G. & W. Endicott lith. N. York

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE;

DEVOTED TO THE PROMOTION OF

AGRICULTURE, HORTICULTURE, SCIENCE, ARTS, AND INDUSTRY.

CONDUCTED BY C. N. BEMENT,

ASSISTED BY SEVERAL SCIENTIFIC GENTLEMEN AND PRACTICAL AGRICULTURISTS.

ALBANY:
PUBLISHED BY E. H. PEASE & Co.,
No. 82 State street.
1848.

J. MUNSELL, PRINTER,
ALBANY.

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

VOL. VII. JANUARY, 1848. No. 1.

TO READERS AND FRIENDS.

In assuming the task of conducting this Journal, we are aware of the responsibility incurred; and it is with no small degree of diffidence that we make the attempt, more especially as we are expected to follow in the path of our predecessor, Dr. Emmons, the able and efficient geologist. Of our ability to conduct such a work, it would neither avail or become us to speak. We make no pretensions of any sort. In this our patrons must be content to risk one year's subscription to enable them to judge. We will only assure them that we have secured the promised assistance of several gentlemen of great scientific attainments, and some of the most able practical farmers in the country; and if backed and sustained, we can prove successful, we shall be as much gratified by the reflection, that we have been instrumental in exalting this favorite branch of industry, as we can possibly be by any pecuniary advantage to be hoped for by the enterprise.

The responsibility has been taken, not without the hope that our services may be useful in collecting the most valuable information upon all subjects pertaining to rural pursuits; but after all, our main reliance must be upon our correspondents, and friends. Our own unassisted exertions, no matter how strenuous, must be of little worth.

The leading feature of this Journal, will be the advancement of agriculture in all its various departments, and the various branches of art and industry, connected with its useful inventions and improvements in agricultural machinery and implements of

husbandry, will claim our particular attention. Its pages will, however, receive solidity by judicious selections combining science with practice.

The truth is, that facts and experiments in agriculture are so slowly evolved, that in our opinion, such a journal affords ample field in which to introduce them to the reader.

The science of agriculture seems to be gaining votaries in every part of the community. There is no single profession in all the wide circle of callings, requiring more varied, accurate, and extensive knowledge, than the cultivation of the soil. But when robbed of science, the noblest calling of man loses all its charms. Fortunately for the age in which we live, men of learning have stepped forward to rescue agriculture from its fallen condition. Few as yet have learned that agriculture is, emphatically, the *science of production.*

It was Mr. Buel's motto, "To improve the soil and the mind," but though his idea might have been correct at the time, now the order should be reversed, "*The improvement of the mind and the soil.*"

We will endeavor to impress upon the minds of our readers the important truth, that if we would better the condition of our vast farming population, we must have reference to the mind as well as the soil; and while we give strength to the body by the improvement of the one, we should by no means overlook the culture of the other, which most directly concerns ourselves and our children.

The grand secret of improving the soil consists in knowing its wants and being able to supply them. The correct combination of the different properties of a soil must be studied. Farmers should cultivate their minds as well as their fields. They can gain as rich rewards in the mental, as they can in the natural world. Without intelligence, he cannot discharge, in a proper manner, the duties of a citizen. Agriculture is a science that requires experience and study.

The general diffusion of information, and the elevated standard of education, for those designed to hold the plow, have already

invited many to pass the portal and penetrate far into the interior of the temple of science. In the natural sciences, particularly in physiological botany, the farmer is destined to obtain a palm that will ever sit gracefully on his brow. On other subjects, the production of his pen will have the additional weight and authority derived from observation and practical experiment.

We shall urge improvement in all the departments of the farmer's pursuits and interests. Improvement is the object and aim of our labors. Improvement of the soil—in the modes of tillage—in the breeds of domestic animals—in the implements of husbandry—and in all the departments of rural life and labor, are the objects to which the pages of this Journal will be devoted. We shall therefore, seek the powerful aid of a large number of contributors to the same objects. What will be the result of these efforts, we can neither foresee or foretel. At all events, we shall sow the seed and let the harvest develope the return. Trusting in a good soil, well prepared and properly cultivated, we cannot, in a favorable season, reap disappointment; though if we have to endure it, we shall at least have the consolation that we have dilligently done our duty, and supply the deficiency of the harvest with a store of consciencious contentment, which never fails to result from a well meant effort in behalf of such attainments.

We are much gratified to observe that more attention is paid to the subject of agriculture by the scientific men and writers of the country. It constitutes the most important business of the nation, and is destined, if adequately appreciated, and properly followed up, to render this country the granary of a large proportion of the world. Already our products are immense, but they are as a drop in the ocean, to what they may become. Millions of acres, the richest and the finest that the sun ever shone upon, are yet to receive the first touch of the plow, while states and territories yet unknown, will one day, not very far distant, send forth their millions of bushels of wheat for the support of the great family of man, in other sections of the earth. Not a season passes that emigrants are not bending their footsteps westward—all determined to take up their abiding place among us—

to gather the rich treasures of our soil—and thus add to the general amount of national industry and national wealth.

And now, gentle reader, we have launched forth our frail barque, *Cornucopia*, on the ocean of *Uncertainty*, laden with the rich treasures of *science*, *agriculture*, *horticulture*, *rural* and *mechanic arts*, bound to the port of *Prosperity;* trusting to the smiles and approbation of our friends, where we hope to find a ready *cash* market for our wares, and a quick and safe return.

C. N. BEMENT.

Albany, *January*, 1848.

It is hardly necessary for us to ask indulgence, for this, our first number, or to remind our readers of the many difficulties we labor under in catering for them at first. We hope, however, in a short time to furnish a *bill of fare* to suit all palates. We shall suffer no chance to escape us of enriching our pages, with whatever may be useful and interesting to the agricultural community.

REVIEW OF THE SEASON AND CROPS FOR 1847.

BY WM. BACON.

The connection of the physical sciences with the cultivation of the earth, is a fact so generally admitted, and by many so thoroughly understood, that any remarks corroborative of its existence by many would be deemed superfluous, if not altogether intrusive. The effect of the seasons, therefore, and the state of the atmosphere attending them in their annual rotations, will necessarily be admitted as matters of intimate relationship between seed-time and the successive periods to maturing harvests.

But how are we to determine what the future will be with regard to its winds and storms, its frosts and floods, its dark, lowering clouds and melting sunshines, so as to regulate our movements in committing choice seed to the faithful bosom of the earth? Not by prying into the mysteries of the future surely, for

with regard to "wind and weather," it may be said with almost as much certainty as with respect to our other prospects, "ye know not what a day shall bring forth," much less what will be the transitions of a season or a year.

Observations of the past, however, and the relative connection which it has to the present, may enable us to form some idea, always indefinite and too often wrong, of what may be expected of days to come.

The last year and its seasons of agricultural labors, has been marked somewhat by its own peculiarities, yet has not, perhaps, been entirely without a parallel in these, in other years that are gone.

Its birth-day is yet too fresh in the memory of all, to need much comment here. Its fine sleighing and warm sunshine, gladdened too many a bounding heart in youth, and brought fearful auguries to those more advanced in years, to be easily forgotten. But January, the month of the infancy of the year, passed away without any severe manifestations of the rigor of a northern clime. The snow continued to dissolve, until it had nearly all passed away, and the warm days and freezing nights savored more of fickle April, than of stern mid-winter.

February, always short in its sojourning, and rather testy in its character, was a fair winter month. Storms she brought, it is true, and scattered them with the violence of the wind, and as the number of her days increased, she piled huge drifts of spotless snow along the fences in the roads.

March came in "like one born in full strength," bearing the storm and the tempest in her gloomy train. The snow, wind and cold were her harsh attendants, and in many instances the roads were so thoroughly blocked, that the fields were resorted to for thoroughfares, and it was not until the 20th of the month that the rigors of winter began to yield on them in a very reluctant manner. From that time, however, it gradually wasted away, chiefly through the influence of the sun, whose rays were shorn of their warmth by cold northern blasts. The nights as well as the days were cool, and of course the earth was subject to almost continual

freezings and thawings. This tardy approach of spring, threw the labors of the garden and the field very far into the back ground, insomuch that but little plowing and sowing was done until May, which we notice as a cool, rather dry month, favorable to manual operations, but sadly injurious to the growth of vegetation.

June was very cool until past the middle of the month. On the 14th, over-coats and mittens were not only agreeable, but essentially necessary to the comfort of travellers. A killing frost was anticipated at night, but through the agency of wind and clouds, its calamities were prevented. The latter part of the month was fine, with a due degree of warmth, and the supplies of rain were ample. Vegetation assumed a vigorous appearance, and the despondency of the farmer began to yield to the cheering influence of hope.

July was in no wise remarkable for its warmth, while its pleasant days were interspersed with frequent and refreshing rain. But as it was for the most part the case thus far in the season, these rains cleared off with high, drying winds, which left the surface of the earth hard, and but comparatively little benefitted by their action.

The warm days and nights, and frequent showers in the early part of August, were highly beneficial to the corn crop, but fearful forebodings for the fate of potatoes. Toward the close of the month, frequent fogs came up from the low lands, the weather became cooler, and the atmosphere purer.

September was in the early part of the month warm, with frequent rains and much fog. About the 20th the weather grew cold, and the fear of frost induced many farmers to cut up their yet unripe corn, to secure it from frost. But the weather grew warm again, corn that was permitted to stand came forward and ripened finely.

October was a fine month for the maturing and gathering in the fruits of the earth. The earliest frost of the season, in sufficient quantity to injure vegetation, was about the middle of the month. The first freezing of the ground was after the 20th, after which the weather became beautiful and mild, and continued so

until the 10th of November. On the morning of the 13th the first snow was seen, just enough having fallen through the night to whiten the roofs of buildings, and give the hills a wintry appearance. But the morning sun soon dispelled it, and although a similar prospect was visible for several mornings, the evenings found it vanished away.

The month in no part of it was without frequent rains, but on the afternoon of the 24th it poured in torrents, so that the streams were raised to an unusual height. This storm came off mild, but on the 28th the atmosphere grew cooler, attended by a slight fall of snow on the evening of that day. The 29th was cold, rough and blustering, and the morning of the 30th exhibited the mercury at eight degrees below zero, a degree of cold almost without a parallel at that season, and as great within one degree as was experienced at any time last winter. The weather moderated through the day, and December 1st was very fine. On the morning of the 2d a heavy rain commenced, which continued to pour in torrents through the day. On the 3d also, it rained almost incessantly, but not in so great quantities. Thus for two or three successive weeks violent storms were occasional attendants. From the 9th to the 13th was an unusually foggy time for the season. Some rain fell during the period, and the roads became so muddy, as to render the travelling very unpleasant.

On the night of the 17th there was a fall of snow upon the mud, which induced many to get out their sleighs the following day, and at evening the weather become so cool, as to cause the ground to freeze in many places. Up to this time stock has been cheaply kept, and in several cases farmers had omitted foddering their sheep altogether. This snow still remains upon the ground, and though several light accessions have been made, but the quantity is yet insufficient for good sleighing. The 25th was a very mild day; the 26th a very rude and boisterous one. On the morning of the 27th the mercury denoted three degrees below zero.

Thus much for the seasons of 1847. With regard to crops, it may be said, that although in some varieties the earth has not

produced in all localities her usual abundance, yet they have been such as to verify the promise that harvest shall not fail, and to yield ample supplies for man and his beasts, until returning warmth and sunshine shall restore the earth to beauty, loveliness, and needful fertility.

In many sections the hay crop fell short one-fourth at least, from the produce of last year. This failure has been attributed by many to the accumulation of ice on the surface, after the thaw in January. But the failure was chiefly on uplands, and the fact that ice accumulates most in low or alluvial meadows at such times, seems to confute the given theory.

To our own mind, a more plausible reason appears in the circumstance of the snow passing off slowly, and keeping the earth in such upland regions so thoroughly saturated with clear cold water, that the grass roots were literally drowned or chilled to death, a circumstance which need not appear in low meadows where the grass by its natural habits is adapted to such seasons.

Of the grain crops. Winter wheat and rye now receive but little attention, and the small quantities sown in the autumn of 1846, yielded but a poor remuneration for the use of land and labor bestowed on its cultivation. The cold water of dissolving snows of April, followed by a wet and rather dry May, probably had their influence in shortening the crops of winter grain, as well as hay.

Spring Wheat.—The high price of flour in 1846 and '47, has taught farmers a blessed lesson, if they will only practice upon it, that is, that it is as a general thing best for them *to try* to raise their own bread stuff. A much larger quantity of spring wheat (mostly of the Black sea variety,) was sown last spring, and although the yield per acre was not as liberal as in some seasons, the crop may be said to have been of a fair and remunerative character.

Oats.—The oat culture in many sections has become a mania. Farmers, in some instances, place almost their entire dependence on this crop, notwithstanding its exhausting qualities. The crop was a full average, and is fetching a good price, which has no

doubt induced many to enter more largely into their culture next year.

Peas yielded a good produce, and their value is being more and more appreciated, as the increase of their cultivation fully shows.

Indian Corn.—Its cultivation is receiving greater attention. Much more was planted last spring than usual, notwithstanding the backwardness of the season. The worm made fearful ravages in the early stages of its growth, and in some instances nearly destroyed whole pieces. With the exception of a few days and nights, the season was a hard one for corn. However, what escaped the worm, matured well, and gave a good harvest.

Potatoes.—The coolness and general supply of rain, those two beautiful auxiliaries, to a good growth of potatoes, were so common, that *we all* thought the crop would escape the sad disease, which had visited it in some of the last previous years, and these hopes were fully realized, until the season had well nigh worn away. True, we heard some slight intimations of its approach in August, but the rumor died away, and until the middle of September we heard no more of it, when fears became realities, and its ravages became in the latter part of that month, and until the middle of October, without a precedent. Some fields were so badly smitten, as to be left entirely undug, while in others enough healthy ones were found, merely to repay the laborer for the toil of digging. Sixty bushels to the acre, was deemed a great crop, and was a maximum attained but by few. Lands most liberally supplied with the hot fermenting manures, as a general thing fared the worst, while dry and apparently barren lands gave crops which exceeded the expectations of cultivators. Of varieties, the Carters and Mercers seemed its greatest favorites, while the coarser varieties, like those designated the Long Johns, seemed almost invulnerable to its attacks. The culture of potatoes looks *now* like a labor-losing and hopeless employment, and although it may be well to raise more beets, carrots, and turnips, (which have all yielded good crops,) for feeding, we have no idea of wholly giving up the *potato*, but feel sure that the evils attending its cultivation

will be remedied, and that it will assume its former position as one of the farmer's best crops.

Buckwheat.—When we saw the fields white with the blossoms of this crop, and the liberal harvest that followed, we supposed it would be so plenty, as almost to glut the market. But the great quantity raised, was soon disposed of at a very liberal price, and now taking all things into consideration, we conclude that it will, for a few years at least, be a staple crop with many of our farmers. It certainly has many claims to cultivation, aside from the market price of the grain it yields. For subduing tough, and cleansing foul and weedy lands, this crop, taking the labor necessary for its cultivation into account, is without a parallel.

In the matter of fruit, apples and pears have given a good harvest, and are receiving increasing attention from the hand of the farmer. Plums have not been abundant, owing probably to the circumstance of the trees bearing so heavily the previous years.

It will be seen by the foregoing remarks, that increasing attention is being paid to plowed crops. Wisdom is leading the farmer to this, by teaching him that policy as well as the greatest degree of independence, require him to raise on his own farm as far as may be the products to be consumed thereon. Many too, who have long been in the habit of appropriating their lands altogether to grass, are finding from experience that they can keep more stock, when they plant some corn, and carefully secure the fodder it yields, and raise some grain, in doing which, they restock their land to grass, than they could when grazing was the exclusive employment. The system of rotation is wisely adapted to our wants, and when properly carried out, is full of consequences most interesting to the careful and patient cultivator of the soil.

Richmond, Mass., Jan. 1, 1848.

A Camanche Horse.—It is said that a Camanche horse raised on the Prairies, will do more, and go faster, fed on Prairie grass, than any other horse. It takes them a long time to find out what corn

METEOROLOGICAL OBSERVATIONS FOR 1847.

BY J. TREMPER.

Made at West Dresden, upon Lake Seneca, in lat. 42° 45', and corresponding to the meridian of Washington, together with general remarks upon the seasons of that year.

	Mean Barometrical Altitude.	Max. Barometrical Altitude.	Min. Barometrical Altitude.	Range.	Mean Thermometrical Altitude.	Max. Thermometrical Altitude.	Min. Thermometrical Altitude.	Range.	Fair Days.	Cloudy Days.	Prevailing Winds.								Rain and melted Snow.
											N.	S.	E.	W.	N. W.	N. E.	S. W.	S. E.	
January,	29.31	29.85	28.63	1.22	26.83	48	4	44	9	22	12	8	1	16	11	1	7	6	2.20
February,	29.26	29.70	28.33	1.37	27.65	46	0	46	5	23	10	10	3	12	10	4	2	5	2.31
March,	29.33	29.74	28.80	.94	30.85	56	14	42	13	18	10	9	4	14	18	5	2	0	1.07
April,	29.31	29.70	28.84	.86	42.88	77	12	65	13	17	10	9	4	12	14	2	7	2	.96
May,	29.40	29.76	28.87	.89	57.65	84	30	54	17	14	3	13	10	12	2	5	8	9	1.90
June,	29.35	29.60	28.84	.76	63.12	87	40	47	16	14	4	11	3	4	10	4	17	7	1.31
July,	29.44	29.64	29.16	.48	71.75	95	43	52	15½	15½	7	14	12	4	2	2	17	4	3.43
August,	29.42	29.70	29.10	.60	68.24	88	48	40	21	10	6	9	8	11	7	2	10	9	.83
September,	29.39	29.72	29.10	.62	58.42	85	40	45	14	16	8	9	6	8	11	1	12	5	3.92
October,	29.43	30.06	28.85	.21	46.63	68	20	48	20	11	2	8	5	13	10	0	16	8	3.42
November,	29.42	29.84	28.98	.86	40.73	66	6	60	6	24	5	10	0	15	7	1	17	5	1.98
December,	29.35	29.68	28.80	.88	31.29	60	8	52	4½	26½	7	10	0	8	11	5	21	0	3.70

Mean annual barometer 29.37 inch.

Mean annual thermometer 47° 17′.

Annual amount of rain and melted snow 27.03 inch.

Memoranda of 1847.

January.—This month was colder than the corresponding months of the two preceding years, with a less amount of snow. The snow that fell during this month amounted to 4½ inches, falling at intervals, affording no sleighing, and soon washed away by the intervening rains and thaws. 17th. Temperature of the lake 36° of Fahrenheit. The temperature of the air at the same time being 33°.

February.—On the 3d of this month the barometer stood at a point the lowest which it has indicated for the past three years, being 28.33 inches. 15th. Meadow larks were seen. 17th. Temperature of the lake was 34° of Fahr. The temperature of the air at the same time being 30°. 27th. Wild pigeons made their appearance. Snow during the month amounted to 16 inches, but falling in small quantities at a time, and only affording sufficient for sleighing during the last week of the month.

March.—4th—7th. A species of sparrow singing; ground becoming visible, having had two weeks sleighing. 7th—10th. Meadow larks lively, also peewits and golden woodpeckers. 16th. Incessant streams of wild pigeons flying south from 9 A. M. to 2 P. M., followed by a violent squall of snow from the north at 3 P. M. 16th—19th. Red-winged starling arrived; splendid aurora borealis. 19th—21st. Robins and blue birds arrived. 27th—31st. Wintry weather, during which one of the severest storms of the year occurred; also a heavy fall of snow, accompanied with vivid lightning and heavy thunder.

April.—1st—8th. Frogs heard; killdees and cedar birds arrived. 8th—12th. Swallows abundant; ploughing commenced. 15th. Snow squall, snow melted in about twenty minutes. 18th. Cold, thermometer 21° 22d. Butterflies, blue jays, and amphibiæ lively; poplars blossoming. 24th. Cow black birds arrived; red maple and dog wood blossoming. Temperature of lake 44°;

air 40°. 26th. Lilacs beginning to open their leaf buds. 29th. Yellow birds appearing; grass looking green.

May.—2d. Cattle beginning to pasture through the day. 3d. Oriole and bob lincon arrived; lake 44°, air 54°. 8th. Observed king birds; yellow willow beginning to leaf out; lake 54°, air 68°; clover, timothy, yellow dock, burdock, and Canada thistles two inches high; currants and raspberries leafing and blossoming. Iron wood and black cherries begin to leaf out; apricots blossoming, also sweet and sour cherries; dog wood in full bloom. 9th. Thorn and apples begin to leaf. 10th. Plums bursting their leaf buds; wild gooseberries leafing and blossoming; American poplar leaves three-quarters of an inch in length; maple and beech buds bursting; flower buds of the lilac one inch long, wild cherry do.; a few blossoms of some species of plums open to day; dandelion in bloom. 11th. Old wives still upon the lake; black oak leaf buds expanding; strawberries in bloom. 12th. Cherries and plums in full bloom; pears begin to blossom; ash bursting its leaf buds. 13th. Pigeon weed in blossom. 14th. Wild plum blossoming; pear trees leafing. 15th. Apple trees leafing. 16th. White oak leaf buds bursting, also honey locust. 20th. Blue flags in full blow. 22d. Apple trees in blossom, also wild strawberries. 27th. Columbine in flower; dandelion gone to seed; frost. 29th. Wild cherry and white clover blossoming. 30th. Wild cherry in full bloom; red clover headed and ready to bloom generally.

June.—1st. Observed shad flies. 3d. Frost. 6th. Tory weed and clover in full bloom. 7th. Yellow locust in bloom. 9th. Black walnut nearly in full leaf; air 86°, lake 54°; young chipping sparrows able to fly. 10th. Yellow birds hatched. 11th. Honey locusts beginning to blossom. 14th. Clover ready to cut; heavy gale, and very cold; a sprinkling of snow a few miles from the lake. 17th. Damask and white roses in bloom; frost in the morning. 18th. Timothy beginning to head; honey locust in full bloom; strawberries ripe. 20th. Observed fire flies. 21st. Yarrow in bloom. 24th. Cutting clover. 30th. Air 71°, lake 70°.

July.—5th. Air 79°, lake 72. 15th. Wheat harvest commenced. 26th—30th. Fires necessary; air 65°, lake 69°; swallows gone except the white-breasted.

August.—12th. Tomatoes ripe, and green corn fit for the table; air 73°, lake 76°. 28th. Air 71°, lake 71°.

September.—13th. White-breasted swallows left. 17th. Air 57°, lake 62°. 26th. Observed winter wrens; cedar birds with us yet.

October.—11th. Bean vines yet in blossom. 13th. A sprinkling of snow. 14th. The first frost of the season; ice quarter inch thick. 19th. Catydids lively, and insects generally. 28th At 11 A. M. barometer stood at 30.08 inches. 30th. Yellow birds still here.

November.—2d. Butterflies in motion; amphibiæ lively. 9th Flies very troublesome to cattle yet. 30th. Cold, thermometer 6° at sunrise.

December.—1st.—17th. Open, moderate weather, accompanied with much rain.

General Remarks.

The spring of the past year was remarkably backward in this vicinity, so much so that vegetation generally seems to have been nearly a month later than usual. During the winter of 1844—5 Alanda magna (lark), and Alcedo alcyon (king fisher), remained with us. In the spring of 1845, Sylvia sialis (blue bird), arrived on the 24th of February. In 1846, on the 14th of March; and in 1847, not until the 20th of March. Plowing commenced in 1845, on the 27th of February, in 1846, on the 20th of March, and in 1847, not until the 8th of April. Populus balsamifera in 1845, bloomed March 6th, in 1846, April 4th, and in 1847, April 23d. Tardus migratorius (robin), and Emberiza pecoris (cow black bird), I observed in 1845, on the 28th of March, in 1846, on the 14th of March, and in 1847, on the 20th of March. Hirundo americana (swallow), in 1845, I observed on the 9th of April, in 1846, on the 23d of April, and in 1847, on the 8th of April. Syringa vulgaris leafed out in 1845, on the 4th of April, in 1846, on the 24th of April, and in 1847, on the 26th

of April. Emberiza oryzivora (bobolinks), in 1845, '46, and '47, I observed upon the 10th, 7th, and 3d of May, respectively.

The mean temperature of the three vernal months of the past year was 43° 79′, while the mean temperature of the corresponding season in 1846 was 47° 56′, and that of 1845 was 49° 33′. The past spring exhibited but a small amount of rain, and yielded, in the pluviometer (rain gage), 3.93 inches of measurement. In 1845 the last frost of spring occurred on the 30th of April, and in 1846 upon the 22d of April, and none during the summer months; in 1847 a frost occurred as late as the 3d of June. The wheat harvest commenced in 1845 on the 14th of July, in 1846 on the 9th of July, and in 1847 on the 15th of July. The last summer month was distinguished for a severe drouth, and exhibited but .83 of an inch of rain; from the 26th of July to the 17th of August but .26 of an inch of rain fell, and from that time to September 5th but .57 of an inch fell. The want of rain under the high temperature of that interval was of course severely felt by vegetation.

For the two years last past the electric explosions of the atmosphere have been comparatively slight, and we have had none of any violence during that period.

OSIER WILLOW—ITS VARIETIES.

BY WM. R. PRINCE.

Having perused the article in your Journal from the pen of Mr. C. N. Bement, on the culture of the Osier, I have derived much pleasure from the fact that some one, even at this late day, was urging public attention to this important subject. As far back as I can remember, my father, the late William Prince, warmly urged the extensive culture of this useful tree, or rather group of trees; and in the *Short Treatise on Horticulture*, written by myself, under his supervision, in 1828, the best species of the Osier were described, and the facility of their culture commented

upon, and the public attention particularly called to the importance of growing an ample supply on our own soil. As that Treatise is no longer on sale, the edition of 2500 copies having long since been disposed of, it may not be amiss to make the following extracts therefrom with accompanying comments.

Salix Alba, or European White Osier.—This is in England, called the Huntingdon willow, and also the White willow. It is of quick growth and attains to a very large size, often reaching to the height of 40 to 50 feet. It flourishes on almost any soil, and forms, by its upright growth, a fine contrast to the Weeping willow.

Salix Viminalis, or European Green Osier.—This is a tree of low growth, but the shoots grow amazingly long and strong in one year from the stools, which characteristic renders it so very useful for basket making, &c.; the leaves are long and narrow, of a bluish green on the upper and hoary on the under surface.

Salix Forbyana, or English Basket Osier.—This forms very long slender shoots, in the manner of the preceding, and is extensively used for the same purposes.

Salix Vitellina, or Golden Osier.—This tree does not attain to as great height and dimensions as the *Salix alba*, but will rise to 30 feet or more. Its growth is upright, but it is the peculiarity of its branches, which are of a clear yellow, producing a striking effect among other trees, that renders it worthy of notice as an ornamental tree. This is much used in Europe for binding packages, and by coopers for hoops.

Salix Nigra, or Black Osier.—The great peculiarity of this tree is, that its shoots are purple or nearly black; it is of but moderate stature, and will probably not much exceed 12 feet at maturity—in fact it always seems to be more of a large shrub than a tree.

Salix Helix, or Rose Osier.—This is a low growing tree; the body is covered with a rough yellow bark; the branches are upupright, tough, and of a reddish color; the leaves are narrow, smooth, and spear shaped; the flowers come out from the sides of

the branches, are of a greenish white color, and have a singular and pretty appearance.

Salix Rubra vel Purpurea, or Red Stemmed Osier.—This attains to about the same dimensions as the preceding, and, with the three before described, comprises those kinds most extensively used in Europe for basket making, and other similar purposes. The branches are of a lively red color. This species is much used in Europe by coopers for hoops, as the branches split readily.

Salix Capræa Variegata, or Variegated Leaved Osier.—This forms generally a large shrub, but may be trimmed low for ornament; its beauty consists in its foliage, which is prettily variegated; the blossoms are large, yellow, and much sought after by bees, as they expand very early in the season. In England the green leaved variety is the most generally cultivated, and is called the Sallow.

Salix Acutifolia, or Violet Twigged Osier.—This forms a shrub only; its branches are very flexible, the bark of a violet hue and powdered. This is one of the best Osiers for general use, and it, as well as the preceding, will grow well in hard and chalky soils.

The preceding comprise the species of Osiers most esteemed by basket makers, coopers, &c., in Europe. There are also several American species whose merits have been commented on by different writers, and which are doubtless fully equal in their general merits.

The Osiers generally are natives of moist soils, and they are usually cultivated in such situations, and often form the outside boundary of wet meadows, being planted along the ditches that are made to drain off the superfluous waters. They thus occupy space of little value, but well calculated to make them yield a great profit, by their abundant shoots. The immense expanse of meadows between New York and Newark, which some enterprising gentlemen have been long engaged in reclaiming, might, without further expense, be appropriated to this object, and thereby furnish the means for extensive manufactories of basket work to a degree more than adequate to supply the city. It is a matter of astonishment, when such quantities of articles of this descrip-

tion are annually imported, and when hundreds of tons of Osiers, in their natural state, are also brought from Germany and elsewhere, that Americans, proverbial for their industry, zeal, and independent spirit, should have thus long neglected to form plantations fully adequate for all the wants of our country.

SCIENCE WITH PRACTICE.

Farmers being only guided by experience, are seldom led to make any reflection upon the principles of their art; the knowledge they have is for the most part historical, and is wide from the course of what they see. They sow grain in the earth, and when it is reaped and carried away they know the ground must rest, or be amended by some sort of manures. The seed grows, if the ground is good; but how does it grow? and in what degree or by what means, is this vegetation produced? This would be too much to ask of them, and the very question would be lost. They plant a tree as their fathers did before them; but would it not grow better if they were to follow some other method? Would not nature work with more facility in her operations if by studying her laws, we were to take necessary preparations to ease her in her works? but their studies are not of that extent. They act agreeably to the practice they have seen, and the old beaten track they have been bred up in, stands them in lieu of reason.

On the other hand, philosophers often want the experience of the farmer; many of them forge systems in the air, upon which they build abundance of specious reasonings, but have nothing solid in them, because they are not founded upon the true basis of natural knowledge, which is experience; it is therefore no wonder if many of these speculative systems fall into mistakes. We may compare them to enchanted castles, founded upon magic, which have nothing real in them, and vanish in smoke, in the very instant when we should admire their beauties.

But when we find a wise and laborious man, who joins reason with experience, we cannot fail of some happy production from him, both useful, and in the path of truth, sooner than enjoy, even one of these agreeables, from one who has but one of these excellencies.

Experience teaches wisdom to those who will profit by her lessons, and there is no doubt but that if the motto "science with practice," be as strictly observed in its management, and is inculcated upon those who are engaged in the cultivation of the soil, the result will be equally beneficial.

Science will never make a good farmer, without the admixture of a little practical knowledge.

Practice has introduced more discoveries into agriculture, assisted by observation, than science. At the same time, though the man of science will not presume to dictate to the skilful, practical farmer, he may not only improve but enlighten and even give dignity to agriculture as an art, by rendering it in some degree a science also.

NOTES OF A GEOLOGICAL EXAMINATION AND SURVEY OF MITCHELL'S CAVE, TOWN OF ROOT, COUNTY OF MONTGOMERY, N. Y.

BY JAMES EIGHTS.

The many interesting discoveries which had been made in the various caverns of Europe, of the remains of numerous animals of unknown species, which had an existence on the earth, and were likewise swept from its surface long e'er the period of man's existence, having created an unusual degree of excitement among men of science in other countries as well as our own, we were consequently, strongly induced to bestow some little time and attention to the investigation of one or more of the different caves which were well known to have an existence in many of the rock formations belonging to our own state, for the purpose of determining if relics of a similar nature might not also there be found.

Having received intelligence that the bones of some "strange animal" had but recently been obtained from a place of this description, in the town of Root, and county of Montgomery, we, with no unnecessary delay, repaired to the spot. We found the opening of the cavern to be on the very summit of the "Nose." Its entrance was, by a vertical fissure, about five feet and a half in height, and from twelve to twenty-one inches in width, and, situated in a gently elevated ridge of calciferous sand rock, running in a direction nearly north and south. From its entrance, there was an immediate and perpendieular descent of twenty-three feet; the body of a small tree with a portion of its branches yet remaining, had so been placed by some former visiters as to render this part of our progress quite easy. Having been properly supplied with every thing necessary for the occasion, we made active preparations to pursue our investigations, when, to our mortification, it was discovered that the dimensions of the elder of our companions far exceeded that of the width of the entrance; consequently he was, however, contrary to his inclination, constrained to remain without, and content himself with the intelligence he from time to time received from us. At the termination of this descent, a large angular fragment of the rock had fallen crosswise in the fissure, beneath this we were under the necessity of passing, and immediately the first apartment expanded before us to the following dimensions; length, in nearly an eastern direction, thirty-one feet; greatest width fourteen; height, near the entrance, six, and at its farther extremity, fifteen. The roof and sides were irregularly arched and in many places covered by calcareous incrustations; the stalactites, however, had all been broken off and removed by the numerous individuals, whom curiosity had previously attracted to the place. The floor has an inclination to the east at an angle of about thirty degrees, and is, for the most part, covered by a yellow silicious sand, which had the appearance of having been washed in through the opening, by the more recent rains; this was kept continually moist by the constant dripping of water from the roof. Near the entrance we observed a number of angular fragments of various dimensions, which had

evidently fallen from above at some former period of time; and along the northen wall, was to be seen an elevation of from three to four feet above the general level of the floor, upon which was deposited a stratum of sand and mud, covered by a thin crust of calcarious stalagmite; immediately upon this was also another deposit of sand, corresponding in every respect with the former, and which, likewise, in many places supported a partial covering of stalagmite. These alternations of mud and stalagmite, being considered the true position for relics of the animals which were the object of our research, we commenced our investigations by fairly upturning every portion of the floor, but without success, not the slightest vestige of an organised being did we anywhere behold, with the exception of a partially decomposed carcase of a recent species of bat, which are well known to resort to these subterranean recesses in the greatest abundance.

As one of our party, whom we had been anxiously expecting from the west, had at length arrived, and being also properly clad for the occasion, we came to the conclusion, that it was most expedient to proceed and explore the remainder of the cave. After trimming our lights, we again descended in a perpendicular direction nineteen feet, through an aperture in the floor, at the eastern extremity of the room, sufficiently large only to admit a middleing sized man; this we accomplished by seating ourselves upon the floor, with our feet dangling in the orifice, and then, by twisting our bodies in a spiral manner, from one projecting angle of the rock to the other, for about one half the distance, the remainder, by firmly bracing with our hands and feet against the perpendicular walls, that were separated about four feet asunder. This brought us to an angular projection, which is considered the eastern termination of the roof of the second, or larger apartment. After a few moments respite, we descended some distance, by again bracing with our hands and feet, as before, to a large quantity of angular fragments which lie piled up against the south wall of the room, from whence they evidently once had an origin. This led us, by a gradually sloping descent, over a rugged pathway to the centre of the floor. This chamber is in length, from

east to west, forty-five feet; its height about fifty, and width, from twelve to fifteen. The walls, in ascending towards the top, are seen to approach each other by degrees, until they terminate in a thin fissure, filled in many places by large irregular masses of calcareous deposition, from whence depend an immense number of stalactites, varying from three to eight feet in length; those that run along the walls extend to the very floor of the room, and much resemble in appearance, a series of elegantly fluted columns. The floor, which consists principally of angular fragments, is partially covered by stalagmite. Nodules of chert, in various places, were seen projecting from the surface of the walls.

The rough pathway, over which we descended in reaching the floor of this room, runs in a direction towards the west, along its southern wall; from its foot, by a gentle descent of twenty-seven feet towards the east, we came to an aperture in the floor sufficiently large as only to admit us a passage. This opening appears to be almost immediately beneath, in a direct line, from that by which we entered, and is about equally distant from the irregular pathway and the eastern extremity of the chamber. In this aperture we secured a rope ladder, and again made a descent of twenty-nine feet, perpendicularly, one half of the way against the face of a projecting rock, the other, totally free, swinging to and fro upon the ladder.

We now found ourselves in an irregular passage, whose floor was covered all over by different sized fragments of the rock, and which had a descent towards the east at an angle of about forty degrees; the part upon which we landed, was about an equal distance from the two extremities of the passage.

This passage was thirty-three feet in length, in an east and west direction, and of various heights, not, however, to exceed ten feet, unless at the place of entrance. After continuing our course due east for a short distance, the way gradually contracted so as to be just capable of admitting us a passage; passing this, however, a large and magnificent apartment suddenly presented itself to our view, whose length, in a direct line to the east, was fifty-three feet; its height nearly the same; and width from ten

to fifteen. The walls of this room gradually approach each othe towards the top, and terminate in a manner similar to those previously described. A great number of stalactites, likewise, were suspended from above, and also covered the walls to the very floor, which, being continually wet by the percolating waters, reflected the light from our torches in quite a brilliant manner. A number of angular fragments were observed strewed along the floor, but it was, for the most part, covered by alternating layers of mud and stalagmite. Some of these last were elevated above the floor from a few inches, to two or three feet in height, and, presented an appearance, not unlike decaying stumps of trees: upon being broken, they exhibited a most beautiful display of diverging crystals of spar, with numerous concentric rings varying greatly both in transparency and color. This spar is capable of receiving a very high polish, and, from its compact nature and ample abundance, might be usefully employed for various ornamental purposes. Here also our researches for bones proved unsuccessful, none being discovered by digging.

Immediately opposite the entrance to this room, was a horizontal passage directly to the east, which seems originally to have been of some considerable height, but was now nearly closed up by one or two large masses of rock. Over these we were obliged to crawl for a distance of twenty-four feet, through sand and mud, that had the appearance of having been some time accumulating. This led us to a room thirty-one feet in length, by about twenty in height, the top and walls covered by stalactites, and floor with stalagmite. This gradually converged at its eastern extremity until about the height of a mans' head, then enlarging by degrees, and at length, spread out into a chamber seventy-two feet in length, and about thirty in height; the width corresponding to those previously noticed. The floor of this room, for about twenty feet, is almost perfectly horizontal, it then descends a distance of fifteen feet, almost perpendicularly; here the stalactites, and stalagmites, are of great length and beauty; those that encrust the walls are of a peculiar structure, being composed of bundles

of smaller ones, terminating at various distances from each other until the whole mass concentrated themselves into one general point. Here, as before, we could discover no bones by digging.

At the eastern extremity of this last room, a large mass of the rock has fallen upon the floor, with one of its terminating angles projecting out some distance towards its centre. Over this we clambered, and then, descending about fifteen feet, we landed safely on the floor, near its centre, of the last room of this cave. Its length was thirty-seven feet, width fifteen, and height about twenty. The farther eastern extremity of this room was occupied by a pool of remarkably cool and pelucid water, beyond this, all farther progress was arrested by a firm barrier of rock.

The calcareous depositions of this chamber far exceeded, in structure and beauty, anything of the kind that we had hitherto seen. It formed long pendant stalactites from the roof, finely fluted incrustations along the walls, and was spread out in repeated alternations over the floor; and, although we spent some considerable time in pursuing our investigations in this apartment, we were in nowise successful in our labors.

The entire length of this cave, is four hundred and thirty-two feet, about one half of which is in a perpendicular direction, the remainder, horizontally. Three days we devoted to its exploration, and from all the circumstances, it appears originally to have been formed by an extensive fissure in the rock; its present width having been attained by the slow and continued action of the disintegrating powers of water, operating for ages in its accomplishment; and, although the construction of its floor corresponds in almost every degree with those described by Professor Buckland and others, still, by carefully digging in every portion of its whole extent, that proved practicable, not the slightest vestige of an organised being did we anywhere discover.

Upon closing these notes a curious question arises—what has become of the vast amount of matter that at some former period occupied the space now constituting this cave? as no opening or outlet could anywhere be discovered throughout its whole extent.

The entire mass of debris now found within, embraces but a comparatively small portion of the material, required to restore the rock to its original solidity and form.

The thermometer, at its farther extremity, stood at forty-two degrees of Fahrenheit in the midst of July.

AGRICULTURAL ADDRESS.

BY REV. H. BANNISTER.

[Delivered before the Madison County Agricultural Society in 1847.]

There are two things which possess a natural adaptation to a life of husbandry. They are morality and knowledge. In proof of the first of these, nothing more need be said than that He who appointed tillage of the soil as the first ordinance of labor to man, certainly never would have done so, if the tendencies of that employment were not to exalt and purify the affections, and to promote habits of learned and sober industry, and sterling integrity. So pure and true and bland, is the spirit which nature breathes, that the agriculturist, who is in daily communion with it, meets with a rebuke from every sward he turns, from every tree he prunes, from every stalk he reaps, whenever he is tempted to a sordid rapacity, or a dishonest life, or tampers in the least with any thing that is vicious, or mean, or unworthy. There are instances, it is true, of vicious wealth, and of honest poverty; but these constitute the exception, not the rule.

If it was necessary, much more might be said on this subject, but I waive further remark upon this, that I may enter more at large upon the other proposition with which I commenced, which is, that the life and business of the farmer is well fitted to develope to a considerable extent, his intellectual as well as moral powers, and is such at the present time, as to be in ever increasing demand for knowledge.

An important reason for supposing the business of agriculture favorable to growing intelligence, is quite the same with that

which we have noticed as favorable to morality. The Creator in assigning to man his employment, would surely make it no less adapted to supply one want than another. He creates a perfect fitness in all his arrangements, and it would be immoral, if not blasphemous, to suppose any deficiency here. But a more directly intelligible reason is, that the life of the farmer is one of constantly varied observation. From observation comes reflection; and reflection, if it be not the source of a great fund of knowledge, is necessarily a powerful means of improving the powers of the mind. It improves its generalizing powers. No one like the farmer witnesses so broad a range of natural phenomena. The energies of nature are in continual play before him. He must study them, because they are agencies with which his business is immediately concerned: cold, heat, the winter's snow, and summer's evaporation, the formation and the action of soils, the growth of vegetation, the dew and the hoar frost, and climate attempered to valley and hill, with every other hindrance or facility to tillage of the earth, the farmer must *study*, and every fact respecting them he must classify, and he must reduce to system his deductions, in order to make his knowledge at all practical. From all this variety of facts, and a good deal more, have sprung the sciences, geology, chemistry, meteorology, and natural philosophy. The germs, at least, of these sciences, constitute the necessary study of every farmer. And the tendency of this kind of study, when well-directed, is to secure a common sense view of all subjects; it secures an expansion of mind, and soundness of judgment, to a degree not often attained by the merchant, manufacturer, or the artisan. These latter, by the nature of their business, confine their minds within a more limited range of topics, and on these topics they acquire a peculiar sharpness and strength of the faculties that are directly called into use; but the acuteness of these few faculties does not fully compensate for the want of that broad and general development of all the faculties which may be enjoyed by the agriculturist.

The farmer's calling is favorable also to an ever increasing intelligence, because of its quiet and tranquil dignity in the abun-

dant leisure it enjoys. The great freedom from excitement, peculiar to the farmer more than any other class of citizens, gives opportunity for cool and unmolested investigation, and helps to form a character which the clergyman covets most for his hearer, and which our judiciary system most needs for the jury box. The long winter evenings, and many winter days, are the school hours of the farmer. His agricultural, political, or religious papers, and his school library volumes, he may read and digest; and his practical habits peculiarly fit him to make a direct appropriation of his knowledge as fast as he acquires it.

A great change in this respect has come over our agricultural population within the last ten or fifteen years. Till within this period, there had been in this country, but little attention given to agriculture as a science. Art had proceeded, in a great measure, at guess-work, in the cultivation of the soil, furnishing as a result, in many instances, no adequate compensation for the hard toil spent in the business. From this cause the business was not appreciated according to its *real* importance by but few persons. Individual effort was put forth in certain quarters to place the subject in its proper light before the public. Agriculture as the main source of revenue to the country, was urged in the gubernatorial messages, prompting legislative action not only to protect but to advance this vast interest. Private enterprise set on foot geological surveys, with a view to develope the agricultural resources of particular sections of the country.

Science in the schools was at the same time making extended analyses of the elements of the globe, showing thus to the world that she could be employed as an instrument of wealth, alike by the manufacturer in the arts, and by the farmer upon his lands. Inventions of improved implements of husbandry gradually displaced the old fashioned heavy wrought hoe, and the clumsy harrow, and the friction working plow, and to the valuable substitutes for these, added other labor-saving articles, as the cultivator, the drill-barrow, the horse-rake, and the threshing-machine. Agricultural journals even issued, at first with meagre support, which labored to show the farmer his proper position in society, and to

elevate his occupation in popular respect to the dignity of a profession. And all these events prepared the collective mind for that movement in this state, which for the last dozen years, has brought science into large contributions to the agricultural interest, and which is probably destined not to cease till it has advanced this great interest, yet in its infancy, to its most mature results.

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The claims of agriculture, and of education, are coextensive. The greater the appliances of mind to any department of physical labor, the greater the results. Misdirected animal force is worse than fruitless. It is an irreparable waste of strength, with an utterly inadequate compensation. But mind, well-trained and informed mind, can control physical energies quite as it pleases, and never ought its power of control to be so availing as in the business of husbandry. Along with the naturally sound judgment which his business cultivates, the farmer needs a good education as well as the lawyer, the physician, or the clergyman. The times demand this, on considerations quite distinct from mere agricultural skill. The affairs of state, and the intimate relations of agriculture to them, require that our legislators be selected more from the intelligent body of our yeomanry. The trade of politics, as conducted by hungry office-seekers, would perhaps be somewhat modified and directed more to *general* good, if its business should once be managed by intelligent and pure-minded farmers.

But without lingering upon the sad reflection here started, let me insist, before closing this topic, on the positive connexion between the farmer's education and his position, in respect to influence and usefulness, and ordinarily in respect to wealth. Immaterial is it whether the education I speak of be acquired in the schools or in the chimney-corner—provided the thing itself *is* acquired—the man who has it, wields in social life a power that is far out of the reach of him who has it not. Though it be a knowledge of things, as well as of books, the knowledge of either is gained only by habits of severe application. And as such habits are more likely to be secured by the discipline of the schools, every farmer looking to the elevation of the profession of agricul-

ture, is bound to afford his children the benefits of such discipline. In this way the influence of the rural occupation will certainly be felt. Where serfs and slaves are employed to exert mere brute force without knowledge or lands, who respects the occupation? But where the nobler and best trained minds have employed their own hands with the highest pleasure—as did the great Washington, and a host besides, whose names are scarcely obscured by even that great name—who has so little of human nature as not to envy the occupation? Wealth as well as influence, comes ordinarily from knowledge. "Scientific husbandry," included in our idea of the requisite education of the farmer, "is the investigation of the mutual adaptation of the three kingdoms of nature to each other, and the appliance to agriculture of the fixed principles thus obtained." I stand not up here to instruct in the best modes of farming. I am not a farmer. In all my remarks, I only advance general principles. It seems impossible for common sense to judge that any mode of farming conducted contrary to the fixed adaptations of nature, can be at all successful. Farmers have usually found out the successful way by experience. Well, experience must not be discarded; but it may often be corrected. Scientific knowledge of the geology of one's farm, of the composition of its soil, of the best manures and fertilizers for dressing the land, may point out a shorter road than tedious experience; may lead to a mode of treatment better suited to the natural capacities and adaptations of the farm; and may realize crops that shall repay much more than the usual cost of cultivation. This is not mere hypothesis, but the deduction of common sense. No reasoning can make it plainer, that knowledge to the farmer is influence and usefulness, *and that it is wealth.*

The agricultural geology of our country has peculiarities of interest to farmers, inasmuch as the capabilities of the soil at different points are so various. The belt of the great wheat district of the state, commencing near the head waters of the Mohawk, crosses the northern part of this county; yet the capacities for this staple are not on this section in every place alike. The soil here is formed partly from the underlying rock, much of which is lime,

and partly from the transported debris of rocks from other regions. This is the grain-growing section of the country. The hill-towns are capped with a coarse shale or sandstone, nearly destitute of lime and magnesia, ingredients so essential to cereal grains. They form an excellent grazing region, nor do they always fail of fine crops of maize and wheat. If the soils from the various farms of this county were subjected to faithful chemical analysis, new views of their adaptation and capabilities would doubtless, in many instances, be formed. The chemistry as well as the geology of agriculture in this county, will doubtless yet furnish facts to the farmer, which shall be of no small value in their practical use. The subject is merely alluded to here partially, to illustrate some objects of interest in scientific husbandry, and also as a hint to the fact of the economical resources of the county: the gypsum; the marls, the peat, the lime, the decomposable shales, calcareous, gypseous, pyritous, magnesian, which the geology of our country would develope, and which may be employed at a reasonable expense, not only to sustain the soil in its present state of fertility, but to increase considerably its productiveness.

The great scientific movement now pervading society, and having objective reference to agriculture, is directing all classes of mind to this first and chief of arts. It is not hazardous to predict the day near at hand, when the farmer, mechanic, tradesman, physician, lawyer, clergyman, will alike aspire to at least some familiarity with the science of production in all its branches Already intelligent minds of all the professions eagerly watch for the reports of the Commissioner of Patents, and for the latest discoveries of Liebig, the master chemist of the world. The labors of Sir Humphrey Davy, and Chaptal, and Bousingault, have not been in vain. They have started an impulse to this science, which the world shall yet feel, in an improved civilization.

If our space permitted, we should have been pleased to have published the address entire. We doubt very much whether our selections will do justice to the author, inasmuch as the full address, must be read in order to get the scope, and drift of the matter designed.—Ed.

AMOUNT OF RAIN AT WILLIAMS' COLLEGE FOR THE YEAR 1847—ALSO THE TEMPERATURE AT THE SAME PLACE.

BY A. HOPKIN.

The amount of rain, in depth, which has fallen here during the past year, is 36·332 inches. This was distributed throughout the year with considerable uniformity, except that during the month of December the quantity was unusually large, being 5·885 inches. Nearly all this fell during the first fifteen days of the month. All parts of the country appear to have shared in this unusual fall of moisture—which, at this place, was nearly all in the form of rain. Up to this time, (Jan. 4,) the snow which has fallen amounts only to 0·177 inches, i. e., the snow, when melted, gives only this depth of water.

The dryest month here was May—amount of rain 1·55 in.—November was next in order, 1·8 in.

The temperature has been a little above the average, taking 20 years together. It is 46·425. I will give the temperature for the separate months, and will add, in a parallel column, the amount of rain.

	Temperature, Fahrenheit.	Amount of moisture.		Temperature, Fahrenheit.	Amount of moisture.
January	24°291	2·685	July	69°392	3·464
February	23·053	2·4	August	65·981	2·691
March	26·835	2·65	Sept.	56·881	3·033
April	40·577	2·536	October	52·416	4·055
May	56.3	1·556	Nov.	41·4	1·851
June	62.22	3·522	Dec.	37·76	5·885

The hours assumed for obtaining the mean temperature, were 7 A. M., 2 P. M. and 9 P. M. Since the observations made at midsummer, however, which were taken hourly, day and night, and of which some notice was given in your Journal, I have adopted 7 A. M., 12 M. and 9 P. M., as giving the mean more accurately.

I will now give the temperature during the year, as determined by another method. I have made monthly observations on the temperature of my well. This well is about 27 feet in depth, and is sunk near a limestone ledge of moderate elevation. The observations were made near the beginning of each month. The

maximum of cold, in this well, was in April and May, when the temperature was as low as 43°. The mean of the twelve observations gives 46°562—a result differing but by a very small fraction from the mean temperature of the atmosphere as above deduced, and furnishing a very simple and accurate method of obtaining the mean temperature of any place, at least with a well of moderate depth.

I have made some observations on thermal springs during the year, but shall omit any notice of these at present.

FARMERS' LABORATORY.

The discoveries and improvements of late have added "Modern Agriculture" to the list of the sciences, and erected it into one of the highest dignity. The intelligent and skilful agriculturist possesses, in his farm, a splendid laboratory, furnished with a thousand chemical agents, by the action of which all the results of culture are obtained; and the ancient alchymists are now realized by every scientific farmer; for they have truly discovered the philosopher's stone and derived the true means of converting into gold, the very elements of the earth. By the aid of Geology, Mineralogy, Chemistry, Botany and *Labor*, he has forced the earth, the rocks, minerals, acids and alkalis, to yield their stubborn properties, singly or in combination, in relief of the first wants of mankind. The discoveries of the nature and properties of the constituents of the soils, has taught him the art of adapting the proper growth to their peculiarities, rendering the same land, by the same labor, doubly productive, and the means of resuscitating exhausted lands, making them fertile as virgin soil. The improvement in the construction of implements of husbandry, the invention of a thousand new modes of saving labor, by ingenious machinery, and the wonderful facilities of transportation, have materially lessened the toils and risks of the farmer, and contributed essentially to the success of his pursuits.

DUTCHESS AGRICULTURAL INSTITUTE.

We deeply regret to learn that Mr. Wilkinson of Dutchess, has decided to sell his premium farm, as will be seen on the cover of this journal, and remove his Agricultural School to the Mount Airy farm in Pennsylvania, eight miles from Philadelphia; a place long and favorably known, both in Europe and America, as the model farm of James Gowan, Esq., one of the most distinguished agriculturists of the age, who, we have been credibly informed, has under the impulse of an enthusiastic zeal, which he has long evinced in a most commendable degree, offered Mr. Wilkinson, the use of his valuable place, with its numerous and expensive appliances for a term of years, at a mere nomininal rent, on which Mr. W. designs opening on the first of April next an Agricultural school similar to the one he has had in operation for the past two years in Dutchess county, except that the Mount Airy Institute will be on a more extensive scale and of a thoroughly scientific character.

Although Mr. W. has now patronage to the full extent of his spacious accommodations, with a prospect of a liberal increase at the opening of the summer term, he informs us that one great design in his removal is to make his vocation more central, both as regards the population and climate of the Union, and that his practical course will be adapted equally to the Northern, Southern and Middle interests.

We have no hesitation in recommending the Mount Airy Institute to young gentlemen who have not finished their education, whether they design to embark in Agricultural or any other business. From what we know of Mr. W. and the course of instruction he designs adopting, even students of Theology or Law, will be the better prepared to embark in the study of their profession after having enjoyed the course pursued at the Institute. They will not only have the advantages of a thorough scientific education, but will be required to assist in the various branches of practical husbandry, of all pursuits the most healthful and interesting, which course will offer a reliable guarantee to physical development and good health, so common to the peasant, and so coveted by the affluent votary of dissipation and luxury.

EXTRACTS FROM THE JOURNALS.

AGRICULTURAL GEOLOGY.

Portage, Ithaca, and Chemung Groups in the Schoharie county Districts.

The development of the Hamilton shales is excessive in the eastern part of New York, but there are only slight differences in the lithological characters. At Summit, in Schoharie county, in a deep gorge near the village, the Chemung group occupies the upper part and the higher slopes adjacent to it, and also the hills above the village. As yet, however, the fossils of the Chemung narrows are not common or numerous; and it seems to be established that the fossils of the Hamilton shales go up higher into the shales and flags, and occur nearer to the base of the Catskill division, or old red sandstone, than at the west. The flags at the top of the Helderburgh range, and the rocks occupying the highest position in the southern towns in Albany and Schoharie counties, belong to the Chemung group.

The purposes of agriculture do not require an identification of the rocks under consideration: they belong chemically and mineralogically to the same class. The structure, the tendency to decomposition, and the soil which is formed by disintegration, does not differ essentially in Albany county from that of Allegany or Cattaraugus county. We do not find the exact equivalents when they are tested by fossils; it is possible, however, that this may be owing to exposure. Other fossiliferous strata than those, for example, which are exposed in Chemung, may be exposed in Albany or Schoharie counties, or in the rocks of the eastern part of the state. Where fossils are limited to narrow bands, and where their vertical range is small, corresponding strata at two distant points may be concealed at one or the other. The kind of distribution alluded to, is that which prevails. A stratum from two to twelve inches is loaded with fossils; but above or below, for fifty or one hundred feet, they are either very scarce or do not exist at all. This is the general mode in which they are distributed in thick beds, sandstones and flags, a mode which does not seem to prevail in calcareous shales and limestones. In these deposites, it is not uncommon to find organic bodies distributed throughout the whole mass.

Localities where the sandstones and flags described above may be examined. Many localities have already been mentioned, at

VIEW OF GILBOA.

which the strata are well exposed, and afford opportunities for observation. At Portage, and at points intervening between it and Mount Morris, many interesting and important facts are disclosed in the deep gorges. All that relates to the power of moving water in excavating rocks, the nature of the rocks themselves, their stratification, etc., are displayed to great advantage. Few fossils only are found, and those not of the most interesting kind. Bodies called *fucoids*, and which are referred to a class of marine plants, are common. The same are common at De Ruyter, Homer, and in the hills in the same geological range for a wide extent east and west of the points named; also, in Oneonta, Harpersfield, Summit, Rensselaerville, Virgil and Ithaca. Most parts of the counties of Tioga, Broome, Allegany and Chautauque, are mainly underlaid by this series of rocks.

Agricultural characters of the shales, flags and sandstones of the Portage and Chemung rocks. This is not the place to state, with any degree of particularity, the relations which these formations bear to the capabilities of the soil derived from them. They have, however, characters of their own; that is, peculiarities which distinguish them from calcareous and limestone formations. The greatest chemical difference is found in the absence of lime, except when it is derived from strata at a distance. When the soil is first broken up, some lime may be found; but cultivation, and the exposure which a cultivated surface suffers from percolation of water, soon removes the calcareous matter. The soil is then a silico-aluminous one, and may in some places be a stiff, hard soil; in others, the predominance of sand gives it a character directly opposite.—*Nat. Hist. New York.*

STEAMING FOOD FOR STOCK.

At the annual meeting of the Ross Agricultural Society, T. Batson, Esq., said—"There are two matters of a practical nature which, with your permission, I should like to introduce to your notice. The first is the system of steaming food. I believe that this year it will be impossible to calculate the great advantages that will be gained by the use of the steaming apparatus. I have myself been able to steam hay perfectly white with mould, which afterwards cattle and sheep would eat in preference to the best hay that could be cut from the middle of a rick. At this moment I am using steamed turnips for pigs; and I have pigs on my farm which, for the last month, have been increasing at the rate of 20 pounds a week. This, perhaps, is not very extraordinary, but I think you will not find many instances of pigs increasing in weight to such an extent, and it shows what the system of steaming is calculated to effect."—*Mark Lane Express.*

THOMSON ON THE FOOD OF ANIMALS.

The importance of the subject to which this work relates cannot easily be over-estimated. A more accurate knowledge than we now possess of the modes in which different kinds of food are affected by the digestive process, the readiness with which they are assimilated to the system, and consequently their capacity as to the power of nutrition, would be of the greatest practical utility, and would probably lead us to modify the dietary treatment of nearly all our domesticated animals. Yet it is surprising how little has been done, still more so, how little has even been attempted, to throw light on this important matter. In this, as in most other branches of his avocation, the farmer has to be guided by the results of experience, obliged to depend on a kind of empirical knowledge, and be satisfied with certain effects, without well knowing how these are produced; and, consequently, without much power of modifying them, or giving them such a direction as might most effectually promote his interests. It must be admitted that the subject is encompassed with difficulties. The whole process of digestion and nutrition is exceedingly complex, obscure in its own nature, and carried on in regions of the system nearly or altogether inaccessible to observation. Even were we acquainted with the whole chemistry and mechanism of the subject, able to assign their due office and proportion to all the acids, alkalis, gases, &c., which take a share in the process, we should still be very far from having a perfect understanding of it. The nervous action—the general influence of the vital principle—are obviously agents of the first importance, and are so mysterious in their operations, that we can scarcely hope to get into the secret of their modes of action. But while there may be much, as in the analogous phenomena of generation, which is likely even to bid defiance to our scrutiny, not a little remains on which much light may be thrown, and much practical information elicited, by a series of judicious, ingenious, and enlightened experiments.

Such, we have no hesitation in affirming, is the character of the experiments recorded in this little volume. Dr. Thomson is well qualified for such an undertaking, not only by his knowledge of chemistry, but by his skill as a physician, and habitual acquaintance with the habits and characters of animals. The experiments in question were undertaken at the instance of the late government. The original object of the inquiry was to determine the relative influence of barley and malt in feeding cattle; but advantage was taken of the opportunity to investigate some scientific problems of great importance to physiology, and of extreme value in the physical management of man and animals.

Of a work containing so many minute details, and exhibiting the results obtained chiefly in a tabular form, we cannot attempt a complete analysis in this place, but shall endeavour to point out some of the most important conclusions to which these experiments have led; and first, as to the comparative merits of barley and malt diet in feeding cattle, the primary object which these investigations had in view. It may be premised, that all the experiments were made with two cows of the Ayrshire breed, between five and six years of age.

It appears that barley and malt, when not crushed, although steeped in hot water, are imperfectly digested by cows. It was observed that some of the grains of barley were ejected from the intestines 24.28, and even seventy-two hours after being swallowed in an entire state, so that they must have been detained in some portion of the alimentary canal, during that lengthened period, without having undergone any appearance of digestion. The indigestible nature of seed in general is well known, and has usually been regarded as a natural provision for the distribution of vegetables by means of animals. It is in the rind or outer coating of the seed that this power of resistance usually resides, and when that is broken the gastric juices readily act upon the internal substance. In every case, therefore, in which any kind of grain is given to cattle, care should be taken to break the outer covering.

