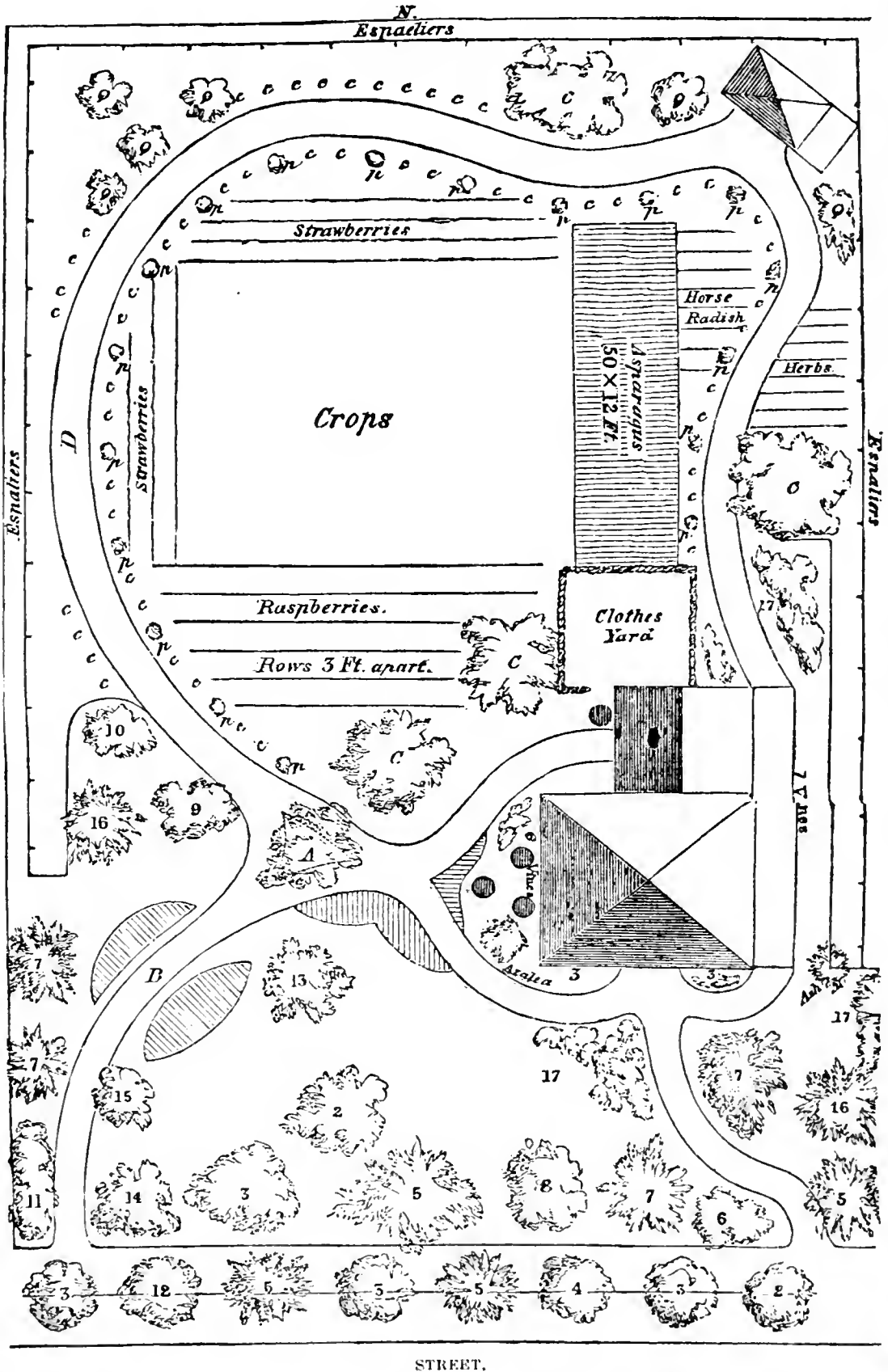


Fig. 1—VILLAGE GARDEN OF ABOUT HALF AN ACRE.

LAYING OUT GROUNDS.

THE many different sizes, forms, and other circumstances, of the Grounds which surround dwellings, render a large number of plans desirable for those who would obtain suggestions, and adopt such as are best suited to their own places. Hence we deem it important to continue to give such plans, and with this view present a few to the readers of the REGISTER on the present occasion.

The first (on opposite page,) is one copied from *Copeland's Country Life*,* a work abounding in fine illustrations on Horticulture and Landscape Gardening, and containing valuable matter on these subjects. It represents a village garden of about half an acre, and is adapted to either a laborer's cottage or to a more costly residence. The work being all performed by hand, every advantage is taken by extending the walk around the whole grounds, to give it variety and extent in appearance.

The lot is supposed to be 125 by 175 feet, or about $7\frac{1}{2}$ by $10\frac{1}{2}$ rods. The house may be about 25 by 35 feet—the walks 6 to 8 feet wide. The reader will observe that the too common and very stiff mode, of laying a straight walk at right angles to the road and dwelling, is entirely avoided, and graceful curves introduced, giving more seclusion, and apparent breadth to the front grounds. The house is placed towards one side, to prevent cutting up and abridging the plan.

This design will not need a minute explanation. The trees next the street are of different sorts, to relieve the stiffness which would result from a row of one kind. The rear walk passes around the whole of the kitchen garden, which is partly hid by the dwarf fruit trees which line the walk. The building in the rear may be a hen and pig house. For further details for the management and keeping of the grounds, the reader is referred to the article "Ornamental Planting," in the last number of the REGISTER.

A western correspondent furnishes the following plan of a residence and its surrounding grounds, (fig. 2, on next page,) which, on being laid out and planted, are found too stiff to prove satisfactory, and requests a better plan. The country around the house is rolling prairie. The house is situated on an eminence commanding a view of the town a mile distant, towards *a*. The scenery is quite similar in all directions. The trees shown in this plan are mostly newly planted and may be removed.

In designing a plan, there are many circumstances to be taken into consideration, all more or less modifying the result. The undulations of the surface must be known in order to fix properly the position of the roads and walks. The amount of labor to be expended in keeping the grounds in order,

* Published by J. P. Jewett & Co., Boston.

is another important consideration. If broad spreading trees only are to occupy the lawn, and the grass is to be kept short by sheep, the expense will not be a hundredth part of the amount required to mow the lawn weekly, so as to keep it like velvet, to dress off the walks with mathematical precision, and to keep trees, shrubs, and brilliant flower beds in the turf, in the highest state of culture and finish. It is not supposed that any one asking us for information on this

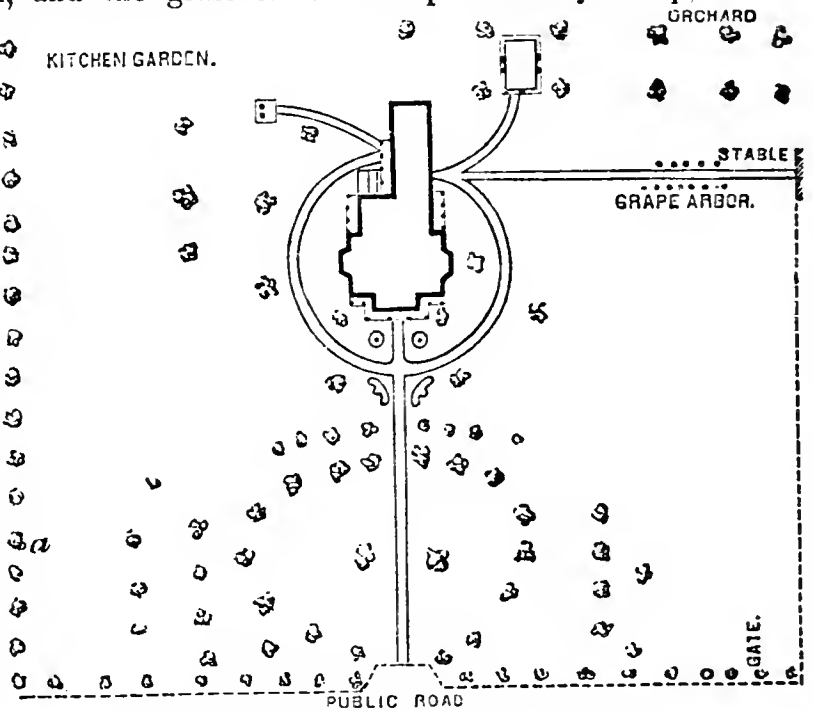


Fig. 2—STIFF AND UNIMPROVED PLAN OF GROUNDS.

subject, would adopt the slovenly mode of allowing the grass to grow up for hay, to be cut but once a year, on a space like this of but two or three acres. The middle course is doubtless intended—to plant only the more thrifty growing trees, and hardy and vigorous shrubs near the dwelling, and to keep the grass mowed frequently—say once a week in early summer, and once in two or three weeks later in the season.

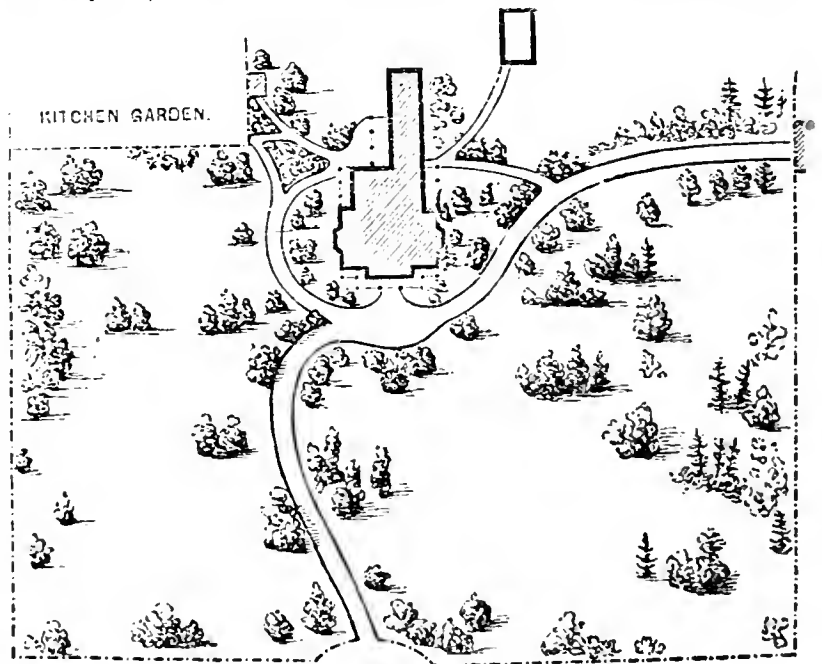


Fig. 3—THE SAME IMPROVED.

Fig. 3 exhibits the plan proposed as an improvement. We have made it as simple as practicable—laying down but a single carriage road, and a few short walks. A more elaborate plan, and of more costly execution, would have included various walks over the

lawn, now intended to be merely traversed in the short grass. Most of the walks in immediate proximity to the house, are such as utility demands, and they are skirted with the smaller shrubbery; or, if desired, with circular or oval flower beds. But the latter must be kept in the neatest trim, and occupied with continued bloomers, or they will appear worse than none. The grape arbor on the road to the stable is omitted, as being unsuited at that place, where the vines could not be properly cultivated for successful growth.

In a minute working plan, the position of every tree and its kind, would be given. This reduced figure precludes such minuteness of detail—the engraving will show the style of planting; selecting the trees and adjusting their position, will afford an endless exercise of taste and skill. Some hints will be found in the REGISTER for 1860, pages 250, 251, &c. The mode of transferring the plan from paper to the ground, is given on page 245 of the same work.

Laying out a Western Farm.

A Kansas correspondent sends the accompanying plan (fig. 4) of his farm as now existing, with a request for a plan for lane, fields, &c., admitting a good rotation. It contains 160 acres—all slopes towards the ravine. A side-hill barn is proposed. The ravine has a running stream, and cannot be plowed. It is flanked with a young growth of timber, intended to preserve. A timber field is desired at the fork.

In figure 5 we have the same farm laid out in fields. The garden lies above and to the right of the house—if the land and view are suitable, it is

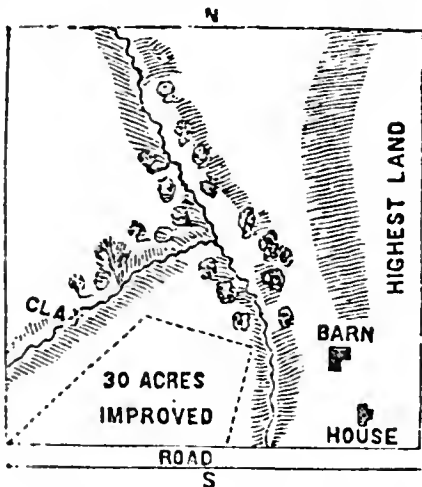


Fig. 4.

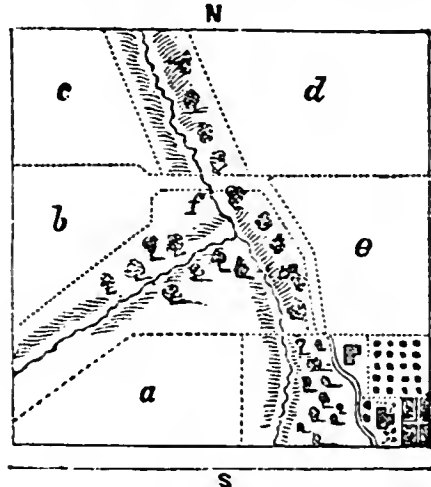


Fig. 5.

proposed to plant shade trees, &c., on the slope below, which may also be used as a horse and sheep pasture. The orchard is above the barn. The field marked *a* is entered from the public road—all the others through the lane, as represented. At *f* there is a bridge—*b* and *c* may be as one field if desired. Less land may be left along the ravine, if suitable. The fences between *c* and *d*, and between *a* and *b*, may be built only on one side of the ravine, if cattle could be excluded from the timber land. The nearer part

of field *e* might be divided off for a calf or hog pasture, if desired, by a fence running east and west. The entrance road to the house may also pass around it to the right, as convenience may require.

It will be observed that the lane or farm road is kept nearly on a level, a most important requisite, although the fields, *d* and *e*, entered from it, lie on the high ridge.

PRUNING AND TRAINING ROSES.

THE ROSE, to continue in successful bloom year after year, must be kept pruned, and be manured and cultivated. Without this care, the bushes will become feeble, stunted, and enveloped in thick and half-dead brush, and the flowers will be few and imperfect. With proper management, on the



Fig. 1.



Fig. 2.

contrary, the plants may be kept healthy, vigorous, and afford yearly a profusion of fully developed and beautiful flowers.

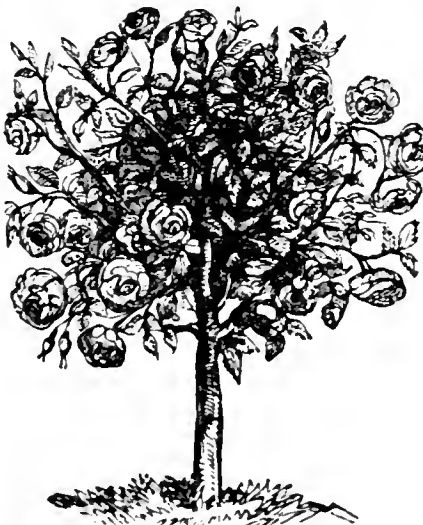


Fig. 3.



Fig. 4.

It is hard to persuade a novice, on setting out a young rose bush, to use his knife at all. He "cannot bear" to cut off those long promising shoots. The consequence is, his bushes barely survive the first season, and make little

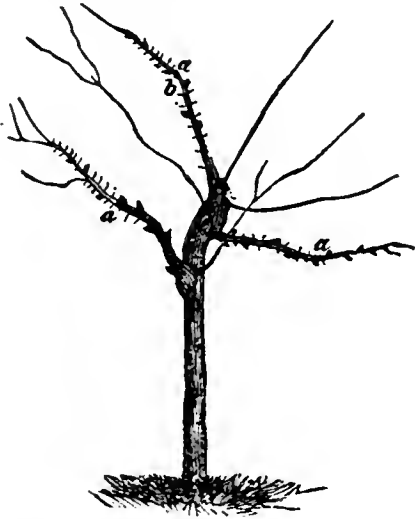


Fig. 5.

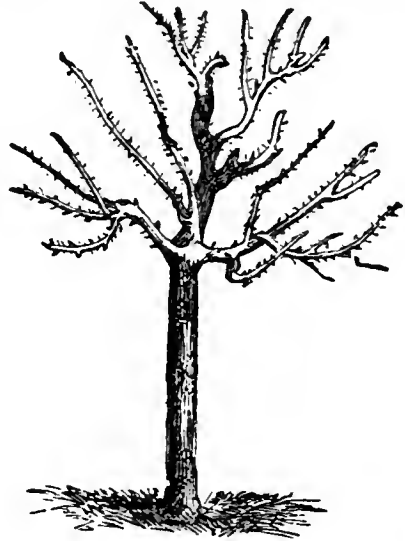


Fig. 6.

or no growth. Had he cut back freely, he would have had perhaps five times the amount of stem and shoots by autumn, and that of a most vigorous character. These remarks apply especially to the free growers, as for example, the stronger summer and the prairie varieties.

The simplest mode of training is in the form of a *bush*, as shown in fig. 1. For the management of such, the chief requisites are the yearly application of old manure, cutting out old wood, and leaving but few of the new and best shoots. If too many are left, the leaves will be crowded and small, and the flowers less perfectly formed.

Tree Roses are greatly admired when well trained, but they require much care. Specimens are shown in figs. 2 and 3. They are usually made by budding on vigorous standards about two feet high. The buds, when growing, form the head.

Two modes are pursued; one, to form the head from a single bud, as shown by fig. 4; and the other by the growth of two or three buds, as in fig. 5. Both modes

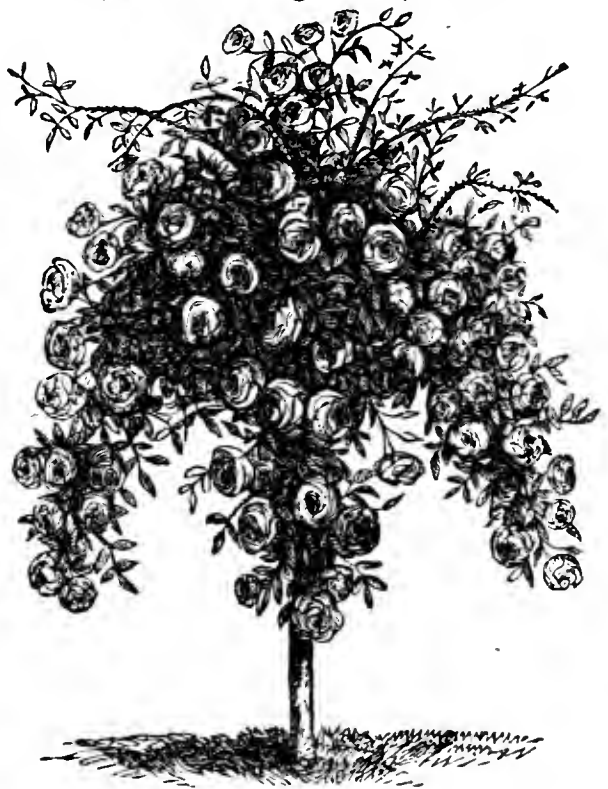


Fig. 7.

have their advocates and advantages, but success depends more on general treatment.

Fig. 5 (on the preceding page,) exhibits the appearance of a tree rose-bush, (divested of its foliage,) after one year's growth of the three buds. The places for cutting back these new shoots are indicated by the letters *a* and *b*.

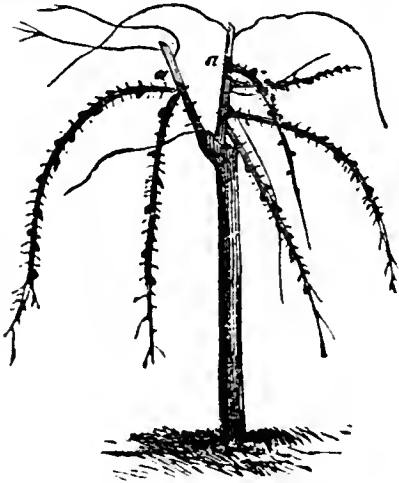


Fig. 8.

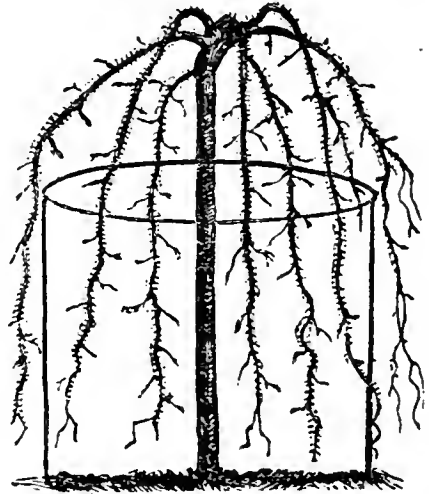


Fig. 9.

Six or seven shoots are a sufficient number to be left, of those which will be thrown out the second year—one, the leader, should be upright, the rest

around it, and the lower down the longer they should be, so as to give the head the form of half a sphere with the flat part downwards, or rather the form of the large part of a sphere unequally cut. As much as practicable, the shoots should be made to grow from the center outwards, so that they may not cross each other and form a confused and crowded head. Fig. 6 represents the tree fully formed after some years growth.



Fig. 10.

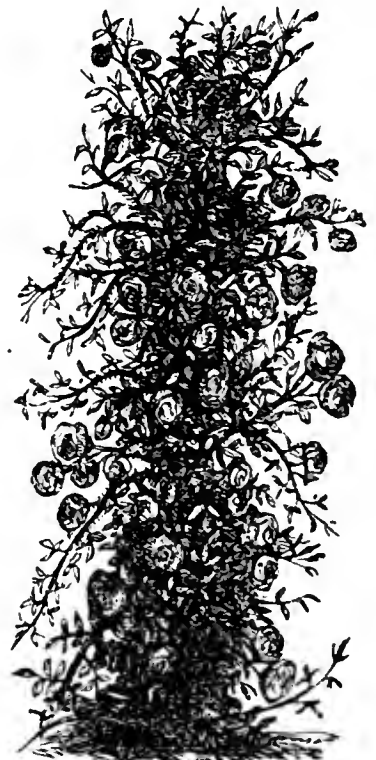


Fig. 11.

wards and giving them a uniformly drooping form by means of a hoop, (figure 9.) It is especially important to keep weeping roses well and

uniformly pruned. The Prairie roses may be made into handsome weeping bushes.

A mode of forming *Pillar roses* is described and illustrated on page 27 of the second volume of RURAL AFFAIRS. Another is represented by fig. 10, the support consisting of the trunk of a small tree of cedar or other durable wood, the branches being cut within eight or ten inches of the stem. Strong growing shoots are formed by first giving a strong root to the rose by means of a rich soil and good culture, and then cutting back freely. The taller and more rapid growing summer roses will do for pillars, but the Prairie roses are best. Nothing can be finer than the effect produced by the blooming of a plant each of the Queen of the Prairies and Baltimore Belle, both trained together on one pillar. Fig. 11 is part of a rose pillar with the growth complete and in full bloom.*

A BASKET OF PLUMS.

FOR some years past the dwarf plum orchard of Ellwanger & Barry of Rochester, has excited the admiration of all who have visited their nursery at the time of ripening. The high culture, skillful pruning, and assiduous labor in destroying the curculio, bestowed on these trees, have given results

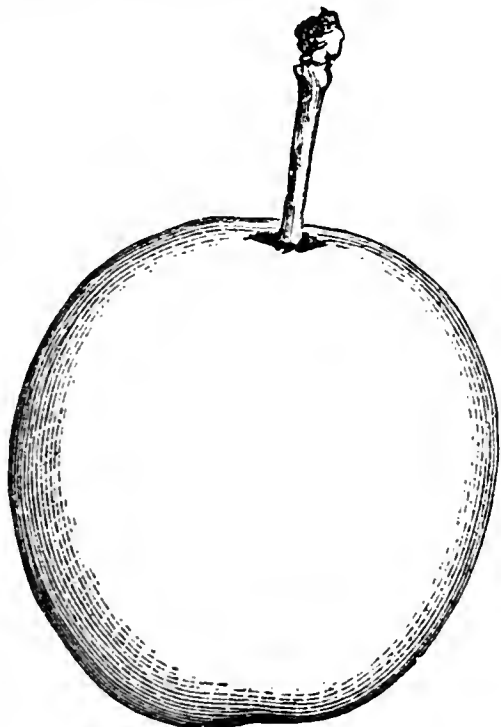


Fig. 1—NELSON'S VICTORY.

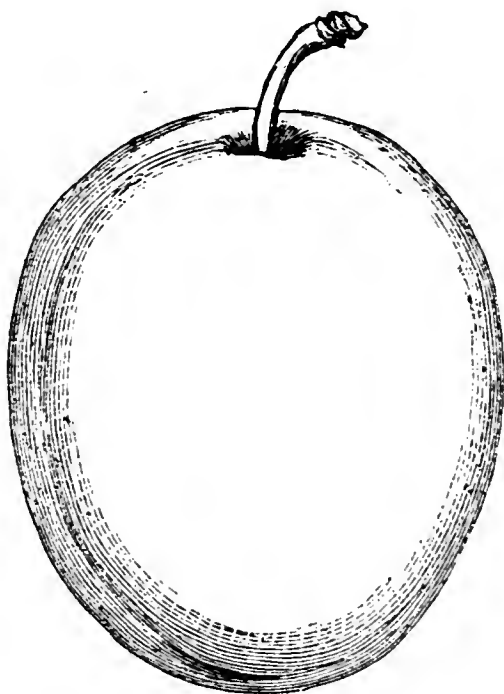


Fig. 2—SHARP'S EMPEROR.

which we have never seen excelled and rarely equalled. Those magnificent varieties, the Bradshaw, Pond's Seedling, Victoria, Sharp's Emperor, and

* The cuts which illustrate this article are from Copeland's "Country Life," to the publishers of which we are indebted for them.

Goliath, loading the bending branches which sustain them, are a sight to view! At a recent visit, they presented us with a basket of several specimens each, of a large number of sorts; and as many of them are comparatively new, we believe it will be an acceptable service to our pomological readers to give figures and descriptions of some of the most valuable and interesting varieties.

NELSON'S VICTORY, (fig. 1.)—Medium in size, roundish oval, brownish yellow, with some dull red, stone small, free, juicy, good. Its origin is English; the growth is vigorous, and it is exceedingly productive, which, added to its beautiful appearance, will make it fine for market.

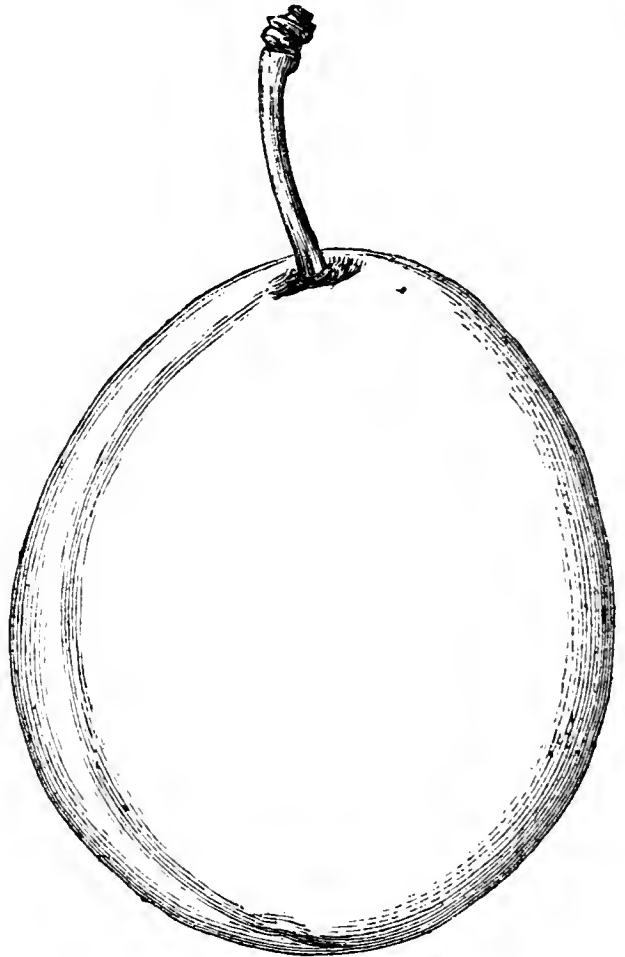


Fig. 3—BRADSHAW.

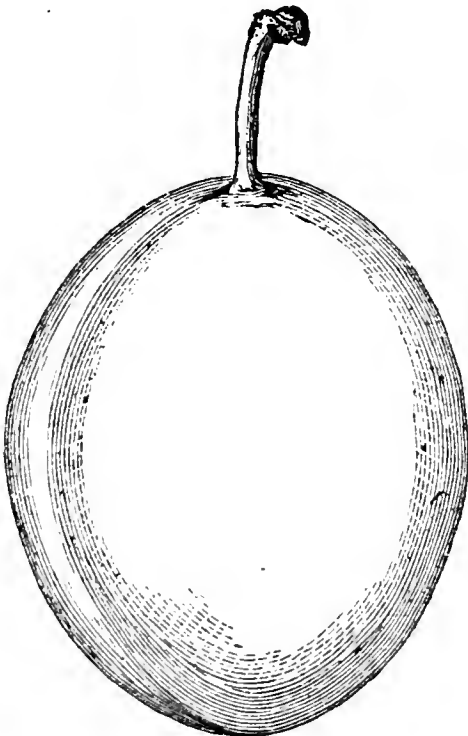


Fig. 4—WANGENHEIM.

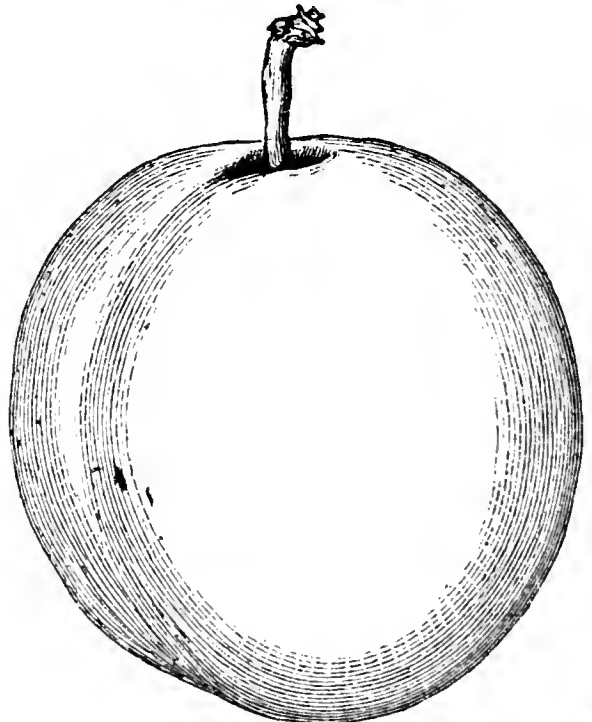


Fig. 5—GOLIATH.

SHARP'S EMPEROR, (fig. 2.)—One of the best market sorts, large, handsome, very showy, resembling *Victoria*, but the tree is more regular, not so vigorous, and the shoots less downy.

BRADSHAW, (fig. 3.)—This is a plum of foreign origin, remarkable for its large size, productiveness, and vigorous growth of the tree—qualities rendering it eminently valuable as a market variety. It was described by P. Barry in the *Horticulturist* for 1855.

It is of largest size, a large portion of the specimens on thrifty trees measuring two and a-quarter inches long, and an inch and seven-eighths cross diameter. It is oval in form, inclining to obovate, sometimes with a very slight neck; suture obtuse; color, dark purple, with a light blue bloom; stalk three-fourths to one inch long, set in a narrow cavity; flesh a little coarse, becoming light brownish purple, at first adhering, but nearly free from the stone when fully ripe; juicy, good, slightly acid; tree erect in growth, vigorous; shoots purple, smooth. Ripens the last of summer.

WANGENHEIM, (fig. 4.)—Medium in size, oval, suture shallow but distinct, color dark blue, stem rather short, set without depression; flesh greenish

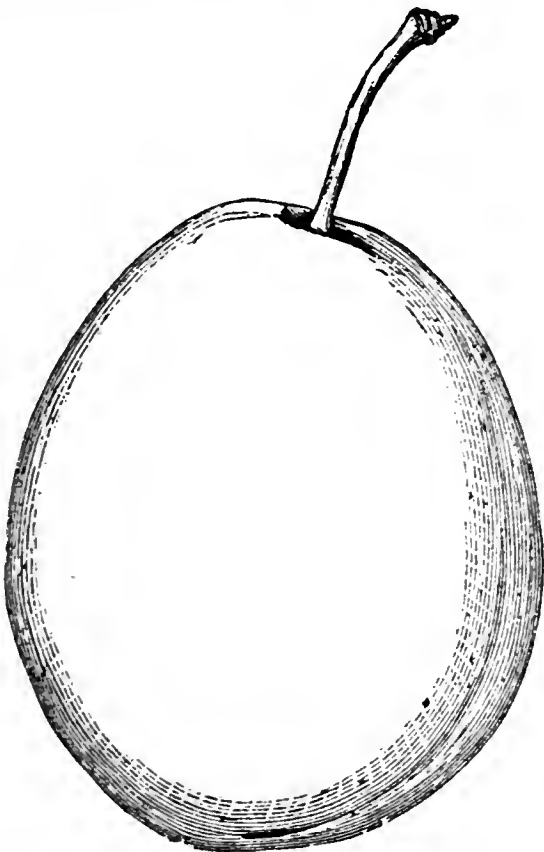


Fig. 6—VICTORIA.

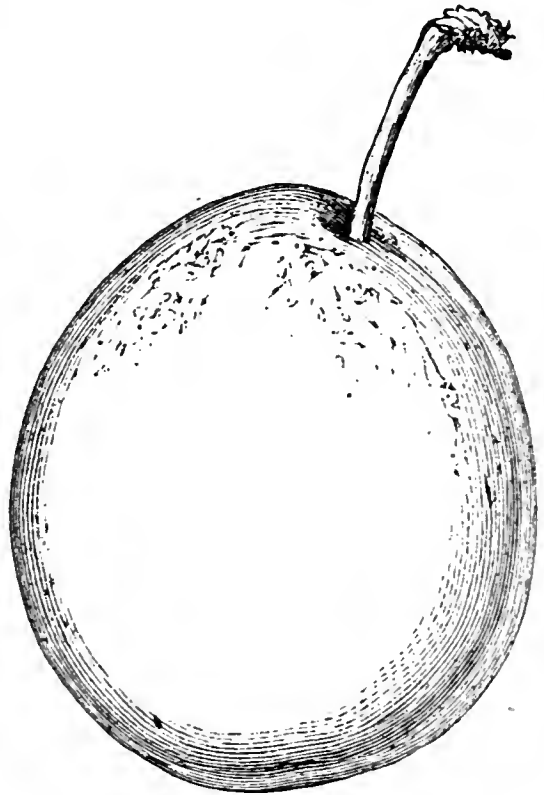


Fig. 7—PETERS' YELLOW GAGE.

yellow, juicy, firm, sweet, rich, "very good," partly free from the rather large stone. This is of German origin, and is a sort of prune; the growth is erect, moderately vigorous, and the tree very productive—it is one of the best of its class.

GOLIATH, (fig. 5.)—Large and handsome, roundish oval or roundish oblong, usually larger on one side of the suture, color deep red or greenish yellow, dark purple in the sun and somewhat mottled; stalk in a very deep and narrow cavity; flesh light brownish yellow, adhering somewhat to the stone, juicy, rather coarse or fibrous, with a brisk, sprightly flavor—"good." English—a strong grower and very productive, and bears young—profitable.

VICTORIA, (fig. 6.)—Large, obovate, suture distinct, stem half an inch long, in a rather deep and narrow cavity; color a fine light reddish purple; flesh yellow, pleasant, "good," adhering to the stone. It has been long known in some parts of England—stands next to Pond's Seedling in size and beauty, and in productiveness, and is a great grower, rather irregular. It is distinct from and better than Sharp's Emperor.

PETERS' YELLOW GAGE, (fig. 7.)—Large, nearly oval, somewhat varying or irregular in form, stem three-fourths of an inch long, set in a rather deep

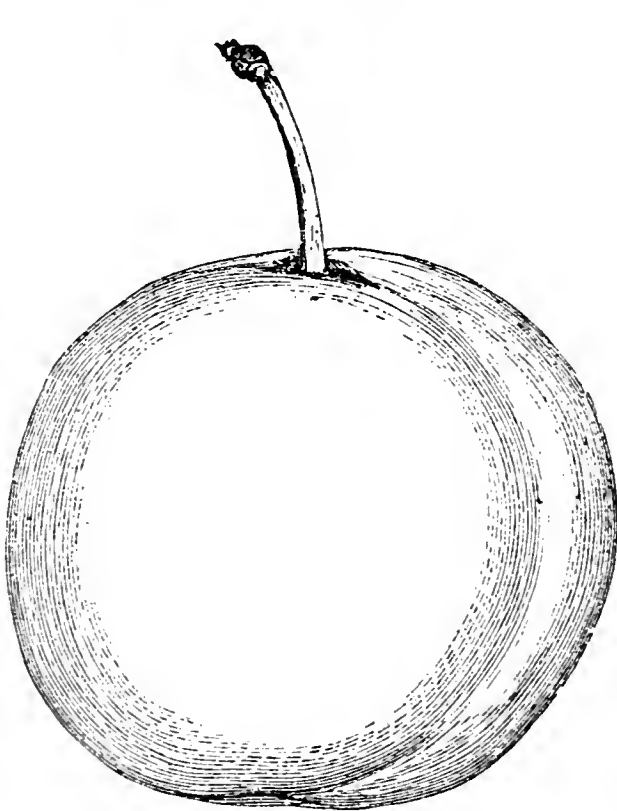


Fig. 8—LUCOMBE'S NONSUCH.

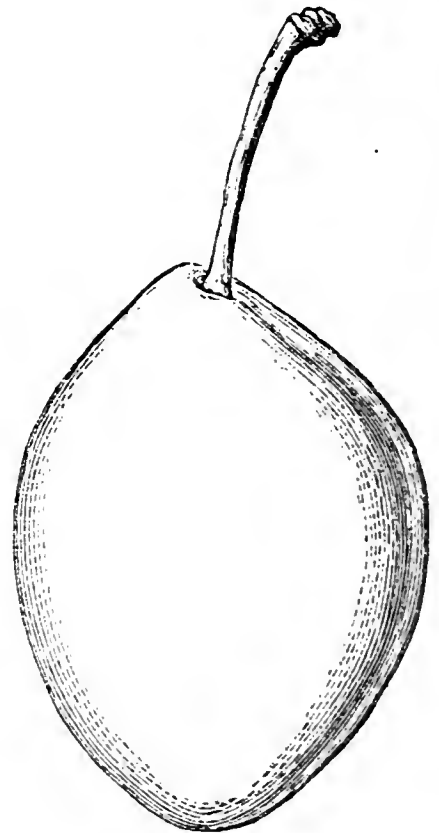


Fig. 9—FELLENBERG.

cavity, which is a little on one side of the plum; suture distinct, dividing the fruit in slightly unequal portions; color a rich greenish yellow, with some crimson dots towards the sun; flesh greenish yellow, rich, sweet, "very good."

LUCOMBE'S NONSUCH, (fig. 8.)—Large, nearly globular, suture distinct, color greenish yellow, marbled, or with broad attenuating stripes of yellowish orange and greenish yellow; stalks three-fourths of an inch long, in a considerable cavity; flesh moderately firm, greenish yellow, sweet when full

ripe, juicy, "good or very good;" adheres to the stone. Shoots smooth. Compares favorably in quality with Imperial Gage. Tree a vigorous grower.

FELLENBERG, or *Italian Prune*, (fig. 9.)—Size medium, oval, rather pointed at the ends, suture small but distinct; color dark purple with a light blue bloom; stalk an inch long, scarcely sunk at the insertion; flesh greenish yellow, juicy, sweet, "good," approaching "very good," free from stone.

POND'S SEEDLING, of the *English*, (fig. 10.)—Fruit of the largest size,

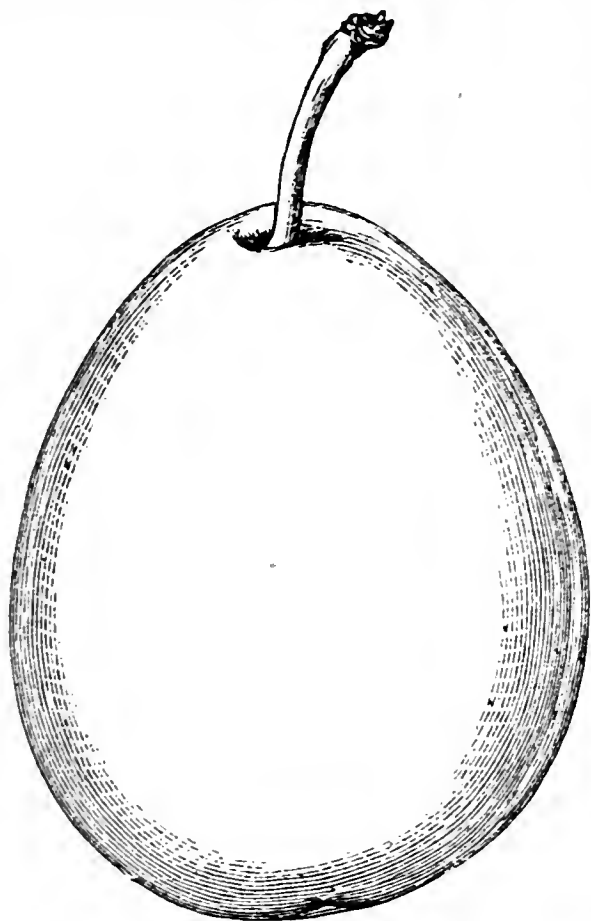


Fig. 10—POND'S SEEDLING.

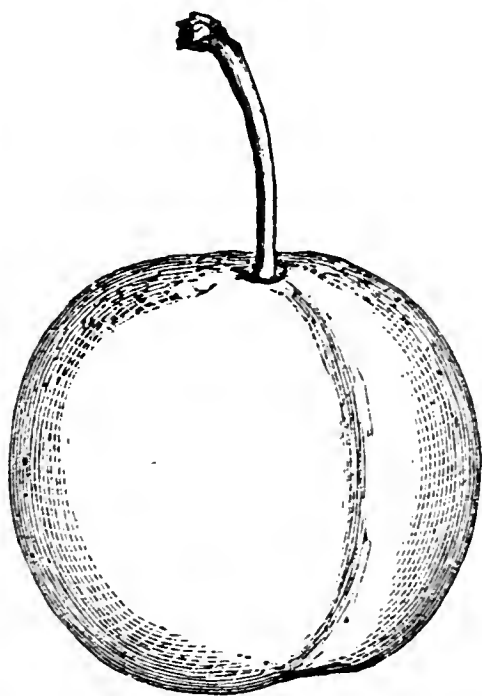


Fig. 11—PURPLE GAGE.

exceedingly showy, often two and a-quarter inches long and an inch and seven-eighths in diameter, obovate and suture small, distinct on one side, obscure on the other, accompanied on both sides by an obscure ridge; stem three-fourths of an inch long, in a small cavity; color light red, flesh yellowish, somewhat fibrous, adhering firmly to the stone, sub-acid, of moderate flavor, "good." Shoots smooth—ripens middle or latter part of 9 mo. (Sept.) The most showy and brilliant of all plums—great grower and bearer—quality about equal to Yellow Egg.

PURPLE GAGE, (fig. 11.)—This excellent plum, under whose name a spurious sort has often been disseminated, is of full medium size, roundish, color a dull rich purple, with russet dots and nettings; stalk an inch long, cavity slight, flesh greenish yellow, fine grained, juicy, sweet, "very good," if not "best," possessing much of the excellence of the Green Gage.

NECTARINE, (fig. 12.)—Fruit large, nearly round, sometimes slightly approaching oblong or ovate, suture moderate; stem quite short, in a deep wide

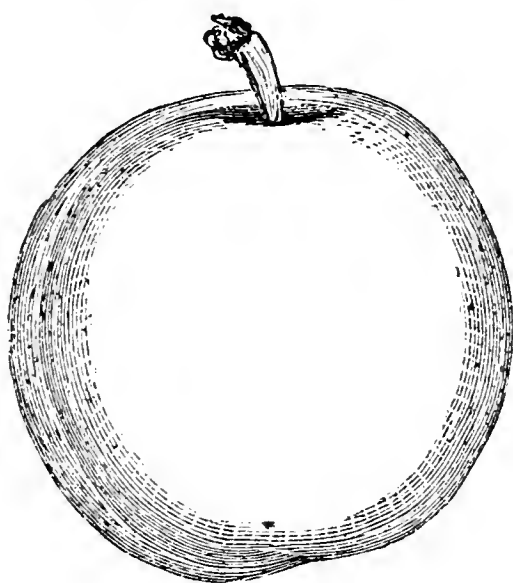


Fig. 12—NECTARINE.

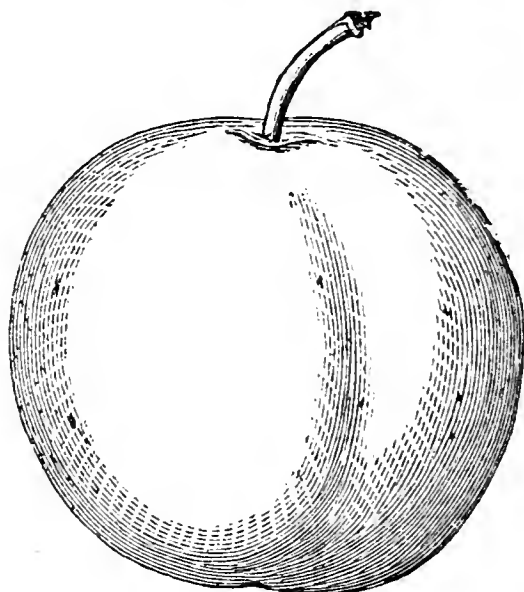


Fig. 13—ROYAL TOURS.

cavity; skin dull rich purple, with conspicuous russet specks; flesh dull brownish yellow, somewhat fibrous, juicy, with a sprightly moderate, somewhat acid flavor—"good"—adheres partially to the stone.

ROYAL TOURS, (fig. 13.)—Large, (an inch and a-half in diameter,) nearly globular, a distinct but

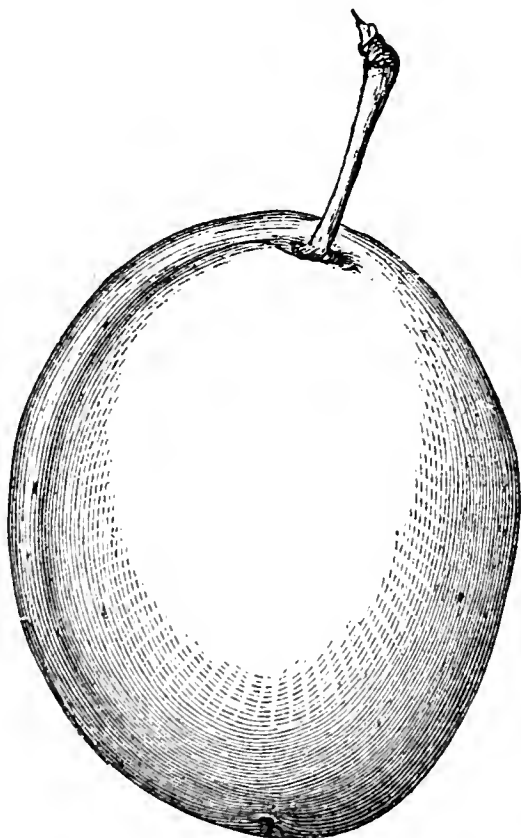


Fig. 14—PRINCE ENGLEBERT.

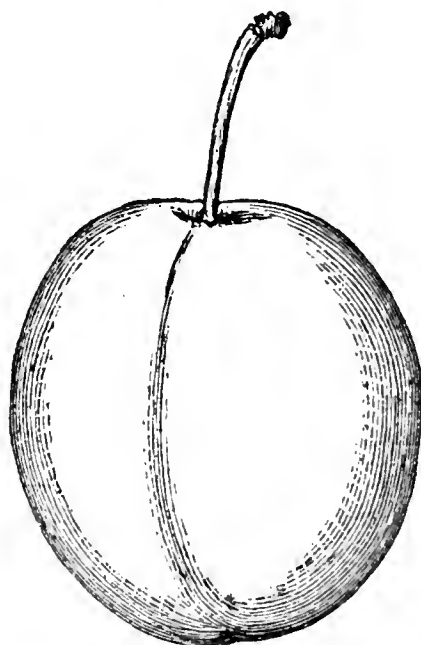


Fig. 15—PRINCE'S YELLOW GAGE.

shallow suture extending half around, the whole surface plump and obtuse; skin reddish purple in the shade, but very dark purple in the sun, with a conspicuous blue bloom; stalk half an inch long, set in a small and shallow cavity; flesh light brown when fully ripe, juicy, quite high flavored, at least "very good," according to the pomological scale—nearly free from the oval, flat stone. An excellent plum.

PRINCE ENGLEBERT, (fig. 14.)—This plum is a Belgian variety. The fruit is quite large, oblong-oval, deep blueish purple, with a dense bloom; the stem is rather slender, set in a distinct ring at base, and in a rather deep narrow cavity; suture distinct; flesh very juicy and melting, with a pleasant, moderately rich and excellent flavor, parting from the stone. The tree is said to be a free grower, and to prove very productive. It ripens the latter part of 8 mo. (Aug.) The shoots are downy.

PRINCE'S YELLOW GAGE, (fig. 15.)—Well known and an excellent variety.

NOTES ON STRAWBERRIES.

EVERY year develops the character of some new variety of the Strawberry, or reverses or establishes opinions in relation to older sorts. The following remarks indicate nearly the results of the experiments of many cultivators up to the present time.

Most of these results confirm the excellence and value of the *Triomphe de Gand*, (fig. 1,) which of late years has been acquiring a high reputation for fine quality, hardiness, productiveness and great size. It is a staminate—resembles Wilson's Albany in the dark green color of its leaves, and is a strong grower. The writer has measured berries, two inches through the longest diameter.

Burr's New Pine, now become an old variety, still maintains its character for excellence, but the berry is too soft and delicate for market, and the plants are rather feeble growers. As it is a pistillate and requires a fertilizer, it is less valued by many on this account.

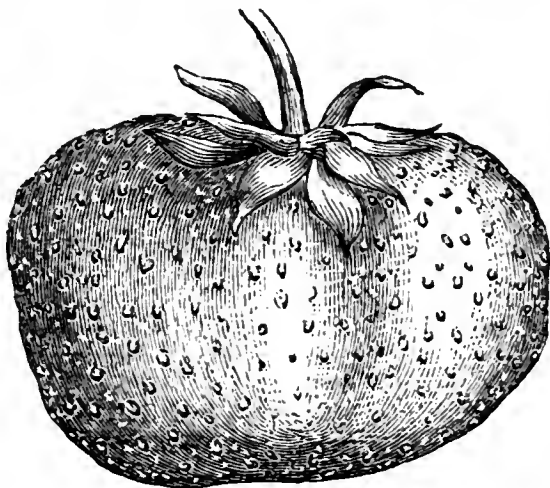


Fig. 1—TRIOMPHE DE GAND.

Brighton Pine, (from Brighton, Mass.,) proves to be a fine reliable sort, but could not be classed among the very best.

Hooker, although an admirable berry—large, excellent and productive—is too liable to winter-killing for extensive cultivation. It is true it often

escapes disaster, but frequently patches or portions of plantations are destroyed. Many will, however, retain it to a limited extent on account of its high quality. In sheltered positions it may not suffer.

Iowa, (*Washington* of Cincinnati market,) although of second quality in flavor, is regarded by many intelligent cultivators as possessing some very valuable qualities for market culture, more especially for its hardiness, productiveness, and perfect fruit. Its dense trusses of berries always present a fine appearance.

Jenny Lind sustains its character as a good, very early sort—usually quite as early as the *Scarlet*—larger, and equal to it in quality. A staminate.

Moyamensing, (large, dark crimson,) holds a respectable rank, but not among the first. It is a valuable sort, but is hardly worthy of extensive recommendation.

Prince's Magnate has been fully tried by H. E. Hooker and others at Rochester, but although a fine berry, the plant is of quite feeble growth, and it cannot be strongly recommended.

Trollope's Victoria (fig. 2,) is a very large, fine variety—sometimes considerably productive, but oftener rather sparingly so. Still, it will be culti-

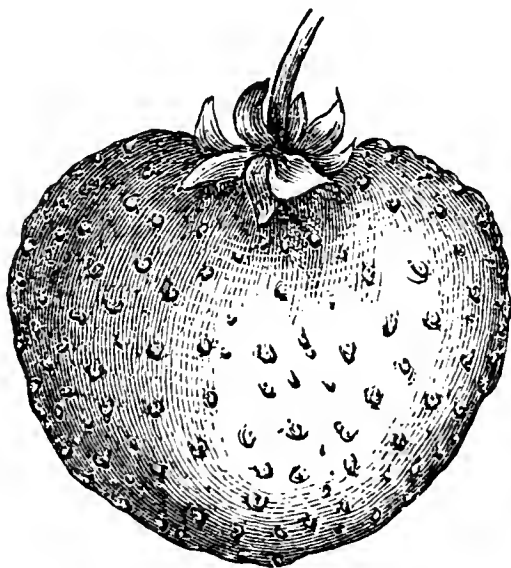


FIG. 2—TROLLOPE'S VICTORIA.

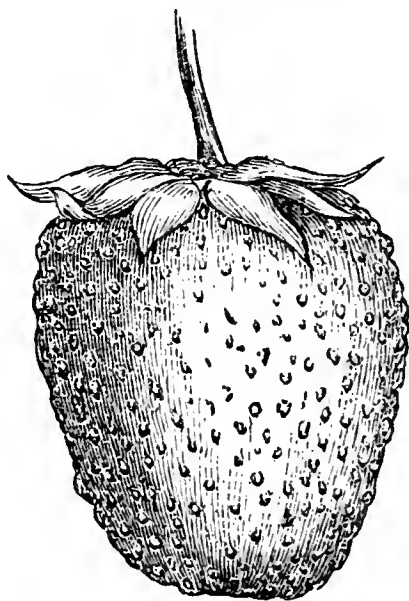


FIG. 3—SCOTT'S SEEDLING.

vated to some extent on account of its size, showy appearance and fine flavor. Like the *Triomphe de Gand*, it appears to be quite hardy.

Scott's Seedling, (fig. 3.) Raised by J. Scott of Brighton, Mass. Large and showy in appearance, but of moderate quality. It is worthy a place in large collections, and is especially valuable for its showy appearance and great productiveness. A staminate—and a good market sort.

For profuse bearing and extreme hardiness, nothing has yet been found equal to *Wilson's Albany*—these qualities will overbalance the second-rate flavor, and it will doubtless long continue a general favorite. But few

cultivators will observe the material difference in quality between this and the more delicious sorts.

Crimson Cone, (pistillate,) although rather small, is still highly esteemed by some on account of its lateness, good quality, hardiness and productiveness. Its firm flesh and brilliant color give it advantages as a market variety.

PRUNING DWARF PEARS.

It is well known to every intelligent fruit culturist, that there have been many failures with Dwarf Pears. With the bad manner in which they have been managed, it is surprising that there should not have been more. Other kinds of trees, as the apple, peach, and cherry, have been generally treated with utter neglect, and yet some of them have survived and given tolerable returns. Presuming on this success, most planters are determined to compel dwarf pears to submit to the same treatment. The result has been the exclamation, "Dwarf pears are a humbug!"

There is no farm crop cultivated by man, that could endure such a course. What would be thought of the farmer who would plant corn in an unplowed meadow, potatoes in a pasture, and allow carrots to become overtopped with a growth of two feet of pig-weeds and thistles, and after the failure that would inevitably result, gravely declare, "Corn, and potatoes, and carrots, are sheer humbugs."

Cultivation is quite as essential to the growth of the dwarf pear as to farm crops, and other requisites must be super-added. The stocks must be good and vigorous, and not like many formerly used. The varieties of the pear must be selected among those which grow vigorously on quince, which probably do not constitute a twentieth part of the whole number of sorts. Many fail because they are comparatively unfitted to dwarf growth. Failure sometimes results from a cold, thin, or wet soil, and more frequently from a want of manuring and sufficient cultivation. And lastly, a neglect of *thorough pruning* has been a fruitful cause of failure. The former requisites have been already treated of in former numbers of the REGISTER; the latter may deserve some further attention.

T. G. YEOMANS of Walworth, Wayne Co., N. Y., one of our most successful cultivators of the dwarf pear, who has received in cash from a single crop of the fruit, over \$500 from one-third of an acre, or at the rate of \$1500 per acre—and frequently nearly as much as this, gives the following excellent practical directions for the pruning of the trees:

"Experience has convinced me, that with good trees, of well chosen varieties, on any good corn land, which is never too wet; and with the culture a good farmer gives his other crops, and the important—nay more, the indis-

pensible requisite to success—*thorough pruning*, no one need fail of attaining a degree of success highly satisfactory and profitable.

A dwarf pear tree should never be planted at one year old. A good one-year-old tree consists of a single upright shoot or stem, from three and one-half to five feet high, and should be cut off at about two feet from the ground; and in order to give a smooth, handsome stem or trunk, let the buds be rubbed off, to the height of one foot from the ground—leaving on the upper portion six to nine buds, more or less; with the tree standing in its original position in full vigor, and cut back as above stated, each one of these buds will throw out a good strong branch, which gives a full round distaff form to the tree; and is the time and manner, and the only time, when that desirable shape can be given, on which the future form of symmetry and beauty so much depends; and to avoid what is termed a crotched or fork-topped tree, in which the two uppermost branches are about of equal vigor and height, let the second branch from the top be pinched off, when about nine inches or a foot long, which will check and weaken it, while the uppermost one becomes a strong central leader. Whereas, if the tree be transplanted at one year old, and cut back as above stated, the vital forces of the tree will be weakened half or three-fourths by transplanting, and, as the result, only two or three, (more or less,) of the buds on the trunk, will grow so as to form branches, and they perhaps only at the top or all on one side, while the remaining buds remain dormant, never afterwards to be developed, as the other branches form new channels, which will more readily carry the sap to the other and upper portions of the tree.

For transplanting, therefore, let a tree be two years old from the bud, well cut back at one year old, and with six to nine main branches, which form the frame work or foundation, which is to give form and character to the future tree, with proper care and management.

The annexed cut (fig. 1,) will illustrate a two-year-old tree, as above described, its lower branches about one foot from the ground, its upper branches being the strongest and most upright, and those below less vigorous and more horizontal.

I speak of this more particularly, for the reason that all the cuts which I have noticed in works on Pomology, and in agricultural papers, represent a two-year-old tree, with

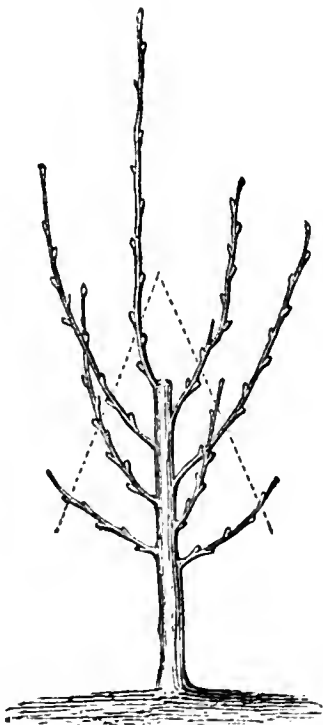


Fig. 1.

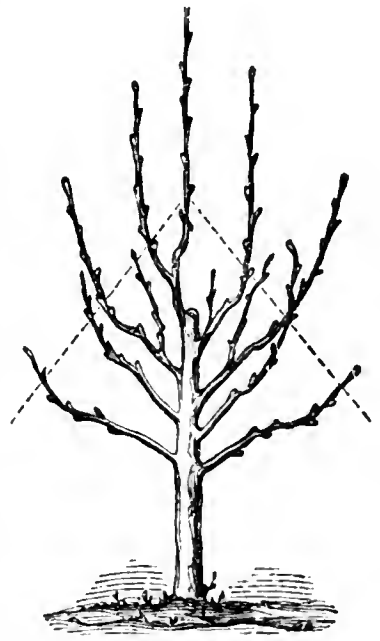


Fig. 2.

branches much the longest and strongest at the bottom, and diminishing in vigor towards the top, except, perhaps, the center top branch; while all experience illustrates the principle that the sap flows most freely and readily

to the upper branches, giving them vigor, strength and uprightness, to the diminution of the same characteristics in those below.

The dotted lines indicate where the branches should be cut back at the time of planting.

In cutting a tree, with branches formed as above described, let the leader be cut down within four to six inches of the place where the one-year-old tree was cut off, and just above a good bud on the side of the tree, over the previous year's cut, thus keeping the leader in a perpendicular position over the original trunk or bottom of the tree.

If the side branches are too horizontal, upper buds are left for their extension; if too upright, lower buds are left. Side direction may be given, if desirable, to fill wide spaces, in the same way. Cut the other branches at such a distance from the trunk, that the ends of all of them would form a pyramid, the base of which should not be over twelve to sixteen inches in diameter, and in smallish trees much less; thus the lowest branches will be left the longest; the object of which is to check the natural flow of sap to the upper branches, and induce it to flow more forcibly to the lower ones, increasing the vigor and force of the latter as much as possible, which must be done at that time, or never.

Fig. 2 represents a two-year-old tree after it has been pruned at two years old, and made the third year's growth, and showing where it should be cut back at that time. All subsequent pruning will become easy to any one who has attended to these directions thus far—observing the same principles, thinning out or cutting back any secondary or other branches, as shall seem necessary to admit light and air, or give vigor or symmetry of form to the tree; but as the greatest force of sap will flow to the central and upright branches, they will need to be cut back most, retaining as near as may be the pyramidal form; ever bearing in mind this fact, that no one prunes too much; and, after having pruned well and gathered rich harvests of luscious pears, if you still wish to grow them *larger* and *better* than ever before, prune a little closer, and that result will certainly be attained; and the *vigor*, *beauty* and *longevity* of your trees will be increased thereby."

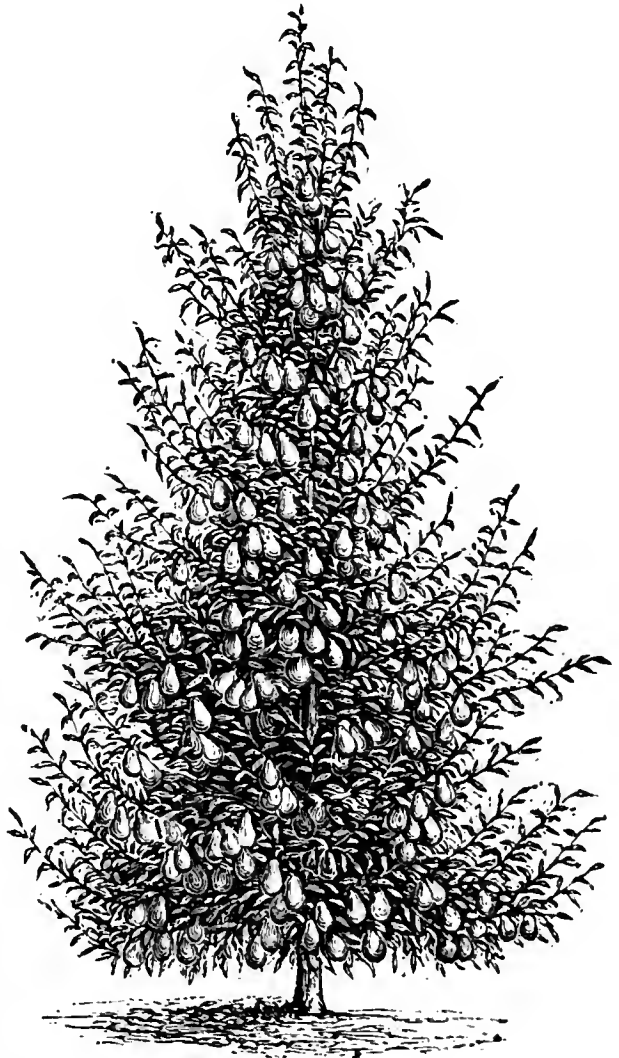


Fig. 3.

In addition to the figures (1 and 2,) illustrating the mode of pruning, we add an accurate portrait of a dwarf pear, eight years old, and in full bearing, (fig. 3 on preceding page.) It was sketched by the author of the REGISTER, from one in a nearly uniform row of the Louise Bonne of Jersey, growing on the grounds of Ellwanger & Barry of Rochester, and which had produced fine specimens of fruit at the rate of 500 bushels per acre, selling readily on the trees for three dollars per bushel.

STRUCTURES FOR GREEN-HOUSE PLANTS.

THE simplest mode of keeping green-house plants through winter is in *pits*. It is applicable to such as remain nearly or quite dormant until spring. A cold pit requires no fire, but frequent attention as the weather changes. The simplest kind is represented in the annexed cut, (fig. 1,) showing a section.

It is made as follows: Select a sheltered piece of ground; if it has not natural drainage to a depth of three feet, an underdrain must be made. Four feet by eight, or four by twelve, is a convenient size. Dig it

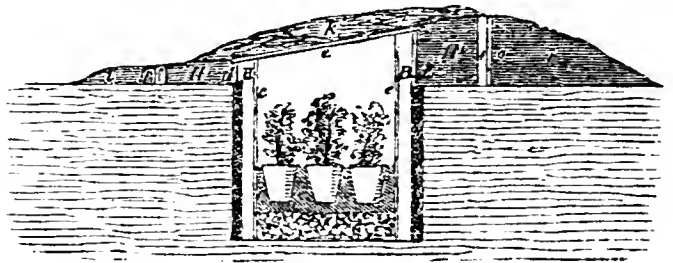


Fig. 1.

three feet deep, insert in it scantling posts, B, B, rising six inches above the surface in front, and eighteen inches above at the rear, which will give the roof a slope. Nail boards, c, c, to these posts inside, leaving about six inches space between the boards and the earth sides to fill with tan or manure. Above ground, nail boards outside the posts, making a space to be filled with well-rammed tan. The top is to be covered with hot-bed sash, and if double, the pit will be more perfectly secured from frost. The bottom is filled a few inches with small stone, to effect drainage, and with nearly a foot of tan to set the pots in. Coal ashes will answer the purpose of tan. The object is to secure ventilation, dryness, and warmth.

After being placed in the pit in autumn, the plants should have as much air as possible, when the weather is not positively freezing, to harden them. When winter is at hand, the outside is lined with tan or leaves, H, H, secured by means of a second set of posts with boards, f, f, two feet outside the sash. Additional leaves, i, i, outside may be applied in severest weather, and a covering of mats and straw, &c., on the double sash, will be essential. If single sash only are used, an earlier and heavier coating of straw will be required.

The chief care needed is to give fresh air whenever the weather is mild,

and to protect from freezing during intense frost. Salvias, Scarlet Geraniums, &c., may be wintered in pits, and being kept quite dormant, grow more vigorously in spring than if kept warm by the fire heat of a green-house. The chief objection is that instead of being an ornament, this pit rather disfigures the grounds.

One of more finished appearance is represented by fig. 2. The lower walls, *b, b*, are built with openings, so as to admit warm air from the ferment-

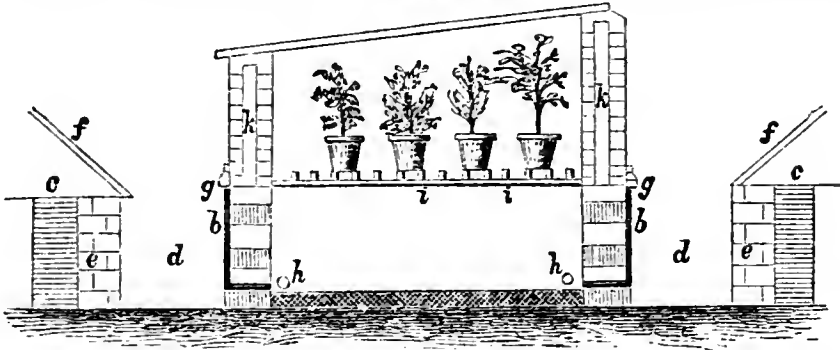


Fig. 2.

ting manure filling the spaces *d, d*, and allow it to pass into the apartment occupied with plants. When necessary during very cold weather, additional heat is given through the hot water pipes, *h h*, which may pass from the kitchen boiler, if the pit is near the kitchen. The pots stand on a wooden lattice floor, and the water which falls from the pots is caught by a layer of coal ashes below, which keeps the space dry. The brick walls, *k k*, nine inches thick, are hollow, which makes them better non-conductors than if solid. The doors, *f f*, are made to shut down on the manure in the spaces *d d*. The sash in cold weather is covered with mats and shutters.

For plants, which from their partly dormant or growing condition, require more warmth and air during winter, a green-house or conservatory is requisite. If neatly kept and arranged with taste, it becomes exceedingly interesting and attractive in the depth of winter, (fig. 3.)

A *Conservative Pit*, combining the advantages

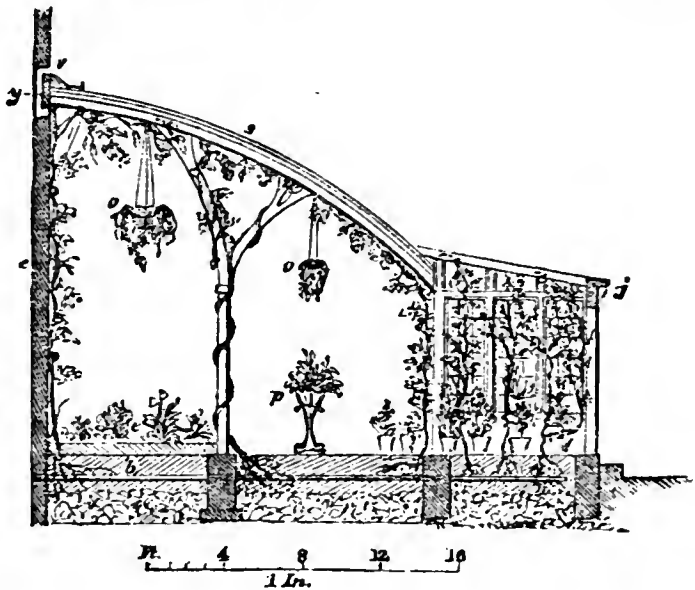


Fig. 3.

of a pit and conservatory, is represented in fig. 4 on the next page, copied from *Copeland's Country Life*, to which work we refer for full directions for its construction, and minute details for management. Its floor is about three

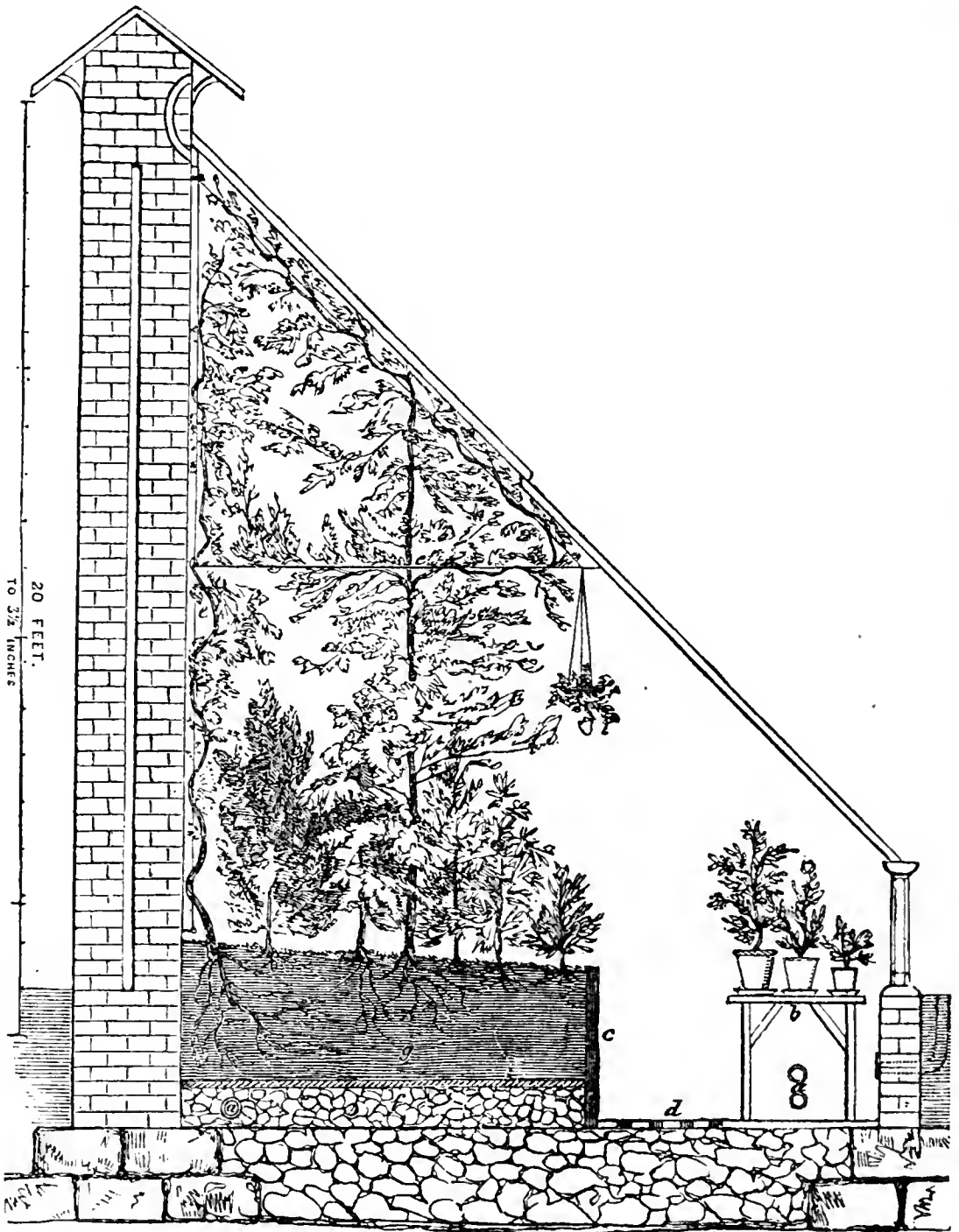


Fig. 4—CONSERVATIVE PIT.

feet below the surface of the ground, and the whole may be placed on the south side of a dwelling. The pipes for hot water used in heating it, are shown at *a a*; table for pots at *b*; plank for front side of the pit at *c*; floor at *d*; and trellis for the climbers at *e*. There are ventilators at bottom and at top, capable of being shut close or covered with wire-gauze. The cost of such a house, 18 by 30 feet, if of wood, is estimated at \$600; of brick, \$800.

Ward Cases.

Those who have attempted to cultivate green-house plants in rooms, have met with two serious drawbacks. One is the liability to become coated with dust, and the other is the dryness of the air, which is greatly increased by

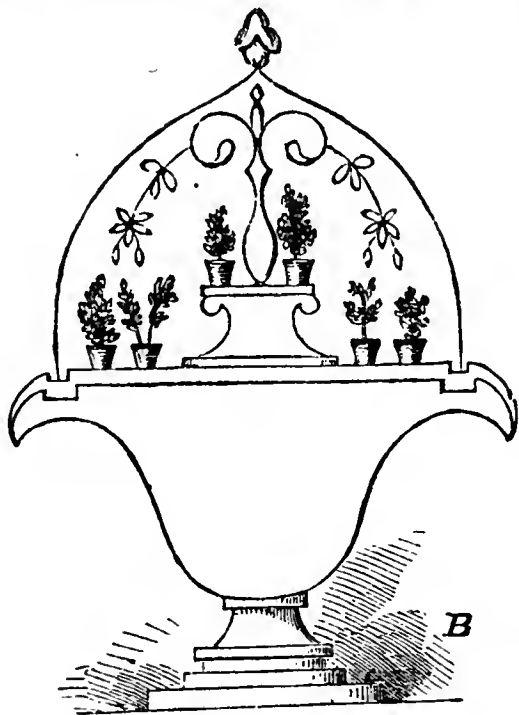


Fig. 5.



Fig. 6.

stove heat. For these reasons there are but few plants that will endure for a long time in common living rooms. To obviate these difficulties, the Ward Case has been constructed.

It consists essentially in covering the plants with glass. This protects them from dust, and by confining the moisture which is constantly exhaled by the leaves, gives them a humid atmosphere. It also assists materially in equalizing the temperature, and shielding from the effects of the sudden changes which may occur in the room. For these reasons, the care of plants in these cases, is much diminished.

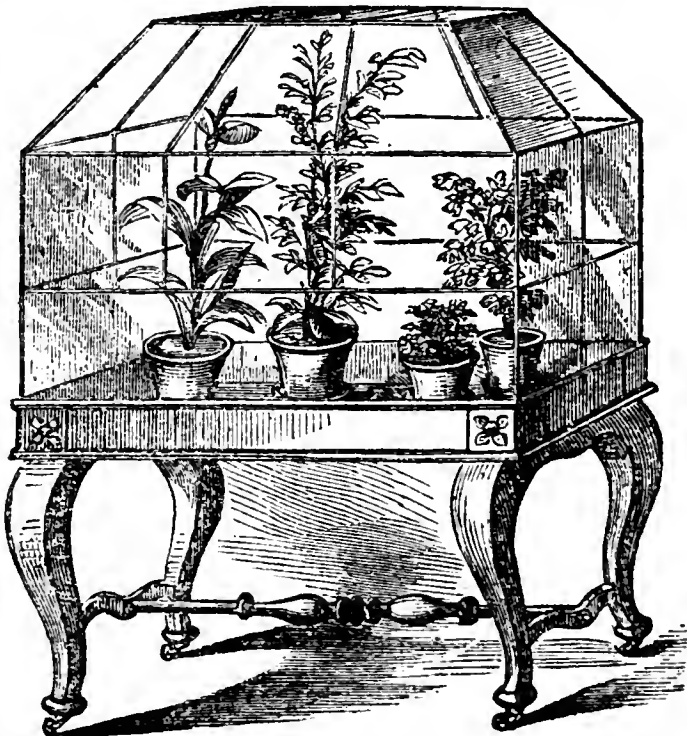


Fig. 7.