The first experiments detailed by Dr. Thomson, in his chapter on barley and malt diet, demonstrates the truth of the following position:—

> A cow, if fed for two days on an insufficient quantity of food, as indicated by loss of weight and diminution of milk, will require at least double that time to reach the condition from which it had deteriorated; and the reason of this is obvious, because partial starvation had caused it to lose a portion of the solid part of the body, which requires a longer time to re-establish than to pull down. This rule is applicable to the dietary of man as well as the inferior animals. An increase of labour should always be accompanied by an increase of food, both at sea and in prison; a short walk to one confined in a solitary cell, calls for some augmentation of food. A slight increase of temperature, or the irritating influence of insects, will effectually diminish the milk of a cow, and indicates the propriety of increasing the amount of the fodder.—p. 82.

In the experiment detailed with the entire malt and barley, the amount of grass was limited, but afterwards the hay was supplied *at libitum*. Previous to the experiment both the cows had been gaining weight on a diet of grass, consisting almost entirely of ryegrass; but under the diet here indicated the falling off was

considerable. By comparing this experiment with a previous one, it was found that, while 100 lbs. of dry grass produce about 11½ lbs. of dry milk, 100 lbs. of dry grass and entire barley mixed, produce 8½ lbs. of dry milk.

Grass alone produces a larger quantity of dung than mixed barley and grass fodder; 100 lbs. of grass leaving 33½ lbs. of dung, while barley and grass produce only 30 lbs. of dung; but 100 lbs. of the grass consumed, that is, the grass taken into the circulation of the animal, and not rejected in the form of dung, produces 17½ lbs. of dry milk, while 100 lbs. of the mixed barley and grass diet form only 12 lbs. of dry milk. . . . Another important deduction is, that the total quantity of matter taken into the circulation daily is less when grass is alone used, than when a mixed diet is employed; the daily consumption being of dry grass, by both cows, 33½ lbs., and of the mixed diet 42 lbs., being a difference of 9 lbs., or 4½ lbs. by each cow.—p. 88.

The ultimate composition of the barley was found to be as follows:—

	I.		II.	III.	IV.
Carbon,.....	46·11	41·64			
Hydrogen,...	6·65	6·02			
Nitrogen,...	1·91	1·81	2·01	1·98	1·95
Oxygen,....	42·24	38·28			
Ash,.....	3·09	2·79			
Water,.....		9·46			
	100·	100·			

Experiments were then made with entire malt soaked in boiling water, along with grass; and, according to these trials, the barley and malt (entire) experiments may be compared as follows:—

I. *Milk;*

100 lbs. of hay and barley produce.... 8·41 lbs of dry milk.
100 lbs. of hay and malt produce..... 7·08 ditto.

II. *Butter;*

100 lbs. hay and barley produce..... 1·82 lbs. butter.
100 lbs. hay and malt produce..... 2·07 ditto.

III. *Weight of Cattle;*

	lbs.	Loss. lbs.
Weight of cattle before barley experiment	2030	0
Weight of cattle after do.....	1989	41
Weight of cattle before malt do.....	2044	0
Weight of cattle after do.....	2022	22

The next experiments related to crushed barley and malt

steeped in boiling water, hay being at the same time supplied; and in the malt experiment the amount of grain having been pushed further than in the case of barley, it was considered advisable to give a similar trial to that of grain. The result of this went to prove, that no advantage is gained by giving so much grain; but, that, on the contrary, a deteriorating effect is produced. The comparison may be thus stated:—

I. *Milk;*

	lbs. of milk.
100 lbs. of mixed barley, hay, and grass, produced	8·17
100 lbs. of mixed malt and hay produced.....	7.95

II. *Butter;*

	lbs. of butter.
100 lbs. of barley, hay, and grass, produced.....	1·95
100 lbs. of malt, and hay produced.....	1·92

III. *Weight of Cattle;*

	lbs.	Grain.	Loss.
Weight of cattle before barley experiment,..	2022	..	..
Do. do. after do.....	2111	89	..
Do. do. after malt,.....	2069	..	42

According to this view of the experiment, it appears that the malt produces a smaller amount of milk and butter when combined with hay, than in the barley experiment; and that the cattle were losing weight, and consequently strength, daily. In whatever manner, therefore, we view the experiment, this is an insurmountable objection to the use of malt—that it is not capable, when used in any quantity, comparatively with barley, to sustain the weight and consequent strength of animals. But there is another aspect in which the experiment should be examined, and this is obviously the correct one, since a larger quantity of malt was used than of barley. If we consider the hay a constant quantity, and then calculate the amount of product which would comparatively result from such grain, the consequences would be as follows:—

I. *Milk;*

100 lbs. of barley would produce.....	34·6 lbs. dry milk.
100 lbs. of malt would produce.....	26·2 do.

II. *Butter;*

100 lbs. of barley would produce.....	7·66 lbs. of butter.
100 lbs. of malt would produce.....	6·35 do. do.

By the present mode of comparison, then, it appears that, in every point of view, malt is inferior to barley as an article of diet for cattle, as it gives less milk and butter, and diminishes the live weight, instead of increasing it, which barley does under the same circumstances.—p, 104—105.

With this important conclusion, which the author proceeds to account for by a chemical examination of barley and malt, we must leave this part of the subject, all his observations on which are highly deserving of attention.

Various experiments were instituted with a view to determine the effect of molasses, linseed, and beans, in the production of milk and butter; and the result was as follows:—

I. *Milk;*

	lbs.
1000 lbs. of hay, barley, and molasses, produce of dry milk,	80·6
1000 lbs. of hay, barley, and linseed,.....	84·5
1000 lbs. of ditto, and bean meal,.....	81·3

II. *Butter;*

1000 lbs. of hay, barley, and molasses, produce butter,..	21·9
1000 lbs. of hay, barley, and linseed,.....	21·5
1000 lbs. ditto, and bean meal,.....	22·5

or, considering the hay a constant quantity, then we have the result as follows:—

I. *Milk;*

	lbs
1000 lbs. barley and molasses produce of milk,.....	23·7
1000 lbs. ditto linseed,.....	25·7
1000 lbs. bean meal,.....	25·2

II. *Butter;*

1000 lbs. barley and molasses produce of butter,.....	64·5
1000 lbs. ditto linseed,.....	63·7
1000 lbs. bean meal,.....	70·0

It appears that a change of food produces an increase in the quantity of milk; after the same diet has been continued for some days, the milk begins to diminish. Not only is variety requisite when the animal is in an artificial state, it is likewise beneficial when in a condition more akin to nature. It is on this principle, the author thinks, that we are to account for the superior influence of old natural pastures, which consist of a variety of grasses and other plants, over those pastures which are formed of only one grass, in the production of fat cattle and good milk cows. He thinks, that cattle in a state of confinement would be benefited by a frequent, almost a daily, change or modification in their food. Taking the mean of the produce of the two cows experimented upon, we find that the relative influence of the different kinds of food in the production of milk to be; malt 102·66 lbs. of milk; barley and molasses, 106¾; bean meal, 107.68; barley, 108; barley and linseed, 109. The author considers that no adequate advantage can be attained by pushing the supply of barley to a cow beyond the extent of 9 lbs. daily. In general, the same induction

may be made with reference to malt as to barley, that, in a remunerative point of view, 9 lbs. a day may be considered a larger proportion of malt to supply a cow. It is highly probable, indeed, that a smaller quantity will be found fully as efficient.

USE OF THE STARCH AND FIBRE AS FOOD FOR MAN AND CATTLE.

The former of these ingredients is frequently represented as the means of keeping up respiration, and, through it, the heat of the animal body. Every one who, with the necessary knowledge, has the power of thinking and reflecting, has a right to judge for himself, and I will therefore say nothing against his theory—not even referring to the complexity of the animal functions, which render it improbable that such a direct purpose should be served by the starch, on account merely of its consisting of carbon and the elements of water. It is, at the same time, very difficult for any one closely to investigate this matter. Certain it is, however, that starch serves a very important purpose in the animal economy. Its easy transformation into gum and sugar—the solubility of the latter—the liability of the sugar to undergo fermentation, and thus partly to be converted into gaseous products, and its fitness for combining with several animal substances even within the body—the formation of gelatine sugar, which contains nitrogen, and thus seem to form a natural transition to the nitrogenous or protein compounds;—all this tends to show the very great importance of starch as a feeding substance.

As regards the potato fibre, this is almost always thrown away or neglected as refuse, after the starch has been extracted from it. From what I have stated before as to the average quantity of portein compounds which it contains, it will be seen at once how erroneous and disadvantageous such a neglect is. Every 100 lbs. of dry potato fibre contains on an average 4 lbs. of protein compounds, besides a quantity of inoragnic constituents, and is therefore, in this respect, equal to about 50 lbs. of dried potatoes. It would only be required to mix this firbe with some other esculent of a more palatable nature, to render it valuable as an article of food.—*Jour. Ag.*

Crops in Texas.—The New Orleans Evening Mercury, learns from a gentleman from Texas, that the amount of the cotton crop of Texas, the last year, according to the estimates of the best judges, will not fall short of 90,000 or a 100,000 bales.

SAGACITY OF THE ASS.

Not a few pens, and some of great ability, have taken up the defence of this ill-used animal. "The ass," said the prophet of old, "knoweth his master's crib;" but the ass of our times is not so fortunate, for, as a pleasant writer observes, the poor beast is utterly unacquainted with the nature of a rack, and knoweth not even the existence of a manger. He is a houseless vagrant over commons and along lane sides; he is a beast among gipsies, and a gipsy among beasts. He is unfed, untended, unpitied, he is hated, kicked, spurned, thumped, lashed, tormented, troubled, and thrashed in every possible and devisable fashion—and for why? Your "most exquisite reason," good public? Alas! he is—an ass.—*Blackwood's Magazine.*

In Britain, the nature and disposition of the ass is quite destroyed through carelesness and cruelty—

> "The ass grows dull by stripes, the constant blow
> Beats off his briskness, and he moves but slow."

But among the peasantry of Spain the ass is a petted favourite, almost an inmate of the household. The children welcome him home, and the wife feeds him from her hands. Under this kind treatment his intellect expands, and what we denounce as the most stupid of animals actually becomes sagacious, following his master, and coming and going at his bidding. Mrs. Child relates, that a Spanish peasant and his ass had daily, for many years, carried milk round to several customers in Madrid, till at length the peasant became very ill, and had no one to send to market. At the suggestion of his wife, the panniers were filled with canisters of milk; an inscription, written by the priest, requested customers to measure their own milk, and return the vessels; and the ass went off with his load. He returned in due time with empty canisters, and thus he continued to go to and fro for several days. In Madrid, the house-bells usually pull downwards, and the ass stopped before the door of every customer, and, after waiting a reasonable time, pulled the bell with his mouth.—*Blackwood's Mag.*

New Motive Power.—The Courier de Lyons mentions the following discovery of a new motive force:—"It is now some time since the idea of employing ether as a propelling force was suggested. Our townsman, M. Trimblay, has reduced this theory to practice. A machine worked by the steam of ether, has been in full operation for the last six days, in a glass cutting manufactory in the Guillotire. Its power is equal to that of 20 horse power."

AUGMENTING MANURE.

It is my constant practice, says Ellis, in his Modern Husbandman, to save all my stable dung under cover, and for doing it with the greatest conveniency, I have it laid in a place adjoining to the stable. Now, to this place I oblige my servant to carry all the soap-suds made in the house, from time to time, and throw it over the dung-hill, in such a manner that all parts of it may have a share of the fertile ingredients of oil, and grease, and potash, that made the soap; and all the urine that is made in the house. I likewise oblige my servant to throw over the dung-hill, or some manure I keep to dress my growing corn with, in this or other winter or spring months, and then such dung or matter never fails of defending my wheat or rye from the furious power of destructive winds, that oftentimes blow in this month, and from the violent frosts that commonly are the sharpest in January of the whole year. In this month, therefore, if it is frosty enough to bear the cart on the wheat or rye without damaging it, carry your short or other rotted dung on the green corn, and spread it over all its top part, as near as you can, for the truer it is spread, the less it will be uncovered.

COTTON SEED.

We have been favored, says the editor of the Mark Lane Express, by a correspondent, with a specimen of the cotton seed which is advertised for sale as food for cattle; and a person who has recently returned from the Mediterranean, where it is generally used, thus writes:—'It has the effect of preserving the bowels in a healthy state, and renders the fat white and the meat tender; and the beef supplied by the contractor to Her Majesty's ships at some of our establishments in the Mediterranean, is all fed upon cotton seed. The cotton seed contains a large quantity of oil, and is doubtless highly nutritive; it has a sweetish and an agreeable flavor. To give an idea of the quantity of oil which the cotton seed contains, a seed may be opened and the internal part placed on the point of a penknife, which, if ignited, will be found to give a clear and brilliant light for the space of about half a minute.' From the cotton which adheres to the outer part of the seed, a person would be disposed to think that it would be injurious to the animals. However, upon inquiry, we are told that it is given to them in that state without any ill effects.

VEGETABLE DISEASES—EFFECT OF LIGHT AND HEAT ON VEGETATION.

The element of light, as well as that of heat, is necessary to vegetation. They seem in general to be injurious only by their defects, and seldom by their excess. But as light acts as a stimulus on the more irritative or sensitive parts of plants, which appears by the expansion of many flowers, and of some leaves, when the sun shines on them; and by the mutation of the whole flower, as of the sun-flower; and by the bending of the summits of all plants confined in houses towards the light; there may be diseases, owing to the excess of such stimulus, which have not been attended to; to prevent which the flowers of salsify, and of other plants close about noon. Other unobserved diseases may be owing to a defect of the stimulus of light; as the sensitive plant, (*mimosa*,) which, confined in a dark room, did not open its foliage, though late in the day, till many minutes after it was exposed to the light.

The excess of light has been observed to be attended by vegetable diseases in these more northern latitudes; but the disease produced by the deficiency of it, which is termed blanching, has been successfully used to render some vegetable leaves and stalks esculent by depriving them of much of their acrimony, and of their cohesion, as well as of their color; as is seen in blanching cellery, endive, &c., &c.

The excess of heat is seldom much injurious to the vegetation of this country, unless it may contribute to increase the dryness of the soil, when there is a scarcity of moisture. But the defect of the element of heat, or excess of cold, is frequently destructive to the early shoots, or to the early blossoms of many fruit trees, such as apples, pears and apricots; as these are either more succulent, or have less irritability, or more sensibility; on both which accounts they are more liable to be diseased by cold.

The blight occasioned by frost generally happens in the spring, when cold nights succeed to warm sunny days, as the living power of the plant has been previously exhausted by the stimulus of heat, and is therefore less capable of being excited into the actions, which are necessary to vegetable life, by the greatly diminished stimulus of a freezing atmosphere.—*Darwin.*

The value of the anthracite and bituminous coal, sent to market in 1847, from the mines of Pennsylvania, is estimated at $40,000,000.

COMMERCE OF MILWAUKIE.

The following table, compiled with care and accuracy, from the books of the different forwarding houses, will show the amount of imports and exports from Milwaukie during the season of navigation which has just closed. We add, from our files, the amount of each article exported during the preceding year.

EXPORTS.

		1846.	1847.
Wheat	bush.	213,448	598,011
Flour,	bbls.	15,756	34,840
Beef and Pork			634
Hides	No.	5,513	12,961
Ashes	lbs.	16,250	127,435
Lead and Shot	"	1,770,650	1,160,649
Wool	"	10,562	43,215
Sundries			171,951

IMPORTS.

Merchandise	lbs.	45,231,540
Salt	"	28,811
Sundries,	bbls. bulk	29,162
Emigrants' Luggage,		61,888

LUMBER.

Lumber	feet	18,111,352
Shingles	No.	8,616,100

It will be seen that the increase of exports, in all the leading articles, has been very large, exceeding 100 per cent, and in the article of wheat nearly 200 per cent! Reducing the flour to wheat, the total exports for 1846 and 1847 compare as follows:

1846,	bush.	292,328
1847,	"	772,211

Reverting to 1845, the first year that any considerable amount of wheat was shipped from this port, we have the following comparison, for three years, of the exports of flour and wheat from Milwaukie:

	Wheat.	Flour.
1845	95,500 bush.	7,500 bbls.
1846	213,448 "	15,756 "
1847	598,011 "	34,840 "

During thepast season, the large flouring mill of Medberry and Hoover has been put in operation on the water power, and the steam mill of Goodrich & Easton in the Fifth Ward. Another year will probably add two more to the number of flouring mills

in this city, and with a good crop, it can hardly be doubted that the exports from Milwaukie for 1848 will show almost as great an increase over those of 1847, as the latter does over those of 1846.—*Milwaukie Sentinel.*

NEW AND RARE PLANTS.

Epacris tauntoniensis—The Taunton Epacris.—Mr. Ball, nurseryman, of Taunton, raised this beautiful hybrid, we are informed, between E. grandiflora and E. impressa. The flowers are of bright rosy-crimson color, with the five parted mouth of a pale pink. A single blossom is about three-quarters of an inch long. It is a very handsome variety, and well deserving to be in every collection.—*Pax. Mag. Bot.*

Henfreva scaudens—Climbing Henfreva.—Dr. Lindsley constituted a new genus to which the name of Henfreva, in honor of Mr. A. Henfrey, has been applied. It belongs to that class of acanthaseus plants of which Ruellia is made the type. The species under notice is a stout climbing plant, but does not apparently attain a great height. It has large, opposite, elliptic, somewhat leathery, shining leaves, and racemes of large, white, sweet-scented flowers, which have a funnel-shaped tube, and two-lipped limb, the segments of the latter nearly equal. It is a native of Sierra Leone.

Hibiscus crassulariæ folius—Gooseberry-leaved Hibiscus.—Seeds were sent from the Savan River Colony, and plants raised in the Royal Garden at Kew. It is a shrub, growing three feet high, and if planted and trained against a wall, is a beautiful open border plant, blooming all the summer season. Each flower is four inches across, of a rich bluish purple color. Blooming profusely renders it very showy.—*Bot. Mag.*

Plenty of bread and meat, pure air and pure water—these are the blessings which maintain individual health, ameliorate the general condition of our race, and, at the same time, ensure that equilibrium between physical and moral force, which is so universally desirable. Physical degradation is always accompanied by corresponding moral degradation: and we know of nothing which more effectually secures both, than a life spent in ill-ventilated, ill-lighted and filthy dwellings.—*C. E. D., from the French.*

RURAL ARCHITECTURE—ENGLISH COTTAGE, BY R. RANLETT.

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

CONDUCTED BY C. N. BEMENT, ALBANY.

VOL. VII. FEBRUARY, 1848. No. 2.

RURAL ARCHITECTURE.

A suburban residence combines, to some extent, the advantages and pleasures of city and country life, but does not contain either to the full. A country residence affords, to the intelligent mind and diligent hand, pleasures and profits which are unknown in exclusive city life.

For the last eight or ten years a decided taste has been manifested in rural architecture. The newly built cottages that meet our eye in almost every direction, tell us in plain language that our countrymen have given some thought on the construction of their dwellings; and instead of consulting the nearest carpenter for a plan, architects of known taste and skill have been employed, and the consequence is, a taste for beauty of style has been engendered of a most happy character.

How much of the beauty of a country, and of the ideas of the comfort and happiness of its inhabitants, depends on the appearance of its houses and cottages, every person is aware. The difference between the best and the poorest is sufficiently striking; and the ideas of wealth, comfort, order, and symmetry is every where conspicuous.

Utility is a beauty of itself, but there are higher degrees of that sentiment excited by the appearance of convenience, of design, or intelligence in contrivance, as displayed in the elevation and gene-

ral effect, and by classical imitation or picturesque form in masses and details.

We have been favored with a copy of the first volume of "The Architect," by Wm. H. Ranlett, containing a series of designs for domestic and ornamental cottages and villas, &c. The want of a work of such a nature has long been felt. It will be found useful and convenient to those persons who design to build, as well as the professional architect and citizen.

The volume consists of ten numbers, and contains twenty-one original designs of rural residences—cottages and villas—accompanied with remarks on rural architecture, origin of style, with plans and descriptions of all the parts in detail and the expenses, varying in construction from $900 to $12,000. There are sixty plates—nineteen of them elegantly and beautifully tinted, in a splendid style of lithography.

The beautiful cut of a cottage, in the English style, which faces this article, is a copy of one of Mr. Ranlett's elegant lithographic prints, in the fifth number of his new and useful work, from which we make the following extracts.

"The great number of cottages," says Mr. R., "which have been erected in the suburbs of London, in latter years, has afforded the finest opportunity for the application of improved taste and skill in cottage architecture, and the result is a vast amount of rural scenery, comprising in great harmony, highly improved gardens and yards with their requisite flowers, shrubs and vines, constituting views which are admired by visiters from all countries. One of the chief sources of the beauty of these rural residences, is the position of the houses on the lots, which are back sufficient to afford front yards for the cultivation of plants and vines, which are arranged and trained in graceful combinations with the architectural features, thus heightening the general effect by promoting the influence of the various parts. This style is well adapted to a large portion of the United States, especially in those parts in the higher latitudes." * * * * * *

"The general characteristics of a residence must be determined by the tastes, habits, and circumstances of the family who are to

occupy it. There is very probably, a great variety of styles and dimensions in rural residences. Cottages and small villas are the most appropriate dwellings for those who aim at competence and comfort in the simple independence of American country life. Cottages or houses, one story or one and a half high may be erected in any style, and possess all the desired accessories, such as porches, verandas, balconies, pediments, &c."

"A cottage indicates a disposition in the proprietor to live within his income, and to appropriate his means rather for the convenience and comfort of his family than for show which he is ill prepared to sustain. The style and finish of any house denote the intelligence and taste of the proprietor."

"A situation should be selected with due respect to the employment of the proprietor, and the intended style of architecture, if it has previously been determined. Health is the most important consideration in the selection of a situation. Low situations should be avoided on account of fogs and humidity. Soil is an item of some importance, especially where gardens and pleasure grounds are contemplated; but a good subsoil is more important, being essential to the vigorous growth of trees, and incapable of improvement, while the soil may be improved to any extent by artificial means."

"The scenery around a dwelling is well worthy of particular attention. It is important that a situation should have as much of natural beauty as possible—a natural scene may, however, be greatly improved by art, and materially changed by much time and expense. Trees are very desirable for their shade and the beauty of their composition with the architectural features of the scene; but they should not be so thick as to produce dampness, nor so situated as to prevent a distinct view of the edifice. In improving the ground, care must be taken to have pointed trees, so that they may harmonize with the prevailing high roofs, acute angled gables, to give harmony to the scene."

"The construction of dwellings is a department of enterprise and investment, which involves various considerations of vast amount. It should be remembered that a dwelling is constructed

for the accommodation of a family. Sound philosophy and good taste require that the site, form and character of a building should be suited to its use and the expression of its destination. A grove affords to a house a natural protection, in both summer and winter."

ON THE IMPROVEMENT AND MANAGEMENT OF SOILS.

Perhaps there is no subject of greater importance to the agriculturist, than a right understanding of the principles on which the fertility of the soil depends. In many excellent treatises on manures, we find considerable lists of various substances, all calculated to support the productiveness of the soil; and experience has long proved the necessity of some return being made to those soils which are kept under constant cultivation.

Every tree and every plant in growing takes something from the earth which makes it *poorer*. Every vegetable in dying and mouldering back again to dust, adds something to the earth which makes it the *richer*. It is the same when an animal dies. Every thing which has possessed life, whether animal or vegetable, having undergone putrefaction and being returned back again to dust becomes food for the support of vegetable life.

The quantity of this return, or as it is generally termed, manure, that is requisite to continue the soil in a productive state, varies in different soils, and those kinds which continue the longest productive with the least additional supply, are justly styled the richest or best. Experience has also proved that such soils are those which contain moderate proportions of all the elementary constituents of soils, which are but few and generally found combined with the clayey, sandy, and vegetable earths. Nothing, therefore, appears more evident than the propriety of assimilating as much as possible, a regular intermixture of these ingredients. When the upper surface is very sandy, the most excellent layers of clay or marl, are frequently found at no great depth below,

thirty or forty cart loads of which, dug and spread upon the surface of each acre, will form a most effective and permanent improvement. On the other hand, clayey soils are improved by the application of sand, gravel, and exposure to winter frosts.

Vegetable or peaty soils frequently rest on beds of clay, which, when burnt and intermixed, form a good soil. These modes of improvement, where practicable, are the most proper, and although perhaps in the first instance attended with considerable expense, can not fail ultimately to prove the most beneficial. Before we proceed to the consideration of the application of particular substances, as manures, it may not be improper to take a view of the natural state of vegetation in those vast tracts where every operation necessary to perpetuate a never failing produce, invariably takes place without the aid of the hand of man.

By art and industry, the augmenting and improvement of vegetable productions are truly great; yet, when ever we exceed the limits of natural laws some equivalent redress must be substituted, or our pursuits will soon terminate in the entire destruction of that subject on which we repose.

Any man, with very little skill or knowledge, may fell trees, plant, hoe, cut hay, raise grain, and rear cattle; and so long as the virgin fertility of his soil lasts, he may do very well. At length, however, that becomes exhausted. The store of provision for the nourishment of plants, which had been accumulating perhaps for centuries, while the land was in woods, by the annual decay of vegetables and the leaves of trees, is at length spent.

It is impossible to survey the uncultivated wilderness without admiring the wonderful energies that must there be returned in the soil. The majestic pine, the stately oak, with the great variety of other inhabitants of the forest, seem to mock the idea of receiving aid from the hand of man; and when the stately productions are removed by the hardy woodman, instead of finding the soil exhausted, it is generally found replete with every nutritive principle. The means by which the soil is here capable of supporting vegetation are extremely obvious; every material ingredient extracted by the vegetable products are again faithfully

returned by the constant descent of leaves and limbs; and even trunks and roots every where intermingle their mouldering elements, where succeeding products ascend with renovated vigor, and stand monuments of exalted verdure; while the various animal inhabitants that consume so much of the produce as is necessary for their support, transmit continued returns by their excrementitious discharges, and the natural dissolution of their own carcasses.

These are entertaining and interesting facts to all those who cultivate the soil, and exhibit incontrovertible rules by which all their proceedings ought to be influenced.

Some kinds of manure are proper only for particular kinds of soil; ashes are a very valuable manure for light soils. Two years ago we strewed about twenty bushels of ashes on about half an acre of a dry sandy soil. The crops were evidently benefitted by this dressing. This is an application capable of producing moisture and retaining it in a dry soil, superior to any thing we have ever seen, and stamps an invaluable worth on ashes as a manure for this kind of soils. But on strong moist soils, they do not answer as good a purpose.

Horn shavings and hogs' bristles, are an excellent manure for potatoes, strewed in the drills or hills over the sets, the latter at the rate of about twenty-five bushels to the acre. They produce earlier with these than any other manures we have ever tried; they are also a good manure for grass and every other crop which we have applied them to.

There are other ingredients, such as salt, charcoal, oil, &c., whose salutary effects on vegetation have been occasionally demonstrated; and it is altogether probable, that the ingenious assiduity of philosophical perseverance, will still continue to contribute much additional information respecting the various processes connected with the fertility of soils and laws of vegetation. In our present state of advancement, we ought to husband well those maxims founded on the adamantine base of long and tried experience, and wield with a fearless hand that invaluable support on which both old age and youth may rest with security.

MARSHES AND THEIR EFFECTS ON HUMAN HEALTH.

BY WILLIAM BACON.

I have recently noticed a valuable article on "marshes and their effects on human health," taking the rounds of the press, and appearing to have originated in your valuable periodical. Facts corroborative of the assertions of that article, are so freshly dated in my recollection, and so mournfully impressed on the minds and yet bleeding hearts of many in this community, that it appears to me proper to throw them into the same channel, that perchance the tide may bear them onward, so that they may contribute to the protection and preservation of human life.

In the outset, it may be convenient for the reader to become acquainted with our geographical and geological features. First, then, we are situated on the western line of Massachusetts, with the Taconic hills on our western boundary. These hills, from the gap where the western rail road passes them, rise as you pass northward, until it reaches an elevation of more than 2000 feet above tide-water, and about 1000 feet above the level of the rail road. The streams that rise from this hill, mostly take a south-easterly direction, and their course is marked with ravines as is usual along mountain streams. Half a mile north of the Congregational church, one of the deepest of these ravines opens into the valley, and from its debouchure the mountain widens to the east. Still further north, at about the same distance, it makes another offset, and yet another from Lebanon gap, where its southern front makes an east-north-east direction. Lenox mountain is our eastern boundary, and its general course is a south-west direction. So it will be seen, that our only outlets are formed by narrow valleys on the north-east and south-west. Lenox mountain is abrupt on its western surface; the Taconic passes down in a more gradual slope, so that cultivation is carried to its summit. On the eastern borders of the town, lands *convenient* for tillage are higher than corresponding lands in the west part, by some forty or fifty feet. Thus described, our territory presents the form of a

basin, with a north-eastern and south-western outlet. Through this basin lies an almost unbroken line of swamp, in some places, to be sure, too much elevated to become the receptacle of stagnating waters and vegetable substances gathered to decay. Through, and in the immediate vicinity of this lowland, passes the western rail road, on which operations were commenced in 1838.

The place had been remarkable for the health and longevity of its inhabitants from its early settlement, which commenced about the middle of the last century. Influenzas, to be sure, were sometimes prevalent, and consumptions carried their victims to the grave in good old age. But fevers were of so rare occurrence, that visitations from them were seldom feared.

The autumn of 1840, however, was destined to open a new era in our statistics of health, for that season the typhoid prevailed with almost unmitigated malignity, in the neighborhood to which its operations were mostly confined. Scarcely a house would be passed in which some of the inmates were not smitten, and in many of the dwellings death found his victim. The territory where the disease prevailed most, was about a mile and a half in length, along the base of the Taconic, and its ravages were principally confined to one street, though there were many severe cases in other parts. It was in vain that the origin of the disease was sought, and equally vain and futile were many of the causes to which its existence was then attributed.

Those who remember the summer of 1840, will recollect that in western Massachusetts and eastern New York it was a season of much heat and great drought. Those who saw the operations of grading the rail road through this region know very well, that in raising the embankments through the swamps, especially the lower one that seemed almost a bottomless abyss, the sinking of the earth carried on, caused much decomposing matter to be thrown up and exposed to the influence of the sun through that hot dry summer. The early rains of autumn were in no way calculated to retard the decomposing process to which these huge masses of matter had been exposed by the chief of nature's causes,

and hence it is not strange that the atmosphere became infected with poison too foul to breathe.

But the enquiry comes up, if the atmosphere was infected with the seeds of dreadful diseases, why were its operations so generally restricted to a given district? The reason is conclusive, scarcely a morning passed, from the middle of August until cold weather came on, but that a dense cloud of fog might be seen extending along the line of the rail way through the town.

And very often as the morning fog passed off, it might be seen from the upper parts of the town, to follow up the streams that originate at the west mountain, and remaining longest over the precise territory where the disease principally prevailed, and with a density so great, that its upper surface, as seen from the eastern hills, did not appear to reach higher than half the altitude of the mountain.

But these miasmatic vapors were in no wise limited to morning visitations, they often came on at early evening and made sure their sojourning through the night, and no doubt kept the whole atmosphere continually polluted with their poison, which the taste or smell of a person out and exposed to its influence could readily detect. The fever of 1840 continued, to a certain extent, to prevail until mid-winter and perhaps a few cases after that time; but a majority of them occurred between the first of September and the middle of December.

Usual health prevailed in the place through the following spring and summer, which, like the corresponding seasons of the previous year, were marked with unusual drought. But in early autumn the sickness again commenced, extending over the same territory, and in many cases attended with similar fatal results. The rail road was completed and put in operation early in 1841, consequently the throwing up of these swampy lands was pretty much ended. But the poisonous effluvia of earth already disturbed was not removed, and the action of the elements upon it again produced similar results. In 1842 a few cases of the fever occurred, but the number, compared with that of the two previous years, was diminished at least seventy-five or eighty per cent;

and the number diminished yearly, as nature removed the cause by giving frosts and rains to stop the progress of the great body of vegetable decomposition, which had charged the atmosphere with its poisonous qualities.

We have already remarked that the surface of the town, as seen from the surrounding hills, pretty nearly marked the form of a basin. The curious will enquire then, why the fever did not extend all over the place. The reason is conclusive. The fogs, after they had risen, passed down the rail road track to the lower swamp which was broken up the deepest, and from this it passed up the lowland in a westerly and north-westerly direction, until its progress was arrested by the west hills, where it remained stationary until its fatal qualities were discharged in quantities sufficient to produce the effects already mentioned.

The cases east of the rail road were few, a circumstance which may conclusively be attributed to the circumstance that these deadly fogs seldom passed off in that direction. Two causes for this result. First. The streams from the east mountains, the most, indeed with one or two exceptions all of them, pass off without any communications with these swamps, consequently there are no such direct channels for the ascent of vapor in that direction as on the west. The region on the east is more elevated of the two, which likewise operated as a barrier to its approach if natural causes have effect, which we leave to others to decide. Second. The seasons were attended with frequent easterly winds, which of course, drove the vapor in a westerly direction. But it was not always in the presence of the east winds, that the fogs were most dense or longest in continuance. On the contrary, in the still atmosphere, when the vapor passed off, as in natural channels, until its progress was arrested by the mountains, against whose sides it hung like a heavy cloud until the sunshine and its own exhausting power dispelled it.

We have been particular in the foregoing relation of the cause and effect of a miasmatic atmosphere, arising from impure exhalations from lowlands, because the case was so strongly marked, that it would appear that no mistake could be made in the matter.

What we have shown to have been on a large scale, no doubt, in oft repeated instances, exists in smaller ones. A frog pond near a dwelling, a sink or cess pool, where accumulating matter is allowed to decay, may be as fatal in its limited operations as was this wholesale dealing out of malignant vapor on a district where health in previous years had been a distinguished quality of the climate. How far such visitations may be remedied by timely researches and proper precautions, is not for us to say. We leave it for an enlightened and sagacious public to draw their own inferences and make such application as in their wisdom appears most proper.

Richmond, Mass., 1848.

ON BREEDING COWS FOR THE DAIRY—ADAPTED TO THE COUNTY OF HERKIMER.

BY A. BECKWITH.

The breeding of domestic animals has always been considered an important branch of agriculture.

In the breeding of that noble and useful animal, the horse, we have succeeded well, as the annual exhibition at our county fair has proved. And there are few counties in the state where the farmers drive better horses than the farmers of Herkimer county. The reason of this is obvious; we grow them in the right way; we follow the rule which nature has pointed out, and whenever we do that, we are sure to succeed. We take our best and most perfect animal to breed from; we treat the dam kindly; we give her a sufficiency of suitable food; we allow the colt to run with her from six to eight months, drawing that sustenance which the God of nature intended, and which no art or device of human ingenuity can improve. When we take it from the dam, we pay particular attention to it, by giving it food well suited to its age. We house it during the cold season; in short, we do all that is

necessary to give a fair and proper developement to all the qualities of the animal. It is, therefore, a natural consequence that we have fine horses, possessing vigorous constitutions, and sprightly action. What has been said with respect to the breeding of horses, will apply with equal force to the breeding of all animals, viz.: that the order of nature should be followed, as near as can be. By this rule the young are allowed to nurse the dam, and draw all the sustenance it can get from that source. And this will be found to be not only the best, but the most profitable way of rearing all animals, except the dairy cow. And if she was to be reared in this way, although we should have a fine animal, with all the qualities properly developed, still she would not be worth what it would cost to rear her. Hence the dairy-men of our country have thought it better to buy their cows than to rear them; still there are some heifer calves reared every year, by farmers, whose principal business is making cheese; and as this is the principal business of a large portion of the farmers of our country, it may be well to examine the subject of rearing cows for the dairy, and see if they cannot be reared in a way that they will be worth, when reared, what it has cost to rear them.

There is no rule better settled in political economy, than that the thing produced, should be worth in the market, what it cost to produce it, with a reasonable profit to the producer. When it does not do this, it shows that the supply is too great for the demand; and as no one will, for any length of time, produce an article that does not pay, there will be a falling off until the supply and demand are proportionate. In our county we buy a large number of cows every year, that are reared at a considerable distance. It may be, that in certain portions of the state, cows can be reared and sold to us cheaper than we can rear them.

One thing is certain, we cannot afford to rear them in the way nature points out—by letting them draw from the cow all the milk. In deviating from this, we should, as far as possible, observe the rule. In order to do this, it may be well to consider that the quantity of milk which the cow yields now, is very different, and perhaps double the quantity yielded in her original and natural

state. We have been in the habit of cultivating the milking qualities of the cow, from the earliest stages of civilization, and even from the shepherd state. Not so with any other animal. It is a general rule with us, that "like begets like," and that the young animal partakes largely of the qualities of its parent stock. It is, therefore, reasonable to suppose, that by breeding from the best milkers, this great length of time we have greatly increased, and no doubt doubled the quantity of milk from each cow. This natural rule then, that the young requires all the milk of the dam, would in the case of the cow, only require one-half. It is well known that for the first four or six weeks after the cow comes in, (as it is usually termed,) she gives a large quantity of milk. It then decreases in quantity, but increases in quality; that is, it becomes richer, and this continues through the season, until the calf, if it was allowed to run with her, would give up by degrees its support from the cow, and leave her to produce its successor. This decrease of quantity and increase of quality, is admirably calculated to facilitate the healthful growth of the young animal, during the first four or six weeks; its whole dependence is on the milk, and the quantity is sufficient to satisfy its hunger, and facilitate its growth, while in quality it is not so rich as to be injurious. At this age the growth is such, that the quantity does not satisfy its hunger, and the decrease of quantity causes an increase of appetite for food, while the increase of quality tends to keep the animal healthful and vigorous, its hunger drives it to eat such food as it can get; and in case of variety, nature has given it sufficient sagacity to select that which is best suited to its age. It is therefore, clear, that if we could afford to rear calves, by allowing them to draw from the cow one-half of the milk, we could grow good stock. And in this we should not deviate much from the natural rule. But it will doubtless be thought by some, that we cannot afford to grow them in this way; but one thing is too certain to admit of any doubt, viz.: that a large portion of the neat stock reared in this county, (and it is thought through the state generally,) has been of an inferior grade.

If we wish to improve it, it may be well to enquire how this

inferior grade has been produced? The practice (in too many cases,) has been to take the calf from the cow, when a few days old, and learn it to drink. New milk is fed, some three and perhaps four weeks. It is then fed with skimmilk, buttermilk, or whey; and as the calf will naturally be doing bad, and wishing to make it do better, this light food is given in larger quantities, so that the stomach is kept full, hunger and the appetite for food is kept satiated. It has no propensity to eat grass, and such food as would be healthful. It becomes pot-bellied, as we usually term it; the hair becomes long, and looks rough, and every appearance of the animal is bad, and wishing to improve it, the worse it does, the larger the quantity of this unnatural food, (which is the cause of the difficulty,) is thrown into the stomach, and in this the order of nature is reversed, and as a natural consequence, the young animal is doing bad, and must continue to do so, until natural rules are observed.

In addition to all this, another wrong (or neglect, which the already injured constitution is illy suited to bear,) is inflicted. It is, in the fall of the year, left to eat frozen grass, run out and pick its living as it can until winter has set in, in good earnest. It is no wonder that with such treatment we rear an inferior grade of neat stock. What horses, think you, should we rear, if we treated our colts in this way? All experience has shown, that if we wish to rear a good animal, we must give them good care and keeping while young, and this holds good as well in the vegetable as the animal productions.

As the dairy-men of our county cannot well afford to rear calves, by giving them half the milk that a good cow will yield, and as it is evident that the practice last alluded to, ought not to be followed any longer, another practice has been pursued by some with good success, and seems, to a great extent, to accord with natural principles. It is, to feed new milk wholly, the first four or five weeks, and then boil a small quantity of hay in water, which when taken out, leaves the liquor the color of coffee; a small quantity of oat meal, or canel of wheat, with a handful to each calf, of flax-seed, is put in and boiled. This composition

makes a rich and wholesome food, which may be kept in cool weather a number of days. A sufficient quantity put into skim milk or whey, warmed to the temperature of new milk, and stirred until sufficiently incorporated, makes a hearty food, and great care should be taken at first, that it be not too rich. A sufficiency of whey or milk should be used to satisfy, to a reasonable extent, the appetite, but not to satiate it. When the calf is old enough to eat grass, the quantity should be lessened, but made richer, but it requires great care; the danger is in over-feeding. It will readily be perceived that the work of taking care of a dozen or more, is but little more than of two or three. If during this process of feeding, they should *scour*, as it is usually termed, milk warmed to about ninety degrees, with the same quantity of rennet, that is used to curd milk for cheese, stirred in and fed a few times, will usually regulate the stomach and remove the difficulty, when the other feed may be carefully resumed. This it will readily be perceived is a cheap feed. I have tested it by actual experiment, and have grown fine stock, therefore do not hesitate to recommend it.

Heifer calves reared in this way, with good care and keeping, may come into the dairy at two years old, to good advantage. They can be made as large as three year olds usually are, with ordinary keeping; and it is confidently believed that the keeping of the last year of the three year old, will more than pay the extra expense of keeping well the two years; and it is believed that dairy-men might, in this way, rear a sufficient number of heifer calves from their best milkers, to keep their stock of cows good, at a profit.

Much has been written and said of late, as to the best breeds for the use of the dairy. Most of our cows now, are of mixed breeds, and it is doubted whether any further crossing would improve them. Most of the imported breeds are of large size, have been too high fed and too much pampered to suit our climate and feed. Pampered aristocratic stock, whether with two or four legs, is not suited to our county. It is a rule well settled by a

fixed principle in nature, which we cannot alter if we wished, that all animals accommodate their size to the quantity and quality of the food on which they subsist, having suitable reference to the climate. This rule being admitted, it follows, that a middling sized breed is best for us. It is true, that in the keeping of our dairy cows, we have of late much improved. Still it would be better to have our breeds too small than too large, for our keeping. If too small, their tendency would be upward. If too large, they would degenerate, which should always be avoided.

There is a practice prevailing with us to a considerable extent, which ought to be encouraged, that of sowing corn to feed in the fall. It often happens that we are much pinched in the fall, on farms used principally for dairying. The green corn is a good substitute for pasture, and the yield per acre very large.

Columbia, Herkimer county, 1848.

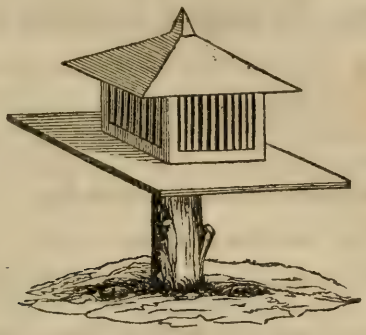
POULTRY FEEDING-HOPPERS.

It is the practice with most farmers to feed their fowls grain, by strewing it on the ground from the hand. This is, however, considered by many as a slovenly and wasteful mode, and well calculated to invite rats and mice.

From experience we have found it more economical to keep grain constantly before them, where they can help themselves, at all times; and for that purpose constructed several kinds of feeding-hoppers, but have been constantly annoyed by the depredations of rats and mice. Some of the patriarchs, grey with age, would not only help themselves sumptuously, but actually drive the fowls from their food.

Now, to obviate this difficulty, and to render them rat-proof, we present a plan, a sketch of which (Fig. 4,) accompanies this, which is so simple, that any man or boy who can handle a saw,

a plane, and a hammer, with a few nails, could make one in a few hours, which would cost little or nothing.



Poultry Feeding-Hopper—Fig. 4.

First make a platform of boards, say three feet square, then make a square sixteen inches in diameter, of strips of an inch and a quarter plank, three inches wide; nail this in the centre 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 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 will enable the fowls to insert their heads to pick the grain. The roof may be formed four square, like the figure, or may be made flat, or pitch on two sides, like the roof of a house, and should be detached, so that it can be moved when grain is to be put in. Now, to make it proof against rats and mice, it will be necessary to elevate it a few feet from the ground, and this can be done by suspending it with wires, or setting it on a post firmly set in the ground, as represented in the figure. The wires being small and smooth, they could not pass down on them, and the platform projecting so far from the post, they would find it rather inconvenient to climb over the edge of the platform.

The fowls will soon learn to leap upon the platform, and feed from the grain-box between the slats. From ten to twelve fowls can feed at the same time.

This may be made self-feeding, by setting a funnel-shaped box within, the small end reaching down to within half an inch of the bottom. The size or capacity may be varied according to the number of fowls kept. The foregoing is calculated for about one hundred fowls.

BUTTER.—EXPERIMENTS, &c.

BY C. N. BEMENT.

[Written for the January No. of the Genesee Farmer.]

BUTTER is one of the staple productions of our State, and every hint that serves to improve its quality or increase its quantity must be useful. According to the returns of the late census in 1845, the amount of butter made in the same year was 79,501,-733 lbs., which at 12½ cts. per lb., and which is a fair average price, yields $9,937,716—only $2,114,877 less than the produce of the wheat crop of that year. This amount might be greatly increased, if more attention was paid to the manufacture, and a better article sent to market. As it now comes, not more than one half of the quantity is fit for the table, and some of it entirely unfit for any culinary purpose whatever. This should not be.

There are various methods of making butter, and there is certainly a vast difference in its quality. One cause of this difference may be ascribed to the herbage or food upon which the cows are fed, the breed of cows, or the season; but more generally in the management. Every one imagines their method best, and are too wise to learn.

Being very fond of good butter ourselves, many experiments were tried while residing on the farm, and the following rules were finally settled on:

First: Cleanliness must be strictly observed in everything appertaining thereto, from the milking of the cow to the packing of the butter. All the utensils must be sweet and free from any taint or smell.

Second: The milk must be immediately strained, on coming from the cow, into pans, and set for the cream to rise, as with some cows a separation commences even during the process of milking.

Third: The cream should be free from milk and frequently stirred, particularly when additions are made, and a little salt added to keep it from curdling. In summer the cream must be churned as often as every other day. In winter it may stand for several days, if kept in a low temperature, say from 45 to 50° Fahrenheit.

To make the cream rise more perfectly, the temperature should be at 60°. A temperature below 35° will prevent the cream from separating or rising in any considerable quantity. The elevation of the temperature to 55° will cause the cream to rise in 30 hours; at 60°, in 24 hours; at 80°, in 12 or 15 hours.

Much depends on the temperature of the cream when the churning is commenced. We found from repeated experiments, that the cream, when churning is commenced, should not be under 55°. It will rise in churning from 5 to 10 degrees. In winter this temperature can easily be attained. In summer it cannot be attained without the aid of ice, or very cold well water. In Pennsylvania spring-houses are much used, where a constant stream of cool spring water passes through for the purpose of regulating the temperature.

For milk-pans we preferred tin, of the ordinary size, holding about six quarts, which were about three-fourths filled, which gave a depth of about four inches of milk. We tried broad shallow pans with the milk only about an inch deep, supposing the greater the surface exposed the greater the quantity of cream would rise, but such was not the fact.

The greatest quantity of cream from the least quantity of milk we ever obtained was by means of a water-bath, or double pans, as follows:—The pan into which the milk was strained, was four inches deep and flaring. Another made six inches deep and nearly straight in the sides and just large enough at the top to receive and embrace the upper pan, within half an inch of the top, and it should fit tight, so that little if any of the steam will

escape. A small tube was soldered near the top of the under pan for the admission of hot water, and a small hole was made on the opposite side for the escape of the air while pouring in the hot water. The first I had made was soldered together at the top, but we found it difficult to wash and dry; being separate, they can be washed and dried without difficulty.

The milk was strained into the upper pan and left at rest for 12 hours; then the same quantity of boiling water was introduced into the under pan and suffered to stand 12 hours longer, when the cream was found perfectly separated and of such consistence that the whole might be lifted off by the finger and thumb.

The cream was churned immediately after skimming at a temperture of 58°. In this manner first quality of rich yellow butter was obtained in 15 minutes, in the month of March. Under the ordinary treatment, much less butter would have been obtained, and of a white color, insipid, without flavor and unfit for the table. Besides it is a long and tedious operation to convert the cream into butter, while in the former process it occupies but a few moments. Churning the milk is a much more laborious method, from the difficulty of keeping in motion such large quantities of fluid; but in this way it is said that a larger quantity of butter is obtained, and of a more delicate flavor.

The rising of the cream and the churning is but a portion of the process of making good butter. There is some skill or art required in working it which cannot be described; but suffice to say, it is best done with bowl and ladle, in a peculiar manner, to *press* out the milk—for unless the milk is thoroughly separated it is needless to expect good butter that will keep sweet any length of time. If not properly worked, and the milk thoroughly extracted, it is apt to be soft, spongy, or oily. In some dairies the hand is used instead of the ladle, but we protest against that, as the heat of the hand is injurious. In others the butter is washed with pure cold water as long as the water is rendered milky. We preferred not to wash it, believing that much of the aroma or high flavor was carried off by the water.

THE POWER SOILS HAVE TO ABSORB MOISTURE.

BY J. H. SALISBURY,
(Assistant in the Laboratory of Prof. Emmons.)

All soils, as well as the substances that compose them, have the power of absorbing and retaining moisture with a certain force, which diminishes as the amount of water absorbed increases; or as you approximate a point where the water is no longer taken up, and increases as you recede from this point; or approach the dry state. The point where the water is no longer taken up, may be called the point of saturation. After a soil is saturated, if more water be added, it will have a tendency to separate and suspend its particles, and render them more moveable among themselves. The more water you add, the more fluid will you render the mass. It is on this principle that those beds of earth commonly denominated *quick sand*—of which we shall speak farther on—become so difficult to control in excavating, or digging into them.

If you communicate to a mass of soil, saturated with moisture, a jolting, jarring motion, or slightly agitate it in any way, the force with which the water is held is disturbed and lessened, so that a part of it will be set at liberty, and the mass will temporarily become quite fluid. So long as the agitation is continued, the point of saturation is lowered. If now to this same mass, rendered partially fluid by a slight motion, a steady, moderate, equal and continued pressure be applied, the free water—previously given out—will be taken up, and the mass will be rendered comparatively dry; so much so that it will absorb another portion of water, if it be added. Here the point of saturation is elevated, and will remain so till the pressure be removed. If to a mass saturated, greatly increased, steady and continued pressure be applied, it will yield up part of its moisture, lowering the point of saturation.

If what has been said be true, it follows :—1. That slight and continued agitation lessens the retaining power. 2. That steady, moderate, equal and continued pressure increases the retaining power. 3. That greatly increased, steady and continued pressure

diminishes the retaining power. This is more plainly exhibited in sand and sandy soils than in others.

It may be stated in general terms that the absorbing is as the retaining power; and the retaining, as the amount of water a soil is susceptible of taking up. We owe the first experiments on the relative power of soils to absorb moisture to Sir. H. Davy.* He made a sufficient number of observations to show that the power of soils to absorb moisture was intimately connected with their fertility. His method of proceeding was the following: He took 1000 parts of each of several kinds of soil, dried at 212,° and containing different quantities of organic matter, and exposed them to an atmosphere saturated with moisture at 62°, and let them remain a given time, when they were found to have increased in weight in proportion to the organic matter they contained.

He found that the different constituent parts of soils absorbed moisture with different degrees of energy. Thus vegetable substances more absorbent than animal; animal substances more so than compounds of alumina and silica; and these more absorbent than carbonates of lime and magnesia.

These observations have been confirmed, with some modifications, by Prof. Emmons,† who has further shown that the absorbent power is as the retentive. It was the previous opinion that clays possessed a greater absorbing power than the marls, which he found to be incorrect. He says: "It was observed that marls, or the finely divided calcareous compounds, are quite powerful absorbers and retainers of water, being even superior to clay or argillaceous compounds, or to alumina in a state of great purity. This result was quite unexpected, as the common and prevailing opinion is, and has been, that clays are the most active and energetic in their powers of absorbing and retaining moisture.

"In accordance, then, with these observations, we found that the materials which are the most influential in soils, may be arranged in the following order, when their relations to water or

* Second edition of Sir H. Davy's Lectures on Agricultural Chemistry, 1814.

† Agricultural Report of New York, vol. i., page 352.

moisture are considered:—1. Peat, or pure organic matter. 2. Marl—or, to be explicit and definite—fresh water and shell marl. 3. Clay, and argillaceous compounds in which this element is in excess. 4. Loam, or the common soils as they usually occur. 5. Sandy loam. 6. Sand. Each of these kinds of earth is influenced in its power of absorbing and retaining moisture, by the amount of peaty matter which it contains, subject to modification by its fineness."

The quantity of water soils are susceptible of taking up.—Now we will endeavor to show that the absorbing and retaining powers of soils are as the quantity of water which they are susceptible of taking up. The experiments to prove this were conducted in the following manner:—A quantity of each soil to be examined was taken, and water added as long as it would be absorbed; then a portion of each, saturated with moisture, was weighed. Those which were suspected to contain water chemically combined were dried at 212°; others, as the sands, were dried on a sand bath at a higher temperature. After drying, they were weighed, and the loss set down as the amount of water they were susceptible of taking up.

We do not offer these as strictly accurate results; yet they are sufficiently so for the purpose in this place, and more accurate, perhaps, than would be supposed from the manner in which they were made. We were surprised on testing the quantity of water several times in succession, which the same soil would take up, to find so slight a variation in the results. After a soil is saturated, it requires but a very slight quantity more of water to render sensible the free moisture. Hence, by using care, we think that results may be arrived at, which if not strictly accurate, may be of great practical value. It is no trifling matter to determine with any degree of accuracy the absorbing and retaining power of soils directly, by evaporation, so that the results of observations on the same soil made at different times, shall agree, since the quantity of moisture in the atmosphere has to be determined at aech observation. Even if it was not very difficult, those who

would be most likely to be profited by such observations, would not have the time and means to make them.

The power soils have to obsorb moisture by cohesive attraction has been previously shown to be intimately connected with their fertility. If this be true—which all the observations we have made go to confirm—then a knowledge of this power must be of much practical utility. Now the method by which the quantity of water a soil is susceptible of taking up is determined, is very short, simple, and easy, requiring but little time and labor. All the apparatus that is necessary is a pair of scales and a water bath, though the latter might be dispensed with. The observations can be made in winter as well as summer; in fact, at any season of the year. By it you can determine the absorbing and and retaining powers of soils with as much precision as if you had determined them directly by means of evaporation and the hygrometer, since the absorbing and retaining powers of soils are as the amount of water which they are susceptible of taking up.

Amount of Water taken up by different Specimens of Peat.

Peat from the farm of Mr. E. Ball, of Hoosick, Rensselaer co. 100 grains saturated with moisture gave of

Water,	71·109
Dry matter,	28·891
	100·000

100 grains of the dry matter, on analysis, gave of

Organic matter,	56·00
Silex,	26·00
Peroxide of iron and alumina,	8·00
Carbonate of lime,	9·00
Magnesia,	1·00
	*100·00

Before burning, soluble in water,

Carbonate of lime (crenate),	1·93
Magnesia,	0·34
	6·30

* Analysis made by Mr. C. Ball.

Soluble in dilute acid, before burning,

Alumina and oxide of iron,	1·93
Carbonate of lime,	4·37
	6·30

Peat from South Norwall.—100 grains saturated with moisture gave, of

Water,	70·75
Dry matter,	29·25
	100·00

Peat from Schoharie.—100 grains saturated with moisture gave of

Water,	58·77
Dry matter,	41·23
	100·00

This specimen was coarse, and only partially decomposed. This will account for the smaller amount of water it took up than the two preceding.

Amount of Water taken up by Marl examined.

Marl, Saratoga county.—100 grains saturated with moisture gave, of

Water,	64·92
Dry matter,	35·08
	100·00

100 grains nearly dry, gave, on analysis,

Water,	2·32
Organic matter,	3·40
Oxide of iron and alumina,	1·24
Carbonate of lime,	85·62
Magnesia,	3·80
Insoluble matter,	3·40
	*99·78

* Analysis by Prof. Emmons.

Marl from the farm of Mr. Crary, Salem, Washington county. 100 grains saturated with moisture gave, of

Water,	52·19
Dry matter,	47·81
	100 00

100 grains nearly dry, gave, on analysis,

Carbonate of lime,	83·22
Oxide of iron and alumina,	1·24
Organic matter,	0·51
Insoluble matter,	2·42
Water,	7·25
Magnesia,	trace.
	*94·64

Marl from Green Lake, Preble, Cortland county.—100 grains saturated with moisture gave, of

Water,	39·123
Dry matter,	60·877
	100·000

100 grains deprived of water and organic matter gave, of

Carbonate of lime,	86·84
Silica,	11·68
Peroxide of iron and alumina,	0·43
Magnesia,	0.64
Potash, soda, and loss,	0·41
	100·00

Per cent. of organic matter, 3·01.

From the analysis of this marl we cannot account for the small per cent of water which it takes up. Thinking we might be mistaken, we tried it a second time. It took up, on the second trial, 38·74 per cent., which approaches very near the first result. The same is the case with the marl in the south end of Christian Hollow, which has the same source, viz: the Tully limestone.

* Analysis by Prof. Emmons.

Amount of Water taken up by Loamy Soils, containing from 8-20 per cent. and upwards of Organic Matter, and other ingredients in due proportion.

Soil from the farm of N. Salisbury, Cortland county.—100 grains saturated with moisture gave, of

Water,	41·06
Dry matter,	58·94
	100·00

100 grains of the dry matter, on analysis, gave of

Organic matter,	16·28
Silica,	73·52
Peroxide of iron and alumina,	8·31
Carbonate of lime,	0·49
Magnesia,	0·18
Soluble Silica,	0·50
Phosphate of peroxide of iron and alumina,	0·50
	99·78

Soil from Mr. Hobart's farm, Cortland county.—100 grains saturated with moisture gave, of

Water,	36·04
Dry matter,	63·96
	100·00

100 grains of dry matter, on analysis, gave, of

Organic matter,	8·16
Silica,	67·02
Peroxide of iron and alumina,	19·20
Potash,	3·10
Lime,	0·25
Soluble silica,	1·20
Magnesia,	trace.
	98·93

Soil from N. Salisbury's farm, Cortland county.—100 grains saturated with moisture gave, of

Water,	40·39
Dry matter,	59·61
	100·00

100 grains of dry matter, on analysis, gave, of

Organic matter,	15·92
Silica,	72·76
Peroxide of iron and alumina,	7·76
Potash,	1·26
Carbonate of lime,	0·86
Magnesia,	0·28
Soluble silica,	0·35
Phosphate of alumina and iron,	0·43
	99·62

These soils are all rather deficient in lime and magnesia.

Amount of Water taken up by Clays examined.

Albany blue clay.—100 grains saturated with moisture gave, of

Water,	31·84
Dry matter,	68·16
	100·00

100 grains, nearly dry, gave, on analysis, of

Water and organic matter,	5·28
Silica,	52·44
Alumina and Peroxide of iron,	32·28
Carbonate of lime,	8·00
Magnesia,	trace.
Potash,	trace.
Phosphates,	trace.
	*98·00

Red clay, Christian Hollow.—100 grains saturated with moisture gave, of

Water,	28·767
Dry matter,	71·233
	100·000

100 grains partly saturated gave, on analysis,

Water,	13.64
Organic matter,	2·72
Alumina and peroxide of iron,	27·40
Carbonate of lime,	8·20
Potash,	2·60

* Analysis by Prof. Emmons.

Magnesia,	0·36
Soluble Silica,	0·24
Insoluble Silica,	44·84
	100·00

Amount of Water taken up by a Sandy Loam Soil, from the yard back of the Old State House, Albany.

100 grains saturated with moisture gave, of

Water,	24·694
Dry matter,	75·306
	100·000

100 grains partially dry gave, on anaysis, of

Water,	6·20
Organic matter,	4·75
Silica,	82·62
Alumina and peroxide of iron,	4·16
Carbonate of lime,	1·82
Magnesia,	0·20
Potash,	0·13
	99·88

Amount of Water those Masses of Earth commonly denominated Sand Beds are susceptible of taking up.

Fine welding sand, Homer, Cortland county.—100 grains saturated with moisture gave, of

Water,	23·502
Dry matter,	76·498
	100·000

100 grains of this dry matter gave, of

Silica,	83·625
Peroxide of iron and alumina,	15·575
Lime, magnesia, potash, soda and loss,	0·800
	100·000

Very fine moulding sand, Onondaga Hollow.—100 grains saturated with moisture gave, of

Water,	20·409
Dry matter,	79·591
	100·000

100 grains of this dry matter gave, of

Silica, - - - - - - -	88·810
Peroxide of iron and alumina, -	10·760
Lime, magnesia, potash and loss, -	0·430
	100·000

The white Oneida sand, used in the manufacture of glass, boiled it in hydrochloric acid for half an hour, washed with pure water and dried.—100 grains saturated with moisture gave, of

Water, - - - - - - -	21·73
Dry matter, - - - - -	78·27
	100·00

This dry sand ground to an almost impalpable powder, and saturated with moisture, gave, of

Water, - - - - - - -	19·725
Dry matter, - - - - -	80·275
	100·000

The grinding seems to have reduced the saturating point 2 per cent.

We could give the results of more experiments, but as they all go to confirm what has been given, we do not think it necessary.

It may be stated here, that the water driven off below 212° is considered as held by cohesive attraction; that which requires a higher temperature to expel it, is said to be chemically combined. Soils often contain water in both these states. In general, that only which is held by cohesive attraction is yielded up to plants. Sir H. Davy says: "The water chemically combined amongst the elements of soils, unless in the case of the decomposition of animal and vegetable substances"—and we would include mineral—"cannot be absorbed by the roots of plants; but that adhering to the parts of the soil is in constant use in vegetation." Hence, in determining the power of soils to withstand a drought, that water only which is held mechanically, or adheres to their parts, should be taken into account.

The best soils—those that contain from 8-20 per cent. and up-

wards of organic matter, and have a sufficiency of lime, and alumina, and other necessary ingredients in due proportion—rank above clays in the amount of water which they are susceptible of taking up, as will be seen above. In fact, pure alumina, itself, has not a very high power of absorbing water by cohesive attraction; yet it takes up a large per centage of moisture, with a good deal of energy, but much of it is chemically combined.

100 grains of pure alumina, saturated with moisture, gave, of

Water combined by cohesive attraction,	59·3114
Water chemically combined, - -	34·5020
Dry alumina, - - - -	6·1866
	*100·0000

From this it is seen that even pure alumina does not take u as much water by cohesive attraction as peat, and even as muc as some of the marls examined.

With regard to the amount of water which soils and the substances that compose them are susceptible of taking up; commencing with the highest, they arrange themselves in the following order:

1. Peat, taking up from 50-80 per cent. of water, varying with the composition, state of decomposition, and fineness of the parts.
2. Marl, taking up from 35-70 per cent.
3. The best soils—those that contain from 8-20 per cent. and upwards of organic matter, with a sufficiency of lime and alumina, and other necessary ingredienss in due proportion—take up from 35-55 per cent.
4. Clays, take up from 28-45 per cent.
5. Soils that contain less than 8 per cent. of organic matter, including sandy soils, take up from 20-35 per cent.
6. Sands, take up from 15-25 per cent.

The range of each of the above six divisions is caused by the varying composition, the state of decomposition, and the different degrees of fineness or division of the parts.

* We should say here that all the preceding analyses, not made by Professor Emmons, were made in his laboratory, under his care.

It is generally observed that stiff clay soils do not stand a drought as well as sandy soils. This would constitute an apparent exception to their absorbing moisture with much greater energy. The reason is obvious. The amount of moisture equal quantities of the same soil will absorb in a given time will be proportional to the extent of surface exposed. The parts of a stiff clay soil adhere together with so much tenacity that in drying they cake, crack open and become more compact, shutting the air from all parts except those which are immediately contiguous to the surface, while in a sandy, or any loose, porous soil, every particle may be said to be in contact with, and surrounded by the atmosphere.

The more we do, the more we are convinced of the practical utility of the absorbing power of soils. If we had not tested a large number of them, the analyses of which had been previously made, we should not at this time have spoken with as much confidence.

Quick Sand.

We do not intend to say much on this subject, for the reason, that we have not much to offer. The name is, and has been applied indifferently to all such masses of earth as do, when dug into or agitated in any way, assume a partially fluid form. The application we think has been correct—for we do not believe—we know—that this partially fluid state is not confined to particular beds of sand, which—as is, and has been, the prevailing opinion among people generally—possess some peculiar chemical or mechanical properties; or both, by virtue of which they have within themselves a power of flowing when disturbed, which distinguishes them from all other masses of earth. This property, we believe, not only extends to all beds of sand, but is common to all soils when subjected to certain conditions. All that is necessary in order to have them assume this peculiar form is that they should be influenced and controlled by the proper circumstances.

Beds of sand when subjected to these circumstances or conditions are much more difficult to control than ordinary clay, marl

and soils for the reason that thin particles adhere to each other with less tenacity. Indeed it would be very difficult to communicate to a whole bed of marl or clay, in place—as to a bed of sand—this partially fluid state ; because the parts adhere together with so much force that they will not permit more water to enter than is sufficient to saturate them; or to fill the interstices, or space between thin particles. But when this adhesion is broken down by mechanical agency the mass will become partially fluid like sand under similar conditions; but not as difficult to control. The less adhesion there is between the particles—other circumstances being the same—the greater will be their mobility.

It will be seen from the experiments on the quantity of water which soils are susceptible of taking up, that sands sank the lowest—that it requires nearly twice the quantity of water to saturate clay,—three times the quantity to saturate marl, and four times the quantity to saturate sand. Hence, throwing the tenacity of the parts out of the question, and reducing all to the same state of decomposition and fineness, and subjecting them to the same or similar conditions, the sand would be twice as likely as the clay, three times as likely as the marl, and four times as likely as the peat, to assume a partially fluid form. Much greater is their difference when viewed as they ordinarily occur.

All that is necessary to make a sand bed what is commonly denominated a bed of quick sand, is more water in its mass than it can absorb. The same thing may be said of beds of clay, marl and soils.

Stiff clays saturated with moisture are nearly, though they cannot be said to be entirely, impervious to water, for if water be in contact with clay, and the clay be placed between an absorbing surface and the water, the water will pass through the clay to the absorbing body; but as a general thing it will not permit—without the aid of some mechanical force—more water to enter than is sufficient to saturate it. But if it could be subjected to conditions where after the mass being saturated, water could be made to enter with a force sufficient to break down the adhesion of the parts, then the particles would be made to recede from each oth-

er, they would become more moveable among themselves, and the mass would be rendered more fluid.

Prof. Hitchcock* describes *quick sand* under the name of *muck sand*, from the idea that it might prove valuable as a manure. The beds of which he speaks occur in the alluvial deposites on the Connecticut river, and its tributaries. In speaking of these beds he says:

"In the banks of our streams, this stratum is the first one from the surface that arrests the water in its descent into the earth: and hence water is seen oozing out from it in almost every place. It frequently lies immediately above a stratum of gravel. It is also remarkable for its yielding nature when wet: it being easy to run a pole several feet into it, and unless covered with turf, a man in walking over it will sink into it several inches. The cause of its arresting water in its descent, and also of the extreme mobility of its particles among themselves, is probably chiefly dependent upon the fineness of its texture, and the form of its particles, rather than upon its chemical composition. When an attempt is made to dig into it with a spade, or trowel, it conducts very much like soft suit. And yet its composition is decidedly sandy: and therefore I call it *muck sand*, although it generally goes by the mean of *quick sand*."

To show the difference in the chemical constitution of *quick sand*, from different localities, we will here give several analyshs of it:

Quicksand from Massachusetts.

	LOCALITY.			
	Sunderland.		Sheffield.	
Water, of absorption,	3·80		2·00	
Organic matter,	3·50		2·00	
Silica,	64.01		70·68	
Alumina,	15·03	27·07	11·61	21·71
Oxide of iron,	12·04		10·10	
Lime,	0·10		0·80	
Magnesia,	1·16		1·63	
Salts soluble in water,	0·10		0·15	
Sulphuretted hydrogen and loss,	0·26		1·03	
	†100·00		†100·00	

* Final Report on the Geology of Massachusetts, vol. i., p. 107-12.
† Analysis by Prof. Hitchcock.

100 grains of quick sand from Hadley, after ignition, to drive off the water and organic matter, yielded,

Silica,	71·008	
Alumina,	16·706	22·908
Oxide of iron,	6·202	
Lime, with some sulphate of lime,	3·336	
Magnesia,	1·552	
Traces of magnesia, and potash and loss,	1·196	
	*100·000	

These three analyses give nearly as much alumina and iron as are found in ordinary clays.

	Bradford, Merrimack River.	Northfield. Connecticut River.
Granitic sand,	94·80	94·90
Phosphate of lime,	0·70	0·20
Sulphate of lime,	0·60	1·20
Soluble geine,†	3·10	1·80
Insoluble geine,	0·80	1·90
	†100·00	†100·00

Quick sand from three localities near Rome, N. Y., which was dug through in excavating for the canal.

	No. 1.‡	No. 2.	No. 3.
Water, of absorption,	22·14	18·92	16·66
Silica,	73·27	74·98	75·12
Alumina and iron,	1·53	5·64	7·14
Carbonate of lime,	0·32	2·00	0·98
Magnesia,	0·12	0·22	0·23
	97·39	101·76	100·13

The specimen from which No. 1 was taken, was the coarsest; that from which No. 3 was taken, the finest. We do not know why No. 3 should take up less water than No. 1 or 2. The Oneida glass sand behaved in the same way. While coarse, it took up 2 per cent. of water more than it did after it was ground to an almost impalpable powder.

* Analysis by Dr. Dana.

† By the soluble and insoluble geine is meant the soluble and insoluble organic matter.

‡ Analysis by Prof. Emmons.

These analyses, we think, will show conclusively, that *quick sand* has no fixed chemical composition; that it differs too greatly in different localities, for its composition to be of any use whatever as a guide in pointing it out. We examined closely, and compared the three specimens, taken from near Rome, with a large number of specimens of ordinary sand, from different localities, with a view to see if there was any thing peculiarly different in the form and fineness of the particles, but were unable to detect any essential difference whatever. But on subjecting them, with other specimens of sand, as well as soils, marl and clay, to similar condition, adding more than enough water to saturate them, they were all found to conduct themselves in a similar manner.

In conclusion, then, we say, that if all such deposits as are susceptible of assuming a partially fluid form, when subjected to the proper conditions, be included under the head *quick sand*, then our definition of it will be: any bed of earth which will receive into its mass enough more water than it can take up, chemically and by cohesive attraction, to cause it to assume, when agitated, a partially fluid, or flowing state.

POMOLOGY.

The attention of our readers is called to the Pomological Rules adopted by the Executive Committee of the New York State Agricultural Society. The necessity for an uniform and established system, whereby originators or discoverers of new native varieties of merit, and authoritatively introduce them to the public attention, has long been felt by horticulturists. Our readers are doubtless aware, that more attention has of late years been given to the introduction from abroad of new fruits, and also to the discovery and collection of new native varieties of merit than ever before. This has induced unprincipled men, for the sake of gain, merely, to rename old and discarded varieties, and to recommend new but worthless native seedlings, with attractive titles, as of

merit and excellence. Impositions of this character have recently increased to such an extent, as to call the serious attention of horticulturists to the matter, and in order to protect against impositions, the Fruit Committee being induced to recommend, and the Executive Committee to adopt the code of rules now published. Rules of a character similar to those now adopted, and having the same objects in view, have been adopted by some of the Horticultural Societies of the country, but there are material objections to them which rendered it advisible as thought by the committee, to recommend a new set.

In establishing rules or laws for the guidance of societies or communities, it is well, if possible, to adopt such as will be adhered to by all. It is believed that no serious objection can or will be made to those now adopted; but to the enforcement of the old ones there are many serious and unwarrantable difficulties. In the 5th rule it is set forth that the name of no new variety shall be considered as established, until the description shall have been published in at least *one* Horticultural or *one* Agricultural Journal having the *largest* circulation in the country, or some work of standard authority; and in the 13th rule, Downings Fruit and Fruit Trees is made the standard authority. Thus it will be perceived that the name of no new fruit could, by the adoption of these rules, be considered as established, unless sanctioned by the editors of one or other of the three implied journals and named work above. A rule of such partial character, excluding all Horticultural or Agricultural Journals, however respectable, if not the *largest* in circulation, is so manifestly unjust, as to need very little comment from us; and it is one too, which could not, and if it could, ought not be enforced. Other objections, as repetitions, the introduction of vulgar names, will be perceived at a glance; and again, there is in them no authority given to the fruit committee of a State Agricultural Society, to have a voice in the introduction of new varieties. This, of course, could not be tolerated in our State Society. Here a standing fruit committee, one of whose duties is to examine for premiums new seedling varieties, these objections are all avoided in the new rules, and we hope

they will be adopted by at least all the Horticultural Societies of our own state, as it is very desirable to have an uniform system, and one which will be adhered to.

VARIETIES OF FRUIT RECOMMENDED.

The Fruit Committee of the New York State Agricultural Society, chosen in 1846, to select a list of fruits for recommendation to the people of this state, as they in their judgment considered most worthy of general dissemination—taking into consideration the various soils and climate of the state—made a report in part, in January of 1847; in that report they recommended a list of apples, which was published in the Transactions of the Society for 1846. The committee were continued, and those of them present at the last annual meeting of the society, viz.: Lewis F. Allen, Esq., of Erie, Herman Wendell, M. D., and E. Emmons, M. D., of Albany, reported the annexed list of different fruits to be added to the list heretofore recommended. The State Society resolved to continue the Standing Fruit Committee, who are to report at each annual meeting, names of varieties, to be added to the list, which after ample trial, they may deem worthy of general dissemination. The Executive Committee of the society have also, on the recommendation of the above committee, adopted a set of pomological rules for the guidance of their Fruit Committees, which we subjoin. The gentlemen who are to compose the Standing Fruit Committee hereafter are, Dr. E. Emmons, Albany, Chairman, David Thomas, Cayuga county, Dr. Herman Wendell, Albany county, A. J. Downing, Orange county, and James W. Bissel, Monroe county.

Rules of Pomology adopted by the New York State Agricultural Society, for the guidance of their Fruit Committee.

Rule 1st. No new seedling fruit shall be entitled to a name, or to pomological recommendation, which is not at least equal to any similar varieties of the first rank already known, or which if of second rate flavor, is so decidedly superior in vigor, hardiness, or productiveness to varieties of the same character already known, or

which may be found of such superior excellence in particular regions, as to render it well worthy of cultivation.

Rule 2d. The discoverer, originator, or he who first makes known a new native variety of merit, shall be at liberty to name it; which name, if appropriate, and coming within the rules of nomenclature, must be adopted by the writer, describing the fruit for the first time: but no new native fruit can be considered as definitely named, until the same has been accurately described in promological terms by the Fruit Committee of some State Agricultural or established Horticultural Society, or by some pomologist of reputation, conversant with existing varieties, or until such description shall have been published in at least one Horticultural or one Agricultural Journal, or some pomological work of acknowledged standard character, and when two persons have named or described a new native variety, then the name first published—if consistent with the above—shall be the name of the fruit.

Rule 3d. The description shall embrace the following particulars: the size, form, and exterior color, the texture and color of the flesh, the flavor and time of ripening of the fruit, with the addition in stone fruits of the size of the stone, adherence or non-adherence of the flesh, form of the suture, and the hollow at the stem, and in kernel fruits of the size of the core and seeds, the length, position, and insertion of the stalk, and form of the eye. In peaches the form of the leaf glands, and size of the blossoms. In grapes the form of the bunches, and in strawberries the character of the blossoms whether staminate or pistillate, and also where there is any marked character in the foliage, growth of the young wood or bearing tree, the same shall be given.

Rule 4th. In giving names to newly originated varieties, those in some way descriptive of the qualities, origin, or habit of fruit, or tree, or those which commemorate a particular place or person, shall be preferred, all harsh and inelegant names must be avoided, and unless the originator's name be added, no name shall be given which consists of more than two words, and no fruit introduced from abroad shall be renamed.

Rule 5th. Before giving a name to a new fruit, its qualities should be decided by at least two seasons' experience, and no new fruit can be safely recommended for general cultivation, until the same has been tested and found valuable in more than one locality.

List of Fruits recommended by Committee, January 21, 1848.

PEARS.

Summer Varieties.

Bloodgood,
Dearborn's Seedling,
Madeleine.

Autumn Varieties.

Fondante D'Automn,
Williams' Bon Cretian or Bartlet,
Seckel,
White Doyenné,
Swan's Orange or Onondaga,
Stevens's Genesee,
Beurré Bosc,
Louise bonne de Jersey,
Gray Doyenné,
Washington.

Winter Varieties.

Beurré D'Aremburgh,
Glout Morceau,
Winter Nelis,
Vicar of Winkfield.

PLUMS.

Jefferson,
Huling's Superb,
Reine Claude,
Schenectady Catharine,
Bleecker's Gage,
Columbia,
Peach Plum,
Lawrence's Favorite,
Albany Beauty,
Washington Bolmar,
Prince's Imperial Gage,
Coe's Golden Drop,
Deniston's Red,
Prune D'Agen for Prunes.

PEACHES.

Early Tillotson,
Crawford's Early Melocoton,
Red Rareripe,
Yellow Rareripe,
George IV.,
Grosse Mignonne,
Cooledge's Favorite,
Malta,
Red Cheek Melocoton,
Brevoort's Morris,
Morris White,
Royal George.

CHERRIES.

Mayduke,
Yellow Spanish,
Florence,
Holland Bigarreau,
Black Tartarian,
Downer's Late.
Elton,

GRAPES FOR OPEN CULTURE.

Catawba,
Isabella.

STRAWBERRIES.

Large Early Scarlet,
Hovey's Seedling,
Swainstone Seedling.

NEW YORK STATE AGRICULTURAL SOCIETY.

The annual meeting of the society was held on the 19th of January, in the assembly room of the Capitol, and the appearance on that occasion of a large number of the old and tried friends of the society was most encouraging. We have not witnessed for years a more animating annual meeting than this. The report of the executive committee gave an interesting view of the proceedings of the society during the past year, and the progress which is making throughout the state in the improvement of agriculture. One of the most interesting features of the report, was the agricultural survey, which is in progress in the county of Washington, under the direction of Dr. Asa Fitch. It will require another year to complete the survey, but from the statement given of the progress already made, we have no reason to doubt, that it will, on its completion, prove highly advantageous, and we should hope, prepare the way for a full and thorough agricultural survey of every county in the state. That this must prove greatly beneficial there can be no doubt; and the society we think is acting wisely in applying a portion of its funds to this purpose.

On the first evening of the society's meeting, Prof. J. P. Norton, of Yale College, delivered a most excellent and valuable address on the connexion of science with practical agriculture. A large audience, among which we noticed a number of ladies, manifested by their undivided attention, the interest felt in the address; and from its great simplicity of illustration, every farmer present must have been convinced of the entire practicability of combining science with practice upon the farm—and not only of its practicability, but also of the utmost importance of its being done.

Several valuable reports were made on management of farms, draining, cheese and butter dairies; and of which we may avail ourselves when published.

The society is now firmly established in the confidence of the people, and if it continues to share, as we have no reason to doubt it will, a careful and prudent management, there is nothing to

prevent its becoming the most useful as well as the most distinguished agricultural association in the world. Already are its transactions sought after from every part of our own country, as well as from Europe, and as it progresses, these will become more and more valuable every year. For the present flourishing state of the society, great credit is due to our indefatigable, persevering and untiring secretary, Mr. Johnson.

The executive committee recommend the early establishment of an agricultural museum for the exhibition of agricultural implements, seeds, models, &c. This we deem of great importance, and we would indulge the hope, that rooms will be presented to the society, in the geological buildings, so that an opportunity may be afforded inventors and others to exhibit their improvements to the farmers of New York not only, but to gentlemen from every part of our country as they visit our city.

The executive committee have selected Buffalo as the place for holding the next fair, on the 12th, 13th, and 14th of September, and as the president, Mr Allen, is located there, and is most energetic and persevering, he will doubtless see that every thing is prepared for the society on that occasion. A great show will undoubtedly be had from the central and western counties of this state, and it is not improbable, that Canada and some of the western states will add to the exhibition in no small degree.

These annual meetings are becoming the great interest of the farmers, and they will continue to increase in interest and importance with every returning year.

The president, Mr. Vail, delivered the annual address before the society, in which he took a view of its progress and suggested improvements for the future. The address was listened to with attention. The address of Prof. Norton and of the president, were requested for publication, and we may hereafter give extracts from them, which will doubtless interest our readers.

EXTRACTS FROM THE JOURNALS, &c.

AGRICULTURAL GEOLOGY.

BY J. HALL.

NIAGARA GROUP—*Geodiferous Lime Rock* and *Calciferous Slate*, of Eaton. *Lockport Limestone*, and *Rochester Shale*, of the Annual Reports of the Fourth District.

This group consists of two distinct members, a shale and limestone, which, possessing many features in common, are recognized as the products of one period; during which, however, there was an important change in the lithological products, and a less one in the organic forms. The shale continues a very uniform deposit throughout the whole extent of the district, while the limestone, from a thin, dark-colored concretionary mass, becomes an extensive and conspicuous rock, constantly increasing in thickness in a westerly direction, even far beyond the limits of the State.

The Cataract of Niagara is produced by the passage of the river over this lime stone and shale; and from being a well known and extremely interesting point, as well as exhibiting the greatest natural development of these rocks within the limits of the State, this name is adopted for its designation.

The members of this group are: 1. Argillaceous, or (in many localities) argillo-calcareous shale. 2. Limestone, presenting several different varieties.

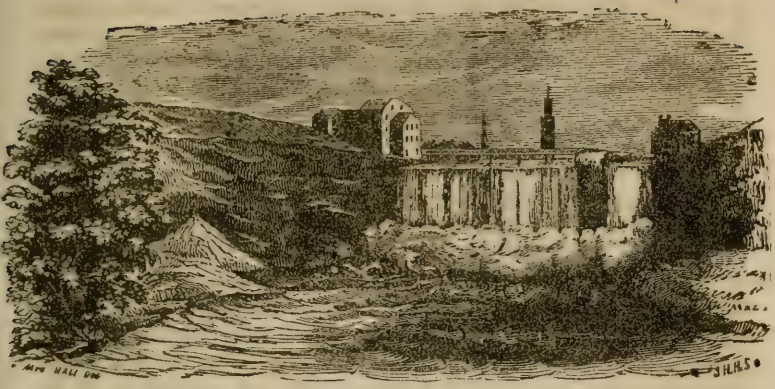
Niagara Shale.

The lower part of the Niagara group exhibits a great development of dark, bluish shale, which on exposure gradually changes to grey or ashen color, and forms a bluish or greyish marly clay. In this state, it is undistinguishable from the ordinary clays; and its outcropping edges, where long weathered, are often considered as claybeds. This character is well exhibited at Lockport, on the northern slope of the terrace where the canal and railroad have been excavated; and also at numerous localities in Wayne and Monroe counties. The depth of tint in the clay differs according to degree of exposure, the outer portions becoming of the usual yellowish-brown color of the ordinary soils.

When freshly excavated, the mass is tough, and breaks irregularly, some portions only exhibiting a slight tendency to slaty structure. After weathering for a short time, it cracks in all directions, and soon falls into innumerable angular fragments, when the disintegration goes on till it forms the soft clay. This change seems due to the intimate mixture and decomposition of iron pyrites in the rock; and its presence is also indicated by the production of sulphate of alumina, on decomposition in favorable situations, and upon calcination. In color, aspect, manner of weathering, and other properties, it closely resembles the shale of the upper part of the Hamilton group in the Fourth District. Neither are micaceous, and both are slightly calcareous, probably from the great amount of organic matter. The Niagara shale, however, is destitute of those spheroidical concretions, which in the Hamilton group are more or less common, and in many places abundant. The only approach to a concretionary form seen in this shale, is in the increased thickness of some layers of impure limestone; and this appears rather due to a greater development of corals or other fossils, around which the mud accumulated more freely than elsewhere. A few such examples may be seen in the banks of the Genessee at Rochester.

The lower part of this shale is mostly free from calcareous bands; while towards the middle and in the upper part, we find numerous thin, wedge-form or continuous layers of impure limestone, mostly composed of corals and other fossils, and their surfaces covered with the same, forming beautiful and interesting specimens for the cabinet. The perfect similarity of these with specimens from Dudley in England together with the identity of many of the organic forms, renders the conclusion unavoidable that the two are formations of the same age. These layers are from half an inch to two inches thick; and from the decomposition and sinking down of the shale, they are usually found broken into fragments. One of the most striking features of this rock, is the abundance of its fossils. Scarcely a locality can be examined where they do not occur in great perfection.

The higher beds are well developed in the falls at Wolcott Village, and the lower part of the formation can be examined by following down the ravine for a mile. This is the most eastern locality in the district where we find the rock exposed. West of this point, throughout the county, it is seen in all the small streams which flows into the lake.



View of the Upper Falls at Rochester—Fig. 5.

At Rochester it forms nearly the whole height of the upper fall, and the banks on either side of the river for more than a mile below. This place offers a fine exhibition of the rock, and is one of the best localities in the State for a natural exposure. The constant undermining of the banks precipitates large masses to the bottom, and their fossil contents are thus made accessible. At this locality, its upper and lower limits are both plainly seen. Above it passes gradually into an impure limestone, which forms the beds of passage from the shale to the limestone above. The fossils mostly disappear at this point, and few are found in this part of the mass. Below it terminates abruptly, resting directly on the calcareous beds forming the upper member of the preceding group. There is never any gradual passage from the one to the other, and the peculiar fossils of the shale do not appear till we ascend some distance above the limestone. Nevertheless it is true that two or three of the common fossils of this shale have been found in the limestone below, and at the same time the greater number marking the Clinton group terminate below that rock. It may therefore remain a question, perhaps, whether these calcareous beds should be included in the Niagara group. Since, however, they bear a close analogy to the lower limestone of the Clinton group, and terminate above abruptly without offering any marks of gradual passage to the next higher group. I prefer for the present to include them in the lower, thus presenting a natural lithological assemblage. The presence of a few fossils common to the limestone and shale above would apply equally to all parts of the preceding group, a few forms being common to all parts of both.

The precise arrangement at Rochester is as follows:—The terminating calcareous beds of the Clinton group consists of fifteen

or twenty thin courses, each separated by a layer of shale, sometimes of equal thickness to the limestone, though generally thiner. The shale separating the lower courses is green like that below, but higher it becomes of the same color and character as that above. The interlaminated shale is in all cases destitue of fossils.

The shale is partially exposed in several small streams, and in the lower escarpment which extends westward from Rochester. In the town of Sweden, that escarpment has become higher, and the shale is in some places well exhibited. One of the best localities is at Marshall's saw-mill, in the town before mentioned, where the small stream (a branch of Salmon creek) has excavated its channel in this rock. The banks scarcely differ in color and appearance from the soil around, and it is only from fossils that the mass is distinguished from ordinary clay. At one point where there has been a fresh exposure, the rock appears in all its character, and contains abundance of fossils.—*Nat. Hist. N. Y.*

NEW ANÆSTHETIC AGENT.

BY J. Y. SIMPSON, M. D., OF EDINBURGH.

Our object now, however, is not so much to direct attention to the administration of ether as to record the fact of another chemical body having been discovered which exerts the same influence upon the system, but is much more readily administered and free from some of the disagreeable consequences that now and then attend the taking of ether. This substance is called chloroform, or perchloride of Formyle; and curiously enough, has little resemblance to ether in its composition. Ether is composed of oxygen, carbon, and hydrogen; whilst chloroform has no oxygen, and in addition to carbon and hydrogen contains chlorine. This substance was originally discovered by Souberain and Leibig: but the properties of its vapor were first ascertained a few weeks ago by Professor Simpson of Edinburgh. In order to produce insensibility by this agent—which, like ether, is a fluid, but less volatile—it is not necessary to use complicated apparatus. Simply sprinkling it on a handkerchief and sponge and applying it to the nostrils during inspiration is sufficient. The effect on the nervous system is produced more rapidly than by ether; and the sleep or insensibility occasioned by the new agent is of a more profound kind than that caused by the old one. The quantity of the chloroform required is much less than of ether; amounting in most cases to at least nine-tenths less. Its smell is much less disagreeable. We have made enquiries, and find that at several hospitals in London this new remedy has been tried, and that it

fully bears out the statements of Professor Simpson. The facility with which the chloroform may be used, must be looked upon as a great recommendation; as in many instances persons are deterred from taking ether on account of the formidable appearance of the inhaling apparatus—whilst the trouble of administering has made medical men willing to dispense with it.

Chloroform, chloroformyle, or the perchloride of Formyle, may be made and obtained artificially by various processes—as by making milk of lime, or an aqueous solution of caustic alkali act upon chloral; by distilling alcohol, pyroxylic spirit, or acetone, with chloride of lime; by leading a stream of chlorine gas into a solution of caustic potass in spirit of wine. The preparation employed by Dr. Simpson was made according to the following formula of Dumas:

Chloride of lime in powder, - -	lbs. 4
Water, - - - - - -	lbs. 12
Rectified spirit, - - - - -	f. oz. 12

"Mix in a capacious retort or still, and distill as long as a dense liquid, which sucks in the water with which it comes over, is produced."—*Atheneum, London.*

ARTIFICIAL INCUBATION.—NEW APPLICATION OF INDIA RUBBER.

Hatching poultry eggs by artificial means is again revived in the metropolis, and a new mode of accomplishing this object is now upon view at the Cosmorama rooms, in Regent street. The principle of the Eccaleobian, which created a sensation a few years ago, was simply that of an oven, wherein the eggs were *baked* into life, but it seems with so large a per centage of failure, and subsequent vital feebleness, that the apparatus produced but small available results. The present contrivance is based upon the more natural plan of what the patentee calls "top-contact heat," whereby the soft yielding breast of the parent hen is imitated by longitudinal India rubber bags, filled with water heated to the proper degree. The eggs are laid in trays and submitted to the influence of this artificial "mother," and, we find, with singular success, the average loss being scarcely twenty-five in the hundred. This mode is the invention of a Mr. Cantel, who has, both in America and in this country, given birth to innumerable batches of chickens, in every respect well-formed, healthy, and marketable. He calculates that a single incubator will produce seventeen hatches a year, and that its operations may be extended to either turkeys, geese, or peacocks, in fact to every species of barn-door fowl.—*Mark Lane Express.*

METEOROLOGICAL OBSERVATIONS FOR JANUARY, 1848.

Made at the Albany Academy, by Dr. T. R. Beck, Principal, &c.

Days.	THERMOMETER.				WINDS.		WEATHER.		RAIN	REMARKS.
	6 A. M.	3 P. M.	9 P. M.	Mean.	A. M.	P. M.	A. M.	P. M.	Inch's	
1	47	57	54	51·17	S.	S.	Cloudy.	Cloudy.		
2	38	38	32	35·00	N. W.	N. W.	Cloudy.	Clear.	0·39	Rain and snow.
3	32	40	35	36·17	N.	S.	Clear.	Clear.		
4	35	41	31	33·67	S.	N. W.	Cloudy.	Clear.		
5	23	32	36	29·67	N. E.	S.	Clear.	Cloudy.	0·04	Rair.
6	19	21	16	17·17	N. W.	N. W.	Clear.	Clear.		
7	10	23	17	18·50	N.	N.	Clear.	Clear.		
8	21	30	31	29·00	S.	S.	Cloudy.	Cloudy.	0·07	Rain.
9	31	28	13	19·00	N. W.	N. W.	Cloudy.	Clear.	0·74	Snow.
10	1	4	4	2·33	N. W.	N. W.	Clear.	Clear.		
11	—15	9	17	9·33	N.	S.	Clear.	Cloudy.		
12	19	31	18	20·83	S.	N. E.	Clear.	Clear.		
13	8	36	35	30·83	S.	S.	Cloudy.	Cloudy.		
14	35	41	40	40·66	S.	S.	Cloudy.	Cloudy.	0·06	Rain.
15	41	45	43	42 67	S.	S.	Cloudy.	Cloudy.	0·16	Rain.
				27·42					1·46	
16	36	44	32	37·17	N. W.	N. W.	Clear.	Clear.		
17	35	39	28	32·50	S.	N. W.	Cloudy.	Clear.		
18	26	30	18	21·67	S.	N. W.	Cloudy.	Clear		
19	8	18	16	16·00	N. W.	N. W.	Clear.	Clear.		
20	20	39	33	32·50	S.	S.	Clear.	Clear.		
21	31	45	37	36·33	S.	S.	Clear.	Cloudy.		
22	23	32	28	27·17	N. W.	N. W.	Cloudy.	Cloudy.		
23	20	29	17	20·00	N. E.	N. E	Clear.	Clear.		
24	8	37	31	29·17	S.	S.	Clear.	Clear.		
25	31	44	40	39·00	S.	S.	Cloudy.	Cloudy.		
26	35	43	42	41·00	N. E.	N. E.	Cloudy.	Cloudy.		Rain.
27	41	42	40	40·50	E.	N. E.	Cloudy	Cloudy.	0·61	Rain.
28	38	44	37	38·83	N. W.	N. W.	Cloudy.	Clear.		Rain and snow.
29	33	37	34	34·33	N. W.	N. W.	Cloudy.	Cloudy.		
30	31	41	21	35·33	N. W.	N.	Clear.	Cloudy.		
31	31	43	41	37·33	S.	S.	Clear.	Cloudy.		
				32·42					0 61	Total Rain Gage 2·07.

Monthly average, 29 92. Numbers for 1st half month, 41·134

Numbers for 2d half month, 51·883

31) 93·017(30.

Winds—N. 2½ days; N.E. 3½; E. ½; S.E. 0; S. 13½; S.W. 0; W. 0; N.W. 11

Weather—Fair, 15½ days; Cloudy, 15½ days; Rain on 7 days; Snow on 2 days; Rain and Snow on 1 day. Rain guage 2·07.

Warmest day, 1st; highest 57 deg. Coldest day, 11th; lowest —15 deg.

2d, Rain and snow A. M..... 0·39

5th, Snow P. M..... 0·04

8th, Snow A. M..... 0·07

9th, Snow A. M..... 0·74

14th, Rain during day..... 0 06

15th, Rain during day..... 0·16

26th, Rain A. M., until 27th, 7 A. M, commenced at 10 A. M., until 7 A. M. of..... 0·57

28th, Snow during night..... 0·04

2·07

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

CONDUCTED BY C. N. BEMENT, ALBANY.

VOL. VII. MARCH, 1848. No. 3.

ORNAMENTAL FOUNTAINS.

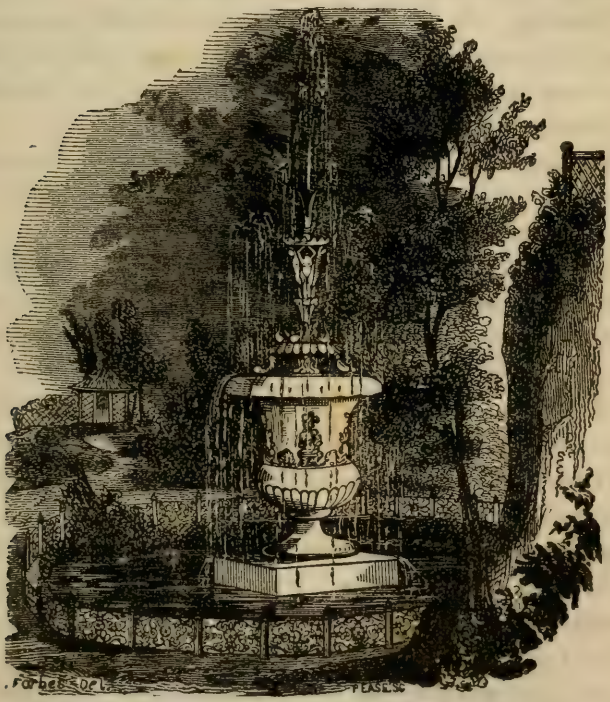


Fig. 1—Price $55. (For description see page 100.)

It is gratifying to witness the increasing interest among our countrymen, for improving and embellishing their residences. Taste, in civilized society, demands gratification from surrounding objects, especially those produced by art.

Since the introduction of the Croton water, into the city of New York, much attention has been paid in the construction of fountains, and no one can dispute that a handsome fountain is a most pleasing ornament wherever it is placed; and on that account we should be glad to see fountains become more common then they now are. Who does not admire the copious flow of water which is poured forth from the huge pile of rocks in the Bowling Green; and those silver fountains that throw high in the air their glittering showers within the Park? These fountains are beautiful; we may say splendid, and constitute important additions of ornaments to the city.

Running water in the form of jets or cascades, or in motion any way, gives animation to the scenery, renders the air pleasant in warm weather, gives life to vegetation in its vicinity, and pleasure to all within the sphere of its attraction.

In Asia, in Italy, Spain, and France, we are told, fountains are in great abundance in every city, and as ornaments they are often of great interest and beauty.

In warm climates fountains are indispensable, on account of the actual coolness they diffuse around, and still more from the refreshing sense of coolness which the sight of running water always communicates.

Those who have a supply of water, and a good supply of water is very important to health and comfort, must be wanting in energy, taste or information, or they would have fountains, when they could erect one at a very trifling expense, and the whole outlay besides their own time, will be for the lead pipe.

We will now give a cheap plan for a fountain; choose a location either in the garden or in the yard in front of your house; drive a stake for the centre, and with a line and stick sweep a circle of the size you wish the basin—take out the ground from the centre outward, forming a basin ten or twelve inches deep. The earth taken out should be removed, as a raised bank around a fountain does not improve it. By cutting the circle through the turf you will have a handsome grass edge around the basin. The bottom and sides may be lined with a coat of water cement

which will be but a trifling expense. In using cement, mix one third clear coarse sand with it, and put it on with a trowel, having first rammed the ground hard. Next get, if you can, clean white pebbles of the size of a walnut or thereabouts, to cover the inside of the basin, and surround the pipe with stones, no matter if rough, in the shape of a cone, or something like the pile of rocks, made a little higher, forming the base of Fig. 6, leaving off the ornamental work, and by contracting the end of the lead pipe a single stream will rise perpendicularly and spread at top, which, by many, is admired more than the rose and jet. By an expense of $15 the addition of a post and ornaments, with a basin on top, and lillies rising in the centre, as described in Fig. 6, would add much to its appearance and give a pleasing effect.

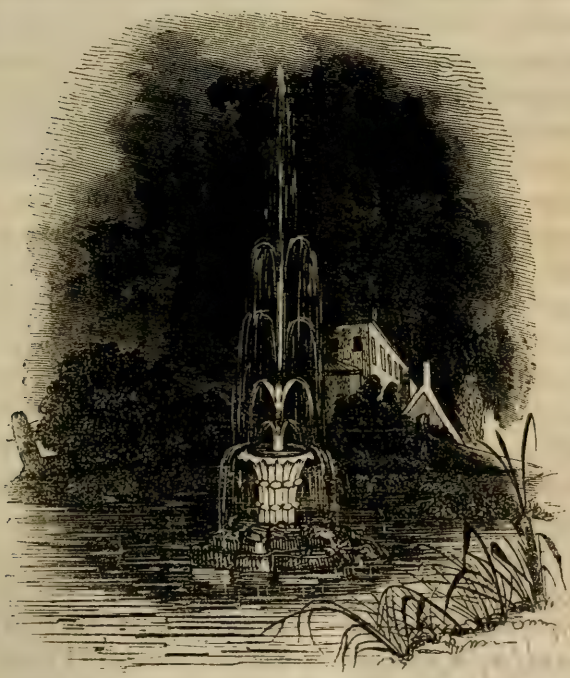


Fig. 6—Price $15.

A supply of twenty-five gallons of water per day, is said to be sufficient to play a fountain with one jet.

A basket and ball, to play in the jet, might be also added to the lillies which would render it still more attracting. This could be made in one or two days, and as there can be no objection on account of expense, leaving off the ornaments, if there is a supply of water, and now since the introduction of the hydraulic ram, a supply may be raised to almost any height, with comparatively little expense, where a fall of a few feet can be obtained to work the machine, we see no reason why one may not be erected on almost every farm.

Fig. 7—(See first page.)

This consists of an urn, with a square base, five feet high, with additional ornaments above the urn, consisting of swans, figures and scrolls. This forms a beautiful ornament. It is neat, chaste, and lively. The urn should be placed on a rock or pile of stones in the centre of the basin.

Around the basin may be seen a low ornamental fence of cast iron, pannels two feet long, and about eighteen inches high, which adds much to the appearance of the fountain. It is said to be very easily put together or taken apart, and fitted to a circle of any size. The expense of this is about one dollar per foot.

Heretofore it was considered necessary to construct fountains of stone or marble, but latterly cast iron has been found on some accounts preferable. When water runs on marble for any length of time, it becomes covered with green vegetable matter that penetrates the stone, which once discolored cannot again be restored to its original beauty; and in a cold climate marble is affected by frost so as to scale and injure its appearance. These objections do not exist against iron, while it can be formed into the most beautiful figures at less than half the price of marble.

Cast iron fountains of various forms and sizes have been got up in a very superior style and finish by Mr. Dudley L. Farnam, Fulton street, New York, which range in price from $10 to $1500. Out of twenty-six patterns which he has advertised, we have selected for illustration, four of the lower prices.

Fig. 8—Price $40.

This consists of a square base; two feet in diameter, eight instead of four leaves as represented in the cut, supporting a pan twenty-eight inches in diameter, and a swan two feet six inches high. The iron fountains only require to be properly painted two or three times in the course of the year to keep them looking as well as when first put up; after a few times painting only, spring and fall, which gives it decided advantages over marble for a fountain.

The most common figures in ancient fountains, was the dolphin, a classical representation of one of the most beautiful inhabitants of the ocean, and present very appropriate emblems for a display of jets of water.

Where there is a small stream of water near a garden level, the cost of such a fountain will be trifling, and even where the water must be supplied by artificial power, there are abundant ways and means to facilitate the procuring a cheap supply.

Fig. 9—Price $85.

This is a beautiful fountain, its general effect pleasing, and makes a very handsome appearance in a garden or door-yard. The base is two feet and three inches in diameter. Height to top of the pan four feet; whole height five and a half feet. It is chaste, neat and lively; and the flow over the basin, and the centre stream, make a very pretty display.

In getting up these fountains, Mr. Farnam is certainly entitled to great credit; they would do honor to any country and any artist, as displaying a taste and skill which richly entitles him to the countenance and patronage of his countrymen.

The examining committee in their report to the American Institute in 1841, in speaking of one of Mr. Farnam's fountains which was exhibited in the Horticultural rooms, and for which they awarded him a gold medal, said, "This superb article might truly be said to form the climax of garden ornaments. It consists of an extensive and lovely basin of clear water, in which

gold-fish are sporting over a bottom embeded with shells and aquatic plants, and surrounded by four tritons sitting on the edge, and each throwing up a jet of water like a burnished silver wire, to the height of six or seven feet, and meeting another jet from the centre, the whole falls into a little basin which forms the cap of a highly ornamented column, of three or four feet high, from which trickles over the edge, falling down on three female figures of great beauty, which surrounded the column, and thence return to the fountain. A few tasteful gardens scattered about the country, each exhibiting such a fountain would do much towards awakening a better taste in rural matters.

In Chambers' Edinburgh Journal we find the following:

Water Jokes in Gardens.—At Easton, in Oxfordshire, in the gardens of a certain worshipful gentleman, are the most artistic water ingenuities it has been our lot to meet a description of as existing in this country. They even drew down the marked approbation of royalty itself. On approaching the spot, a venerable hermit rose from the ground, and after entertaining one with a "neat and appropriate speech," sank down again like a Jack-in-a-box. There was a small rocky island in the midst of a lake, which was full of watery tricks. The visitor was politely requested to walk up and view this spot; and after satisfying his curiosity and proceeding to walk down again, the fountaineer would bob down, turn a cock, and send, we dare not say how many, *jets d'eau* flying on all sides of the victim, one stream having for its object his legs, another his loins, and another his head. After this funny reception, he was conducted to look at a spaniel hunting a duck, by the force of water; the automata diving and pursuing each other by turns. Beyond was the grotto; a hedge of sparkling jets of water rose from the ground to guard it, mimic cascades foamed down its tiny cataracts, and countless streams shot up, and appeared to lose themselves by being caught in their return, and not suffered to fall down again. Here too, a nightingale discoursed very liquid music, and an arched jet of water played with one another, and now and then with the visitor, all hope of egress being destroyed by the sudden pouring down a

heavy rain in the doorway. The sport which this caused was thought to be well worth the wetting. Probably the magnificent gardens at Chatsworth are the only places where anything at all similar to the above is now to be found. There are some practical wet jokes even here; and country bumpkins, in their native innocence, may be found willing to pay a visit to the weeping tree. This visit is never repeated."

AMMONIA.

BY DR. E. EMMONS.

This compound of nitrogen and hydrogen is exceedingly important in vegetation. Some of our most important grains require its presence. It exists in the atmosphere; and it is developed in the decay of animal and vegetable substances, from which it escapes into the atmosphere, ready to enter into new combination. One single property of this substance fits it to play its important part in the vegetable economy, namely, its ready absorption by porous bodies. This property is manifested and proved in innumerable instances, some of which fall under observation in our ordinary manual operations; for example, plaster, when placed in a stable, or in any place where organic matters are undergoing decomposition, takes up the ammonia as it escapes; lime also performs a similar office. A direct experiment, which proves this statement, is often performed in the labratory; thus, we have only to pass a little plaster, lime, charcoal, earth, ect., into a receiver containing ammonia, over mercury, when the whole of the ammonia disappears: it is absorbed and condensed in the pores of the body employed. Any moist substance whatever produces this effect instantaneously, so powerful is the affinity of ammonia for water. The same process goes on in nature: the ammonia floating in the atmosphere is continually absorbed by soil, by humus, and especially by clay; and all these substances give cut their ammonia on the application of sufficient heat to dissippate

their water. Exposing fresh surfaces of soil to the air, is one means of procuring a fresh supply of this matter. Clay, and the oxide of iron contained in the soils, perform the important functions of absorption. This property of clay, is the one which renders clay soils so much better for wheat than sandy soils: it furnishes a supply of ammonia, from which the wheat forms its nitrogenous matters.

TRANSPLANTING TREES.

Spring is the season when we find the most pleasure in making our rural improvements, and from this circumstance probably, it has become the most general season for planting trees—but our experience has proved that fall planting is the most successful, especially when droughts occur, as the trees planted in autumn suffer little or none from a drought, when those set out in spring often perish in consequence of it.

It is a great fault with many, in diging holes for setting trees, to make them altogether too small and contracted, and instead of spreading the small roots, as they should do, they are very apt to crowd them down with the spade, not only bruising but cutting them off to the great injury of the tree. Our practice has been, and we have been very successful too, particularly with forest trees, to make the holes somewhat larger than is sufficient to admit the roots in their natural position, and of sufficient depth to allow the tree to be placed two or three inches deeper than it was before transplanting. If there are any broken or wounded roots, we cut them off. Care should be taken, when the tree is taken up, to have as much of the earth adhere to the roots as possible. Previous to placing the tree, let from two to four shovels full of composted manure, in proportion to the size of the tree, be incorporated with the earth, and the whole made fine previous to filling it in; and during the filling in of the earth, let the tree be worked to and fro, during the operation of filling in the earth, in order that the finer particles of the soil may be admitted, and fill the

spaces under the roots. In order to make it more certain, one or two pails full of rain or brook water thrown on the roots, will cause the earth to adhere more firmly to them; and when completely filled up, let the ground be well trodden down, and finish by making a hollow or basin around the tree to catch the rain and convey it to the roots, or to receive the watering which it will be necessary to give it, should the season prove dry.

A tree properly planted will grow as much in five years as one carelessly and badly set, will in ten; and often the chance of living is dependant on this slight circumstance. A stake should be set firmly in the ground, and the tree secured to it with matting or some soft substance, to prevent the winds from loosening the roots.

To cause the trees to thrive, the ground where they are planted must be kept cultivated—young trees will not thrive if the grass is permitted to grow around them; and if it should be necessary to plant them in grass ground, care must be taken to keep the earth mellow and free from grass for three or four feet distant around them, and every autumn, some well rotted manure should be dug in around each tree, and every spring the bodies of the apple, pear, and cherry trees, and others that it is particularly desirable to promote the growth of, should be brushed over with common soft soap— this treatment will give a thriftiness to the tree surpassing the expectation of any one who has not witnessed its effects. Should the first season after transplanting prove dry, regular waterings will be necessary; and from a neglect of proper attention in this respect, many trees are lost during a drought.

A few years since, we had in our yard a Siberian crab apple tree which did not grow very well. On examination, we discovered on the body, and some of the limbs, and particularly at the junction of the limbs with the body, a pearl-colored scaly substance, somewhat resembling, in appearance, moss. They proved to be the eggs of a fly, which deposits its eggs on the bark, and then covers them over with the scale. An application of soft soap had the effect of destroying the eggs and cleansing the wood; the bark soon assumed a smooth and healthy appearance, and the tree grew vigorously and has borne fruit in abundance ever since.

In transplanting evergreens we have been very fortunate, seldom losing a tree. In this latitude, from the 20th to the 30th of May would seem to be the best time to set balsams, pines, cedars, and larches. We have four of the latter now growing vigorously in our yard, which we set out in the month of June, and the mercury standing at 80°. We have planted the balsam in the month of April with good success. Much, however, depends on the care and attention in planting to give the trees a fair chance for life.

CULTIVATION OF SHADE TREES.

BY WILLIAM BACON.

It is a matter of much congratulation, that the attention of the public is yearly being more and more devoted to the improvement of our rural scenery by the cultivation of ornamental trees. When we reflect upon the advantages resulting from this cheap and salutary improvement in our homestead, and indeed to the country at large, it is a fit subject of wonder that the public, *en masse*, do not take the subject in hand, and thus accomplish at once what individuals and a few enterprising associations are slowly and laboriously performing, a grateful and pleasing renovation of the general scenery of the whole land.

The advantages resulting from such a process would, no doubt, more than compensate for all the labor or cost which would be necessary to produce so desirable a change. Placed around the dwelling, they contribute to the health and comfort of the inhabitants, by drinking in from the atmosphere whatever substances it may contain injurious to health. Many houses in our country are so located that whenever miasma arises or fogs float in the atmosphere, they are sure to be enveloped in these clouds of pestilence, and disease, and sickness in the family often follows the exposure of the individual to these mists of death. That trees will always counteract the evils so unfavorable to life, we will not positively say, but we know, that from their very nature and

habits, they will mitigate, to a flattering extent, and we have known residences where sickness was almost a certain attendant on some individual in the family before trees were placed around, to become the abode of health after the change. A similar cheering result would no doubt, manifest itself in all places of similar character, and especially around *manufacturing establishments*, where the smell of "putrid waters" is quite as common as their rise and fall, at all seasons of the year. If these places, where hundreds and sometimes thousands, pursue their daily avocations, stood embowered in shady groves, whose limits extended far along the river side, the result in health as well as beauty, would in a few years, amply repay any expenditure necessary to secure the good effect.

In towns, villages, and even large cities, the increased health of the population, arising from the effects of foliage in purifying the atmosphere, should furnish sufficient inducement to cause their general introduction to such places. Parks, densely wooded, should be increased, and streets be converted into beautiful avenues, by munipical or town authorities, at the public expense, as a means of securing health, where individual taste and enterprise fail to accomplish the object.

But it is not merely as correctors of atmospheric effluvia, that the culture of trees commends itself to the consideration. They serve to equalize the temperature, in summer by their grateful and cooling shade, and in winter by breaking the voilence of the winds. Who has not often noticed when sitting in a park on a sultry August day, when not a breeze of sufficient power to waft the lighest feather, wooed him in open grounds, that gentle zephyrs, borne through the tree tops, came to fan his feverish pulse in his calm retreat? And who, as he has set in his embowered dwelling, at the noon tide of such a day, has not been fanned by kindly gales from his own dear trees that almost made him forget the sultriness of the "August noon?"

In winter, when fierce storms are driven in wrathful fury from the cold, unsympathizing north, how gently they fall upon the dwelling, secured from their violence by the broad arms of the

towering grove? True, their fierce voice may sound majestic, but it is but the pipings of winter melodies, and the harsh winds fall asleep at the sound of their own rustic notes.

Transform our highways into beautiful avenues, and comfort to man and his beast, would result from so rich a change. Bleak places would be improved in their character in winter, and in summer that unbroken, cheerful shade, would open broader and brighter avenues of rapture in the heart of every passer by through such scenery. Freedom from dust, that often vexatious plague in traveling, freedom from scorching sunbeams, freedom from angry winds would be found there.

But there are other considerations aside from those of personal health and comfort, which should lead to the culture of shade trees. They beautify and enrich the country. Who has a soul so devoid of taste, that he could look upon a sandy desert with emotions of delight, or who can survey a wide spread landscape where the humbler vegetables grow in rich luxuriance, and yet no tree to give variety to the scenery without feeling, in the depth of his sensibility, that there is a void there, a waste in nature, a deformity in the midst of beauty. So, too, we may look upon a rich and expensive dwelling, where art has been lavish with her decorations, and taste displayed her fancyful array with liberal hand, yet if that dwelling stands forth in "unblushing nakednes," exposed to the scorching frown of every sunbeam, or the merciless pelting of every storm, or the unflinching menace of every angry wind that blows, we see a void there, a feature lost which requires the skill of a master's hand to give it finish and perfection. There is a something wanting in the character of the place, after all, which gives it a repelling and unsatisfactory appearance. Let industry and taste again join hands in their remoddling influence, and let "the box wood and the fir," the towering maple, and majestic elm, spring up there from the abodes of nothingness, and tower away for a few years, in their natural beauty and lovely simplicity, and the eyes of most festidious admirers pronounce that place "a paradise," "a perfect gem of beauty." All eyes admire, but, alas! how few hands are willing to imitate. All hearts

approve, and yet how few direct to similar labors. So, too, with the extended avenue by the wayside, or the village promenade, or city park. All these have their hosts of admirers, as being among the things that are beautiful and pleasant, and so they become public property, spreading daily and hourly feasts of comfort and pleasure in the hearts and minds of thousands.

Then why not increase these subjects of admiration; these things so beautiful and pleasant, until every dwelling, however humble, shall sit embowered in its own quiet shades, and every public square become a park, and all our roads avenues of unbroken extent? The work is easy to perform, and when well done once, is done for centuries. Let the people engage in it as they will in the matters of an election, which must soon be reenacted, and in two years the work would be accomplished in the length and breadth of the land. Less than this. Let each city and town, cause a tree to be put out for each of its inhabitants, in the park or by the sidewalk, and what a change would soon be seen in the beauty and probably the health of that town or city. And what would the expense be of such a proceeding? Trifling, indeed, compared with the support of theatres and circuses with which most cities abound. In which expenditure the greater benefits would result, we leave it for the citizens themselves to determine. Let towns (as some have already done) form ornamental tree associations, and by their *united* action accomplish a mighty labor worthy of a noble and high minded age.

Farmers, you can do *much* without loss of time in other employments towards beautifying your homes, and adorning your waysides, by planting out and cultivating shade trees. We speak from experience in this matter, and turn our eyes from many a beautiful tree of our own planting, when we appeal to you to become co-workers in fitting up the drapery of earth, and rendering it more beautiful to look upon, and richer to enjoy. You have every facility for carrying out the noble plan of "tree culture," for "*the trees of the wood*" are yours, and the land, for the most part your own. Go forward, then, in this admirable enterprise. It will make but small demands upon your time, and can

be accomplished by improving what, to many are worse than idle moments. By arranging business to meet the object, fifty or a hundred trees, may be set by the farmer at proper times, for performing the operation, and he will hardly know that he has been so employed, from the difference it will make in other avocations. The result of such labors, will be what you all, when they are accomplished, will admire.

Aged men, plant out, as your sun is hastening towards its evening sky, plant out a tree. By so doing, you will create an object upon which the men of a future age will gaze with admiration, and secure a faithful remembrance in the hearts of posterity, which will awaken them as life wanes away, to the performance of many a noble and worthy deed.

Young men and youth, plant ornamental trees, and as you advance in years, they will advance in symmetry of form and stateliness of proportion, fit emblems of well educated and cultivated minds, and when you are old, and care has blanched your brow, and sorrow dimmed your eyes, you may sit under their goodly shadows and remember the days of freedom from care, and buoyancy of spirit, when you gave them locality. What beautiful memorials of time gone by will they afford, and what a noble example to the young of future years, to carry forward the generous plan you so nobly contribute to advance.

Feb., 1848.

Melon Liquor.—Crichton, in his History of Arabia, states "that the melons are raised in fields, and in such abundance, that the natives of all ranks use them for some part of the year as their chief article of food. When nearly ripe, the fruit is pierced into the pulp; this aperture is then stopped with wax, and the melon left upon the stalk. By means of this simple process, the pulp in a few days is converted into a delicious liquor." In a fertile country, such as our own, where melons is raised in such ample profusion, this easy method of producing a cool and refreshing beverage during the heats of summer, should surely not be unknown.

MANURES.

BY L. CHANDLER BALL.

The subject of manures has, until a recent period, been very imperfectly understood; but science which has done so much for other departments of labor, has shed its light upon the neglected fields, and deficient crops of the farmer; and among the benefits it has confered, is a more correct knowledge of the composition and action of manures.

Analytical chemistry, by resolving into their constituent elements, both soil and plants, and the atmosphere by which they are surrounded, has discovered and established the true theory of vegetable nutrition, and the farmer is now enabled to place the plant or tree which he desires to cultivate, in a position most favorable to its habits, and supply it with food best suited to secure its perfect development.

Plants are composed of two classes of ingredients, called organic and inorganic. Therefore the food supplied to them must contain these two classes, for no amount of one can possibly supply the want of the other. Nitrogen cannot take the place of lime, nor carbonic acid of silica. The organic part of plants contains three or four substances, each unlike the other, and this portion of their food must also contain all these ingredients. The inorganic part of plants is likewise made up of eight or ten different ingredients, none of which, it is believed are capable of replacing the other in the tissues of the plant which they assist to build up; and of course the inorganic, or earthy and saline portion of food supplied to them, must of necessity contain each and all of these ingredients, to enable them to maintain a healthy condition, and mature their seeds and fruits.

The only difficulty at present surrounding the subject, is to ascertain with sufficient exactness, what portion of these substances is contained in the soil, and what portion must be artificially supplied. If the crop requires nitrogen, and does not find it in the soil, then organic products containing substances from which this

important ingredient may be obtained, is *the* manure. If there is a destitution or deficiency of the alkalies, then lime, potash and soda are *the* manures. If the phosphates are absent, then bone earth, or some other substance of which phosphoric acid is a part, is *the* manure.

In the use of any special fertilizer, great care should be taken not to give it an undue importance over others equally necessary; for the danger is that farmers will over estimate the value of some particular manure, and depend upon that alone to supply their crops, and restore the fertility of the soil, when it is absolutely necessary that *all* the ingredients, both organic and inorganic should be present, in the proportion in which they exist in the healthy plant.

THE COAL MINES AT BLOSSBURG.

BY J. TREMPER.

These mines are of very great importance to this state, owing to their proximity and the great facility with which the produce of them to various parts of it may be conveyed; as the original forests, which are fast receding before the spirit of cultivation, are removed, the necessity of a convenient fuel will be more sensibly felt; already has coal in our cities suspended the use of wood as a fuel, as more convenient, less dangerous, and less costly; and soon the villages of the interior will be compelled to follow their example. As agriculture improves in those districts where limestone is easy of access, it will have an important influence in affording a cheap and excellent manure; and where clay prevails in the absence of building-stone, of cheaply preparing bricks as a substitute; the frame houses of our country being better adapted to the climate of Florida than the cold and boisterous winters they are vainly expected to protect us against.

The mines of Blossburg were first explored by Dr. Saynisch, owing to whose untiring exertions, much of the natural wealth of that region has been developed. The state of New York, by the

construction of the Chemung canal, with a navigable feeder to Corning, opened the first link in the chain of improvements which affords a mean of transportation, by which it may be rendered available to the proprietors. At Corning is the termination of a rail road from Blossburg, 39 miles in length, and whose depot is immediately upon the banks of the feeder, by which coals may be conveniently discharged into boats from the cars. The village of Blossburg is situated in Pennsylvania, upon the Tioga river, about 37 miles from its mouth, in a pleasant valley, surrounded by hills rising to the height of 600 feet. At the commencement of the valley, near Blossburg, the olive colored slate exhibits itself; the rocks through the valley have intervals of gravelly layers, and beds of gravel, the former alternating with sand. In some places, the beds of rock are twisted and bent into a variety of shapes; there has been much pine timber upon the banks of the stream, but it is being rapidly conveyed to market, and a few years will change the face of the valley. Some portions of it are bounded by high and precipitous hills, at other points, the ground rises more moderately, and the valley enlarges to a desirable breadth, and exhibits great fertility. Several pleasant villages lie embosomed in it, and by the fall of its waters must eventually prove important for hydraulic purposes. Near the village of Tioga, upon Mill creek the old red sand-stone, contains specimens of fossil fish, which informs us we are within the great bituminous coal basin, and which is again developed at Blossburg. At the latter place we find the seams of coal that have been opened to lie horizontally, or nearly so in the hills, and which are easily approached. Their position is about three hundred feet above the valley, and the cars when loaded at the mines, descend an inclined plane to the principal track, whence it is conveyed to the Chemung canal. The seam of coal which they principally work, is about four feet in thickness, and in the debris or rubbish from the mines, we find many specimens of beautiful fossil fern, with all their delicate tracery, as at the moment when they were carbonized, large and finely preserved stems of stigmaria, supposed to have been an aquatic plant, inhabiting swamps, or lakes, and masses of the bark, and portions

containing impressions of the wood of the carboniferous era. In the same hills are found iron ore of an excellent quality, fire clay and sand stone, affording facilities for various manufactures which time will gradually introduce to notice. On the hills are numerous boulders of sand stone, and conglomerate, containing pebbles of quartz. Upon opening a small boulder of the coal sand stone, I found a very beautiful impression of a leaf, belonging to one of the coal plants, together with a seed vessel of perfect form. The amount of coal which may be supplied from this basin, is perhaps beyond calculation, and of a quality which stands very high for many purposes. Professor Johnson, of Philadelphia, in his very elaborate report upon the value of different coals for generating steam, I think, places the Blossburg next to the Cumberland for that purpose, the former of which he places in the first rank. Upon ascending the hills, the country assumes a level appearance, and is well adapted to agriculture, affording many fine specimens for the botanist, and much that is interesting to the geologist. How many successive layers of coal there are in this basin, at present it is perhaps impossible to determine, it will perhaps be a long time before necessity compels the miner to delve deeper into the bosom of the mighty basin, whose relics bring us as familiar with its construction as though it were of yesterday; ferns as beautiful and delicate as now grow green upon its hills, are daily dug out by the miner at his daily toil; the leaves and vessels, the bark, and seed of the mighty forests which may once have stood here, have left their impressions in many instances perfect and unaltered, affording us a useful and excellent opportunity of investigating the records of the past. Towards the head waters of the Tioga, are many beautiful and romantic situations; the falls of Montmorency, and Saynisck island, afford to the lovers of rural beauty much that is pleasing and attractive.