Fig. 5 represents the section of a small and simple case—made by covering a

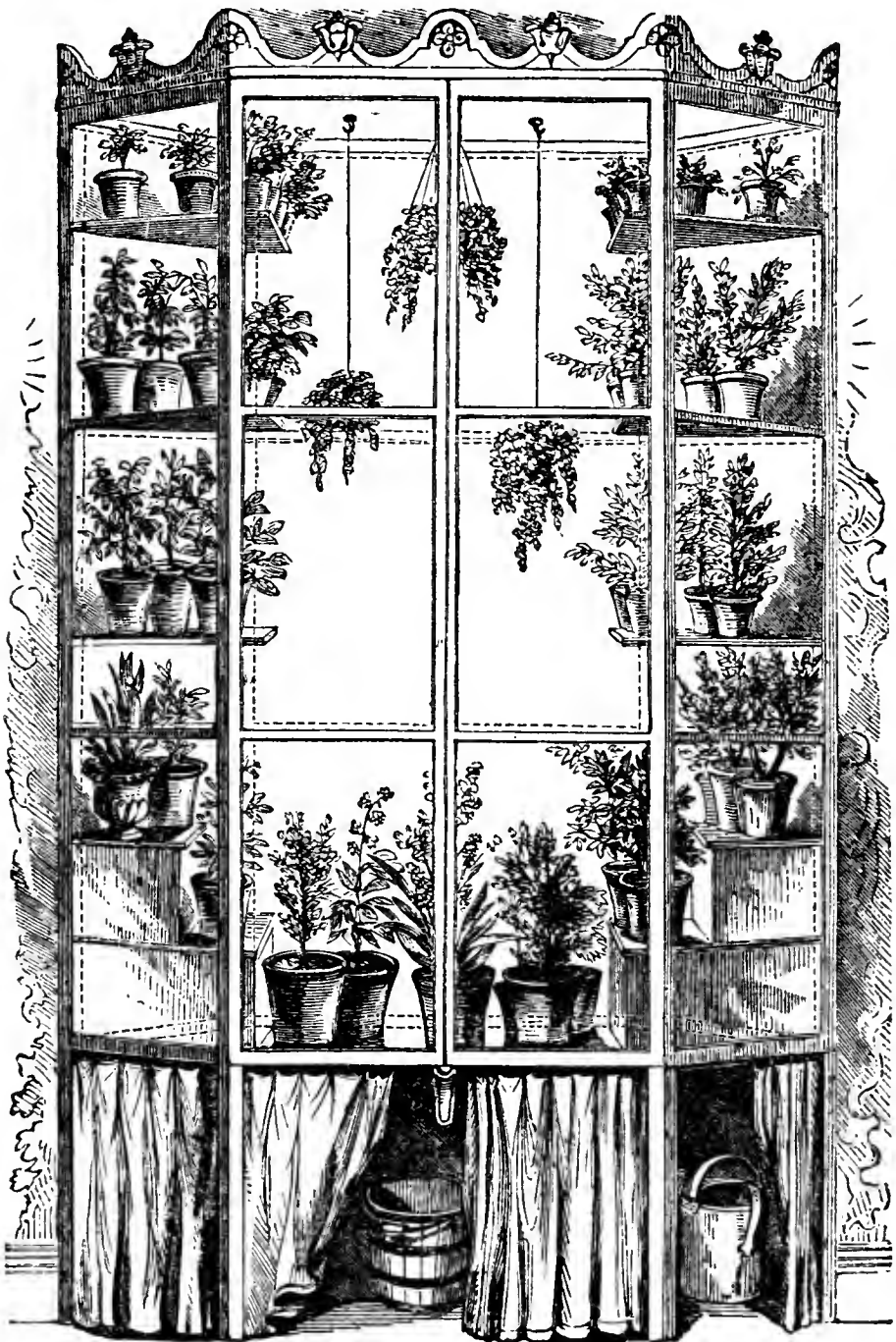


Fig. 9.

cast-iron vase of plants with a large bell glass. Fig. 6 is a cast-iron basket of plants, without the glass cover. Fig. 7 is the common Ward Case, attached to a table, and made about three feet long and two feet wide. The glass is nearly two feet high, besides the pyramidal cap.

A simpler and cheaper form of construction is shown in fig. 8, (on next page,) which is made of wood, and covered with window sash. If well constructed and neatly kept, it will have a very ornamental appearance. When

kept in a room subject to occasional cold below freezing, the proper temperature may be maintained by the following contrivance. Let the pots stand on an iron or copper tray, (the pots being supported, if heavy, by iron bars,) beneath which is soldered a convex round piece of sheet copper, so as to form a flat boiler beneath the tray. A tube through the tray above admits filling the boiler and allows the escape of the steam; a small tube and cock below allows the water to be drawn off. A lamp placed under the boiler, heats the water and keeps the plants sufficiently warm.

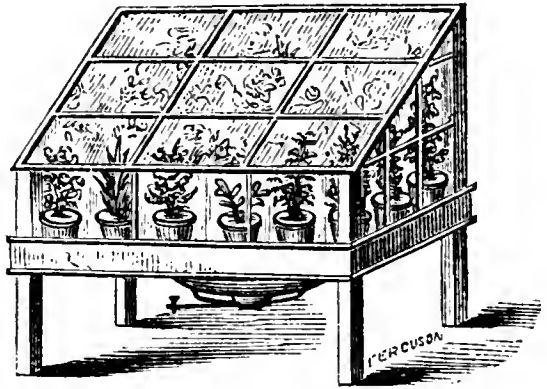


Fig. 8.

WINDOW CASE, (fig. 9.)—This is similar to the Ward Case, but is placed against a window, (a bay window being best,) and thus receives a strong light. It likewise occupies but little space. The shelves may be so made that all the water thrown upon them, and over the plants, by means of a syringe, runs down through the discharge pipe into the pail. A pan made of sheet zinc turned up at the edges, and covering the floor under the case, serves to protect the floor from any drip of water from above.

AQUARIUM, (fig. 10.)—An interesting ornament for a library or cabinet, is a water-tight glass case, supplied with water plants and fish. The water plants alone will not flourish, and the water becomes coated with green slime;



Fig. 10—AQUARIUM.

but the addition of minute shell-fish and other small aquatic animals, renders the water clear, and each causes the other to thrive. Some skill and experience are necessary to adjust the proper number or quantity of each, for their best success.

TRANSLUCENT PAINT FOR GLASS.—To give the glass of green-houses, windows, &c., the same character as is possessed by ground glass, grind sugar of lead in oil. Dilute it greatly with spirits of turpentine, and put on with a brush, very thinly, keeping the brush dry or with but little on at a time.

HOW TO OBTAIN FRUIT IN NEW PLACES ?

THIS is an inquiry that often occurs in the minds of many owners of new places, or who have built new houses on unimproved spots. We can inform such residents that much may be done towards an immediate supply, with proper selection and management—and that the assertion which they often hear, that “it will take a life-time to get fruit” from a new plantation, is an absurd error.

The quickest return is from planting *Strawberries*. If set out early in spring, they will bear a moderate crop the same season. We have repeatedly obtained fine ripe berries seven weeks from the day they were set out; and in one instance where transplanted late with a ball of earth to each plant, in less than six weeks. The second year, if the bed is kept clean, the product will be abundant. Wilson’s Albany will safely yield any year, a bushel from a square rod, or about two quarts a day for half a month.

Muskmelons and *Watermelons* will yield their delicious products four months after planting.

Gooseberries, *Currants*, *Raspberries*, and *Blackberries*, all bear at about the same period from the time of setting out. Good-sized gooseberry plants, say a foot and a-half high, will give a good crop for bushes of their size, the second year. We have had a bushel of Cherry currants, the third summer after setting out quite small plants, from a row thirty feet long. A bush of Brinckle’s Orange raspberry has been known repeatedly to bear about a hundred berries the same year that it was transplanted—the fruit, however, was not full size.

Dwarf Pears of the right sorts, and under right management, come quickly into bearing. If at the common age when set out, or two years from the bud, the most prolific sorts give some returns the second year, and more afterwards. Older trees, if carefully removed, produce larger crops—we have seen a tree of the Louise Bonne of Jersey, six years old when transplanted, bearing a bushel the second summer afterwards; but much care is required for removing such large trees, and they are not subsequently so thrifty as younger ones, and consequently do not yield such excellent fruit. Among the dwarf pears which bear soon, are Louise Bonne of Jersey, Doyenne d’Ete, White Doyenne, Giffard, Fontenay Jalousie, Josephine de Malines, &c. The following sorts bear nearly as early on pear stock, viz: Bartlett, Seckel, Winter Nelis, Washington, Onondaga, Howell, Passe Colmer, Julienne.

Grapes afford fruit soon—usually beginning to bear the second and third year. The Isabella, York Madeira, Diana and Delaware, are particularly recommended for this purpose at the north, and the Catawba may be added for the Middle States, wherever it does not rot.

Dwarf Apples should not be entirely overlooked in the list of early bearers. Half a peck per tree is often obtained the third year from the most productive sorts.

A good supply of all the preceding, will be sufficient to furnish a family with these wholesome luxuries from within a year or two of occupying entirely new premises; and will not only add greatly to the comforts and attractions of home, but contribute materially to the uniform health of the occupants.

DOMESTIC POULTRY.

VARIETIES, REARING AND MANAGEMENT.*

Origin of Domestic Fowls.

NEXT to the Dog, the Fowl has been the most constant attendant upon man in his migrations and his occupation of strange lands. The carnivorous diet of the dog is one main cause of his pre-eminence. But, search where you will, except in the very highest latitudes, and you will find fowls sharing in the possession and settlement obtained by man.

What is the earliest date of poultry-keeping? No one positively knows. It is believed by some that it is coeval with the keeping of sheep by Abel, and the tilling the ground by Cain—a supposition which cannot be far from probability, if there is any foundation for the legend that Gomer, the oldest son of Japhet, took a surname from the cock. By some writers they were supposed to be of Persian origin. The acquisition of the species has not in all probability been an easy conquest; to succeed in bringing them into complete bondage, a long series of attempts and cares has doubtless preceded the successes we now enjoy. They have since been propagated and introduced into general use throughout the whole world, from east to west, from the burning climate of India to the frozen zone. Among every polished nation on earth, and even among nations half-civilized but united in sedentary societies, there is no country habitation around where fowls, more or less numerous, are not met with, which man rears, shelters and nourishes, and which are called cocks and hens. They may be looked upon as a blessing to humanity, and are a species which art has almost entirely wrested from nature. Fowls are everywhere seen in a domestic state, and wild ones are scarcely to be found anywhere; it is not long since it was positively known where the latter still exist in small quantities.

Aristotle, who wrote about 350 years before Christ, speaks of them as familiarly as a natural historian of the present day would. The Roman authors of the Christian era recorded that they classed into such a number of distinct varieties as could only have been the result of long cultivation.

“Among the moderns,” says Olivier de Serres, “I am the first that had seen fowls in a state of liberty. In traveling over the gloomy and inextricable forests of Guiana, when the dawn of day began to appear, amidst the immense woods of lofty trees which fall under the stroke of time only, I often heard a crowing similar to that of our cocks, but only weaker. The considerable distance which separated me from every inhabited place, could not allow one to think this crowing produced by domesticated birds; and the natives of those parts, who were in company with me, assured me it was the

* Written for the Annual Register of Rural Affairs, by C. N. BEMENT.

voice of wild cocks. Every one of the colony of Cayenne who has gone very far up the country, gives the same account of these wild fowl, and I have seen one myself. They have the same forms, the fleshy comb on the head, the gait of our fowls, only that they are smaller, being hardly larger than the common pigeon; their plumage is brown or rufous."

Some older travelers have spoken before of these wild fowl of South America. The Spaniard Acosta, provincial of the Jesuits of Peru, has positively said "that fowls existed there before the arrival of his countrymen, and that they were called in the language of the country, *talpa*, and their eggs *ponto*."

But a learned traveler, to whom ornithology in particular is indebted for many capital discoveries, M. Sonneret, has again found the species of wild fowl

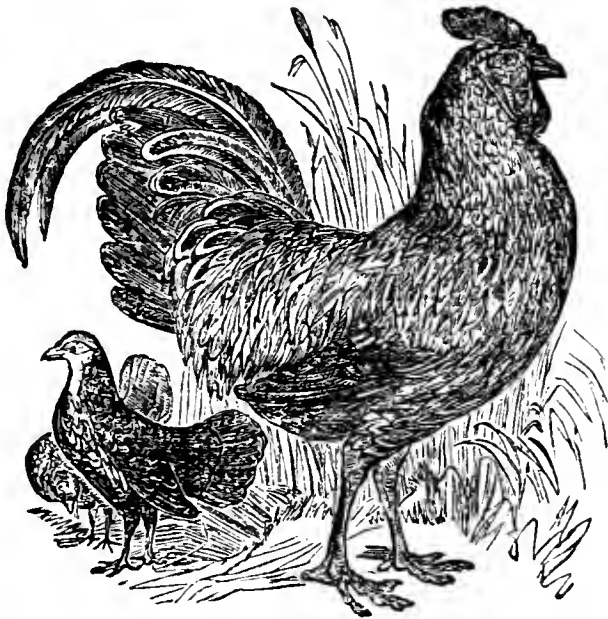


Fig. 1.—SONNERET'S FOWL.

on the antique land of India, in the mountains of the Ghantes, which separate Malabar from Coramandel. More successful than other travelers, M. Sonneret took home two birds, a male and a female, of the Indian tribe, and published a description of them in his *Travels to the Indies and China*; and he has taken them to be the primitive stock, whence had sprung all the tribes of our domestic fowl.

Sonneret speaks slightly of Dampier, who mentions that he saw wild cocks in the In-

Indian Archipelago—naturally enough concluding that in this Jungle fowl he had found the primitive stock. Subsequent inquiries have, however, confirmed the statements of Dampier, not only as to the existence of species of wild fowl in the Indian Archipelago, but it is also admitted that the Bankiva species in Java, and the Jago species in Sumatra, more nearly approximate to our common fowl than that now under consideration, and to which Sonneret refers. Upon the whole, it seems that our varieties of domestic fowl proceed from mixtures of original species. Practical observers arrive at much the same conclusion on this point with scientific naturalists. It is thus, for instance, considered in India that our Game cock originated from a mixture of the Jungle cock with wild species in Malay and Chittagong. Altogether, however, it must be admitted that on this disputed point, very little is actually known; and the domestication of the bird ascends to such remote antiquity, that it seems hopeless to ascertain the original species with precision.

THE BANKIVA JUNGLE FOWL.—This beautiful bird (fig. 2) is found wild in Java, and is the most diminutive of its genus, and the stock to which our

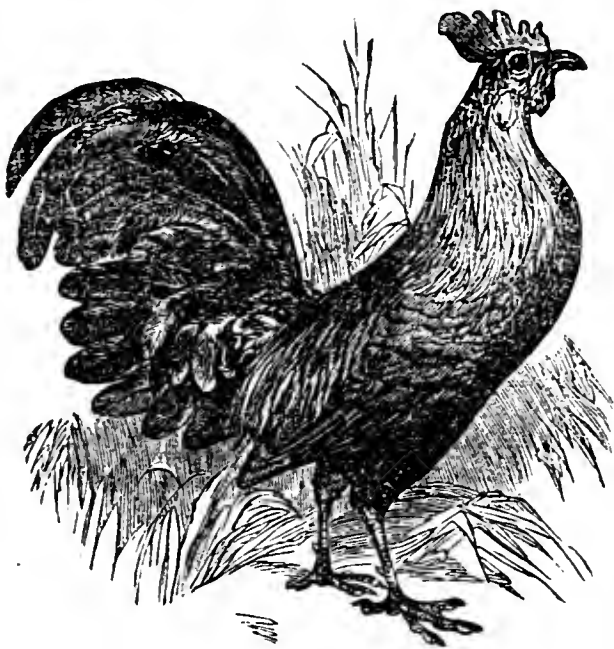


Fig. 2—BANKIVA JUNGLE FOWL.

own Bantams are generally and with much probability assigned. The very term Bantam, a town and district of Java, is sufficient to establish the fact.

An account has been given of an imported pair of Bankiva fowl, from which, however, no progeny was obtained, either pure or from Bantam hens that were introduced into their aviary; they retained their unsociable demeanor to the last; and after slaughtering several Bantams that had thus been placed with them, they themselves at last fell victims to the superior strength of a Game hen.

A larger variety of Jungle

THE GREAT MALAY FOWL.

—This gigantic breed of fowls (fig. 3) is in high repute with many writers as a supposed link between the wild and the tame race of fowls. It undoubtedly descended from the Kulm or gigantic cock, which is a native of Java, Sumatra, and probably in all other parts of Southern Asia. It is still found on the islands named. Travelers inform us that it is kept in a domestic state not only in India, but in the Malay peninsula, in Cochin-China and China, from whence they are now occasionally imported. It has long been known in Europe and America, although it is only within the last few

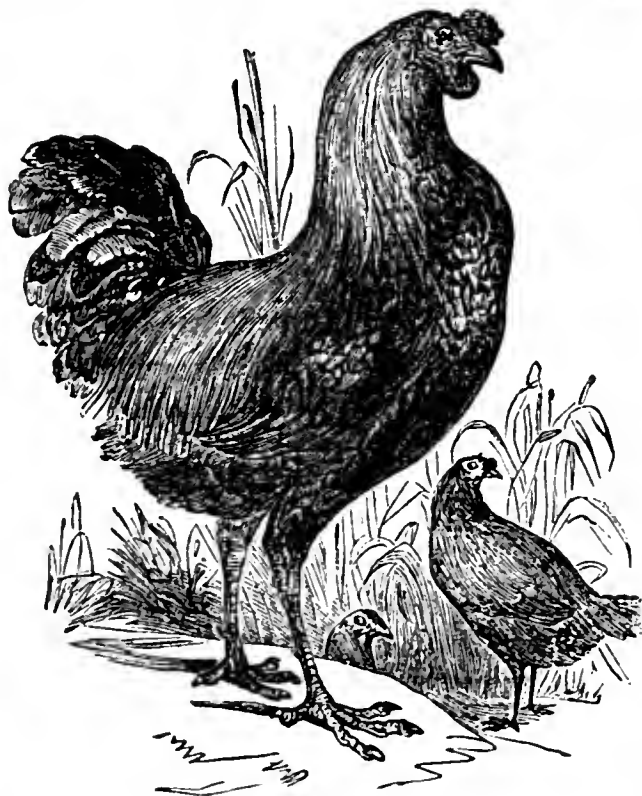


Fig. 3—GREAT MALAY FOWL.

years that much attention has been directed towards it in this country. Previous to the introduction of the more quiet Cochin, Shanghai and Brahma, whoever required size resorted almost of necessity to the Malay blood, and a cross of it probably prevails in all the larger breeds. The trifling differences which appear in the kinds mentioned, Martin attributes to the influence of domestication and accidental crosses. It is unquestionably the parent stock of the kinds now known under the names of Cochin, Chittagong, Java, Brahma and Shanghai.

The breed in its pure state is generally not handsome, either in form or plumage, and its flesh is coarse and wanting in flavor. The cock (represented in fig. 3,) shows the greatest purity, and indicates the least departure from the original.

WHITE-FACED SPANISH FOWL.—Until quite recently few specimens of this noble race of fowls (fig. 4) have found their way into this country.

At the period of Mowbray's writing, it appears they were scarcely known.

Like the Black Poland, the plumage of the Spanish fowl is expected to be entirely of that glossy sable color, except glancing greenish tints on some feathers. This, with its quality of being one of the "everlasting layers," makes it a favorite where eggs only are wanted.

The cock is a noble, stately bird, and possesses excellent symmetry. The hen is also of good size

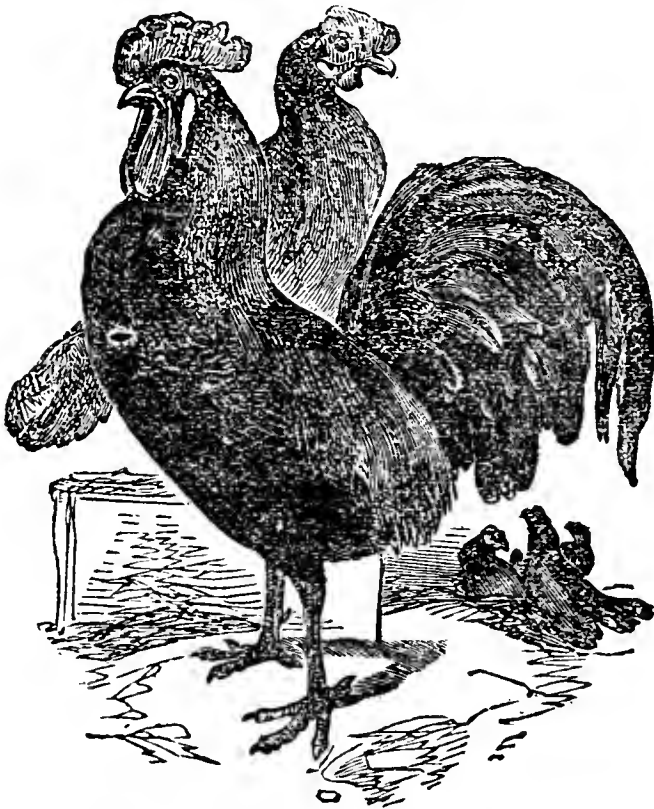


Fig. 4—THE WHITE-FACED SPANISH FOWLS.

and good figure. The combs of both cock and hen are very largely developed, single, deeply indented, and of a bright scarlet; the gills or wattles are very long and pendulous; eyes very bright and spirited; beak moderate in size and a little hooked; face, cheeks and ear-lobes perfectly white, with a bluish tinge underneath, the white extending round the eye, which increases with age, especially in the female; neck of moderate length, but strong; body round and close-feathered; wings of medium size; rather long in the

leg, which is of a dark bluish color; tail a good plume and carried high; a lofty carriage. In the hen—head and beak neat and of a moderate size; eyes bright; comb single, large and pendulous, and falls over; face white, the white extending round the eye; neck of moderate length, neatly set on; body long and breast broad; wings of middle size; tail long, well squared, and carried upright; plumage as in the cock, but less brilliant.

Spanish hens are very celebrated for laying very large, quite white eggs, of a peculiar shape, being very thick at both ends, and yet tapering off a little at each. It is generally conceded, we believe, that Spanish hens will lay more *pounds of eggs in the year* than any other variety. And when we come to speak of them as layers, our award of praise can hardly go too far, either as to actual number of eggs laid or their actual annual weight, varying from $2\frac{3}{4}$ to $3\frac{1}{2}$ ounces, and sometimes reaching 4 ounces each.

We cannot too much insist upon the value of pullets for laying purposes in the autumn and winter after they are hatched. No fowls can surpass the Spanish in this respect. It is believed they are also more precocious in their constitution, and that in consequence the pullets lay at an earlier age than those of other breeds.

ASIATIC FOWLS.—Under this head we embrace the Cochin, Brahma, Chittagong and Shanghai. All these fowls take their names from the country and rivers of their nativity.

During the last fifteen years many importations of fowls have been made from India, China, and elsewhere, that are much superior in size, laying qualities, and their general domestic habits, to our common fowls. Among the Asiatic fowls the Shanghais have occupied a prominent position; not, however, as *the best* among us, as many have contended, but as a fowl in many respects superior to our common breed; and the same may be said of the Brahma and Cochin. The Brahmas are generally acknowledged to be at the head of the list in regard to *size*, weighing at maturity from twenty-two to twenty-six pounds per pair.

There seems to be considerable difference of opinion as to whether the Cochins, Brahmas and Shanghais are varieties or distinct breeds. We firmly believe they are one and the

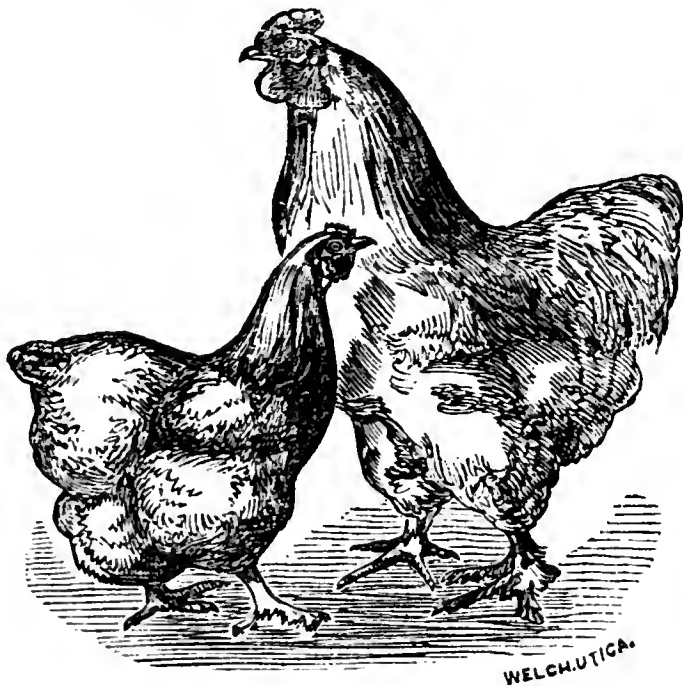


Fig. 5—ASIATIC FOWLS.

same. One thing is certain—the breed we have in this country as Cochin Chinas are plentiful about Shanghai. “Are Cochin and Shanghai fowls the same?” We have always entertained the opinion that they are, and as we have always invariably found that fowls imported from China into this country, whether feather-legged or plain-legged, whether dark-plumaged or light-plumaged, came hither directly or indirectly, either from Shanghai or its vicinity, we have long since concluded that Cochin, Brahma and Shanghai were of one family.

Characteristics.—The pullets of all Asiatic fowls begin to lay at five months old. The eggs are small at first, but they are numerous, when liberal feeding and warm dry shelter are provided. The egg of the hen averages $2\frac{1}{4}$ ounces; it is rounded almost equally at each end, so that its shape may be strictly described *oval*—an expression, notwithstanding its derivation, that is by no means applicable to the eggs of some fowls. In color it varies from different shades of buff to a tint approaching cinnamon, and the shell is unusually strong.

There is considerable difference in the Asiatic fowls, some of which are loose-jointed, crane-like concerns, with legs long enough to step over a pretty high fence; these are a disgrace to the tribe. Many persons owning fowls of this description have, after a short trial, discarded them, and justly conclude

that there is a great deal of “gammon” in the “hue and cry” about fancy poultry.

GOLDEN CHITTAGONGS.—This is a new and we believe the last variety of Asiatic fowl introduced into this country. We found in possession of the late David Ely of Rochester, who was a great fancier of fowls, a small lot of Asiatic fowls, which appeared to us as being far superior to any other of the large breeds. On inquiring their origin, Mr. Ely informed us that he obtained them through a

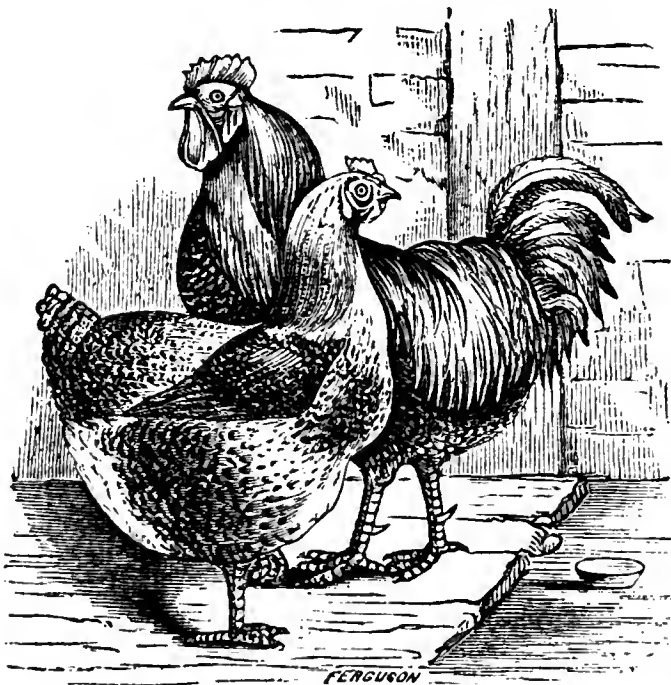


Fig. 6—GOLDEN SPANGLED CHITTAGONGS.

friend in New-York, from the master of a vessel direct from China, and that they were called *Pheasant-colored Chittagongs*. He had bred them two years, and found them valuable as early layers and good breeders. He had at the time we first saw them in his yard, nine pullets and one cock, and the ten he assured us weighed over 90 pounds. They were as much alike “as

two peas"—all seemed to have been cast in one mould, both in form and color.

The peculiar beauty of the Spangled Chittagong fowl is certainly in their rich plumage, which renders them objects of attention and interest to the most casual observer. Their general appearance has much of the Cochin character. They are extremely docile and tame in their habits, and a three-foot fence is sufficient to restrain them within prescribed boundaries, on which account we most assuredly believe them one of the best breeds for the poor man and the farmer, considering them, as we do, not as *fancy* but only as productive stock.

THE OSTRICH FOWL.—This valuable variety, we have understood, first originated in Bucks County, Penn.; hence they were called by some the "Bucks County" breed.

The specimens from which our portraits were taken, were presented to the writer by a gentleman of Boston, who informed us he procured them from

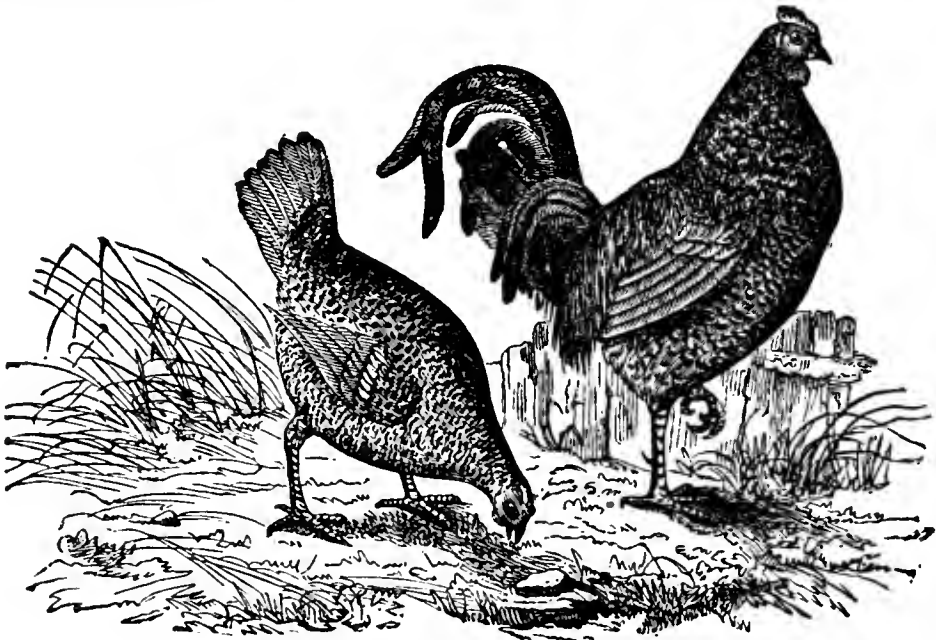


Fig. 7—THE OSTRICH FOWL.

Maryland, where they were known as the "Ostrich Fowl." In a letter accompanying the fowls he says, "This breed are the largest of fowls, and from them you will obtain the largest sized eggs. I have had eggs from this breed weighing $4\frac{1}{2}$ ounces avoirdupois weight," &c.

Dr. Kittridge of N. H. furnished the writer with the following information regarding the "Booby Fowl," which, from his description, we take to be the "Ostrich Fowl" under a different name. He says, "Booby is a large fowl, weighing from six to nine pounds. Of those I received, the smallest weighed six pounds, the largest seven and a-half pounds; the cock almost nine pounds. Their invariable color is a black ground with white spots all over them; the legs are black; they are shaped like a turkey. They are great layers, and are not so much inclined to sit as the common hen, laying forty or fifty eggs before they are broody. I procured mine from Montgomery county, Penn."

The color of the cock is a dark blue-black, with the ends of his feathers tipped with white; wings tinged with a yellow or gold color; hackles dark glossy blue; rose or double comb, and wattles large; bold, lively carriage and a stately walk. The hen does not differ much from the cock in color, and is very similar in form, being deep, plump and thick set in body; legs short, of medium size, and of a dark color; she has a high single comb, serrated, generally falling over one side; wattles large.

They are esteemed good layers, good sitters and good mothers; the eggs large and nutritious; the flesh unlike the Malay, but white, firm, tender, and fine-flavored. We consider them fully equal to the Dorking, and they were the fowls usually *caponized* in Pennsylvania and New-Jersey, weighing from sixteen to eighteen pounds the pair. Since the introduction of the Asiatic fowls, they seem to have disappeared, for we hear nothing of them at the present time.

THE DORKING.—The colored Dorking has of late been a great favorite in this country, and bred to great size and beauty. The Grey Dorking is a large, plump, compact, square made fowl, with short white legs and ample furnishing. Our portrait (fig. 8) represents a Grey Dorking cock, with a double or

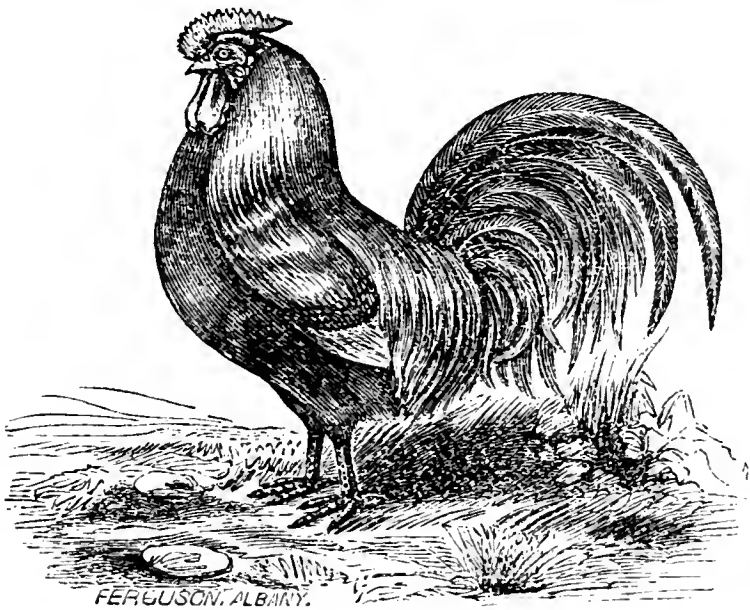


Fig. 8—ROSE-COMB DORKING

rose comb, which is regarded as an essential point. They are considered much more hardy than the white variety.

The great and well deserved reputation which this breed of fowls has acquired in England, arises more from the superior quality of its flesh over that of other fowls, than from its beauty of form, splendor of plumage, the quantity and

size of its eggs, or the weight of its body. It is chiefly for the whiteness and delicacy of its flesh that the Dorking fowl is valued, when served at table.

The White rose-combed is *the* Dorking of old fanciers. A writer in the *Poultry Chronicle* holds with this opinion, and says "the *old* Dorking, the *pure* Dorking, the *only* Dorking, is the *White* Dorking." The same writer curtly describes it as "of good size, compact and plump form, with short neck, short white legs, five toes, a full rose comb, a large breast, and a plumage of spotless white." As regards size, the White Dorking is generally inferior to the colored bird, but in this respect it only requires attention and

careful breeding. The greatest drawback in rearing Dorkings is the delicacy of the chickens. On a fine genial soil, with a good range, they will do well; but without these advantages the chickens die off, and the hens prove indifferent layers.

THE DOMINIQUE FOWL.—This much neglected and overlooked fowl there is good reason to believe is old and distinct, though it is generally looked upon as a mere “farm-yard fowl”—that is, the accidental result of promiscuous

crossing. But there are seen to be repeated, generation after generation, the counterparts of which are to be found here and there, scattered over the whole country.

For all the purposes of a really *good* domestic fowl—whether for productiveness, easy keeping, laying qualities, quantity and flavor of meat, maternal duties, disposition, beauty of form, or hardiness, after a careful comparison of sorts, we have come to the conclusion that the Dominique fowl is *one of the best*. This is saying much, we know, in their favor, but to our fancy they have no superiors among

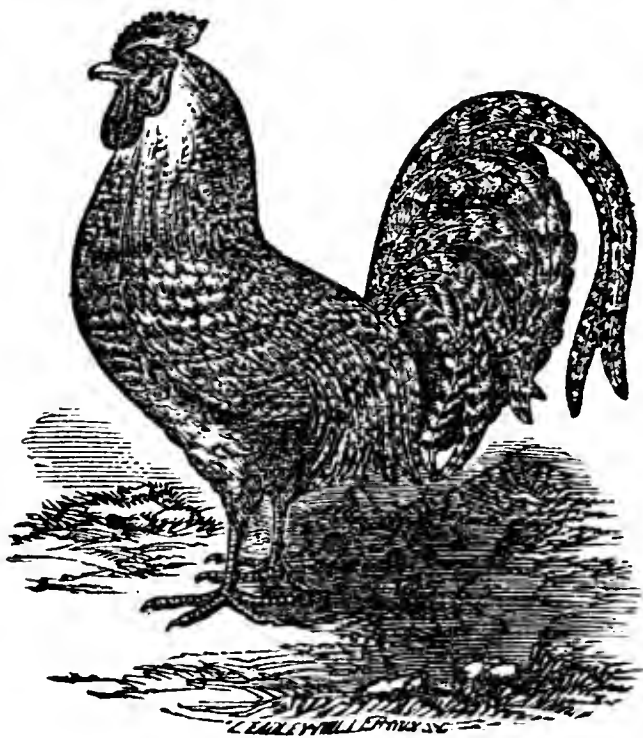


Fig. 9—THE DOMINIQUE FOWL.

all the varieties in this country. And those who wish to stock their poultry-yards with fowls of the most desirable shape and size, clothed in rich and variegated plumage, and not expecting perfection, are willing to overlook one or two points, the Dominiques are the breed to be at once selected. The hens in addition to their color, have a large comb, which, when they are in high health, adds very much to their brilliant appearance, particularly if seen in bright sunshine. The cocks are magnificent. Their peculiarly square built form displays to the greatest advantage. The breeder and the cook behold with delight their short legs, their broad breasts, the small proportion of offal, and the large quantity of high flavored and good profitable flesh. When fattened and served at table, the flavor and appearance of their meat are inferior to none. They are not everlasting layers, but at due and convenient intervals manifest the desire of sitting. In this respect they are steady sitters and good mothers when the little ones appear. The prevailing color is a slaty blue, undulated and shaded with black all over the body, forming bands of various widths. The cocks are of the same color as the hens, with now and then golden hackles and brass-colored wings. The legs, feet and bill, are light flesh color or yellow.

To keep the race hardy, healthy and prolific, the best remedy that can be desired is to introduce a fresh, well selected cock or two into the yard every second or third year at farthest.

The Golden Spangled Hamburg fowl, of which fig. 10 is a good illustration, is known in some sections of England as the "Golden Pheasant," from the



Fig. 10—GOLDEN SPANGLED HAMBURG FOWL

supposed resemblance of its spangled feathers, especially in the case of some of the hens, to those of the English cock pheasant; and "Red Caps," in allusion to their fiery-colored combs; "Golden Mooney" from the moon-like shape of the spangle marks. In one district of Lancashire they are kept to an extent which has procured for them the name of "Bolton Bays." They have also been known as "Dutch Every-day Layers."

The Golden Spangled Hamburg cock is a perfectly beautiful bird; nothing but a full sized drawing, colored, can give an adequate idea of the extremely rich coloring and brilliant lustre of his plumage.

The comb of the cock is a very full developed rose, about one and a half to two inches broad, and running into a pike behind; wattles large, rounded, and, like the comb, of an intense red; ear-lobes white and large; hackle a rich copper with black markings, though in some of the best specimens both hackle and saddle feathers are rounded, and have the perfect spangle at their extremity; wings barred by the spangle of their coverts; breast, thighs, and lower part of the body nearly black; tail full, erect, flowing, and bronzed throughout; legs and feet clean and of a dark color. They stand about nineteen inches high, and weigh on an average five pounds and a-half.

The hen has a small rose comb, shaped like the cocks; ear-lobes white; with body, the lower part excepted, spangled as in the cock; neck darker than the body. Her tail is full, and tipped with black like the Sebright Bantam. Height about sixteen inches, and weight about four and a-half pounds.

The hens are the most perfect patterns of neatness of make, but a little under size; excellent and continuous layers without sitting, for they do not seem to have time for that slow process. The flesh is excellent, skin tender, and but little offal. Eggs abundant, rather small, very white, and slightly tapering at one end. Their constitution appears to us less robust than some other varieties.

They are rather impatient of restraint, are great foragers, and add greatly to the embellishment of the lawn or pleasure grounds.

THE BOLTON GREY is a fine plump, hardy bird, and when bred to nicety can scarcely be distinguished from each other when apart; and when so bred there is not a more beautiful fowl among our domestic poultry. They are

esteemed first-rate egg producers, poor sitters, but can hardly fail to be a satisfactory and desirable every-day fowl.