To the mechanic of Western New York, the Blossburg coal has become a useful and indispensable article of fuel. He is now furnished with a constant and plentiful supply for his business, subject to no contingencies, as when compelled to make use of charcoal at his forge. In the same district owing to injudicious crop-

ping, the fertility of the soil has materially diminished since the settlement of the country. Instead of the large crops of grain formerly obtained, farmers complain that the harvest is comparatively scanty. As a fertilizer lime has much to recommend it; whatever means conduce to convert the vast layers of lime rock into an excellent and available manure, tends to confer materially, wealth upon the country. The extensive lines of canals and railways which intersect the state, will enable parts to feel the benefits of it which are not immediately within the limits of the lime stone region. The injurious practice among farmers, which has obtained too much favor, of carting all the weeds with the crops raised upon the farm, into the barn, and subsequently with the straw into the barn-yard, to be transported the following season in all their freshness, to manure a single field, when instead of a crop of grain, he has an accumulation of weeds, will scarcely find favor where a manure obnoxious to none of these objections, may be procured. Upon the completion of the Erie rail road to Corning, it will form a convenient mode of conveyance to the city of New York, where it is deemed important for many purposes. In the manufacture of salt, as wood becomes more scarce in the vicinity of the works, from its evaporative power above referred to, it must become a valuable substitute for the fuel now made use of, and generally throughout the western part of the state, as applicable to various economic purposes.

Salt a Good Manure for Cellery.—A root and a stalk of cellery weighing fourteen pounds, without leaves, and measuring fourteen inches in circumference, was exhibited at a recent meeting of the Cincinnati Horticultural Society. It was exhibited to show the value of salt as manure for this plant; the gentleman who raised the article having made the experiment of treating a portion of his plants in the ordinary way, and manuring a part of them with salt. The former were of ordinary size and quality, the latter being both larger and finer flavor, of which the specimen exhibited was an exemplification.

AGRICULTURAL EDUCATION.

BY A. BECKWITH.

Among the many improvements and reforms which have of late been agitated, is that of scientific agricultural education. As to the best mode to effect this object, there is a diversity of opinion; some are in favor of the establishment of an agricultural college and experimental farm, *at the expense of the state.* While it is believed that the more numerous class of the farming community are in favor of the encouragement of the study of agricultural chemistry, and the collateral branches in the Normal school, the academies and common schools. I prefer the latter course. The experiment has been fairly tried in Ireland and Scotland, in the common schools, and has succeeded well. This has become matter of history, and need only be alluded to, to establish the fact, that we may look with safety to our institutions already established and endowed, as the sources in which this desirable object can be attained more readily, and at a much cheaper rate than in a single institution. Besides, in a single institution but few can be educated, and however learned they may be, it will not compensate for the want of an agricultural education among the great farming population of the state. It should be our policy, *especially when the funds of the state are to be applied*, that the many should be benefitted rather than the few. If taught in our local institutions, this object will be attained. There has been a new school book published for this express purpose, on which Colonel Young, while superintendent of common schools, held the following language, viz.:

"I have carefully examined the catechism of Prof. Johnston, on agriculture. This little work is the basis of both agricultural art and science. A knowledge of its principles is within the comprehension of every child twelve years old; and if its truths were impressed on the minds of the young, a foundation would be laid for vast improvement in that most important occupation which feeds and clothes the human race.

I hope that parents will be willing to introduce this brief catechism into the common schools of the state. S. YOUNG.

Albany, 24*th of January*, 1845."

There is also prepared a chemical apparatus on a small scale, and cheap, for the use of common schools; let us then introduce the study of agriculture into the Normal school, the academies, and common schools. This object once attained, we can send our sons, after they have learned what they can in the common school, up to the academy, during the winter to study agriculture,

in connection with such studies as would best qualify them for the duties of a citizen, leaving out of view the useless study of Greek and Latin, which is usually forced upon them as soon as they enter the academy. During summer they could return home, and work on the farm, and test by actual experiment what they had learned during the winter. Thus the farm and the school would be mutual aids. Their alternate changes of study and labor would have a tendency to keep their constitution and habits of industry good; and by the time they were twenty-one years of age, they would be likely to be intelligent, industrious farmers, and good citizens. It may be thought that we have not a supply of competent teachers, but let us make the demand. Offer sufficient pay, and they will be forthcoming. This course once adopted, it will spread itself over the whole state. It will contain within itself, a self-sustaining principle, and will be continuous and increasing, without any exertion or expense *on the part of the state.* On this subject, Gov. Wright, in his address to the State agricultural society last fall, said:

"It is universally conceded that agriculture has shared but lightly in the fostering care and government patronage which have been liberally extended to commerce and manufactures, nor is it believed that additional public expenditure is necessary to enable the state to do all that can reasonably be required of it, to accomplish this great object. Our educational funds are rich, and the colleges, academies, and common schools of the state, share liberally in the distributions from them, while a Normal school, for the education of teachers, instituted at the seat of government, is also mainly supported from these funds. These institutions present the organization through which perhaps more than through any independent channel, this instruction can be universally disseminated among the agricultural population of the state. The annual additions to the school district libraries may be made with reference to this branch of education, and thus place within the reach of all, the discoveries as they progress, and the rules of husbandry deduced from them, as they shall be settled and given to the public from the pens of the competent professors engaged in pursuing the researches."

Those who are educated have a decided advantage over those who are not. Those engaged in agriculture are a majority over those engaged in all other pursuits put together. There is nothing in the occupation of the farmer which ought to place him below those engaged in other pursuits, except that they, as a class, have not generally been as well educated. Go into our legislative halls, and although you may sometimes find a majority of farmers, still you will seldom find one of their number placed at the head of any important committee. If we wish our farmers to

hold their proper rank and station, and to exercise that influence in the counsels of our state and nation, which rightfully belong to them, let us qualify them by giving them sufficient education. It is not strictly necessary that we put them through college. If our common schools are made what they should be, and we send our sons, after they leave them, up to the academy during the winter, we can keep them at work on the farm during summer; and still, by the time they are twenty-one years of age, can prepare them (if they possess the requisite talent,) to hold any station with credit to themselves, and advantage to the state or nation.

There is no occupation in which men are so poorly paid for the same amount of human labor, as that of farming. But perhaps the political economist will say, that there has been less capital expended in educating and preparing him to perform the labor, calculating closely the amount of money, and the worth in dollars and cents of the time spent in the preparation to commence their labor. But that is the very thing we complain of. It is not the mere physical labor of the farmer only that we want, as he is entitled to all the rights and privileges enjoyed by all others; we wish to see him sufficiently educated to exercise and enjoy those rights equally with them. One reason why slave labor is cheaper than free white labor is, that it does not cost the master or owner as much to grow and prepare him to perform the labor, as it does the free white man to prepare himself with the limited education he now has. The less there is expended in educating and preparing the laboring man, the less pay will he receive. The natural tendency of poor and cheap education in the laboring classes, is to degrade human labor; and the less will be performed by intelligent men, which would have a bad effect upon the farming community. If our labor cost those who hire more, we should lose nothing by it, as skillful and well-directed labor would be worth the more; and there seems to be no good reason why those who produce the food on which all others subsist, should work for less than others do. Let us then introduce the study of agriculture into our primary schools, as the best means of improving the condition of the great mass of laboring farmers. The young active mind needs variety to feed upon, this in addition to the studies now pursued would afford the variety. The mind would be led to the study of the principles of nature, as developed in the growth of vegetables and animals, which would create a habit of reasoning from cause to effect, equally necessary to the farmer and the citizen. It would improve our common schools, and give them an upward tendency. It would give to the rising generation of farmers a character and standing equal with those who follow other pursuits, which they have not as a class heretofore possessed; and that is what we want. It would reach that great middling

class of farmers, who depend mostly upon the common schools for the education of their children; and it is upon this class that our prosperity to a considerable extent depends. They are the most numerous and independent class; they are not so wealthy as to be likely to imbibe extravagant aristocratic principles; neither are they so poor as to be dependent. The amount of property owned by them, would probably average from three to eight thousand dollars, and would meet a division among their children of from five to twelve hundred dollars. Can it be supposed that this prudent class of farmers would send their sons to an institution established by the state, and lose their labor during the summer, besides paying the expense to acquire an education, which would leave them, on arriving at the proper age, to commence for themselves almost entirely without means to commence with? Most certainly not. And their numbers are such that it would be impossible, if they were ever so willing. But if the study of agriculture was introduced into our primary schools, they would avail themselves of this advantage.

If we wish to make a lasting and general improvement in the education of the farmers of our state, we must begin with the young while in the common schools. And it is to them and to those who are to follow them, that we must look for the great and lasting benefits of this plan of education. Those who act only for themselves, and those on the stage with them, act from very limited views. Who planted the trees, the fruit of which we ate while children? Certainly those who went before us; let us then plant for those who are to come after us. The same rule applies to education; those who went before us prepared the means for our education, according to the best means they possessed. And we should prepare not only for those under our immediate care, but those who are to come after us, according to the best means we possess.

By introducing the study of agriculture into the common schools, we should produce more scientific men than in a single institution, because we should include in the study so much the greater number, and of course the more who possessed the right kind of talent and inclination. There is probably no science which stands so much in need of practical illustration, as that of agriculture. By this course of working on the farm during the summer, and attending the study during the winter, they would go hand in hand together. And by reaching the greater number of pupils, and greater variety of soils, would be preferable to any single location.

It is believed that most of those who have turned their attention to agricultural science, have not been practical men; and the practical men who have attempted to apply the principles, have

sometimes failed, without being able to tell the reason. Thus the men of science and the practical men come in contact, and perhaps neither can tell which is right. But if both went together, the truth would be established and practised. There is now a prejudice against what is called book farming. But let both be united in the great body of farmers, by being a part of their education, and all will be right. But just so long as we have theorists to write for us, who are not practical men, and practical men to apply the theories, who do not understand the principles, so long will book farming, whether correct or not, be in disrepute.

The scientific man may sit in his office and calculate the power of a steam engine, and the quantity of machinery that can be moved by it, and the number of hands that will be required to turn off a certain number of yards of cloth in a given time, together with the cost of the whole concern, with considerable accuracy. But can he sit in his closet and calculate the products of a farm, with the same ease and accuracy? Can he tell the amount of agricultural products that can be produced by the outlay of a given amount of capital, with the same certainty? Most certainly not; there are so many unforseen contingencies in agricultural operations and productions, that the probability is, that if a calculation was made by a scientific man in the closet, and by a practical experienced farmer in the field, the latter would be most likely to come nearest the mark. If I am right in this, it shows most clearly the necessity of blending the science and practice together, which can only be done in a way to reach the great agricultural portion of the country, but by introducing the study into our primary schools.

If the object of an agricultural education was only to teach men who are not to follow farming, it would be necessary to have an experimental farm attached to the school, as that would be the only chance they would have to test the principles by actual experiment. Not so with those who are to follow farming as an occupation. The principles once attained while young, the whole of their remaining lives would be spent in testing and experimenting upon what they had learned. Thus all that was useful would be reduced to certainty; not from mere speculative motives, but because they would be urged to it by that strong principle so peculiar to the American farmer, the love of gain and the strong desire which they have to accumulate for themselves and their children, would induce them to put in practice every part of the science that would be profitable, while they would reject as useless, all that was theoretical, unpractical and unprofitable. They would ascertain the natural causes, and rely upon them, aided by their own exertion, to produce their natural effect. By this course we should soon have a generation of farmers understanding the

great principles of agricultural productions, as well as the practical means of their application.

While the farmers are studying how to produce the best crops, and how they can best succeed in rearing the best stock, they ought not to forget that the bringing up and educating their children in such a way as will best qualify them to discharge the responsible duties of men and women, is of much greater importance. Of all the duties which devolve upon us, both as parents and members of society, there is none of greater importance than that of properly bringing up our children. The improvements which have been made in the science of learning and of teaching, have been going on and improving for many generations; we have the benefit of them all, which lays us under very strong obligations. Although we cannot pay for these benefits to those who have gone before us, still the obligation is none the less binding upon us; and the only way we can discharge it is, by educating those under our care, and by making preparation for those who are to come after us. We have set apart large funds for the support of academies and common schools, and declared by the constitution these funds inviolate; the interest only to be used. The fund to be annually increased, and to be perpetual. With our school houses and academies scattered over the whole state, we have no excuse for not giving all our children at least a good common education; if we wish to see them prosperous, intelligent and respectable; if we wish success to our plain republican institutions; let us look well to the education of our children. Those now in our schools will soon fill our places, and as every man has a right to vote for all the officers of the government, and to hold any office the people see fit to confer upon him, the safety and perpetuity of our institutions must depend upon our giving all a chance of at least a good common school education. If we wish to encourage morality and discourage vice, the most effectual way is to educate all. For the improvements made by our ancestors we paid nothing. We received them in the nature of a most sacred trust. It is our duty not only to preserve them unimpaired, but to hand them over to those who are to come after us, with our full share of improvements superadded; and as this must be done to a considerable extent by individual exertion, each one should look well to it, that he does his full share, and discharges faithfully the responsibility, so that our course may be onward and upward.

Propagation.—Many kinds of shrubs and vines may be propagated by cuttings or slips, and most, if not all sorts, may be propagated by layers, and in either case the work is to be done early in the fall, or in the spring, as soon as the ground will admit of it.

POMOLOGICAL RULES.

The Genesee Valley Horticultural Society, the Buffalo Horticultural Society, and the Albany and Rensselaer Horticultural Society, have each, at their winter meetings held in the month of February, adopted the Rules of Pomology, as adopted by the State Agricultural Society, and published in our last No. These are the prominent and best known Horticultural Societies in the state of New York, and we hope that all other Horticultural and Agricultural Associations in the state, will also adopt them; *we* will then have an uniform system for the state of New York, and a system that can and will be adhered to by both originators and describers of new varieties of fruits. This is a subject to which far too little of public attention has heretofore been given; and a subject too, which well deserves that which it is now receiving from societies and individuals. The want of such a set of rules is felt every day by those who are making collections or planting out orchards, as well as by the public generally, and the benefit to be derived from, them can be readily appreciated by all.

We cheerfully give place to the following communication, premising, however, that we did not mean it to be understood, that "Downing's Fruit and Fruit Trees" should *not* be the standard authority in classifying, &c., but that it should not be imperative, in order to establish the name of any *new* variety of fruit, to receive the sanction of that work.

Editor American Journal:

Sir—From an article on Pomology in your February No., a remark is make in regard to the rules of the State Society, on page 85, in relation to the difference between these rules and the rules adopted by some Horticultural Societies, as follows: that in the 13th rule (of the Horticultural Societies,) "Downings's Fruit and Fruit Trees is made the standard authority. Thus it will be perceived that the name of no new fruit could, by the adoption of these rules, be considered established, unless sanctioned by the editors of one or the other of the two implied journals, *and named work above*," alluding to Downing's Fruit and Fruit Trees. What has Downing's Fruit and Fruit Trees to do with *the names* of *new fruit?*

The following resolution of the State Society, adopted March 11th, 1847, is still the rule of the society; and by publishing this you will place the matter right before the readers of your Journal.

"*Resolved*, That the work entitled "The Fruit and Fruit Trees of America, by A. J. Downing," be the established authority of the New York State Agricultural Society, in *classifying the varieties* and *nomenclature of fruits* in our future exhibitions. J.

MEETING OF EXECUTIVE COMMITTEE, NEW YORK STATE AGRICULTURE SOCIETY.

PRESENT—Mr. Cheever and Mr. Ayrault, Vice-Presidents; Mr. Viele, Mr. Tucker, Mr. Emmons, Mr. McIntyre, Mr. Johnson.

Letters were received from J. Cowden, American Consul at Glasgow; E. Baldwin, New York; W. Shaw, Editor of the Mark Lane Express, London; L. F. Allen, President; J. Alleyn, J. W. Bailey, J. C. Hastings, M. P. Coons, W. E. McMaster, J. M. Ellis, C. C. Young, O. Phelps, E. C. Frost, O. Wiswall, J. Blauvelt, J. Delafield, C. Lee, J. B. Burnet, D. Jay Browne, Jas. R. Gibson, Robert Gardner, Mrs. J. J. Sproll, John Bryer, R. J. Underhill, R. W. Bessac.

Books received for Library.—From Jas. Rees, Utica—Agricultural Reports of Massachusetts for 1845–6, and Harris on the Insects of Massachusetts; from W. Ropes & Co., St. Petersburgh—Transactions of Russian Agricultural Society; from C. N. Bement—Journal of Agriculture and Science; from M. B. Bateham, Ohio—Transactions of Fruit Growers Convention in Ohio. From Alexander H. Stephens, M. D., New York, scions of eight varieties of choice Pears—Seckle, Madelien, Duchess de Angouleme, Gray Beurre, Louise Bonne de Jersey, Beure Cassa, Beure Maquifique. (The above scions have all been distributed.)

Thanks to donors and contributors.

The following extract from a letter received at rooms, will show the interest that is being taken on the subject of Agriculture:

"It is gratifying to notice the growing demand for the State Society Transactions in this county—and I am pleased to add that in this vicinity our farmers are interested in a course of lectures now in progress. The lecturer himself a farmer, makes no pretensions to any depth of science, but in a plain way has by experiments analyzed the atmosphere and water, exhibiting them seperately and explaining their properties respectively, and their valuable agency upon our crops."

Facts like these show, that the attention of the farmers is aroused in some measure to the importance of their profession, and if we can continue on with a steady hand, there can be no doubt of our final success in the great work of agricultural improvements.

Extracts from letters on the subject of Western Butter were read, showing that well made butter from the west will keep as well in *hot climates as Goshen butter or any other.*

One letter says:—"The butter made in the county of Chemung

is equal to that made in Orange county, and will stand the Southern climate as well; also butter made in Tompkins county is well suited for shipment south, and stands the salt air as well as any butter received here (New York·) I find the best Western dairies sell as well as the best "Goshen" butter when sent south, and in many cases *better*, as it has more color."

The following resolutions, offered by Mr. Tucker, were adopted, and the secretary directed to forward a copy of the same to the senators and representatives in congress from this state:

Whereas, A bill has recently passed the United States Senate, renewing, for the term of seven years, the patent of Jethro Wood for improvements in the cast-iron plow, and imposing a tax of fifty cents on every cast-iron plow manufactured in the United States during that time; and whereas for the following reasons such an act would be manifestly improper and unjust, viz:—1st, That the patent of Jethro Wood has, as we are informed, almost entirely passed out of the hand of his heirs, and is now mostly held by persons who have conferred no particular benefits and have therefore no special claims on the public: and 2d, That the improvements originated or formerly claimed by said Wood are now in many instances combined with other and later improvements, which have rendered the plow much more perfect than it could be made on the basis of his invention alone. Therefore,

Resolved, That in the opinion of this society, the patent of Jethro Wood ought not to be renewed; he having enjoyed, in the period of twenty-eight years, for which his patent has been granted, a full equivalent for every improvement that may have been made by him in the cast-iron plow.

Resolved, That in the opinion of this society, the passage of such a bill into a law, would be an act of gross injustice to the farmers and planters of the United States.

Resolved, That this society respectfully but earnestly tenders to the congress of the United States, its remonstrance against the passage of the bill renewing the patent of Jethro Wood.

B. P. JOHNSON, Sec'y.

Frozen Potatoes.—It is said that potatoes which have been frozen, may be effectually restored to their original goodness, by allowing them to remain in the pits after a severe frost, till the mild weather has set in for some days, and allowing them to recover gradually. If once exposed to the atmospheric air, no art can restore them.

ALBANY AND RENSSELAER HORTICULTURAL SOCIETY.

WINTER MEETING.

A meeting of this society was held at the agricultural rooms on the 11th of February, and although the thermometor was at zero, the show was most excellent. A very choice display of winter fruit, from various contributors, graced the table; and Mr. James Wilson exhibited a beautiful display of cut flowers, many of them of choice and rare varieties. From the green house of the president, Mr. Rathbone, beautiful bouquets, prepared by John Sloan, were exhibited, as also three bunches of asparagus, in great perfection.

We are glad to witness the success of this society. The cultivation of fruit is becoming a most important interest in this state, and the establishment of Horticultural Societies will tend much to the encouragement of choice varieties, whose character is well known, and will lead many, who have as yet paid but little attention to the subject, to interest themselves in it.

The committee on fruits reported that there was exhibited by Dr. J. P. Beekman, of Kinderhook, Columbia county, beautiful specimens of Newtown Pippin and Swaar apples, by Thos. M. Burt of Kinderhook, fine Swaar and Esopus Spitzenburgh apples; by Henry Snyder, of Kinderhook, 'Nurseryman,' Vandervere, Lady apple, Roxbury Russet apple, and a seedling winter pear; by Peter Kingman, of Kinderhook, Bristol apple—a very fine and beautiful sweet apple; by Amos Briggs, of Schaghticoke, Rensselear county, Swaar and Blue Pearmain apples, grown by Albert Martin; by Joseph Mosher, Schaghticoke, Scalloped or German Gilliflower apples; by Roswell S. Brown, of Schaghticoke, Westfield Seek no-further apples; by Julius Rhoades, of Albany, Northern Spy apples from the Chapin orchard, in Ontario county; by E. C. Frost, of Catharine, Chemung county, Winter King apples —a very beautiful and valuable late winter apple; by Dr. Herman Wendell, of Albany—Inconnue of Van Mons—Easter Beurre, and Princes St. Germain pears, Newtown Pippin, and Male Carle or Pomme de Charles apples; by Wm. Newcomb, of Pittstown, Roxbury Russet, Westfield Seek-no-farther, Rhode Island Greening, Fall Greening, Blue Pearmain, Black Gilliflower, Red Gilliflower, Pound Sweet, Esopus Spitzenburgh, and two seedlings.

We were disappointed, as were most of the gentlemen who had an opportunity of testing the apples, with the *Northern Spy.* This apple which has been heralded in no measured strains of commendation, was pronounced not equal to several other varieties of the old standard character on exhibition. A gentleman from

Rochester said that the specimens exhibited were not of the best, yet they were sent here from one of the leading dealers in this variety of that city at the snug price of $4 per barrel and rail road charges.

The committee on green house plants and flowers reported that there was exhibited by James Wilson, of Albany, the following very beautiful Camellia and Japonicas, viz: Queen Victoria, Chandlerii, Doncklarii, Saccoi Magnifique, Sesanqua Rosca, Gunnellii Amabilis, Candidissima, Henri Favre, Sarah Frost, Marchioness of Exeter, Double White Prattii, Carnea, Carswelliana, Picturata, Sherwoodii, Rose Pleno Tricolor, Imbricate, Double-striped, Elati and Eschyuanthus Grandiflora, Erica Bowciana, Erica Transparens, Honisettia Pulcherimum, twenty varieties of beautiful Pansies, and several choice Primroses. The committee awarded to Mr. Wilson the premium of $3 for the best six varieties exhibited, viz: Fimbriata, Carswelliana, Sarah Frost, Camellia Candidissima, and Imbricata; and they also awarded to Mr. Wilson the second premium of $2 for Henri Favre, old Double White, Amabilis, Saccoi Magnifique, William 4th, and Queen Victoria. They also recommend a premium of $2 for the beautiful pansies exhibited by him.

SPONTANEOUS FLAX.

A variety of flax has been discovered by travelers beyond the Rocky mountains near the head of the Columbia river.

Rev. Mr. Parker in his exploring tour says: "Flax is a spontaneous production of this country. In every thing, except that it is perennial, it resembles the flax which is cultivated in the United States; the stalk, the ball, the seed, the blue flower, closed in the day time and open in the evening and morning. The Indians use it for making fishing nets. Fields of this flax might be mowed like grass; for the roots are too large and run too deep into the earth, to be pulled like ours—and an advantage which this would have is, that there would be a saving of plowing and sowing."

Query. Would it not be worthy the especial attention of our State Agricultural Society to offer rewards for its introduction into this state?

STATISTICS.

The whole number of marriages returned to the office of the secretary of the state of Massachusetts, the year ending April 30th 1847, was 5390. Of this number 3,999 took place between bachelors and maids; 421 between bachelors and widows; 464 between widowers and widows; 464 the condition of the parties not stated. As to age, 55 of the men and 1,126 of the women were married under 20; 1,933 men, and 2,060 women were between 20 and 26 years of age.

The number of births in the same period was 17,097; number of deaths 1,163; and of consumption 2,397; of zimotic diseaes 2,982.

The average age of Farmers was 64 years ; of Clergymen 61; of Lawyers 65 ; of Physicians 52 ; of Professors 60 ; Teachers 45 ; of Scholars 23 ; of Musicians 39.

The whole number relieved or supported as paupers, in the same year was 18717 ; state paupers 90005. Of these were foreigners 7035 ; from England and Ireland, 6383; foreigners who were in during the year and were assisted, 2501; whole expense paid on account of paupers $37411; whole number of prisoners in all the jails and houses of correction during the same time 7009; 5796 males, and 1213 females; able to read and write 2375; addicted to intemperence 2168.

Natives of Massachusetts, 995; of other states, 730; of other countries, 1,605; nativity not known, 3,679.

Whole expense of jails and houses of correction, for the year, $72,728.40. Estimated value of labor in the houses of correction, same time, $15,283.75; leaving a balance against service of $57,444.65. The whole number remaining in confinement on the 1st of November, 1847 was 730.

In the town of Ovid, Seneca county, with a population of some 2,500, the number of births the last year were 64, marriages 18, deaths 23. Of the deaths, the average age of the males was 19½ years, females 33 years.

Value of Property in the State of New York.—The assessed value of property in this state last year, was $350,639,056, of which $409,496,855 was in real estate, and $121,162,261 in personal. Total state and county taxes for 1847, $3,749,389.

Education in the West.—It appears from the census of 1840, that there were in the great West, 1,000,000 children who attend no schools whatever. In Kentucky, out of 169,000 children more than 100,000 are without schools; and in Indiana, the School Commissioner reports that two thirds of the children in the state attend no schools.

Population of Buffalo.—Mr. E. W. Palmer has just completed a census of this city, which shows a large increase in our population within the last year. The following statement, the result of his labors, shows the present extent of our population:

White adults, 23,830; white children, 15,980; colored adults, 450; colored children, 261; total population, 40,520.

This statement, when compared with a corresponding census made a year ago by the same gentleman, shows the onward progress of Buffalo. Twelve months since, our population numbered 30,993—affording, during that period, an increase of nearly 10,000! The greatness of the "Young Queen of the Lakes" is just budding, her glory is just tinging the twilight of the future. A few years more will give her a favorable rank among her eldest sisters of the Atlantic coast, not only in point of population, but as regards her commerce, her site, and her beauty as a city.—*Buffalo Express.*

Canal Tolls.—The receipts for tolls on the canals of this state, (New York,) the year past, have amounted to over $3,500,000.

Mammoth Pumpkin Vine.—The Lewisburg Chronicle gives an account of a pumpkin vine grown in Munroe county, which measured 67 feet long, weighed 266 pounds, and bore 15 pumpkins, the weight of five of which were 102, 94, 88, 82, and 70 pounds, and of the other ten, 167—making in all 690 pounds.

A French Journal says of the French nation, that out of a population of 33,000,000, there are 4,000,000 in rags, 20,000,000 without shoes, 18,000,000 who eat no wheat bread, 27,000,000 too poor to drink wine, and 31,000,000 without sugar and meat.

Live Stock in the United Kingdom.—From that invaluable work, "McQueen's Statistics of the British Empire," we learn the enormous value of the live stock in the kingdom. It appears that there are 2,250,000 horses, of total value of £67,000,000, of which more than 1,500,000 are used in agriculture, and that their value is £45,000,000. The number of black cattle in the kingdom is about 14,000,000 to 15,000,000, of the value £216,000,000; the number of sheep 50,000,000, whose value is estimated at £67,000,000; and the extent of capital invested in swine is still more extraordinary, when we reflect how little it is thought upon or taken into account. The number of pigs of all ages, breeding and rearing, is calculated to be upwards of 18,000,000, which, taking one-third at £2, each, and the remainder at 10*s.* each, gives a value of £11,870,000 as the capital invested in pigs alone, making the total amount of capital invested in the above species of agricultural stock £346,270,000.—*Mark Lane Express.*

Crops of the United States in 1847.—A Washington correspondent of the Courier and Enquirer gives the following particulars from the forthcoming annual report of the Commissioner of Patents. No year is mentioned in the letter, but 1847 is doubtless included.

Grains, &c.			Bushels.
Indian Corn	crop throught the	Union, .	540,000,000
Rye	"	" .	31,350,000
Buckwheat	"	" .	11,674,000
Wheat	"	" .	10,530,000
Barley	"	" .	5,735,000
Oat	"	" .	288,530,000
Potato	"	" .	97,018,000

This last crop, (Potatoes,) it seems, has very much diminished in consequence of the rot, which deserves the attention of the government. The report of the commissioners may contain some valuable suggestions on the subject.

The tobacco crop was 219,964,000 pounds, a slight diminution compared to former years.

	Pounds.
Cotton crop, ...	1,026,500,000
Rice "	103,400,500
Silk " of cocoons, . . .	404,600

Crops in Ohio.—The Tobacco crop in Ohio it is supposed will not be over 6 or 8,000 hhds; last year it was 20,000. The corn crop, during the year, (1847) is estimated to amount to 17,272,-815 bushels.

Produce of Ohio.—The receipts of flour at Cleveland, Ohio, during the past year, by way of the Ohio canal, were 644,913 bbls.; of wheat, 2,130,317 bushels; butter 2,203,705 lbs.; of wool 1,443,478 lbs. It is said that about 330,000 hogs were slaughtered in Cincinnati in 1847.

Foreign Coal.—The importation of foreign coal into the United States from the 1st of July 1846 to the 30th of June 1847, were 148,021 tons, and valued at $370,000.

Balance of Trade.—It appears that the balance of trade has been in our favor the past year, our exports exceeding our imports by about $12,000,000. No country can be prosperous with the balance of trade against it, for the excess of imports must be paid in specie, which drains the country of it, and cripples the banks and business operations generally.

India Rubber trade in Brazil.—The india rubber trade has become so important to Brazil as to have attracted the attention of the government—which has been ascertained through the Brazilian

Institute, for encouraging agricultural improvement, that the extraction of gum is no longer procurable in the village of Para. Measures therefore have been adopted to promote the cultivation of the tree which abounds in the forests. This increase of trade is thus shown. In 1825 the exports did not exceed 20,000 lbs.; in 1846 it exceeded 800,000 lbs., besides 415,953 pairs of shoes. A laborer engaged in procuring the gum can earn what is equivalent to three dollars a day in our country.

Wheat in Oregon.—It is stated on what is considered authentic information that not less then 150,000 bushels of wheat were raised in Oregon during the year of 1846.

Wheat appears to be the principal crop, and this year, it is said, it will be much more abundant than it was last year. The inhabitants complain much on account of the scarcity of vessels. They would export considerable grain if they had the means.—*Mich. Farmer.*

Eggs.—It is stated in the Farmer's Advocate, that "the egg trade of Cincinnati amounts to two million, nine hundred and forty-five thousand five hundred dozen, annually. Of these, about one half are consumed in the city and sold to steamboats on the Ohio; the balance are shipped to New-Orleans and other southern markets. At eight cents a dozen they would be worth two hundred and thirty-five thousand, six hundred and forty dollars!!!

Commercial Statistics.—By a statement in the New-York Herald, we learn that the tonage entered and cleared at the several districts in the Union, within the year ending on the 30th of June last, the number of vessels entered at all the ports was 14,229; the tonage 3,321,705; and the number of seamen 163,889. The vessels were 7,730 American, and 6,199 foreign. Tonage 2,101,359 American, and 1220,346, foreign.

The number of clearances was 14,378, measuring 3,378,393 tons, and the crews numbered 165,792. The number of entries at ports in Massachusetts was 2,874, the tonage of which was 420,854 tons. More than two thirds of the tonage entered from and cleared to ports of Great Britain and her foreign possessions.

The Whale Fishery.—The Whaleman's Shipping List contains the annual statement of the importations of oil and whalebone and general statistics of the whale fishery for the past year. The importation of sperm oil, in 212 ships and 27 brigs, &c., has amounted to 120,753, barrels of sperm, 313,150 barrels whale oil, and 3,341,680 lbs. of whalebone. The price of sperm oil has ranged from 93 to 107 cents per gallon; whale oil from 24 to 40 cents; and whalebone from 26 to 35 cents per pound. The whole tonage employed in the whale fishery January 1st, 1848, was 210,-541 tons; showing a diminution of 19,677 tons the past year.

Coinage at the Mints.—The coinage during the year 1847 was, in gold, $20,221,385; silver, $2,374,450; copper, $61,888. Total, $22,659,662. The deposites amounted to, in gold, $20, 619,662; silver, $2,450,059.

The Herring Fishery.—It is stated in the American Traveler, Boston, that six hundred sail of vessels and 8000 men are employed in the Mackerel Fishery. The quantity caught in 1847 was 235,201 barrels, of which the largest proportion, of 97,875 barrels were No. 1. The annual value of the fish caught is over $1,000,000, and the chief customers are the southern and western portion of the United States and the West Indies.

Consumption of wood by Locomotives.—Few of our readers, we presume, are aware of the immense quantity of wood consumed by the various rail-roads between Albany and Buffalo. The Utica and Schenectady Co., use about 25,000 cords of two feet wood, per annum; the Auburn and Rochester road about 15,000 cords; and the Tonawanda road 8,000 cords. The other roads consume probably from 25,000 to 30,000 cords—making the whole amount upwards of 80,000 cords per annum! This immense draft upon our "woods and forests" must soon cause an advance in the prices of fuel; indeed, the price of wood has been steadily advancing in this place for the last year or two, and will soon come to be as important an item in household expenses as it is in the cities.—*Batavia Times.*

Poultry.—Eighty-two thousand pounds of poultry were taken to Boston market, on the Providence rail road, a few days before Thanksgiving.

Hogs.—According to the returns of assessors in Ohio, there are more than a million and a half of hogs in that state.

Audubon the Naturalist.—It is said that when this distinguished naturalist arrived in the city of Cincinnati, his poverty was so extreme, that he humbly requested permission of a dray-man to pull a few hairs from his horse's tail. The novel request was granted, and these hairs Audubon manufactured into rings, which he disposed of for a few cents, and thus laid the foundation of fortune and success in life. Lord Bacon has beautifully remarked in some of his works, that "if a man be courteous to strangers, it shows he is a citizen of the world; that his heart is no island cut off from the rest of mankind; but, on the contrary, a continent that joins them." By small acts of kindness, great good is sometimes effected, as in the case of the dray-man, who gave graciously, and with the true kindness of "nature's nobleman," that which, while it did not impoverish him, was the means of making the recipient rich.—*Hall. Gar.*

THE NEW JAPAN LILIES.

BY M. P. WILDER.

These Lilies are, we think, without exception, the richest floral gems that modern zeal and research after novelty has brought to notice. Combining the most striking and beautiful combination of colors, with an exquisite perfume, and at the same time being of the most easy cultivation, either in the open border, or in pots in the house, they must become universal favorites. In the winter of 1846 we obtained from Col. Wilder, of Boston, the President of the Massachusetts Horticultural Society, who has the finest collection in this country, a few bulbs of several species, (*album, punctatum,* and several of his own *hybrids,*) and although the bulbs were small, and had made some growth when they were taken out of the pots and sent us, yet we had a splendid show of flowers in July and August. The novelty and beauty of these flowers excited the surprise and admiration of all who saw them, and has done something towards introducing them in this section. The high price of the bulbs as yet prevent many from purchasing; but, being easily propagated, in a variety of ways, and from the competition that exists among commercial growers, we may expect the price, in a few years to be greatly reduced. The following excellent remarks on their character and culture, from the pen of Col. Wilder, appeared in the first number of the current volume of the Horticulturist:—*Gen. Farmer.*

The Lily, fro n time immemorial, has been the theme of the poet, and the subject of sweet allusion by men of taste and learning: frequently and beautifully is it referred to in the Scriptures, for its exquisite fragrance and loveliness, and for *magnificence,* Divine authority has declared "that Solomon, in all his glory, was not arrayed like one of these."

It is not my purpose, at present, to inquire whether the species or variety thus sublimely spoken of, was the *Lily of the Valley,* belonging to the genus Convallaria, as some have supposed; the *Lilium candidum,* of Pliny, or the splendid tribe with which this chapter is introduced to the notice of your readers.

Of the many remarkable plants imported into Europe, within the last half century, few can claim such pre-eminence for beauty as the Lilies discovered by Dr. Von Siebold, during his reasearches in Japan, in the years 1831 to 1833; and it is no exaggeration to state, that none have since been introduced, more deservedly popular, or more highly attractive.

Dr. Von Siebold informs us, in his *Flora Japonica,* that he brought with him from Japan, more than twenty kinds of Lilies, the most conspicious of which, however, are the *Lilium speciosum,* (sometimes called *rubrum,*) the *L. lancifolium album,* and the *L.*

lancifolium punctatum, or *roseum*. All these have reflexed petals, and may be briefly described as follows:

LILIUM SPECIOSUM.

Showy Crimson Japan Lily.

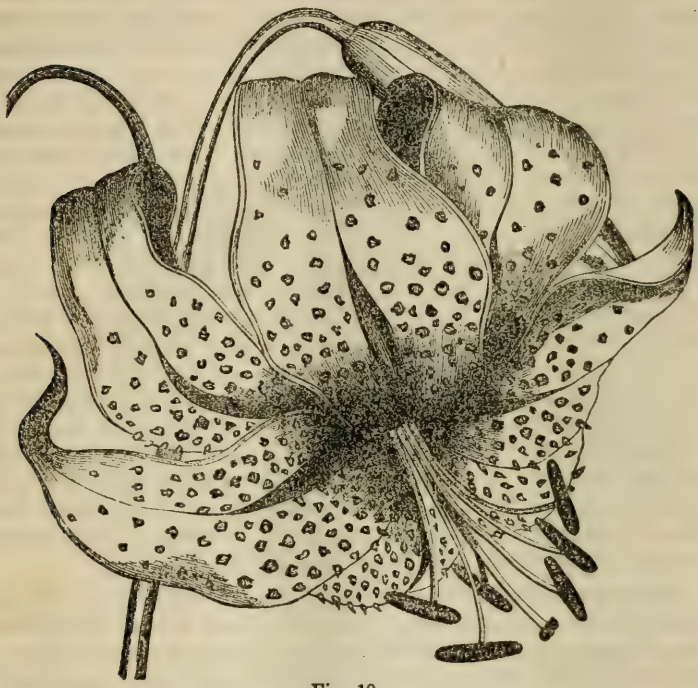


Fig. 10.

Flower, ground color, clear rose, shading to white, covered with numerous projections of bright crimson, and which gives it the appearance, as Dr. Lindley remarks, of being "all rugged, with rubies and garnets and crystal points;" a plant of two to three feet in height.

LILIUM LANCIFOLIUM ALBUM.

White Lance-leaved Lily.

Flower, pure virgin white, crested with the same peculiar projections as the former species, but these are without color, and which may be compared to frost work and snowy stalactites; grows to the height of three or four feet.

LILIUM LANCIFOLIUM PUNCTATUM, OR ROSEUM.

Spotted Lance-leaved Lily.

Flower large, white; the petals studded with pale rose or blush projections and beautifully spotted with rose-color. The

plant is of more robust habit than either of the sorts named above, often attaining to the height of four or five feet.

The virgin whiteness of the *album*, the roseate leopard-like spotting of the *punctatum*, and the jewel-like brilliancy of the *speciosum*, *all* redolent with the fragrance of Arabian spices, will ever render these, objects of especial favor and admiration, and place them among the very choicest plants of the conservatory or flower garden.

Hybrids.—The strongest development of the stamens and pistils of the Lily tribe, almost directly invites the skill of the cultivator to cross impregnations. A multitude of seedlings have been produced in this way, from these Japan Lilies. In my own collection, I have now about 150 in bud, from which it is hoped some good and distinct varieties may be obtained. Of the seedlings that have already bloomed, those raised from *L. speciosum*, fertilized by *L. L. album*, and from *L. L. album*, by *L. speciosum*, have been almost identical in character with the former red species, varying only in the petals displaying a clearer delineation of the white. All efforts to interbreed these with *Lilium candidum*, (common white Lily,) *L. tigrinum*, *L. Philadelphicum*, *L. superbum*, and *L. Canadense*, have proved abortive.

Soil.—In cultivating these new Lilies, the following soil will be found thoroughly adapted; Two parts from an old hot-bed, composed of leaves and horse manure, at least two years old; one part rotten sods, or any good mellow loam; one part sandy peat; [if not sandy it will be well to add a little sand.]

Potting and shifting the bulbs.—About the middle of January, these will commence vegetating, when they should be potted in small pots, repotting or shifting them to a larger size every two months, or as often as the pots are filled with roots—always remembering that perfect drainage, and plenty of it, are indispensable to success.

Propagation.—By *seeds*, which are obtained in abundance in this climate, if the pistils are fertilized. These should be sown as soon as ripe, in shallow pans, in which they may remain for one or two years; they should then be transferred to six inch pots, four to six bulbs around the edges of the same—and finally, singly, in pots for flowering.

By offsets and by goung bulbs.—These are formed at the crown of the old bulb, and also at the axils of the leaves. Their growth is accelerated by the placing of pieces of peat around the stem.

By *scales*, from the outside of the bulb, potted in peat and sand, and subjected to a slight heat; these do not vegetate rapidly, but eventually make good bulbs, and those scales may be divided longitudinally into two or three parts with the knife, each one of which will form at the bottom a new plant.

Hardines and adaptation to the open ground.—That the Japan Lilies and their offspring, may become tenants of our gardans, and sufficiently hardy to endure our climate, is much to be desired. The scarcity and high price of these have, until recently, been a hindrance to much experience in this respect. I can, however, state some facts, which give great reason to expect that they or their hybrids will prove so. Soon after the introduction of the *L. speciosum*, a bulb stood the winter perfectly well, protected only by a pot, in the garden of a gentleman in this city—and I learn that one of the same sort has, for two or three years, remained uninjured in a garden in the city of New York. My own experience is quite encouraging. Eighteen bulbs were planted in the open grouud last November, in a bed of Tree Pæonias, between the rows; these were covered with four inches of peat, and and when the ground closed up, about the same depth of seaweed was added to the covering; *every bulb* is alive, and now making vigorous growth. It is sufficiently evident, that if the Japan Lilies prove hardy, their culture in the open ground, and in a deep rich border, will be of the easiest description.

General treatment.—I am now supposing the course of in-door culture. The dormant bulbs having been potted, they should be placed in a forcing pit, with a little gentle heat, removing them as near to the light as possible, as soon as the leaves begin to unfold themselves; water must be given sparingly during the first period of growth, or until new roots have been formed; after which it may be administered plentifully whenever the surface of the soil becomes dry, remembering the good old rule that the supply of water must always be in proportion to the supply of solar light.

A flue in the green house will do very well, provided the pots are kept constantly moist. In the early stages of their growth, a warm humid atmosphere is particularly favorable to a vigorous start; this will be seen by the mesh of white roots emitted on the surface of the soil, and which, with those below, are the greedy recipients of any reasonable quantity of richness that may be admistered in the form of liquid manure or guano; under these influences and judicious shiftings of the bulbs to larger pots, the luxuriance is truly astonishing, strong bulbs throwing up thick, robust stems of three or four feet, covered with a dense white bloom, alike significant of the adaptation of the soil and temperature in which they delight to revel.

When the flower buds are developed, the Lilies should be removed to the temperature of the green-house, the nearer the light the better. The bloom being past, the plants should be watered more sparingly, and when a disposition for dormacy is evinced, by the waning yellow foliage, this may be entirely dispensed with

—the stalks cut down, the pots removed to the potting bed, or a place where they are dry or protected against frost, there to remain until the appropriate season for recommencing operations. In this state of rest, the bulbs should not be taken out of the pots, but it is well to examine them once a month, and if very dry, give them a *careful* watering. Of the ultimate hardiness and adaption of the Japan Lilies and their offspring to our gardens, I intend to satisfy myself, by experiments, the ensuing year.

THE CAST IRON PLOW.

A bill has recently passed the senate of the United States, and is now pending in the House of Representatives, to extend the patent of Jethro Wood for seven years, which he obtained in 1814, and renewed in 1819, claiming to have invented the Cast Iron Plow-share, &c. This bill proposes to grant the heirs of Jethro Wood, the privilege of exacting fifty cents from the manufacturer for every Cast Iron Plow made in the United States, for several years after the passage of said bill.

As there are about four millions of farmers and planters at present in the United States, and as each would require on an average at least one plow every four years, this privilege would be worth *half a million of dollars annually*, all of which would be taken from the hard earnings of the planter and farmer! And what makes the matter more unjust is, that the interest of the heirs of Wood in this patent have been purchased for a mere song; thus nearly the whole benefit of it will inure to a company of greedy speculators.

But Jethro Wood, as I shall proceed to show, was not the original inventor of the Cast Iron Plow-share, nor did he ever improve the plow in the slightest degree; he was certainly entitled to no merit in this thing, and much less to a patent; and had the facts of the case been known by the Commissioner of Patents, in 1814, he would not have granted him one, or renewed it in 1819; neither would the United States Court have confirmed him in it after it had been granted.

The Cast Iron Plow-share was invented by Robert Ransom of Ipswich, England, and he obtained a patent for it in 1785, twenty-nine years before Jethro Wood obtained his! The Cast Iron Plow with the share and mold-board in two parts, was kept for sale by Peter T. Curtenius, in this city, as early as 1800; and in use in this neighborhood. Jethro Wood undoubtedly obtained his knowledge of the Cast Iron share, from one or the other of these; for the Cast Iron Plow as a whole, and in separate parts, will be

found figured and described in almost every Encyclopedia and work on agricultural implements, published in Great Britain, since 1796. These works soon found their way into the United States, and it can be proved by the testimony of the intimate friends of Jethro Wood, that he was familiar with these publications.

The History of the Cast Iron Plow and its improvements, is simply this :

James Small, a Scotchman, constructed a Cast Iron Plow on true mechanical principles as early as 1740, and was the first inventor of the Cast Iron mold board. Robert Ransom, of England, invented the cast-iron share in 1785. An English farmer, in the county of Suffolk, invented the cast-iron land-side shortly after, so that 1790, the Cast Iron Plow complete in *three distinct parts* was well known and in use in Great Britain, figured and described in nearly every work of any value since published on the subject of plows and agricultural implements.

Without any knowledge of these improvements of the cast iron plow in England, Chas. Newbold, of New Jersey, about the year 1790, took up the plow with a view of improving it in the United States. On the 17th of June, 1797, he obtained a patent for the cast iron plow skeleton, in one piece complete. Subsequently he made his plows with a cast iron mold-board and land-side, and attached a wrought iron share to it. Shortly after this he often spoke of still farther improving his plow, by substituting the cast iron share. But having spent upwards of $30,000 in his improvements and efforts to introduce it into use in the United States and elsewhere, he got discouraged and gave up the business.

Peter T. Curtenius, as stated above, kept the cast iron plow for sale in this city, the share and mod-board in separate parts, as early as 1800. Who was the manufacturer of these I am unable to learn.

In 1804, I think, David Peacock, of New Jersey, obtained a patent for a plow, the mold-board and land-side of cast iron and in seperate parts, the share of wrought iron steel-edged. He copied Mr. Newbold's plow in part, for the privilege of which he paid him $1,000.

In 1814, Jethro Wood obtained a patent for a plow, the mold-board, land-side, and share in three parts and of cast iron. He was familiar with Newbold's and Peacock's plow; and his was a bungling imitation of theirs, and not near so perfect in form and construction as the old Botherham plow, which had been in use in Great Britain upward of seventy years before Wood obtained his patent.

It is said that the cast iron plow in three parts, viz: mold-board, land-side and share was in use in Virginia previous to 1814, and that Wood was aware of it.

With these facts before them, the public will now see how great an injustice it would be for congress to extend the patent of Jethro Wood, and give his heirs, or rather a company of greedy speculators, the privilege for seven years, of exacting 50 cents per plow from every one engaged in their manufacture.

I hope these facts will be widely disseminated by the press throughout the United States; for the hard working farmers and planters ought to be immediately apprized of what so vitally concerns them. As the bill is still pending before the House of Representatives, let all those opposed to injustice and special privileges take pains to call the attention of every member to the subject so that the iniquitious measure may be defeated.—*Rochester Democrat.* A. B. ALLEN.

COMPARATIVE TRIAL OF AMERICAN PLOWS IN ENGLAND.

In a late No. of the Mark Lane Express, we find the following:

"After maturely trying Mr. Slocum's plow against the best of ours their performances were as follows:—First, his plows tried against Adam's Northampton plow and Howard's Champion plow, on a clay soil, not very strong clay. Howard's plow at five inches deep by eleven wide, draught 31 stone: Adam's plow at the same width and depth, thirty stone; whilst the American at five inches by fourteen inches wide, drew only twenty-six stone. In justice to the American plows, I must say that they cut and turned their furrow quite as well as the others, at the same time breaking the land to pieces, making a capital preparation for either drilling or dibbling; indeed they are the most simple, light, strong, and efficient plows that it is possible to conceive. Yesterday, a gentleman farmer and myself put one of them on trial with one of Comtam and Hallet's dynamometers against the lightest drawing plow of my own upon a field, one of which is a very strong clay, and the other a clayey lea mold, which very few plows will clear themselves in; the middle a mixture of the two, with a little gravel in it. We first tried them at five inches deep, my own at 11 inches wide, which was as much as it would cut up and turn properly, in the strong clay, and it drew 44 stone; in the mixture, 48 stone; and in the lea mold 46 stone. We then tried it at 8 inches in depth by 11 in width, when we found on the strong clay 46 stone; on the mixture 44 stone, and in the lea mold forty-eight stone. We then tried the American plow at 5 inches deep and fourteen wide, and found the draught—in the strong clay, 38 stone; mixture 40 stone; in the lea mold, 32 stone; the same width, and 8 inches deep in the clay, 42 stone; in the mixture 43 stone; and in the lea mold 36 stone. * *

Mr. Slocum's implements are the strongest, lightest, and the most perfect articles that ever came under my notice.—*Peter Love.*

The Brant—Fig. 11

THE BRANT.

Anas bernicla, LINNÆUS; *Brent Goose*, PENNANT. Arct. Zool., vol. 2, p. 551.

The Brant, WILSON; Am. Orn., vol. 8, p. 131, pl. 72, fig. 1; BONAP. Ann. Lyc., N. Y., vol. 2, p. 387.

DESCRIPTION.—Bill small, much shorter than the head, subconical, turned down at the tip. Nasal groove elongated. Nostrils subbasil, elliptical. Tibia bare for a short distance. Tarsus 2·0, compressed, and longer than the middle toe. Tail very short, much rounded.

COLOR.—Head, neck, shoulders, and upper part of the breast, blackish. Bill and feet black. Lower eyelid, spot on the chin, and a few tips of feathers on the sides of the neck, white. Dorsal plumage, brown, margined with greyish. Quills, tertiaries; rump and tail, greenish-black. Sides of the rump, and the vent, and of the upper and under tail-coverts, white. Flanks barred with white and gray. *Female*, slightly smaller, but in no respect different. *Young*, no white patch on the side of the neck; plumage above and beneath, barred with reddish brown. Length 22·0, 25·0.

The *Brant* is considered as one of our most savory birds. In its transit from its breeding places, near the Arctic sea, it appears in great numbers on the coast of New York in the first or second week in October, and continues passing on to the south until De-

cember. Some few have been observed to remain all winter. They are again seen with us in April and May, on their way north, when they are in the best condition. Feed exclusively on *Zostera marina*, or eel-grass, and other marine plants. The history of its migrations is not yet complete. On the Atlantic coast it has been observed from 73° to 38° north. On the Pacific, it appears to range from Columbia river, where it was seen by Mr. Townsend, to the 26th parallel. The Brant is capable of domestication, and is found on both continents.—*Nat. His. of N. Y.*

OUR JOURNAL.

We have been highly gratified, and not a little flattered, with the unqualified approbation with which our Journal has been received thus far; and we take this opportunity to acknowledge our obligations to individuals, as well as to the numerous papers, both those devoted to the agricultural, as well as other interests, throughout the country, for the complimentary manner in which they have noticed the enterprise in which we have embarked. They are aware of the difficulties attending our situation, and of course will appreciate the value of our labors, and be able to make all due allowances for any deficiencies in the outset.

In our first No. we mentioned that such as did not feel disposed to patronize our Journal, could signify, by returning it marked *not wanted;* and in compliance with this request, a few papers have been returned with the appropriate signature.

It is therefore taken for granted, that such as did not comply, consider themselves subscribers, at least for the present volume.

Is our Journal worthy of support? If not, we hope our *friends* will tell us so in plain terms. If it is, it should have an extended circulation and patronage. Time will soon tell, whether there are true friends to science and the useful arts in the country. No efforts shall be wanting on our part to sustain its character, and make it equal, if not the best agricultural journal in the country.

Reader, ask yourself, do I live for myself alone? If not, it is possible you can do something for others. Should you learn any thing from experimenting or otherwise, you are in duty bound to give it to your fellow laborers in the good cause; and the best means of doing so is through our Journal. Will you write for us and the public? There is no question but every man knows something which none others have learned, and if all would tell what they know, is it not possible our whole community would become much more intelligent?

There is scarcely any one who reads or observes, that does not possess valuable information, and who has not capacity to write so as to be *understood;* and therefore we cordially and earnestly invite our friends, and the friends of mankind, to communicate *their science* and *facts* for our pages. This is a duty all persons owe one another and their country.

Our subscription list is respectable, but by a little exertion on the part of our warm-hearted friends and patrons, the circulation might be much increased. Can you not, brother farmer, send us a handsome list of subscribers? It will cost you nothing to get your neighbors to subscribe, and by reading the same work, might have the same information, and when you meet, you could have considerable enjoyment in talking and canvassing over what you have learned.

We therefore respectfully solicit our friends, and all who feel interested in the promotion and diffusion of agricultural information, to aid us in this undertaking. It will contain a large quantity of agricultural matter, and many useful articles on various other subjects, valuable to every one, whether he be a farmer or not. It is in convenient form for preservation and reference, and will be worth more than the cost at the end of the volume.

We have sent our Journal to many gentlemen who are known to take an interest in the progress of agriculture, for their examination, with the hope that they will patronize us.

Under the present Rates of Postage, this Journal will be charged to those who receive it by mail, by the ounce, and by this means will amount to no more than that charged on a weekly newspaper.

ERRATA.

Several typographical errors occurred in our last No. In first line page 81 for "thin" particles read "*their*" particles. In seventh line, read " their" instead of "thin." In 13th line it should read to saturate "*peat that it does to saturate sand.*" In page 84, eighth line from bottom, instead of "*and* authoratively," should read "*could* authoratively," &c. In 3d line from top page 85 shoul read protect "them," &c. In 4th line instead of "*being*" induced, should read "having been," &c. In 15th line strike out "*and unwarrantable.*" In 4th line from bottom instead of "*tolerated,*" read "acceded to," in our state society, "they having" in place of "*here* a standing," &c.

Under the head of Meteorological observations, in No. 1 page 16 for "*alvanda*" read "alavda," and on the same page for "*Tardus*" read "*Turdus.*"

FAT MEATS—CENTRE MARKET.

It has been the practice, time immemorial, for the butchers in our market to make a display on Washington's birth day, Feb. 22, of the finest and fattest meats the country affords. The last exhibition, although not remarkable as to quantity, was not inferior in quality to that exhibited on any former occasion.

Among the most remarkable was that of a heifer, 3 years and 10 months old, fed by Mr. Wm. McKown of Waterville, Oneida Co. She was fed on corn and cob meal from 1st of Nov. last. Her form with the exception of her neck, which was rather full and gross, was considered very perfect, and her flesh was laid evenly on, and heavy in her most valuable parts. She was compact, small horned, short legged, and in short a large animal in a small compass. Ripe in all her points.

Her live weight was 1492 lbs. Dead weight 984 lbs. Tallow 157 lbs. Hyde 67—in all 1208 lbs.

There was less show of Mutton than usual, but generally of superior quality. Three saddles were purchased for an eating house in New-York, one of which weighed over 70 lbs.

The veal of a calf between 9 and 10 months old, whose live weight was 420 lbs.—dressed 302 lbs. attracted great atttention. It was considered the finest and fattest veal ever exhibited in our market.

Among the swine we noticed one marked 728 lbs. eighteen months old! Four *pigs*, as they were called, marked from 400 to 510 lbs. each. On the whole the exhibition was very creditable to our butchers.

AMERICAN BIOGRAPHICAL SKETCH BOOK,

By William Hunt, Author and Publisher, 53 State Street, Albany.

The first volume of this work, from the press of J. Munsell, has just been put into our hands. From a hasty glance at the contents, we should think it a work which deserves, and we have no doubt but it will have an extensive patronage, as it cannot, we think, fail to be interesting and useful to all who have an opportunity of perusing it. It comprises 408 octavo pages, on fine paper and beautiful type, and contains 55 potraits on wood, some of which are very striking and well executed. The biographical sketches are principally of "self-made" men, the architects of their own fortune and station in society. It is for sale at the office of the pnblisher, No. 58 State street, and by his agents.

METEOROLOGICAL OBSERVATIONS FOR FEBRUARY, 1848.

Made at the Albany Academy, by Dr. T. R. Beck, Principal, &c.

Days.	THERMOMETER.				WINDS.		WEATHER.		RAIN	REMARKS.
	6 A. M.	3 P. M.	9 P. M.	Mean.	A. M.	P. M	A. M.	P. M.	Inch's	
1	25	33	26	27·50	N. W	N. W	Cloudy.	Clear.	0·52	Rain, hail & snow.
2	22	34	20	23 83	N. W.	N.	Clear.	Clear.		
3	13	35	30	28·50	N. E.	S.	Clear.	Cloudy.		
4	28	45	35	36·83	N. E.	S.	Cloudy.	Cloudy.	} 1·15	Snow.
5	33	35	29	31·34	N. E	N. E	Cloudy	Cloudy	}	Snow.
6	27	30	26	27·50	N. W.	N. W.	Cloudy.	Cloudy.	0·10	Snow.
7	26	25	22	22·00	N. W.	N. W.	Cloudy.	Clear.		
8	12	24	10	13·50	N.	N E	Clear.	Clear.		
9	1	31	23	22·50	N. E.	N. E.	Clear.	Clear		
10	26	27	14	17·83	N. W.	N. W.	Clear.	Clear.		
11	— 1	15	4	5·67	N. W.	N. W.	Clear.	Clear.		
12	— 3	19	12	9·83	N.	N.	Clear.	Cloudy.		
13	0	25	16	14·33	N.	N.	Clear.	Clear.		
14	4	27	17	17·67	N.	E	Cloudy.	Clear.		
15	14	34	26	26·33	N.	N. W	Clear.	Clear.		
	Semi-	mo'ly	mean,	21·67					1·77	
16	24	28	26	27·00	N.	N. E.	Clear.	Clear.		
17	10	32	23	21·33	N. E.	N E	Clear.	Clear.		
18	8	34	25	23·00	N E.	N. E.	Clear.	Clear.		
19	12	42	36	34·00	N. E	S.	Clear.	Cloudy.		
20	36	41	38	39·50	S.	S.	Cloudy.	Cloudy.	0·29	Rain and hail.
21	43	44	40	41·17	N. W.	N. W.	Cloudy.	Clear.		
22	36	39	38	37·83	S.	S.	Cloudy.	Cloudy.	0·18	Rain and snow.
23	37	48	39	40·00	S.	N. W.	Clear.	Clear		
24	29	31	27	26·17	N. W.	N. W.	Cloudy.	Cloudy.		
25	12	22	17	16·50	N.	N. E.	Clear.	Clear.		
26	9	35	27	25 83	S.	S.	Clear.	Clear.		
27	22	34	22	24·00	S.	N.	Clear.	Cloudy		
28	10	32	31	32·83	N.	S.	Clear.	Cloudy.	0·10	Snow.
29	31	29	23	25·17	S.	N. W.	Cloudy.	Cloudy.	0·03	Snow.
	Semi-	mo'ly	mean,	29·59					0 60	Total Rain Gage 2·37.

Monthly Mean, 25·63. Numbers for 1st half month, 32·516
Numbers for 2d half month, 41·433

29)73·949(25 50.

Winds—N. 6 days; N. E. 7; E. ½; S.E.—; S. 6½; S.W.—; W.—; N.W. 9.

Weather—Fair, 17½ days; Cloudy, 11½ days; Rain on 0 days; Snow on 5 days; Rain and Snow on 3 days. Rain guage 2·37.

Warmest day, 21st; highest 43 deg. Coldest day, 11th; lowest —3 deg.

1st, Rain and snow..... 0·52

4th, Snow A. M..... 0·07
Snow P. M. to.....

5th, 10 P. M..... 1·13
—— 1·15

6th, Snow during day..... 0·10

20th, Rain and Hail early A. M. to 2 P. M.... 0·29

22d, Rain and Snow 12 M. afternoon and evening,..... 0.18

28th, Snow P. M..... 0·10

29th, Snow A. M..... 0·03

2·37

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

CONDUCTED BY C. N. BEMENT, ALBANY.

VOL. VII. APRIL, 1843. No. 4.

THE OPENING OF THE SEASON.

THE revolutions of the seasons, and the succession of periods marking the lapse of time, should be noticed to induce us to redeem the days allotted us, as well as to admire the wisdom and goodness of the great Creator in his works. The winter has passed, and the season fully arrived which calls us again to the fields with increased activity and labor. The working-men feel themselves called upon to more than ordinary exertions; for the blessings of Providence are usually granted to those who are found in the way of duty, and who diligently use the powers their Creator has given them. If we go through the country, we shall see the industrious farmer laboring in his fields, preparing for the fruits of autumn and the stores of winter. At this season, the husbandman is committing grain and other seeds to the earth, which, by the heat of the sun and watering of the clouds, will yield products to bless his labors and rejoice his heart. He gains both bodily and mental health by moderate labor; and if he reasons at all of cause and effect, he is confirmed in his belief, that a wise and beneficent as well as powerful Being sustains, directs, and controls all things. To the literary man, also, the spring is a grateful season; for winter has been no time of leisure or rest to him. He has labored diligently and applied himself closely, while others have comparatively enjoyed repose, and partially suspended their winter toil. His duty and his calling have induced him to "trim the midnight lamp," and to devote his hours to *work*. His recreations have been "few and far between." He therefore must welcome the return of spring with cordiality and delight. He takes his morning and evening walk, and "snuffs the refreshing breeze."

April is a busy month among the farmers, and there is, perhaps, no month in the whole calendar which should be more deeply in-

teresting to the American husbandman; for unless a good start is obtained now, it will be difficult to get all our crops into the ground in proper season. They must go to work in good earnest, so that they may always command their own time, and have the pleasing satisfaction to know, when they retire to rest at night, that they have omitted nothing which they should have attended to, and that their business is not behindhand. Nothing which can be performed on the farm one day should be delayed to the next; for that next, come when it may, will bring something with it meriting attention; and therefore the provident husbandman should enter upon each day's labor with a firm and unflinching determination of doing that which is most proper to be done. By doing things in detail, as they respectively occur, is the way not only to get over the greatest amount of work, but of doing every description of it in the best time.

The season for the singing of birds having also arrived, let us all unite in their preservation. Let every parent discourse to his children on the advantages derived from the feathered songsters in the economy of nature. Tell them of the millions of insects destroyed by a single pair of little birds, during the season of rearing their infant family; and the millions of millions of pernicious insects which would be the progeny of those thus destroyed, if they were suffered to survive for a single year. Inform them of the quantities of grain, and grass, and fruit which perish annually by the depredations of the insect tribe, and that the birds are the only antagonists which we can avail ourselves of, for protection from such insidious invaders of our rights. Remove the smaller birds which keep the insect tribes in check, and the earth would soon become one great desert, uninhabitable by either man or beast, for the food designed by Providence for our sustenance, would be wholly swallowed up or destroyed by the myriads of insects which would speedily cover its surface.

We therefore enjoin it on parents and teachers, to be alive to this subject, and give the rising generation suitable instructions; enlighten them; convince them of the wickedness, the inhumanity, the impolicy, of destroying their best friends; and the great mischief will soon be stayed, and the birds will once more sing in peace and safety.

"April and May," says Howitt, "the months which the poets have so much delighted to paint as every thing delicious and poetical, suffer too frequently the tyranny of the east wind. We are never, in this country, sure of steady, genial weather, till well advanced in June. But fickleness and uncertainty have always been the character of our climate; and who shall blame even the seasons for standing up for their ancient character? If our spring be uncertain, no doubt we enjoy the more the fine days, and the *occa*

sional fine seasons, when we do get them. There is a feeling about the spring months, after all, be they bad as they may, which is peculiar—which can never be annihilated—and which, therefore, amid all shivering winds, sleet and snow, and flitting sunshine, has something pleasant in it."

Cold as the winds are, the buds of many trees are daily swelling and growing more conspicuous, as if they must come forward, be the weather what it will. The peach, the pear, the cherry, and the currant will bloom this month. We may also expect to have the daffodil, crocus, violet, and hyacinth in full bloom. Lettuce, spinnach, and asparagus may be found in our market. Pigeons, robbins, swallows, and martins will greet us. Butterflies, bees, and wasps will make their appearance.

Such is April. It is not winter—it is not summer—it is spring—the fickle and chilly spring; and is accompanied by its peculiar objects and aspects.

Towards the latter part of the month, especially if April showers fall, what a change! What a greenness in the grass! How the buds and leaves will have advanced! On such days set forth, all you that love nature and yourselves. Take an early breakfast, and immediately set forth. Away to the lawn, woodlands, over the hills and through the vales. The robbins and thrushes, perched upon the tree-tops, are filling the air with their delightful music. The laugh-like cry of the woodpecker "tapping the beech tree," and the harsh note of the jay, awaken the forest; and the dusky wings of the crow and blackbird glance in the sun as they are driven from the new-sown fields. Bees will be seen diving into the bells of flowers, extracting their sweets. The fields will be enlivened by the farmers pursuing their labors; some are plowing, some harrowing, some sowing, some rolling, and others picking stones from the grass.

Such is April; and, with variable winds and rains, it now marches on gloriously to the end.

Practical Science.—It is not uncommon, even in this enlightened age, to ridicule book-knowledge as connected with farming, and to speak of the application of science to agriculture as something new and of doubtful utility. Such, however, is not the case. Science was more than 2000 years ago united with practical agriculture, and has continued to be in all ages and civilized countries, though not so extensively as at the present day. In fact, science does not consist in names or a knowledge of names. Every man who farms systematically, whether he is aware of it or not, he conforms to the *laws of Nature*, and that is practical science.

GOOD FARMING—ILLUSTRATED BY THE EXPERIENCE OF THOMAS RUSSELL.

BY W. BACON.

The present age has properly been designated as one of improvement. We have daily illustrations of the fact, in whatsoever branch of operations is brought before our observation; so that the very element of things in general, appear to have experienced a new and revivifying influence within the last few years. It is so, in a great measure, with all the arts and sciences; it is so with general education, the unerring thermometer which so clearly indicates the upward progress of society, or its declension, as the *spirit* of the former in greater or less ratio marks the progress of mind.

In agriculture, as well as in other things, great and significant changes have been wrought, insomuch that now and then, almost a solitary individual has raised his eyes in wonder and doubt whether any further improvement could be made in the mother of the arts. Such ideas, however, in no instance have their origin with those who, with open eyes and inquiring minds, look well into all the advancements of the age. They are *expecting* new light continually to break upon their visions, while the *few* who think all improvements at their climax, are so dazzled and blinded if a new ray happens to cross their path, that they shut their eyes and turn from it with shuddering.

That such extreme cases should exist with men whose habits of life are in some respects so similar, and to whom equal inducements to progress are so cheeringly held out, may well be thought very strange, and doubted by professional doubters. Nevertheless, it *is a fact*, and a truth to which thousands of unprejudiced observers are willing to substantiate, and of which a broad illustration has been brought before our notice within the last year.

Thomas Russell was early thrown upon his own responsibilities in accomplishing his destinies in the world, and reached the, what is to most young men, desirable period of twenty-one, in clear possession of a "good New England common school education," a robust constitution, and a pair of as willing hands as were ever applied to labor. His strong aspirations were for a piece of land and a domicil he could call his own. If once in possession of these and the natural accompaniments, Thomas thought he should be a happy man, and should be able to convince others that energy of character was a far better endowment than fortune, or the capricious friends that fortune creates.

But how was the little homestead to be obtained? Thomas,

as we have said, had no cash, that specific watchword, which gives a ready passport, where the more sterling qualities are doubtful. He was in no expectancy that some rich relative about to pay the debt of nature, would leave the surplus of his "this world's goods" to his behoof, and warrant him in taking credit, until such means enabled him to become "clear and free" possessor. No—none of these. We have given a true inventory of his worldly possessions in his common school education, his robust frame, and present the only clue we can to his future success, in noticing his integrity and energy of character. With these he sought and obtained employment at the house of a farmer, whose habits of life were full of that quiet which belong so truly to rural occupations, and whose skill in causing the earth to produce abundantly, were such as to entitle him to the honorable cognomen of the best farmer in the township. Here Thomas labored for four successive years, to the full and entire satisfaction of his employer. At twenty-five, he found his wealth increased—to cash $550, a good and substantial wardrobe, and a small collection of choice books.

About this time, circumstances had rendered the sale of the "Baker Farm," a lot of seventy-five acres, necessary, and the condition of the premises were not such as to bring many purchasers in competition for the territory. The soil, much of it, by nature was fertile, but a system of excessive cropping had laid bare the back bone of sterility on its most fruitful fields. In short, it was taken throughout, to be just such a premises as the trusty friend of Thomas, Capt. Leonard, looked upon as a favorable purchase, wherein the young man could increase his capital, by restoring famished nature to her usual tone of productiveness. Through the agency of Capt. Leonard, the place was soon purchased and a deed in due form made out to Thomas Russell, yeoman, to have and to hold the aforegranted premises, to himself, his heirs and assigns, to his and their use forever.

The event of this, the said purchase, may well be considered an era in the life of our friend, Thomas Russell, and so it in reality was. The little homestead had been obtained by honorable purchase, but no one will suppose that $550, the amount of his capital, was an equivalent for the place then in his actual possession. So far from it, that this sum was but barely sufficient to stock the farm in the scanty manner its productions would warrant, and furnish the very few tools which every day necessity required in the labor of the field.

Then Thomas must go to house-keeping, for he has now a home, and there are a thousand little incidentals attending the first outset in this business, which must be met with "cash in hand." Repairs were to be made, and if the artisan was not

paid off on the completion of his work, Madame Rumor, an antiquated old lady, who travels by wind, feeds on wind, and is at home every where, would say, "What a pity that sich a nice young man keeps running in debt! I'm afeerd he's sartinly ondone!"

Now, Thomas was certainly aware that he was in debt far beyond his means. He knew very well, that if health failed him, or misfortune, in any of her chilly forms, overtook him, his all was lost. This led him to watch over the one with care, and guard with the closest scrutiny against the other, and leave the event with him who holds the destinies of all men at his disposal. He knew that he had launched a frail bark on deep waters; but had often heard how others had done so before him, and had made sure passage to the desired port of independence and respectability, and he hoped, by carefully watching the helm himself, to accomplish the same destination.

Our first acquaintance with Mr. Russell, (he will not allow himself to be called Esquire, or Colonel, having, as he says, no taste for the honors those appellatives bring,) commenced just twenty-five years after the aforesaid purchase of the "Baker lot," when he gave us the substance of his early history as we have before related it. But, said he, Madame Rumor failed in her predictions. The young man was not ruined, for the place is paid for, the old buildings demolished, and those you see around have been built in their places, and additional acres have been added to the homestead. We went with him around his premises in every part of which we beheld the noblest triumphs of industry and thrift. The old bog swamp had become a beautiful meadow. The fields were laid out in the best order for economy in fencing and general arrangements of cultivation, such as deep and thorough tillage, rotation, &c. The orchards were in a thrifty and highly productive condition. The garden was what every farmer's garden should be, a repository of choice vegetables, flowers and fruits, rich emblems of a cultivated mind. The buildings, as you see, have a world of comfort and enough of taste about them. "Those beautiful trees," said he, "I planted with my own hand, and always when I look upon them, they reward me with expressions of gratitude for selecting them from the trees of the wood, to come and adorn my rural home. In summer, when the heat of labor drives me from the field, they lend their cool and refreshing shades to revive my fainting spirits. In winter, when cold winds come driving from the north, they spread their brawny arms to arrest its fury and shield me from its violence. In spring, when their new formed foliage first meets the breeze, they furnish a sanctuary to nature's songsters, whose lofty carrols wake the soul to loftier hymns of praise; and in autumn,

the time of 'the sere and yellow leaf,' when their matured foliage falls back to earth, they teach me the frailty of all below."

The old orchard in rear of the barn, had all been grafted by his own hand, with the choicest varieties of the apple, and a new one in course of growth, just commencing to produce its valuable treasures, gave assurance that in this kind of labor, there is profit not only in the pecuniary reward it offers to bring in future years, but profit to the eye, by its thrifty and vigorous appearance.

We inquired of our new friend Russell, if he found any difficulties in the culture of the finer fruits, such as the peach, cherry, the better varieties of the plum, &c, trees of which several species gave ample testimony of their liberal products: "None insurmountable," said he; "they all require labor and anxious watchings, but what then? The same industry that is necessary to cause the earth to produce her richest treasures is essential to health and bodily vigor, and the care and judgment which they require, *invite the mind to healthy and persevering research.* When I look upon these trees that bring their annual offerings to gladden my appetite, regale my taste, and make the pulse of life beat more freely, I find an ample reward for all my toil and all my care in the triumph I obtained over nature, by causing them thus to grow and thus yield their produce. Thus, I am manyfold compensated—paid in looking on their thrifty growth—paid by a hundred fold in their delicious offerings.

We saw the thrifty animals about his premises, each of which possessed the docility of lambs. How promptly, when apprised of his approach, did the familiar herd gather round and acknowledge their gratitude for kindness by a familiar lick of the hand. How the sheep and the tender lambs gamboled about his path! Even the swine there, had forgotten their hoggish propensities, and exhibited evident tokens of cultivated, civilized life.

The crops were all that the crops of such a man may well be supposed to have been. Each on a soil adapted, as nearly as could be, to its peculiar habits, and protected by fences more than ample, promised rich returns.

We visited the barn, into which, as you see, they were gathering the rich treasures of the early harvest. And here let it be noticed, all obstacles were removed that would tend to render the passage from the hay field in the least slow or uncertain. Not a gate shut nor a bar up to impede their progress, and yet no idle boys watching gaps, or starving animals around to find a gap open, through which to push their way to mischief and destruction. But to the barn; it was made so tight throughout, that but for its destitution of a huge stone chimney, the ancients might have taken it for a thrifty, comfortable dwelling house, yet fitted

with all the means of ventilation that varying circumstances might require. The yard surrounded by high, tight materials so that the animals were kept in so close quarters in winter as to render any loss of manure impossible. In the stables or sheds, there were ample accommodations for every animal to shelter them from the storm, screen them from high and driving winds, and enable them to eat their daily allowance, in the way most for their own comfort and the economy of their owner. There, too, was a tool house beside the granary, where the well polished plows, shovels, hoes, &c., told of labor that brings reward for all its bestowments.

Fig. 13—Premises of the Good Farmer.

It was natural, of course, for us to visit the dwelling and see the thrift and comfort abounding there, and, in our progress, the beautiful lawn which you see spread around it in the above view, (fig. 13,) exhibited a cheerfulness of aspect which it is always delightful to find around the farmer's premises. It was as smooth and delightful a carpet of nature's velvet, as was ever spread upon the lap of earth. Not a pebble there so large as to give the slightest inconvenience to the most delicate foot-fall. No brush or broken hoops, or cast off wares were scattered round to annoy the eye, or prove stumbling blocks to the unwary visiter. It is unnecessary for us to say that substantial comfort and happiness,

as pure and elevated as earth can yield, found a sweet abiding place in that domestic dwelling. These facts may well be inferred from what we have narrated, and a visit there would be only to render "assurance doubly sure" of the reality.

We, feeling ourselves at home with one who was free in making communications on his career in life, were free in making inquiries on the various topics connected with so evident prosperity, inquired of our liberal minded, noble hearted host, among other interrogatories, if he had ever paid any attention to what many, even of the present age, designate "*Book Farming.*" In replying to this, he invited us to his LIBRARY, a beautiful room which the reader sees projecting from the end of the main building, where he related as follows: "Among my earliest impressions of agriculture, the idea strongly impressed itself upon my mind, that this business, like all others, was yet in its infancy, and when I heard our old New England people tell how much wheat their lands produced, when first cleared of their primitive forest, and looked at the scanty supplies it now yields to the hand of culture, the impression became fixed that some process might have been adopted, whereby this fertile principle might have been retained. This and other similar circumstances, first led me to observation on the effects of the different managements of soils, and from observation to inquiry; but these were not equal in the replies to the demands of my mind. Accordingly, in early life, I became a subscriber to an agricultural publication, supposing thereby I should draw waters of instruction from other and more distant, if not deeper fountains, than those my limited acquaintance afforded. And in this I was not mistaken, for here I found the theories, the practice, the successes, the failures, with their causes, of observing and enlightened men in all countries on which the rays of civilization have shone, or the light of science illuminated. True, I have found much in such papers to condemn as vague and useless, on my particular locality, and much to approve and adopt after the closest scrutiny. Indeed, my opinion of them is so great and so confirmed, after many years' experience with their contents, that from a subscription to a single one I am now the patron of several. And further, from these publications, I had my opinion confirmed of the aid to be derived from a knowledge of geology, botany, chemistry, and indeed the whole array of natural sciences in the culture of the earth; and what is more, the wholesome food they afford the mind when laboring to subserve the comforts of the body." The book case, which extends from the right hand of those large windows pretty nearly to the main edifice, was thrown open, and exposed a rich display of works of the most finished authors on natural science, as well as a sprinkling of law, theology, medicine, history, &c., enough

to make some men we have seen dream of famines, convulsions, and earthquakes, if not the annihilation of all things.

On the opposite side of the room was "the farmer's museum," filled with models of improved and ancient implements, grains, minerals, shells, treasures of earth and of ocean, as far as his means of collecting could congregate them, in a beautiful array of the wonderful and instructing.

"This room," said he, "is our family study, where each member resorts, when leisure from other employments will permit, and where we all assemble on our winter evenings, to spend an hour in discoursing upon some topic of history, on which light may be thrown from the library, or cabinet, or both. Thus, we are all teachers and all learners in the school of nature, and catch some of the richest lessons at a season when she lies in deepest repose. Happy and cheerful pass the hours we spend in exploring the mysteries of her treasures."

Such are some of the outlines of the history and present circumstances of farmer Russell; albeit, we had well nigh forgotten to mention that in addition to all his other blessings, he is the happy father of three tall, graceful daughters, just bursting into womanhood, each alike adroit at the piano, the spinning wheel, and milk pail, who, as he said, had, in early life, eschewed matrimony, unless providence should throw in their way men who honored their father's profession enough to follow it, and who had minds equal to bring in the contributions of science, to advance and perfect the art to which mankind are so strongly indebted for their sustenance; and four sons, with power and capacity sufficient to profit by the wisdom which had conducted their parents, so honorably and independently thus far through a world whose ups and downs, so often mark the fluctuating career of its inhabitants. They were born farmers' sons, were *educated* to be farmers, and sought no higher honors than the dignity and independence the farmer's life afford.

And now, dear reader, shall we give you a reverse of this picture of thrift, comfort and happiness, as pure as earth can yield? Subjects that will form *sad* reverses have fallen within our notice, and mayhap within your own. One of the most appropriate we now think of, is found in the history of Philip Lambert, who, as Thomas Russell, inherited a New England birthright, shared in the opportunities for a New England education, and stood by Thomas' side, in reading ba, ba, &c. There was, however, a difference in our two subjects at as early a period as this in their careers, for while Philip's pockets were filled with candy, Thomas's contained only apples, and while the former sat by the comfortable fireside and cracked Madeira nuts of a cold frosty morning, the latter might sometimes be seen feasting on butternuts beneath the

broad branches of the old tree which stood by the way side. But, you say, "What has childhood to do with this matter?" Much, we aver; the child is surely the model of the man. However, we will, in courtesy to you, pass over a few intervening years, and take our latter hero where we did our first, at the hopeful age of twenty-one.

Here we find him entering upon possession of a small real estate given him by his father, as an assurance of having reached the period of seniority, with all necessary requisites of stock, tools, &c., for managing said estate with success. True, he had not strength of muscle and vigor of mind like Thomas, for effeminate indulgence had weakened both. Yet he had a constitution strong enough, with proper management, to have enabled him to perform much hard and profitable service, and a mind sufficiently alive and active to see where others "missed it," and to seek employment in almost any way but by labor. This life of drudgery—this rising in the world, by "rising before it was yet light, and eating the bread of carefulness," he did not believe in, and therefore exerted the whole bent of his ingenuity to "rise in the world" in some other way—to secure more than a competence—to "hasten to be rich," by other, and in the end, less certain paths than those marked out, wherein strictly honest men must walk. Consequently, among other schemes adopted to attain his object, trade was among the number most favorable to his inclination. Now, trade is both honorable and lawful, so far as it gives the parties a mutual benefit in the transaction, and trading men in every community, when they act from principles of living and letting live, are among the most useful men; but sharpers, who have an eye at only one side of the bargain, and who can practise fraud and deceit to accomplish their mercenary ends, are serious drawbacks, not only to the pecuniary advancements of the community, but they prey upon the very core of its morals, and leave a wake of mire in their train the most melancholy and alarming. Of this class of dealers, however, Philip's *taste* led him to think so favoraby as to induce him to claim brotherhood with them; though nearly all attempts to obtain high standing there were vain and ineffectual. In fact he never effected but one shave in his life; and that was when he married his beautiful and industrious wife, who in the unsuspecting simplicity of her pure and noble mind, supposed that where there was so much shadow there must be *a little* substance. But his dealing propensities must be carried out, and for one who had the trade to learn, and so little intellectual capital to invest, it looked in the outset like bad calculation. However, he traded, lost, and must trade again to make the matter even, and again *lost!* The swindlers into whose hands he had thrown himself, finding him rather a

tame bird, for plucking, kept him along, by giving him an occasional "good trade," until a substantial span of farm horses had passed into a couple of rickety, heavy skeletons, whose emaciated frames needed recruiting to render them legal tenders to the crows.

Such was the team with which Philip, the crafty trader, found himself provided for the labors of the second spring upon the farm. Had the loss of his substantial horses been the only one he had sustained, he could well have afforded to have Messrs. "Jim Crow & Co." foreclose their mortgage on his present span, gone to work like a man, thoroughly drilled in the school of bitter experience, and obtained a pair answerable to his purpose, and more than recovered, by persevering industry, what he had lost by consummate folly. But time idled away in worse than idle speculations, had drawn the chains of indolence more firmly around him, and one miscalculation following another, had blunted his sensibilities, so that, on the whole he thought he could get along *that spring* with his team, pretty well, and, "perhaps, when they were turned to grass they'd thrive, and when thrify, he could put them off for a better span." In full possession of such poor delusive hopes, his spring work was gone through with, for the spring passed away, and summer brought its own peculiar labors. The manner in which his crops were got in, our readers can judge as well as for us to describe. Still, trade, jovial company, any thing but stay at home, practical labor, were stepping stones in Philip's path of future success, for success he was all along calculating to attain.

Thus, year followed year, each strewing new shadows of gloom along his path, until the sun had fifteen times fulfilled his mission of measuring seasons, preparing seed times and maturing harvests, by his annual heat, since Philip took upon himself the individuality and responsibility of *manhood.*

During this period a young family had grown up around him; happy in imitating a father's virtues, where they could occasionally be found, and wounded by his follies, which, like entailments of woe, were everywhere visible around the home it was his duty, and should have been his happiness, to bless.

The cut (fig. 14,) represents most clearly the condition of Philip's premises, when we saw them at the time we have just noted. The dwelling, which might (and would under the influence of Thomas Russell) have been an abode of elegance—of taste—as you see, is without architectural form, having been got up as cheap as possible, to meet the exigencies of its owner, who is still dreaming of prospering without patient, persevering, industry. Look at the roofs, and see their disconnected and graceless proportions. The siding, as you see, is of all widths, and of all varieties of material. Here a wide hemlock board, loose at one end to catch the flying

Fig. 14—Premises of the Bad Farmer.

breezes of summer, or give octave to the harsher notes of winter; while there the absence of outer screen permits the storms, in playful fancy, to search into the firmness of the winter walls. The windows, too, show marks of strange fantasies of taste, by exhibiting, at paneless intervals, patchwork of many-colored shreds, shingle-panes, openwork of cooling dimensions. Around the premises, the wreck of what should have been the last fence to have fallen, shows the broad port-holes through which destruction sends its powerful missiles. That was never a neat and tidy fence. In its creation it was but the counterpart of fell decay. The barn, which, next to a man's house, should be his castle and his tower of strong defence, as you see, like the owner, has lost the centre of gravity, and is going down to share the fate of all things. The roof, now, serves no other purpose than to riddle the storm, and give strange pastime to the winds. The siding, too, as you must notice, is composed of boards confined only here and there with a nail, which leaves them hanging, like malefactors, to the mercy of the elements. The doors, unhinged, play antic capers in the blast and fall. That load of hay, just at the threshold of the barn is left because, through the failure of a single strap in the harness, it could be taken no further; and the poor farmer has gone three miles on a pleasant day to get a new one in its place.

Not a tree greets your eye in all these premises; but broken carts, wagons, and old plows occupy the places where the pear and the peach should luxuriate: and the swill-tub has tumbled over in the last stages of decay, where the rose and the myrtle should bloom.

Observe the gauntness and wan appearance of the animals. The cow, as you see, is approaching the dwelling, as if to hold sympathy with the sad mistress of misfortune's home. How feeble her gait, and how wan her countenance! And why should it be otherwise, when her only food is gathered among the brambles by the way-side, and her only drink from the filthy frog-pond in front of the dwelling! See that starving swine, just driven from the meadow. Its features have stronger resemblance to the wild boar of the East, than any thing of American origin. Yet it looks like an animal adapted to its circumstances; therefore it is perfectly in place in its present locality.

Go into Philip's dwelling, and examine among the scanty furniture for the library, and not a solitary work will meet the eye; or listen for the sweet sounds of music, and not a note, but those of discord, will greet the ear. Ask him if he takes an agricultural paper, and his reply, from a countenance exhibiting bewilderment beneath his old slouched hat, will be, "No; I reckons I knows as much about farmin' as these 'ere chaps can tell; and as for them city fellers that write, they don't know enny more about it than the old hoss." Attempt to explain to him, if you have patience to parley with the mope, the benefits that agriculture is receiving from such papers, and the labors of scientific men who make them their organs of communication, and his wise reply will run something in this wise:

"I don't keer for your orgins nor your skientifics. I knows enough about farmin'; and, besides, I 's not a farmer: I trades and specerlates."

Poor man! he is right once; he is not a farmer, and nature erred as widely when she planted him on a piece of land, to dress and keep, as she did in forming such a miserable clodpole in the likeness of dignified, intelligent man. Urge him, for the sake of his rising family, to take an agricultural paper, and he will tell you,—

"Humph! my family must take care of themselves," (we wish they had spirit enough to do so,) "and I take care of myself. My boys! they won't be dirty farmers, and work all day in the sun; they want'er to be merchants, and live like gentlemen in fine housen."

"Have you ever tried any experiments with fruit?"

"I doesn't try experiments; it don't do no good. There was some fruit trees here when I come, but they didn't do much, so I

cuts them down. I don't set out any fruit; takes them so long to grow, one may never live to get any good on 'em."

Here we found our case thoroughly hopeless, and abandoned it; and have given the result of our examination as it occurred, having learned, in the history and experience of the two individuals, that much—very much—of the success in life arises from the rays of that light that falls upon its early dawnings, or, in other words, that the character and destinies of men depend, in a great measure, upon the force of the early education they receive.

And now we would say to young men,—look upon the contrasts we have given you, and decide your destiny. Where can you find a more agreeable one than that of Thomas Russell, in the lap of plenty, which his own industry has filled. If you make farming your employment, make him your model; and may you succeed as well as he has done..

As for poor Philip, we hope the race of that kind of farmers is about extinct, and that his sons will succeed to admiration in any employment they may choose. Poor boys! they have their full share of the miseries of life; and if they have become disgusted with one of the most noble and honorable professions, the sin lies not at their own, but at a stupid, heartless, parent's door.

Richmond, Feb., 1848.

BLIGHT IN FRUIT TREES.

BY CORNELIUS CHASE.

I noticed in the July number of the "American Journal of Agriculture and Science," an article on the subject of blight in fruit trees; the author of which gives a clear description of the disease in all its various appearances, and of its destructive effects, but acknowledges his total ignorance of the causes, consequently leaving us in the same situation he found us, so far as relates to the remedy. Now, it appears to me that more benefit would be derived from a research into the causes, for when that is once found out, no doubt a remedy would be near at hand.

Every close observer may notice the same phenomenon which the author of the article describes, but to find the cause, and to point out a safe, sure, and cheap remedy, requires some investigation, something more than a passing notice, and can hardly be done without labor and observation; and it is only through publications like your journal that we can make known to our fellow agriculturists the results of our observations. I take the liberty of offering a short account of the results of an experiment which I made the last season in relation to this subject.

In the first place it may be proper to state, that for some years past I had observed a disease in the form of blight on different sorts of fruit, as well as some forest trees. Of the former, the apple, the pear, peach, and quince trees, which more especially showed its effects in all of them, except the peach. The disease was so well described in the article referred to, that I deem it unnecessary to say anything further on the subject. But the effect on the peach tree is somewhat different. For instance, of the affected leaves and branches, dying and curling up, the leaves only curl and assume a reddish appearance, while the growth is retarded, but do not, like some other trees, dry and turn brown; but still the growth is retarded, and in the course of a few years death is the consequence.

The blight has not affected the apple trees in this vicinity to as great an extent as it appears to have done in some other parts; still they are affected more or less, and especially the Spitzenburg variety.

Having observed that this disease was on the increase, that it gained on the trees affected with it every year, I began to think that unless a remedy could be found for it, and it should continue to increase, it would not be long before several kinds of fruit would be totally lost.

Having already become convinced that the disease which was destroying the potato crop was caused by an excess of oxygen in the atmosphere, it occurred to me whether it might not be the cause of the blight in question; I had also a lot of young grafted apple trees which had blossomed for several years, but bore little fruit, and what they did bear was poor and knotty. Many of the leaves by midsummer looked sickly, and some of the young branches, with their leaves turned brown, and died.

I noticed also that this was the case with plum and quince trees, more particularly the latter. I also observed for several years, instead of the blossoms falling off in a healthy state, the petal ends of the pears turned brown while on the trees, as if they had been in contact with fire, and consequently there had been but little fruit.

In consideration of these things, and having become confident that the disease was atmospheric, I concluded to try fine lime on the trees when they were casting their blossoms. I did so, by taking a damp day, when there was little or no wind, and threw the lime up in handfuls among the branches as high as I could, leaving the upper branches without the lime. The result was that almost every blossom made an apple as far as the lime reached, and the branches were so loaded with fruit, long before the time of maturing, that the ends were resting on the ground; the fruit

was remarkably fair and healthy, and no signs of blight appeared on the branches.

Perhaps the reader would wish to know how it was with the upper branches on which no lime was put. I answer by saying, that the fruit on them was less abundant and less fair, although in the common way the upper branches bear more and better fruit than the lower ones. I made the same trial with my plum trees, except one; they all bore well, with the exception of the one on which I put no lime; and although that was the best and most thrifty tree of the whole, and blossomed well, yet it scarcely had any plums.

When my young trees came into blossom, I also tried lime in the same way; they bore well, showed very little signs of blight, while the young shoots on my neighbors' trees were from one-fourth to one-third dead by the first of 8th month, (August). I may also mention, when I took my quinces to market they sold for double the price that my neighbors obtained for theirs.

This is the first year that I have made the experiment; it may not succeed another year as it has this, but I intend to try it on a much larger scale than I have done the past year. I think also I shall repeat it about the middle of the 6th month, (June) as I discovered last year that it would be better to apply it by that time.

Chatham, 1st month, (Jan.) 1848.

ON EVAPORATION.

BY J. TREMPER.

The process of evaporation is perhaps one of the most useful, at the same time unobserved, operations that takes place among nature's works. Its effects are constant and unremitting, and if suspended for an interval in one place, its course is onward in another. From each and every object there is an exhalation to supply the reservoirs above, whence it is poured at proper intervals, to feed the brook, the river, and the ocean, and to spread its fertilizing influence as well upon the field, the meadow, as the garden. Mr. Dalton, of Manchester, England, has made some very interesting experiments upon the subject of evaporation, by providing a suitable apparatus, filling it with soil, and burying it in the ground, leaving the upper surface exposed to the atmosphere. He found the mean of nine years observations to be as stated in the following table:

Month.	Mean Rain.	Mean Evaporation from Ground.	Mean Evaporation from Water.
January,	2·46	1.01	1·50
February,	1·80	·53	2·03
March,	·90	·62	3·50
April,	1·72	1·49	4·50
May,	4·18	2·69	4·96
June,	2·48	2·18	6·49
July,	4·15	4·09	5·63
August,	3·55	3·38	6·06
September,	3·28	2·95	3·90
October,	2·90	2·67	2·35
November,	2·93	2·05	2·04
December,	3·20	1·48	1·50
	33·55	25·14	44·43

From this table it appears, that the evaporation from a surface of water was nearly twice as much as from green ground; also, that about eight or nine inches of rain are left for the supply of springs and rivers. The climate of that part of England where these experiments were made, is no doubt moister than most parts of this country; hence the evaporation here would leave less water to supply springs and rivers than in England. I have particularly observed, too, that in the climate about the lakes, our summer months are very subject to droughts, so that vegetation frequently suffers from its blighting effects. The proportional absence of vapor in the atmosphere, and the little rain that falls on those occasions, has a tendency to deprive vegetation of its vigor, and to change it to a russet color; hence fields in the month of August and September, frequently look as sere and lifeless as in the month of March. The past year was one of this description. During the three spring months in the neighborhood of the Seneca Lake, there fell but 3·93 inches of rain; hence, when the summer months commenced, with their accumulating heat, the ground was dry and unprepared to withstand a scarcity of rain during the coming warm months; but instead of a proportional increase of rain during that season, there was an increase of only 1·84 inches; and only 5·57 inches falling during the whole summer; the effects, of course, on some of the crops were very injurious. Corn and potatoes suffered much; oats also, in some situations, suffered severely; and although its influence, on other crops, was not so marked, yet it had its effect. The preceding year, viz. 1846, was however an exception, and one of great fruitfulness; crops of all kinds grew with much luxuriance, and yielded an abundance, even extending to the various orchard and forest trees. In that year, there fell in the month of February 3·28 inches of water. In the three following spring months, 4·29 inches of rain;

in the ensuing summer there fell 11·61 inches of rain; and in the month of September following, the fall of rain, for that month, amounted to 3·32 inches, while the rain for September of last year amounted to about 0·60 of an inch more than the preceding. In connection with this it usually happens, that the amount of evaporation is also greater during a dry season, as the atmosphere rarely becomes sufficiently saturated to produce rain, there is a constant increased exhaustion with a diminished supply. Therefore, assuming the year 1846, from observation, we may say that one and a half inches of rain in May, three inches in June, four in July and August each, affords a standard year of fruitfulness and productiveness. It naturally follows that evaporation being nearly constant in its operations, those parts which are most exposed are in the greatest degree affected by it. A field covered with thick verdure, will be less exposed to its influence, than one that has no crop upon it; so, too, a pasture field, which is constantly nipt by horses and cattle, will in a drought suffer much from its want of covering, as well as loss of moisture from the vessels of the plants being cut asunder in the operation of depasturing. Winds also have a powerful influence upon evaporation; hence, situations much exposed to them will be affected in proportion to their prevalence. Evaporation from a water surface being more rapid than from any other object, is also, of course, controled by the degree of heat applied to that surface. Soils, too, will be affected differently by heat; a silicious or sandy soil, from the little cohesion in its particles, will give out its moisture more quickly, while an argillaceous or clayey one, from its adhesive nature, will part less readily with it; hence, as either of these substances prevailed, the evaporation would be modified, so also if either contained a quantity of vegetable matter, more or less, it would have its influence. A soil that forms a hard crust upon its surface, would be unfavorable to evaporation, by preventing the escape of vapor and transmission of heat, which is so important an agent in the process of evaporation.

In some experiments which I made in the month of July, 1846, I found that the water in a cylinder stood at 100° exposed to the sun, which raised the thermometer to 115° of Fahrenheit. Upon applying the thermometer to the surface of the ground, which was of an argillaceous character, and devoid of vegetation, it sunk to 90°, while six inches below the surface it sunk still further, to 78°, which was the same as the temperature of the air at the time of the experiment. In the following table is contained the temperature of Lake Seneca, also of the air, and the amount of evaporation in hundredths of inches, during the last two weeks of July, of the above mentioned year:

July.	Temperature of Lake Seneca.	Temperature of air.	Quantity of Evaporation from cylinder, freely exposed to the sun and wind.	
			DAY.	NIGHT.
18	73°	66°	·50	·05
19	70	78	·35	·00
20	70	76	·40	·03
21	70	76	·47	·05
22	70	78	·31	·00
23	70	76	·40	·00
24	72	76	·20	·00
25	71	70	·20	·05
26	71	69	·50	·00
27	71	54	·55	·00
28	72	60	·42	·08
29	70	70	·48	·05
30	72	74	·50	·05
31	72	71	·15	·00

A cylinder placed at different distances from the ground, will show different results of evaporation, particularly at night. Upon those nights when a heavy dew fell, I could detect no evaporation, although the thermometer stood at 63°, while upon those evenings, under the same temperature, when a scarcely perceptible dew had fallen, it amounted to 0·08 of an inch. It would seem from information derived from written records, kept during the settlement of the country in this vicinity, in the latter part of the past century, that the climate has become much modified. A gentleman, under date of 1798, thus writes from the Genesee country:

"You will find that the climate of the Genesee country not only forms a very interesting part of its advantages, but also of its natural history. Those parching heats that on the south side of the Alleghany mountains seem to dry up every particle of nourishment from the plants, are never known in this country; in almost every instance, a hot day is succeeded by a plentiful shower, which preserves, throughout the summer, a constant verdure; by this means our pastures and meadows are not to be excelled in the world. The nights are in proportion cool, and a traveler from the coast is surprised to find, in the dog days, a couple of blankets a comfortable covering. Late frosts in the spring, and early frosts in the fall, are uncommon, and almost in no instance has the fruit or corn suffered by them. The peach trees, the great test of a climate free from severe and late spring frosts, come to great perfection. In one orchard, at an old Indian town near Geneva, the occupier of the farm sold to a neighboring distillery last year, near 100 bushels of peaches.

"In the winters of 1796 and 1797, two gentlemen kept a regular diary of the weather; the one at Bath, in Steuben county, the other at Lancaster, in Pennsylvania. The result was, that at

VIEW OF THE HEAD OF THE GEORGE AT SUMMIT.

Lancaster, the cold was greater than at Bath, from 11° to 13° during the winter; but the spring at Bath commenced about ten days later. If more proof was necessary to establish this important fact, viz: the moderation of the climate, it might be stated that the settlers have, in many parts of the country, been in the habit of turning into the woods part of their cattle before winter, at a distance from their farms, and in the spring they have, in every instance, been found in good order, and with less loss than might be expected, from the same number of cattle, if kept about the houses. The frosts have never been so severe as to stop the operation of the mills, with a very trifling precaution; so remarkable was this circumstance, in 1797, that a number of sleds came from Pennsylvania to the Bath mills, a distance of 70 miles."

The clearing away of the primeval forests, seems to have had a very sensible influence upon the climate, by exposing the surface of the country to the operation of the winds and sun's rays, we find that instead of the redundancy of moisture above described, we now too frequently suffer under its opposite extremes, and if in the month of July we are compelled to suffer under a heat of 96°, comet-like, in the space of a few months, we are borne under the influence of cold 3° or 4° below zero. Such being the case, the aborigines, in the thickness of their forest shades, had a more comfortable and less variable climate than those who have succeeded them, and well might the red man, when contemplating the blue expanse of his lakes, and the full-gushing of his rills, turn with a sigh from the footstep of the white intruder.

Dresden, March, 1848.

VIEW OF THE HEAD OF THE GORGE AT SUMMIT.

The view of the head of the gorge at Summit, is only one instance among many of the wearing action of the streams. Upon this series and range of rocks from the Hudson to Lake Erie, all the water course cut through the shales and sandstones of this group. An interesting fact is well worthy of notice in this place, namely, that as the New York sedimentary rocks are composed of hard and soft materials, the whole series seem to be cut through from the Potsdam sandstone to the top of the Erie division. The aggregate amount of the perpendicular falls of the streams which flow over the series, is not less than one and a half miles, from the top of the Catskill series to the base of the Potsdam sandstone.

Hamilton Shales.—The relations of this mass are nearly the

same, both eastward and westward. It reposes every where upon the Marcellus slate. Superially the Tully limestone seems to be wanting in Schoharie and Albany counties, and hence in this direction the line of demarkation is not well defined. The shales run into and are imperceptibly incorporated with the next series of rocks, which are known abroad by the name of *Devonian*, and in this state by that of *Portage* or *Chemung*. To the west, as has been remarked, the series is restricted by the Tully limestone. It may be that this restriction is too artificial and arbitrary, inasmuch as the same mineral characters are preserved, and also some of the fossils; and it is hardly possible to find any where those physical changes which sometimes appear, and mark the introduction of a new epoch. Some of the beds, towards the upper part, are less regular, more concretionary, and appear as if they were deposited under a slight change of circumstances, such as would occur if a change of level had taken place in the bottom upon which the former materials had been deposited.

Agricultural capacity of the Hamilton shales.—We are now introduced into a region, whose capabilities in production are decidedly of a different kind from those of the limestone shales that have been already described. This change is due to the constitution of the rocks mainly, although we have no doubt that height, configuration, and slope, may modify to a certain extent the productive capabilities of the region over which these rocks extend. Agriculturally they closely resemble the Hudson river rocks, and we may perhaps say with truth, that this resemblance is no less than that of their lithological characters. Both series are remarkably destitute of calcareous matter, and both are distantly associated, if the expression is proper, with limestone below. Thus the Utica slate resembles the Marcellus slate; both are somewhat calcareous, and both succeed heavy beds of limestone, which constitute important landmarks or wayboards for the determination of series and groups. In the Hudson river shales, a few bands of limestone, highly fossiliferous, appear towards the end or about the middle of the series. So in the Hamilton shales, impure calcareous bands are met with, though the calcareous matter seems to have been derived from the petrifactions which they inclose. This shows that some calcareous matter existed in solution in the waters from which these rocks were separated or deposited; indeed, the shales sometimes effervesce feebly. Now the main peculiarity which we find in these rocks, consists in the ability to produce good pasturage; the soil possesses that light character which fits it for sweet grazing. There is always seemingly sufficient alumine or clay in these rocks to give the debris the proper consistency to hold water, and this rarely to excess. There are two other circumstances which contribute to

form a grazing country where these rocks predominate, namely, sweet or pure water, and a hilly surface. The water, under such circumstances, drains off rapidly, and leaves the soil refreshed; it will not stagnate above or beneath the surface. If the grass and herbage is not so luxuriant, it is sweeter, and promotes the health of the animals which feed upon it. The atmosphere circulates freely over the hills and through the valleys, and thereby rapidly renews the essential elements of life and activity.

SCIENCE, THEORY, AND PRACTICE.

BY. W.

In your January No. I note some remarks on the union of "Science with Practice," which are true in the sense in which the terms are used, but as I have frequently noticed in similar statements, these terms are employed with a looseness that renders the truth limited and partial.

As your Journal on its title page indicates the close and intimate connexion between agriculture and science, you will perhaps not object to a short enquiry as to why and how they are connected, in the course of which some definitions of the terms, science, theory, and practice will be necessary.

And first, as to *why* they are, or rather why they should be, connected; not only in fact and absolutely, but also in the consciousness and daily practice of all of us.

It is the wise design of Providence, that each man's possession, whilst it provides for his own wants and those of others, should have a higher significancy and value to him by becoming a means of his intellectual, moral, and spiritual culture.

Whilst there is no profession, which, if pursued in a right spirit will not tend to this object, some, from their nature, have this tendency in a higher degree than others.

Men are so constituted that whilst the majority have chiefly in view the more immediate object of gaining a livelihood or bettering their condition by means of their occupation, a certain number will be more interested in the higher consideration with which it is connected.

It is the peculiarity of Agriculture, that there is no profession which admits, to the same degree, this contrast, viz. on the one hand, of a perfectly illiberal and narrow drudgery, and on the other, an introduction to the highest spiritual, moral and intellectual truths.

In regard to the spiritual and moral, I need only refer to the constant and sublime use in the sacred writings, of images, allegories and precepts, derived from observations of agriculture.

It is with the intellectual we have here chiefly to do.

Agriculture ministers to the cultivation of our higher faculties, from the fact, that whilst it is the means of gaining a livelihood, it is also an art and a science.

Any occupation, considered with reference, not to its immediate and obvious object, but to the principles on which it rests, becomes an art. Thus husbandry, in the hands of the ignorant boor, who does only what he has learned from imitation, is simply a mechanical occupation. To him who is capable of viewing the principles on which it rests, as a whole, of giving a reason for his practice, based on a law, of seeing it in its relations to other occupations, and to man, it is an *art.*

The whole body of knowledge of a subject, in other words, of principles verified by observations and practice, is a *science.*

A reason for practice (or explanation of phenomena,) deduced from verified principles, is a *theory.*

Thus the theory of tides, is an explanation of the phenomena of tides, drawn from established principles of gravity. The theory of the fallow, is the reason for the practice, based on acknowledged principles of agriculture, &c.

Practice, is the whole body of rules and usages, existent at any time and place, from whatever source derived, carried out without reference to principles; being the mode of proceeding which the average common sense of mankind has authorized under the circumstances, and experience has approved.

It is stated in the article which I averted to in the commencement, that "practice had introduced more discoveries into Agriculture, assisted by observation, than science." This is the error to which, as it seems to me, a confusion of terms has led. Strictly speaking, I do not see how either science or practice can introduce a discovery. For a science is simply a body of established principles, and practice is nothing but the body of established usage. To introduce discoveries would appear to be the province of theory; for a theory is a reason for a practice, whether established or *proposed,* derived from principles, verified by observation, i. e., from science, and thus, if I understand the writer, his "practice assisted by observation," is only another name for that much abused and obnoxious thing, *theory.*

There is only one other source of discovery which occurs to me, which is, *accident.* But to observe an accident accurately, to detect in it the principle which causes the particular facts to be seen as the universal law of similar cases, is also a species of theory. The ignorant man will pass by the accident, which to the man of science, is the foundation of a great discovery.

To mention some familiar instances, the improved form of the plow-share, the drill culture, the turnip culture, as practised in England, these were so many theories in the minds of those who first proposed and practised them; is it not even self evident, that every item of practice must have existed in the form of theory, consciously or unconsciously, of the man, no matter how long ago, who first introduced it? A shrewd guess, is but another name for an unconscious theory.

Theory has got a bad name, from two causes, and science, though a confusion of terms, has shared it.

First, a theory, in first hands, seldom prospers; for the inventor is usually more fond of his discovery, than of the main chance. Jethro Tull was a great discoverer, but he was not a successful farmer.

Secondly, so called theories, based on assumed principles, or imperfect observations, have brought the word into disrepute; it is only when a theoretic mind is based in science, or corrected by practice, that its conclusions are of value.

The above remarks may serve as an introduction to the following extracts from the article "Theory," in the Penny Cyclopedia, from which I am sure many of your readers will derive pleasure and encouragement.

"Before coming to the distinction between theory and practice we must observe that theories may be divided into two classes, the more perfect and the less perfect. We cannot say that any theory is absolutely perfect, but there are some of which the defects are hardly perceptible, and others in which the contrary is the case." * * * * * * * * * *

"In such a subject, our theory instead of being an all sufficient guide, is only a help, the services of which are to be used to an extent which discrimination derived from practice and experience, must point out. Many a person, who thinks he is proceeding upon experience only, is really making use of a mixture in which there is theory, though his own knowledge of the process he uses, and of its history, may not be sufficient to inform him of it."

"A person who uses an imperfect theory, with the confidence due only to a perfect one, will naturally fall into an abundance of mistakes; his predictions will be crossed by disturbing circumstances of which his theory is not able to take account, and his credit will be lowered by the failure. And inasmuch as more theories are imperfect than perfect, and of those who attend to any thing, the number of those who acquire very sound habits of judging, is very small compared with that of those who do not get so far, it must have happened, as it has happened, that a great quantity of mistakes has been made by those who do not understand the true use of an *imperfect* theory. Hence much discredit has been thrown upon theory in general, and the schism of the-

oretical and practical men has arisen. Fortunately there are many of the former who attend properly to the improvement of imperfect theory by practice; and many calling themselves practical who seize with avidity all that theory can do for them, and who knew that, step by step, theory has been making her way with giant strides into the territory of practice, for the last century and a half. * * * * * * * * * *

"The distinction of labors in the field of science or art is not strictly a just one, for there is no theorist whose knowledge is all theory; and there is no *practical man whose skill is all derived from experience.*"

"The practical man, when he is really nothing more, is one who can just do what he has been taught to do, who has acquired skill and judgment in a small range of occupations. All who pride themselves upon the title, would be displeased at this definition, and we readily admit that many of them are entitled to a higher character, but only because the name by which they delight to describe themselves is a wrong one. They desire under the name of a workman, to claim the qualities of a master. The term *theoretical*, serves as one of contempt to designate any thing of which they disapprove." * * * * * * *

"There is also a method of viewing what we may call the action of theory, which is absolutely necessary to a true conception of the value of their labors, who employ time in its advancement. Watch the arguments of a person who calls himself, distinctively a practical man, and it will always be found that a well established theory fifty years old, is practical knowledge, so called."

Lenox, 2d of Feb., 1848.

Incombustible Wash.—Slake some stone-lime in a large tub or barrel, with boiling water; cover the same up, to keep in all the steam. When thus slaked, pass six quarts of it through a fine sieve. It will be then in a state of fine flour. Now, to six quarts of this lime add a quart of salt and one gallon of water; then boil the mixture, and skim it clean. To every five gallons of this mixture add one pound of alum, half a pound of copperas by slow degrees, three-quarters of a pound of potash, and four quarts of fine sand or hardwood ashes sifted. This mixture will admit of any coloring matter you please, and may be applied with a brush. It looks better than paint, and is as durable as slate. It will stop small leaks in the roof, prevent the moss from growing over and rotting the wood, and render it incombustible from sparks falling upon it. When laid upon brick-work, it renders the bricks impervious to rain or wet.

ELEMENTS OF SOIL.

BY DR. E. EMMONS.

Of the fifty-eight elements of matter, only about fifteen enter into the composition of vegetables, if we disregard marine plants. These fifteen elements are all found in soils, and are all necessary and essential parts of it. Each may be said to have its peculiar function: it may be entirely useless so far as it is considered an element of a particular vegetable, but highly important in imparting a certain condition to the soil. The office of these elements is two fold: first, as performing a specific function in the organization of a living body; and secondly, as giving a particular state or condition to the soil: the first office is vital, the second mechanical.

We have been considering elements, by which is usually meant a simple undecomposed body, as iron, gold, silver, oxygen, chlorine. This is not the state, however, in which they enter into the soil, or into plants; in their uncombined state, they are unsuited to either place. Hence we always find iron combined with some other element; and so also of sulphur, nitrogen, hydrogen, carbon, etc. The diamond, (pure chrystalized carbon,) reduced to an impalpable powder, would be totally valueless as food for plants. Oxygen must at least be diluted with nitrogen, else it destroys rather than promotes the healthy functions of organic bodies; and as respects nitrogen by itself, we have no proof that it is ever received into the constitution of an organic body. We shall therefore consider the elements of soil in their compound state. Elements in this state act as simple bodies; they are homogeneous; and when they enter into combination, it has the force of a simple substance. Every particle, however minute it may be conceived to be, is still composed of the same matter. In carbonic acid, the pure carbon of the particle is inert: it is the oxygen which combines and brings about the result.

The elements, as now explained, may be divided into two classes: 1. Those which are essential to all organized bodies, and hence are called organic elements; and 2. Those which compose the inorganic world, and hence have received the name of inorganic matter. The first class number only four elements, namely, oxygen, hydrogen, nitrogen, and carbon. The second class comprises eleven elements, namely, silex, alumina, lime, magnesia, potash, soda, sulphur, phosphorus, chlorine, iron, and perhaps manganese.

Oxygen. When free it is a gas, or an invisible aëriform body. Its weight is a little greater than that of atmospheric air. Its

constitution is such that it is ready to combine with all other bodies; and, in the act of combining, it gives rise to one general phenomenon, termed combustion: the only difference which belongs to specific cases, is the rapidity of combination, the end or result being exactly the same. Thus oxygen combines with iron, and forms the black or red powder frequently called the rust of iron. If the combination goes on under the ordinary states of the air, it is an invisible action; but after a few days, the surface is red, and the oxide is formed, consisting only of oxygen and iron. If, however, we contrive some means by which a rapid combination takes place, it is then accompanied with all the ordinary phenomena of combustion, the emission of heat and light; but here it is an oxide which is formed, and nothing else, and the difference of the two cases is one of time only; for, undoubtedly, just as much light and heat are produced in one case as in the other; just as much ice might have been melted by the slow combustion, or as much light emitted, as by the rapid one. So in all other cases there is a combination of oxygen with some other substance; as when wood burns, light and heat are attendant phenomena, the combination proceeding with such rapidity as to render itself both visible and palpable; but if the wood combines slowly with oxygen, as is the case when it rots, then time is required to make us sensible of the change, and yet the final result is but the reduction of the wood to the condition of an oxide, as in the preceding case. The compounds which form in these and all other combinations, are called *oxides*, or *acids*, of the properties of which we will not now speak, but refer the reader to books of elementary chemistry.

Oxygen is the controlling element of both organic and inorganic matter. Few substances are known which are destitute of it; and even if the number were greater than it is, this would hardly affect the truth of the proposition. Its range of affinity is such, and so wide, that all the other elements are usually found in combination with it. Few functions in vegetable or animal life are performed without its agency. The leaves of the forest trees are spread out to exhale it, and the roots fill the soil to suck up fluids which contain it. The lungs of animals expand to absorb it, and vitalize the currents of blood; every organ, every tissue feels its stimulus. Every thing in nature is formed with reference to it. The tiny insect and the feeble worm are subjected to its action. Every living being breathes it; and though of the cold-blooded class, no animal can subsist without a certain quantity to which its nature is adjusted; diminish that quantity, and the animal languishes and dies; increase it, and the animal dies from a too rapid combustion of its organs. Perfectly organized bodies cannot withstand the effects of oxygen, if made to inhale it in a

proportion greater than one to five. Inert as vegetable life seems to be, it will bear no more; neither will it survive a dose less than nature has provided for it. Rocks and soils are but oxides. One half of the solid crust of the earth is oxygen. The waters and the air are combinations of it suited to the conditions of the existence of animated nature, and these conditions are controlled by oxygen.

Hydrogen. This is the lightest aëriform body whose properties have been examined; it is sixteen times lighter than oxygen. It is combustible, and when slowly burned, emits a pale blue flame. If oxygen and hydrogen are brought together in contact with flame, the combustion is instantaneous, and followed with a report loud in proportion to the quantities employed. The product of the combustion is water, a result which proves synthetically the composition of this fluid; the proportions being, by volume, 2 hydrogen and 1 oxygen; or, by weight, 1 hydrogen and 8 oxygen.

Nitrogen. This is a gas, remarkable it is said, for its negative properties. It is lighter than oxygen. Under ordinary circumstances, it is but feebly attractive of other bodies, even of oxygen; and though their temperature be raised to the highest point which we can command in the furnace, they refuse to combine. If, however, the electric spark is passed through a mixture of oxygen and nitrogen, combustion ensues, and nitric acid is formed. Lightning is supposed to effect a similar combination in its passage through the atmosphere. Atmospheric air, which is considered a mixture of these two gasses, contains 20 oxygen and 80 nitrogen, omitting decimals. This proportion has been regarded as indicating a chemical union; but it seems to be explained by the fact that there is no more free oxygen in the universe, by which the air can be charged so as to alter the proportion; for doubtless these two gases will mix as well in any other proportion as in that which composes the atmosphere. It is the proportion created, and to this organic bodies and beings are fitted.

The physical properties of the atmosphere are no less important than the chemical. Its height, its destiny, and consequently its pressure, are subject to as little variation as its composition. When in motion, its weight is diminished. It is a solvent of water, which exists in its interstices as sugar in those of water; and, like water, its capacity for solution under given conditions is limited. If the atmosphere was anhydrous, the bodies of animals would be required to be anhydrous also; but the constitution of living bodies requires a great proportion of liquids. The physical constitution of the atmosphere being determined, life, its function and its apparatus, are adjusted to those conditions.

Carbon is a solid. The diamond is always referred to as an example of pure carbon, because, when burned, the residue is

carbon in union with oxygen. The common form, charcoal, differs but slightly from the diamond in composition, but the physical properties are quite different, although the difference is not greater than that of pure alumina and the sapphire. So it is not improbable that, like the instance here cited, the difference is due to crystallization. Carbon forms the solid parts of organic bodies except those which are formed of the compounds of lime. In the vegetable kingdom, especially, carbon is the element which gives solidity and strength to the individual. It also enters largely into the composition of fluids, or it may be said that this state is preparatory to a conversion into the solid form. Carbon is always black when uncrystallized. Chalk and lime, magnesia, together with a great number of other bodies of the mineral kingdom, are compounds of carbon, or rather triple compounds of oxygen, carbon, and lime, or some other base. Carbon is widely distributed in both the organic and inorganic worlds. It is associated with the oldest products of the latter, and is brought up from the lowest depths of the earth, and hence is as ancient and as consequential as any of the elements except oxygen.

Soil without carbon, very rarely, if ever, produces perfect vegetables. The experiments which go to prove the contrary are suspicious. Soil which has been heated to redness does not part with its carbon; the acids do not destroy it; and hence those instances where it has been attempted to destroy organic matter, or the carbon in soil, may be set off against the difficulty of destroying it under circumstances more favorable. Crenic or apocrenic acids are scarcely destroyed by a red heat, when the quantity is very small; so the organic matter of soils is very rarely consumed, when brought to a bright redness preparatory for analysis.

CULTURE OF THE CRANBERRY.

As we have had several inquiries on the subject of cultivating the cranberry, we give the following communication from Mr. B. G. Boswell of Philadelphia, in the 6th No. of "The Farmer and Mechanic," which we believe will be very acceptable to our readers.

This delicious fruit is coming into such general use, and is becoming so important an article of export, and so much interest is now taken in its cultivation, that I propose giving a concise account of the same, and its general history.

The common American Cranberry (*oxycoccus macrocarpus*) is found growing in a wild state in swampy soils, in the eastern, middle and western states. The first account we have of the cul-

tivation of this fruit, is by the late Sir Joseph Banks, who in 1843, produced from a bed 18 feet square, 3½ Winchester bushels; being at the rate of 400 bushels to the acre. Capt. Henry Hall, of Barnstable, Mass., has cultivated this fruit for the last twenty years. His method is to spread on his swampy ground a quantity of sand; this is to kill the grass; but where sand is not at hand, gravel will answer the same purpose. He then digs holes four feet apart each way, and puts in the holes sods of cranberry plants about one foot square.

As this plant naturally grows in a wet soil, it is generally supposed it will not thrive in a dry soil; but this idea is erroneous. Mr. Sullivan Bates, of Bellingham, Massachusetts, has cultivated the cranberry on a dry soil for several years with the utmost success; having produced 300 bushels to the acre on several acres, and his fruit double the usual size. His method is to plow the land, spread on a quantity of swamp muck, and after harrowing the soil thoroughly, set out the plants in drills twenty inches apart, hoeing them the first season. After this no cultivation is needed. By both of the above methods the plant will cover the ground in three years.

From my own knowledge of the cranberry for the last thirty years, should I design commencing the cultivation of this fruit on an extensive scale, I would try it on both swampy and dry soils. I would drain the swampy soil, plow it as early as possible in the spring, and set out the plants on the plan of Mr. Bates.

To show the rapidity with which cranberry plants increase, I will add this statement from an English work on fruits: An English gentleman had only a few plants, these he cut in small pieces or cuttings, and set them out in a green house. In the spring he prepared some swampy ground by spading it 12 inches deep. In a bed 150 feet long, and 4 wide, he set out 75 feet cuttings in one drill through the length of the bed, putting the cuttings two feet apart in the drill, and yet in three years the plants completely covered the ground.

In Massachusetts the cranberry crop is once in a few years cut off by the late spring frosts. This may be prevented where a meadow is so situated as to be flowed. The water should not be over one or two inches deep on the cranberries, nor be left on later than the last of May in this climate. If kept on till it becomes warm, it will kill the vines. Perhaps the best management would be something as they flood rice fields at the south, or water meadows in England,—let the water on while the weather is coldest, and then take it off as it moderates. Sometimes, in the eastern states, the cranberries are destroyed by a frost in September; where water is convenient and plenty, the meadow could be flowed on cold nights at this season, as well as in the spring.

Previous to shipping cranberries, they should be run over a platform slightly inclined. The rotton and bruised fruit will not run off, but stick going down the platform, and are scraped off and thrown away. The perfect fruit is then put into tight barrels, and when headed up filled with water, and in this manner they arrive in Europe, in perfect order, and have frequently sold in foreign ports at $20 per barrel.

Rakes are now made for the express purpose of gathering cranberries, and although these rakes tear the vines somewhat, yet the crop is not diminished by raking; on the contrary, it has been increased. Some years ago a gentleman in Massachusetts commenced raking his little patch of one-fourth of an acre. The first year it produced twelve bushels, the next eighteen, the third, twenty-five, and so on till his last harvest, when the crop amounted to sixty-five bushels. The increase is easily accounted for by the method of gathering with rakes — the pulling up a few of the vines loosens the ground, and although not intended, yet in fact the raking acts as a partial cultivation.

To promote the cultivation of this fruit, the American Institute is making arrangements to supply horticulturists with plants early in the spring, in either large or small quantities; and I would recommend those wishing to purchase, in this vicinity or New-York, to get their supplies in this way.

B. G. BOSWELL.

Philadelphia, Jan. 1844.