Mowbray says of the Creole or Bolton Greys: "This variety, apparently the crack breed of their vicinity, but entirely unknown in the metropolis, is described by Rev. Mr. Ashworth, vicar of Farnworth, as follows:— 'Small-sized, short in the leg, and plump in the make. The color of the genuine kind is invariably pure white in the whole lappel of the

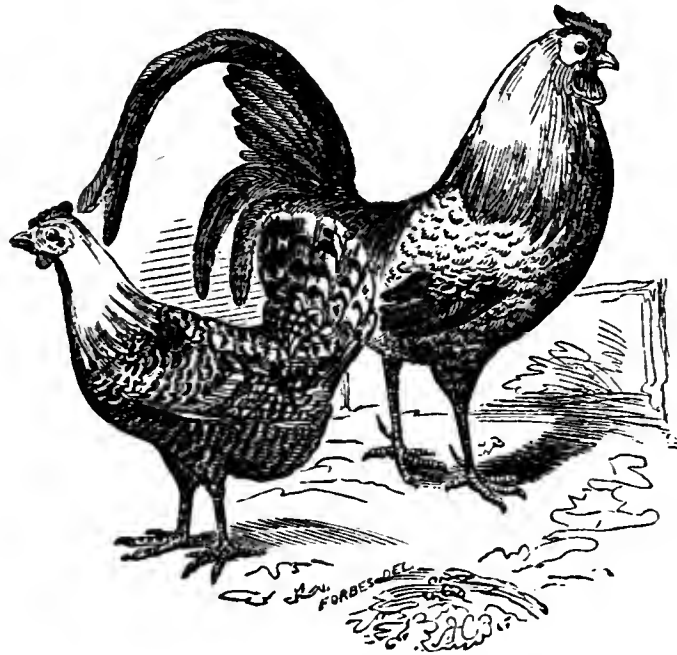


Fig. 11—THE BOLTON GREY.

neck; body white, thickly spotted with black bars at the extremity of the tail; they are chiefly esteemed as very constant layers, though their color would make them good table fowl.' "

The hens, if young, continue to lay nearly throughout the year, which entitles them to rank among the best egg producers; but the eggs, which are white and small, about the size of those of the game hen, weighing about one

and a-half ounces each, are rich and fine flavored. As they seem to have no desire to incubate, it is advisable to hatch their eggs under a common hen.

They are, like the Hamburg, rather impatient of confinement, and succeed best when they can have the run of a pasture or common. They are light on the wing, and seven-foot fences,

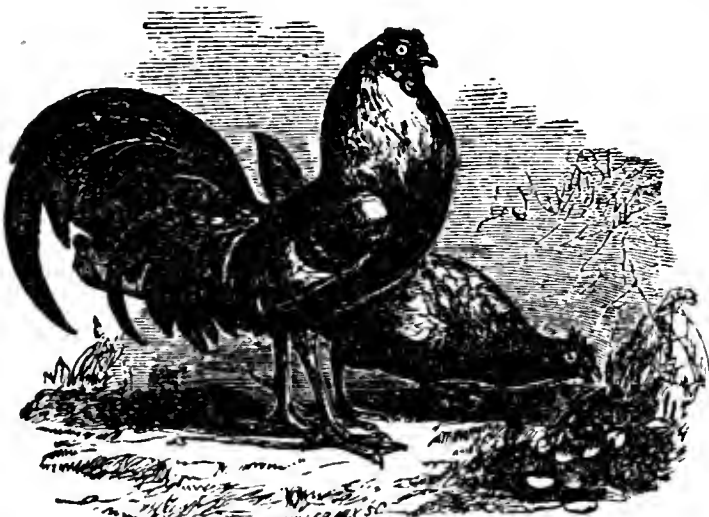


Fig. 12—THE GAME FOWL.

when they are intended to be confined, will not be more than sufficient height for their safe custody.

Of all breeds the Game (fig. 12, preceding page) is generally considered the most beautiful, whether we look to contour or to coloring. The cock carries himself proudly and yet gracefully; his port and bearing proclaim his fiery spirit and undaunted mettle, which endure even to his last breath; for while prostrate and mortally wounded, he will answer the insulting crow of his victorious rival, and make a last effort to revenge himself before the spark of life is extinct.

It is not only for its pugnacious qualities that the Game fowl is to be noticed. It yields to no breed, nay, perhaps is superior to most in the whiteness of its flesh; the hens are excellent layers, and the eggs, though of moderate size only, are remarkable for the delicacy of their flavor.

Many persons, however, object to keeping this breed on account of the destructive attacks they make on each other; including cocks and hens, young and old, indiscriminately.

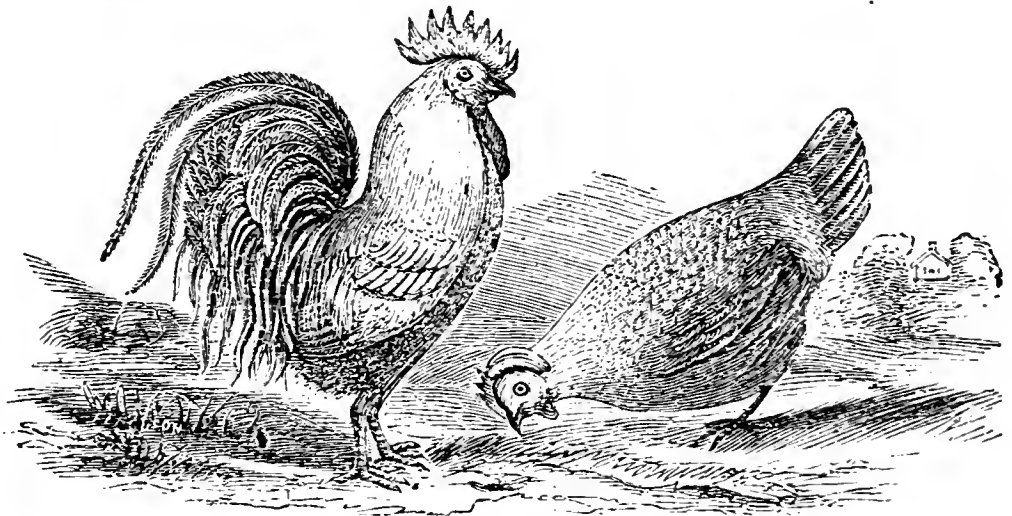


Fig. 13.—THE LEGHORN FOWL.

The Leghorn is a very handsome variety, resembling very much in form, size and color, the Creole fowl, but we are unable to trace its origin. In size they are rather less than the Golden Spangled Hamburg fowl; round and plump in body; legs small and of a lead color; head small, finely turned, and surmounted with a high, deeply indented comb, (as represented in fig. 13.) The comb of the hen falls over like the Spanish hen. The neck feathers of the cock are pure white, while those of the hen are marked with small black spots running into a grizzle; the tail feathers darker with transverse black bars. They carry their tails like the Spanish fowls, and were they clothed in glossy black would pass for fowls of that breed. They are one of the most ornamental varieties, and would add much to the beauty of the poultry-yard. They are chiefly esteemed, however, as layers, but like all great layers are poor sitters.

Fowls in their native haunts, never lay more eggs in a season than they can

hatch. Those who keep every-day layers, as they are sometimes called, should keep Dorking, Game or Dominique hens to do the hatching business.

The portraits of the Leghorn fowls were drawn by a female artist expressly for the ANNUAL REGISTER OF RURAL AFFAIRS.

THE HAMBURG FOWL.—"Of all the gallinaceous tribes," says an English writer, "perhaps there is not one which has created so much discussion as

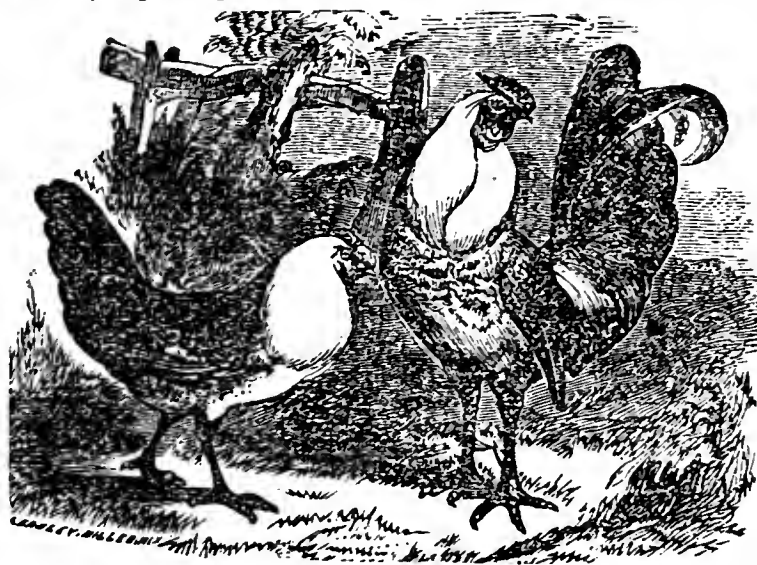


Fig. 14—THE SILVER PENCILED HAMBURG FOWL.

this. The name, the plumage and the markings have all formed, and still do form, subjects for lengthened debate. I use the now established name of Hamburg, not perhaps because it is the best that might have been found to designate the varieties which bear it, but because it has been so long in use, and is so generally used, both here and in America, that an attempt to change it would now only create confusion. I believe the Rev. E. S. Dixon was the first whose arrangement collected the pheasant fowls and Dutch every-day layers under the general name of Hamburg—a classification which has been adopted and followed in the exhibitions and by amateurs."

The Hamburg fowls are distinguished by a large, fleshy, red double comb of extraordinary size and shape; it is flat on top, and yet covered with small upright points, and terminates behind in a sharp point or spike, which is directed upward. In the Golden Spangled variety, this succulent comb is so extra-sized as to have obtained for these birds the name of "Red Caps."

The Hamburg is a medium-sized fowl, with a brisk and spirited bearing, with a short and conical bill; the legs and feet lead color or dull blue; the habit to lay on continuously without sitting; the flesh excellent; the eggs good and abundant; the constitution, perhaps, not so robust as some other fowls. They are profitable fowls to keep, being excellent layers and not large eaters. From these qualifications, to which great beauty of plumage may be added, they are great favorites, especially with amateurs and those who require a constant supply of eggs rather than frequent broods of chickens; while at the same time they have the means of petting their fowls with aviary comforts and indulgences. For this class of poultry-keepers they are better suited than for farmers. They are what pigeon fanciers would call good field birds, delighting to wander far abroad and to seek provender for themselves.

In the Pencilled Hamburg, which fig. 14 is intended to represent, the marking is more minute. When seen at a distance the hens have the appearance of being minutely speckled in plumage, and over this a pure white hackle falls and contrasts very prettily. When one feather is taken separately, the marking is very exact and beautiful, being a regular pencilling; that is, the feather is divided by bars evenly arranged, of alternate white and black. Like the spangles, they are divided into gold and silver for the same reason—the ground color of the plumage. In all these birds exactness of the markings is a great point.

The great point in Crested fowls is the top-knot, which should be large, compact, well shaped and full. In front of this should be a small, bright red comb, divided something after the fashion of a pair of horns. The different



Fig. 15—THE CRESTED FOWL.

kinds are distinguished by their colors. There is the Black, with a white top-knot, the hens of which look like ladies with black satin dresses and coifure of snow-white feathers; the Golden, with the body of an ochre-yellow or brown ground, with dark spangles on each feather; the Silver, with white ground and black spangles. The Black Crested

sometimes produce pure white chicks of great beauty, but so tender that it is difficult to rear other white ones from them.

The Black with white crests or top-knots, have long been an inhabitant of our poultry-yards; the principal characteristic of which is the large top-knot, so conspicuous in all its varieties. A small spiked comb resembling the horns of a crescent, has been usually regarded as another distinctive feature of these birds; while on the other hand its presence, however slightly marked, has been held by some to denote impurity of descent; and the fowl thus assuming the Polish name, has been termed the "tufted Hamburg."

All Crested fowls are considered good layers, usually commencing early in the spring, and continuing the process, with brief intermissions, till the period of moulting. During winter they are not to be depended on, and other fowls must be sought to furnish the supply of eggs at that season. The Black White-Crested are usually considered the best layers; and the average weight of their eggs is placed at two ounces.

Bantams are old-established pets of poultry fanciers, both of low and high degree. They are the dwarfs and imps of their tribe. They are pugnacious among themselves, troublesome and impertinent towards larger fowls, but

maintain their ground in public favor from their neat and pleasing appearance, the plenty of their eggs, their usefulness as nurses, the great service they render as destroyers of grubs and insects, and the small extent of accommodation necessary for them. In old times they were mostly feather-

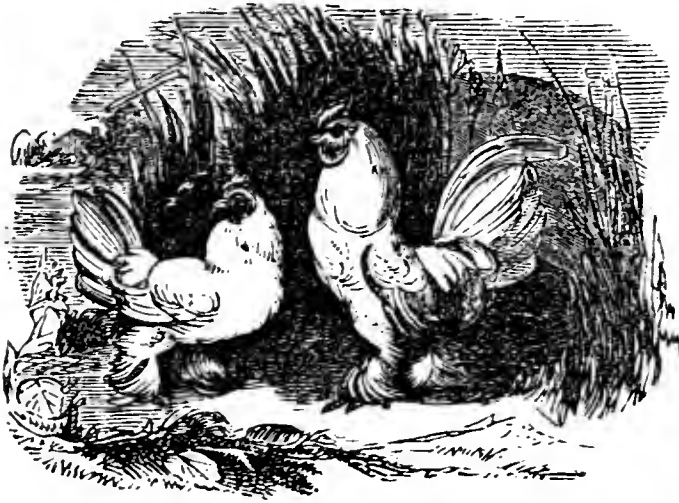


Fig. 16—BANTAM FOWLS.

legged, like the accompanying figure. These have been discarded, and clean-legged varieties have been substituted.

“There can be but little question,” says the editor of the English Poultry Book, “that to the islands of the Eastern Archipelago the origin of this lilliputian family must be referred; but whether all our present varieties owe their descent to any other primitive stock, may be the subject of speculation, indeed, though hardly, at the present day, capable of proof. Bantam, however, a town and district of Java, has afforded their present designation; and the wild Bankiva fowl is the bird to which they are usually considered to owe their origin.”

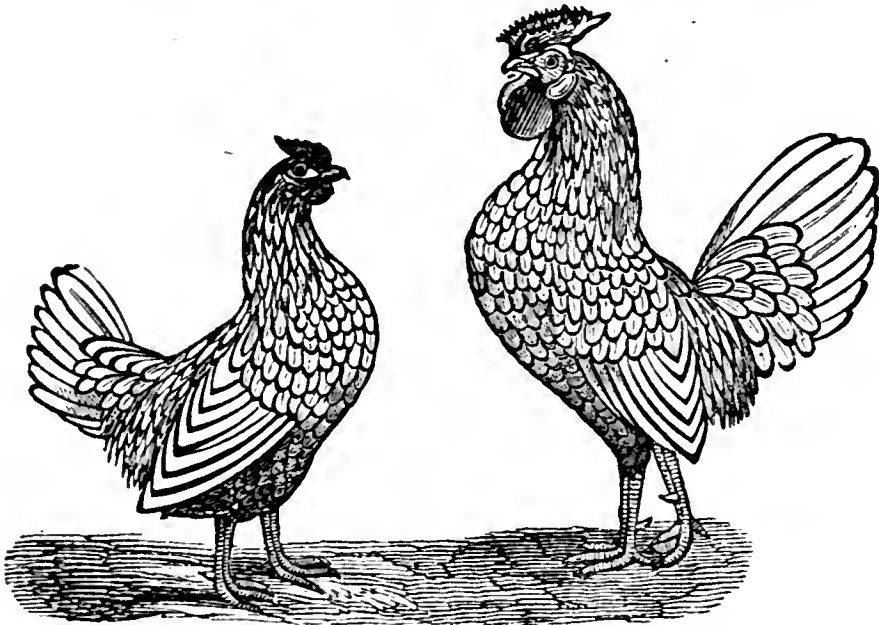


Fig. 17—GOLDEN SPANGLED BANTAMS.

In the English Poultry Book there are seven varieties of Bantams enumerated, viz.: The Nankin Bantam, the Game Bantam, the Spangled Bantam, the Sebright Bantam, the Partridge Bantam, the Black Bantam, and the White Bantam.

The kinds most in vogue now are the Black and the Sebright; but the

Nankin are as pretty and useful as any. Some of those are almost perfect miniatures of the Golden Spangled Hamburg fowl. A great peculiarity in the Sebrights is, that the cock has no sickle feathers in his tail, as seen in figure 17, but is what is called "hen-tailed." Of these there are the Golden and the Silver; the ground color of the plumage in the one is a rich brownish-yellow; in the other white, or more frequently cream color. Each feather is spangled with dark-brown black. The finer and more perfect the spangles are, the greater are they valued. The weight of the cock ought not to be more than twenty ounces; that of the hen not more than one pound. We have a hen that weighs only twelve ounces!

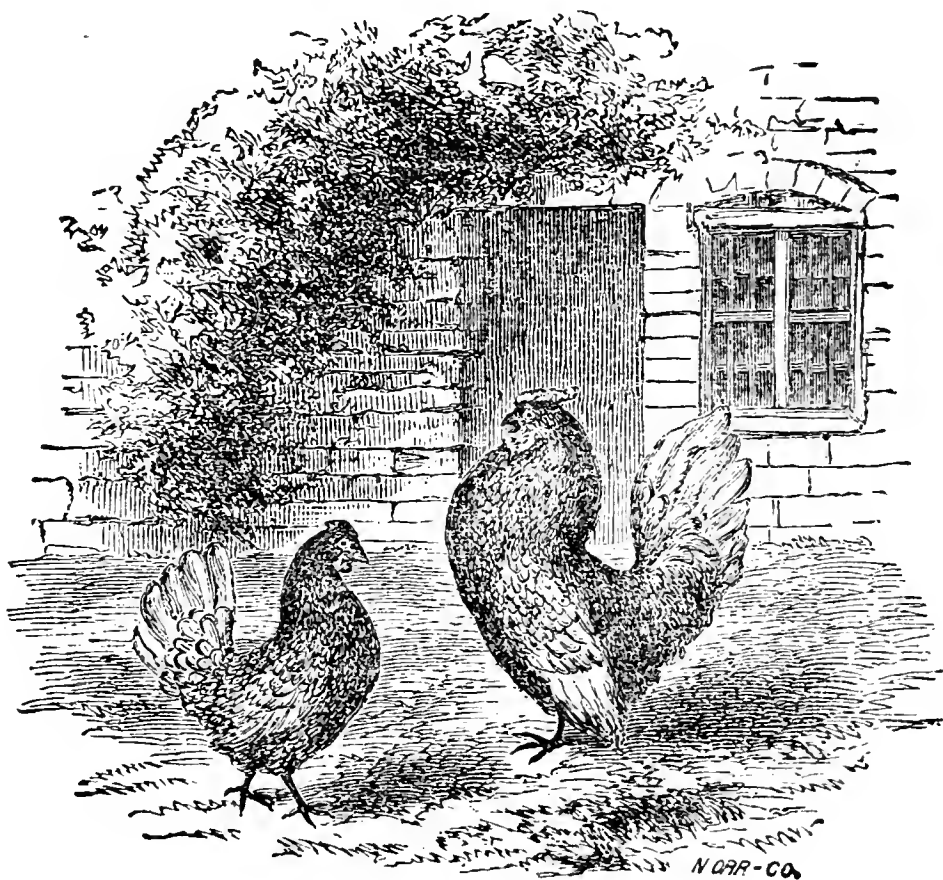


Fig. 18—SILVER SPANGLED BANTAMS.

This is, perhaps, the most beautiful bird of the whole family, and immediately reminds one of its Hamburg namesake, both in respect to the color and form of its markings, as also the shape of its comb. Many persons, indeed, would suggest the probability of their being the offspring of crosses between the above birds, in the same way as the Game fowl and Bantam.

The pair figured above are the property of M. Vassar, Esq., of Springside. They are beautifully marked; the tail of the cock is without sickle feathers, and carried high; and the head thrown back, the head and tail nearly meeting; the wings jauntily dropping until they nearly brush the ground; they have a rose comb nicely pointed, and projecting behind; and light blue legs.

The accuracy of marking, in both the Gold and Silver, is a very important point. The ground color is ivory-white or rich cream, the ends of the feathers tipped with blackish. The cocks are hen-tailed as well as hen-feathered; they have neither hackles nor plumes.

The plumage of the hen is similar to that of the cock. They are very good and early layers, most excellent sitters, sedulous and affectionate mothers, but murderous step-mothers—that is, if you attempt to change or add to the number of the brood they have hatched themselves; they will welcome the little strangers by making raw heads and bloody bones of them, before you can say “Jack Robinson.” Their chickens are of a creamy white, with two longitudinal dark stripes on the body.

The Bantams are the fowls of all others for the village or city. We have known them to prosper and lay through the winter in an underground room or cellar, well lighted. They are very domestic, often making their nests in the kitchen, depositing their eggs in the cradle or cupboard when permitted. They have been known to lay even in a lady’s work-basket.

The Black Bantam, in his appearance, is a pleasing little fellow, a most beautiful example of a great soul in a little body. Though extremely small

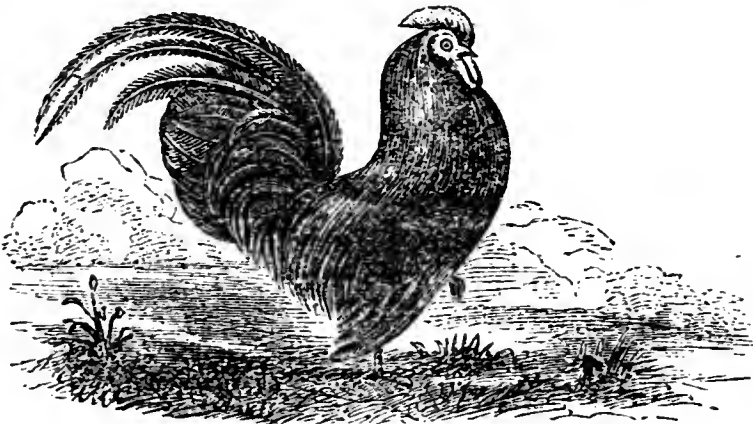


Fig. 18—BLACK BANTAM.

in size, the cock is elegantly formed, and remarkable for his grotesque figure, his courageous and passionate temper, his amusing pompousness of manner, his overweening assumption and arrogance, and his propensity to fight and force every rival to

“turn tail,” has caused him many difficulties. He will attack a turkey, Cochin or Brahma, ten times his own weight. He is more jealous, irascible and domineering, in proportion to his size, than the thorough-bred Game cock himself. His combativeness, too, is manifested at a very early period. Other chickens will fight in sport by the time they are half grown, but these set to work in good earnest.

These beautiful emblems of pride and consequence are peculiarly fancy fowls. They have been accused of not being a useful kind, as of course there is little meat in a fowl which, when full grown, should weigh, the cock about one pound, the hen less—the eggs being small in proportion; but their eggs are delicacies which would tempt almost any invalid. They must be considered more an object of curiosity than utility, and of course must expect to be viewed with no peculiar favor in this country except as “pets.” They no doubt do much good by the consumption of numerous insects.

The portrait was drawn and engraved expressly for the ANNUAL REGISTER OF RURAL AFFAIRS.

Management of Poultry.

Having given a short history and description of the various kinds of fowls most generally bred at the present day, we will now proceed to mention a few points requisite for the successful keeping of poultry.

As in the management of milch cows, so with fowls, it is as necessary to feed and to quarter, and to care for and select your stock with judgment. An ordinary breed of hens, well housed and well fed, will be of more profit to their owner than the like number of neglected and forlorn biddies, who came of the best laying tribe.

It becomes us, therefore, to build houses for our poultry, convenient for their habits, and convenient also for our own; for if attendance of any kind of stock occasions too much trouble, they will often be neglected. In building, therefore, let the house be handy for the hens, and as handy for yourself as possible; and of the two, we would say, in preference, make it handy for feeding, and for cleaning and warming and ventilation, as the hour or season of each comes round.

Let their feeding hoppers and water fountains be in the building, or they may occasionally lose a meal when you are too tired to go after it. Let the facilities for cleaning their apartments be always at hand; or the atmosphere of their dormitory may chance to be overcharged with ammonia. For the same reason let your windows work easily; and by all means whitewash the interior of the house, roosts, nests and all.

It is well known that hens are modest birds, and seek seclusion and privacy while the symptoms of approaching egg-labor are strong upon them. It is thought by many that the production of eggs is like the yielding of milk in a cow, somewhat under the control of the creature; so it becomes us to add every inducement to stimulate the instincts of nature; and coax a fowl to prolificacy by consulting their tastes and whims, and making the nests as secret as possible.

The principal considerations of a poultry-house, are warmth, light and ventilation. Warm in winter, because fowls will require less food, will be healthier, and will lay more eggs. Ventilated in summer and in mild winter weather, because fresh air is absolutely essential to all animated nature, and particularly to the fowl. Well lighted, because the fowls delight to be in a cheerful place, and to bask in sunshine admitted through the windows of their tenements in cold weather.

Whatever the breed or number of fowls intended to be kept, provision must be made for their comfort and safety. Fowls attached to farm-houses lead a happy life. They have air and plenty of room, with no lack of food; they wander about the farm-yard, visit the adjacent fields, travel over the common or down the lane, troop about the barn, and enjoy the greatest freedom. But how are they housed at night? Often in a proper and well

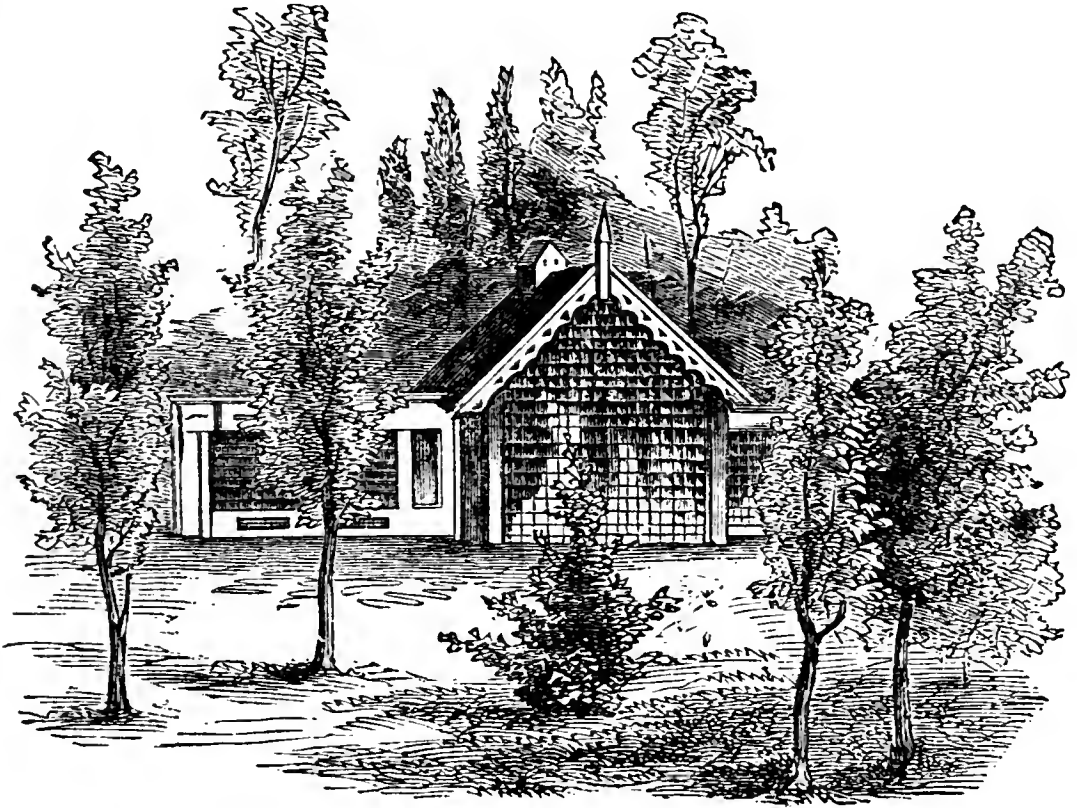


Fig. 20—WINTER FOWL HOUSE.

constructed poultry-house, with perches judiciously arranged, and with clean and convenient boxes for the hens to lay in, but sometimes in places utterly unfitted for them; they are allowed to find a place to roost where they can, probably in some exposed situation in a tree, out-house, or open shed, above the wagons, carts, &c.; others shelter in adjacent out-houses, and some in the stable. This want of order cannot be too much condemned. The hens having no proper laying places, select such as chance may offer them, not unfrequently in obscure places of concealment; consequently a safe and convenient fowl-house should be found on every farm where poultry is kept, and the fowls should have their exclusive dormitory. Farm-yard poultry are in general healthy and vigorous, nimble on their feet and light on their wings, and the feathered denizen of the yard of limited space, of a home in a village, may well look on them with envy. But in poultry-keeping, as in every other pursuit, we must not commence without counting the cost, or fancy that the purchase of good fowls is the only or the chief thing, and that when once started they will need no further care. If any other kind of farm stock was set adrift, and expected to do without regular feeding and attendance, the result would be a miserable failure and loss; and so with poultry, success need never be expected without the necessary outlay of care and attention.

In a sequestered nook, amidst a cluster of trees, on the sunny side of a steep bank surmounted by rocks covered with shrubbery, may be seen the new Winter fowl-house (fig. 20) lately erected at Springside. This location was selected by the writer for the purpose of protection from the cold

northern blasts, and receiving the warmth and benefit of the winter sun. The deciduous trees in front being deprived of their foliage in winter, admit the full influence of the sun, and when in full leaf, to shade and ward off his scorching rays in summer.

Description.—The elevation, as will be seen in the figure, is rather a pretty affair. The center building, with the gable to the front, is 12 feet square; 8 feet posts. The roof very steep, and surmounted with a kind of cupola, for the purpose of ventilation and ornament; in the bottom of the cupola are two small swing doors, to close when necessary. The entire front is of glass, extending to the very point at the top.

The left wing is a lower edifice, 22 feet long and 10 feet wide. The floor is of broken stone, covered with fine gravel, sunk 2 feet below the surface in front, and 8 feet in the rear. The back wall resting against the back, is of stone, 22 inches thick, faced with brick. The roof has a gentle pitch to the rear, and made of $1\frac{1}{4}$ inch plank, tongued and grooved, joints painted with white lead before being laid. The under sides of the rafters are lined with hemlock boards, the spaces between the rafters filled with tan, rendering it frost-proof. The front wall is of brick, and 2 feet high, on which the wood and sash rest. In the base are gratings to admit air; also above the glass, and just under the eaves, are open spaces for ventilation.

Internal arrangement.—In the rear, and running the whole length of the room, are two tiers of boxes for nests, 18 inches square, and the same in height. Adjoining the nest is an apartment of the same, a kind of ante-room, where the hen enters to go to her nest, which is latticed in front, giving air and apparent secrecy, with which she seems much pleased. The under tier 2 feet above the floor. The range of tiers is set out from the back wall 10 inches; the top front 28 inches. These nests are covered with boards sloping back and down, like the roof of a house, to catch and carry down the droppings of the fowls from the perches immediately over, to a trough in the rear. By this arrangement the manure is all saved, and out of the way of the fowls. We kept fifty Spanish fowls in this house last winter, without injury to their large combs or wattles by frost. We also wintered the same number of Bantams in the center building, furnishing us with fresh eggs during the whole winter.

A very cheap and economical plan for a rustic fowl-house may be constructed something after the above figure, which can easily be made by any person accustomed to the use of the saw and axe. All that is required is a little taste, having the plan well digested before commencing, so as to require no alterations. After selecting the situation, join four pieces of sapling in an oblong shape for the sills; confine them at the ground, and erect at the middle of the two ends a forked or crotched post of suitable height, in order to make the sides quite steep; join these with a ridge pole; rough board it from the apex downward, by the sills to the ground; then cover it with bark, roughly cut in pieces one foot square, laid on and confined in the same

manner as ordinary shingles; fix the back end in the same way; and the front can be latticed with small poles with the bark on, arranged diamond fashion, as shown in the sketch—a part to be made with hinges for a door.

The size of the building may vary according to the wants or taste of the owner. Toward the apex of the interior, rough roosting poles should run parallel with the sides of the house, so arranged that one set of fowls shall not perch directly above the others. Troughs or boxes should be placed under the poles, in order to catch the manure; and ladders

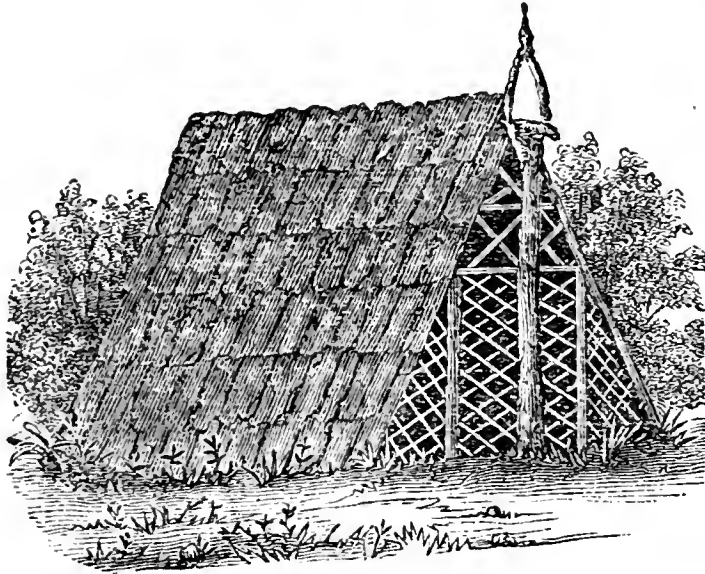


Fig. 21—RUSTIC FOWL HOUSE.

or steps should be provided for the fowls to ascend and descend from their roost. Laying or sitting boxes may be placed either side of the building, under the roofing on or just above the ground. They should be about fourteen inches square, ten inches deep, and partially concealed by bundles of cornstalks, wheat or rye straw, faggots or pine boughs. The sitting-boxes should be partly filled with wood ashes, pulverized charcoal, or soot. These

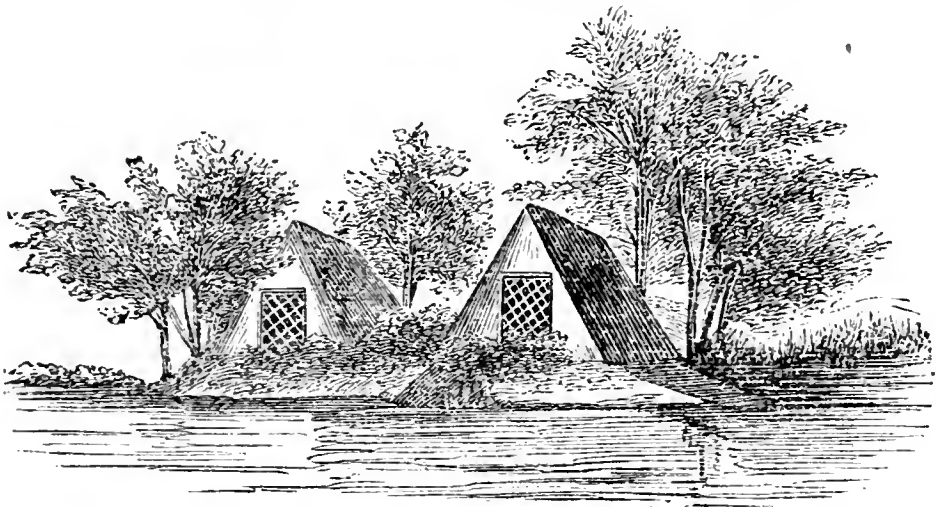


Fig. 22—AQUATIC FOWL-HOUSE.

are slow conductors of heat or cold, and when once warm they will impart a proper temperature to the eggs during the absence of the hen. They will also ward off lice and other small vermin, as well as contribute to her health. Directly above the ashes, &c., should be the nest. It may be made of finely chopped hay or straw, dried grass, or the leaves of trees.

Something after the style of fig. 22, (represented on the preceding page,) placed on the bank of a lake, pond, or small stream, and half covered with climbing plants, would make a very pretty home for ducks or other aquatic fowls.

The plan and elevation of a very cheap and pretty model of a poultry-house, which can be made to accommodate from twenty to one hundred fowls, was given on page 69 of the first vol. of this work.

For the accompanying sketch and plan of a beautiful poultry-house, we are indebted to the editor of the *New-England Farmer*, who says, "In con-

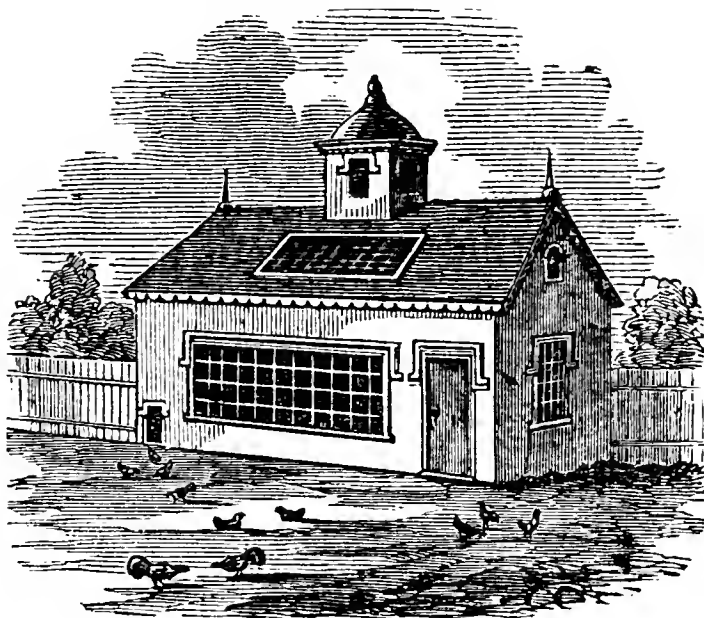


Fig. 23—MODEL POULTRY-HOUSE.

consideration of the profits arising from the keeping of poultry, as well as the very general interest now taken in this delightful feature of the farm, we have devised and had engraved the beautiful poultry-house here represented, and we think will be acknowledged by all a model house. The front should face the south, and the yard placed on either side, as taste or convenience may suggest; but so long as the ground is

uncovered; the fowls would enjoy a range on the south, and would be benefited by coming to the ground. After snow falls they will rarely leave the building."

A house of the above description, eight feet wide, thirteen feet long, and eight feet posts, will accommodate from twenty-five to thirty fowls, and that is as many as any family would find it profitable to keep, unless they have a wide range. If confined or restricted in their freedom, a yard of one-fourth of an acre would be large enough, provided a portion should afford grass, and a dense shade of low trees and shrubs, to which the fowls may retire in hot weather, where they will bask in the sand, and spend much of their time in a sociable and agreeable manner.

Fig. 24 (on the next page) is the ground plan and internal arrangement; *a*, is the entrance door; *b*, the grain chests; *c*, the feeding boxes; *d*, the stairway to the loft; and *e*, a small door or opening for the egress and ingress of the fowls, which should be at least two feet above the surface of the ground. The opening at the left of *a* is the doorway from the entry into the main poultry-room. Directly over the feeding boxes there may be placed another row for nests, three or four feet from the floor, which may be ex-

mined through a slide from the entry without entering the main room, or disturbing the hens while on their nests. These boxes may be darkened and

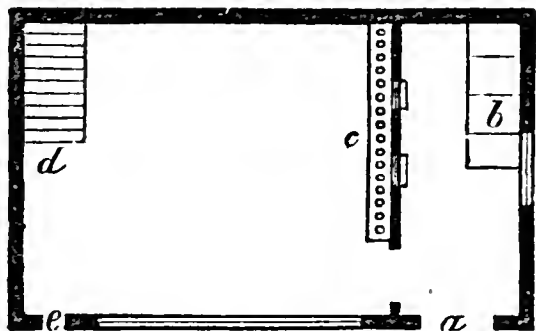


Fig. 24—GROUND PLAN.

made a little secret, by placing a shelf along in front of them, and nailing a board edgewise against it, "and as Miss Bidly, like some others of the gentle sex, is a little prudish at times, it is well enough to indulge her fancies." The fowls will find a warm place in the winter, on the floor under the window in the roof, in which to congregate.

The roosting poles should be placed crosswise of the gable and over the entry or ante-room, and commencing at the top or peak, say one foot from the end of the building, the second about 18 inches distant and 12 inches lower, and so on, like the steps of a ladder, to the floor, which will accommodate the larger fowls, which often injure themselves flying up and down from the roosts.

Fig. 25 represents the elevation of a neat, pretty and convenient poultry-house, designed by the writer, and erected near Factoryville, Staten Island.