ON THE CULTIVATION OF THE GOOSEBERRY—TO SECURE IT FROM THE SCAB OR FUNGUS.

That useful and valuable fruit, the gooseberry, which is now considered so important in Europe, is with difficulty raised here, the berry so soon becomes scabbed or covered with a dirty fungus. This takes place, too, in gardens where every care has been bestowed on them. This excess of attention in keeping them free from weeds and grass, and exposing them to the hot weather of August and September, proves highly injurious and contrary to their nature. I am fully convinced, after much observation, that the mode of culture with Gooseberries in England, will not apply to this region. I have had ample opportunities of witnessing what has been accomplished in England, and what has been attempted here, and now see the cause of failure. In the notes I have kept on the progress of vegetation and the ripening of fruits for 1837, which was a remarkably wet season, there is the following entry:

"July 12. The Gooseberries this year, are better than I have seen them for several years past. The shrubs as well as the fruit are less coated with a fungus which spoils the berries." It appears, therefore, that a wet season is peculiarly suited to the Gooseberry. That the season of 1837 was remarkable for its wetness, will appear from the following table kept at Albany, N. Y. (See Report of Regents for 1838.)

Rain.

1837, April,	1 inch	63	hundredths.
May,	7 inches	34	"
June,	5 "	06	"
July,	4 "	38	"

It is satisfactory to find that a wet season, which is injurious to many fruits, causing them to decay rapidly, is congenial to the Gooseberry. The season of 1846, as to amount of rain, has resembled that of 1837, and has suited this fruit. With this knowledge, we may hope to commence a new era in the cultivation of the Gooseberry, which may be highly useful in some sections.

I would here briefly state, that the secret and success in cultivating the Gooseberry in this place, free of scab, and securing a full crop, is to *grow them in grassy places, or grass borders sufficiently wide, and allow the grass to grow rather luxuriantly among them*, until they have attained their growth, and are thereby secured from the forming scab. When the berries begin to ripen, the grass should be cut, being no longer required. I saw, many years ago, in Vermont, some excellent Gooseberries growing in wet shady places, and among grass and plants. I also, most unexpectedly, found a stray Gooseberry bush growing among tall rye, and bearing a full crop of excellent fruit. I give these instances to show that the Gooseberry is fond of shade and moisture in this climate, and to grow them with success in the garden, abundant dew and moisture must be provided, and this the grass fully supplies.

There are two gardens within the limits of this city, which have produced Gooseberries from year to year, *entirely free of scab*, when all others, we may say, generally had their fruit ruined. These, I ascertained, were grown rather by negligence than design, at first among the grass. One of the gardens belongs to the Rev. Dr. Jarvis, the other to Mr. John Bliss. The latter assures me, he has not failed during about twenty years in having his Gooseberries free from the scab. I purposely watched these gardens attentively, as well as several others, to give a faithful report of this novel mode of culture, which promises so much. I found them nearly ripe, July 4. The berries were of the red kind, of a medium size. The bushes required the aid of props to secure

them from breaking under their load of fruit. As to quantity, I was highly gratified to observe that they bore as largely as the best examples I had seen in England.

The Gooseberries in the garden of the Rev. Dr. Jarvis, grew on a long strip of grass, about four feet wide. They are not, I apprehend, the largest and choicest fruit, and at first did not keep pace with some of the later imported kinds. The grass, instead of being cut, was suffered to grow among the bushes. I was struck with the luxuriant manner they grew, from the wet and dew thus afforded. While the grape and cherry were rapidly decaying, the berries of the gooseberry were entirely free from decay, being clear and bright skinned. Those in dry grounds were much diseased, and the bushes had become a nuisance.

I have already adverted to the peculiarity of the blossoms of the currant, resisting heavy rains. The Gooseberry blossoms are similarly constituted, and entirely different from the flowers of the grape, the apple, the peach, and the plum. I have thought that grass may be further serviceable to the Gooseberry, by abstracting from the soil those substances which foster the growth of minute fungi. This, however, is offered rather as a matter of conjecture, than from actual proof, and requires further investigation to determine.

I do not expect that the plan recommended will be perfectly successful the first year, after the removal of the Gooseberry shrubs among grass, or when sodded, though I do in the second season. The forming buds are injured, and the bark diseased by exposure to hot weather during the months of August and September, when they are not protected by grass, and sufficiently supplied by dew and moisture. The Gooseberry is a dew-loving plant, and must be supplied with moisture, otherwise it cannot flourish here as in Europe.

The wild American strawberry furnishes another striking example of a berry growing among grass. This seems its favorite place, or habitat, as the botanists would say. They grow in grassy meadows in argilaceous soils, (which are best adapted to hold moisture,) much better and sweeter, that when suffocated among their own dense leaves in the garden.

I remember to have seen a garden in England, devoted to the cultivation of the strawberry, where the leaves and vines became too luxuriant, and they yielded but little fruit. As an experiment one bed was underlaid with a reddish clay, fit for brick-making, and nests or a mixture of soil was prepared for the strawberry plants. The difference was most striking; it seemed as if this bed was all fruit, and the others only leaves. I have observed some similar examples of this preference to clay in meadows, in new cleared lands in this country, where the wood ashes and car-

bon of the burnt brush had given the highest perfection to the fruit, without the luxuriance of foliage which causes so much trouble. When left to nature they travel or plant themselves, by means of running vines they put forth.

In my botanical excursions in England, I do not recollect finding the strawberry growing in grassy places, as in North America. I have turned to Gerard's famous Herbal, printed in 1597, for his experience in this matter. He says: "strawberries do grow upon hills and valleies, likewise in woods and other such places that bee something shadowie, p. 845."

The same author, also, describes, and gives a figure of the Gooseberry, p. 1143, and mentions one whose fruit "is almost as bigge as a small cherrie, and verie rounde in forme; also another of the like bignes of an inch in length. We have also in our London gardens, another sort altogither without pricks, whose fruit is very small, of a perfect red color."

This early notice shows the little progress then made in the cultivation of a fruit that is now the pride of the Lancashire weavers, and not less esteemed in all the large cities of Great Britain. The English markets are now largely supplied with the Gooseberry. They have grown this berry weighing 31 pennyweights and 16 grains! which is a little more than one ounce and three-quarters avoirdupoise. Twenty-five pennyweights is regarded as a good weight for a Gooseberry.

Chinese Eatables.—They eat almost every thing that comes to hand. Upon the streets of the city, but particularly on the large square before the factories, a number of birds are daily exposed for sale, which amongst us have not yet gained much repute for flavor; among others, hawks, owls, eagles, and storks. To an European, nothing can have a more laughable effect than to see the Chinese arrive, with a carrying pole, supporting two bird cages, which contain dogs and cats, instead of birds. A small, thin sort of spaniel appeared to us to be most in request; they sit quite downcast in their temporary dwellings, when they are brought to market; while the cats make a dreadful squalling, as if conscious of their fate. The flesh of these last, when they are well fed, is much esteemed in China, and they are often seen on the tables of the rich. Other Chinese bring upon their carrying poles many dozens of rats, which are drawn quite clean, and, like pigs in our country, when they have been opened, are hung up by means of a cross-piece of wood through the hind legs. They look nice, but are only eaten by the poor.

NORMAN HORSE.

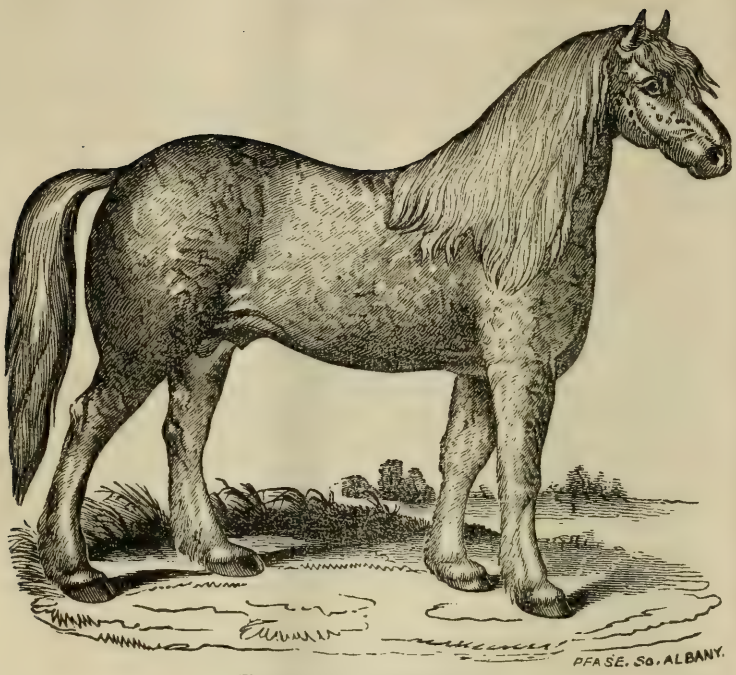


Fig. 15—The Norman Horse.

It was our good fortune to have an opportunity, a few days since, of viewing a young, full bred Norman horse, bred by our friend E. Harris, Esq., of Morestown, N. J., who imported the sire and dam some eight or nine years since. The horse to which we have reference was purchased by Mr. R. B. Howland, of Union Springs, Cayuga county.

We congratulate the farmers of Cayuga county, and vicinity, on this acquisition, and feel no small degree of pleasure in being able to announce to our readers that one of these useful horses has been introduced into this state.

The above cut, with some exceptions, is a fair representation of the form of Mr. Howland's horse. His color is a light gray, rather inclining to white; he is four years old past, and about fifteen hands high; measures around the girth six feet three inches; around the fore leg, below the knee, ten and a half inches; around the hind leg, below the hock, twelve and a quarter inches; and weighed on the scale, at the Boston depot, eleven hundred and twenty pounds.

"The origin of this race, according to French authorities, dates from the occupation of the Netherlands by the Spaniards, who introduced the Andalusian horse, which soon became the favorite stud-horse all over the continent. The Spanish horse is known to spring from the Barb or Arabian, introduced by the Moors on their conquest of that country. All who are conversant with the history of the horse, know that the Andalusian has always been celebrated for his beauty, and for his great spirit, combined with extraordinary powers of endurance. The French horse upon which he was crossed, was the old Norman draft horse, which still exists in the country in all its purity; and is, perhaps, the best of all horses for slow draft."

The Norman horses are noted for hard work and scanty fare. They have the character of great endurance and energy. "With their necks cut to the bone, they flinch not, but put forth all their energy at the voice of their brutal driver, or at the crack of the never-ceasing whip."

They are also noted for their great age, the rarity of spavins, wind galls, or other blemishes of their limbs, and for their honesty at a *dead pull.* A balky horse of this breed was seldom or ever known. They are very gentle and docile; a kicking or vicious one is rarely known; persons may pass at the heels of hundreds, in perfect security.

Mr. Howland, the present owner of the horse under notice, says: "When traveling in France, my attention was first attracted by the uncommon speed and endurance of the Norman horses, before their heavy, cumbrous diligences, loaded equal to one ton to each horse, in stages of ten to fifteen miles, trotting or running their seven miles per hour, and that too, without the slightest symptoms of fatigue; and when they stopped to change they would bite and kick each other, amid the *sacres* and beatings of the drivers and stable boys."

We have before expressed our opinion, and we now repeat it, that in our humble judgment the Norman horse, above all others, is best calculated, at the present time, to improve our breed of horses for the road and the farm. We have generally too much of the *racing* blood for farm labor; they are generally too light for the plow or heavy draft on the road; too much spirit and mettle for a heavy, steady pull. We want to increase their weight without extending their height; and we know of no horse better calculated to accomplish the desired object than the Norman horse—a large animal in a small compass—capable of greater endurance, and keeping in good condition with comparatively a small allowance of grain; powerful enough for the plow, and speedy action for the road.

ANALYSES OF CLAM AND OYSTER SHELLS.

BY J. H. SALISBURY.

[Assistant in the Laboratory of Professor Emmons.]

In the vicinity of the sea coast, and in the neighborhood of large towns, the common clam and oyster shells are quite extensively used by the farmers as a manure. They are sometimes thrown upon the land whole, sometimes previously broken into fragments, and often burned. As a general rule the latter method may be considered preferable to either of the others.

Soils, however, containing already a sufficient quantity of lime for present demands, and where the object is merely to compensate for the gradual waste, shells unburned may answer quite as good a purpose as those which have been burned. When used before burning, owing to their compact texture, they are acted upon but slowly by the ordinary agents to which they are subjected, and hence it requires a much larger quantity of them than of burned shells, to exert, in a given time, the same degree of influence upon the soil. Unburned, their effects are not materially different—throwing aside the small quantity of animal matter and soluble salts they contain—from ordinary limestones broken equally fine and disposed of in a similar manner.

Before burning—omitting the moisture—they are made up principally of carbonates, with a small quantity of organic matter, phosphates, sulphates and chlorides. The process of burning expels nearly all of the carbonic acid, organic matter, and a portion of the chlorine, leaving the phosphates, sulphates, and a small amount of chlorides and carbonates. The rest, ——— lime, which makes up nearly the whole, is in a caustic state.

As the composition of these shells may be of some interest and value, especially to those who use them as a manure, we here give their analyses both before and after being burned.

The common clam shell, (Venus mercenaria)—100 grains of the unburned shell gave of

Silica, - - - - - -	none.
Phosphates of iron, lime, and magnesia, - - - - - -	1·250
Carbonate of lime, - - - -	69·204
Sulphate of lime, (gypsum,) - -	·815
Lime, probably combined with organic matter, - - - - - -	13·907
Magnesia, - - - - - -	1·400
Potash, - - - - - -	1·897

Soda,	6·101
Chloride of sodium, (common salt,)	·895
Organic matter,	6·050
	101·519

The same shell burned till the organic matter and carbonic acid were nearly all expelled.—100 grains gave of

Silica,	none.
Phosphates of iron, lime, and magnesia,	1·856
Lime,	78·610
Sulphate of lime,	1·210
Magnesia,	2·078
Potash,	2·816
Soda,	9 058
Chloride of sodium, (common salt,)	1·328
Carbonic acid,	3·043
Organic matter,	trace.
	99·999

Shell of the common oyster, (Ostrea borealis)—100 grains of the fresh shell, deprived of water, gave of

Silica,	none.
Phosphates of iron, lime, and magnesia,	.482
Carbonate of lime,	86·203
Sulphate of lime,	2·061
Lime, probably combined with organic matter,	6·035
Magnesia,	·338
Potash,	·191
Soda,	·518
Chloride of sodium, (common salt,)	·172
Organic matter,	3·613
	99·613

The same shell burned till nearly all the carbonic acid and organic matter were expelled.—100 grains gave of

Silica,	none.
Phosphates of iron, lime, and magnesia,	·800
Lime,	91·918
Magnesia,	·560
Potash,	·316
Soda,	·859

Chloride of sodium, (common salt,)	·285
Sulphuric acid, - - - - -	2·011
Carbonic acid, - - - - -	2·050
Organic matter, - - - - -	trace.
	98·799

From these analyses it will be seen that the shells of the clam contain a much larger per cent of phosphates, magnesia, potash, and soda, than those of the oyster; while the latter are much the richest in lime and sulphuric acid.

MEETING OF THE EXECUTIVE COMMITTEE OF THE NEW YORK STATE AGRICULTURAL SOCIETY.

PRESENT—George Vail, Ex President; George Geddes, Samuel Cheever, Vice-Presidents; Luther Tucker, Joel Rathbone, J. McD. McIntyre, B. P. Johnson.

Letters were received from A. B. Allen; A. J. Downing; Theodore D. Woolsey, D. D., President of Yale College; L. F. Allen; I. Delafield; J. A. King; E. C. Herrick, Yale College; C. Lee; D. Deitz; M. P. Wilder; I. M. Ellis; I. B. Burnet; Mons. A. Vattemare; J. J. Sproull; M. P. Coons; D. J. Browne; R. Clearwater; Jewell, Harrison, & Co.; J. R. Gibson; J. Boyce; J. W. Bailey; H. Blanchard; J. G. Carl; Messrs. Hancock & Fetters; Rev. C. E. Goodrich; A. L. Fish; E. Baldwin; Frederick A. Ford, South Carolina; J. Alleyn; Rev. D. Hunt; Asa Fitch, M. D.; Hon. T. Jenkins; J. W. Jenkins; A. H. Stevens, M. D.; J. Darrack.

Prof. J. F. W. Johnston, Durham, England, was chosen a corresponding member.

The following books and pamphlets received for library:

M. P. Wilder, Esq., President of the Massachusetts Agricultural Society, Transactions of their Society, with colored prints, &c.

Annual Report of the Buffalo Horticultural Society, with Address of the President, L. F. Allen, Esq.

Address of A. B. Conger, Esq., before Rockland Agricultural Society, from J. M. Dederer.

From Prof. J. P. Norton, Yale College, catalogue and pamphlet containing an analysis of Peas, Beans, &c.

M. B. Bateham, Esq., report of Ohio Board of Agriculture.

Rev. D. Hunt, Pomfret, Connecticut, specimens of Russet Apples, raised on his farm, of the growth of 1846 and 1847, in fine preservation. Apples from the same tree were shown at the fair

of the Oswego County Agricultural Society, in this state, by the late Peter Chandler, Esq., in fine preservation, of the years 1845, '46, and '47. Cions from the trees bearing this fruit were received and distributed.

Received from L. F. Allen, (President,) a sample of "Stilton" cheese, made by Henry Parsons, of Guelph, Canada, which, in the opinion of the committee, is a very superior sample of that variety.

This variety of cheese, proverbial for its richness, was first made near Melton, in Leicestershire, England, by a relation of the landlord of the old Bell Inn, at Stilton, which gave the name, and its reputation was such that it for a long time sold for half a crown a pound. The following account of its manufacture is from British Husbandry:

"It is made by putting the night's cream, without any portion of the skimmed milk, to the milk of the following morning; but those who wish to make it very fine, add a still greater quantity of cream, and of course the richness of the cheese depends upon the amount which is used. Butter is also said to be sometimes mixed with it. The rennet is then added without any coloring; and when the curd has come, it is taken out without being broken, and put whole into a seive or drainer, where it is pressed with weights until completely cleared of whey; when dry, it is put, with a clean cloth, into a hooped chessart (or mould) and placed under the press, the outer coat being first salted; when sufficiently firm to be removed from this mould, the cheese is placed upon a dry board, and tightly bound in a cloth, which is changed daily, in order to avoid all danger of cracks in the skin, until this is found to be tolerably well crusted; after which it is no longer used, and the cheese requires no further care than being frequently turned upside down, and occasionally brushed."

"The cheeses of this kind, although not much larger than the crown of a good sized hat—the form of which they much resemble—and not weighing more than about a dozen pounds, yet requiring nearly two years to bring them to perfect maturity, for they are not generally thought sufficiently mellow for use until considerably decayed; and in order to forward their ripeness, it is said that besides being placed in damp, but warm cellars, they are sometimes wrapped in strong brown paper, and sunk in a hot-bed."

A choice sample of cheese, from one of the Hamburgh dairies of Erie county, was also presented by Mr. Allen. This was excellent, and it is hoped is but a sample of a superior exhibition from that county at the next State Fair.

T. M. Burt, Kinderhook, presented some cions of Newtown pippins, from the orchard of Hon. J. P. Beekman, for distribution.

Thanks were tendered to the contributors and donors.

The following interesting account of the proceedings of the Farmers' Clubs of Seneca county, is most encouraging, and is evidence that the efforts making by the state and county societies, are doing great good in directing the efforts of farmers to the application of science in aid of their own practice, in the culture of their farms.

Farmers' Clubs.—The successful action of the Agricultural Club of Fayette, seem to indicate a strong feeling in our farmers to elevate the character of our county; and, pursuing the course which has been adopted by the Fayette Club, cannot fail, we think, to elevate the man, while it increases his products.

Lectures have been given thus far, this winter, explaining the properties of the Atmosphere—of Water—and of Soils—and experiments are exhibited, at every lecture, giving to the eye the facts stated by the lecturer.

On Saturday last, the germination of seed was exhibited and explained, and the growth of the plant shown from its seed to the reproduction of seed. The curious transformation of the starch in wheat was carried on before the club, from starch to gum, and from gum to sugar.

The lecture for next Saturday will, we understand, show how the wheat and other plants take up their food—and then show *what* food should be given to them, and *how* it should be done. We have heard the President of our County Society remark, that a large number of the farms in this county might be made to produce forty bushels of wheat to the acre, and it seems but reasonable to believe that, if that average can be attained, the proceedings of Farmers' Clubs, thus conducted, will, before a great while, test the powers of this country.

Hon. George Geddes, of the senate, exhibited a crystal, (hopper shaped,) called Pseudmorphus, crystal of common salt, from the Salt Marl of Onondaga, taken from a well being excavated at his place, Fairmont; also, an improved cultivator tooth, which is very much approved—to be seen at the rooms.

Fine specimen apples from M. Y. Tilden, New Lebanon, for name—(believed to be Pearmain.)

From C. J. Hastings, Esq., Clinton, account of Farmer's Club formed in that town, with the proceedings of one of their meetings, also an account of the Middle Apple.

From Hon. O. C. Crocker, Broome county, an interesting account as to the manufacture of butter.

Pomological Convention.

Resolved, That a convention of fruit-growers and nursery-men be invited to meet at Buffalo on the 12th, 13th, and 14th of Sep-

tember next, during the fair of the society, for the purpose of comparing views, and of taking such measures on the subject of Pomology, generally, as may be deemed advisable.

Resolved, That the secretary prepare a circular to be forwarded with the above resolution to gentlemen interested in the subject, and requesting their attendance, and that they be furnished to the editors of Agricultural and Horticultural papers for publication.

Resolved, That it be required of committees hereafter, especially those on animals, in making their reports, to give the reasons of their decision, embracing the valuable and desirable qualities of the animals and articles to which premiums are awarded.

Letters were received from Messrs. Thompson, Alleyn, D. T. Vail, and Rathbone, delegates to Massachusetts Horticultural Society, giving an interesting account of the splendid exhibition of that society, and of the attention shown to them, and the facilities afforded for a complete examination of the great variety of fruits and flowers on exhibition. From A. T. Underhill, M. D., delegate to the Pennsylvania Horticultural Society, in which he says the exhibition of the flowers and fruits of the choicest varieties was an honor to the State. The last day of the fair a dinner was provided, at which the State Agricultural Society of New York was duly honored, and responded to by the delegate, who extended a cordial invitation to the gentlemen of the society to attend our next fair.

B. P. JOHNSON, *Secretary.*

NEW GARDEN PLANTS.

TRITONIA AUREA. Golden Tritonia. *Greenhouse Perennial.* (Irids.*) Caffraria.

This was introduced by Mr. James Backhouse, of York. It is a very fine thing, remarkable for the rich apricot-color of its large Ixia-like flowers, and for the abundance with which they are produced. We are unacquainted with the foliage and natural habits of the species, but presume that it resembles the African Gladioli in manner of growth, and in the treatment which it demands; except that, as it is a native of the northern districts of the Cape Colony, it may be expected to be more tender than many of the irids from the same colony. A specimen was exhibited to the

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

Horticultural Society in September last, when a silver medal was awarded to it.—*Botanical Register.*

Aquilegia Leptoceras. Slender-horned Columbine. *Hardy Perennial.* (Crowfoots.*) Siberia.

This very pretty plant has been raised in the garden of the Horticultural Society, from seed received from Dr. Fischer in 1846; and is thus described in the Society's Journal:—" A dwarf herbaceous plant, not growing more than nine inches high, with slender purplish green stems thinly coated with scattered hairs. Each stem bears one or two flowers, on slender pedicel, rather more than two inches long. The flowers are a pale bright violet, with the tips of the sepals greenish, and of the short petals a clear bright straw-color. It is found to grow best in a mixture of light sandy loam and a little leaf-mould. It is increased freely by seed sown as soon as ripe. It must be considered a neat and very pretty plant, well suited for rockwork.—*Botanical Register.*

Exacum Tetragonum var. bicolor. Square-stalked Exacum; two-colored var. *Stove Annual.* (Gentianworts.*) East Indies.

For the seeds of this Sir W. Hooker is indebted to J. E. Law, Esq., of Tanna, Bombay, who finds it growing profusely in the Concan among long grass. The seeds being sown in the autumn of 1846, produced flowering plants in the stove of the Royal Gardens in June, 1847. The blossoms are purple, white at the base, and highly ornamental; but as the plant is annual, it may prove difficult in some seasons to ripen the seed. The flowers are very variable in size and color, and Mr. Law observes the color is sometimes altogether purple; and Dr. Roxburgh remarks that the leaves are also very variable.—*Botanical Magazine.*

Gardenia Nitida. Glossy-leaved Gardenia. *Stove Shrub.* (Cinchonads.*) Sierra Leone.

From Messrs. Lucombe and Pince, who raised it from seeds taken from a dried specimen gathered by Mr. Whitfield. It proves to be a perfectly new and most distinct species, possessing handsome, dark green, glossy foliage, the flowers are among the larger of the genus, deliciously scented, and the calyx is furnished with large leafy segments, the corolla is of the purest white, its limb cut into seven long segments, which soon become reflexed. Though shrubby, it is eminently suited to " pot culture." It blossoms in October and November, and will probably be found to do so at other seasons.—*Botanical Magazine.*

* See Lindley's " Vegetable Kingdom" for an explanation of thèseterms

AMERICAN GUTTA PERCHA COMPANY.

Of the numerous articles of commerce and manufacture which have been introduced into our country, that which has given rise to the association named above is probably second to none in respect of utility, and interest, and importance. Our benificent Creator, in providing for the diversified wants, whether real or imaginary, and in making arrangements for the comfort and subsistence of the human species, has imparted to different productions of the earth every various quality necessary for the accomplishment of these objects. And he has left it to the ingenuity and art of man, to make use of these productions in the mode best adapted to the purposes for which they are, as it would seem, more especially designed. Those having few useful properties are, of course, limited in their application and adaptation to man's wants; but others again, of a more versatile character, can be appropriated to many valuable uses. Of all the articles of this latter description that we have met with, we know of nothing which, in its numerous and diversified, and even opposite qualities, can compare with that which is known by the Indian name of *Gutta Percha.* It is the gum of a tree which grows in the island of Borneo, and which is found in great abundance in the forests of the Malayan peninsula. The term Gutta means simply the gum, and Percha is the name given by the natives to the tree from which it is procured. The tree often grows as large as six feet in diameter, and is chiefly useful for its gum, or the sap obtained from it, although it produces a fruit yielding a concrete oil, used for food. Although of such large dimensions, the wood of this tree is unfit to be used for timber, or in building. It was, in fact, a matter of mere accident that it became known as possessed of a property that could be usefully employed for manufacturing purposes. A native woodman was first seen with the handle of an axe, called in their language a *parang*, which, attracting the attention of a physician at Singapore, was found upon inquiry to be made of this substance; and, although perfectly hard at the time, having ascertained that by dipping it into boiling water it became soft and pliable, and could be moulded into any form, and that it regained its rigidity when cold,—he immediately conceived the idea, that it might be converted into a very valuable article of commerce. And having communicated this discovery to the medical board at Calcutta, and to the Society of Arts in London, measures were immediately taken by the East India Company to collect it for exportation. This occurred in the autumn of 1843;

and already they send out to Europe—whence it is obtained here —several hundred tons annually. The first introduction of this gum into this country was made as recently as September of last year by Mr. S. T. Anthony, who had been for some months in England and on this continent, for the purpose of making himself familiar with its manufacture, and who purchased in England, of the London Company, the exclusive right for this country, and who immediately, or in the month of October, commenced manufacturing it under their patents. He with others have associated themselves into what is called the American Gutta Percha Company, and they have, as we understand, a capital that can be extended to any amount that may be desired or that the necessities of the company may require. Already the orders for the different articles made from this gum are so numerous, that they have been obliged to change the scene of their operations, and they have purchased, at considerable expense, the machinery, and rented the extensive buildings recently occupied by the New York India Rubber Company, in Water-street, Brooklyn. They have been obliged to make many alterations and additions to the machinery that had been used here, and to introduce others entirely new and of a different character. These latter are of English manufacture, and are very expensive. They have on the first floor of their establishment ten machines used in the manufacture of this gum, weighing from four to twenty tons each. And from the perfect manner in which these machines perform their work, very few hands are sufficient to manage them. The whole of them are driven by one engine of from eighty to one hundred horse power —in fact, this engine serves to heat and warm the whole building, and is the only moving power requisite for every part of the establishment.

The process of manufacturing is first by means of a machine, procured from England, to clean the gum, (which, in its imported state, is of a whitish gray color, and filled with bark, leaves, chips, &c.,) from its different impurities; for which purpose it is first reduced to a semi-liquid state, and as it passes through the machine it is separated from all foreign matter. In this state it has little tenacity. It is next amalgamated by means of a second machine, with a soft elastic gum, called *jintiwan*, which gives to the Gutta Percha the additional strength, durability, &c., for which it is so remarkable. After two or three other operations, by means of additional machinery, it is ready to be converted into the different articles of manufacture required. The numerous purposes for which it can be employed is truly astonishing, such as soles for boots, covers for books, ornaments for houses, decorations for steamboats, floor cloths, carriage covers, garments, &c. In short, there seems to be scarcely a limit to its application for pur-

poses of utility. It is impervious to both air and water; it is hard iron, and almost as enduring, and as soft as silk and pliable as wax. But one of the most useful applications which has been made of it, is for banding, both flat and round, for machinery, in which respect it is decidedly superior, as we have been informed by those who have used it, to any thing that has ever yet been employed. Compared with leather in durability, without being liable to its objections, it is as four to one, in banding as five to one, in shoe soles as eight to one, in harness as ten to one. Its strength is prodigious; a piece one-eighth of an inch in substance will sustain a weight of fifty-eight pounds. We have seen a round band of about one inch in diameter, to which we were told that the force of twelve horse power had been applied, without parting it. Its property of tenacity is beyond that of any other substance that can be adapted to a like object. There is manufactured in this establishment about two thousand feet of banding daily, and even at this rate, the company are scarcely able to meet the orders for this article. From the arrangements they have made with the East India Company, they will always have on hand an abundant supply of the imported material, and from the nature and facilities of their establishment, they expect to be able to meet orders of any description of manufacture to which this gum can be converted.—*N. Y. Far. & Mech.*

NORTHERN RICE.

Gen. Verplanck, the commissioner to negotiate a treaty with the Chippewas, in speaking of the Wild Rice which grows abundantly in Minnesota, says it is better than the southern rice. The berries are larger, and its flavor is better; for when boiled and stewed and left to cool, it forms a consistent mass, like good wheat bread, and more nutricious. Any quantity of it grows on all the lakes in this northern country. The outlets and bays are filled with it. It ripens in the month of August, and is the main reliance of the Indians, during the winter months, for their subsistence.—*Selected.*

Prof. Agassiz.—It affords us great pleasure to announce, that this distinguished naturalist has accepted an invitation to remain in this country in connexion with the scientific corps of Harvard College, and at the head of the Lawrence Institute. Every friend of science in America, we are sure, will rejoice to hear such unexpected good news.

METEOROLOGICAL OBSERVATIONS FOR MARCH, 1848.

Made at the Albany Academy, by Dr. T. R. Beck, Principal, &c.

Days.	THERMOMETER.				WINDS.		WEATHER.		RAIN	REMARKS.
	6 A. M.	3 P. M.	9 P. M.	Mean.	A. M.	P. M.	A. M.	P. M.	Inch's	
1	16	23	19	18·50	N. W	N. W.	Clear.	Clear.		
2	11	32	24	25·33	N. W.	N. E.	Clear.	Clear.	0·41	Snow.
3	29	34	27	28·50	N.	S.	Cloudy.	Cloudy.		Snow.
4	20	35	30	28·83	N. W.	N. W.	Clear.	Clear.	0·04	Snow.
5	23	26	18	20·83	N. W.	N. W.	Clear.	Clear.	0·02	Snow.
6	14	34	33	29·00	S.	N. W.	Clear.	Clear		
7	26	51	42	41 33	S.	S.	Clear.	Clear.		
8	36	55	50	47·17	S.	S.	Clear.	Cloudy.		
9	37	45	29	34·33	N. W	N. E	Cloudy.	Cloudy.	1·26	Rain, snow & hail.
10	21	30	23	23·50	N. E.	N	Cloudy	Cloudy.		Rain, snow & hail.
11	14	33	24	22·83	N.	N. W.	Clear.	Clear.		
12	9	40	40	34·17	S.	S.	Cloudy.	Cloudy.		
13	36	35	25	28·00	S. W.	N. W.	Clear.	Cloudy.		
14	12	25	11	14·17	N. W	N. W.	Clear.	Clear.		
15	1	18	9	9·00	N. W	N. W.	Clear.	Clear.		
	Semi-	mo'ly	mean	27·03					1·73	
16	— 1	27	10	12·00	N.	N. E.	Clear.	Clear.		
17	— 1	32	22	21·50	N.	N.	Clear.	Clear.		
18	22	41	27	29·33	S.	N. E	Clear.	Clear.		
19	18	44	38	36·17	N.	S.	Clear.	Cloudy.	0·15	Rain and snow.
20	35	49	44	43·33	N. W.	S.	Cloudy.	Cloudy.	0·12	Rain.
21	39	47	44	42·50	S.	S.	Clear.	Clear.		
22	34	49	39	40·83	N W	N.	Clear.	Clear.		
23	35	43	38	38·50	N. E.	N. E.	Cloudy.	Cloudy.	0·17	Rain and snow.
24	34	46	35	37·33	S.	N E	Cloudy.	Clear.		
25	28	55	46	45·50	N. W.	S.	Clear.	Clear.		
26	43	47	46	45·50	S.	S.	Cloudy.	Cloudy.		Rain.
27	44	46	43	43·67	N. W.	N.	Cloudy.	Cloudy.	0·61	Rain.
28	40	47	44	43 83	N.	N.	Cloudy.	Cloudy.		Rain.
29	41	55	45	46·00	N. W.	N. W.	Clear.	Clear.		Rain.
30	35	64	50	52·17	S. W	S. E.	Clear.	Clear.		
31	50	69	62	60·50	S.	S.	Clear.	Cloudy.		
	Semi-	mo'ly	mean	39·91					1·05	Rain Gage 2·78.

Numbers for 1st half month, 40·550
Numbers for 2d half month, 63·866

31)104·416(33 68 Monthly Mean.

2d, Snow, 9 A. M. to noon of 3d, 0·41
4th, Snow early A. M,..... 0·04
5th, do do ..... 0·02
9th, Rain A. M.,..... 0·18
Snow, rain and hail, 4½ P.M. till 2 P. M. of 10th,..... 1 08
19th, Rain and snow 6 P. M.... 0·15
20th, Rain 5 P. M..... 0·12
23d, Snow and rain early A. M. all day and night,..... 0·17
26th, Rain 2 P. M. till 27th,.. } 0·61
28th, Early A. M. of 29th,.. }

Rain gage,..... 2·78

Winds—N. 5½ days; N. E. 4; E. —; S.E. ½; S. 9½; S.W. 1; W. —; N.W. 10½.
Weather—Fair, 19½ days; Cloudy, 11½ days; Rain on 5 days; Snow on 4 days; Rain and Snow on 4 days.

Warmest day, 31st; highest 69 deg. Coldest day, 15th; lowest —1 deg.

March 20, Thunder shower at Geneva, N. Y.
do. 22, River open.
do. 22, 4 P. M. Steamer Admiral arrived.
do. 23. House Fly seen.

RURAL ARCHITECTURE—ORNAMENTAL VILLA.

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

CONDUCTED BY C. N. BEMENT, ALBANY.

VOL. VII. MAY, 1848. No. 5.

MAY IN PROSPECT.

It is once more May. Once more Nature has opened her house to all her guests. She hangs forth her richest draperies; all nature is alive and blooming. The earth is covered with flourishing trees, shrubs, vegetables and grass, and the ground is covered with myriads of flowers. Every thing is fresh and gay, and creation is adorned in its most beautiful robe. The soft breezes diffuse most delicate odors; and the sun looks down upon the earth, and bids the lowest creatures awake from their long slumbers, and come forth to the festival of May. The blossom of the fruit tree is as delightful to the eye, as the fruit of autumn is to the taste. And many a shrub and tree has no fruit but its expanding flower to bestow.

There is no other month in the year, so universally hailed as the harbinger of joy, as is the month of May. It seems, in our famed land, to be the general jubilee of nature; the season when the groves and fields again put on their gay, green liveries; and animal existence every where rejoices in that all-pervading influence which manifests itself through the whole chain of created beings.

To persons of great sensibility and of lively imagination, this is the most pleasant month in the year. The bud of April has

expanded to an opening flower. The work of reviving nature began in the last month, now it is completed. The temperature is such as to invite abroad into the open fields, and to induce a ramble in the wood, where we may inhale the purest air, and come in contact with the beauties of nature. The most illiterate may enjoy the walk; but the student of natural history and botany will derive far greater pleasure. He will be able to detect marks of design and wisdom which others do not observe. To both the scene is beautiful and refreshing; but to the latter it produces more admiration in the proofs of connexion and contrivance every where visible. Here is no work of blind chance or accident. All bear marks of wise and intelligent design, tending to good. The examination of the vegetable world will also bring conviction that infinite wisdom and power have here left imprints of their presence.

Most of the tribes of flowering plants and shrubs are now drest in their best attire. The long sleep of winter seems to have prepared them for this new display. All their opening beauties are spread before our admiring view. They appear to rejoice in again exhibiting their brightest hues, and to boast that they have once more cast aside the sterility and gloom of winter. They lift their modest heads to receive the soft breezes of the south, and to drink the refreshing dews of heaven. And they not only gratify the sight, but exhale a pleasant fragrance, which enhances the benefit of their society. Go forth, then, you that love pleasure, and visit the fields and the gardens spread before you in every direction; and the walk will open your mind to new beauties in creation; will give a taste to pleasures which delight, but never corrupt nor debilitate, and excite a curiosity, in the indulgence of which, you will find new sources of intellectual gratification.

The flocks and herds are again abroad, roaming the green pastures, and cropping the tender herbage, free and uncontrolled; while from every copse and grove is poured forth the joyous song of many a carrolling warbler. The plowman, too, as he paces the field, whistles a blither strain, or chants some rural ditty with a heart more light and buoyant, for he feels that the pinching win-

ter is past; and although teeming nature already begins to gladden the husbandman's heart with the favorable prospect of abundant crops at the appointed time of harvest, the sweltering heat of summer does not yet oppress him, for the genial breezes of the south are yet cooled and moistened with the showers of spring, and scented with the sweet fragrance of myriads of opening flowers.

How frequently has "Oh, give me but a country life!" been sighed and responded to by those whose pursuits and occupations compel them to continue to inhale the impure air of our crowded and pent up cities, but never more ardently than during the month of May. There is one class of society, however, that barter the delights of the early summer to a capricious and tyrannical fashion. For them, the daisy-spangled lawn, the flowering meadow, with its violets and lilies, that give to every passing breeze an aromatic fragrance, seem to possess no charms; neither are their hearts gladdened with the morning song of the thrush, the merry notes of the bobolincon, or soothed with the pensive notes of the robbin perched upon the tree top, at the decline of day.

This being the season for sowing and planting, a few words may be said regarding the injuries farmers are supposed by some to suffer, from the depredations of birds, particularly crows. This matter has been the subject of controversy from time immemorial, although most of the older writers are decidedly in favor of destroying crows.

But with the exception of crows and black birds, none of the birds can be fairly accused of committing depredations on the recently sown seed; and even they infinitely prefer the grub or wire-worm to a few grains of oats, barley or corn. Where farmers have antipathies towards any of them, they arise rather from the general character these birds bear, than from the actual depredations they are known to commit. If it were not for birds, and even some of those which are proscribed by vulgar prejudice, the fruits of the earth would be almost wholly destroyed. No doubt some species of the feathered tribes may become too numerous, if protected; but it is only during seed time and har-

vest that birds do any injury, while their important services are continued during the season.

As regards the sowing and planting of certain crops, in particlar periods of the moon's age, but few of our farmers of the present day pay any attention to *lunar* influences; although some farmers suffer themselves to be greatly inconvenienced by waiting for certain days or periods of the moon's age, before they consign the seed to the bosom of the ground, in a full hope and confidence of receiving at the appointed time the due reward of their labors. The nature of the soil ought to be considered, since so much depends upon its quality and condition, that what would be a prudent plan to pursue upon one kind of soil, might be an equally imprudent one to adopt upon soils of a totally different character. Thus it is that the prudent farmer, though possessing all practical knowledge connected with his art, permits himself to be governed in a great measure by circumstances over which he has no control, and does not, in opposition to reason and common sense, persist in forcing nature out of her ordinary course, but rather watches with a judicious observation of the times and seasons, always prepared to act when a favorable opportunity occurs. Linnæus has said, "Perhaps we cannot promise ourselves a happy success by any means so likely as by taking our rule for sowing from the leafing of the trees. We must for this end observe in what order every tree puts forth its leaves, according to its species, the heat of the atmosphere and the quality of the soil. Afterwards, by comparing together the observations of several years, it will not be difficult to define, from the foliation of trees, if not certainly, at least probably, the time when annual plants ought to be sown. It will be necessary to observe what sowings made in the different parts of the spring produce the best crops, that by comparing them with the leafing of trees, it may appear which is the most proper season for sowing; nor will it be amiss in like manner to note at what time certain plants, especially the most remarkable, in every section blow; that it may appear whether the year makes a quicker or slower progress."

COMPOSITION OF THE POTATO.

BY E. EMMONS.

It is necessary, in making a proper estimate of the value of any article as food, that we should not give too much importance to a single element which it may contain. Starch, as is well known, abounds in the potato, and its nutrient value is supposed by many to depend principally upon its presence. This opinion, however, is not well sustained by experience, inasmuch as its sustaining powers are greater than is due to this element. Albumen and casein also exist in this vegetable, as well as inorganic matter, to which, along with starch, its value must depend. Hence, in the analysis of the potato, when it is designed to determine its value as food, it is quite essential that its albumen and casein, etc., should be determined, as well as its starch and sugar. This will appear in a clear light when it is known that albumen is one of the constituents of the blood, and one of the materials which supply the wastes of the system of animals. Albumen and casein abound in those fluids and solids which appear to be designed to build up the original structures. Milk, the white of eggs, and other albuminous matters, are furnished to the young of all animals, and though in some instances they appear to be of animal origin, yet when traced back to their sources, they are found to be derived from the vegetable kingdom. The property which distinguishes albumen is its coagulability by heat. Casein coagulates by acids. The blood coagulates when cold, after separation from the body. The blood is an albuminous body. Albumen as well as casein contain sulphur. The decomposition of the egg proves this by the formation of sulphuretted hydrogen, and proves, too, that it is not in the egg an oxidized body. Sulphur, too, enters into the composition of the most important organs. Sulphur, as an oxidized body, enters into the composition of the potato, though it is not clear that this statement is entirely free from doubts, for it is possible that the sulphuric acid is the oxidized sulphur of the albumen formed in burning.

In addition, then, to starch, the potato contains several other important materials, which are capable of supplying the wastes which a living being is continually undergoing.

It is not the purpose of this brief essay to show that different varieties differ in composition, and that some are better calculated to perform the part of a nutriment than others, but rather to exhibit the general composition of this vegetable. It is, however, undoubtedly true that the nutrient properties of some varieties are

superior to others, and it is also probably true that those which are inferior in their amount of starch may be the best for supplying the wastes of the body.

The following analyses, which have been made in my laboratory, will fulfil the design of this essay.

1. Organic analyses of the Mercer potato, by Mr. J. Salisbury.

The potato was sliced longitudinally through its middle, from the rose to its heel end. Organic analysis shows that it is composed of the following elements:

Starch,	9·710
Fibre,	5·779
Gluten,	·205
Fatty matter,	·084
Albumen,	·249
Casein,	·506
Dextrin,	·074
Sugar and extract,	3·931
	21·185
Water,	79·508
	100·693

As it is found that the ends of the potato constantly differ in omposition, and especially in the amount of water, the following exhibits quite strikingly this fact:

	Seed or rose end.	Heel end.
Water,	83·839	75·177
Dry matter,	16·161	24·823
Ash,	·727	·431
Calculated dry,	5·197	2·296

Composition of the Ash.

Ash of the whole potato, without regard to its ends. Analysis:

Silica,	4·400
Lime,	·180
Magnesia,	·800
Potash,	13·263
Soda,	24·925
Chloride of sodium,	11·606
Sulphuric acid,	6·254
Carbonic acid,	trace.
Organic matter,	2·536
Phosphates,	38·500
	102·434

Composition of the Phosphates.

Phosphate of	per oxide of iron,	7·900
	lime,	2·933
	magnesia,	·055
	silicic acid,	trace.
	Phosphoric acid,	27·612
	Phosphate,	38·500

It will be observed that the phosphates and alkalies abound, as soda and potash, and that the former (soda) is found in combination with chlorine, forming common salt. Sulphuric acid, also, is another element which enters quite largely into the potato.

2. Composition of the Scotch Grays. Analyzed by Mr. Ball. Organic analysis gives the following results:

Water,	71·63
Starch,	9·28
Albumen,	0·92
Casein,	·20
Dextrin,	·40
Sugar and extract,	3·64
Gluten and fat,	·40
Fibre,	11·39
	98·86
Per cent. of Ash,	1·12
	99·98

The Scotch Gray is an excellent potato, being heavy, firm, and not much inclined to decay. It will be observed that it contains less water than the Mercer, and that it is rich in the valuable or nutritive elements.

The Mountain June or Early July is another excellent potato. The following exhibits its organic constitution:

Water,	74·902
Starch,	13·378
Casein,	2·053
Albumen,	·085
Sugary matter,	1·364
Dextrin,	·912
Fibre,	6·827
Gluten and fat,	·008
	99·529

Another slice gave :

Water, - - - -	74·3598
Ash, - - - -	0·5492
Dry matter, - - -	25·0910
	100·0000
Ash calculated dry, - -	3·4470

Early June, (Early Shaw in England,) is quite remarkable for retaining its excellent table qualities from early fall to spring; being an early potato which keeps well, and at the same time maintains its dry and mealy condition till planting time.

As an examination of the different kinds of potatoes is still in progress, we propose to dismiss the subject for the present. A full view of the composition of this important esculent will be given in the Agricultural Report of New York.

Vestiges of the Natural History of Creation.—As much doubt and uncertainty appears to exist in the minds of many individuals whose daily pursuits have not hitherto led into the profound regions of philosophy, respecting a recent work, which has obtained no limited measure of celebrity from a certain class of readers in our own country, we subjoin with pleasure a brief extract from the reviewer of the London Atheneum, of a remarkable German work on Physiophilosophy, by Dr. Oken, which perfectly meets our views on the subject, and we cheerfully recommend it to our readers:

"We mention this for the purpose of alluding to a work called the 'Vestiges of the Natural History of Creation,' which appears to us to have been written by an author misapprehending this very work by Oken. The author of that work has confounded a law with an idea, and represents that as positive truth which in Oken's pages is only a suggestion for inquiry. Thus, the great law of development of the 'Vestiges' is but Oken's idea of repetition in the animal and vegetable structures, made to look like a true theory by an absurd accumulation of doubtful facts and premature assumptions, such as Oken has nowhere admitted. The latter has ventured to point out the principles on which creation *may* have proceeded, but has left the application of these principles, in their detail, to sound observation and sober inquiry."

The reader is referred to a former volume of the Journal for our opinion of the "Vestiges." E.

HIGHWAYS.

BY WILLIAM BACON.

And what, say some of our brother farmers, has highways to do with agriculture; much more, why should they furnish topics for agricultural papers? We certainly know enough about that matter. When the time comes round, we work out our taxes, and thus make the roads very passable, and that is the end of the matter, unless they are filled with huge drifts, when "we break through," or, if the drifts are too large, in which case we go through the fields, until they settle so that we can pass over them safely.

We admit all the above to be fact, so far as making, and repairing, and breaking out roads are concerned; but we do not subscribe to the creed that they have nothing to do with agriculture, or agricultural papers; but on the contrary, in our opinion, the two are very nearly associated, and the organ of the one forms the very channel of communication through which the claims of the other should be urged most strongly.

Good roads—what a luxury they afford to the traveler, the man of business, or the pleasure seeking public; what a convenience to the teamster, who moves along almost unconsciously over their smooth and well-finished surface! what a contrast to the up and down, corduroy affairs, which are, even in this age of improvement, too often to be met with—so rough, that if they do not positively jar the very spirit of the traveler out of him, they are certain to inspire him with any thing but agreeable sensations either in body or mind.

Our best public thoroughfares, as a general thing, are to be found where enterprising farmers are most abundant, and we have known very many instances where such men did not stop their labors when their "tax was worked out," but felt an obligatory responsibility to see to the little repairs necessary in order to keep the work they had accomplished perfect, through the year. What a few moments, thus employed, at proper times, will effect in securing public ways in right condition, and tend directly to a diminution of highway taxes, experience would soon show if the practice could become universal. Let a gully commence, and each succeeding shower will tend to make it worse, until from being unpleasant, it becomes uncomfortable, unsafe, impassable. In the end, days of labor and dollars of expense must be appropriated to put it where it was left the preceding year. Now, had the individual of nearest access to the place, taken a hoe and

turned the water off, a labor which in most instances would not have occupied five minutes, when it first began to wear this gully, he would have been four-fold compensated for his service, every time he passed that way, the public would have had the pleasant and agreeable thoroughfare to which they were entitled, a heavy bill of expense in repairs, and perhaps a heavier one in damages, or a bill of indictment, justly rendered, might have been saved —all by five minutes labor before a shower.

But we introduced this article to speak more particularly of the common method of *repairing* highways, funds for which are usually raised by a tax to be paid in labor, at stipulated prices per day or hour. How large a proportion of this tax, in many of our towns, is worth six pence on the dollar, we leave it for the curious to decide in their own localities; we are certain, however, that within the sphere of our own observation there are some noble instances where men labor with their teams with the same fidelity that they would in getting in a crop on their farms. This is the correct principle. Every man who pays a highway tax contributes to a common fund, which should result to the benefit of all, and every man who cancels his tax by labor ought to consider this labor as resulting directly to his own benefit, not only as a matter of personal convenience and comfort, but in an economical point of view. Does an individual wish to sell his property? The path that leads to his premises, is one item that goes to set a value upon it. If easy of access, its value will rise in estimation of the purchaser. Then, again, the general character of the road goes to tell the general character of the neighborhood. If the highways are rough and unpleasant, the ways of the people about them are likely to be so too.

And this class of people are the ones upon whose labors we would make a discount of ninety-four per cent. from the assessments. They are behind time in coming to their labors, and watching time with sluggish indolence to see the sun gain the meridian, or sink behind the western hills. They make it a holiday, a day of rest, unless perchance they exhaust themselves in fault-finding, because those who work do not work faster, or do different. Thus they cheat themselves, for the sake of cheating others.

In working highways, care should always be taken to leave them as smooth as possible, with a gradual slope from the centre. The smoothing will enable beasts and vehicles to pass smoothly and easily along, without danger of stumbling to one, or an annihilating jolting to the other. The old practice of raising high bars across the road to stop the progress of water on hills was a pernicious one, and should be wholly abandoned. They were unsafe, and often highly dangerous annoyances, fraught with no

particular good. When the road, even on the steep hillside, is well worked, a much better remedy for washing may be found by opening slight outlets every six or eight rods, by which the water will pass off quite as well as though huge embankments were raised to effect the object. Much less injury will arise to wagons where this is done, and the passenger will find himself passing over comparative smooth surface.

Another evil we will hint at, is the superabundant quantity of plowing which frequently takes place at the time of repairing highways. Every one must have seen, not only in his own neighborhood but abroad, the ill appearance of ground plowed and left in the furrow, or ditches badly cleared, to become the fallow for every noxious and unpleasant weed that the winds may see fit to sow. In repairing roads, no more land should be disturbed than is actually necessary to effect the object, and this is the most economical manner, so that, aside from such places and the traveled path, they may possess a smooth, green, velvety appearance, always grateful to the eye, and pleasant to pass along.

It is no visionary conjecture to contemplate the time when our highways will all be adorned, on either side, with beautiful rows of stately shade trees, to ornament and enliven the scenery. In that day, what a contrast will deep ditches, naked fallows, large patches of weeds, rough and uneven furrows, afford to their enlivening influence? Improvement in these things is necessary, and where improvement commences her work, and the result rarely and beautifully develops itself, its ultimate triumph may be well anticipated.

Elmwood, April, 1848.

HISTORICAL REMARKS ON THE SETTLEMENT OF THE GENESEE COUNTRY.

BY J. TREMPER.

In the year 1790, the legislature of the state of New York formed into a county, by the name of Ontario, all that part of the state lying west of a meridian line drawn from the 82d mile stone on the Pennsylvania line, to lake Ontario; within this is included the tract known by the name of the Genesee Country, bounded on the north by lake Ontario, on the west by Niagara river and lake Erie, on the south by the state of Pennsylvania, and on the east by the counties of Tioga and Onondaga.

One year previous to the formation of this county, Oliver Phelps and Nathaniel Gorham, Esqs., purchased from the state and from the Seneca Indians, their right to that part of the country which lies between the meridian line above mentioned and the Genesee river, forming a tract of country 45 miles from east to west, and 84 from north to south, containing about 2,200,000 acres of land. It is to the history of this latter portion that more particular reference will be had.

The settlement of this was began by Mr. Phelps, in 1788, and the proprietors, Messrs. Phelps and Gorham, having sold to Robert Morris, Esq., of Philadelphia, nearly two-thirds of their lands, Mr. Morris resold them in England, and the purchaser from Mr. Morris having arrived in America, began in the summer of 1792 to put in execution the plan he had formed for the improvement of the country. This tract of land was inhabited by a branch of the Iroquois or confederacy of the Six Nations. The branch which lit their fires and reared their wigwams among the noble forests of this beautiful country, were the Senecas, or, as they would be more properly termed, the Senegaws. They were the most numerous member of the great family who formerly held sway within the limits of this state, and where their graves may yet be traced among the cultivated fields, the bones of the unfortunate and persecuted red man. The advantages which this tract of country possessed in regard to position, the southern part being watered by tributaries of the Susquehanna, were soon perceptible to the settlers, and rendered that mode of communication with a market the most feasible, as it enabled them to reach the Chesapeake by a water conveyance, in a moderate period of time, while the connection eastward to Fort Schuyler, now Utica, was nothing but an Indian path. Boats of 5 and 10 tons ascended the Susquehanna, while in the descent of the river they used those carrying from 200 to 500 barrels. At the time of the commencement of the settlement of this country, it was remote from all other settlements; on the south, the Allegany mountains; upon the west branch of the Susquehanna the mighty carboniferous outline of the north formed a formidable barrier, with the summit lying nearly 3000 feet above the ocean; on the east lay a wilderness of 100 miles, intersected with swamp and lake; on the north, lake Ontario spread her broad bosom; and on the west was the unbroken, primeval forest, extending to the Pacific. The only communication with the settlements upon the eastern coast was by an Indian path from the outlet of Senegaw lake, near the present village of Geneva, to Fort Schuyler, now the site of the city of Utica; its progress in improvement, owing to these circumstances of position, was slow. In 1790, the whole number of in-

dividuals who were in the country, including travelers, and surveyors, with their attendants, amounted to only 960 souls.

In 1792 a stage could be obtained from Albany to Whitestown, a recent settlement on the Mohawk, a few miles beyond Utica, provided no accident prevented its running, and the traveler had the courage to undertake the journey; and when we consider that the road passed through the valley of the Mohawk, the greater portion of which, a few years previously, had been periodically devastated by the Indians and hostile whites, we can readily conceive that a journey to Whitestown was at least formidable. From Whitestown to the Genesee river, a solitary Indian path marked the devious way; upon this route lay the then formidable marshes of Cayuga, where, to wade to the arm-pits for half a day, with an Indian guide, was considered as merely a change from the monotony of the endless trail, amidst the weeping boughs of the cypress and hemlock. At this period the country towards Canandaiqua from Geneva was improved for a few miles; there had been a large Indian settlement called Canandasaga, by which name was also distinguished the present lake upon whose banks Geneva now stands. This settlement had been destroyed by General Sullivan in 1779, who laid the axe to every tree, and the fire to every wigwam that could be of any service to the Indians. Many of the fruit trees had sprouted up at this time and afforded assistance to the settlers of Canandaiqua, or as now written, Canandaigua, was the county town, where two small frame houses, and a few huts, surrounded with thick woods, lay in undisturbed solitude; here the traveler was feasted on excellent venison, and fish fresh from the waters of the Canandaiqua. From Canandaiqua to the Genesee river, 26 miles, only four families could be found residing on the road; the country exhibited in many places openings free of all timber, appearing to contain 200 or 300 acres beautifully variegated with hill and dale, and wearing a park-like beauty, which needed but the artificial ornament of an enclosure. At the river, near Geneva, stood a small Indian store and tavern, where a piece of tobacco and a drink of whiskey was to be had, but comfort was not to be purchased, unless you could snore upon a bear skin, amidst the din, the whoops and howls of drunken Indians, while the owls from the thick recesses of the scayace, joined in the dreadful concert, to make night hideous. At this time there were no settlements of any importance in any part of the Genesee country. The most considerable one was formed by the followers of Jemimah Wilkinson, on the west side of Seneca lake, near a jutting promontory of land, called the Miniseta, but by that society, City Hill. So numerous were the Indians at this time, in comparison with the few and scattered inhabitants, who had courage sufficient to winter in the

country, that very serious apprehensions were entertained for their safety. Even at this gloomy period, the country gave evident signs of future wealth. Wherever the plow furrowed the ground an ample harvest overspread the spot, and through the wildness of the winter, the cattle which were brought into the country the year before, with very slender provision for their sustenance, were thriving well; the clearing of land for spring crops was going on with spirit, and the settlers were supplied with venison from the forests; but still the winter closed upon the inhabitants with much to dishearten and dismay; few and scattered, amidst the gloom of a wintry forest, they could communicate but little with each other; far removed from the abode of civilization, and from their early homes and friends, surrounded by savages who but a few years before were in deadly hostility with the whites, and who in the process of the war in return had ravaged, burnt and destroyed every article that would afford the Indian sustenance; add to this the fact that the western Indians were in active hostility, and triumphing in the defeat of St. Clair the previous year, were active in their efforts to enlist the vindictive feelings of the Six Nations in their quarrel, it is not to be wondered at that the gloom of that winter was long remembered by the settler, when in happier days he could look back upon the dangers and privations he had experienced.

When in the same year, 1792, the purchaser from Mr. Morris arrived in the country, he became quickly aware of the advantages the country would derive from a communication with the settlements in Pennsylvania, he immediately determined to explore the country to the south of the county of Ontario, with a view of examining the practicability of opening a road from the west branch of the Susquehanna at Williamsport, to which point the settlements in Pennsylvania had already extended. Although the information obtained on this subject was of a very discouraging nature, notwithstanding which, upon the 3d day of June, 1792, taking leave of the inhabitants on the west branch of the Susquehanna, with his party of attendants, he entered the wilderness. Steering a northerly course, where passing gorge, ravine, and mountain top, now tracing the course of some wild torrent, that dashed, like a mad courser, down some precipitous bed, or shooting in a wild cascade, sought to mingle its waters with the parent stream; now passing a mighty gorge, where mountain peak rose over mountain peak in solemn majesty. He at length touched the head waters of the Tioga river, where Blossburg now stands, one of the branches of the Susquehanna river, and which runs north into the then county of Ontario. After ten days' exertion, he arrived within the boundaries of the state of New York, upon the banks of the Cawanesque creek; he then proceeded N. N. West,

and after six more days of fatigueing traveling, arrived at the junction of the Canaserago and Genesee rivers, a little north of Geneseo, they found that this route shortened the distance from Pennsylvania at least one hundred miles; they determined immediately to open the road, and by the month of November 30 miles of it had been opened sufficiently wide to admit of the passage of wagons, and by the month of August, the following year, the road was completed to Williamsburg, near the mouth of the Canaserago, a distance of 170 miles from the Susquehanna. It is from this period alone, which opened a communication with Pennsylvania, that we can trace the dawnings of that extraordinary progress in population and improvement which has so happily distinguished the Genesee country. The opening of a road over mountains heretofore deemed impassable, northward from the Pennsylvania settlements, naturally excited that most laudable of human passions, curiosity, and tempted the inhabitants to examine the unknown regions beyond them. The great obstacle had been measurably removed, and the facility of a road induced many to purchase who would, under other circumstances, never have thought of it; the traveler who now passes over those mountains, and observes the course of the old road, where the tide of immigration once passed, must be struck with the patient industry and perseverance that could enable the hardy pioneer, with his family, furniture and wagon, threading the narrow path through the beds of the mountain streams, crossing and recrossing at frequent intervals, to gain the summit, and then to descend in the same manner, edging precipices, and winding through windfalls and fallen timber, to reach a wilderness, if possible, more unbroken, and meet privations and hardships of every kind.

To many of the settlers, during the winter of 1792–3, a little coarsely pounded corn and venison was a luxury eagerly sought for. The march of General Sullivan, with his large army, carrying ammunition, baggage, provisions, &c., for so many men, had left an important road from Elmira to the head of lake Seneca. This lake afforded a water communication for about forty miles, through a rich country, and in the course of a few years became one of the routes of immigration from the south.

In the spring of the year 1793, the scarcity of provisions which the previous winter had been severely felt, was much increased by the number of families that immigrated during the spring into the county of Ontario, to protect against the evils of starvation, provisions, such as flour and pork, were procured from Philadelphia and Northumberland, in Pennsylvania. By means of this supply, several settlements were commenced in the south part of the county; in this place, then the centre of a wilderness of 900,000 acres, the town of Bath was laid out, and before the end

of the season they could number 15 families. The same year, a grist and saw mill was in the course of erection, an important addition to the comfort of a life in the wilderness. Necessity, that stern preceptress, had induced the settlers to make all practicable provision for the coming winter, and as their numbers were rapidly increasing, they were induced to direct their attention mainly to this object.

In the year 1794, having found a ready market for their produce the preceding year, the inhabitants made great exertions, and a large quantity of produce was raised, which tended much to their own comfort, and of those who were moving into the country. Many new settlements were begun, mills were being built, and roads were being made to connect the different settlements; all seemed life, activity and bustle. The fatal defeat of the western Indians, by General Wayne, on the 20th of August, 1794, by which their power was completely broken, took place upon the river Miami. Among the nations engaged, upon the part of the Indians, were a portion of the Senecas. Great slaughter was made by the cavalry in pursuit, and multitudes of them were cut down by the American sabre. This battle quieted the warlike disposition of the Senecas, and in connection with the great increase of population upon the part of the whites, removed all danger from that source.

In 1795, owing to the rapidly improving condition of the country, the legislature was induced to agree to a division of the county of Ontario; the north half retained the name of Ontario, and the south half was named Steuben, after the Baron Steuben, a brave, skillful, and valuable officer of the revolution. The town of Bath was fixed upon as the seat of justice, where two years before, the wild beast of the forest roamed undisturbed, and the echo of a human voice was unheard. Roads and mills this season obtained the particular attention of the inhabitants, and generally their comforts were rapidly increasing. In those times we are told people knew their neighbors for thirty or forty miles round, and that they possessed a warmth and feeling of fellowship which we do not find exhibited at the present day; every man left his cabin door open, and the stranger walked in and found a hospitality, of which he was well assured the dispensation was not reluctant. We are further told that their gatherings of the inhabitants were numerous, called together to assist each other, upon many occasions which the times gave rise to, such as erecting houses, barns, mills, &c., and making roads, and as the inhabitants were few and far between, it brought distant neighborhoods in contact, and created an extended acquaintance, and warmth of feeling toward each other, which the change of times we are assured has diminished.

West Dresden, April, 1848.

RURAL ARCHITECTURE—VILLA.

By the kindness of Mr. Ranlett, author of "The Architect," we are enabled to present our readers with a beautiful design of an ornamental villa, in the Romanisque style, given in the first volume of his valuable work, (which, by the bye, should be in the hands of every person who has any pretensions to taste, or who ever contemplates building a residence.)

"It is built," says Mr. Ranlett, "on the Clove road, near the north side of Staten Island, and commands a variety of prospects, of unsurpassed loveliness; from the windows of the second story may be seen six beautiful cities, with their spires and white residences gleaming in the distance. There are New York, Elizabethtown, Jersey City, Williamsburgh, Brooklyn, and Newark; and in addition, the sparkling bay, with its castellated islands; the gray palisades; the Passaic, with its crowds of white sailed vessels and splashing steamers; the cedar-fringed hills of the island; a gurgling brook, which supplies the house with water; and numberless beautiful villas, cottages, and farm houses, which surround it on every side. Orchards, meadows, fields of grain, and trim gardens; a pure air, a genial soil, and freedom from oppression; here are all the elements of happiness, and beauty, and the architect must be imbued with the spirit of the place, and inspired by its genius to conceive his designs, which shall harmonize with such surroundings, and not appear like intrusions when placed in their midst. Let those who inspect our works say whether or not we have been true to our calling, and fulfilled the task which we have voluntarily assumed."

The size of this elegant villa, in the main building, is about 36 by 40 feet, exclusive of the verandahs, and cost, complete, about $3,800.

The innumerable landscape sites for villas in the vicinage of New York afford opportunities for indulging the most refined, the most voluptuous, the most romantic, or the most whimsical, tastes in architecture; and we are far from wishing to put a curb rein on any man's fancy, in a matter which is so purely personal to himself as the style of his house. A man's cottage is, in this country, the casket which contains his most precious jewels; it is the nursery of his best affections, the real temple of his truest worship, where he retires to give vent to his joys or his griefs, and it should honestly conform to his tastes and his means; the fashion of it should be peculiar to himself. All that we propose, is to furnish him a variety of patterns, from which he may select one which accords best with his inclinations. We would not, be-

cause his plot of ground lay on a hill-top, restrict him to a miniature baronial castle, such as the robber knights built for themselves on the rocky steeps of the Rhine and the Danube, nor prescribe for him a little palladian box, because he chose to build in the centre of a meadow.

"Many of the examples which we have furnished in the preceding numbers of the Architect have been copied and built in all parts of the United States; some of them upon Staten Island, upon the most beautiful sites, we may say without fear of contradiction, to be found in the world; it is so varied, so abounding in fine views; so broken up into hills, valleys, and meadows; so diversified in scenery, that it might serve as an index to the rest of the earth. This most charming island appears to have been created expressly as a regenerator for the population of a great city. It rises in picturesque beauty from the blue waters of the bay, and seems to invite the toiling denizens of the great metropolis of the new world to seek its breezy hills, its pebbly shores, and green meadows, and there regain the strength of heart and vigor of limb which have been wasted in the too eager pursuit of wealth or pleasure."

POTATO DISEASE.

BY J. E. TECHEMACHER.

I had intended to remain altogether silent in future on the subject of the potato disease, for it is impossible to reply to assertions and arguments used by editors of agricultural periodicals, themselves posessing not the least practical or personal knowledge on the subject, such as "every body has given up the fungus theory now," and "there is nothing new on the subject of the potato disease, except that all the nostrums proposed have failed." Equal loss of time would it be to discuss experiments tried on a row or two of potatoes in a garden with salt or with fifty incongruous mixtures, one ingredient of which might destroy the action of the other—or if any one had succeeded, it would be impossible to say to which this success was owing. I have tried salt in my own garden on potatoes, and have never had a single diseased tuber, but I never thought to bring this forward as a decisive experiment.

A mutual friend whom I highly esteem has urged me strongly to write a few lines to you on the subject; I therefore beg to state:

That the microscopic observations made by me in the autumn of 1845, and communicated then to the New York State Agricultural Society, at their own request, have been confirmed in 1846 and 1847 by scientific commissioners and committees in almost every country in Europe.

That a great many experiments have been tried with salt on large breadths of land, and in a large proportion of these, the potatoes have been completely saved, while all around were diseased. That this remedy has failed in some cases in being a complete protection, is all well known to me, but even here the proportion of diseased potatoes was much less than where salt had not been used. The cause of this is very evident; I have always stated that the salt must be in contact with the disease to effect its destruction; now let any one consider in a tenacious clayey soil, or in one of a light gravely nature, how easily this contact may accidentally fail. My conviction is more firm than ever that the cause of this disease is a fungus, propagated by clouds of invisible spores, (seeds) which settle in some places and not in others, just as the wind listeth or bloweth, and that wherever they come into contact with salt, when they settle down they cannot vegetate. A heap of diseased potatoes from two to three acres will give sufficient spores to infect a district five hundred miles square; these spores only ripen and become dry enough to live and float in the atmosphere towards the middle of the summer, and then take sometime to settle and vegetate; every fungus collector knows that the latter end of the summer is the most favorable period for these minute productions; from this we see the reason why the earliest planted potatoes are generally the freest from disease.

A paper has appeared within the few last days from Dr. Klotsch of Berlin, Prussia, detailing a new method for strengthening the potato, and increasing its chance of escaping disease. This new method is the old practice called by gardeners *stopping*, and has been practiced by them time out of mind, on cucumber, melon, pelagonium and almost all plants; it consists in pinching out the top of a shoot, thereby encouraging it to throw out lateral branches, and become strong, bushy and fertile. This is a dangerous process in unpracticed hands, as if the stopping is continued a little too long the potato would not ripen, and if begun too early would materially injure the plant, it would probably be much too expensive in point of labor in this country.

I hope this communication will answer your purpose, and I take the opportunity of stating, that I am quite tired of the subject, and will not be moved by any consideration to engage in farther discussion thereon—let those who choose try salt as a remedy, and the other leave it alone.

Boston, 8th April, 1848.

THRESHING MACHINES.

For the last fifteen or twenty years the attention of our mechanics has been directed to the improvement in the construction of horse powers and threshing machines. The result shows that their study and labor has not been in vain, for we now have them of great capacity, and at a price within the reach of most farmers. In the great wheat growing districts, a large and powerful machine is generally preferred, that will turn out from three to four hundred bushels of wheat per day. For that purpose the sweep power, requiring from four to six horses, has been employed; but it is questionable whether they are the most economical, as it requires from eight to ten hands to attend them.

For the last ten years we have had in use one of Hale's self-supporting endless chain powers, and it has never cost us one dollar for repairs. We have one of Pitts' separators attached, and with one horse, and a boy to hand the bundles, one man to feed, and another to bind the straw, from eighty to one hundred bushels of oats, if in good condition, can be threshed, cleaned, and the grain put into bins, and the straw stowed away, in a day.

"The advantages," says the editor of the Cultivator, "of this machine (Wheeler's) consist in its cheapness, portableness, and effectiveness. The cost of the whole apparatus, ready for threshing, as above delineated, is $75 for the horse-power, $25 for the thresher, and $10 for the shaker. It is so light that two men can readily put it on and off a wagon, but at the same time it is very strong and substantial. As above shown, it is adapted to the use of one horse, and the performance of the machine with this power, is equal to threshing one hundred bushels of wheat, or two hundred bushels of oats, in a day; but to do this a change of horses should be made every three hours. It requires but little manual labor to use it; for grain in bundles, two men and a boy are sufficient. The simple contrivance called a shaker, which in the figure is shown attached to the thresher, saves fully the work of one hand, and besides leaves the grain entirely free from straw and so disposes of the straw that no grain is wasted.

"We have lately witnessed the operation of this machine, and are of the opinion that it is capable of performing more work in proportion to the force employed, than any other with which we are acquainted. The horse-power is much liked by those who are acquainted with it. It is easily applied to various purposes, and is the kind which is mostly used for sawing wood at the different rail road stations between this city and Boston. It runs very easily; but by means of a brake, which is attached to it in

WHEELER'S PATENT ENDLESS CHAIN RAILWAY POWER.

This power differs from most others in having little or no gearing; the power being imparted by a rack and pinion applied immediately to the shaft of the driving wheel. The floor is of wood, and moves something on the principle of Lane's Railway Power.

The Thresher is an over-shot spike cylinder, with concave and spikes on top, by which arrangement stones and other hard substances are prevented from getting into the machine, often causing accidents. There is another advantage in this arrangement; it does not scatter the grain like those fed at the bottom, but leaves it all within a few feet of the machine, and with the Separator or Shaker attached, very little is raised, as the whole is thrown on to the Separator in such a manner as to prevent it from rising from the straw.

By means of this Separator, a great saving in grain as well as in labor is made, less straw is mixed with the grain, consequently takes up less room on the floor, and is in better condition for the fan-mill. A brake is also attached by which the machine can be stopped in an instant.

a very convenient manner, its motion is at all times perfectly under the control of the person in charge of the machine; and whatever may be the speed, it can be checked as desired."

Where a large quantity of grain is to be threshed, a two horse power would be preferred, as about double the quantity of grain could be threshed in the same time, and it is much easier for the horses, while the expense would not be much enhanced.

These machines are manufactured by Messrs. A. & W. C. Wheeler, at Chatham Four Corners, Columbia co., N. Y., and sold by H. L. Emery, Albany. (See advertisement.)

THE CYPRESS.

There are two species of *Cypressus* known in the forests of the United States, under the name of Black Cedar or Cypress, (*C. disticha*,) and the White Cedar, (*C. thysides.*) They both yield good timber.

The *C. disticha* is abundant in the swamps of Virginia and the south, and forms the only tree in immense swamps on the Mississippi. In these localities it often rises 130 feet, and attains 30 to 40 feet girth at the earth, running up like a cone. The wood is extremely durable, and in high repute for shingles and posts. It is felled in winter and allowed to dry thoroughly before being split. The trees which grow in a great measure in water, have light barks, and are called *white cypress*, while those of dryer soils are called *black cypress*, and yield a firmer and more resinous wood.—*Farmers' Dict.*

The cypress of Louisiana and Mississippi, says Dickson and Brown, in a paper read before the Association of Geologists and Naturalists, is found to observe no very marked geographical preferences, except so far as respects proximity to the Mississippi river and its tributary water courses. It is distributed about equally, over the alluvial lands embraced in these states; yet it is by no means interspersed equally among the other forest growth, but it observes certain special hydrographical positions more or less detached and of variable area. It attains its highest perfection between the 31st and 32d degrees of latitude.

Of the local causes which determine the distribution and growth of cypress timber, the most essential one is, that *the soil in which it grows should, for the greater part of the year, be completely saturated with water.* The country abounds in basin-like depressions of the general surface, into which flow the surplus waters of the surrounding forests; and there are also elongated

depressions, through which the waters from such basins find difficult outlets. Of such positions, the cypress seems always to have availed itself; and where they are the most fully developed, there it obtains its maximum perfection. But much defective cypress growth is found also along the margins of shallow sluggish bayous, through which the superabundant waters of the forests find difficult egress, on account of the undergrowth, driftwood, limbs, leaves or other obstructions. Such basin-shaped depressions, containing cypress timber, are usually denominated "cypress brakes;" they are of various magnitudes, containing from one hundred to eight thousand "*tiers*" or cypress trees, of the length of forty, fifty, sixty and seventy feet, fit for rafting, and varying in diameter, at the top, from twenty to sixty inches. The largest and smallest are usually left in the forest. The greater number of these brakes are found near the Mississippi river and its branches, and the bayous which intersect the alluvial lands. These bayous are in a great part formed by the efflux of the waters from such woodland basins, which by their depressions are constituted filtering receptacles, and through which, drain all the waters from the surrounding lands of greater comparative elevation.

The character and condition of the cypress timber in these basins, bayous and sloughs, is found to vary very much. That growing along the margins of shallow, bushy bayous, is of inferior quality, affording but a small portion of timber fit for useful purposes; although oftentimes large, it is commonly of coarse texture and uncouth aspect; protruding at every elevation decaying limbs, which carry disease and rot into the body of the larger trees, rendering them more or less unfit for use; and those of smaller dimensions, in consequence of their limbs and incipient defects, are as often valueless. The general form of the trunks of bayou timber is represented by the drawing, fig. 16. They swell out toward their base and form into large spreading butments, curving into lateral roots, strongly fortifying their trunks. This is mostly the form and character of the timber along the margins of all bayous leading from their several sources in the cypress basin to their principal water courses. Its defects in character and growth increase on approaching the principal streams, and inversely, improve in receding from them towards

Fig. 16.

the woodland basins; here it attains its highest perfection, exhibiting trunks not unusually of enormous proportions. It towers to a height, in some instances, of a hundred and twenty feet without a limb, with a circumference at top often exceeding sixteen feet, and at butt more than twenty feet, and this above the usual swell near the base, fig. 17. These cypress basins or swamps present an interminable array of stately columns, shooting up their tall and symmetrical shafts, and supporting a dome-like ceiling which excludes half the light of day. The columns are crowded closely together, and the observer is struck with the uniformity of elevation which they maintain, although varying much in diameter. These fine cypress columns terminate abruptly under a cap consisting of a few disproportionate and inconsiderable limbs, altogether constituting a kind of vaulted ceiling; and there is so perfect a reflection of sound from it, that falling timber often causes a reverbration throughout these silent and sombre shades to a distance of ten miles. But while the tops of the cypresses are so disproportionate, it is not so with their roots; for they ramify through the soil in every direction, extending from fifty to seventy-five feet from the parent stems; some remaining parallel with the surface of the ground, whilst others protrude deep into the more consolidated subsoil or under strata of clay; and they are thus so fortified that a cypress is rarely torn up from the ground in which it grows. The roots which shoot out horizontally to such distances from their trunks, always assume *wave-like flexures* with respect to the horizon; the most prominent part of the convex curve rises within a little distance of the surface of the ground, and from them projects a series of perpendicular cone-shaped protuberances usually called "*knees*," which are from three to thirty inches in circumference at the base, and rise to a height varying from two to ten feet; these knees growing from the innumerable interlacing roots in a dense forest of cypress timber are closely crowded together, and resemble (in all but their color,) the stalagmites on the pavement of some enormous cavern; to which a cypress basin, take it all in all, is not unlike. The bases of these knees are usually very much enlarged beyond the size of the roots; thence they proceed and terminate upwards, in an obtuse point, from which protrudes neither leaf nor limb. * * * * * An unusual swelling of the butts of the tree takes place, arising from an enlargement and continuing up the superficial or knee-bearing roots. Such en-

Fig. 17.

largements never fail to rise *to the top of the highest water level*, and must, in some instances, attain an elevation of at least twenty-five feet; so that when the knees are no longer available, the same kind of structure is continued up the body of the tree to where they come in contact with the atmosphere.

One specimen somewhat over seventeen inches, was found to contain three hundred and eighty annual layers, varying in thickness from the $\frac{1}{120}$th part to the $\frac{1}{4}$th of an inch. In a tree of not more than forty-two inches, we counted over sixteen hundred rings of growth; they decreased in thickness on receding from the centre, until one inch contained not less than ninety-five. From all this it may be safely presumed that there are cypress trees in the forests numbering over two thousand years.—*Silliman's Journal.*

INFLUENCE OF AGRICULTURE ON HEALTH.

The following is an extract from a paper read before the New York State Medical Society, Feb. 1, 1848, by Alexander Thompson, M. D.:

Agriculture has effected great changes in the physical condition of the earth, by displacing the forests, draining the fens and marshes, removing obstructions from water courses, reclaiming lands from the overflow of rivers, and the encroachments of the sea; exposing animal, vegetable and mineral substances to the decomposing action of the atmosphere; subduing, ameliorating and preparing the soil for the reception of various vegetable productions. Powerful causes are thus at work for affecting the hygenic condition of nations. Countries scourged and depopulated by devastating diseases, are rendered habitable; and the subtle poison of the destroying miasma, is disarmed of its power.

No fact, perhaps, is better established, than that by the operations of husbandry the healthful condition of countries is improved, inasmuch as in the very success of these operations consists the removal of those causes so potent in generating disease. The Pontine marshes were once as celebrated for the salubrity of their atmosphere, as they are now for their deadly emanations. Wealth and refinement, and taste, expending all their resources, had converted this region, inexhaustible in its treasures of fine climate and productive soil, into the most favored spot of the then known world. Its sunny slopes and fertile plains were covered with the villas, and farms, and gardens, and pleasure grounds, of the wealthy and luxurious Romans.

All that can be conceived of the excess of refinement in the perfection of the horticultural and agricultural arts, was here exhibited. The villas and gardens of Lucullus and Pliny, in their extent, in the variety and beauty of their unrivaled collections of natural and artificial productions; in the enormous outlays expended in their embellishments, exceed every thing similar of which we have any account. A variety of circumstances operating through successive ages, and ending in the neglect and declension of these arts, have resulted in changes in this country, which are forcibly depicted by a modern writer. In speaking of malaria, Dr. Macculloch says:

"Let us turn to Italy. The fairest portions of this fairy land are a prey to this invisible enemy; its fragrant breezes are poison; the dews of its summer evenings are death; the banks of its refreshing streams, its rich and flowery meadows, the borders of its glassy lakes, the luxuriant plains of its overflowing agriculture; the valley where its aromatic shrubs regale the eye and perfume the air—these are the chosen seats of this plague, the throne of the malaria. Death here walks hand in hand with the sources of life, sparing none; the laborer reaps his harvest but to die; or he wanders amidst the luxuriance of vegetation and wealth, the ghost of a man, a sufferer from his cradle to his impending death; aged in childhood, and laying down in misery that life which was but one disease. He is even driven from some of the richest portions of this fertile, yet unhappy country; and the traveler contemplates at a distance deserts, but deserts of vegetable wealth, which man dares not approach—or he dies."

In our own country, the influence which the cultivation of the soil exerts in modifying or controling disease is seen on a broad and extensive scale, and is the observation of every one.

The removal of a portion of the primitive forests is the first object of the husbandman. No sooner is this accomplished than a variety of diseases, chiefly of malarious origin, supervene. These continue until, by various agricultural processes, materials contained in the soil capable of generating diseases are exposed to the chemical action of the atmosphere, and complete decomposition is effected. Generally in proportion as this is accomplished, miasmal diseases disappear, until at length a comparatively healthful condition is restored.

That marshy districts, in all countries, under favorable circumstances, are the generators of certain maladies, we know by experience, but medical knowledge, with all the aid which it has derived from the most careful chemical analysis, has hitherto failed in informing us what is exactly the composition of these subtle emanations, which are the probable cause of peculiar diseases. That certain powerful agents are in operation is sufficiently appa-

rent from their effects, and that the means which we have employed for their detection have completely failed, only shows the imperfect condition of chemical science, which more exact knowledge may ultimately correct.

As an employment conducive to health, and tending to promote longevity, agriculture in its practical operations bears important and interesting relations to hygeine. Statistics carefully compiled, and exhibiting the comparative duration of life among different occupations and professions, award to agriculture a preponderance greatly surpassing most others; that such should be the fact, very many obvious reasons at once present themselves. Such is the peculiar character of its particular duties that it not only admits, but almost requires, of regular exercise of the physical frame, taken in moderation in the open air, accompanied with a sufficiency of mental stimulus to render bodily exertion pleasant and agreeable. Stated habits of sleep and alimentation, absence from inordinate care and excitement, intervals of relaxation from bodily labor, the certainty of a comfortable subsistence, and the ameliorating influence which constant association with objects of nature has in elevating the moral feelings and rendering the propensities subservient to the control of the higher intellectual powers. These are some of the reasons why, so far as the comforts of health are concerned, this employment stands in favorable contrast with many, which though more pretending, at the same time demand a penalty, which if maturely considered, there are few would care to have exacted. The circumstances just enumerated, are exactly those with which the medical adviser would seek to surround his patients in the sequence of a multitude of diseases, when his drugs and prescriptions had lost their potency, when the system reacting from the over stimulus of medicine and disease, required to be left to its own recuperative energies, conjoined with pure country air, proper attention to diet and exercise, and the invigorating influence of agreeable mental emotions.

The occupations and pleasures of rural life, have ever been the themes upon which poets, and writers of lively and exuberant imaginations, have delighted to dwell, but that there is something more substantial even than in the brilliant and fanciful pictures drawn by these individuals, and that their prototypes have real existence in nature, witness the expressions of pleasure with which the feeble, emaciated and enervated resident of the town, tearing himself from the murky atmosphere, the noisome smells, and the putrid exhalations of its pent up streets; leaving behind him the excitements, the dissipation and the artificial life of the city; after a long interval finds himself in the diversified scenery of a beautiful and romantic country. His seeing, his hearing, his

smelling, his tasting, his touch, all find employment. Every sense is gratified; his whole system, mental and corporeal, seems inspired with new vigor. I cannot add more forcible illustration of the healthful and agreeable influence of rural pursuits than by introducing some remarks of an old Greek writer who enters upon the subject with the feelings of one whose whole soul is evidently enlisted in what he describes:

"Moreover, it (husbandry) furnishes us with beautiful flowers and other excellent materials for the ornament and decoration of the temples and altars, affording the richest gayety and most fragrant odors. What science is more agreeable to a studious man? for he finds in it every thing he can have occasion for. Where can we abide with greater pleasure in summer, than near rivers, springs, woods, groves and fields, where gentle breezes fan the air? Where may a man treat his guests more agreeably, or make more triumphant banquets? What place do servants delight in more? Or, what other place is more agreeable to his wife? Where do children covet more to be? Or where are friends better received, or better satisfied? There is no science, in my mind, more delightful than this, if a man has a convenient substance to put him to work; nor any business more healthful or profitable to a man, if he have skill and industry."

INFLUENCE OF SOILS AND MANURES UPON THE QUANTITY AND QUALITY OF THE POTATO CROP.

The potato thrives best on a light loamy soil—neither too dry, nor too moist. The most agreeably flavoured table potatoes are almost always produced from newly broken up pasture ground, not manured, or from any new soil. When the soil is suitable, they delight in much rain, and hence the large crops of potatoes obtained in Ireland, in Lancashire, and in the west of Scotland. No skill will enable the farmer to produce crops of equal weight on the east coast, where rains are less abundant. *It has not been shown, however, that the weight of starch produced in the less rainy districts is defective in an equal degree.* Warm climates and dry seasons, as well as dry soils, appear to increase the percentage of starch.

Potatoes are considered by the farmer to be an exhausting crop, and they require a plentiful supply of manure. By abundantly manuring, however, the land in the neighborhood of some of our large towns, where this crop is valuable, has been made to produce potatoes and corn every other year, for a very long period.

Saline mixtures exercise a remarkable influence in promoting the growth and increasing the quantity of the potato crop in some localities. The most striking effects of this kind hitherto observed in our island have been produced by mixtures of the nitrate of soda with the sulphate of soda, or with the sulphate of magnesia. The effect of such mixtures affords a beautiful illustration of the principle I have frequently before had occasion to press upon public attention—that plants require for their healthy growth a constant supply of a considerable number of different organic and inorganic substances. Thus upon a field of potatoes, the whole of which was manured alike with 40 cart loads of dung, the addition of

a.	Nitrate of soda alone gave an increase above dung alone of - - - - - -	$3\frac{1}{4}$ tons
	Sulphate of soda alone gave no increase.	
	While one-half of each gave - - -	$5\frac{1}{4}$ tons
b.	Sulphate of ammonia alone gave - - -	$1\frac{3}{4}$ tons
	Sulphate of soda, no increase.	
	But one-half of each gave - - - -	$6\frac{1}{8}$ tons
c.	Nitrate of soda alone gave an increase of - -	$3\frac{1}{4}$ tons
	Sulphate of magnesia alone gave - - -	$\frac{1}{2}$ tons
	And one-half of each gave - - - -	$9\frac{3}{4}$ tons

Such results are very interesting, and if followed up by an examination of the *quality and composition* of the several samples of potatoes produced—cannot fail to lead to very important practical and theoretical conclusions.

Failure of seed potatoes.—The seeds of all cultivated plants are known at times to fail, and the necessity of an occasional change of seed is recognised in almost every district. In the Lowlands of Scotland potatoes brought from the Highlands are generally preferred for seed, and on the bank of the Tyne, Scottish potatoes bring a higher price for seed than those of native growth. This superior quality is supposed by some to arise from the less perfect ripening of the *up*-land potatoes, and by others to some peculiar effect or quality of new land, on which skillful farmers, who do not import or buy, raise the potatoes they intend for the next year's seed.

These may be in part, true explanations of the fact. The better quality of unripe seed may arise from its containing a larger per-centage of nitrogenous (protein) compounds, if, as many believe, *whatever increases the per-centage of starch, increases also the risk of failure in potatoes that are to be used for seed.* The subject is deserving of further investigation.

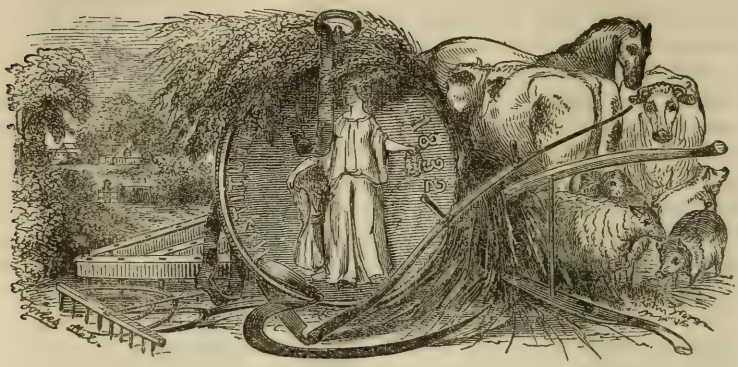
It may be doubted, however, whether the relative proportions of starch are to be considered as the *cause* of the relative values of different samples of seed potatoes. This proportion may prove a

valuable test of the probable success of two samples when planted, without being itself the reason of the greater or less amount of failure. With the increase of the starch, the albumen and the saline matter of the potato may in some degree diminish, and a certain minimum proportion of *both of these* is necessary to its fruitfulness when used for seed.

The value of the saline matter is beautifully illustrated by the observation of Mr. Fleming, that the potatoes top-dressed with sulphate and nitrate of soda in 1841, and used for seed in 1842, "presented a remarkable contrast to the same variety of potato, planted alongside of them, but which had not been so top-dressed in the previous season. These last came away weak, and of a yellowish color, and under the same treatment in every respect did not produce so good a crop by fifteen bolls ($3\frac{3}{4}$ tons) an acre." This observation, made in 1842, was confirmed by the appearance of the crops of 1843, upon Mr. Fleming's experimental fields. In later years, however, even his doctored seed has not escaped the destructive ravages of the disease of 1845 and 46.

It has been said, in some parts of Scotland, that the disease was prevented by the use of saline mixtures in 1845, but the same mixtures failed of their effect in the hands of the same parties in 1846. In Norway, common salt is supposed to have saved the potato from disease. At the present moment sulphate of magnesia is lauded as a specific against the disease, because of some supposed good effects produced by it near Whitby in 1846. I fear, however, that should the disease be equally virulent and extensive in 1847, that this salt will lose its character like all the others.—*Jour. of Com.*

Looking Glass for Birds.—A correspondent of the Gardener's Chronicle says, "The following plan is perfectly efficacious for scaring birds from fruit and other produce. One of my servants having by chance broken a looking glass, it occurred to me that the broken pieces suspended by a string so as to turn freely in every direction, would give the appearance of something moving about, which would alarm the birds. I accordingly tried the plan, and find that no bird, not even the most fool-hardy of them, dares come near. They had attacked my peas; on suspending a few bits of the looking glass amongst them, the marauders left the place. The tomtits attacked my seckel pears, to which they seem very partial. A bit of looking glass suspended in front of the tree put a stop to the mischief. My grapes were then much damaged before they were ripe, by thrushes and starlings; a piece of looking glass drove these away, and not a grape was touched afterwards. I have before tried many plans, but never found any so effectual as the above."



MEETING OF EXECUTIVE COMMITTEE, NEW YORK STATE AGRICULTURAL SOCIETY.

PRESENT—Geo. Vail, A. Ayrault, J. T. Bush, S. Cheever, E. Emmons, B. P. Johnson.

LETTERS RECEIVED—Charles Lee; R. W. Nolton; M. Y. Tilden; C. Masten; Alex. Walsh, with articles on Horticulture, &c.; L. F. Allen, President; A. B. Allen; W. R. Prince & Co.; W. C. Watson; F. L. Olmstead; Asa Fitch, M. D.; J. S. Skinner; A. D. Phelps; Prof. J. F. Hodges, Chemico Agricultural Society, Belfast, Ireland; S. A. Spalding; R. Nickerson, Secretary of Tompkins Agricultural Society; J. W. Bissell; J. Delafield; David Thomas; J. Alleyn; J. Cowden, Esq., American Consul at Glasgow; A. Menelly; L. P. Grosvenor. Pomfret, Ct.

RECEIVED—From J. C. Hastings, Esq., Clinton, Oneida county, cions of Lowell or Middle Apple and Vergalieu Pear.

Also, Red Canada or Old Red Nonsuch Apples—a very excellent apple, and highly esteemed in Western New York, under the first name. It has long been cultivated in Massachusetts, and in Worcester and its vicinity it sells more readily, and is esteemed more highly than the Baldwin, and we think deservedly so. Its flavor is delicate, flesh very tender, and it is a very choice fruit.

Also received from Mr. Hastings, some seedling Sweet Apples, raised originally on the farm of the late John Clarke, of Kirkland, father of Hon. T. E. Clarke, of the senate—which are esteemed very highly for baking or boiling with sugar. We have given them a trial, and are prepared to say that they are first rate.

From T. M. Burt, Esq., Kinderhook, cions Vandevere and Swaar for distribution—specimens of fine large apples of the Gloria Munda, Monstrous Pippin or Ox Apple. This variety often reaches an enormous size and weight—are good for domestic use, but apt to fall from the tree on account of the weight.

J. R. Broadhead, Esq., Secretary United States Legation, London, with letter from Jas. Hudson, Esq., Secretary of Royal Agricultural Society, and Transactions of R. A. Society.

J. Delafield, President Seneca Agricultural Society, with premium list for 1848 and appointment of fair at Seneca Falls, 5th and 6th October, 1848.

Wm. Edwards, Sodus, with premium list Wayne county Agricultural Society, fair to be held at Lyons, 22d and 23d September.

In pursuance of the following resolutions, delegates appointed to Monroe, Ontario, Yates, Seneca, Cayuga and Oswego county societies.

"*Resolved*, That at the annual meeting in March, two members be appointed to attend the Agricultural Fairs of the adjoining counties, and that thereafter two members shall be appointed annually, whose duty it shall be to collect such information as may be for the benefit of this Society."

"*Resolved*, That our neighbors of the adjoining counties be requested to visit us at our fair, and to extend their invitation to counties adjoining them, so that a chain may be formed between the several Agricultural Societies of the state."

And Report to this society at its regular meeting in December next, any information they may obtain, for the benefit of this society.

From Kirtland and McCulloch, Cantonment farm, Greenbush, cions red Astrachan Apple.

J. W. Baily, Esq. Plattsburgh, cions Sailly Russet, Spice and Spectator fall seedling Apples.

Also pamphlet containing premium list and proceedings Clinton co. Agricultural Society, with many very valuable reports. Fair to be held in September.

J. W. Taylor, A. M. Oregon Corn.

P. Crispel, Jr., fine sample of his premium Corn.

D. Lee, Esq., Augusta, Ga., Southern Cultivator.

J. B. Dill, Esq. address before Cayuga co. Ag. Society, 1847.

P. L. Simmonds, Esq. cor. member, London Colonial Magazine.

Massachusetts Ag. Society, Transactions of the Society for 1847.

H. Kelley, Rochester, box premium Cigars.

Hon. L. Chandler Ball, Grimes' Phreno-Philosophy and Prof. Agassiz' Lectures.

Charles Lee, Esq. cions Wagner premium winter Apple.

A. J. Downing, Esq. with cuts for Transactions.

Thanks were tendered to the respective donors and contributors.

Wm. Shaw, Esq., editor Mark Lane Express, London, James Hudson, Esq. secretary Royal Agricultural Society, England, and James Maxwell, secretary Highland Agricultural Society, were elected corresponding members.

The premium on best collection of agricultural implements was made $20.

At the meeting on the 2d Thursday (11th) May, to be held in this city, the judges for the annual show are to be appointed, and a general attendance of the officers is expected.

B. P. JOHNSON, Secretary.

KENDALL'S PATENT CHURN.

It is well known, that the common method employed to separate the butter from the thinner portion of the cream, is by strong agitation. The common instrument used is the churn, which is generally made of pine or cedar, in the form of a cask, wider at the bottom than at top, covered with a lid, through which passes a round stick, on the bottom of which is either a round board pierced with holes, or two narrow pieces crossed at right angles, also pierced with holes. This is called a dash or plunger churn.

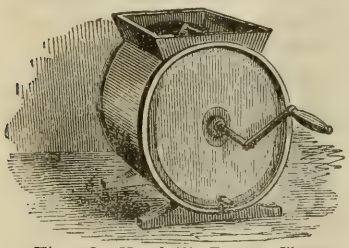


Fig. 18—Kendall's Patent Churn.

The improved churn, of which the annexed figure is a representation, is the best churn in use, as it is simple in its construction, and combines all the good qualities of other cylindrical churns, with the additional advantage, that the dasher can be taken out in a moment any time it is required to be cleaned. It is in the form of a barrel, with a shaft, on which are placed wings or paddles, and turned by a crank on the outside.

We have one on the same principle, made of tin, which we have used several years; we can therefore speak advisedly on the subject. For further particulars, see advertisement on the cover.

The Mexicans have a peculiar churn, which may probably suit a certain class of community right well. It puts all others far in the back ground, for it has the merit of delivering the butter *fresh* at the doors of their customers. It is described thus:

"Two tin cans are enclosed in a green cow hide, the size to correspond to the quantity of milk. The hide on drying will shrink and adhere tight to the cans. These cans are partly filled with milk, and placed on a hard trotting horse like saddle bags; a person then mounts the horse and rides seven or eight miles to the city; the motion of the horse effects the separation of the butter from the milk, and the rider has only to pocket the cash for his butter and buttermilk, and wend his way home at his leisure."

SCIENTIFIC AND PRACTICAL AGRICULTURE.

BY L. DURAND.

At the present time, much has been said and considerable written on the subject of agricultural science, as connected with practice. And we have thought that a few ideas given on the subject might not be out of place, although we by no means lay claim to the "scientific" part of agriculture. For one we feel extremely gratified, that of late scientific men have stepped forward and taken hold of the farmer's cause in good earnest, and that through your Journal, they can communicate light to us who labor on the soil. I am well aware, from personal observation, that there are many farmers, perhaps the most of them, who look upon the word "scientific," as connected with practical farming, with rather a jealous eye, or at least, as not worth their study or attention.

We believe for one that it is a principle well understood, that practical farming, so far as making money and getting a living is concerned, is about all that is necessary with those farmers who are governed strictly by practice, and nothing else. But then, we ask, what real or just right has a farmer to follow his business, year in and year out, by his own practice, right or wrong, without stopping to ask the question whether a little reading or study might not be some help to him in his business. But what is this "scientific farming," says one? Well, as we understand it, it is nothing more or less than mixing in a little, or a great deal of "head work" with practice. Or, in other words, it is waking this inverse or living principle in man, which thinks, varies and acts, with his better judgment in all his operations on the farm. Now we are satisfied that farmers may use five times as much of this "head work" as they do, (if any,) and not injure them in the least.

I know that there are farmers who do not read agricultural journals, for fear they will find something in them that they might not understand; and we have had them many times object to papers of that description, when offered them, because they were too scientific; just as though every article in them should be written so plain that a farmer could "run and read" at the same time.

Now, instead of works of this character, being made more plain, to suit some "lazy men," we would say, let them study and read more, and try to cultivate that part only which makes the man.

There is no good reason why the farmer should not be the best educated of any of the laboring classes, from the fact that he has

more leisure time in the year for mental improvement. While on this point we will venture to say, as a class of men, that if one half of the efforts were made by us to improve the mind that there is in buying land, cattle, and in making money, we might all of us be made "scientific farmers," of the "first water," in the next five years to come.

The truth is, that the cultivation of the soil, at the present day, without the aid of intelligence or information, or on the care-for-nothing principle, is at once a low, menial drudgery. But on the other hand, when guided by skill and science there is no business which so elevates the condition of man in this life.

It is well known, however, that science alone will not make a good farmer without the aid of practice; but once blended together, with careful management, then may we look for good success in farming. And now, when scientific men have volunteered in the cause of the farmer, to instruct him to analyze his soils, etc., will the farmer remain in the back ground against all these improvements? But, after all these advantages, if the farmer chooses to go on in the old hard beaten track of his father, without stopping to ask the why and wherefore, then so be it. However, in these days of agricultural schools, experimental farms, chemists, etc., we have reason to expect better things. This however will remain to be seen hereafter.

Derby, Conn., 1848.

A NORTHERN WINTER.

1848, January 1. Weather mild and rainy. Lake Champlain clear of ice.

Jan. 2. Steamboats Norwich and Columbia arrived from N. Y.

Jan. 5. A canal boat laden with flour arrived at Syracuse from Baldwinsville.

Jan. 7. Weather cold and fine. Thermometer marked 4° above zero. Columbia left for New York at 1 o'clock—last boat.

Jan. 9. Snow 6 to 8 inches deep. Steamboat landed mail at New Baltimore.

Jan. 10. Thermometer marked zero at 7 A. M.

Jan. 11. Thermometer at Albany 17 to 18° below zero. At Amsterdam, 36 below. Rochester, 8 below. Troy, 16 below. N. Y. and Brooklyn, 3 above. Boston, 10 below. Fryburgh, Me., 36 to 39 below. Franconia, N. H., 45 below. The steamboat Columbia which left N. Y. the night before, was compelled to return after running up the river 30 miles.

Jan. 14 and 15, a general thaw.

Jan. 19. Three schooners passed Cleveland, bound up the lake. Weather continued warm the rest of the month.

Feb. 1. Four to six inches of snow fell.

Feb. 2. Weather warm again.

Feb. 4. Steamboat Columbia came within 2 miles of Albany.

Feb. 5. Snow fell to a considerable depth.

Feb. 6. Snow most of the day. Steamboat came to Coeymans.

Feb. 9. Thermometer at zero. Hudson closed to Newburgh.

Feb. 11. Thermometer at zero.

Feb. 12. Floating ice in N. Y. harbor for the first time this winter.

Feb. 19. Blue birds seen at Bloomingdale, N. Y.

Feb. 20. Heavy rain storm from the south.

Feb. 21. Schr. Jane left Milwaukie for Chicago. Lake Michigan clear of ice.

Feb. 23. Steam ferry boat Boston crossed to East Albany.

Feb. 24. Weather very cold again; thermometer 5° above zero.

Feb. 28. River open to Hudson.

March 2. Steamboat United States left Buffalo for Detroit on her second trip this winter.

March 3. Snow storm all day.

March 9. About a foot of snow fell during the night.

March 12. Thermometer 10° above zero.

March 13. Thermometer at zero at 7 A. M. At Schenectady, 7° below.

March 16 and 17. Thermometer at zero.

March 18. Thermometer 23° above zero.

March 21. Columbia at Van Wie's Point.

March 22. Ice passed out of the river. Steamboat Admiral arrived at Albany.—*Albany Argus.*

Potato Rot.—Mr. Vander Trappe, of Wessel, Prussia, planted a large field of potatoes, one half in the usual method, and the other on a plan of his own discovery. Those cultivated by the usual method were diseased, and the foliage failed and dried up early; while those cultivated by his peculiar plan, remained green till late in autumn. The tubers were sound, and a great yield. So palpable was this experiment, that delegates were appointed by the town to examine the result; and they have officially promulgated the facts, and requested the discoverer to publish his secret.

GLEANINGS.

Analogy between the Fossil Flora of the European Miocene and the living Flora of America—by Prof. Agassiz, in a letter to R. J. Murchison:

"I think I made a lucky and quite an unexpected hit, by tracing the close analogy between the fossil Flora of the European miocene deposites, (molasse,) and the living Flora of the temperate parts of the United States of North America. The correspondence extends to all the types of organized beings. After having seen the chelydra alive in the swamps here, under the shade of trees analogous to those which cover the ancient soil of Orningen, (so celebrated for its profusion of terrestrial and fresh water fossil remains,) I cannot help thinking that the climate could not have been tropical in Europe at the time when the strata of Orningen were deposited. Again, I may observe that there is the closest affinity between the Flora of the Atlantic shores of North America and that of Japan; where we have the Megalobatrachus, the corresponding living type of the Andrias, or great fossil Salamander of Orningen. As I am unable to write a paper now, I would thank you to make these remarks known before I can publish them in *extenso.—Athen.*

On the Fossil Vegetation of Anthracite Coal.—Mr. J. E. Techemacher, at a meeting of the American Association of Geologists and Naturalists, read a paper on this subject, confining his observations to the remains of vegetation found in the *body* of the coal, apart from that in the accompanying shales. The principal points of the memoir were, that the remains of the larger forms of the coal epoch, as well as of the smaller plants, were abundant in the coal, contrary to the usual opinion. Specimens were exhibited from the interior of the coal, showing the external and internal parts of plants, the vessels, the leaves, the seeds, &c.

Since the meeting Mr. Techemacher has continued his investigations, and has communicated, in a letter to one of the editors, the following results:

1. What I considered as vessels were said to be mere marks of sliding of the coal. Professor Baily prepared a specimen of this by his method, and told me that if I found vessels there, my proposition was correct. Examined by Agassiz and myself, with his large Oberhauser, it turns out to be *nothing* but a *mass* of perforated vessels, as clear and distinct as if they were recent. Mr. Agassiz observed, "one moment suffices to remove every doubt on the subject."

2. What I considered as fossil seeds were said to be mere peacock-eye coal; the dark carbonaceous centres of these seeds, which I held to be carbonized cellular matter, was thought to be a mere mistake, and the seeds imaginary. I have since discovered them with distinct and clear apparently spinous appendages. Mr. Agassiz thinks the seed a samara, and I have found sufficient quantity to pick out the carbonaceous matter from the interior with a fine needle, decarbonize it in a clean platina crucible, over a spirit lamp, with every possible precaution to prevent any foreign substance mixing therewith; on examining this with the oberhausen, 700 diameters, Mr. Agassiz showed to Dr. Gould and myself the cells as clear and plain as possible; it is a mass of cellular matter, as I stated. You may of course imagine the extreme tenuity of the parietro of seeds when decarbonized, and the difficulty of those less experienced than Agassiz in the microscope in managing the subject; he feels quite convinced of their being fossil seeds. The nature of the genus of plants must require further examination.

3. The smooth glossy surfaces which I considered the external parts of large plants rendered smooth by intense pressure, were said to be nothing more than slicken slides. My position here is proved much more easily than in the other cases, by specimens passing gradually from the smoother through different degrees of protruberance, (all still smooth and polished,) until we arrive at the full form of the Lepidodendra. Nay more, I have found the parallel lines (channels) which are on the slicken slides, also on the perfectly formed Lepidodendra. The correctness of my views here I could prove to the most sceptical.

Basilosaurus—(Communicated by Prof. Agassiz, from a letter recently received from M. A. Retzius.)—The following is an extract from a letter from Prof. J. Muller to M. A. Retzius, dated Berlin, March 24, 1847:

The *Hydrarchus, Koch*, found in the tertiary formation in Alabama, is identical with Harlan's *Basilosaurus* and Owen's Zeuglodon cetoides.* The crowns of the teeth, with which Owen was not acquainted, have a great resemblance to those of the seal; in the maxillary teeth they are cutting and many pointed; most of the maxillary teeth have double roots, but the anterior has, as in the seals, only a single root. In the anterior part of the jaw are found conical curved teeth, viz: an incisive or canine, at least this is the case with the under jaw.

As such teeth as those which are found in the Hydrarchus, occur in the tertiary formation in matter, we may conclude that this animal belongs likewise to the tertiary of that island.

I think I can positively show that the Hydrarchus is not a rep-

tile, but a mammal, belonging to a peculiar extinct family. It has the ear formed as in the mammals, viz: a helix, and a tympanic bone, as in the whales. It has, moreover, two occipital condyles, and in the whole formation of the cranium no trace of reptile structure occurs, but on the contrary, every thing is as in mammals.

The vertebral column is very peculiar in its structure. The cervical vertebræ, probably more numerous than in any other mammal, are without perforations in their transverse processes; the ribs are only attached to the transverse processes of the vertebræ; at the central and posterior part of the column, the bodies of the vertebræ are usually long, and must both at the anterior and posterior portion of the extremities have been cartilaginous, inasmuch as we find here beneath the bony shell a mass of pure stone, while the central part of these vertebræ consists wholly of bone.—*Am. Jour. of Science.*

Botany and Zoology.—Description of a supposed new species of Columba, inhabiting Mexico, by Geo. A. McCall. (Proceedings of the Academy of Natural Sciences, Philad'a, July, 1847.)

Columba Solitaria.—Length 13 inches 9 lines; alar extent 23 inches; wing, from the flexure, 7 inches 5 lines; tarsus 1 inch; middle toe 1 inch 2 lines; first toe 9 lines, and longer than the third; nails light flesh color; feet and legs deep red; Iris dark orange; bill above 1 inch 1 line, but feathered to within 5 lines of the tip; reddish near the base, whitish near the tip. Head chocolate blue; throat chocolate white; neck and breast bluish chocolate, with brilliant reflections. Back, belly, flanks, underwing coverts and greater exterior wing coverts light red color, the last faintly bordered with white. Lesser wing coverts chocolate red, forming a bright shoulder spot of eliptical shape. Quill feathers dusky, tinged with lead color on the outer vanes. Third primary longest. Upper and under tail coverts blueish lead color. Tail 5 inches, slightly rounded, of twelve feathers, dusky.

Individuals of this fine species, which in general contour, resembles *Columba œnas*, were found on the Rio Grande, from Metamoras to Camargo; these were shy and only met with at intervals. They were again observed on one or two of the smaller water courses between the former place and Victoria, but never in flocks; nor were more than half a dozen seen any where in a single day while hunting over large extents. Their haunts were in the neighborhood of running streams or ponds of very clear water: rarely four or five might be found scattered over some 20 or 50 acres; thus showing little sociability even on their feeding grounds. But most frequently he is found alone, perched near the water, or with rapid wing shaping his solitary course

across the extensive waste. His flight is extremely bold, as he pitches in wide irregular *zig-zags* through the air, with a velocity scarcely to be surpassed. The meat for delicacy of flavor is not excelled by any of the family.—*Am. Jour. Science.*

On the production of Vanilla in Europe.—Gardner's Travels in the interior of Brazil—Jamieson's Journal:

"In marshy bushy places on this journey, I saw many plants of the *Vanilla planifolia*, seldom bearing flowers, and more rarely producing fruit. It has now been satisfactorily determined, that this is the species from which the true Vanilla of commerce is procured. In Mexico it is extensively cultivated for the sake of its fruit, which it yields abundantly; while the plants which have been introduced into the East Indies, and the hot houses of Europe, though they have frequently produced flowers, have very seldom perfected their fruit. Dr. Morren of Liege, was the first to study attentively the natural history of this plant, and to prove experimentally that the fruit of the Vanilla may be as freely produced in our hot houses as it is in Mexico. He has discovered that from some peculiarities in the reproductive organs of this plant, artificial fecundation is required. In the year 1836, a plant in one of the hot houses in the botanic garden at Liege, produced fifty-four flowers, which, having been artificially fecundated exhited the same number of pods, quite equal to those imported from Mexico; and in 1847, a fresh crop of about a hundred pods was obtained upon another plant by the same method. He attributes the fecundation of the plant in Mexico to the action of some insect which frequents the flower; and hence accounts for the non-production of fruit in those plants which have been removed to other countries. There can be no doubt that this plant is as perfectly indigenous to Brazil as it is to Mexico: but it is no less certain that its fruit is seldom matured. Is this also to be attributed to the absence of the means by which nature is supposed to effect fecundation in Mexico? This is a subject which, as Prof. Morren justly observes, well deserves attention in a commercial point of view, since his experiments go to prove that in all intertropical countries, Vanilla might be cultivated, and a great abundance of fruit obtained."

Etherization of Bees.—Mr. Hilton, of London, author of the "Practical Bee Keeper," at the suggestion of a French gentleman, has performed several experiments in the application of ether to bee hives, in order to reduce the bees to a state of stupefaction whilst the comb and honey were removed. The apparatus used was very simple. "The ether was placed in a glass vessel, to which a flexible tube was affixed, which was introduced beneath

the hive, (a glass one,) through a small hole in a platform, on which the hive was placed. The glass vessel was then placed in a larger vessel of warm water, by which the vapor was subtilized. In seven minutes the vapor completely stupefied the bees, who fell inanimate to the bottom of the hive. The hive was then removed. The atmospheric air revived the bees in about ten minutes, and in a short time after they were fully recovered. The same effects were then produced by the fumes of burnt nitre in another glass hive. The stupefaction of the bees was more immediate; but their recovery, on exposure to the atmospheric air was obtained. Another experiment was tried on a third hive, by igniting the species of dried fungus called a powder puff, and the result was similar. The use of ether, however, appeared more tractable, the strength being more capable of regulation than that of either the nitre or the powder puff. It was, moreover, more cleanly, and less likely to occasion accidents. The honey is not likely, it is said, to be affected by the vapor of ether. It is so extremely volatile that its powers are dispersed by the atmospheric air almost immediately."

Lunar Influence—The belief that the moon exercises a powerful influence upon the changes of weather on the surface of the globe, is one of the most popular errors of our times, and scarcely can foul weather of any continuance occur, that thousands of eyes are not directed to the pages of the almanac for the intelligence of a sunshining sky. The following extracts from the Atheneum, we think, will throw some light upon the truth or falsehood of its predictions:

"In the year 1843 I was one of the meteorological observers of the Royal Agricultural Society of England; and made careful observations on this particular branch of the science. The result arrived at was, that there was no foundation for the opinion in question. Since the above year, and also for some time previous to 1843, meteorological observations have been carried on here, and at the close of each year, an examination of the papers has strengthened my mind more and more against this prejudice. Indeed, as far as I am myself concerned, my papers are quite sufficient to show that *the moon does not influence the changes in the weather.*"—*Edward Joseph Lowe.*

M. James Glaisher, Esq., of the Royal Observatory, Greenwich, says:

"As you are aware, since the year 1840, magnetical and meteorological observations have been taken every two hours, night and day, with the exception of Sundays, upon which days the observations have been less frequently made. We may therefore look upon these volumes (Greenwich Observations) as recording

every important change in the weather which has taken place since that time. These changes have been found to be as frequent at every age of the moon as when she has been 7, 14, 21, or 28 days old—therefore, she cannot have had the slightest influence over any of them."

Mannite Nitrigue.—A paper was communicated to the Paris Academy of Science by M. Sobrew, on what he calls mannite nitrigue; viz., the substance obtained from manna, honey, &c., and treated by nitric acid. The mannite nitrigue or fulminating mannite, explodes under the blow of the hammer with the same violence as fulminating mercury, and produces in its decomposition sufficient heat to ignite gunpowder. M. S. states that he has prepared capsules, in which instead of fulminating mercury, he places a little nitrate mannite crystalized in alcohol, and discharged a fowling piece with them several times, with the same certainty as with the ordinary capsules.

Asphalte Felt Roofing.—Thomas I. Croggin has a patent from the English government for asphaltate felt. He describes it as principally made of hair, completely saturated with asphalte, without pitch, tar, or rosin, and consequently more desirable, a good non-conductor of heat, entirely impervious to rain, frost and snow, and superior to all other descriptions of roofing on account of its lightness, elasticity, economy, and durability, because it may be laid on by unpractised persons. Its price one penny the superficial foot, or nine pence the square yard, and it may be manufactured of any required length, 32 inches wide.—*Far. and Mech.*

METEOROLOGICAL PHENOMENA.

1. *Rainbow at Midday.*—On the 13th of December, at 1 o'clock, P. M., professor Olmsted observed at Yale College an entire rainbow in the north, projected on a dark cloud, the sun meanwhile shining brightly through a fine misty rain.

2. *Rainbow in the Zenith.*—In the month of August or September last, from 10 to 11 o'clock, A. M., Rev. Isaac Bird, of Hartford, saw a complete circular rainbow in the zenith. The atmosphere was a little hazy, but no where so thick as materially to obscure the body of the sun. No rain fell. The circle was smaller than solar and lunar halos. The colors of the rainbow were distinct.

3. *Aurora Borealis in the Morning.*—A brilliant aurora, accompanied by numerous large streamers and auroral waves, was seen at this place, (New Haven,) before daylight on the morning of Dec. 20th.—*Silliman's Journal.*

STATISTICS.

New York Canal Tolls.—The following table shows the gross amount of tolls, &c., collected on each canal, during the years 1846 and 1847, and also the gross increase:

Canal.	1846	1847.	Increase.
Erie, - -	$2,499,275·58	$3,333,347·36	$834,071·78
Champlain,	108,094·67	120,097·80	12,003·13
Oswego, -	58,185·43	77,933·34	19,747·91
Cayuga and Seneca,	27,282·11	28,925·95	1,643·84
Chemung, -	13,503·44	16,677·70	3,174·26
Crooked Lake,	1,912·81	1,946·50	33·69
Chenango, -	23,492·86	28,570·33	5,077·47
Genesee Valley,	23,448·57	26,707·25	3,258·68
Oneida Lake,	542·80	624·74	81·94
Seneca River Towing path, -	368·10	372·96	4·86
Oneida River Imp't,	14·52	176·07	161·55
Total,	$2,756,120·89	$3,635,380·00	$879,259·11

The following table shows the aggregate amount received for tolls, &c., on all the canals in the state, from 1824 to 1848; also the yearly receipts from 1837 to 1848:

Amounts collected	from 1824 to 1837, - -	$14,960,709·18
"	in 1838, - - -	1,590,911·07
"	1839, - - -	1,616,382·02
"	1840, - - -	1,775,747·57
"	1841, - - -	2,034,882·82
"	1842, - - -	1,749,197·52
"	1843, - - -	2,081,590·17
"	1844, - - -	2,446,374·52
"	1845, - - -	2,646,181·87
"	1846, - - -	2,756,120·89
"	1847, - - -	3,635,380·00
	Total receipts,	$34,637,356·74

A Curious Fact.—It is stated by some statistical hunter, that the sum annually expended for bread by the population of Great Britian and Ireland, amounts to twenty-five millions sterling—(about $120,000,000)—while the money expended in distilled and fermented drinks amounts to upwards of fifty millions sterling annually.

Comparative Flour and Grain Trade of New York and Boston.—The Journal of Commerce has given a comparison of the receipts of flour at the ports of New York and Boston, from the New York canals from which we take the following summary, showing that less than one-fifth the amount of flour brought down the canals goes to Boston, by way of the western rail road, while about *three-fourths* comes down the North river to New York.

It appears that from (1840) the year next preceding the opening of the western rail road to 1846 inclusive, the quantity of flour brought into Boston from all sources, increased but 128,862 barrels, which probably was not greater than the increase of consumption at home. A larger proportion of it, however, than formerly, was brought from the state of New York. From other sources there was an actual decrease of some 50,000 barrels. The extraordinary activity of the flour market last year, in consequence of the demand for exportation, swelled the aggregate arrivals at Boston to 1,020,497 barrels, of which 744,534 barrels came from the state of New York, and of these 511,261½ barrels came by rail road. The receipts from other sources than the state of New York were less than in 1840 or 1839, before the rail road was built.

As to the last four years, we are able to state how much of the flour which comes down the canals to the Hudson reached New York city, and how much went to Boston. Thus:

Year.	Rec'd by Canals at Tide.	Of which to New York.	Do. to Boston.
1844,	2,212,204 bbls.	1,499,512 bbls.	334,004 bbls.
1845,	2,517,250 "	1,700,198 "	456,618 "
1846,	3,063,441 "	3,280,638 "	500,236 "
1847,	3,952,972 "	2,919,400 "	744,534 "

In order to exhibit the comparison in its full strength, we should include also the wheat which comes down the canals to tide, and none of which, or next to none, is carried to Boston. The amount so reaching tide in 1847 was 4,143,830 bushels—equal to 800,000 or 900,000 barrels of flour. Most of this wheat was brought to New York city. Part of it was ground in this vicinity, and of the rest—including some, doubtless, from the south—2,114,792 bushels was exported. The following statement shows the quantity of grain exported from this city during the last three years:

	1845.	1846.	1847.
Wheat (bushels), -	304,654	1,477,356	2,114,792
Corn, - - -	304,292	1,489,459	6,198,902
Rye, - - -	44,059	932,628	407,915
Barley, - - -	45,747	82,340	372,689
Oats, - - -	none.	89,096	406,865
	698,752	4,070,879	9,495,563

New York Rail Roads.—From the reports of the various rail road companies in this state, we gather the following, giving the total expense of repairing, and running each road, during 1847, and also the total income for the same period:

	Expenses.	Income.
Albany and Schenectady, - -	$ 60,310·42	$164,377·10
Utica and Schenectady, - -	234,243·10	698,714·86
Syracuse and Utica, - - -	124,631·96	350,179·91
Auburn and Syracuse, - -	61,209.17	157,109·15
Auburn and Rochester, - -	154,613·97	395,767·76
Tonawanda, - - -	55,718·90	194,751·36
Attica and Buffalo, - - -	49,000·00	136,782·97
Buffalo and Niagara Falls, -	18,879·32	47,642·35
Saratoga and Schenectady, -	30,288.72	43,796·73
Schenectady and Troy, - -	38,337·14	46,121·88
Rensselaer and Saratoga, - -	37,718·29	61,269·90
Long Island, - - -	141,220·42	158,705·60
Troy and Greenbush, - -	42,756·03	63,829·06
New York and Harlem, - -	136,268·82	255,211·09
New York and Erie, - -	172,970·68	254,119·08
Hudson and Berkshire, - -	23,500·00	28,837·14
Buffalo and Black Rock, - -	1,825·00	2,364·47
Cayuga and Susquehanna, -	21,088·03	21,225·28
Skaneateles and Jordan, - -	2,554·64	3,369·88

Massachusetts Rail Roads.—There are 17 rail roads in and near Massuchusetts, the aggregate length of which is 851 miles. They cost $35,902,355.

The gross receipts in 1847, were - -	$5,263,922
Expenses during the same period, -	2,699,732
Nett earnings,	$2,564,150

Of the whole number, 13 companies declared dividends last year. Several of the roads have double tracks, so that the actual length of rail road is 1040 miles. During 1847, 41 persons were injured, and 44 killed on these roads by accidents. This is a very large number, indeed.

The officers of the United States navy receive a salary over $3,000,000 per annum. The ministers of the gospel receive an average of $500 each. Then the pay of our naval officers, 1521 in number, equals that received by more than 4,000 ministers for all their labors of love.

The military academy at West Point has received from the government more than $4,000,000.

SEED POTATOES.

Great diversity of opinion seems to prevail, as to the propriety of planting large or small, cut or uncut potatoes. It remains a matter of doubt whether small potatoes are not as good as any others for seed. Where small ones have been used, the usual practice has been to put four or five in a hill; and we are fully of opinion that if an equal number of the largest ones were planted in the same way a similar result would be produced, to wit: a degeneracy of the breed, and for this simple reason, that the growing plants are crowded too closely together to attain a due degree of maturity.