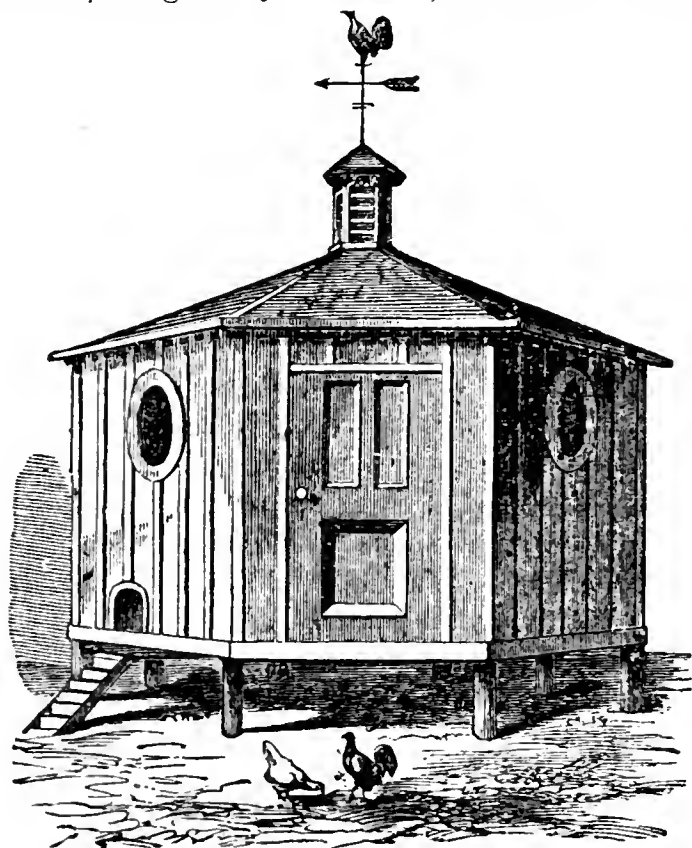


Fig. 25—OCTAGON POULTRY-HOUSE.

It is designed to accommodate from twenty-five to thirty common-sized fowls. The octagon was preferred on account of economy, as it takes less materials and labor to enclose a given number of feet in an octagon than in a square or oblong form. Where different varieties of fowls are to be kept separate, the apartments may be enlarged, and the yards radiating from each square of the building. The object of placing it on piles was to prevent the encroachment of rats, mice and other vermin. Rats are particularly annoying, as they not only devour the grain, but suck the eggs and kill the

young chickens. Where fowls were fed from a trough on the ground, we have known them to contend with and even drive the fowls from their food.

This building is ten feet in diameter and six and a-half feet high. The sills

are four by four, and the plates three by four joists, halved and nailed at the joints. It is sided with inch-and-a-quarter spruce plank, tongued and grooved, the joints battened on the outside. No upright timbers were used. The floor and roofing are of the same kind of plank. An eight-square frame, eighteen inches diameter, supports the tops of the rafters, leaving an opening of ten inches diameter, over which the cupola is placed for a ventilator. In place of the cupola, a vitrified stone chimney, such as are used sometimes on cottages. The piers should be either cedar, locust or chestnut, and at least two feet high, and set on flat stones.

The internal arrangement is as follows: A post may be set in the center, under the cupola, for one end of the roosts to rest on, the other end to the wall. The first or lowermost one two feet from the floor, and the others eighteen inches apart, and rising gradually to the top in a spiral form, six feet from the floor. Underneath these roosts is a board floor, on an angle of about forty-five degrees, to catch and carry down the droppings of the fowls. This arrangement renders it much more convenient in cleaning out the manure, which should be frequently done—at least once a week.

The space beneath this floor is appropriated to tiers of nests, 15 inches wide, 18 inches deep, and 18 inches high. In order to gratify their propensity of secretiveness, the front should be latticed, by which arrangement a free circulation of air is admitted, which adds much to the comfort of the hens while sitting.

The elevation cut on the preceding page, is taken from the new edition of "The American Poulterer's Companion," published by the Messrs. Harpers, where quite a number of plans may be found.

NESTS.—Nests are sometimes fixtures, and generally built against the wall, either in one tier or several, according to the number of fowls and the size of the house. When there is more than one tier, each of those above the ground must have a projecting shelf at the bottom, for the hens to alight on when going to their nests, which they reach by means of a slanting board with strips of lath nailed across for a ladder. But we prefer, and would by all means recommend, movable nests arranged along the wall, with a shelf in front, and a sloping top or cover, so that the hens may not roost on it and annoy our notions of tidiness by the traces we should find there the following morning. The hen is a prude, and likes to steal away in some sly place to deposit her eggs. To gratify their organ of secretiveness, we recommend tacking cedar or hemlock bows to the front, as represented in fig. 26, nearly closing the entrances, giving the hen an appearance of obscurity, and an opportunity of gratifying her natural propensity. This arrangement seems very satisfactory to the hens, besides adding much to the appearance of the house. Where evergreens are not at hand, fine lattice work will answer an equal purpose. It is amusing, too, when you enter the house, to see how sly and cunning they look in their cosy and, to them, private nests.

In large poultry-houses, where a great number of fowls are confined, it

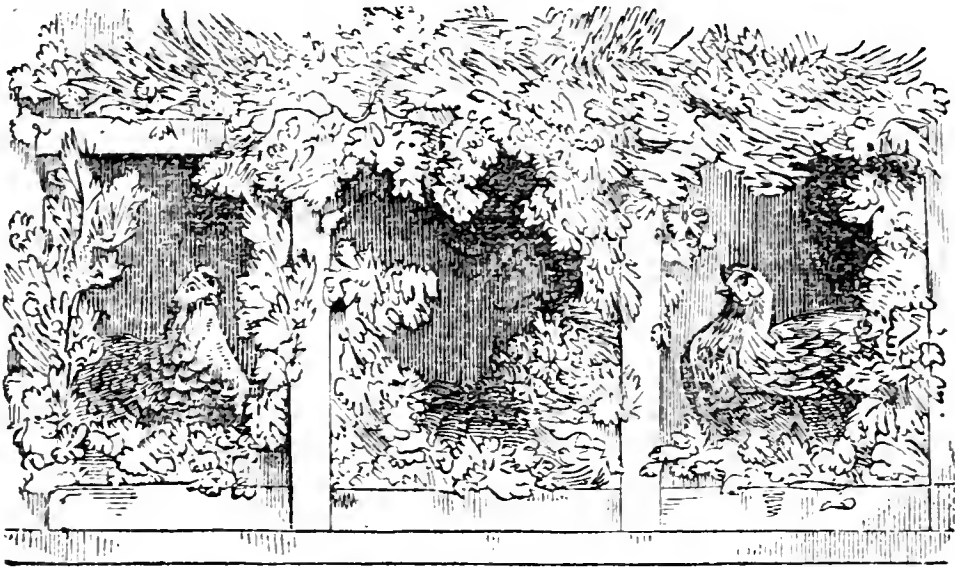


Fig. 26—SECRET NESTS.

would be well to have sitting-nests so formed as to keep them secure from the intrusions of the hens who have been in the habit of depositing their eggs there. One reason for adopting this system of apparent—but only apparent—restraint, is principally to prevent those friendly visits of other hens, which are always anxious to insure a numerous progeny to their neighbor by adding their own contributions. This, however, not being usually approved of by her ladyship in possession, a scuffle is frequently the result at the expense of the eggs, which are thus too commonly broken or injured.

We have found, too, that the daily absence of the sitting hen for food and exercise, has been waited for by the other members of the poultry-yard which are about to deposit their eggs, and that they will avail themselves of such absence to mount the place of honor and prevent the rightful owner from returning.

The confinement of the hen is effected either by having a sliding board perforated with air holes, or wire-work that may be drawn across the entrance; or where the front of the nest is open, a bar to let down, of sufficient width to prevent either egress or ingress.

Pens, Coops, Feeding Hoppers, &c.

We have sometimes found it necessary to separate some fowls from the rest; such as those which are liable to be ill-treated by the others, as also strangers, and fowls of particular breeds. Pens and coops are useful for this purpose, which may be made in various ways and at trifling cost.

Fig. 27, (on the following page,) which we take from "The American Poulterer's Companion," represents a neat and useful pen for keeping a cock and three or four hens for breeding, where they can enjoy the sun and fresh air, and yet be protected from stormy weather; and it may in some instances serve instead of a poultry-yard. It has a house to roost, lay and hatch in, and an open part for exercise.

The dimensions are as follows: The shed may be four to six feet high in front, the roof sloping to three or four feet in the rear, with windows in the

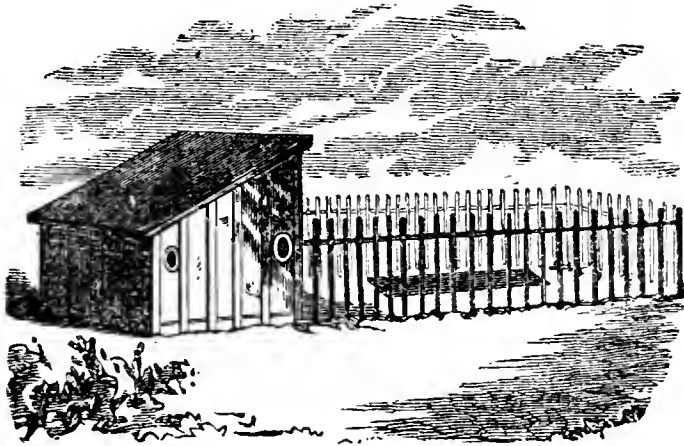


Fig. 27—PEN.

ends to give a free circulation of air. It may be six feet long and four feet wide. The entrance, which is not shown in the figure, is in the yard. The yard may be ten feet long and six feet wide, to correspond with the shed. The yards may be enclosed with panels of lath or rails four feet high, and the top covered with the same to

keep the birds from flying over. The same plan may be reduced to a size suitable for a hen and her chickens. The coop, for that purpose, should be twenty-two inches high in front, and eighteen inches in the rear, and twenty inches square at the bottom. The top opens, and there should be a sliding door in front to shut in the hen. The front or yard may be four feet long, slatted with laths, with a hole cut through the bottom, as shown in the figure, for hens to scratch in. It is light and easy to be removed from one place to another, which should be done daily. The tight and open part answers the double purpose of sitting the hen and keeping her and the chickens in until they are enabled to take care of themselves.

The late Col. Jacques remarked that chickens could be raised as well without as with a hen, even though you take the chicks away in an hour or less after coming from the shell. In order to do this you want a small coop built in a lean-to shape, three to five feet long, high, and wide in proportion, with a small door in front, and two squares of glass to admit light and sun when cold and rainy. A piece of sheepskin, with the wool on, nailed to a board, would answer for them to run under and get warm.

CHICKEN COOPS.—To give the chicks the best chance of life, the hen should be confined in a coop, under a shed or out-house, until they are about four weeks old; and in cold weather a week or two longer. The coop, however, should be moved into the sunshine, and on grass if possible, whenever the temperature is sufficiently mild.

For early spring chickens we found the following method to answer an excellent purpose. Take a large size dry-goods box, remove the top and put a sash-light in its place, and if not large enough to cover, fill the space with a piece of the lid, and if not wide enough to make a hole sufficient to let the chicks pass out and in, remove one of the lower lights and substitute a door, and secure it with leather hinges and a button. In this door cut a hole near the bottom three inches in diameter, with a slide to close the hole when

necessary. In order to secure more influence from the sun, strike a line on both ends, from the bottom upward to a point six inches from the top edge; saw these pieces off as also the six inches of the top, which will give an inclination to the sash something like a hot-bed frame. The feed and water can be put in at the door in the bottom of the sash, or a part of the top may be removed for that purpose. We had several made in that way last winter, and never lost one chick except by casualty. On placing this coop facing the morning sun, it was surprising to see how soon it would show its genial influence. The little fellows would lay on their sides, turn up their wings, stretch out their legs, and seem to enjoy real comfort. The bottom should be strewed with dry sand mixed with ashes.

The accompanying figure of a coop will be found very convenient. It may be made also of a dry-goods box, or of inch boards, long enough to admit

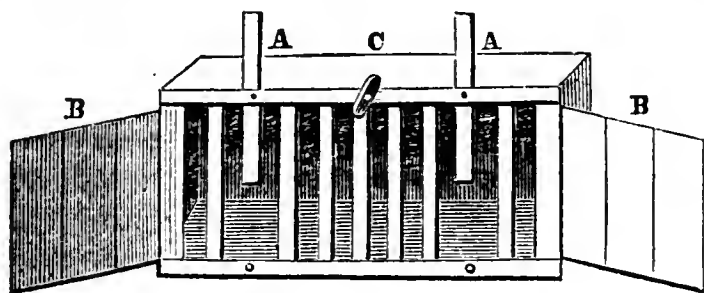


Fig. 28—CLOSE COOP.

two or three hens with their broods, but it is better to have them separate, as some hens are vicious, and kill strange chicks if they should happen to come within their reach. The thing is so simple it hardly needs an explanation. A A are slats for admitting the hens; B B, doors to open and shut at night, to prevent the intrusion of rats or any kind of vermin; C, button for securing the doors.

In all cases a warm, dry and quiet place should be chosen for the coops, near the house, on account of the convenience of feeding them, and where the chicks are not in danger of being trod on either by man or beast, nor where the hen will suffer from the intense heat of the sun in summer, or where there is danger of the chickens being carried off by the hawks or crows.

The Marquee or tent-shaped coops, of which fig. 29 is a representation, we have used for a number of years, and have found them very efficient

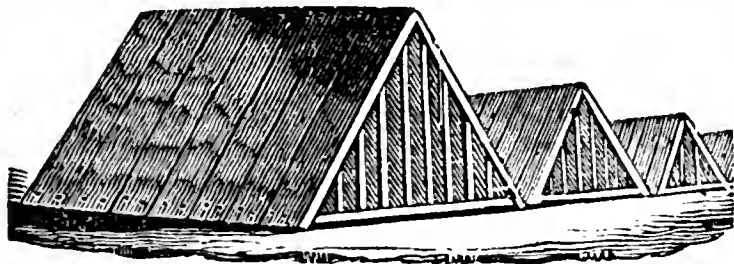


Fig. 29—TENT-SHAPED COOPS.

during the summer, if we avoid placing it on damp earth during the early days of its inmates, though it does not afford the same degree of shelter as the one to be described. The tent coop is formed by nailing pieces of boards, two feet long, in such a way as to form two parts of a triangle, the ground forming the other side. In warm and *dry* weather, we consider it better to have them next the earth;

but in the early spring, when the weather is cold and the ground wet, a floor or platform of boards, or an old door, should always be put under the coops. It should be at least two feet long, or if three feet, would be better, and twenty-two inches high in the center. The back end should be boarded up tight, with the exception of a small hole at the peak to admit a circulation of air. The front should be secured by nailing strips of lath, as denoted in the figure, leaving sufficient space between them for the free passage to the chicks, without affording liberty to the hen. In front there should be a broad strip of board, the width of the coop, on which to feed them. This board may be secured to the bottom bar of the coop with hinges, so as to admit of its being raised up to close the coop toward evening, which will not only answer the purpose of guarding the young brood against rats and other enemies during the night, but will prevent the chicks from wandering about the next morning on the dew and wet grass.

The most common method employed for the purpose of confining the hen with her young brood, is to drive stakes into the ground in front, and make

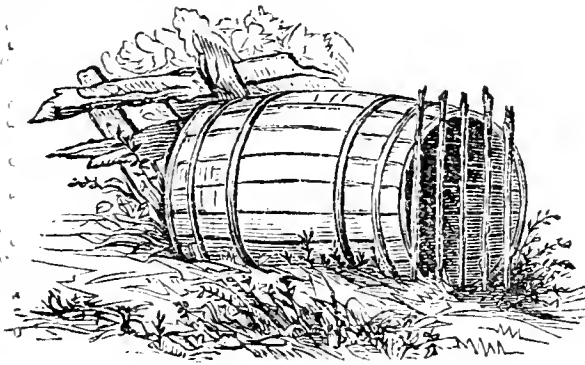


Fig. 30—BARREL COOP.

a pen about two feet square and cover with boards; but a better plan is to lay a flour barrel on its side, with one end out, and drive a few sticks in front, (fig. 30,) protecting them from rain and winds, and allowing the chickens to range about the yard, where they are enabled to pick up seeds, insects and worms, by which means they obtain a large share of their

living. We say nothing of the poor hen's state of mind while confined herself, but with her young brood at large, she witnesses their erratic conduct, and their danger from hawks, rats, cats, or ill-temper or spitefulness of some of her own race, which often terminates in her "scrabbling" to death (a truly emphatic term, indicative of her peculiar notions under excitement of this kind,) those of the brood which first answer the summons of recall, while others are still truant. Her feeling, therefore, should be studied for our own sake, no less than for hers.

Most farmers are in the habit of feeding their fowls from the hand, strewing it over the ground, while others throw down corn in the ear in a heap, and permit the fowls to help themselves. This is considered a slovenly and wasteful mode, and well calculated to invite rats and mice. In our experience we have found it more economical to keep grain constantly before them, and for that purpose adopted feeding hoppers.

As we were constantly annoyed by the depredations of rats, in order to avoid their annoyance we had several feeding hoppers made, but preferred the one represented by fig. 31. Its construction is so simple, that a man or

boy who can handle a saw, a plane and a hammer, with a few nails, could make one in a few hours, and it would cost but a trifle.

The following are directions for making one: First make a platform three feet square; then make a square box of inch-and-quarter plank, three inches

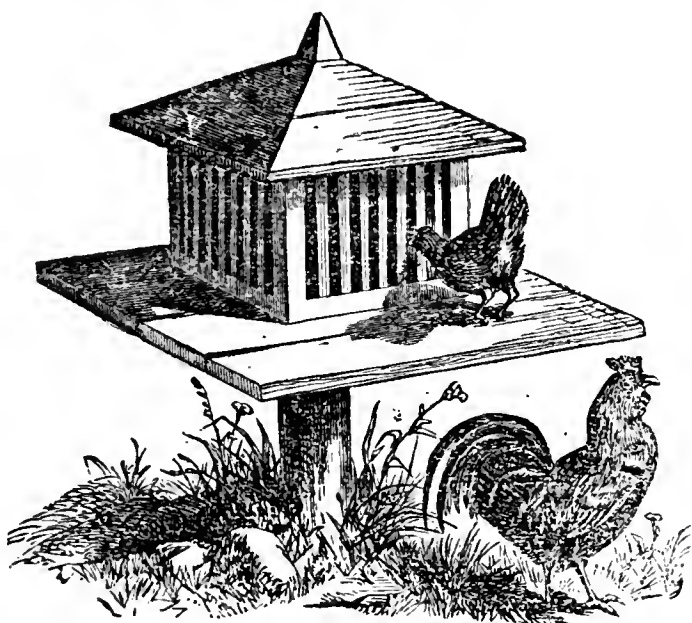


Fig. 31—FEEDING HOPPERS.

high and sixteen inches square; nail this square in the center of the platform; saw four strips one and a-quarter inches square for the posts, which should be about eighteen inches high; nail strips of plank, (which are not seen in the figure,) two inches wide, to the posts at top, to secure and steady them; then take common sawed lath, or thin strips of board one and a-half inches wide, and nail them to the top and bottom up and

down, leaving a space of two inches between each slat, which enables the fowls to insert their heads to pick the grain. The roof may be formed four-square like the engraving, or it may be made flat or pitching on two sides like the roof of a house, and should be detached, so that it can be raised when required to be replenished with grain.

In order to make it proof against rats and mice, it will be necessary to elevate it at least three feet from the floor, if in a building, and this can be done by suspending it with wires at each corner, and attached to the timbers or rafters above; the wires being small and smooth, the rats and mice could not pass up or down on them. If it is necessary to place the hopper in the yard, it may be placed on a post three feet high, and firmly set in the ground, as shown in the figure; the platform projecting so far from the post, it would be rather difficult for either rats or mice to climb up the post and on the under side of the platform.

It is surprising how soon the fowls will learn to leap upon the platform, and feed from the grain-box between the slats. From ten to fifteen fowls can feed at the same time.

Diseases of Poultry.

In this climate the diseases of our poultry are few in number, and are frequently controlled by proper treatment. On this point it is said with truth, that "prevention is better than cure," and when the former cannot be altogether secured, the latter must be attended to immediately, or all attempts at a cure will prove fruitless. When disease is discovered in an individual, it should be removed from the others as soon as discovered, and put by itself, or it will spread over the whole flock. Under proper management, Nature is a prudent guardian to fowls in health, a kind nurse to them in weakness, and the most

skillful physician in disease. With her, man should do no more than co-operate; and this we can do most effectually by adopting every proper means, by accommodation and diet, to preserve them in a proper state of health.

GAPES.—Of all diseases to which chickens are subjected, the most frequent are the gapes. It is a very common and troublesome disorder, and often proves fatal. Young chickens are peculiarly liable to it, and generally in the hot weather of July and August. By some it is considered a catarrhal disease, similar to the influenza in human beings, producing a thickened state of the membrane lining the nostrils, mouth and tongue. By others it is supposed to be caused by a sort of intestinal worm infesting the windpipe; but though this may have in some instances been observed, it is by no means uniformly met with in all the diseases accompanied with gaping.

CAUSE.—The gapes is supposed to be produced from filthy, sour diet, and drinking from dirty puddle water infected with putrid decaying substances, ill ventilated fowl-house confinement, on a spot of ground tenanted year after year by fowls, without attention to cleanliness, to renovation of the soil, &c. At the same time let it be borne in mind that the "gapes" is an epidemic.

SYMPTOMS.—The name is sufficiently expressive as to the symptoms of this disease: gaping, coughing and sneezing, dullness and inactivity, ruffled feathers, drooping of the wings, and loss of appetite.

On dissecting chickens dying with this disease, it will generally be found that the windpipe contains numerous small red worms about the size of a cambric needle; on the first glance they would likely be mistaken for blood vessels. It is supposed that these worms continue to increase in size until the windpipe becomes completely filled up, and the chicken suffocated. The disease shows itself when the chicken is between six and eight weeks old, and not generally after four months old.

TREATMENT.—The plan usually adopted of giving remedies internally to remove the worms, has not always proved successful; direct application to the worms, therefore, is preferable. This is readily secured by stripping the vane from a quill-feather, (fig. 32.)



Fig. 32.

except an inch from its extremity; wet it a little, then let the operator take the head of the chicken in his left hand, placing his thumb and fore finger on each side of the

bill in such a manner as to hold the mouth open, the neck gently but firmly drawn out in a straight line, then gently passing it down through the small opening of the windpipe, which is readily seen at the base of the tongue, and giving it one or two turns, then draw out, and turn the feather, and the worms will adhere to the feather, and others will be loosened, and the chicken will sneeze them up, so that they will fly out of its mouth. It is not advisable to enter the feather more than twice at one time; let the chicken go, and if it gapes the day after, you have not got them all; try again. This is a sure cure if attended to; generally you need not perform the operation more than once, but sometimes oftener. As many as eleven worms have been taken at one haul.

Another method we find communicated in the Country Gentleman. The writer says, "The process of removing them (the worms) is this: One person holds the chicken firmly in one hand, with the finger of the other hold down the tongue; a second person, (for it is impossible for one to do it alone,) doubles a long horse hair, and inserts the loop carefully through the opening of the windpipe, pass it down as far as it will go, twist the horse hair a few times, then draw out, and the worms will be found caught in the loop."

"In making the trial with the horse hair," continues the writer, "some difficulty at first is experienced in holding the head of the

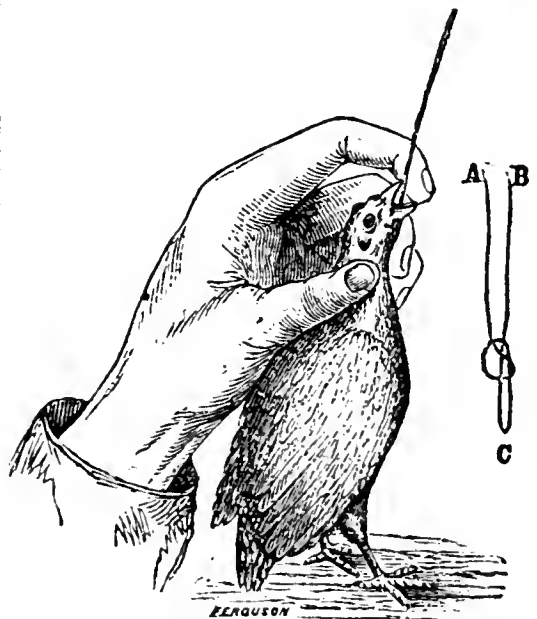


Fig. 33.

chicken still while performing the operation, as the windpipe is very sensitive: hence I have sketched the position of the fingers (fig. 33) in which the head may be firmly held without harm to the chicken. While in this

position the windpipe may be seen, and the sole cause of its distress. If the rays of the sun are permitted to fall upon its throat, the worms are most distinctly seen.

"The horse hair is tied in the manner shown in fig. 33, and is most expedient, as other knots cause the loop C to deviate from a line straight with A and B, making it difficult to introduce into the windpipe. The loop is about half an inch long, and must be rolled between the thumb and finger to make it angular, as at C. The introduction of the hair must first be by a quick push, and kept in its place until it can be forced down, lest the coughing of the chicken should expel it. It should be put down about an inch and a half, and twisted in its course upward. Each operation should be performed in six to eight seconds of time. It is not absolutely necessary to remove every worm from the windpipe. Coarse hairs are better than fine ones for the purpose."

The annual mortality among chickens is a subject of general regret; but as we believe preventive means may be used, which will in a great measure save a large majority of those which otherwise would fall a sacrifice to those diseases which usually prey upon the feathered tribe, we will briefly suggest a few practical rules, which, if adopted, we believe will answer the desired object.

1st. All young chickens, ducks and turkeys should be kept warm, under cover out of the weather, during rain or stormy seasons.

2d. Twice or thrice a week, pepper, shalots, chives, onions, or garlic, should be mixed with their food.

3d. A small lump of assafœtida should be

placed in the pans in which their water is given them to drink. If the vessels should be of rusty iron all the better.

4th. Chickens which are kept from the dung-heap while young, seldom have the gapes; therefore it should be the object of those who have charge of them, so to confine the hens as to preclude their young from the range of the horse stables and yards.

5th. Whenever they manifest disease by the drooping of the wings, or any other outward sign of ill health, a little assafœtida dissolved or broken into small lumps, should be mixed with their food.

6th. For the SNUFFLES, the remedies for gapes will be found highly curative; but in addition to them it will be necessary to melt a little assafœtida in fresh butter or sweet oil, and rub the chicken about the nostrils, taking care to clean them out.

7th. The worms in the lungs of chickens are supposed to be produced from the inhalation of the eggs of the hen lice. The minute eggs are deposited in the feathers and down of the hen, and the chickens being hovered over by her, the eggs are drawn into the cells of the lungs at each inspiration, which hatch and produce the worms which smother the chickens. Remedy—sulphur and tobacco about the nests during incubation.

Hens while hatching are very apt to become infested with lice; so much so they are often driven from the nest. We have known the eggs covered, and the nest alive with them. In such cases we recommend removing the litter and eggs, and cleaning the nest with scalding water. Then line the nest with tobacco stems.

WEEDS AND THEIR DESTRUCTION.

A WEED has been properly defined as *a plant growing out of place*. Clover and timothy, so valuable as farm crops when occupying meadows and pastures, immediately become weeds if they intrude into corn and potato fields. More usually, however, the term is applied to those plants, which, in all places and under all circumstances, persist in growing where they are not wanted, and are never cultivated for any useful purpose. Such are the Canada thistle, Oxeye daisy, Johnswort and Chess. Agriculturists have two prominent questions to ask in relation to all such plants—the first, how they found their way into their fields; and, secondly, how to get them out. The first is for the purpose of pointing out the prevention, and the second for prescribing the cure. It will be of little use to destroy weeds by the hundred, if we permit them to enter by the thousand or million.

The prevention requires a thorough knowledge of the habits of the plant, and its mode of propagating itself. Some weeds, as annuals, increase only by seeds, such as the pig-weed, foxtail and mustard. Biennials, as the mullein and burdock, mostly come under the same head. Some of these, although the individual plants soon die, maintain their hold by the long vitality of the seeds, with all the pertinacity of the most enduring perennials. The latter increase not only by seed, but by the extension of the roots; such are the Canada thistle, milkweed, and couch grass. Annual plants, as the field mustard, prove most troublesome to spring-sown crops; while biennials, as cockle, chess and red-root, find their way among biennial crops, as rye and wheat. Perennial weeds intrude into all—yet they are not necessarily the worst weeds; some annuals, for instance, increase with more rapidity and certainty by the prodigious multiplication of seed, than any others by extension of the roots.

There are two GENERAL RULES for the prevention and extirpation of weeds, applicable in all cases, that every farmer should fully understand. The *first*, from the well known fact that *no plant can first grow without starting from a seed*, indicates the general caution to destroy all weeds before they can ripen their seed, and to sow for crops nothing but perfectly clean seed. If weeds have already gone to seed, they should be carefully removed and burned. Some of the most pernicious intruders have been widely spread through hay or grass used for packing goods—every careful man will never allow such packing material to be scattered over his land either in manure or otherwise. The *second rule* is founded on the principle that *no plant can live any considerable length of time without breathing through its lungs, the leaves*. Hence all perennial rooted plants, that creep and extend beneath the surface, like the Canada thistle and milk-weed, and thus form formidable patches, may be destroyed completely and totally, if the leaves are never allowed to appear above ground. The best and most practicable modes of applying these two rules, must vary with circumstances and with the different plants, and will be separately pointed out when treating of the character and habits of each individual.

Of the 80,000 different species of plants which grow upon the face of the earth, only a few thousand have ever had an opportunity to grow in cultivated fields. Of these few thousands, a very small number have become distinguished for their vigor of growth under neglect, for their tenacity of life, and rapidity of increase. These few have thus become troublesome weeds. Neglected cultivation and careless management have tested them thoroughly for their bad qualities, and have been the means of selecting them from their thousands of harmless associates, and introducing them into the fields of the farmer.

The yearly loss to the farmers of the United States, occasioned by weeds, amounts to many millions of dollars—enough probably to build an Erie or New-York Central Railroad, dig an Erie Canal, or build and endow one hundred first-class agricultural colleges. With many land-owners, one-fourth

part of the corn crops is consumed by pig-weeds, fox-tail, and other intruders, and an equal proportion of meadow and pasture land occupied with mulleins and thistles, johnswort and brier bushes. With others the loss is still greater, while a few good managers lose little or nothing. Admitting it to be but a tenth part as an average, what is the result? The aggregate value of all the crops of the country, is doubtless at least eight hundred million dollars yearly, and but a tenth part of this is *eighty millions*—a sum far exceeding the estimate just offered, and enough to make the two great railroads and the Erie canal combined. The subject is therefore of sufficient magnitude to merit some attention.

The list here described is divided into annual and biennial, which increase mainly by seeds; simple perennial, which multiply mostly in the same way; creeping perennial, which increase not only by seeds, but by the extension of the roots, and noxious and intruding shrubs.

I. Annual and Biennial Weeds.

These weeds increase mostly by seeds. Some multiply with a rapidity that is almost incredible—and careless observers are therefore induced to adopt such errors of opinion as spontaneous increase without seed, and transmutation of sown crops to the weeds themselves. As an example of this prolific character, the writer has counted three thousand seed on a single chess plant, when allowed to grow freely on rich soil, without the smothering influence of wheat or other dense crops. Three thousand the first year would be nine million the second, twenty-seven thousand million the third, which would be about thirteen bushels, (counting two million seed to the bushel,) thirty-nine thousand bushels the fourth, one hundred and seventeen million bushels the fifth, three hundred and fifty-one thousand million bushels the sixth—enough probably to seed the whole earth—showing the prodigious multiplication when under favorable circumstances. Some other weeds increase as rapidly. The importance of

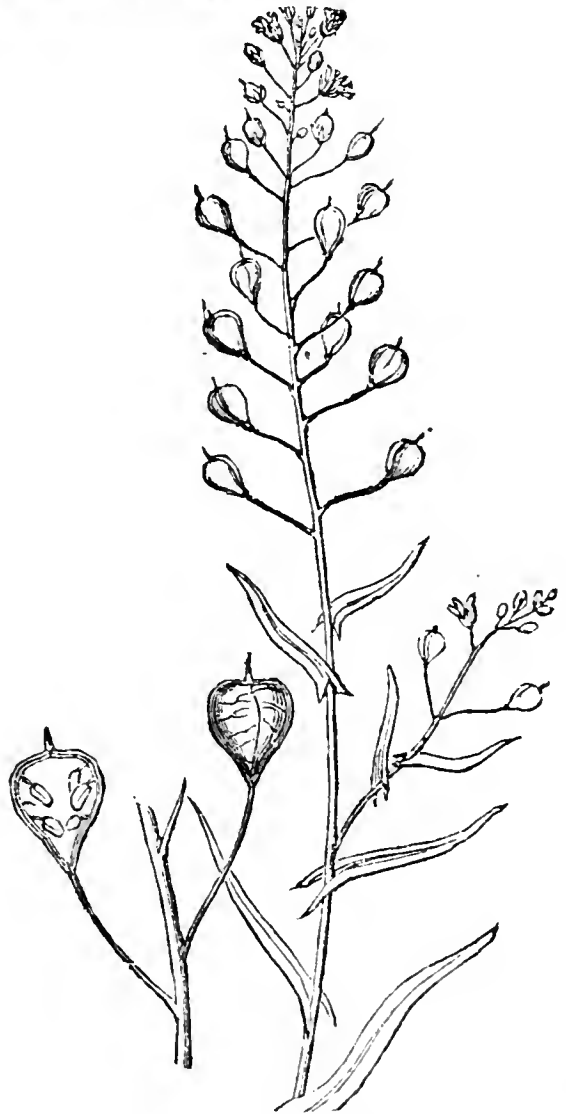


Fig. 1—FALSE FLAX.



Fig. 2—COCKLE OR WHEAT COCKLE.

literally *rooting out* such intruders at their very first appearance—of nipping the evil in the *bud*—is obvious.

WILD MUSTARD OR CHARLOCK, (*Sinapis arvensis*.)—An introduced plant, and being an annual, it is becoming quite troublesome in grain crops sown in the spring. Although each plant dies every year, yet as the seeds retain their vitality a long time, it is difficult to extirpate it after the soil becomes infested. A system of rotation in which spring-sown crops are not frequent, and weeding out by hand as soon as the yellow blossoms show themselves in spring, are the best remedies.

SHEPHERD'S PURSE, (*Capsella bursa-pastoris*.)—A well-known annual

weed, frequent in waste places and in neglected gardens, and easily extirpated by good culture.

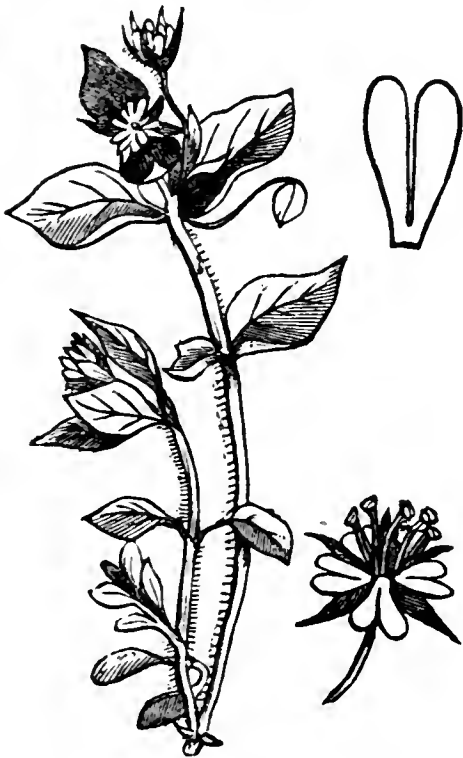


Fig. 3—CHICKWEED.

CHICKWEED, (*Stellaria media*), fig. 3.—Although an annual, its extreme hardiness causes it to grow and flower during winter. On damp soils it is often quite troublesome. Underdraining and frequent cultivation will subdue it.

FALSE FLAX, (*Camelina sativa*), fig. 1.* —An annual plant, introduced with flax seed, and a common weed in that crop—falsely believed by some superficial observers to be degenerated flax. The remedy is to sow clean seed, and alternate flax with other crops.

COCKLE OR WHEAT COCKLE, (*Agrostemma githago*), fig. 2, p. 86.—Introduced from Europe in the seed of wheat and rye. It is an annual, but becomes biennial if sown late in the season. The seeds darken the color of flour and injure its quality. To expel it, sow only clean seed, pull up the small plants early in spring, and again any that may have escaped when in flower early in summer. Since the improvement in fanning mills, which separate the seed, the cockle has not been a formidable weed with good farmers.

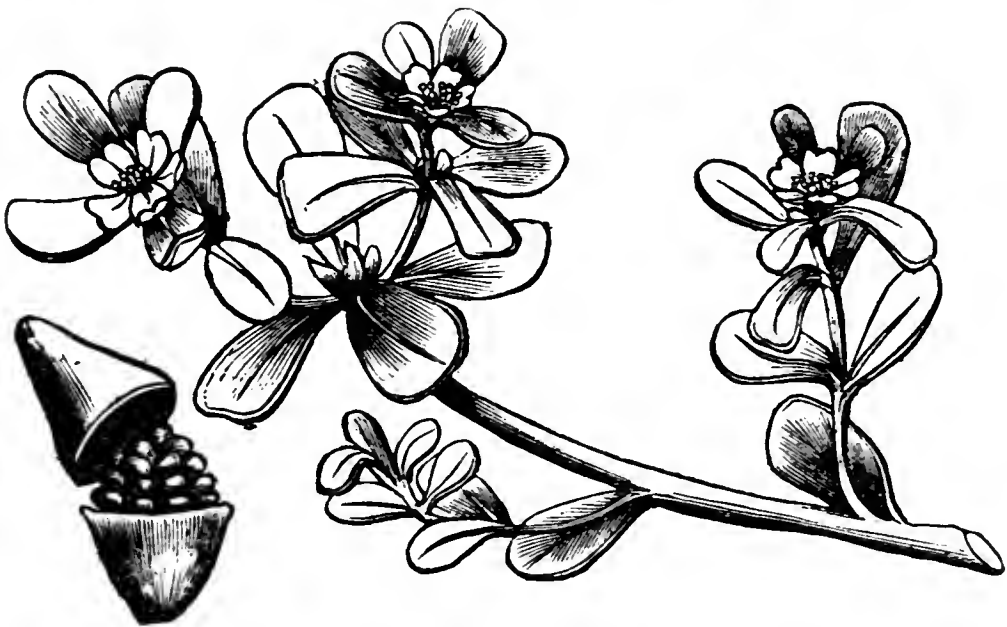


Fig. 4—PURSLANE.

* For most of the cuts which accompany this article, we are indebted to Dr. DARLINGTON'S excellent work on Agricultural Botany, edited by Prof. THURBER, and furnished through the liberality of the publishers, C. M. SAXTON, BARKER & Co. of New-York.

PURSLANE, (*Portulaca oleracea*,) fig. 4.—An annual weed, spreading over the surface, and becoming very troublesome in gardens in summer, on account of its extreme tenacity of life, after the stem is cut off. Removal from the land, or burying, are therefore advisable, after passing the hoe over the surface.

RAG-WEED OR BITTER-WEED, (*Ambrosia trifida*,) fig. 5.—Another species, *A. artemesiofolia*, is similar, but smaller. Both are annuals, and find their way into cultivated fields, the latter in the stubble, after grain. Clean culture and rotation in crops are the best remedies.

CLOT-BUR OR COCKLE-BUR, (*Xanthium strumarium*,) fig. 6.—An annual, not a formidable weed, but frequently quite troublesome—the burs adhering to the fleeces of sheep. It is easily subdued by cultivation. The thorny clot-bur (*X. spinosum*) is a worse plant, and is becoming introduced into the southern portion of the United States, and in the suburbs of cities farther north.

BUR MARIGOLD, STICK-TIGHT, OR SPANISH NEEDLES, (*Bidens frondosa*.)—The seeds of this plant are oblong, and are furnished at one end with two barbed awns, which cause them to adhere when ripe to clothing and the coats of animals, and when numerous the whole surface becomes coated and black with them. It is not a formidable weed, and only accompanies neglected

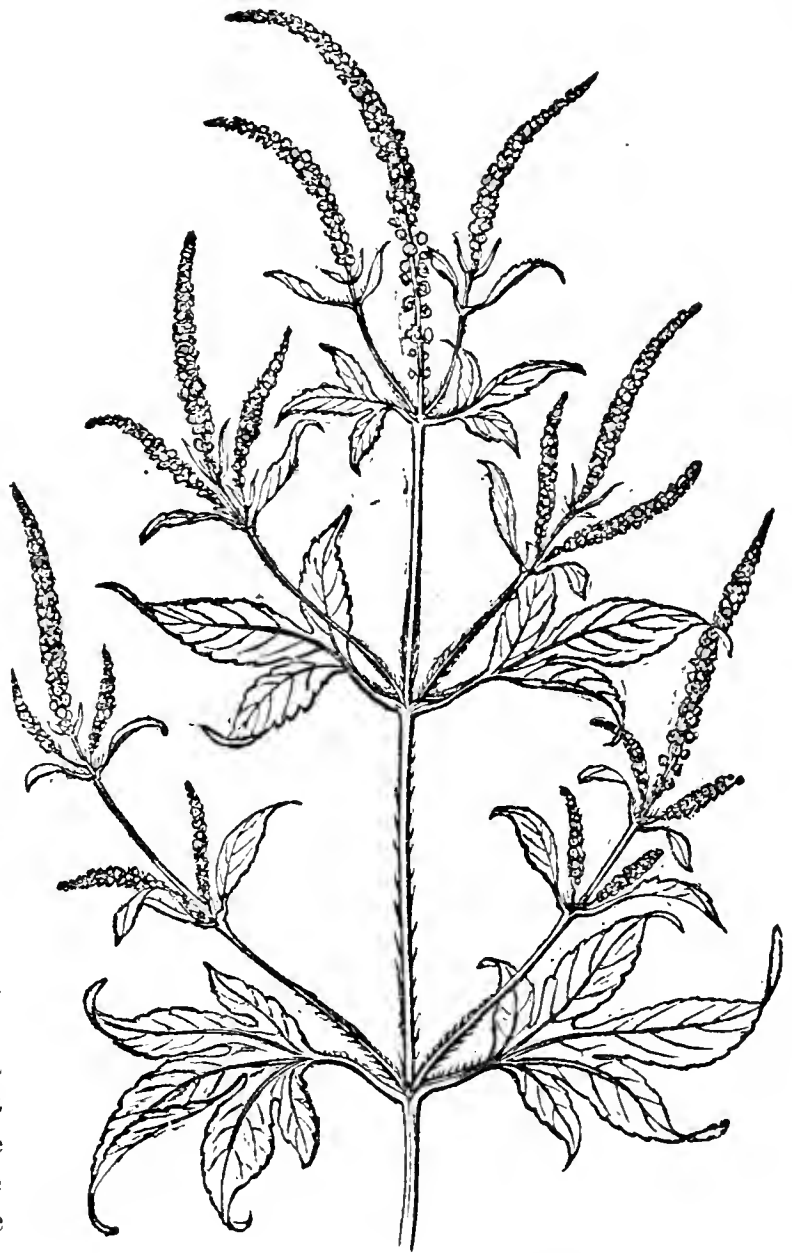


Fig. 5—RAG-WEED OR BITTER-WEED.

cultivation. It is strictly an annual. The name *Spanish Needles* more properly belongs to another species, *B. bipinnata*.

MAYWEED, (*Maruta Cotula*.)—A well-known annual, usually enduring the winter, growing often abundantly along roadsides, and possessing a disagreeable odor. As it rarely gets much possession of cultivated fields, it is not a great pest.

WILD CHAMOMILE OR LARGE MAYWEED, (*Anthemis arvensis*.)—This is nearly allied to the preceding, and by former botanists was placed under the the same generic head. It is distinguished from the Mayweed by its darker green below and more hoary appearance above, by its more aromatic and less offensive odor, its more coarsely cut leaves, and more especially by its far more pernicious character. It is not yet extensively introduced, but in some places has found its way into winter grain fields, and by its dense spreading growth in autumn and spring, sometimes nearly chokes out the young crop. It is very difficult to extirpate after it once obtains large possession; but is best treated by adoptnig a rotation of crops in which winter grain rarely occurs. It is an annual, but generally assumes the character of a biennial, especially in winter grain crops.



Fig. 6—CLOT-BUR OR COCKLE-BUR.

THISTLE OR HORSE THISTLE, (*Cirsium lanceolatum*.)—A coarse rough biennial plant, from two to four feet high, growing abundantly in neglected pastures throughout the northern States. It flourishes in rich soils, and by occupying the ground greatly lessens the crop of grass. It spreads extensively by its seed, which, attached to the pappas or plume, float on the wind through the air. It is easily destroyed by cutting off the root with a stiff hoe, below the surface. If this is done when in blossom, the root will not sprout again.

BURDOCK, (*Lappa major*.)—Widely known as a coarse, rank, bitter weed,

with large very adhesive burs, which become entangled in the wool of sheep, hair of horses and cattle, and in clothing. Biennial, and easily destroyed with diligence, by cutting off the root a few inches below the surface, although some years are usually required to eradicate them completely. They may be removed from grass ground without destroying the turf, by thrusting down a narrow spade, ground sharp, to cut off the root, and then lifting out the plant and treading the surface. The best time to do this is just as the flower buds form.

MULLEIN, (*Verbascum Thapsus*.)—A widely known biennial weed, common in the pastures of slovenly farmers, along the borders of roads, &c. It sends up the second year a single tall stem, which bears many minute seed, and when ripe these are scattered abundantly on the ground and carried in the hair of domestic animals. The plants are easily destroyed by cutting off with a hoe, or by pulling them up the second year when the soil is softened by heavy rains.

RED ROOT, Pigeon weed, Gromwell, Stone weed or Stein-kraut, the latter corrupted into "*stink root*," (*Lithospermum arvense*,) fig. 7. This is one of the worst weeds with which the farmer has to contend; and although an annual, assuming the character of a biennial, and spreading only by seed, it is far more difficult to eradicate than the Canada thistle. As one of its names indicates, the root is red; the whole plant somewhat rough and hairy, (very rough when dead and dry,) from 8 to 12 inches high, more or less branched, leaves narrow and about an inch long, flowers small, nearly white, seeds hard or stone-like,



Fig. 7—RED ROOT.

whence another name, stein-kraut or stone weed, and the generic name *Lithospermum*. These seeds are remarkable for retaining their vitality for years when deeply buried, or if warmth, air and moisture are withdrawn. It is this quality which renders the plant so difficult to eradicate from the soil. The seeds may be deeply buried by plowing, and remain dormant while successive crops of grain are taken from the land by shallower cultivation, until deep plowing again brings them to the surface. During this interval the farmer may have supposed his soil free from the pest, to be disappointed when brought up to air and moisture. It is the great enemy of the wheat crop; and when it has once taken possession of the field, it will nearly run out the grain.

Some farmers, by taking it early, or before it has spread much in their fields, have succeeded in keeping this weed in small numbers or wholly eradicating it, by weeding it annually from their wheat by hand, going over the fields two or three times in spring, and making a regular job of it like any other yearly work. One farmer found it necessary to expend forty days labor the first year in this way, but in a few years the weed became so reduced that three or four days were found sufficient, and no doubt a continuation of this care would clear out the last plant. Where, however, it has taken extensive possession, a more rapid and wholesale process must be adopted, at least for a time. A good one is the following: For the first wheat crop, plow the ground very deep, at least eight inches, for which purpose a double Michigan plow will answer well. This will throw the seed down beyond the reach of vegetating, and the wheat may be sown on the inverted surface and escape for one year. It will be perceived that success in this instance depends entirely on a *single* plowing; if this does not reduce the soil to a proper condition for sowing, the process should be completed by means of a two-horse cultivator or gang plow. All the red root which appears should be pulled out from the wheat in spring by hand. In the fall, plow as deep as for the wheat, which will throw the seed again to the surface. Harrow well, and the seed will germinate. The next spring, turn the weeds under with a gang plow, or cut them to pieces with a large steel-tooth cultivator, and sow oats, barley, spring wheat, or peas—the latter is best in the way of rotation. Plow and harrow again in fall, to start another crop of weeds, and plant corn, cultivating it thoroughly. The following year the land may be seeded to clover or grass; and when wheat is again introduced in the rotation, but few weeds will be found, which may be pulled out by hand. It is important that no seed should be returned to the soil through manure; and hence it may be best, when the straw contains much, to burn it in the field in a compact heap. The seed is sometimes spread to other farms by throwing the plants into the road, when in muddy weather they adhere to the soil on wagon wheels, and are carried to a distance.

TORY WEED OR HOUND'S TONGUE, (*Cynoglossum officinale*,) fig. 8.—A coarse plant growing along roadsides, about two feet high, bearing purple-red

flowers, and flat seed roughened all over with short barbed or hooked prickles, causing them to adhere to clothing and to the hair and wool of animals. It is biennial, and is destroyed in the same way as the burdock, mullein, &c.

JAMESTOWN WEED OR STINK WEED, (*Datura stramonium*.)—A coarse fœtid plant, growing on roadsides and waste places, often several feet high. The leaves are large, the flowers tubular, nearly three inches long, and the seed vessels an inch and a-half long, and covered with coarse fleshy prickles. It is an annual, and is easily destroyed.

LAMBS' QUARTERS, GOOSE-FOOT OR PIG WEED, (*Chenopodium album*.)—An annual weed, often growing abundantly in gardens and other cultivated grounds; the stem often growing three or four feet high, angular or grooved, often with some purple stripes; leaves with a mealy appearance; flowers small, numerous, green; seeds small and numerous, and the plants are thus rapidly increased where neglected cultivation prevails. The remedy is very simple—destroy all the plants with the plow, hoe or cultivator, before they attain more than an inch or two in height. The labor will be small at this time, compared with that required after they are a foot high; and none can go to seed.

GREEN AMARANTH, sometimes called *Pig Weed*, (*Amaranthus hybridus*,) fig. 9.—A coarse annual weed, with a green branching stem; flowers small, green, packed into close spikes, with bristle-like hairs among them. It finds its way into cultivated grounds like the preceding, and is to be similarly



Fig. 8—TORY WEED OR HOUND'S TONGUE.

treated. The seed are quite small, black and shining, and very numerous. There are several species or varieties, not very distinctly defined.

WILD TEASEL, (*Dipsacus sylvestris*.)—Common along roadsides and waste grounds. It is biennial, and is easily destroyed by mowing the second year, before the seed are formed.

CHESS, CHEAT, OR BROOM GRASS, (*Bromus secalinus*,) figs. 10 and 11.—One of the most troublesome weeds which infest the wheat fields of this country. The panicle is branching and spreading, and bears numerous spikelets, like the enlarged one in fig. 10. This weed was formerly supposed by some to be produced from degenerated wheat; but the fact that it belongs to quite a distinct genus from wheat, renders this impossible. The following are the principal causes for the adoption of this remarkable notion:

1. The seed of the chess plant are much smaller than those of wheat, and may be numerous scattered through seed wheat, and reproduce the weed among the stubble, unperceived to ordinary observation.

2. The seed being very hardy, may remain



Fig. 9—GREEN AMARANTH.

at some depth in the soil, unperceived, and dormant until brought near the surface, and subjected to the action of light, air and moisture. A bushel of chess contains over one million seeds; yet a bushel is only one twenty thousandth part of the soil on an acre of ordinary depth; hence there may be a million chess seeds through the soil, and yet, constituting but a twenty thousandth part of its bulk, be wholly imperceptible to observation.

3. When the young chess plants, growing from this seed, are shaded by a dense crop of wheat, they grow only a few inches high, sometimes not over two inches, (as at *c*, fig. 11,) perfect their seed, and are wholly unobserved; but when the wheat is winter-killed, or otherwise destroyed, they spread and grow upwards unchecked, three feet high, (as at *a*,) and often produce from two to three thousand seed to a single root, cover the whole surface, and lead to the superficial conclusion that the wheat, being killed, was converted to chess.



Fig. 10—CHESS.



Fig. 11—CHESS, CHEAT, OR BROOM GRASS.

Those who advocate this notion of transmutation, have claimed that among the countless millions of plants which change every year from wheat to chess, many might be caught in the act, furnishing a head of wheat and a head of chess from the same root. The writer, having often heard of such curiosities, but never finding any, offered a reward of *five hundred dollars*, a year or two since, which offer he published in the *Country Gentleman*, and kept it standing for several months. But no double plant was presented. From the value of the prize, offered during a pecuniary pressure, the conclusion was adopted that no such plant existed.

The process for the eradication of this weed is simple—namely, sow none but perfectly clean seed, and it will gradually disappear from the land. Many thorough farmers have adopted this mode, and have completely extirpated it

from their farms. The improved modern fan-mills (of which Nutting's is best,) have greatly facilitated this object, and chess has become a less formidable weed than formerly.

FOXTAIL GRASS, (*Setaria*,) fig. 12.—There are two species which are often abundant in cornfields, and spread rapidly by seed. The common Foxtail, (*Setaria glauca*,) has a tawny, bristly, cylindrical spike; and the other (*Setaria viridis*,) a larger and green spike. They are easily destroyed when they first appear above the surface; and being never allowed to go to seed, soon disappear.

II. Simple Perennial Weeds.

TALL CROWFOOT OR BUTTER-CUP, (*Ranunculus acris*, acrid *Ranunculus*.)—An introduced weed, common in meadows and pastures in many parts of the Northern States. It is not a formidable weed. It is easily eradicated by good cultivation in connection with rotation of crops.

JOHN'S-WORT, (*Hypericum perforatum*, or perforated *Hypericum*,) figure 13.—A well-known and very troublesome perennial weed, and often occupying neglected pastures to such an extent as to greatly diminish or exclude the grass crop. Good cultivation and rotation will extirpate it. Sheep eat it when it is young and tender, and thus tend to keep it down—but sweet grass and clover are much better food



Fig. 12—FOXTAIL GRASS.

for these animals, and they should not thus be compelled to suffer from the bad husbandry of their owners. Dr. Darlington remarks, in alluding to the

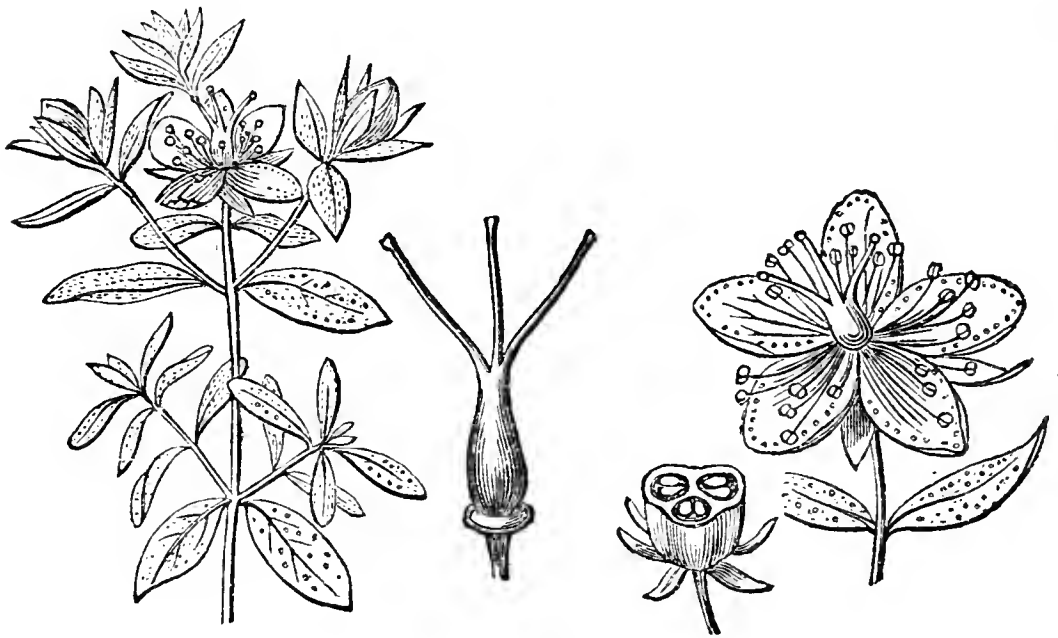


Fig. 13—JOHN'S-WORT.

fact that it was named "St. John's-wort," from its supposed power of keeping off evil spirits on St. John's night, that "the custom is still followed in the retired part of the Pyrenees, of hanging garlands of the herb over the doors, to preserve the inmates of the house from 'storms, thunder, heretics, and other evil spirits.'"

PLANTAIN.—There are two common species of the plantain, known as the *Plantago major*, or broad-leaved, and *P. lanceolata*, or narrow or lance-leaved. Neither of them are formidable weeds, although somewhat troublesome. The broad-leaved is common along foot-paths and in door-yards, and is sometimes called by the aborigines, "the white man's foot." The lance-leaved spreads more extensively, often prevailing to a considerable extent in pastures. Both are perennial-rooted, and they may be destroyed in a small way by cutting off the root beneath the surface, and on a larger scale by rotation of crops and thorough culture. The seeds being about the size of red clover seed, are often sown with the latter. In some places the narrow-leaved is tolerated as a forage plant—and although not a decided pest, farmers would be better without it.

POKE OR POKEWEEED, (*Phytolacca decandra*.)—Well known by its rank, fleshy and succulent growth, and by the abundant purple juice of its berries. The root is perennial, and easily destroyed by cutting off with a stiff hoe below the surface.

WATER HEMLOCK, (*Cicuta maculata*, or spotted Cicuta.)—The stem and leaves, and the root more especially, are deadly poison. The aromatic quality of the plant sometimes induces children and others to eat it, endangering or destroying their lives; and it is also sometimes fatal to cattle. Hence it should be carefully extirpated. The stem is spotted with purple or marked

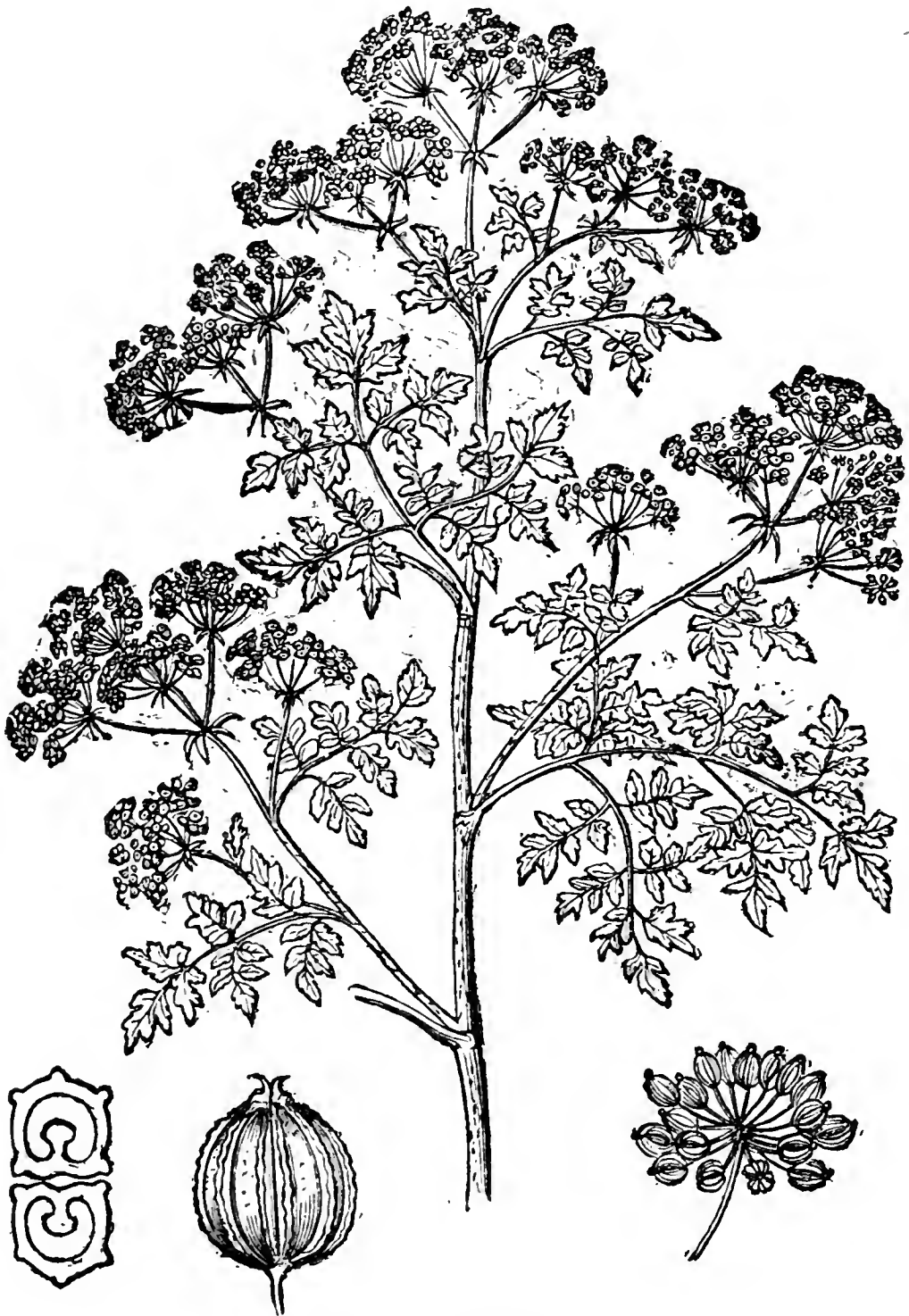


Fig. 14—POISON HEMLOCK.

with short streaks. The root is perennial. Perhaps the most dangerously poisonous plant known.

POISON HEMLOCK, (*Conium maculatum*, or spotted Conium,) fig. 14.—This plant somewhat resembles the preceding, but is a thicker and ranker grower, and has a disagreeable odor. It grows abundantly in some places

along roadsides. The root is perennial. It is easily destroyed by mowing just before seeding, and by cutting up the roots.

OX-EYE DAISY, or White Daisy, (*Leucanthemum vulgare*,) fig. 15.—A perennial-rooted weed, and one of the worst the farmer has to contend with, on account of its extensive spreading, and the great difficulty of its extirpation. The seed are very tenacious of life, and will vegetate after passing through the stomach of an animal. The wide foothold it has obtained is of course the result of slovenly farming, and is most conspicuous in pasture fields, whitening the whole surface when in flower. Various means have been devised for destroying it. Attempts have been made to turn it to account by compelling animals to eat it. Sheep may be made to feed on it by depriving them of all other food, especially early in the season while the young plants are tender and less bitter than afterwards; but it is bad economy, and they cannot thrive when driven by starvation to eat unpalatable food. A correspondent of *The Cultivator* says that a large farmer succeeded in killing most of the daisies on a sixteen-acre lot, by turning in five hundred sheep a week at a time—but it was a very expensive experiment, for the sheep became extremely poor, and he regarded his loss at one thousand dollars. Thorough cultivation is the best remedy, and may be given as follows: Plow the sod thoroughly, plant corn, hoe and cultivate well once a week. Next year sow and plow in two crops of buckwheat, and the third year manure and plant corn again; then again two crops of buckwheat for two years more, when the daisies will have vanished and the land be left rich.



Fig. 15—OX-EYE DAISY.

This weed grows best usually in poor pastures, where there is not enough fertility to cause the growth of interfering plants. On rich ground, tall and dense grass will soon overtop and partly smother the weeds.

MALLOW, (*Malva rotundifolia*,) fig. 16. —Well known by its round leaves, prostrate stem, and its circular fruit. It is somewhat troublesome in gardens, but is not a formidable weed.

SOUR DOCK, or Curled Dock, (*Rumex crispus*,) —Well known by its long narrow leaves with

curled margins, and its numerous, brown, triangular seed. It is a perennial, and is easily eradicated by a moderate amount of labor in pulling up the roots before the seeds form, while the ground is soft from recent rains; or if too hard, they are cut off by a sharp narrow tool. There is another species, (*R. obtusifolius*,) with broader, rounded leaves, which is to be treated in the same way.

SORREL OR SHEEP SORREL, (*Rumex acetosella*,) —This plant is quite similar in its character to the sour dock, but much smaller in every respect. It grows from six inches to a foot high, with a slender, branching, and angular stem, the whole plant of a strong and rather agreeable acid—and when in large quantities giving a peculiar reddish appearance to the field. It usually grows most abundantly on sandy soils, more particularly those of a rather dry and sterile character, but often on richer loams. In the former case, lime or ashes, or both, have tended to expel it; and in the latter, thorough culture. Neglected and superficial cultivation is to be avoided in all cases; and seeding down very densely with clover and a small portion of timothy, tends to drive it out. On the exhausted lands of Virginia, dressings of lime and marl have destroyed it thoroughly—in other regions, these applications alone have produced little effect, and the use of the plow, cultivator and hoe have become indispensable.

GARLIC, Field Garlic or Wild Garlic, (*Allium vineale*,) —Nearly allied to the onion, and growing in many places extensively in meadows and pastures. It imparts a strong and disagreeable odor to the milk and butter of cows which feed on it. It is subdued by a rotation of crops with thorough culture.



Fig. 16—MALLOW.

NETTLE, (*Urtica dioica*,) fig. 17.—A rough upright plant, growing along fences and in waste places, armed with stinging hairs, which produce an intolerable itching in the skin for a short time after application. Darlington quotes Culpepper as remarking, in allusion to this quality, “that they may be found by *feeling* on the darkest night.” The root is perennial, and the plant easily destroyed by cultivation. There is a smaller species, (an annual,) which, like this, was introduced from Europe, and a native species, with broader leaves, growing in moist places and along the borders of streams, all of which have similar properties; but the first only is much known as a weed.

SWEET FLAG OR CALAMUS, (*Acorus calamus*,)—Known by its strong aromatic character and odor, by its dense mass of creeping roots, and by the yellowish-green spadix or fleshy spike of flowers at the middle of the leaf-like stalk (or scape) which supports it. It often obtains possession of wet or swampy lands to the exclusion of everything else. To eradicate it, first drain the land, and then repeatedly plow with a steel mouldboard, and harrow, for two seasons. Where the land cannot be drained, the mass of plants may be cut into blocks with sharp spades, and thrown into heaps. When dry, remove these blocks of roots, and convert them to compost in layers with stable manure. Seed the cleaned land with red-top, or timothy if dry enough. The small fibrous roots which run downwards from the large creeping ones, are easily cut off with a spade or sharp plow, and will not grow. In any case, where the plow may be used for cutting up the mass, it would be well to pile up; and when dry to cart off the pieces and convert them to compost.

CAT-TAIL FLAG or Cooper's Reed, (*Typha latifolia*,)—Conspicuous for its long leaves and large cylindrical spike, growing in swampy places. Under-drain the land, or cart on earth, or both—and then seed with red-top; or, if well drained, with timothy.



Fig. 17—NETTLE.

III. Creeping Perennial Weeds.

CANADA THISTLE, (*Cirsium arvense*,) fig. 18.—This is a formidable weed in two respects. Like the preceding it spreads extensively by seed, and the roots being both perennial and creeping, the plants quickly extend into patches beneath the surface. The roots have been sometimes found several feet below, in porous subsoils; and as the fragments of roots are sufficient to produce new plants, it was formerly supposed to be incapable of eradication, without digging out every portion—which, in a large patch, would involve immense labor. This opinion has now been found to be fallacious, and by the observance of a simple principle, the whole subterranean net-work of roots may be easily destroyed. *The roots cannot live, unless they breathe through their lungs, the leaves.* Keep the portion of the plants above ground from growing, and the whole patch may be destroyed in a single year. This may be accomplished in several ways. Small patches may be smothered by covering with boards, closing the joints with a second layer, to prevent a single plant from finding its way through. Sawdust, tan, or straw, will accomplish the same end, if laid on thick enough. If a single plant, however, escapes, it will sustain life in a portion of the roots. Another way is to cut the plants off daily even with the surface of the ground, so that a single leaf cannot grow. The best way for common practice is to plow them under, and continue the plowing often enough to keep them smothered. If well and deeply done, once a

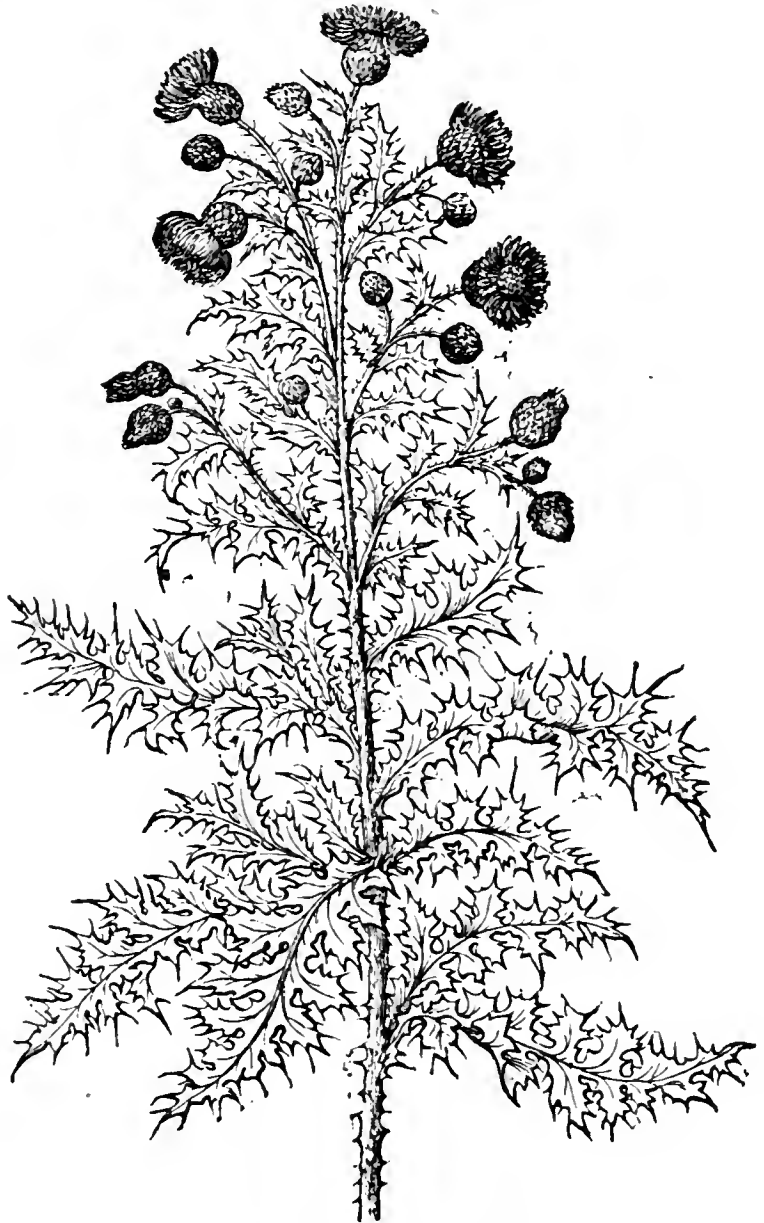


Fig. 18—CANADA THISTLE.

its way through. Sawdust, tan, or straw, will accomplish the same end, if laid on thick enough. If a single plant, however, escapes, it will sustain life in a portion of the roots. Another way is to cut the plants off daily even with the surface of the ground, so that a single leaf cannot grow. The best way for common practice is to plow them under, and continue the plowing often enough to keep them smothered. If well and deeply done, once a

month will answer the purpose. This mode succeeds best on heavy or clayey soils, which do not permit the thistles to find their way readily upwards. But even on such soils, the work must be very carefully performed, for if a portion of the weeds are but partly covered, they cannot be destroyed. On gravelly and other porous soils, it is more difficult to destroy them by plowing. The operation must therefore be more frequent on such soils, and greater care taken to do it deeply and in the most thorough manner. The Double Michigan plow will be found to answer an excellent purpose on these as well as all other kinds of soil.

TOAD FLAX OR SNAP DRAGON, sometimes called "Butter and Eggs" from the color, (*Linaria vulgaris*,) fig. 19.—An exceedingly troublesome and pernicious weed, extending now through the Northern and Middle States. The root is perennial and creeping; the whole plant very smooth; the flowers somewhat in the form of lips, the outer part pale yellow, the palate tinged with orange, and each flower furnished with a horn or spur half an inch long. It grows one or two feet high and quite erect. It is common in many places along roadsides, fences, and in pastures. Cattle will not eat it, nor the grass it grows with. Spreading in dense patches, it soon prevents the growth of other plants. It is difficult to eradicate—the best mode is repeated plowing and harrowing.

HORSE NETTLE, (*Solanum carolinianum*,)—A troublesome weed at the South, and extending northward. It has broad leaves, and a stem a foot or more in height; nearly the whole plant is covered with sharp spreading prickles. It has flowers of a bluish-white, and orange-yellow berries one-fourth or one-third of an inch in diameter. It is exceedingly tenacious of life, extends by the roots in patches, and nearly monopolizes the soil when it once obtains possession. Farmers in the Middle States should keep an eye to it, and destroy it on its first appearance.

MILK-WEED OR SILK-WEED, (*Asclepias Cornuti*,)—Well known by the milky juice which flows out when the plant is cut or broken. It extends rapidly by its long, fleshy, perennial, branching roots, and by its flat seeds, which are wafted to great distances by means of the copious silky hairs attached to them. The stem grows two or three feet high; the flowers are numerous, in umbels, and greenish purple; the seed vessel is a foliole, opening by a longitudinal slit, the seed imbricated or placed like shingles on a roof, on an oblong fleshy center.

The milk-weed becomes troublesome on account of its running roots. Like the Canada thistle it may be destroyed by never allowing the roots to breathe



Fig. 19—TOAD FLAX.

through leaves. On a moderate scale, this may be done by repeatedly pulling out the young plants the moment they appear above ground; or on a larger scale by deep and repeated plowings, followed by hand-pulling. An easier mode has been attempted, namely, starving sheep down to eating the weed, but the injury to the flock by this hard usage has been ten times greater than the cost of extirpating by hand labor.

COUCH GRASS, QUITCH GRASS OR QUACK GRASS, (*Vitium repens*,) fig. 20.

—This grass, in consequence of the great tenacity of life in its creeping roots, is extremely difficult to destroy, and is one of the most troublesome and obstinate weeds in the Northern States. When it has taken full possession, the roots form a dense stratum several inches in thickness, which is plowed up in thick stiff masses which cannot be pulverized.

The best mode of eradication, is to select a time when the weather and soil are in the driest state, and plow, harrow, and rake the roots into heaps, with a spring-toothed or other horse-rake, and when dry to burn them. Repeat the operation till all are extirpated. Or the roots may be fermented and killed in layers with manure, forming compost. As every fragment of the roots will vegetate in

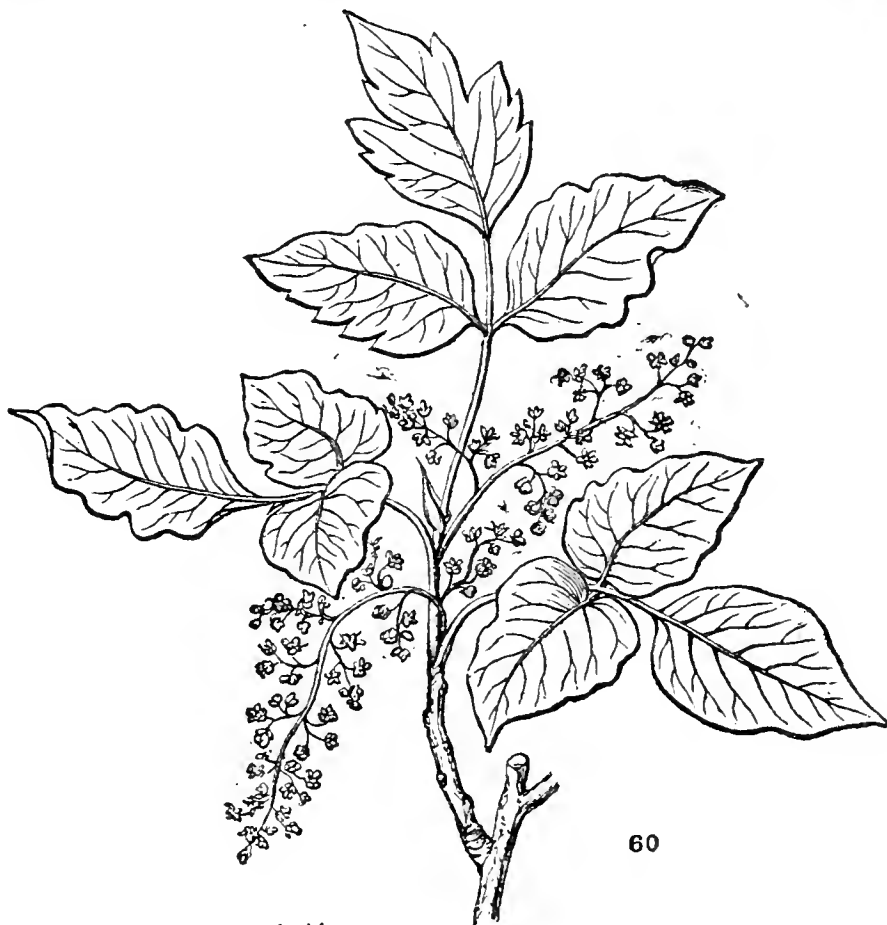


Fig. 20—COUCH GRASS, QUITCH GRASS OR QUACK GRASS.

moist soil, harrowing will only extend the evil in such soils. E. MARKS of Onondaga Co., N. Y., states in a former number of *The Cultivator*, that he destroyed this grass in one season by *smothering*—plowing it under seven times during the season, each successive plowing being a little deeper until ten inches was attained.

IV. Shrubs.

POISON SUMACH AND POISON VINE, (*Rhus Toxicodendron*,) fig. 21.—The "Poison Vine," formerly known as the *Rhus radicans* of botanists, is now ascertained to be only a running variety of the *R. Toxicodendron*, which grows in the form of a small bush. Some persons are poisoned by it, or even by coming near it, and blisters are formed on the skin; others are wholly



A. H.

Fig. 21—POISON SUMACH.

unaffected. There is another species, less common, but still more poisonous, the *Rhus venenata*, distinguished by its pinnate or elder-form leaves, while the *Toxicodendron* has ternate leaves or in threes. They sometimes obtain a foothold in waste ground and along fences, and should be carefully destroyed by cutting up as fast as they appear. The common sumach is another species of *Rhus*, but not poisonous to the touch.

BLACKBERRY OR WILD BLACKBERRY, (*Rubus villosus*.)—This well-known

shrub often takes possession of waste ground on the land of slovenly farmers, or on newly cleared fields. Early in the season, when the leaves and shoots are tender, sheep will eat and reduce them, especially if strewed with salt; and mowing them near the ground towards the close of summer, checks their vigor. Plowing and planting with hoed crops enables the farmer to eradicate them; but an easier and perhaps as efficient a mode is to sow to buckwheat, or better still to corn fodder in thick drills, cultivating two or three times.

ELDERBUSH, (*Sambucus canadensis*.)—A somewhat troublesome bush along fences, and a conspicuous indication of slipshod farming. The remedy recommended for blackberry bushes will destroy it. If the bushes are cut early in summer, and the brush burned upon the stubs, and then all the sprouts pulled up the moment they appear, the roots will soon perish. Some attempt to root them out by digging down deeply for the roots; it is much easier to starve the roots to death by allowing no leaves to grow above ground.

ALDER, (*Alnus serrulata*.)—This well-known shrub, from 3 to 10 feet high, grows along the margins of streams and in swamps, needlessly occupying the ground. If cut closely during the last half of summer, for two or three seasons, they are destroyed.

There are other plants, both native and introduced, more or less troublesome as weeds, which might have been added to this list. But being either quite local, or less formidable in their character than most of the preceding, it is deemed hardly necessary to describe them separately, as they are all alike subject to the same general rules for extirpation, namely, to prevent seeding, to destroy very young if annuals, or before seeding if perennials, to smother if creeping by the roots, and to adopt a rotation for most that shall require clean and thorough cultivation.

A disagreeable object to every farmer who has any appreciation of the neat or beautiful, or a dislike to slovenly practices, is the common throng of weeds along roadsides. There are some land-owners who are careful to keep their fields comparatively clean, who throw all kinds of rubbish into the highways, along the borders of which immediately spring up thistles, mulleins, burdocks, mayweed, nettles, clot-bur and briers, rendering the public thoroughfare, which should present an agreeable picture to every one, a disgusting and repulsive object to the eye. But unfortunately the evil does not end here; these weeds being entirely neglected, furnish a most abundant seeding to the neighboring farms, and the weeds thus introduced are not easily eradicated.

PROFITS OF FARMING.—J. W. Proctor of Danvers, Mass., at a late agricultural meeting at Boston, said there were thirty neighbors of his, who had on an average not over 20 acres of land each, who cleared above all expenses, from \$300 to \$500 a year. They cultivate their fields like gardens, use plenty of manure, and plow ten inches deep.

FILTERS AND FILTERING CISTERNS.

MANY inquiries having been recently made for the best mode of constructing filters, we are induced to give a few of the many modes which have been adopted, either of which will answer a good purpose, and which are adapted to various circumstances or requirements. The importance of purifying thoroughly the water which is used as a drink, is scarcely appreciated. There is no doubt that thousands of cases of severe illness might be prevented by the general use of pure water.

All the different modifications of filters have one similar and essential provision, namely, the passage of the water through layers of coarse clean sand or fine gravel, and charcoal. The gravel and sand are for the purpose of keeping the bed loose and for retaining the coarser impurities; and the charcoal, with its powerful absorbent powers, takes out such foul matter as may be held in solution, and which no merely mechanical straining could intercept. In some filters the sand or fine gravel is mixed with the charcoal, and slightly moistened to make it pack well; in others they are placed in alternating layers of about two inches, and separated from each other by a single piece of cotton flannel. We do not know that one mode is better than the other; but it is well in either case to use the flannel to prevent the displacement of the materials, and to keep the charcoal from being washed out of place. The sand used should be both coarse and clean—good beach sand answers an excellent purpose. The charcoal should not be pulverized, but granulated, so as to be about the size of peas or coarse shot. It is said that the refuse accumulations in the pipes of locomotives, which are usually thrown out at engine houses, are just the material for this purpose.

Filters are either portable, and used for purifying a few pails of water at a time; or else fixed and attached to the cistern, to cleanse all that passes into it. The simplest portable form is represented by fig. 1. It consists of a barrel or tub, with a stop-cock to set within a few inches of the bottom, for the escape of the purified water. On the bottom is laid clean stone about the size of hens' eggs or the fist. These may occupy about one-fourth of the barrel, and are to form a reservoir for the water after it is cleansed. The stop-cock should be an inch or two above the bottom, so that any possible sediment may not be drawn off. The filter may be raised a little on bricks or wooden blocks, to set a pail under the stop-cock. On the top of this layer

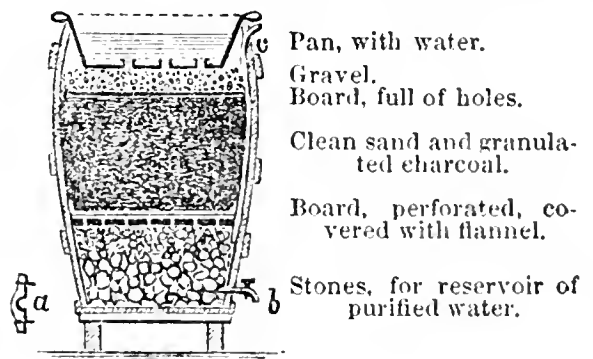


Fig. 1.

of stones are placed smaller stones, and then again smaller still, and the surface smoothed off, about one-third of the way up, and the whole covered with a perforated board. Cover the whole of this board with a piece of flannel, which should extend up an inch or two against the sides of the barrel. On this place the mixture of sand and charcoal, already described, packing it compactly but not pounding it, until within six inches of the top, and cover it with a layer of coarse gravel. Provide a large tin pan, to set in and fit the top of the barrel. Solder a few short tubes in the bottom of this pan, extending upwards an inch from its bottom, and thrust a piece of sponge into each tube. These serve to strain the water as it passes through into the filter, and coarse sediment will settle on the bottom of the pan without choking these tubes. The pan may be lifted and washed out once a week, more or less, as sediment accumulates in it, and the sponges are easily withdrawn and cleansed. The capacity of the reservoir at the bottom, may be varied with the size of the barrel, and with the quantity of water required at a time; and the thickness of the layer of sand and charcoal will be indicated by the impurity of the water to be filtered. A small lead tube *c*, should extend from the top of the barrel down its inner side to the reservoir, to admit air, as the water is drawn off—otherwise it will not flow through the stop-cock freely when a supply is wanted. This tube is most conveniently secured to the side of the barrel by means of small pieces of wood, screwed on, with a notch cut in for the tube to pass, as shown at *a*. It may pass through the barrel an inch from the top, which will secure the upper end and place it out of the way.

The wood of the barrel, and the stones, may at first impart an unpleasant flavor to the water, but it will soon pass away. The taste of pine is removed by alkali. The water may be dark colored for a day or two from the charcoal.

A more perfect but more complex filter is shown in fig. 2. A barrel is used as in the one just described; but instead of a reservoir made by filling

in a portion with stone, an inverted earthen pot is employed, standing on a layer of gravel, and resting immediately on a perforated board, or what is better, a flat plate of earthenware, full of holes. The outside of this earthen pot, and some inches above it, (varying with the impurity of the water,) is packed with the mixture of sand and charcoal, and the whole covered

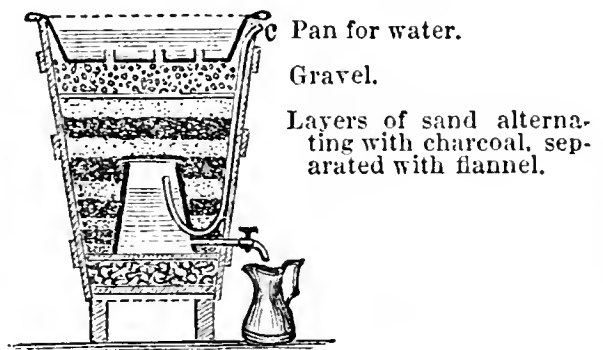


Fig. 2.

with gravel, and the water supplied through a pan, as in fig. 1. The top of the inverted pot should be covered with a round piece of tin plate, so as to extend a little beyond it all around, to turn off the descending water like the eaves of a roof, and to prevent its forming channels down the sides of the pot. A small hole is drilled near the bottom of the pot, into which a lead

tube is set, with a stop-cock, for drawing off the water; and another tube for admitting air into the reservoir, to supply the place of the drawn water, enters another hole beside it, and passes upwards to the top of the barrel, as in fig. 1. This tube might enter the pot at the top, but would be in the way in packing in the charcoal and sand.* It must curve upwards within the pot, so as to reach the top of the latter, in order that the air may escape as the reservoir fills with the filtered water. An instance occurred in which the filter, from some unknown cause, suddenly ceased to operate; on examination this tube was found to be stopped, and on removing the obstruction, the water flowed freely. Any common stone or earthen pot inverted will answer in making the reservoir of this filter. Instead of a perforated board, a round tin plate, punched with holes, would be better.

Filters attached to the cistern in such a way that all the water that passes into it is purified, have a great advantage over those that are portable, in the large quantity of pure water always at hand, without the labor of first passing it through the portable filter. Fig. 3 represents one of the sort, which possesses several advantages over most others for this purpose. Two circular cisterns are first built of stone or hard-burned brick in water lime, placed so near each other that at the nearest point there is only the thickness of the wall. In this wall is laid a lead tube, about one-third the way up from the bottom of the smaller or receiving cistern, and projecting a few inches beyond the wall.

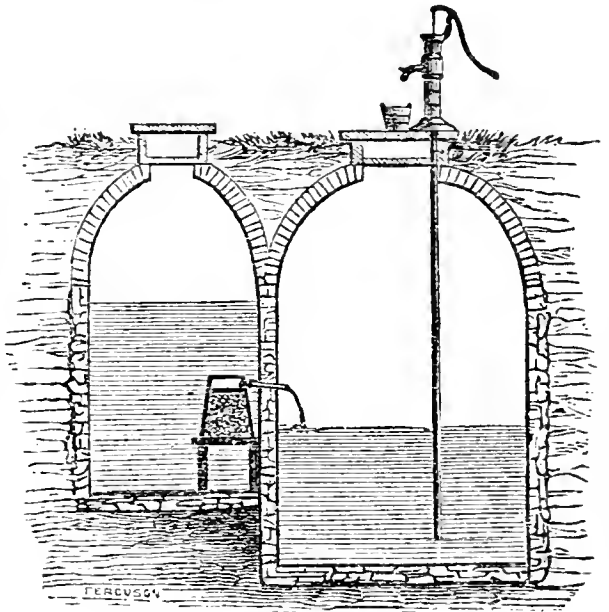


Fig. 3.

The rain water from the roof pours into the smaller cistern, and would pass through this short tube into the larger cistern or main reservoir. In connection with this tube the filtering vessel is placed. It consists of a largest size stone butter pot. It rests, inverted, on four brick legs, on the top of which a board, full of holes, is placed, to support the materials within the pot. A hole is made near the upper side of the pot to receive the end of the lead tube, which is made to fit the hole water tight, by packing. When the rain water falls into the smaller cistern, it rises through this inverted pot, and is thus cleansed, and runs into the larger one. If the pot is properly filled, all the rain water which fills the larger cistern will be as clear and pure

* It may be best, on the whole, to pass the air pipe into the top of the inverted pot, as the water may get into the bent part when made as shown in the figure, if too much is poured in at a time, and make trouble.

as a crystal spring. To fill the pot with the sand and gravel, set it down in its common position, or with the open end up; fill in first coarse gravel; then place over this a layer of cotton flannel—the successive layers of coarse, clean sand and granulated charcoal, as already described, or the ingredients in mixture. Cover the top with the perforated board, set it on the brick legs, pack the lead tube tight, and the filter is ready for operation. As the water enters the pot upwards, all the sediment will fall to the bottom of the cistern, and will not choke the filter; and the pot may be removed and replenished as often as circumstances require. The water will flow through it as long as the level of the water in the smaller cistern is higher than that in the larger. If at any time it is found to flow too fast for complete purification, it may be partly stopped or plugged, so as to run slowly. A stop-cock attached to it on the side of the larger cistern, worked with a wire from above, might be a convenience. The smaller or first cistern should be large enough to receive all the water which falls in a single shower, which may be easily estimated by remembering that every inch of rain that falls upon a roof, (and few showers exceed one inch,) yields two barrels for each space ten feet square.

Another excellent form is shown in fig. 4, A being the smaller or receiving cistern, B the larger reservoir, C the filter, and D the discharging pipe. It has the same pan to hold the sediment as in figs. 1 and 2, with sponge orifices. The sediment settles in this pan, and is easily removed. It is more difficult to pack and remove the gravel, sand and charcoal, than in fig. 3, where the filtering mixture may be taken out, turned over, and washed. It has the advantage, however, of being more solid and compact, and also in operating with a small quantity of water; in fig. 3, the receiving cistern must be one-third filled. On the whole, the latter is perhaps the best.

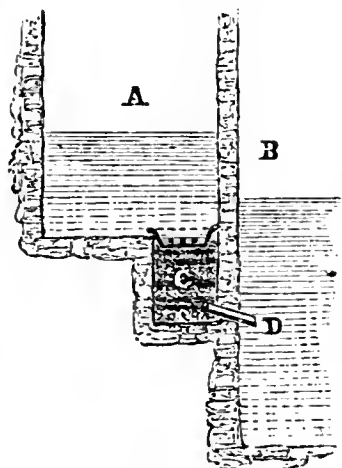


Fig. 4.

Sometimes a common cistern is separated into two parts for filtering, by means of a straight wall partition. But unless the cistern is small, or the wall quite thick, there will be danger of its bursting by the unequal pressure when one is much fuller than the other.

BRUISING OATS FOR HORSES.—The fact that oats are frequently undigested, and pass through the horse without change, should be sufficient to show the importance of bruising—for certainly no benefit can be derived from that which is undigested by the animal. Experiments made by the London Omnibus Company and others, show that a smaller quantity is required to produce the same ability to work, when the oats are bruised, than when fed whole.

AGRICULTURAL IMPLEMENTS, &c.

The Universal Plow.

THIS plow is so constructed that the mouldboard is easily removed when desired, and one of a different form, as the case may require readily substituted, without at all interfering with the other parts of the plow. Instead,

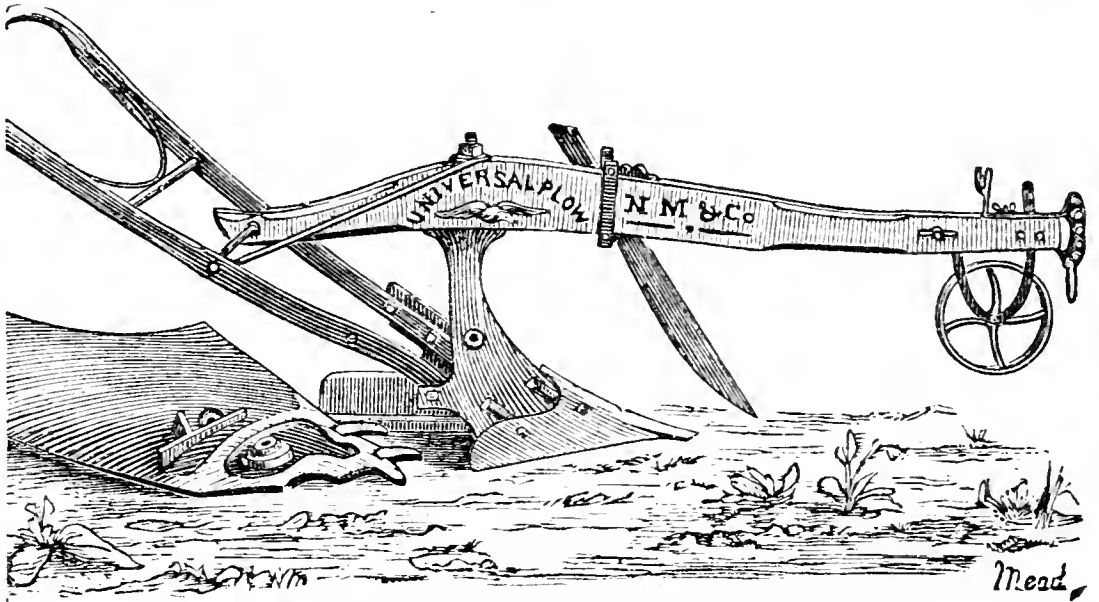


Fig. 1—FRAME-WORK OF PLOW, WITH MOULDBOARD DETACHED.

therefore, of purchasing and using a number of plows, for the various purposes which every farmer requires, he may by means of the Universal plow,

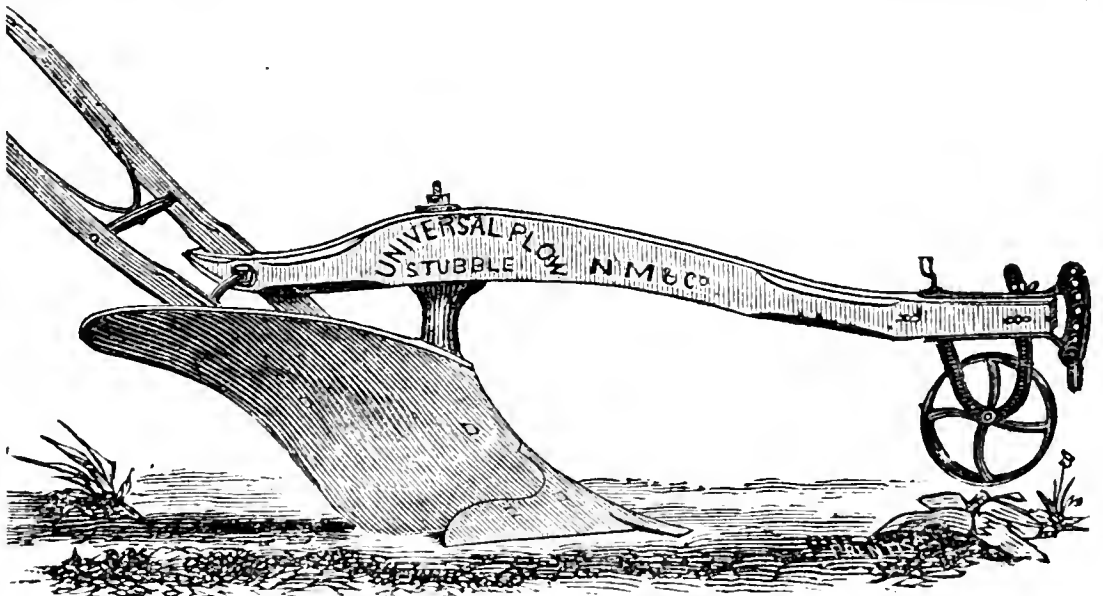


Fig. 2—UNIVERSAL PLOW, RIGGED WITH STUBBLE MOULDBOARD.

combine these several sorts in one, with a great saving of expense. Fig. 1 represents this plow with the mouldboard removed, showing the manner in

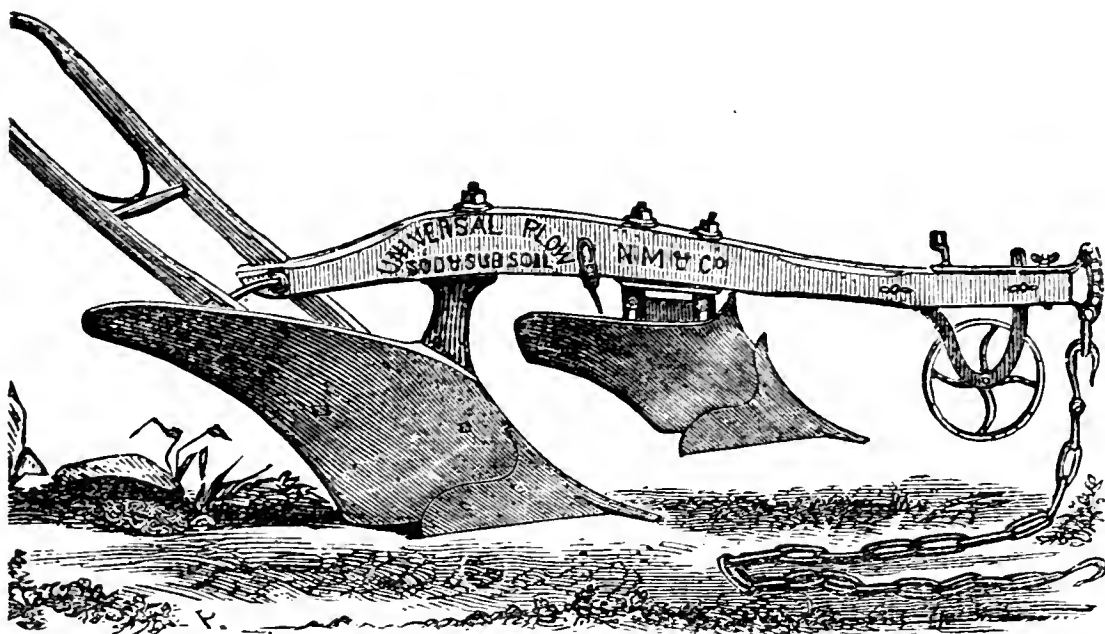


Fig. 3—UNIVERSAL PLOW RIGGED WITH STUBBLE MOULDBOARD AND SKIM PLOW FORWARD.

which it is fastened to the frame-work; fig. 2 is the same with one of the many formed mouldboards (namely, for stubble,) attached; and fig. 3 is the same with another mouldboard and a forward or skim plow added, transforming it into a Double Michigan or sod-and-subsoil plow. There are many other forms, to meet the various wants dependent on a difference of soil, and changing circumstances. Having used this plow to some extent, it has been found all that is claimed for it, in the way of a ready change from one form to another, and it will undoubtedly become, when further perfected, a valuable and popular implement with all cultivators who require a variety of sorts for the different purposes of cultivation. It is manufactured at Worcester and Boston, and has been brought to its present state of improvement through the experiments of F. Holbrook, Esq., of Vermont.

Improved Plow Clevis.

The clevis, as every plowman is aware, is indispensable to the control of the width of the slice and depth of the furrow. The common or old-fashioned

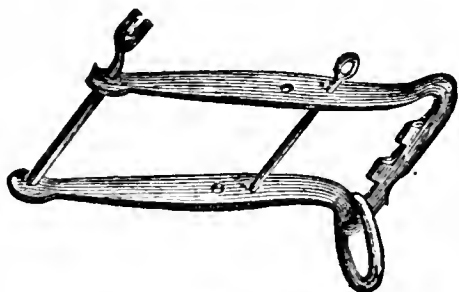


Fig. 4—COMMON CLEVIS.

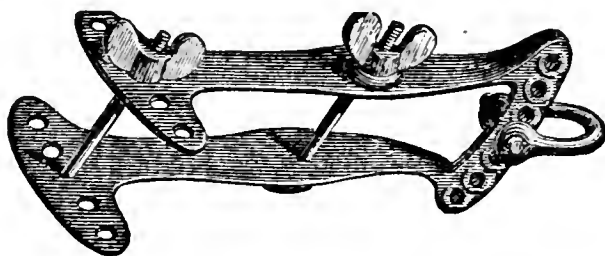


Fig. 5—THE SCOTCH CLEVIS.

clevis is shown in fig. 4; it is made of wrought iron, and usually answers a good purpose, the ring being placed in the different notches for varying the depth, and the central pin changed to the right or left for controlling the

width of the slice. The ring not being confined, is however often displaced—the beam is weakened by several holes that must be bored through the forward end to admit of changing the central pin; and the clevis itself being more or less loose, the working of the plow is not so accurate as would be desirable. The *Scotch clevis* (fig. 5) is made of malleable cast iron, and is an improvement. The draught-ring, being attached to the forward part by means of a bolt, retains its place; and the rear portion being furnished with an arc of holes, obviates cutting several holes through the beam; or if cut,

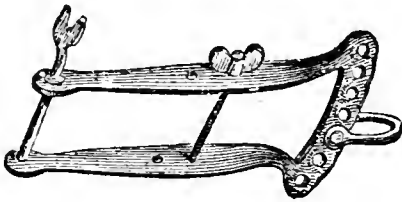


Fig. 6—HALF SCOTCH CLEVIS.

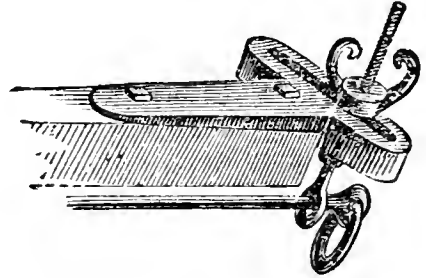


Fig. 7—QUADRANT CLEVIS.

they give a wider range to the clevis. Fig. 6 is the *Half Scotch clevis*, and has the former but not the latter improvement. The *Quadrant clevis* (fig. 7,) is used in connection with a draught rod, and is attached to subsoil and other plows where great strength of draught is employed. The slot admits the change of the rod to the right or left; and the screw enables the workman to raise or lower it to any desired depth. The *Dial clevis* (fig. 8, a, b, c, d,) is quite different from

the others, and is capable of a very wide range of variation. The two figures c and d, are representations of the same thing seen in different positions. It is the circular plate or dial, which is attached to the end of the beam, by thrusting the latter into the square hole,

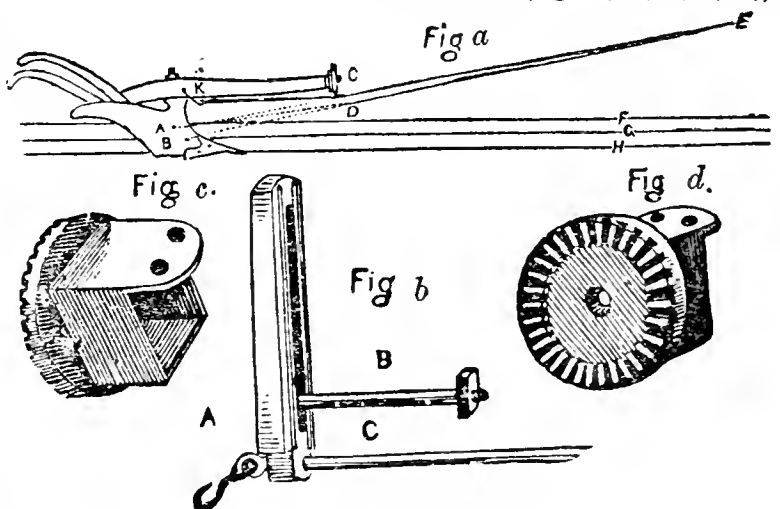


Fig. 8—THE DIAL CLEVIS.

(fig. c,) so that the dial forms a cap on the end. It is confined to its place by means of the bolt B, (fig. b,) passing through the hole seen in the center. Fig. b is the guide, the ribs on which fit the teeth or cogs of the dial; and which may be secured at different heights, or at any desired point to the right or left—thus giving a great variation to the running of the plow. C is the draught rod, passing through this guide, and furnished with a draught-hook for attaching the team. The whole, attached to the beam, is shown in fig. 9.

Plow Wheels.

The use of the wheel attached to the plow, gives the furrow a more uniform depth, the draught being so regulated that the slight pressure on the wheel shall keep the forward end of the beam at all times at the same height above the surface of the ground. It is more particularly useful in plowing sod. Fig. 9 shows the more common way of attaching the wheel to the beam, being placed on the left side, so that it may run on the unturned sod. The curved piece of iron, which carries the wheel, rises and falls through the screw staple, as the depth of the furrow requires—its rear end moving on the pin or center. A more firm and secure mode of placing the wheel

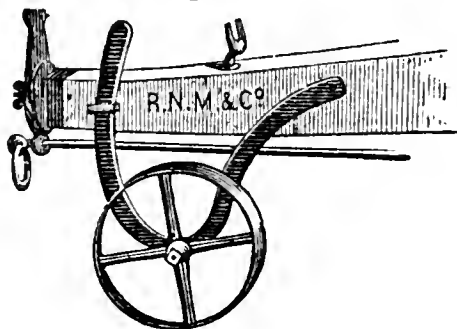


Fig. 9.

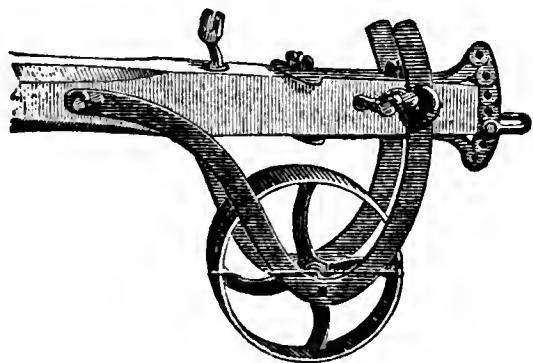


Fig. 10.

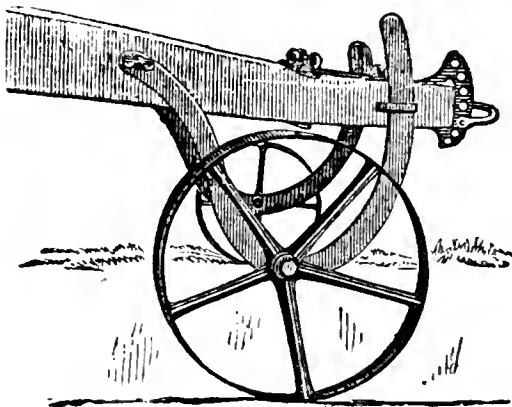


Fig. 11.

is exhibited by fig. 10; and still another, but rarely used or required, is shown by fig. 11, one wheel running on the unplowed land, and the other in the previous furrow.

Nutting's Fanning and Assorting Machine.

This is a remarkable invention, and is a great advancement on all the old fanning mills. Its most distinguishing feature is the character of the *screens*. They have almost the smoothness of glass, and are made by pressing common wire screens, rendering the meshes immovable and always accurate, increasing their durability, giving them the character of glazed muslin, and allowing the seed to slide over them, when slightly inclined from a level. The latter quality gives them their pre-eminent advantage. The seed never falls directly upon them, but first upon a smooth surface, flat with the screen, in passing over which and to the screen, every oblong grain has assumed a horizontal position. If *longer* than the meshes, it goes over them; if shorter, it drops through. Such a mixture, therefore, as spring wheat and oats, often so troublesome to the farmer, is perfectly separated. Even barley and spring wheat are separated, the barley grains being slightly longer, and enough lighter to be driven more by the current of wind. Wheat is cleaned from

chess in a complete manner. For cleaning grass seed, we have never witnessed anything that would compare with this fan. A mixture of clover and timothy was run through once together; in one drawer was found entirely pure timothy seed, and in another, clover without a single grain of timothy; the intermediate drawer had a very small quantity of imperfect seeds of clover, a very little timothy, and some other seeds of weeds.

The current of wind is so completely at command, that all degrees of strength from the imperceptible breeze to the blast that sweeps away heavy grain, may be readily given. This peculiarity, in connection with the screens, enables the operator to separate any seeds whatever, that differ either in *shape, size, or weight*.

A most important office performed by this machine, (fig. 12,) is the separation of the different sized seed of the same grain. Pass, for instance, ten bushels of wheat through the screens; one portion will be found a uniformly small grain; another about medium; a third, large, plump and first-rate. The first and third would not be supposed to have grown in the same field. In this way, excellent seed wheat may be obtained from an ordinary crop; and the best bushel in fifty, or the best ten bushels in fifty, may be separated at the option of the farmer.*

Thus the variety may be continually improved, and the result is likely to be of the very highest importance to our agriculture. If, for example, it is desired to make the crop earlier, cut it when partly green; the ripe seeds will be the only ones of full size, and will be separated from all the rest. The size of the berry will be gradually increased by sowing only the largest. An experienced farmer declared, on witnessing the performance of this machine, "I can now secure my wheat crop completely from the midge, by increasing its earliness." The entire

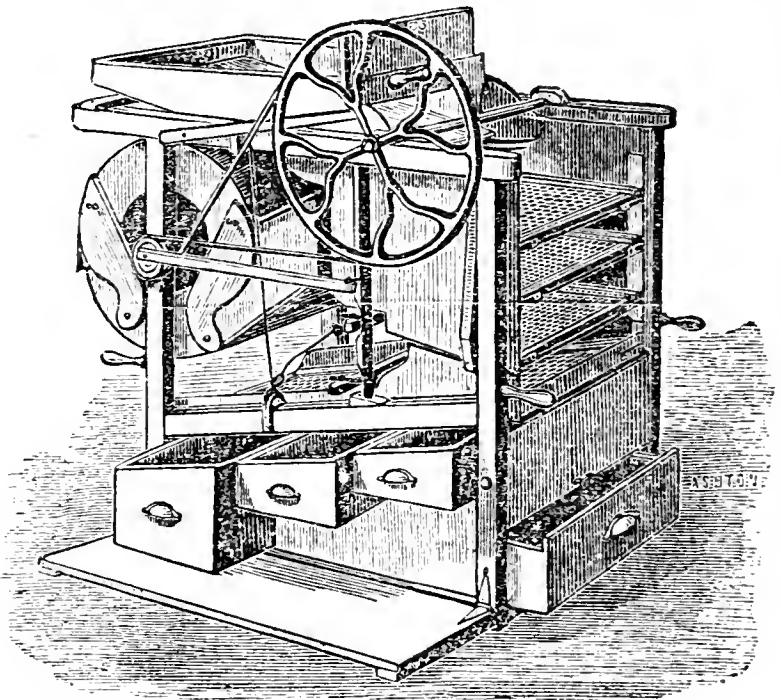


Fig. 12—NUTTING'S FANNING AND ASSORTING MACHINE.

* An amusing occurrence took place at a late agricultural fair. Several samples of grain were exhibited for premiums. An agent of this machine, without the knowledge of either judges or exhibitor, selected the poorest sample, run it through, and replaced it in the bag, with the best portion at the top. It was examined by the judges, and much to the surprise of the exhibitor, given the first prize.

eradication of weeds from crops may be greatly facilitated by its use. Having had one in use for a year or two, we are enabled to speak with confidence of its eminent advantages.

There are several minor advantages of this fan; it runs with great ease and very little noise; is smaller than usual; its rapidity of operation is great—one hundred and twenty bushels of oats have been chaffed in an hour; and twenty bushels of timothy seed cleaned in the same length of time. Its price is moderate—about thirty dollars. Machines of larger size are made for mills and warehouses. The agent and manufacturer is Wallace Warren of Utica.

Alden's Cultivator.

This new cultivator, (fig. 13,) after thorough trial, proves to be an excellent implement. The use of the thills enables the workman to control it completely, and to cut as deep in hard soils, and as near to the rows, as he may wish. It runs with remarkable steadiness. A man with a horse will do about twice as much work in a given time on stiff soils, as with the common cultivator, and being able to cut closely to the rows without danger of striking or injuring the plants, the use of the hand hoe is nearly superseded.

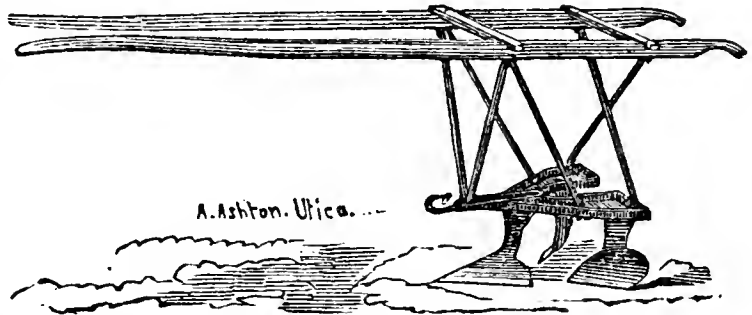


Fig. 13—ALDEN'S CULTIVATOR.

The engraving nearly explains itself—the horse is attached to the hook in front of the teeth, the thills merely guiding and steadying the implement. It is more easily managed and is less fatiguing to the operator, than cultivators of ordinary construction.

The teeth being of steel plates, continue sharp till worn out. They are readily changed so as to throw the earth to or from the row. The whole weight is about 70 pounds.

For a *marker*, to lay out corn ground, a wooden bar or scantling is screwed on after the teeth are removed, in which pins or projections are inserted at proper distances, and being easily guided, makes a true and fast-working implement. Again, a prong-hoe being attached, it becomes one of the best potato diggers, by the steadiness with which it is made to follow the row, and the accuracy with which its depth is gauged.

SHRINKAGE OF CORN IN DRYING.—Seventy-five pounds of Western corn, says the *Prairie Farmer*, after thorough drying, was found to weigh sixty pounds. It was shelled; the corn weighing fifty-one pounds, the cobs nine pounds—showing a shrinkage of fifteen pounds in less than a bushel of corn.

RULES FOR FEEDING CATTLE.

THE following may be adopted by those who wish to derive the largest profit from their animals, and from the food they consume.

Good pasture affords the best and cheapest food, and when pure water is always at hand, little care is required. But when supplied with other food, the owner must attend to the following particulars:

1. Always furnish warm and well ventilated apartments.
2. Observe cleanliness—curry the animals daily, and clean out the stalls at least twice a day.
3. Feed three times a day, with utmost regularity—a cow's stomach is a chronometer.
4. Keep the animals constantly in good condition, by a full supply of wholesome food and regular attendance.
5. In cold weather, the less they are turned out and exposed, the better.
6. Give a portion of roots or meal in winter with hay, and more if straw is fed—increase it towards spring, and gradually diminish it, as grass comes.
7. Turn cows to pasture gradually—an hour the first day, two hours the next, and so on.

The following rules *are adopted*, at least *in practice*, by poor managers and slipshod farmers:

1. See how little food will keep a cow alive.
2. Turn out to pasture very early in spring, so as to keep it very short all summer.
3. Give water but once a day, and that muddy, and a mile distant.
4. Turn cattle in the street whenever possible, to be assaulted by dogs and boys, and to break into neighbor's cornfields. If they are thus frequently lost, and escape regular milking, the labor of working butter will be greatly abridged.
5. Save the cost of erecting stables and sheds, and harden animals by exposure to snow storms.
6. Study economy by giving mouldy hay, or feeding on injured straw.
7. Feed irregularly; let the cows often wait an hour for breakfast, to give them an appetite. Give them a little meal once a week.
8. Let all stall fed animals lie in their own manure, and never curry them clean.
9. Do not be anxious to have their bones visible through the skin—they will be sure to protrude without any such anxiety.

The last set of rules do not appear to require any additional instructions or comments; but in illustration of the first, whole books may be written. A few briefly stated facts may not be out of place here.

BEANS.—One of the most valuable substances for the food of cows in winter, is *bean meal*. Fed upon it, with hay, although giving less milk than when fed upon grass, they have actually yielded more butter. Bean meal is particularly valuable for the production of cheese. The best varieties of the white bean form a good fallow crop, and they might doubtless be more largely introduced into farm rotations. The meal should be diluted with bran, cut food, or Indian meal.

IMPORTANCE OF GOOD FEEDING.—Flint states that a Swiss dairyman agreed with a German neighbor for all his milk, the German to furnish the cattle and food, and the Swiss to feed them, and pay for the milk by measure. The German was obliged to sell immediately nearly half his cows, the Swiss requiring nearly double the fodder they had formerly consumed. "I was in despair," said the owner of the cows, "at finding them using such a quantity of the best feed, although according to the strict letter of the contract. But the change soon effected was great, and the result still more striking. The quantity of milk became double, triple, and even quadruple; so that a hundred pounds of hay produced nearly three times the milk it had yielded under the old mode of feeding."

There appears to be a certain amount of food required to keep an animal in existence, with nothing to spare in the form of milk, butter and cheese. Little or no return can therefore be expected when it is thus fed. But all beyond this, yields a clear profit—which explains why the profit is so many times greater when the animal has a full supply. The first may be compared to an empty train of freight cars, which the locomotive can barely move. No goods could be carried. Add another locomotive, and a profitable business may be immediately commenced—the gain is more than a thousand fold.

RULE FOR ESTIMATING THE AMOUNT OF FEED.—Careful experiments show that nearly all domestic animals consume an amount of food about in proportion to their weight. A large horse or cow eats more than a small one. An elephant weighs four or five times as much as a horse, and consumes four or five times as much food. If a cow has the weight of five sheep, she will eat five times the quantity of food. There are of course some variations or exceptions, and individuals differ, but this is a fair general rule. This quantity is usually from two and a-half to three per cent., when the food is hay, with a small proportion of grain. A cow digests more thoroughly than a horse, and requires only about two and a-half per cent.; a horse three per cent. A cow weighing eight hundred pounds would therefore need about two and a-half times eight, or twenty pounds of hay a day. A horse weighing one thousand pounds would require thirty pounds. One and a-half per cent. will keep a cow alive or on her feet; but to be properly nourished so as to grow or increase in flesh, or give milk, she must have nearly double. The water used is not included, nor does the rule apply to green food.

CALCULATING FOR WINTER.—The careful farmer should know nearly the weight of his animals; and the number of tons of hay and bushels of grain

on hand. By applying this rule he may learn very nearly how he will be likely to come out in spring.

SHELTER.—Caird mentions a case where a herd of cattle which had been kept housed, were turned out of stable twice a day on account of needed repairs in the water pipes, merely long enough to be watered in the yard. The quantity of milk immediately decreased, and in three days the falling off was considerable. When the repairs were made, and the animals kept in, the flow of milk returned.—(*Flint.*)

NUTRITIVE VALUE OF FOOD.—The following table shows the nutritive value of several different kinds of food, first according to theory, or from analysis; and secondly, according to the average of several different experiments; the figures giving the quantity in pounds, to be taken of each kind to be equal to any other.

	Value by Analysis.	Value by Experiment.		Value by Analysis.	Value by Experiment.
Good Hay,.....	100	100	Beans,	29	46
Red Clover Hay, (well cured.)	77	95	Peas,	30	44
Rye Straw,.....	502	355	Indian Corn,.....	70	56
Oat Straw,	564	220	Barley,.....	65	51
Ruta Bagas,.....	676	262	Rye,.....	58	49
Field Beets,.....	391	346	Oats,	60	59
Carrots,.....	412	280	Buckwheat,.....	74	64
Potatoes,.....	324	195	Wheat,.....	47	43
			Linseed Oil-cake,.....	22	64

The theoretical values are the mean of two authorities, Boussingault and Fresenius; they usually agree very nearly, and are wide apart only in relation to rye straw and buckwheat. The results of experiments are in most instances from six different authorities; they sometimes differ greatly—the most so in relation to the straw of oats and rye, and some of the grains. Mostly, however, the results agree as nearly as could be expected, when it is remembered that the crops may have been cut at different periods, differently ground, cooked, or otherwise prepared; variously fed, and to animals of different feeding qualities. Although not fully reliable, the table will afford some valuable suggestive information.

CUTTING UP FOOD.—It scarcely pays to cut straw or other fodder by hand. It should be done by horse power. If cut quite short, say the eighth of an inch, it is a great saving to cut corn fodder, as the cattle will eat it all and digest it well. It also saves much labor of mastication with straw, and allows the intermixture of cut roots and meal. If all stuff used for litter could be cut even an inch or two in length, the manure would be worth much more by being regularly spread and intermixed with the soil. Corn fodder should be cut for this if for no other reason.

CORN FODDER.—Always sow a few acres of corn fodder. It may be done on any spare land, after corn or potatoes are planted. Plow and harrow the ground; furrow out as for planting potatoes; strew corn from a half bushel basket along the furrows, at the rate of two or three bushels per acre, or forty grains to a foot; cover by simply harrowing lengthwise; cultivate once or twice, but not hoe; mow and tie in bundles about the end of summer, or rake in winrows. It will yield ten or twelve tons of green fodder per acre,

and five or six tons of dry fodder. The great difficulty is to prevent heating and spoiling if put in stacks, even when apparently quite dry outside. Spread it over the top of hay mows, or on poles, only a few feet thick, or put it into quite small stacks with three upright rails in the center for ventilation. When cut green early in autumn, it affords excellent food for cows, while pastures are short, and increases the flow of milk.

FRUITS AND FRUIT CULTURE.

Culture of the Strawberry.

First, procure the BEST SORTS—among which, of the larger varieties, are Hooker and Wilson—and McAvoy's Superior for the south-west. Hovey's Seedling sometimes succeeds finely. These and the Triomphe de Gand, (which we have measured two inches in diameter the longest way.) are the largest. The Wilson, Hooker, and Triomphe de Gand must be cultivated in "hills," with the runners not covering the whole bed.

Spring is the best time to transplant—next, about or soon after midsummer, just after bearing, and while the plants are yet partly dormant from bearing. Set in autumn, the young plants do not always become sufficiently rooted to endure winter without injury. When transplanted in summer, cut off all the large or fully expanded leaves, leaving only the new half grown ones—dip the roots in mud—settle the earth about the roots by watering—cover them with mellow earth, and mulch an inch or two deep with stable manure free from straw. This treatment will be attended with success, and the plants will bear well next year.

Beds well hoed will last two or three years, or more—if the runners are allowed to cover the whole surface, they should be renewed every second year, by spading under alternate strips of the strawberries, the runners renewing these strips.

The Cherry Currant.

This is the largest of all the red currants, frequently measuring five-eighths of an inch in diameter, and ordinary crops from half an inch to a little less. It was formerly supposed to be a moderate bearer, but is now found to be productive. The following is the amount of a crop which we gathered this year. The number of bushes was twenty-four—they were set out in 1857, when very small, and this is their third summer. As it was intended to

remove a part of these ultimately, they were placed temporarily quite thick, or the twenty-four in a row thirty feet long. The fruit this year hung in dense masses, and the row yielded a full bushel by measure. They were planted in common unmanured garden soil, and kept cultivated. An acre, like these, in rows four feet apart, would have given over three hundred bushels.

Pears for General Cultivation.

At the last winter meeting of the Fruit Growers' Society of Western New-York, the following varieties were especially commended:—Louise Bonne de Jersey, for its extensive productiveness (on the quince); Tyson, for its handsome growth and excellent fruit; Virgalieu, for its productiveness, and the great popularity and high price of its fruit; Sheldon, for its superb growth on the pear stock, and great excellence; Bartlett, for its admirable fruit and early bearing; Belle Lucrative, for its superb quality; Seckel, for its hardiness, great crops, and delicious flavor; Flemish Beauty, for its general perfection, needing, however, to be picked early; and the Lawrence and Winter Nelis as the best winter pears. The Howell, Brandywine, Beurré Diel, Washington, Duchesse d'Angouleme, Giffard, Rostiezer, Anjou, and Easter Beurre, were also highly recommended by different members. The only objection to the Vicar of Winkfield was its excessive bearing, and ordinary cultivators would not prune and thin sufficiently to make the fruit excellent. A. Pinney of Clarkson said that he found the fruit of the Louise Bonne of Jersey one-third larger when raised on dwarfs. P. Barry remarked that although the Duchesse d'Angouleme was preferred as a dwarf, yet on pear stocks the fruit continues to improve as the tree grows older, for twenty or thirty years. S. H. Ainsworth has a tree of the Louise Bonne of Jersey, twelve years old, with a barrel of pears on it.

Winter Protection.

It is best not to cover raspberries, grapevines, &c., till winter is close at hand, as they will ripen and harden better if exposed till that period. Grapevines are often sufficiently protected if simply laying flat on the ground—or at most, with an inch or two of soil. The same remark will apply to the raspberry and blackberry. Caution is needed in the use of straw around fruit trees, as it may encourage the depredations of mice. If covering the stems, it should not be closely tied about them, as the circulation of some air is best. Evergreen boughs placed about any tender trees, afford the best and safest protection. The thicker the coat they form, the more complete the covering will be.

Winter Mulching.

At the commencement of winter, those who have young trees liable to be injured by cold, and which need high culture, will find an especial advantage in applying a winter mulching of short manure. This treatment is eminently useful for DWARF PEARS. Protecting well the part below ground, is of use to the exposed portions above—in the same way that a man's feet and ears have been found to keep warmer on a cold day, when his body is well clothed.

The best time in the year to manure trees is late in autumn. If applied earlier, it prevents proper cultivation; and if in spring, its protecting influence is lost, and the liquid portions do not become so well diffused through the soil by the time that growth commences. The manure should be short, (not necessarily old or rotted,) to prevent attracting mice; or if short manure cannot be had, a small cone of fresh earth should be raised around each tree eight or ten inches high, which will effectually exclude the mice. In the spring, the manure is spaded in, if in a garden, or worked under by means of a gang-plow, if in an orchard kept clean by horse power.

Grape Trellis.

In answer to several inquiries, we give the annexed cut, (fig. 1.) representing the mode

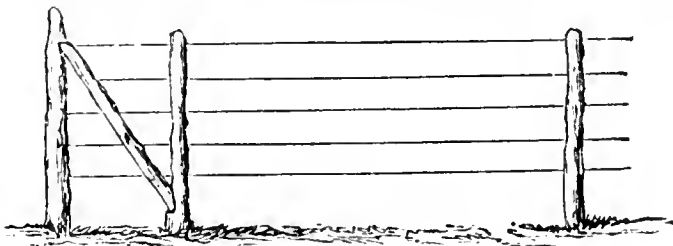


Fig. 1.—GRAPE TRELLIS.

of constructing wire trellis for grapes, as adopted by Dr. Farley of Union Springs, in

his excellent vineyard at that place. The posts are white cedar, mostly round and rough; they are set in the ground about two and a-half to three feet, are seven feet high above ground, and twelve feet apart. At the ends, they are braced as represented on the left portion of the figure, the powerful stress of the wires requiring a firm support. The wire, which is No. 10, is placed about 14 inches apart, the bottom one about two feet from the ground, and the upper about six and a half to seven feet high. At the ends, the wires pass through or around the posts; they are attached to the intermediate ones by staples. The vines are trained on this trellis mostly in the fan form, and where necessary are fastened to the wire by cotton cord.

The cost of this trellis is 75 cents to one dollar per rod. The cut represents only one length between posts, besides the end-bracing.

Orchards in Illinois.

A discussion was held at the fair of the Illinois Agricultural Society, and some valuable suggestions made in relation to the management of western orchards. One cultivator remarked, that "carelessness is the cause that farmers do not raise fruit—a tree wants nursing from infancy as well as a child." W. W. Beebe of Iowa, would plant trees deeper on elevated lands, that wash; he had no doubt that fruit could be grown in northern Illinois, with these precautions, namely; 1, NOT TO PLANT MORE TREES THAN CAN BE TAKEN CARE OF; 2, subsoil the ground, so that no large holes are needed; 3, dig the trees in autumn, bury them, and set them in spring; 4, select trees with low heads, and lean them to the south-west in planting them; 5, protect from strong winds by belts of deciduous trees. — Mills of Marion county, spoke in favor of good cultivation, remarking, that as long as he cultivated his trees they did well, but when he seeded his orchard, "his success would have been as good if he had cut them down."

Cultivators were divided in opinion in relation to shelter—some strongly recommending it, and others saying their trees had done better when fully exposed to the winds. From remarks made, we infer that the "protection" was accompanied with SHADING. While the aim should be to prevent the bad effects of sharp cutting winds, there must be plenty of sun and air.

The following varieties are generally approved for that region, as being both hardy and productive: Red Astrachan, Carolina Red June, Keswick Codlin, Sweet June, Maiden's Blush, Fameuse, Willow Twig, Winesap, White Pippin.

DOMESTIC ECONOMY.

Removing Stains.

Receipt books give an almost endless number of directions, without the reasons, in the form of a vast undigested mass of remedies. A knowledge of the substances, and the application of chemical principles, greatly simplifies the act, and renders intelligible and certain, what before was only accomplished guess-work and endless trials.

GREASE STAINS.—These are from grease, oil, &c., and are simply removed by alcalies or soap, or by essential oil dissolved in alcohol. Alcalies, such as solutions of saleratus or liquid ammonia, will remove them safely from all substances without color. For other substances, the alcoholic solutions spoken of will do, and among them burning fluid answers a good purpose. But the best of all is the new preparation termed **BENZINE**, which exceeds anything else we know of in efficiency. Lay a paper under the fabric and apply the liquid. Oil spots and stains from candle snuff, on woolen table covers, paint spots on garments, &c., are thus perfectly removed, without the slightest discoloration.

ACID STAINS.—These may generally be known by **REDDENING** black, brown, and violet dyes, and all blue colors except Prussian blue and indigo. Yellow colors are generally rendered paler, except the color of annato, which becomes orange.

These stains are neutralized by alcalies. A spot, for instance, on a woolen coat, from strong vinegar or sulphuric acid, may be entirely removed by applying a solution of saleratus. Apply it cautiously until the acid is exactly neutralized, which may be known by the restoration of color; and then sponge off the salt thus made by means of a sponge. Ammonia is better for delicate fabrics.

Sweat stains are chiefly occasioned by a little muriate of soda and acetic acid—which produce nearly the same effects as acids generally, and are to be removed in the same way, operating cautiously.

ALKALINE STAINS.—These are the opposite of acid stains—they change vegetable blues to green, red to violet, green to yellow, yellow to brown, and annato to red. They are to be treated with acids. The writer once had a new pair of dark cloth pantaloons changed to a light brown below the knees, by riding on a load of fresh lime in a storm. "Oh! you have ruined your clothes!" was the exclamation; but he deliberately procured a cup of vinegar, and sponging the cloth gradually, completely restored the color, and then again

sponging off the compound, left them as good as before.

IRON STAINS.—These come from iron-rust, ink, &c. To remove them, the iron is first dissolved by a solution of oxalic acid in water. The oxalate of iron thus produced, which, unlike iron rust, is soluble, is readily removed by washing or soaking. Ink spots (tanno-gallate of iron,) upon the printed leaves of books, are removed in the same way—but the lamp-black of the printer's ink is not at all effected. If fresh, such spots may be wholly effaced; if old and dry, a very little will remain.

Wheel grease makes a compound stain of grease and iron. The grease may be taken out first by alkali; and then the iron by oxalic acid. If tar has been used on the wheel, rub on lard, which will dissolve it, and then apply the alkali. Turpentine will answer nearly the same purpose as lard.

VEGETABLE STAINS.—These include fruit stains, and may be removed with chlorine or sulphurous acid. A diluted solution of chlorine will remove them; or if practicable, chlorine in a gaseous state will be better, the place being wet. Sulphurous acid, or the strong fumes of burning sulphur will effect the same purpose, but much more slowly, and perhaps more safely. Both these substances will, however, remove any other vegetable color which may have been used for dyeing the fabric.

To remove stains from calico or other colored substances, without affecting the original hue, requires not only a knowledge of the materials used in dyeing, but of those which will dispel the stain without affecting these dyes, and would be too extended a subject for our present limits.

Cheap and Excellent Ink.

Take half an ounce of extract of logwood, ten grains of bi-chromate of potash, and dissolve them in a quart of rain water, in a bottle, kept uncorked. This is the whole process, and the cost will be about three cents a quart. But failure will result, unless the bottle is perfectly clean, and unless the ink is poured out into an inkstand perfectly clean from any other ink. Do not forget also to leave the bottle uncorked. Do not mistake chromate for bi-chromate of potash. Running the logwood in solution first through a fine strainer, is said to be effectual in preventing the sediment which sometimes adheres to the pen, but this the writer has not tried. The ink

itself has however been fully tested for about a year; and having published the directions some time ago in the *Country Gentleman*, several of the correspondents of that paper have affirmed that the receipt was worth more than a year's subscription.

How to Corn Beef.

The following is our method:—Add two pounds brown sugar to eight gallons of water, also one quart of molasses, four ounces of nitre, and fine salt till it will float an egg. This is enough for two quarters of beef.

Making Soap.

The best process for making soft soap is simply this:—First, Procure good ashes; place a half peck of caustic or water-slacked lime, in the bottom of the leach, for each barrel of ashes; if air-slacked, the quantity must be larger, according to the time it has been exposed to the air. It is usual to place straw below the lime, to prevent the water from carrying it off in particles. Place the ashes on the lime, beating it compactly as each successive layer is applied, till the leach is full. If not beaten solid, the water will run through too soon, and the lye will be weak.

A stout barrel, slightly inclined, with a hole bored through the bottom, makes a good leach. It should be placed on a piece of broad plank, with a gutter cut around it, to collect the lye; and high enough from the ground to set a tub under. The water poured upon the ashes should be hot, until the lye begins to run; and the time that should elapse after the water is first applied, till it passes through as lye, should not be less than twenty-four hours; if sooner, the ashes has not been beaten sufficiently, and the lye will be too weak. It will continue to run as long as water is applied, but at the same time growing weaker, as the potash becomes carried off.

If the ashes could be perfectly fresh, no lime would be required in the leach; as when first burned, ashes are caustic, but gradually lose this quality by absorbing carbonic acid from the air. The lime abstracts this carbonic acid, and renders the lye again caustic.

If lye is not strong enough to float an egg, it will not make good soap—but we have known it to do this, and still cause a failure, if not sufficiently caustic. The last named defect may generally be ascertained by pouring in a portion of some strong acid, as aquafortis or oil of vitriol, which will cause a violent effervescence—even strong vinegar will do. When this is the case, it shows that enough lime has not been used; and it may still do to apply it. We have known its use

to cause success even after the materials for the soap had been mixed together.

The grease must be **FIRST BOILED**—then a pint of lye added—afterwards a quart—and so on by gradual additions until the soap is made. A barrel of good ashes will make a barrel of soap—but if the lye is strong enough to combine well with the grease, the soap will be too strong, and injure the clothes. This is remedied by adding a pail of water to each pail of freshly made soap, or diluting it.

Preserving Fruit in Cans.

The following method is given by a correspondent of the *COUNTRY GENTLEMAN*:—To one pound of the fruit, I put a quarter of a pound of white loaf sugar. Put them over the fire together. Let them boil up once. Then have your cans in a pail of water as hot as possible without breaking them—have THEM also filled with water of the same temperature. Let them remain so for a few moments. Then, while the fruit and sugar are boiling hot, fill the cans while they are setting in the water. They must be filled to the very top. Then put the cover on, and seal with cement. After filling them, take them out of the pail of water and put them away to cool. After they are **COLD**, turn them over on the cover side, and let them remain so until you wish to use them.

I have saved fruit in this way for three years; and have now strawberries and peaches that are as fresh as though they were picked this year, which are a year old.

I always use the glass cans, for I consider them more pure than any other kind.

Sweet Pickled Tomatoes.

One peck of green tomatoes sliced—six large onions sliced—strew a tea-cupful of salt over them; let them remain over night—drain off in the morning—then take two quarts of water and one of vinegar—boil them in it 15 or 20 minutes; after boiling put them in a sieve to drain—then take 4 quarts of vinegar, 2 pounds of brown sugar, half pound white mustard seed, 2 table-spoonfuls of ground alspice, same of cloves, cinnamon, ginger and mustard, and one tea-spoonful of cayenne pepper—put all in a kettle and cook 15 minutes **SLOWLY**, and you will pronounce them capital.

Preserving Green Corn for Winter Use.

Cut the corn off the cob, and put it in a stone jar, with a handful salt to a pint of corn. When the jar is full, put a weight on it. When you wish to use it, remove a little of the top, and wash and soak over night.

FARM NOTES.

Culture of Carrots.

1. The carrot wants a deep, rather light, sandy loam soil, of the highest degree of fertility; but will succeed on a strong loam, if dry and mellow. When the subsoil is hard, deep subsoiling is of great value. If thoroughly plowed and manured the previous year, it would be best, except on the very lightest soils, which do not hold manure—2. Early sowing is best, say as early or before the first planting of corn. Later crops are sometimes injured or prevented from vegetating by drouth—3. The Long Orange and the White carrot are the two best sorts. The White is perhaps most productive, and much more easily harvested—but it is not generally considered to be quite so rich as food, and it is in greater danger of injury from late autumnal frosts—4. Sow in drills with a planter, two and a-half to three feet, and thin out to six inches in the drill, if the soil is rich; or four inches if not rich.

Rotation of Crops.

A favorite rotation in many places is—1. Corn (and roots,) with all the manure—2. Barley, peas and beans—3. Wheat, with clover seed—4. Clover, pasture or meadow, one, two, or three years. If the soil is strong, oats may be substituted for barley, but a moderate dressing of well rotted manure on the oat stubble, is a great improvement, or perhaps quite as useful or more so, on heavy soils, would be a thin dressing of long manure on the wheat after it is up, just at the beginning of winter.

Corn Husker.

A correspondent of the COUNTRY GENTLEMAN thinks there will never be a corn husker invented, superior to one he describes as follows:

It is generally of iron or bone, about half an inch wide, with two holes made in it and

out-husk any machine that can be made to do it with neatness.

Smutty Wheat.

Smutty seed produces a smutty crop. The seed of the smut fungus, when examined by the most powerful microscopes, are found to be much smaller than the vessels or saporers of the plant, and are doubtless carried through them. The experiment has been made by sowing good grains from a smutty crop, and which were no doubt well dusted with the fungus seeds. A portion was planted without any preparation, and the crop had many smutty heads in it. Another equal portion of seed was repeatedly washed in water, and the number of smutty heads was many times less. A third portion was washed in brine, with a still more favorable result. The best way is to wash first in water, then in brine, and then roll the seed in slacked or powdered lime. This process, if care is taken to prevent the seed from becoming tainted from foul bags or other sources, will nearly extirpate it.

Best Form of Tile for Draining.

Never have a flat bottom for a channel. The discharge gutter at one of our colleges was found to become frequently choked with sediment, and to require frequent cleaning at great trouble and expense. It was made of plank, nailed together, forming a square tube, lying on one of its flat sides. "Turn the tube, so as to rest on one of its corners," said the professor of hydraulics. It was done—and it never became again choked—for the little water which ran through it, instead of being spread out over a broad flat surface, was concentrated into a narrow corner, and swept off all that became deposited there.

Drill vs. Broadcast Seeding.

The Homestead argues in favor of drill-seeding, that grain so sown is more likely to grow than when distributed broadcast. "The kernels are all sown at the same, and this the most desirable depth; they are not covered by sods, nor dropped upon the same; they are uniformly dropped, and the ground between the rows affords passage way for clearing out coarse weeds if it is desirable, as it often is."

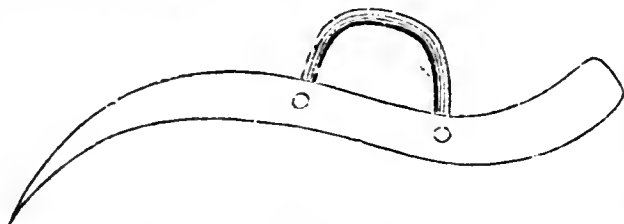


Fig. 1.

a leather strap put in, forming a loop; slip this over a finger of the right hand, and you are equipped. An active hand with this, can

D A I R Y H U S B A N D R Y .

Requisites for Making Good Butter.

There are a few butter-makers who have established such a reputation for making the very best article, that all they can spare for market is eagerly taken at several cents a pound above the market price. So far as we know, they all adopt the following rules; or if they do not, they practice them:—

1. A perfectly clean cellar, not only clean from all dirt, but from every bad odor—pure, sweet, and fresh.

2. Perfectly clean, well aired vessels. Not an infinitesimal speck of any foreign or sour substance adheres to any of them.

3. Churning before the cream becomes old.

4. Securing such a temperature that it will require about half an hour for churning—if performed much sooner, a loss of butter must occur, and it is not so good.

5. Work all the buttermilk out, which is rarely done—and work no longer, which is still more rarely, but sometimes done.

6. Use the purest salt—and add an ounce to a pound.

7. Pack the butter in the jars or firkins solid—put as much in a small space as possible.

8. Lastly, and first also, provide good sweet pasture, and plenty of perfectly pure water for the cows at all times.

If any have practiced all these, and have not succeeded, we should like to hear from them. It is proper to state, however, that there are some who assert that their vessels, &c., are clean, when in fact they are far from it.

Restoring Tainted Butter.

A good housekeeper gives the following process, but we have not tried it:—

Cut or break the butter into grains or very small pieces, by passing it through a coarse sieve or otherwise. Put it into the churn with a sufficient quantity of NEW MILK to float it, and churn it well, which will free it from the bad taste, when it may be taken out and worked and salted, as new butter.

To Care Kicking Cows.

1. Never allow the slightest degree of heat or passion, or departure from perfect self-control.

2. Never strike the animal but once at a time—no matter what the provocation may be—a single, sharp cut with a switch (kept un-

der the left arm,) excites fear and alarm—two or more strokes produce a re-action, and cause rage but not fear.

3. Adhere faithfully to the principles of cause and effect, and the animal will quickly understand these principles, if the single, alarming stroke always instantaneously follows EVERY attempt to kick.

4. Treat the animal in a firm, soothing, gentle manner at all times,—only let the blow always come quickly after every kick; whether it be merely an ABORTIVE ATTEMPT, or the whole pail of milk is upset—the INTENTION of the animal was the same.

I do not wonder that so many fine cows are spoiled, that are treated according to passion and caprice, and not according to principle nor rule. If a cow kicks maliciously, but happens to hit no one, the milker takes no notice of it; if a mere accidental movement of the foot oversets a pail of milk, a shower of furious blows follows, and it becomes impossible for any brute to know from such irregular practice, what connection there is between the punishment and the offence.

Pumpkins for Milch Cows.

A correspondent of the New-England Farmer gives his experience as follows:—"First, I fed my cows one week with one large or two small pumpkins to each cow, twice a day. Their milk decreased two or three quarts to each cow a day, from what they gave the first week previous. I then fed them one week with the same quantity of pumpkins as before, and took out the seeds. They increased in a greater proportion of milk than they decreased the week previous. I then fed them alternately, three or four weeks,—and they varied in their milk very much as the first weeks."

Regularity in Milking.

A noted dairyman of Portage Co., O., remarks on this subject as follows, in the Boston Cultivator: "Each cow should have a steady milker, be milked as fast as possible, and all the milk drawn. I am satisfied that there is a loss of one-third in many dairies, by the lazy, hap-hazard way in which cows are milked. I have known persons to sit down in the milking-yard, and go through with some long yarn, and be from ten to twenty minutes milking one cow, when it should be done in less than five.

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Deciduous & Ornamental Trees,	Climbing Shrubs,	Dahlias,
Evergreen Trees,	Roses,	Phloxes,
Flowering Shrubs,	Peonies,	Border Plants, &c.

BULBOUS ROOTS—Summer flowering, including Amaryllis; Gladiolus; LILIES, Japan, &c.; Tuberose, Tigridia, Tritonia aurea, Colchicum, &c.

STOCKS FOR NURSERYMEN.

PEAR SEEDLINGS, our own growth, 1 and 2 years.

MAZZARD CHERRY, 1 year.

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QUINCE STOCKS, 1 year from Cuttings.

For full and detailed information respecting the stock, prices, terms, &c., we refer to the following Catalogues, which will be sent gratis, prepaid, to all who enclose one stamp for each.

No. 1—Descriptive Catalogue of Fruits.

No. 2—Descriptive Catalogue of Ornamental Trees, Shrubs, Roses, &c., &c.

No. 3—Descriptive Catalogue of Dahlias, Green-House and Bedding Plants, &c., &c.

No. 4—Wholesale Catalogue for Nurserymen, Dealers, and others, who purchase in large quantities.

ELLWANGER & BARRY,
Mount Hope Nurseries, Rochester, N. Y.

CENTRAL NURSERIES, YORK, PENN.

THE PROPRIETORS respectfully invite the attention of Nurserymen, Dealers, Fruit Growers and Amateurs, to their extensive stock of

THRIFTY WELL GROWN TREES,

Consisting of

APPLES, STANDARD AND DWARF,

Comprising, in addition to a large stock of the most approved varieties for general cultivation, a splendid collection of the best new Southern varieties.

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Of all the choicest kinds, including the most recent additions at home and abroad, of a quality especially suited to those wishing handsome well grown trees.

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A choice collection of upwards of 50 varieties.

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A complete assortment, embracing many new Southern and Foreign varieties of promise, on Peach, Plum and Almond Stocks.

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NATIVE, of best old and new varieties; FOREIGN, choice kinds for the Vinery.

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Of most desirable kinds.

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EVERGREEN AND DECIDUOUS TREES

In variety, suitable for the Lawn, Avenue and Park.

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Deciduous and Evergreen, of the choicest hardy varieties.

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On their own roots, including the most recent additions.

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SCIONS in large or small quantities. STOCKS for Nurserymen, &c.

☞ Packing done in the best manner. Catalogues gratis on application. ☞

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PARSONS & CO., AT FLUSHING, NEAR NEW-YORK,

Offer a general assortment of well-grown TREES AND PLANTS, both for

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Varieties of the Different Fruits

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Which for variety, size and quality, will be found to be inferior to none in the country.

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And many others. Trees pruned and in pots for Orchard Houses.

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In large quantity and of fine size. In both classes will be found the new and valuable sorts.

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Will find with us all that they need. We have now a large and

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50,000 PEACH TREES, branched low, suitable for a Southern climate.

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20,000 APPLE SEEDLING STOCKS

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Respectfully ask the attention of cultivators and admirers of Flowers, to their very extensive stock of

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10,000 LINNÆUS PIE PLANT, most profitable for market, and BEST for family use: \$6 to \$8 per 100—\$50 to \$75 per 1000. Victoria, Prince Albert, and Downing's Colossal, \$8 per 100. Cahoon's Mammoth, \$3 per dozen.

15,000 GRAPEVINES of 25 best hardy varieties, at very lowest rates: Delaware, \$1 to \$1.50; Hartford Prolific, Franklin, and many others, 50 cents each—\$25 per 100; Isabella and Clinton, \$5 per 100; Catawba, \$3 per 100—\$20 per 1000.

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LARGEST AND MOST MAGNIFICENT VARIETY IN THE WORLD, (of which we have the entire stock in the country.) Wilson's Albany, Hooker, Triomphe de Gand, and other finest sorts low. Fruit and Ornamental Trees, Stocks for Nurserymen, Small Evergreens, Green-House and Bedding Plants, in great variety.

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NANSEMOND SWEET POTATOES,

FOR SEED, SPRING OF 1861.

Price \$5 per Bbl.—\$2 per Bushel.

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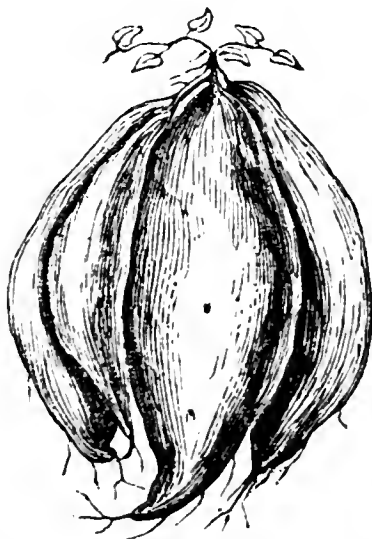
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A Profitable Crop 44° North.

Send for my Circular containing full directions for cultivation, &c. All inquiries promptly answered. Address **M. M. MURRAY,**
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W. L. FERRIS offers for sale a CHOICE COLLECTION of

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The collection of EVERGREENS is extensive and of the best sorts and quality; including several new varieties adapted for the production of immediate effect in new plantations, as most of the kinds can be had of any required size from 2 to 12 feet.

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No. 2—GENERAL PLANT CATALOGUE, published April 1st: Containing a Descriptive List of choice DAHLIAS, GLADIOLUS, HOLLYHOCKS, ENGLISH CARNATION AND PICOTEE PINKS, VERBENAS, PETUNIAS, GERANIUMS, and many other Bedding and Green-House Plants.

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Of all the best leading sorts. Wilson's Albany Strawberry can be supplied in any quantity, at reduced rates. CURRANTS AND GOOSEBERRIES—all the best varieties.

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FLOWERING SHRUBS, &c.**

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The Orchards and Vineyards occupy upwards of One Hundred and Fifty Acres, and are planted with all the varieties of Fruits susceptible of being cultivated in this latitude. The

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NEAR ELKTON, KY.,

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140,000 GRAFTED APPLE TREES,

Principally of varieties that have been tested by us, and found to be well adapted to this latitude. Also

150 Varieties of the Finest Peaches,

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And in fact, everything usually found in a well regulated Horticultural establishment.

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DOWNER'S PROLIFIC SEEDLING STRAWBERRY

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(A part on the Quince Stock,) embracing nearly all the varieties WORTHY OF GENERAL CULTIVATION; also

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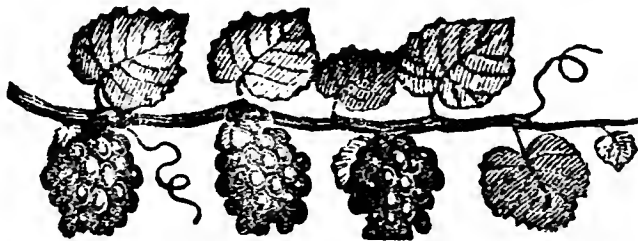
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Plants have been known to bear in one season 240 berries,

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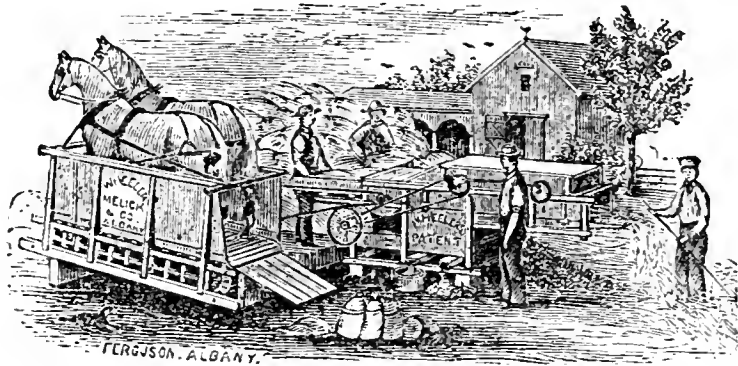
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THEY CALL ESPECIAL ATTENTION TO THEIR

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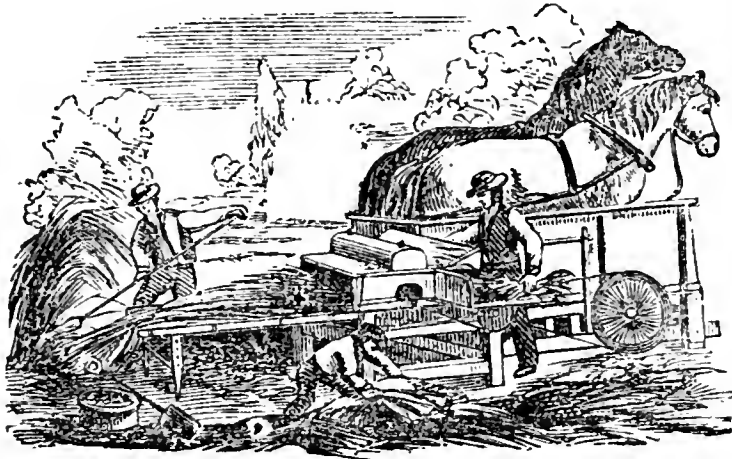
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RAILROAD HORSE POWERS,

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LEVER POWERS,

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All kinds of Agricultural Machines to be propelled by Horse Power.

ALL Powers and Machines manufactured at these Works, are constructed in all respects so as to operate in unison, and with the utmost or maximum results and force of the horses, and with the least loss of power and least possible strain upon the several parts, among which may be named as leading ones :

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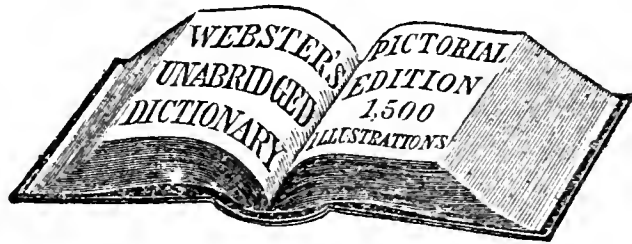
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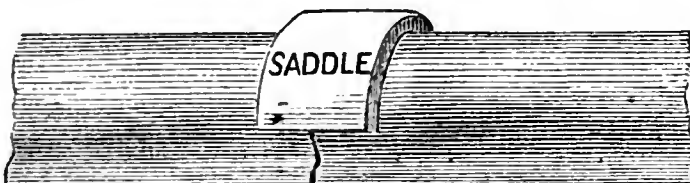
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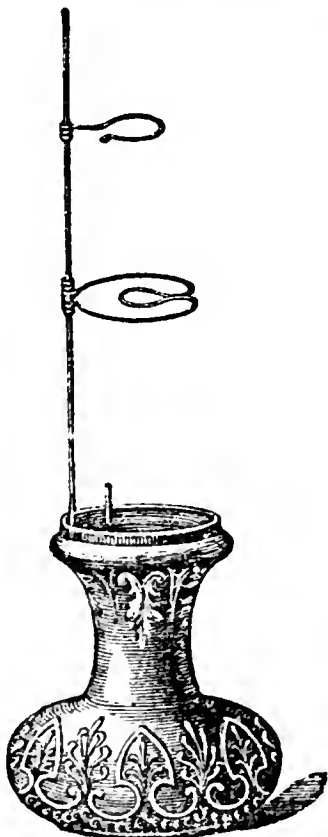
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


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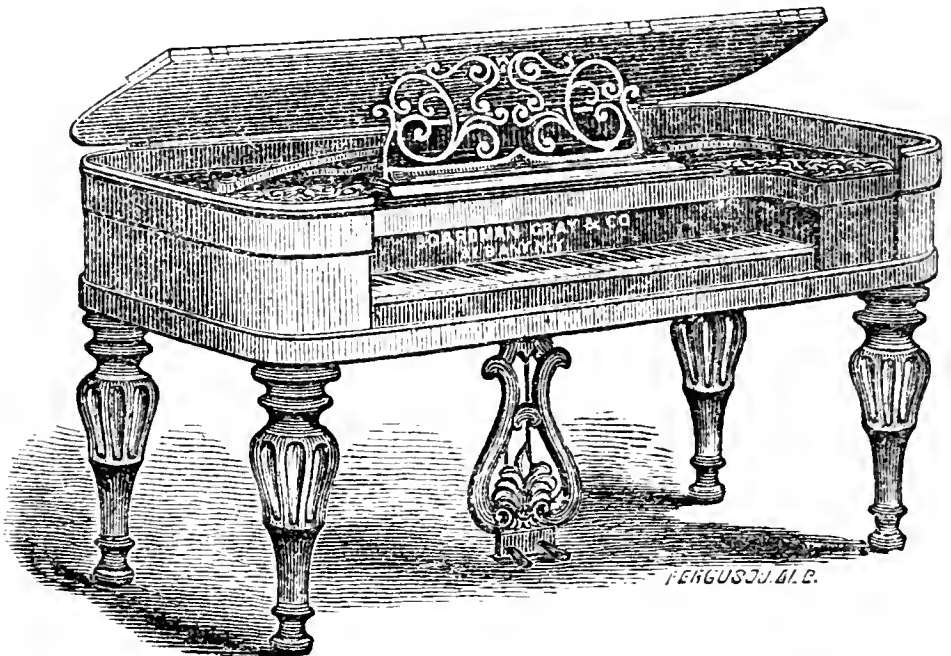
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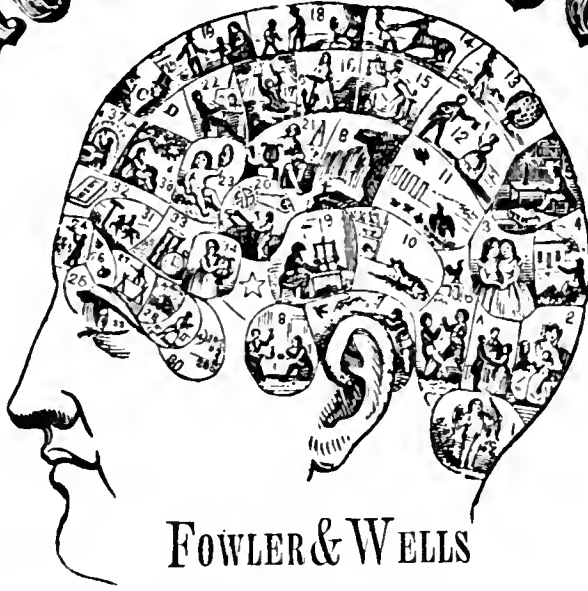
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| 1. AMATIVENESS.—Sexual love, fondness, attraction, etc. | 20. CONSTRUCTIVENESS.—Ingenuity, manual skill. [ment.] |
| 2. CONJUGAL LOVE.—Union for life, the pairing instinct. | 21. IDEALITY.—Taste, love of beauty, poetry, and refinement. |
| 3. PARENTAL LOVE.—Care of offspring, and all young. | 22. SUBLIMITY.—Love of the grand, vast, endless, and sublime. |
| 4. FRIENDSHIP.—Socialty, union and clinging of friends. | 23. IMITATION.—Copying, mimicking, doing like. [Infinite.] |
| 5. INHABITIVENESS.—Love of home and country. [ness.] | 24. MIRTH.—Fun, wit, ridicule, facetiousness, joking. |
| 6. CONTINUITY.—Application, finishing up, consecutive. | 25. INDIVIDUALITY.—Observation, desire to see and know. |
| 7. VITATIVENESS.—Clinging to life, repelling disease. | 26. FORM.—Memory of shape, looks, persons, and things. |
| 8. COMBATIVENESS.—Defense, resolution, force, courage. | 27. SIZE.—Measurement of quantity, distance, etc., by eye. |
| 9. DESTRUCTIVENESS.—Extermination, severity, hardness. | 28. WEIGHT.—Control of motion, balancing, hurling, etc. |
| 10. ALIMENTIVENESS.—Appetite, relish, feeding, greed. | 29. COLOR.—Discernment and love of colors, tints, hues, etc. |
| 11. ACQUISITIVENESS.—Frugality, saving, industry, thrift. | 30. ORDER.—Method, system, going by rule, keeping things. |
| 12. SECRETIVENESS.—Self-control, policy, tact, artifice. | 31. CALCULATION.—Mental arithmetic, reckoning. [In place.] |
| 13. CAUTIOUSNESS.—Guardedness, safety, provision, fear. | 32. LOCALITY.—Memory of places, position, etc. [talls, etc.] |
| 14. APPROBATIVENESS.—Love of character, name, praise. | 33. EVENTUALITY.—Memory of facts, events, history, decisions. |
| 15. SELF-ESTEEM.—Self-respect, dignity, self-reliance, independence. | 34. TIME.—Telling when, time of day, dates, how long, etc. |
| 16. FIRMNESS.—Stability, perseverance, decision, independence. | 35. TUNE.—Love of music, singing and playing by ear. |
| 17. CONSCIENTIOUSNESS.—Sense of right, justice, duty, etc. | 36. LANGUAGE.—Expression by words, acts, tones, looks, etc. |
| 18. HOPE.—Expectation, anticipation, trust in the future. | 37. CAUSALITY.—Planning, thinking, reasoning, adapting. |
| 19. SPIRITUALITY.—Intuition, prescience, prophecy, faith. | 38. COMPARISON.—Analysis, inferring, discrimination, etc. |
| 39. VENERATION.—Worship, adoration, devotion, deference. | C. HUMAN NATURE.—Perception of character, motives, etc. |
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