While residing on the farm, we tried several experiments in using small potatoes for seed, putting one whole one only to a hill, we raised potatoes as large, and to all appearance as great in product as where we have planted the very largest potatoes in the same manner. We found, too, that large potatoes cut yield as well as they do uncut.

We once planted half an acre as follows: Three rows with large potatoes, three rows with large ones cut, and three with small tubers less than a hen's egg, and so alternately through the piece. They were all treated alike. At harvesting they were all dug and left on the field to dry. No difference could be perceived in the size.

We imagine, however, it cannot be reasonably contended that a seed potato of any size, however small, will answer equally well for seed. It must contain substance sufficient to support its young shoots till their roots by extending into the earth enables them to obtain the requisite amount of food from this source. Whether, for this purpose, a seed potato weighing only an ounce is sufficient, we shall not pretend to say, but we are fully of opinion that one weighing a pound is more than is necessary.

When the tops or stalks of the potato crop have fully ripened, all the potatoes attached to their roots are equally ripe, and the cause of their difference in size is solely attributable to the different periods when they commence their growth; those starting latest being of course the smallest. A potato, therefore, not weighing more than an ounce, is as perfect a root of the kind, contatning the same proportion of nutriment, as one that weighs a pound.

The small potato, therefore, equally with the large, possesses all the requisite ingredients for affording nourishment to the

young shoots that are to grow from it; the only difference is as to the quantity, and what this requisite quantity for forming a sufficient seed potato is, remains to be ascertained. In the Rohan potato, it was only necessary to plant the eyes, with a very small proportion of the potato, one eye in a set, in the drill, was sufficient to produce from three to four large tubers, weighing eight ounces to a pound and over.

SIGNS OF RAIN.

It has been generally observed by meteorologists of the present day, that rain is indicated when the sun rises pale and sparkling, and soon becomes covered with clouds; when it rises among ruddy clouds; when it sets under a dark cloud; when the edge of the moon is ill-defined; when she appears as if seen through a mist; when the stars are not as bright as usual; when the sky is of a deep blue color; when distant objects are seen clearly, and as if near at hand; when sounds from a distance, as the tolling of bells, &c., are heard distinctly; when there is no dew after a hot day; when there has been a superabundant hoar frost; when a cloud increases in size; when a cirro-stratus occurs on high, as a thin covering through which the sun is visible, and the cumulo-stratus, as a massive cloud, is at the same time seen on a lower level—and that fair weather may be anticipated when the sun sets red or cloudless; when the edges of the moon are well defined, and the horns, best seen on her fourth day, are sharp; when the stars shine brightly; when the smoke rises in the air; and by the web of the spider being thickly woven on the edges of the pastures. To some extent I place reliance on the above remarks; at least, so far as to enable me to affirm that the appearances before mentioned as denoting rain will, if not followed by rain, almost invariably be succeeded by damp weather. But that which is of most importance is the knowledge of whether the vapors are increasing or decreasing in density; for the same state of the atmosphere is assumed whether they are on the decrease or increase. I think every one who has attended to the state of the atmosphere will agree with me in considering that the prognostics above alluded to as indications of rain, will be succeeded by a dense state of the atmosphere, but that it is not absolutely necessary that this state should be heavy enough for rain to fall.—*Love's Atmospheric Phenomena.*

ANNUAL FAIRS OF COUNTY SOCIETIES FOR 1848.

Otsego County.—Fair of the Otsego County Agricultural Society to be held on the 28th and 29th of September, at Cooperstown.

Seneca County.—Cattle show and fair of the Seneca County Agricultural Society to be held on the 5th and 6th of September next, at Seneca Falls.

Wayne County.—The annual meeting of the Wayne County Agricultural Society, for the purpose of holding a fair, will take place on the 22d and 23d of September next, at Lyons.

Benj. P. Johnson, Esq., Secretary of the New York State Agricultural Society, has accepted an invitation to deliver addresses at the meeting of the two first named societies.

Facts about Digestion.—Wheat is most nutritious of all substances, except oil; containing ninety-five parts of nutriment to five of waste matter. Dry peas, nuts and barley are nearly as nutritious as wheat. Garden vegetables stand lowest on the list, inasmuch as they contain, when fresh, a large portion of water. The quantity of waste matter is more than eight-tenths of the whole. Veal is the most nutritious, then fowls, then beef, last, pork. The most nutritious fruits are plums, grapes, apricots, peaches, gooseberries, and melons. Of all the articles of food, boiled rice is digested in the shortest time—an hour. As it also contains eight-tenths of nutritious matter, is a valuable substance of diet. Tripe and pig's feet are digested almost as rapidly. Apples, if sweet and ripe, are next in order. Venison is digested almost as soon as apples. Roasted potatoes are digested in half the time required by the same vegetable boiled, which occupy three hours and a half—more than beef or mutton. Bread occupies three hours and a half—an hour more than is required by the same article raw. Turkey and goose are converted in two hours and a half—an hour and a half sooner than chicken. Roasted veal and pork, and salted beef, occupy five hours and a half—the longest of all articles of food.

Steam Labor.—The amount of work now done by machinery, moved by steam, in England, has been supposed to be equivalent to that of between three and four hundred millions of men by direct labor.

METEOROLOGICAL OBSERVATIONS FOR APRIL, 1848.

Made at the Albany Academy, by Dr. T. R. Beck, Principal, &c.

Days.	THERMOMETER.				WINDS.		WEATHER.		RAIN	REMARKS.
	6 A. M.	3 P. M.	9 P. M.	Mean.	A. M	P. M.	A. M.	P. M.	Inch's	
1	49	48	37	41·67	N. W	N. W	Cloudy.	Clear.	0·22	Rain.
2	31	45	38	37·83	N. W.	N. W.	Clear.	Clear.		
3	30	55	44	44·50	E.	S.	Clear.	Cloudy.		
4	39	47	48	46·17	S.	S.	Cloudy.	Cloudy.	0·43	Rain.
5	48	53	41	44·67	N. W.	N. W	Clear.	Clear.		
6	32	55	44	43 83	N. W.	N. W	Clear.	Clear.		
7	33	56	42	43·50	N. W.	N. W.	Clear.	Clear		
8	32	64	51	50·00	N.	N. W	Clear.	Clear.		
9	38	69	51	52·83	S.	E	Clear.	Clear.		
10	39	75	63	59·67	E.	N. W.	Clear.	Clear.		
11	43	68	55	56·00	N.	N. E.	Clear.	Clear.		
12	47	65	52	53·83	S.	S.	Cloudy.	Cloudy.	0·07	Rain.
13	42	42	39	40·00	S.	N. W.	Clear.	Cloudy.	0·19	Rain.
14	36	52	41	42·67	S.	S.	Clear.	Clear.	0·04	Rain and hail.
15	34	65	54	52·17	N. W.	N. W.	Clear.	Clear.		
	Semi-	mo'ly	mean,	47·29					0·95	
16	41	66	55	54·33	N. W.	N. W	Clear.	Clear.		
17	43	58	44	46·83	N. W.	N. W.	Clear.	Clear.		
18	34	59	35	42·00	N. E.	N. E.	Cloudy.	Cloudy.	0·03	Snow.
19	30	48	35	37·17	N E	N E	Clear.	Clear.		
20	27	61	45	46·00	N. E	N.	Clear.	Clear.		
21	37	72	58	57·83	S.	N. W	Clear.	Clear.		
22	50	75	52	59·00	S.	S.	Clear.	Clear.	0·02	Rain.
23	50	72	60	59·00	W.	S.	Clear.	Clear.		
24	40	51	42	43·67	N. W.	N. W.	Clear.	Clear.	0·08	Rain.
25	36	62	57	53 50	S.	N. W.	Clear.	Clear.		
26	47	61	49	50·50	W.	N. W	Cloudy.	Cloudy.		
27	36	64	49	49·83	N.	N. E	Clear.	Clear.		
28	37	70	56	57·00	E.	S.	Clear.	Clear.		
29	53	56	45	48·83	S.	N W.	Cloudy.	Clear.	0·08	Rain.
30	38	65	52	51·83	N. W.	N. W.	Clear.	Clear.		
	Semi-	mo'ly	mean,	50·48					0·21	Rain Gage 1·16.

Monthly mean,.... 48·88

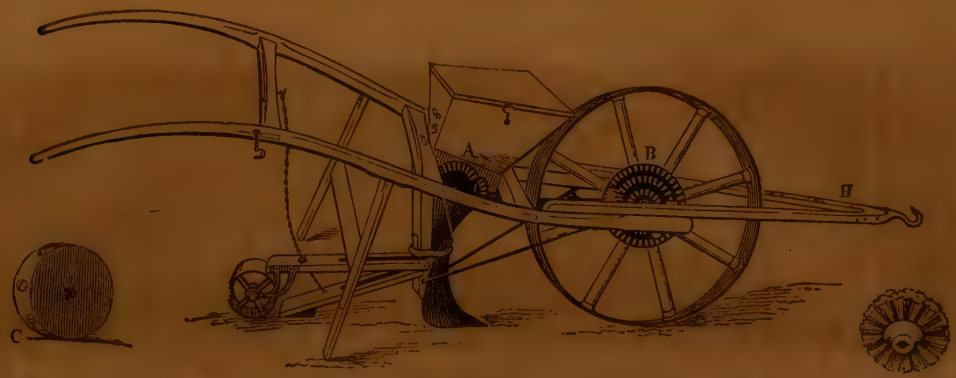
1st, Rain,	0·22	18th, Snow P. M.	0·03
4th, Rain,	0·43	22d, Rain P. M	0·02
12th, Rain, early,	0·07	24th, Rain, early A. M.	0·08
13th, Rain from 11 A. M. to 6 P. M.	0·19	29th, Rain A. M.	0·08
14th, Rain and hail P. M.	0·04		1·16

Winds—N. 2 days; N. E. 3 1-2; E. 2; S. E. 0; S. 8; S. W. 0; W. 1; N. W. 13 1-2.

Weather—Fair 24 days; Cloudy 6 days. Rain on 7 days; Snow on 1 day; Rain and hail 1 day Rain gage 1·16. Warmest day 22d; coldest 19th. Highest 75°; lowest 27°.

Earthquake and Aurora Borealis.—The ship Montezuma, eleven days from St. Thomas, reports, that on the 6th day of April, a severe shock of an earthquake was experienced at St. Thomas. No damage done. It was the evening of the same day, says the New York Evening Post, that shocks of an earthquake were felt at Zanesville and Norwalk, Ohio; and the same evening, the Northern and Boreal Lights were seen at both New York and Albany, of a deep and red color.

Snow Storm at Toledo, &c —A snow storm commenced on the 18th, at 3 1-2 o'clock P. M., and lasted without intermission to 10 P. M. Snow three inches deep next morning; the night very cold and the frost fatal to fruit. On the 19th, snow to the depth of five inches fell at Springfield, Mass., and at Boston, from two to three inches. Rail road cars were considerably impeded in consequence, and snow plows were in requisition.



DRILL BARROW AND CORN PLANTER.

Description.—The above cut represents Emery's Drill Barrow. In its general features, it is similar to the English Brush Drill Barrow. Small seeds, such as onions, carrots, turnips and parsnips, are sown by a revolving brush inside the hopper, which forces the seeds through a hole in a tin plate at the bottom of the hopper—the holes in the plates varying in size to suit the kind of seed to be sown. For corn, beans, peas, &c., the brush is removed and a cylinder, placed at equal distances apart, to receive the article to be sown, and the number of seeds measured by means of a screw with a large head, which by turning up or down, will measure the seed in equal quantities. The rotary motion is given by the large wheel B, on which is a dial plate with a series of cogs, and by means of bevel wheels, one of which at B, is moveable on the connecting rod from A to B, which can be confined to work in any of the series of cogs on the face of the large wheel, which gives a greater or less number of revolutions, varying the distances of the hills from 3 to 6, 9, 12, 24, 36, 48 to 96 inches apart. The plow can be adjusted to suit tall or short persons; the scraper and roller follow and cover the seed. ☞For further particulars, see Cover of April number.

MARINE VILLA—RESIDENCE OF P. A. STOCKTON, Esq.

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

CONDUCTED BY C. N. BEMENT, ALBANY.

VOL. VII. JUNE, 1848. No. 6.

JUNE IN PROSPECT—SUMMER.

Spring has passed! Summer has come! "Beautiful as spring is," says Howitt, "and delicate and poetical her children, the snow-drop, the violet, the primrose, and the cowslip, we have seen and loved them once more, and we will no longer regret them. As they came and passed away amid the lingering chills of winter, we welcomed them, and we mourned their departure. No season like spring makes us so sensible by its fleeting beauties, of the fleeting time; but summer is the season of full enjoyment, and let us now enjoy it."

Summer may be said to be the season of growth, as spring is of reproduction. The organized existences, which burst into life in the latter season, are either brought to maturity, or at least, invigorated and expanded into the former, and, in both seasons, the peculiar character of the weather is most wisely adapted for the intended object. Summer is the manhood of the year. Its powers are developed; its vigor is fresh; its plans are matured; it is in the full flush of beauty, and buoyant with the joy and bustle of existence. Turn where we will, there are proofs of operations begun and in progress, which indicate design, wisdom, and activity; of a past infancy and growth spent in preparation, and ending in settled purposes reduced to practice, and useful employments industriously prosecuted.

Such is the character of the season; and when we take a more accurate survey of particulars, a thousand delightful illustrations occur, all leading us to the same sublime conclusion, that the natural operations which are all silently proceeding around us, are the work of a present Deity, and a reflection to his attributes.

In June flowers are more abundant and of a greater variety than the preceding month; though many were expanded to adorn the fields and to render the country inviting. The rose, the queen of flowers, in all its variety and beauty, is now every where rejoicing in its pride; and gardens, where the hand of culture has been busy, now make their richest display. All this surely were enough to recommend the country at the present time, and to justify our preference for this refreshing and blooming season.

There is a pleasure peculiar to spring in the contemplation of Nature, rising as it were, from the tomb, and bursting into life, and light, and joy; but that which belongs to summer is not less intense, although of a different kind. The delight of this season arises from the view of the full development of successful progress of the powers and processes which in spring began to operate. The plants which had just pierced the earth in the commencement of that season, have now shot forth their stalks, and expanded their blades, and opened their beautiful flowers to the sun; the trees rejoice in their leafy pride; the fields luxuriate in the abundance of their vegetable stores; and animated nature is instinct with life and enjoyment. The whole scene is full of delight.

June seems the season made for universal rejoicing of all the creatures of existence. The country is dressed in its fullest and greatest beauty. The trees are once more thick with leaves, but leaves of the most delicate freshness. The ground is covered with a carpet of grass of the deepest green, and the birds and insects, and flowers, which are moving, singing and blooming, over the whole face of Nature, are countless. It is the very carnival of Nature and she is prodigal of her luxuries. It is luxury to walk abroad, indulging every sense with sweetness, loveliness, and harmony. It is luxury to stand beneath the forest shade when all is still, and basking at noon; and to see the landscape suddenly darken, and the black and tumultuous clouds assemble as at a signal; to listen to the awful thunder as it rolls

aloft and dies in the distance. It is luxury to plunge into the cool stream; and if ever we are tempted so turn angler, it must be now.

Rich fruits begin now to be found in the country, especially where prudent industry has led the horticulturist to rear the tender exotic under a proper shelter, or to cherish indigenous plants and shrubs with early care. If this may be called a luxury, it is not a luxury of intoxicating effects or expensive accompaniments. The moderate use of ripe fruit is favorable to health in summer; and the cultivation of fruit gardens has received the personal attention of the wisest philosophers. Strawberries will be in great perfection; raspberries, cherries, and currants will also be in full perfection. Who does not admire the country? Who does not enjoy its fruits?

How delightful too are the evenings! The frosts and damps of spring are past; the earth is dry; the glow-worm has lit her lamp; the bat is circling about; the whippoorwill chaunts his nocturnal ditty; and "caty-did," with her ceaseless voice, fills up the choir, while the moth flutters against the darkling pane; the fragrant breath of flowers steals into our houses; the bees hum sonorous music. Such is June, such is summer, who does not rejoice in it.

It will, we believe, be admitted by all, and truly said, that the months of April and May have been remarkably favorable for plowing and preparing the soil for the reception of spring-grain, and planting; and the seasonable and copious showers we experienced in May, were well calculated to bring forward grass and push forth vegetation with great rapidity.

This is the month for weeds, therefore *do not let the hoe rust.* One of the principal points in good farming is keeping the soil free from weeds, and all such plants as impoverish the ground or injure the quality of the crops ; and as the present month may be considered the latest period for weeding and destroying the noxious productions of the soil, we will proceed to offer a few remarks regarding the ordinary sorts of weeds that infest land in general; and cannot forbear expressing it as our decided opinion, that notwithstanding the various improvements that have been introduced into our code of agriculture in most parts

of the country, even where farming has attained a fair reputation, the extirpation of weeds is still less attended to than the importance of the subject deserves. Weeds in all sorts of crops lessen very materially the quantity, and in grain crops the quality too, whether intended for seed or for ordinary domestic uses. No soil is capable of supporting two crops at the same time. Therefore, keep the hoe bright and the cultivator moving in the corn and potatoe field. Amongst weeds, as amongst plants in general, there are many annuals—such as come to perfection in one year, bear seed and die; and perennials, or those that continue alive an indefinite number of years. Some of the latter are propagated by seed only, but others either by seed or the roots. Among farmers, as well as horticulturists, weeds are commonly divided into two classes—those propagated by seed, and those propagated by the root.

Since nearly all weeds are fed and nourished upon the same food that would support useful plants, it must be obvious that when weeds are permitted to grow among them, they will be robbed of a portion of the food that should have been theirs. Therefore, keep the hoe bright and the cultivator moving, until the weeds are subdued.

STRAWBERRIES—THEIR CULTIVATION, &c.

Of all the cultivated fruits of the garden we place the strawberry first. There is no fruit, in our opinion, equal to it for fragrance and flavor, and if not considered one of the necessaries of life, it is conceded, we believe, to be one of the greatest luxuries that is produced. This delightful fruit should be more cultivated than it is, for besides being one of the greatest luxuries of the table, it has the merit of being one of the best antiscorbutics that can be used, and is also one of the most effective dentrifices in removing the tartar from the teeth, to be found.

It has been a subject of surprise, that there is not more attention paid to the culture of this very valuable and delicious fruit, when they are so easily raised and require so small a spot of

ground to supply a family plentifully, say eighty or ninety square feet of good ground, well prepared, regularly and properly cultivated, would be sufficient in most cases, for this fruit.

Our market is but poorly supplied; we have no regular market-gardeners, as there should be, but are dependent, in a measure, on the south for a supply, This should not be. Our soil and climate is suitable and we can see no reason why they cannot be grown here in abundance. We think there is a good chance for a profitable business in cultivating them for market, in the vicinity of this city. The greatest difficulty attending the culture of this fruit, is to keep the plants bare of weeds and grass that spring up among them.

The best time to make strawberry plantations is in August, after the vines have done bearing. We have, however, succeeded very well by planting them out early in May, and have taken a fair crop the same season. The soil should be deep, rich and well prepared. A loamy or gravelly soil, with a full exposure to the sun seems most congenial to their growth. The ground for the reception of the plants, should be spaded to the depth of 16 to 18 inches, and the surface should be well and thoroughly pulverised with the rake, when it should be marked off with a line in rows from one to two and a half feet apart. This will admit air and light around the plants and give room for after culture. Then select the strongest plants, and set them 12 inches from plant to plant in the rows. Strong, well-rooted young plants, of the best varieties should be selected. In Hovey's Magazine of Horticulture, the following are recommended as being the finest and most productive varieties:

"Hovey's seedling, Female Hudson's Bay, Large Lima, Bishop's Orange, Bayne's Prolific, as being splendid varieties, and abundantly prolific. I believe every flower on the above varieties are female, and if planted separately, will fail to yield abundantly; but if planted in proximity with the Melon, or Southborough Seedling, every flower will be impregnated, and will produce enormous crops."

The after culture consists in keeping them free from weeds, cutting off the runners, and spading in a dressing of well rotted manure, or what is still better, decayed leaves from the woods, in the fall after they have done bearing.

In order to preserve the fruit clean, the space between the rows should be covered just before the fruit begins to ripen, with a thin layer of straw. Managed in this way they will continue to yield plentifully for four or five years.

That there are *fertile* and *sterile* plants we have every reason to believe, from the fact of having, in our early practice, once selected plants with the longest and largest leaves, and most vigorous growth, (which we now think were *male* plants,) for a bed—the consequence was we had no fruit, though they blossomed tolerable well. There seems to be some diversity of opinion on this subject, and as we have no pretentions to the science of botany, we shall leave this for others to determine.

"In all the long discussions about barren and fertile strawberries," says the editors of the Cultivator, "the actual amount which each variety will yield per acre, which is of great importance, appears to have been entirely forgotten. To one who raises for market, it is quite essential to select such a variety as will yield a surplus of a hundred per cent above the cost of raising, rather than one that will yield no such surplus at all; and the home cultivator wishes to get as much from his labor and land as practicable. Only a few statements of the amount per acre have ever been made. The Old Hudson, (of Cincinnati,) which is probably the most productive of all strawberries as yet much cultivated, has produced, according to N. Longworth, at the rate of 5000 quarts, or 156 bushels per acre. Burr's Late Prolific, a variety lately originated at Columbus, Ohio, it is stated yielded 35 quarts on a bed 6 by 20 feet, which is almost 240 bushels per acre; it doubtless received the best possible culture. It would be very interesting and of great value to know the comparative productiveness of such varieties as Hovey's Seedling, Large Early Scarlet, Ross's Phœnix, Swainstone's Seedling, (see cut,) Black Prince, and others raised side by side, and treated precisely alike. Such experiments would greatly facilitate the selection of the best sorts for each different part of the country." The first and third varieties are comparatively new, and of American origin.

In order to show the importance of cultivating the strawberry, we give the following statistics:—In 26 days of last summer, 1847, 4572 bushels sold in New-York,—514 in one day. 80,000 baskets, equal to 833 bushels, weighing 25 tons, were brought in one day over the Erie Railroad. Whole number of baskets sold in New-York, equal to 602,640, being an increase of 212,000, or 24 per cent over last year, (1846) value $20,000 in a season!

Swainstone's Seedling Strawberry.—Fig. 19.

"The fruit of this strawberry, with us," says Mr. Downing in the Horticulturist, "is of average large size; from three to four inches in circumference are the ordinary dimensions. The foliage is very large and rich in appearance, and the foot-stalks of the leaves are long. The fruit is borne in large clusters on high and pretty strong foot-stalks. The berries are very regular in shape, varying from ovate to conical. The seeds are very slightly sunk; the surface of the fruit is rather even, glossy, and of a beautiful light scarlet, a good deal lighter in color than that of most pine strawberries. The flesh is solid, and very high flavored. The season of ripening is about midway between early and late, but it continues ripening for a good while.

"Last winter is the first in which we fairly tested the *hardiness* of this variety. With us, it has so far proved perfectly hardy, much more so than some of the old pine strawberries. But as it is yet comparatively new in this country, it remains to be proved how far it will answer for general cultivation in all parts of the country.

"In England, Swainstone's Seedling bears a very high character. It is placed among the few which rank as of the first quality, in all respects, in the garden of the Horticultural Society of London. Dr. Lindley recommends it as one of the six very best sorts for cultivation in that country. Our own experience, thus far, leads us to believe that it will prove, on the whole, one of the very finest of pine strawberries for this climate."

RURAL ARCHITECTURE—MARINE VILLA.

(See Plate.)

It affords us great pleasure to have it in our power to present our readers with another of Mr. Ranlet's designs for a villa or sea side cottage. It was erected on the borders of the Atlantic, in Monmouth county, New Jersey.

"This villa," says Mr. Ranlet, "was built as a summer residence for Philip A. Stockton, esq., of New York; it is situated at Long Branch, about five hundred feet from the sea side, on a high eminence, which commands an uninterrupted view of the Ocean. Long Branch is one of the most celebrated watering-places on the Atlantic coast, and as the cities of New-York and Philadelphia increase in inhabitants, it is every year gaining in importance. Mr. F. T. Grand, in his account of the watering-places of England and America, assigns to Long Branch the highest place among them all.

"The villa of Mr. Stockton, as will be seen from the vignette, is designated expressly for a summer residence, and is adapted to the sea side, having a flat roof, bracketed and completely surrounded with double galleries. The house in the centre is well sheltered from the sea blasts and summer heats.

"The object of resorting to the sea side in the sultry summer months, being recreation and comfort, gentlemen who rush with their families into crowded hotels, where the hurry-skurry and confusion consequent upon the arrival and departure of boarders, the anxiety of the host to get all he can out of his guests, to crowd as many into a room as will consent to be packed together, and to give them no more for their money than he can help, naturally causes a good many delicate people to return from a visit disgusted with their jaunt, and injured instead of benefitted by bathing and change of air.

"Gentlemen who have sufficient means, and there are enough such to stud the shores of Rockaway and Long Branch with Marine Villas, would find it more economical in the end to erect houses for their families by the sea side, instead of crowding into a hotel over peopled with a multitude of chance visiters. The sea side cottage, or Marine Villa, being intended for occupancy only in the hot months, need not be so expensively constructed as a country house for permanent residence.

"Perhaps the term *Villa* may be rather too magnificent, strictly considered in an architectural sense, to apply to the sea side residence which we have given an example of. The oriental palace

of George IV at Brighton is called a Marine Villa, and is the only one so called in England. A Marine Cottage would probably be a better term, and one conveying as pleasing an idea of comfort and enjoyment as villa. Certainly we have no residences in this country that deserve to be called villas, if we use the term with a recollection of the villas of Lucullus and Cicero, or of the modern Italians; it would be quite as proper to call the houses in Union Square, palaces, our meeting houses, cathedrels, as to call a slight cottage orné, a villa. Guilt gives the smallest dimensions of a country house to which the term villa can with propriety be applied. He says that the smallest site of ground on which a villa can be designed, is 80 by 60 feet; any thing less than that is of course a cottage; the maximum size of a villa, is, according to the same authority, that of the Villa Capra of Paladio. Country houses of a greater magnitude should be styled mansions, excepting when they attain a certain size, when they become palaces. These distinctions are very necessary in architectural descriptions, or even in ordinary conversation, that when a house is alluded to, some definite idea of its character may be conveyed by the term applied to it. From a natural peculiarity of applying magnificent terms of art to inconsiderable objects, and diminutive names to some of the grandest features of nature, great confusion is created in the minds of foreigners, who are as much amazed at the size of our ponds, hills and creeks, as they are amazed at the dimensions of our halls and villas. Some of our hills are mountains, our creeks, large rivers, our ponds, lakes, and our lakes, seas; while our mansions, are small houses, our villas, cottages, and our halls, narrow passages. Mr. Cooper has ridiculed the national habit of amplification, in some of his works, and given some very amusing instances of it in others. One of his works on England consists of letters addressed to different persons in America, and some of them addressed to ——— ——— of "Comstock Hall, Comstock, Mich." A short time after reading these letters, with a fine idea of Comstock Hall in our head, we happened to be traveling through Michigan, when one day the driver of the stage pointed to a small wooden house, surrounded by a slight wooden paling, and informed us that a relation of Mr. Cooper lived there, and on further enquiry we ascertained that that was "Comstock Hall," to an inhabitant of which Mr. Cooper had grandly addressed his letters from Europe, while ridiculing the magniloquence of his countrymen."

CLIMATIC OBSERVATIONS.

BY J. TREMPER.

Climate is various in its course, depending upon its northerly or southerly position; also upon its easterly or westerly, and sometimes upon local circumstances in reference to its peculiar changes. The climates of the Upper Alps, of the Chimborazo and the Himaleh, is as different from the climates of the plains from which they emerge, as is the climate of the Arctic Circle from that of the Torrid Zone. By a singular law of nature, as we ascend above the general level of the earth, we gradually find a decrease of temperature: although we should make the experiment at the Equator, by ascending a few thousands of feet, we should find a temperature of Arctic rigor above the burning plains of the Torrid Zone. The line of perpetual congelation gradually ascends in altitude as it extends to the north. The western continent of Europe, under certain latitudes, exhibits a temperature some 10° or 12° higher than a corresponding latitude upon the eastern continent of America. Peculiar circumstances very much modify climates; very large collections of water prevent extreme depression in the temperature, while large mountains have a contrary effect. In the vicinity of the Lakes we do not find the variations of temperature so great as in those parts remote from them. From a meteorological register which I have kept upon the Seneca Lake, at a point in latitude 42° 45′ N., I have found the mean annual temperature to be 48 44-100°; the lowest temperature 3° below zero, and the highest 96° above. The great depth of the water of the lake prevents its freezing in the winter season and thus has a tendency measurably to equalize the temperature of the surrounding atmosphere, and prevent such great extremes as even take place in a lower latitude. Fortunately for our comfort during very low temperatures the atmosphere is calm, and we experience much less inconvenience than when we have a wind accompanied with a higher temperature. At the same place, the mean temperature for the spring months is 46 91-100°. The lowest, during the same period, 0°; the highest 88°; exhibiting a greater alternation of heat and cold than either of the other seasons. The mean temperature for summer is 68 56-100°; the lowest 40°; the highest 96°; exhibiting the least variation of the different seasons of the year. The mean temperature for autumn is 50 22-100°; the lowest temperature 6°; the highest 93°. The next greatest alternation of temperature is during this season: The mean temperature for winter is 28 55-100°; the lowest 3°, and the highest 66°.

Connected with the subject of temperature and climate is the phenomenon of electricity, as exhibited in the aurora borealis or northern lights, and in the more familiar and more dreaded exhibition of thunder and lightning. The former are more frequent in the latter part of winter and beginning of spring, and tend much to beautify and adorn that cheerless season. The latter are most generally in their greatest violence during the dry and sultry months of summer, and are to most persons a source of great alarm; and certainly when the lightning is blazing in the murky heavens and the thunder is rolling its deafening peals along the midnight sky, it is a scene which few can calmly witness; and yet so far as danger is concerned, how harmless does it prove, to many of the casualties which sever us from existence? It is the hour and the tumult that spread their terror. We smile at the slow and insidious approach of disease. To annihilate time and distance, without reluctance we trust ourselves to every conveyance; the ocean, the river, the railway have no terrors for us, and while driving with the rapidity of the storm-cloud we are as passive and happy as though we sat upon a couch of flowers. Our houses, however, in some measure protect us from the effects of the electric fluid, but still it would be very imprudent to expose ourselves to a window or door to invite so unwelcome a visitor, or come in contact or proximity with any metalic substances which are appurtenant to our buildings. The water conductors with which most houses are provided, where no better conductor is erected, tend in some measure to carry off the electric fluid, and the gilding upon them offer numerous sharp points of attraction. A good lightning conductor, however, is a useful precaution against danger of this kind, and as the expense is not great it is a matter of surprise that we see so few of them. The average number of times that thunder is heard in this vicinity, founded upon the observations of four years, is as follows:

January,	0 times.	May,	2 times.	September,	3 times.
February,	0	June,	2	October,	1
March,	1	July,	3	November,	0
April,	1	August,	3	December,	0

Making an average of 16 times that thunder is heard during the year. When we reflect too, how much of it is heard when the cloud is passing at a distance, it leaves the occurrence of dangerous proximity but few times in the course of a year. But yet as a matter of prudence it is important to secure as far as possible, our property from chances of this kind. A farmer may have a valuable barn filled with the hard-earned produce of the season, which is to supply him with food and the means of obtaining necessaries for his family, a little precaution and a small expense

secures his property from this species of danger. The slight expense incurred in raising a conductor to his house or barn amply repays him in the sense of security that he feels personally, and the removal of the contingency of the destruction of his property. In hilly countries, however, thunder storms are more frequent as well as the quantity of rain greater. The mean annual quantity of rain that falls with us is 30 inches and 44-100 of an inch. The vapor from the lake is attracted to the higher ground of the eastern counties, so that a fog with us is a rare occurrence, not averaging more than once or twice a year. A portion of the vapor from the greater lakes pass to the north of us in their easterly course, and consequently we often have the exhibition of a heavy storm passing beyond us, while we are unaffected by its influence. The prevailing wind is southerly, and the most unfrequent, northeasterly. A southerly wind in the winter is less pleasant than a northerly one, as in passing over tracts of thawing snow it comes loaded with moisture, and the air being saturated with it and coming in contact with the body, it deprives it rapidly of its heat by converting it into latent heat, assisted very much in its operation by the strong current of air which brings it to us. Hence that uncomfortable sense of chilliness we experience, or as we usually denominate it, rawness, which is very apt to produce more diseases caused by the sudden application of cold to the body. Owing to the proximity of this place to the lake, the peach, the apricot, the nectarine and vine are raised without difficulty, and severe frosts seldom affect vegetation.

West Dresden, May, 1848.

ERRATA in Historical Remarks on the settlement of the Genesee Country, for Carboniferous Outline," read Carboniferous Outlier. For "Canandaiqua," read "Canandarqua."

NOTES ON THE SEASON,

BY WILLIAM BACON.

In an early number of the journal, we brought our remarks on the season to the closing of the year. By a reference to that article it will be seen that the close of autumn and early part of winter, were, with the exception of a very few days mild and open to an almost unparalelled extent,—that some of those cold days were unusually so, for the season in which they fell, but soon were succeeded by almost as great an extreme of heat. So remarkable were November and December, that many of our farmers did not feed their sheep, unless it were in storms of cold urns, until the middle of the latter month.

January, 1848, opened with all the mildness which had characterized the preceding months. New Years day was warm and wet, mud rather plenty, pansies in bloom, some plowing done. The second and third days were also warm; fourth, wind changed from S. W. to N. W., cold and piercing, the seventh gave us an abundance of rain, and we were again immersed in mud; ninth, snowy, grows cold; tenth, colder; eleventh, mercury at 22° below 0 in the morning, the coldest day in the season; twelfth, mild; thirteenth, thawing; fourteenth, heavy fog, which continued nearly through the day; fifteenth, cooler, and continues so till the twenty-first, which, with the three succeeding days, were very fine; twenty-sixth, rain in the morning, and for a short time in the afternoon, foggy; twenty-seventh, a heavy rain, after which the weather grows cooler, and continues so until the end of the month. So January, month of strange caprices;—presenting an unusual intermingling of cold and heat, mud and hubs. The travelling through nearly the whole of the month was bad. The frequent changes of temperature were highly injurious to health, and influenzas were common and in many instances severe.

February opened with a more winter like character; on the first, snow fell to the depth of 8 inches, this was the first fall of snow in the season of sufficient amount to make good sleighing. The storm cleared off mild, and the weather continued very fine until the fifth, when there was an additional fall of four inches; fifth, blustering, snow piled in all manner of forms and drifts of all sizes. The weather continued cool and a large proportion of the time blustering until fifteenth, when it becomes fine and continues so until the nineteenth, when there was a fall of rain attended with a foggy atmosphere; twenty and twenty-one fine again, twenty-two, rain, twenty-three, pleasant, June like; twenty-eighth, at night snow fell 5 inches, from the southeast, and the twenty-ninth it was blown back to the southeast by a spiteful northwester. The quantity of snow that fell in February was 17 inches, but was so thoroughly thrown into heaps as to afford but little pleasant sleighing. The month was even more winter-like in its temperature than either January or December.

Whatever may be said of the rude and blustering habits of March, he this year has nobly sustained his character for roughness, especially in the days of his infancy. Rude tempests rocked his cradle and sighing winds sung his lullaby, we should think, to his heart's content; but as he advanced in maturity, his character became more amiable. But as a general trait, he was cold in his temperament and morose in his habits until the seventeenth, when, perhaps from the reflection that the strength of his manhood was past its noontide and his days fast numbering to their close,

he rapidly changed from severely cold feelings towards all with whom he associated, to a mild and rather agreeable fellow, for instead of clothing the whole atmosphere around him with angry clouds, and lashing them across the sky with winds too searching to allow themselves to be agreeable, he permitted the warm sun to shine and the gentle gales from the south to blow and dissolve the relenting snows and unchain the rivers from their fetters of ice. On the eighteenth he called the blue bird to usher in the morning of spring with its mellow notes, and the nineteenth admitted the robin to strike in concert, with its well tuned strains. The twenty-first, phebe birds made their first appearance, and the twenty-ninth, the frogs struck in their odious bass to complete the concert.

On the night of the twenty-fourth, there was a brilliant exhibition of Aurora Borealis, throwing up its brilliant jets of light of various colors, to the zenith. When these beautiful corruscations of the sky appear, a change of weather may with almost a certainty be caculated upon. It was so in this case, but instead of severer weather, as it often happens, we had a warm, foggy turn, and the snow disappeared rapidly under its influence. March, considering it was March, and the hard character he has acquired, whether deserved or not, was on the whole a very good month. The wintry winds must surely blow until they blow out, and if March is disposed to let them play their pranks over his bosom instead of putting them off to scowl over the features of April or chill the beauties of May flowers, surely we mortals have no cause of complaint, provided we have strength of clothing and firmness of character enough to meet their rough usage with indifference.

April was rather cool in its early salutations, but the approach of spring was heralded on the first by alder in bloom, and numerous flocks of pigeons and wild geese going north. On the fourth, there was a moderate fall of rain, snow mostly disappeared from the fields and roads; fifth muddy, first plow seen in motion; sixth and seventh, cold; eighth, fine; ninth, warm; tenth, do; surface of the ground getting very dry, plowing commenced in earnest; eleventh and twelfth, fine; thirteenth, slight fall of snow; fourteenth, cool; continues cool till the eighteenth, when there was a fall of snow at night, most of which was blown into drifts, which remained in certain localities for four days; twentieth, cold, ground froze at night sufficient to bear horses; twenty-first, moderates; twenty-second, twenty-third, mild; twenty-fourth, cold, dry winds, vegetation suffering for want of rain, and continues so until the end of the month.

The question has often been asked of late, what has become of our old fashioned April showers? Ye philosophers! can ye tell

us what? The last April has certainly been a very dry month, and vegetation of all kinds has certainly been much retarded by its cold winds and thirsty atmosphere. Yet the season has been fine for getting in spring crops and advancing all kinds of spring work. The good condition of the earth to receive the labor of man at an early period compared with what it is some years, has enabled the farmer to take time and do every thing in the most thorough manner. Though early sown seeds did not vegetate so quickly as in seasons of more abundant moisture, yet the thoroughly pulverized condition of the soil allowed them to take root rapidly when the timely showers of the early part of May came to dispense their richness, and they have now assumed a beautiful appearance.

The effects of the past winter have not been so fatal to the interest of the farmer, as, from the flucutating nature of its temperature might have been expected. Domestic animals have come out in fine thrift. Though the quantity of forage cut last season in many sections, Berkshire in particular, the mildness of the fall operating favorably, and the fine appetites of animals prompting them to devour the coarser fodder with a high relish, the supplies of food for sustenance have been more than ample, seldom if ever have we seen so great a proportion of animals whose general contour gave such certain indications of thrift at the opening of spring, as at the present time.

With all the freezing and thawing, and drying and drenching, that the earth has experienced for the last seven months, fears were naturally entertained for the welfare of the grass and winter grain crops. Though but little of the latter is sown in these mountain valleys and along our rough hill sides, yet the few pieces we have seen, exhibit unusual promise of bountiful harvest. Grass suffered materially from the cool, dry winds of April, but it was advanced enough to do so; but recent abundant rains have called it forth in beauty, and the earth is smiling in the richness of her spring attire, while the heart of the husbandman is "leaping for joy" at the early promise of abundant harvests.

Elmwood, May, 1848.

New Disinfectant.—M. Ledger and Raphael have announced to the Paris Academy of Sciences, that they obtained a liquid of great utility, for the purpose of disinfection in the emanations from animal excretions, by dissolving 4 oz. of nitrate of lead, in two pounds of water.

FLORICULTURE.

Flowers are the ornaments of vegetable life, and have in all ages been cultivated by persons of leisure and taste, for the pleasure they yield to the eye and the fancy. While generally healthful and exhilerating from being pursued in the open air, floriculture is justly considered to be a fine and harmless recreation, which by leading to tranquil contemplation of natural beauty, and diverting the mind from gross worldly ocupations, has a positively moral, and therefore, highly beneficial tendency. It has also the advantage of being alike open to the pursuit of high and low, rich and poor, the over-toiled man of business and the industrious mechanic. It may be followed with equal enjoyment by individuals of both sexes, and, as is well known, on every imaginable scale, from that of a single flower-pot or ornamental border, to the princely green-house and the exquisitely varied parterre. The natural grace, simplicity, and attractive coloring of flowers, have afforded endless themes for moralists and poets, and volumes have been written to show how many assotions of feeling, simple and sublime, these beauteous objects are calculated to excite. As our desire is to improve the understanding, we hope to be excused for pausing an instant over this agreeable view of the flower-culture. Few natural objects are more poetical, or more calculated to refine the taste than flowers. "From the majestic sun-flower, towering above her sisters of the garden, and faithfully turning to welcome the god of day, to the little humble and well-known weed that is said to close its eye before impending showers, there is scarcely one flower which may not from its loveliness, its perfume, its natural situation, or its classical association, be considered highly poetical."

As the welcome messenger of spring, the snow-drop claims our first regard, and countless are the lays in which the praises of this little modest flower are sung. The snow-drop teaches us a lesson too. It makes out the progress of time. We cannot behold it without feeling that another spring has come, and immediately our thoughts recur to the events which have occurred since last its fairy bells were expanded.

It is of little consequence what flower comes next under consideration. The violet, while it pleases by its modest, retiring beauty, possesses the additional charm of the most exquisite of all perfumes, which, inhaled with the pure and invigorating breezes of spring, always bring back in remembrance a lively conception of the delightful season. Thus, in poetical language, the "violet scented gale" is synonymous with those accumulated

and sweetly-blended gratifications which we desire from odors, flowers, and balmy breezes; and, above all, from the contemplation of renovated nature once more bursting forth into beauty and perfection.

An error, not uncommon, in deciding which flowers shall be planted, is to select numbers merely for their rarity or novelty, without reference to what will be their appearance when in bloom, and which generally leads to disappointment. Unless for botanical illustration, make a choice of flowers on two principles—those which will be beautiful when in bloom, although common, and those which will bloom at the particular seasons required, to ensure a succession of variegated beauty from spring to autumn. The true amateur gardener takes a pride in improving even the common flowers — urging them by careful culture to the highest state of perfection, as to size and brilliancy of coloring, of which they are susceptible in our climate.

NEW AND BEAUTIFUL FLOWERING SHRUBS.

Fig. 20.

THE WHITE-LIPPED VACCINIUM, (*Vaccinium leucostomum*, Lindl.)

SP. CHAR. — Evergreen, hairless. Branches erect, angular. Leaves oblong, nearly sessile, thick, slightly crenated, with indistinct veins Flowers in short 3 or 4-flowered erect racemes, which are clustered in the axils of the leaves, Bracts fringed with hair. Corolla urceolato-campanulate, with short erect (?) limb Anthers, awnless.*

THIS new shrub has been raised from Peruvian seeds, received by Messrs. Veitch, of Exeter, from Mr. W. Lobb who found it growing at the elevation of 8000 feet above the sea, at a place called Veto. It will probably require a greenhouse in the middle and northern counties of G. Britain, but may be expected to be hardy in the south west.

It has not yet flowered, but Mr. Lobb states its flowers to be "scarlet tipped with white." It is perfectly distinct from any species in our gardens, but is nearly related to the close-headed Vaccinium (V. *confertum*, H. B. K.) of Mexico, differing in

having erect flowers of another form, and almost sessile crenate leaves of a larger size.

If the flowers are such as Mr. Lobb describes them, this must be a very pretty shrub; for they crowd every branch, stand erect, and therefore display to the best advantage any beauty they may possess.

Fig. 21.

THE SMALL LEAVED THIBAUDIA.

(*Thibaudia microphylla.*, Lindl.)

SP. CHAR.—An evergreen shrub, with furrowed smooth branches. Leaves roundish oblong, blunt or retuse, coriaceous, veinless, nearly sessile, with a few minute scattered hairs on the underside. Peduncles solitary, axillary, one-flowered, erect, much longer than the leaves. Corolla conical, with a very small 5-cleft orifice.*

An evergreen shrub, now growing in the nursery of Messrs. Veitch, of Exeter, who have raised it from seeds gathered in Peru by Mr. William Lobb. It is said by him to have been found at an elevation of 12,000 feet, and to bear scarlet flowers. In his dried specimens they appear to be deep purple. The small leathery dark green leaves resemble those of the Box tree, and give the species a peculiar neat appearance. It will probably prove to be a hardy greenhouse plant. The specimens at Exeter are at present too young to flower.—*Gardeners' Chronicle*

*For the meaning of these technical terms see Lindsley's *Glossary*.

DOUBLE WHITE FLOWERING PLUM-TREE LEAVED SPIRÆA.

Spiræa prunifolia flore pleno.

The genus Spirea furnishes quite a number of very pretty flowering shrubs and plants, of which the *Opulifolia hypericifolia*, *Salicifolia*, *Sarbifolia* and others among the *shrubby*—and *Filipendula*, *Almaria* and *Aruncus* among the *herbaceous* species—are well known to all cultivators of ornamental plants. *Dongalpii* and *Lindleyana* are both shrubs recently introduced, but none of them equals the *Prunifolia flore pleno*, recently introduced into Europe by Dr. SIEBOLD, who first brought the splendid Japan Lilies, and other rare and beautiful things from Japan. Mr. VAN HOUTTE, the distinguished Belgian Horticulturist secured the whole stock from Dr. SIEBOLD, and has been cultivating and selling them through Europe at *one guinea* per plant. We have just received a few plants, and hope to test its merrits and hardi-

ness in our climate in another season. We cannot better give an idea of this than by quoting the following from Mr. Van Houtte, (*Hovey's Magazine, Vol* 13, *page* 258.)

Fig. 22—Spiræa prunifolia.

"It is difficult to convey an impression of the beauty of this shrub from the specimen represented in the engraving. Imagine a neat deep green, upright bush, covered with thousands of snow white flowers, of the size represented, and as perfect as roses, and some idea may be formed of this new spiræa. Braving with impunity the severity of our hyperborean latitude [Belgium] it must be considered one of the greatest acquisitions for decorating the lawn or parterre. We do not know the native country of this shrub. M. Siebold, to whom we are indebted for its introduction, we learn found it cultivated in the Japan gardens, where it attained the hight of six or eight feet. Its native habitat is supposed to be Corea, or the north of China, and it is sometimes found growing in a wild state in the environs of cities, but evidently not indigenous.

"According to M. M. Zuccarini and Ziebold, (*Fl. Japan,*) it forms an upright and bushy shrub, with slender branches, which are covered with a smooth, ash-colored bark, which, when old, detaches itself in thin scales. The leaves are oval, rounded at their base, a little acute at the apex, downy beneath, and denticulated at the edge. The flowers, which appear in clusters of four to six, the entire length of the shoots, are perfectly snow-white, and perfectly double. In shape they resemble the double Ranunculus aconitifolius; and their number and arrangement as well as the light green of the foilage, and neat habit, render it the most charming of hardy shrubs.

"Its cultivation is the same as that of the Spiræa trilobata, and other well known kinds; and it is increased either by division of the root or by layers."—*Genesee Farmer.*

WOOL DEPOT.

It appears to me, Mr. Editor, that you cannot devote a portion of your valuable Journal to a more useful purpose, than in directing the attention of farmers to this important subject. The remarks which were made by Mr. Blanchard, at the meeting last winter at the Capitol, are valuable, showing, as I conceive, the great advantage that must result to the farmer by the establishing and sustaining of depots for the sale of wool. It is for the interest of the wool-grower that they should be liberally sustained. The larger the quantity of wool from which selections are to be made, the better. Soon the attention of manufacturers will be directed where they can buy such varieties as they need—and the wool-grower will be sure of receiving for his clip its fair market value. He will not be under the necessity of sacrificing his wool, as now he often is, by selling his whole lot, at prices much below its fair value, on account of the different qualities of the wool. I would urge upon farmers the importance of sustaining these establishments, believing as I do that they are in all respects well calculated to promote their best interests.

The remarks which follow will best explain the method of conducting business. A Wool-Grower.

Much has been said and written within the last ten years on the breeding of sheep. Many discussions have been had to show which was most profitable; whether Saxony, a cross of Merino and Saxony, Merinos or large frame coarse-wooled sheep, whose carcasses are suitable for mutton. The success attendant upon the growth of each kind appears to have depended much upon the skill and management of the grower, and the facilities enjoyed for the sale of the wool or carcass. Those residing near cities or large villages, or possessing easy facilities for reaching those places, may find large frame coarse-wooled sheep to a *limited* extent profitable ; but such is not the fact in regard to the great mass of wool-growers in the United States. The profits resulting from their flocks must be derived from the wool, or from the sale of sheep made valuable by the skill of the breeder, for their superior fleece. Some have been loud in their praise of that kind which will yield the greatest weight of fleece and of a medium quality; others of that kind which require less food for their sus-

tenance, and which produce a lighter fleece, but of much finer quality.

Where the facilities for selling have been such that the intrinsic value of the fine fleece could be obtained, (I think I am not hazarding too much by saying) that the profits arising from the growth of fine wool have been greater than on the lower grades; but where these facilities for selling have *not* been enjoyed, the profits have been in favor of the grower of medium and low qualities. As a proof of this, I refer you to the success of the fine wool-growers in those sections of the country, where, by reason of their superior clips and large flocks, great inducements were held out to fine wool purchasers to visit them for the purpose of buying; and thus a competition was created which resulted in fair prices; while in other sections, where equally as fine wool was produced, but in less quantities, or where the low medium and high grades were grown promiscuously, those producing the fine qualities have been under the necessity of selling their fine wool at 2 or 3, or at most 5 cents only above the price paid for the common or low grades, and that too, when the superior condition of the fine fleece alone, independent of its quality, would make that difference ; thus sustaining a loss of all their skill, care and expense in breeding fine instead of common or medium wools.

Origin and Arrangement of the Depot.—From facts that were ascertained by Hon. J. P. Beekman, (then President of the N. Y. State Agricultural Society,) at the State Fair held in Poughkeepsie, in 1844, he became convinced that the growers of Dutchess county, by reason of the superior facilities afforded them for the sale of their fine wools, were procuring from six to eight cents per pound more than many wool-growers in other sections of the State who produced the same quality of wool. The large quantity of fine wool grown in that county, offered great inducements for manufacturers and purchasers of fine wool to make that a place of resort to obtain their supplies, and thus a fair competition was awakened, which resulted in a just appreciation of the relative value of their wools, and remunerating prices to the fine wool-grower. Soon after Dr. B.'s return, the evils consequent upon the system of selling wools in our county as well as elsewhere, became a matter of discussion between him and other wool-growers in our vicinity and myself. The result of which was a request from them that I would open what we now term a " Wool Depot." The *principles* involved in the depot system are not new, it being conducted upon those of a commission business ; but it is only the details and application of these principles to wool when received direct from the grower, that had never before in this country been applied in the same discriminating manner,

and with as little expense as by this system. In the classification and arrangement of the fleeces, facilities are given to the manufacturer to purchase in an intelligent manner the style and quality best adapted to his goods, while at the same time the grower's interest is protected by the different grades being offered for sale to such, and such only, as require them.

Upon the delivery of the wool at the depot, each lot is weighed and a receipt given to the owner for the amount. The fleeces are then carefully examined and classed according to their quality; each class or sort is weighed and a record made of the weight. It is then examined with reference to its condition. If any portion of the clip is found to be unwashed, or partially washed, or to contain filth, taggs, or other substance inside the fleece, except well washed wool, a discount is made upon the weight of such fleeces. A record is made of this discount, and it is charged over to the owner and allowed to the manufacturer or purchaser. The fleeces, when thus classed, compose a sort of equal value, in quality and condition. When there is any thing in the style or condition of the wool which renders it of more than ordinary value, or if the owner wishes, it is kept separate from other flocks after being sorted. The various sorts are known by the following designations: Extra, Prime 1, No. 1, Prime 2, No. 2, No. 3 De Laine, No. 3, No. 4 De Laine, No. 4, No. 5.

There are few flocks, however carefully bred, which will not embrace three or four of the before mentioned classes—many six or even eight of them. Hence the wool-grower, under the old system, when disposing of his wool to a manufacturer using the lower grades, must expect that such a price only will be offered for his whole clip as the lower grades are worth; and the fine wool-manufacturer will not become a purchaser unless a large proportion of the clip is of a quality suited to his purpose. It will readily be seen that these difficulties may be obviated by a judicious classification of the fleeces. The following statement will show the relative value of the different sorts, and the uses in part to which they are applied. The prices here mentioned are taken from the highest range of the present year:—No. 5, which is the coarsest grade, and used for making coarse satinets, baizes, and the coarser kinds of heavy goods, 29 cents; No. 4, used for low flannels, satinets and $\frac{3}{4}$ cloths, 32 cents; No. 4 De Laine, used for medium kind of worsted goods, 33 cents; No. 3, used for flannels, medium cassimeres and satinets, and low priced broadcloths, 35 cents; No. 3 De Laine, used for mousselin de laines and other combing purposes, 36 cents; No. 2, adapted to fine fancy cassimeres and medium broadcloths, 39 cents; Prime 2, 41 cents; No. 1, 44 cens; Prime 1, 46 cents; Extra, from 52 to 65 cents. These high grades are used for the ffner qualities of cassi-

meres and broadcloths. The difference between the Nos. 3 and 4 and the De Laine or combing qualities of the same Nos., consists in length and strength of staple, and not in quality of the fibre—the difference between Nos. 1 and 2, and Prime 1 and 2, in the Prime Nos., being from high blooded flocks in which the finer portions of the fleece run farther down upon the skirts, thus giving more fine wool in the staplers scale than from low grade flocks. The extra *No.* embraces a wider range than either of the other sorts, and is designated by low, medium, and high extra, that it may be adapted to Merino, a cross with Merino and Saxony, and high blooded Saxony flocks. The quantity of exquisitely fine wool received at the depot has been so small compared with what may be termed fine wool, that I have not yet thought it advisable to make classes higher than an extra the average value of which I deem to be 60 cents ; although a few fleeces may be found in that sort worth 75 or even 85 cents. The classification will be extended if circumstances seem to require it. I have invariably found it the case that the fine wool manufacturer attaches a much higher value to the fine qualities in his sorts than a manufacturer of medium wools would to the same quality of wool; also that the manufacturer of low and medium qualities, attaches a higher value to the low qualities, than the fine wool manufacturer does to wool of the same grade. Few if any of the manufacturers of low or medium goods reach a point in the stapler's scale above 50 cents. They usually make a less number of sorts, and estimate about five cents difference between each.

It needs no argument to show that the manufacturer of superfine broadcloths, cassimeres, satinets, flannels or worsted goods, can at the depot select such wools as are exactly suited to his peculiar style of goods, without being under the necessity of purchasing a single fleece he does not want; and that with such facilities, it is for his interest to pay a fair market price according to the relative value of the style or quality he wishes to work: and furthermore that he is not paying for filth concealed inside of the fleece instead of wool.

It is for the interest of the wool grower, as well as the manufacturer, that they should be brought together with the least possible expense, and in a manner that the improvements or frauds of the one should not escape the notice of the other. I have the opinion of several manufacturers—who certainly ought to be competent judges of the fact—that full five cents per pound intervenes when wool finds its way from the grower to them through the ordinary channels of trade. Under the depot system, the charges at present for receiving, sorting and selling, are one cent per pound. This covers all the expense except insurance, which is one-quarter of one per cent. for each three months the wool remains in the depot unsold.

Those who have been the friends and supporters of this enterprise, by annually depositing their clips, find that it affords an excellent opportunity in having it examined by a competent judge, and its defects or merits pointed out, and by comparing it side by side with other clips, to learn the true character of their wool. Those who have not had long experience in wool growing will readily admit that this is necessary in order to form a correct opinion of the various styles grown. Again: the depot forms a kind of an *Exchange*, at which place, during the season for depositing wool, the growers may meet and compare views, communicate and receive information concerning the improvements each have made, and from the books of the agent determine, from the sorting of different flocks, and the prices obtained for each, which is most profitable, and also where those flocks, which produce the style of wool they wish to grow, are to be found. Other duties may prevent the farmer from bestowing as much time as is necessary to procure that information which is essential to become a successful grower of wool. It very naturally falls within the range of the duties of the agent of a depot to collect just that kind of information most needed by the wool grower; and his interest being identified with theirs, he can have no motive for withholding that information.

The question will naturally arise, will the manufacturer approve of this system in making his purchases? Knowing them to be a shrewd, cautious, and persevering class of business men, always ready to act upon the principle of purchasing where they can buy cheapest, and selling where best prices can be obtained, before deciding upon the feasibility of the depot system, I visited many of the most prominent manufacturing establishments, and after presenting the object I had in view, received from them assurances that it met with their cordial approbation. I also received from them much valuable information in regard to the relative value of their sorts, the adaptation of the various styles and qualities of wool to the different kinds of goods manufactured, which it would have been difficult to obtain from any other source.

Did time permit, I could here present extracts from *numerous* letters received from them, expressing their strong desire that the enterprise should be undertaken.

NEW MATERIAL FOR FLOORING, PAVING AND ROOFING.

This new material or compound, which forms the subject of a patent taken out by Mr. Cassel, of Millwall, consists of many varieties, but possessing all these common properties—that they are impervious, very elastic, and (there is reason to believe) exceedingly durable.

When intended to be employed for *paving* or *flooring*, or other like purposes, it is composed of four varieties, which, for the sake of distinction, are designated as compounds, No. 1, 2, 3, and No. 4, and are thus described:

I prepare No. 1, compound in manner following: I saturate a quantity of chalk, or marl, or lime, or loamy clay, or sandy earth, previously reduced to the state of a fine powder, with oil of tar, or mineral tar, or vegetable naphtha, or any other resinous, oily, or fatty matter. I take one cwt. of rosin, and melt it in a caldron exposed to a gentle fire, until all the water in it is evaporated. I then throw into the caldron two cwt. of the saturated chalk or other earth, and mix it well with the melted rosin. I next add from three to six pounds of liquid caoutchouc, (India Rubber) or from one to three pounds of essential oil of tar or turpentine, or some other oily or fatty, or cementitious substance, (varying the quantity according to the degree of elasticity desired to be given to the ultimate compound), and after that, from three to five pounds of sulphur; and finally, two cwt. of fine dry grit, keeping all the while the contents of the caldron well stirred, till the whole are thoroughly amalgamated. When cool, this compound is of a slatish grey color, and of a close, granular texture. No. 2 compound is prepared in the same way as No. 1, and composed of the same materials, and in like proportions, excepting only that I substitute for the rosin, vegetable pitch, and use a larger proportion of sulphur, say from 6 to 8 lbs. No. 3 is also prepared in the same way as No. 1 and 2, and composed of the same materials in the like proportions, excepting that instead of the rosin or vegetable pitch, I use equal parts of rosin and Stockton tar, and reduce the quantity of sulphur to about 4 lbs. No. 4 compound differs from 3 in the substitution of equal parts of rosin and mineral, or coal tar, for the equal parts of rosin and vegetable pitch.

These compounds may be used by themselves—"being laid down in a hot and fluent state, and of sufficient thickness;" or they may be employed in any of the following states of combination.

Firstly—They may be combined with any of the natural

asphaltates or bitumens, or any artificial compound of a bituminous quality.

Secondly—They may be formed, in combination with small pieces of wood, into large blocks for use.

Thirdly—Any of the compounds before described may be used in combination with wood, in manner following: to form a flooring for the ground floors of buildings, which will be quite impermeable to under damp, and exceedingly durable. The ground is to be first covered over to the depth of about an inch, with a layer of any of the four compounds before mentioned (being previously well beaten down and leveled), and then small square blocks of wood of equal sizes are to be set in this composition while yet warm, with the grain uppermost, and placed in regular order, side by side. Any interstices which may be left between the blocks are to be carefully filled up with the compound. Or, instead of using small blocks of solid wood, composition blocks of a large size, prepared as follows, may be employed: I take a number of pieces of deal, from 3 to 5 inches wide, and from 10 to 18 inches long, such as may be picked out of the woods imported from abroad under the denomination of fire-wood, and which, paying a small duty, may be had cheap, and lay them in an iron frame or mould, in the direction of the grain, jointing them roughly together lengthwise, but so that they shall break joint transversely. I then cover them to the depth of one or more inches with any of the four compounds before described, in a hot, fluent state, and leave this coating to settle and cool, whereby it becomes firmly united to the wood beneath. On removing this mass or block from the frame or mould, and fitting it into a piece of flooring, it is placed with the wood uppermost, which remains ever after beyond the reach of a damp from beneath. For such a description of ground flooring no joists are requisite. The blocks may be made of any length or breadth most convenient; but I prefer making them of about four feet in length, by two feet six inches in breadth. When a very strong flooring of this kind is wanted, I cross the layer of wooden pieces before described with a second of exactly the same description, but laid the reverse way, and upon an interposed bed of one or the other of the four compounds before mentioned. The two layers are then pressed together; and when the compound which unites them has cooled and set, I pour over the whole another coating of the same compound, so as to cover completely the second layer of wood. Instead of the blocks being all of one sort of wood, or of one color, they may be of different wood and different colors, so as to give the flooring a tassellated appearance.

INFLUENCE OF AIR IN MODIFYING THE HEALTH OF ANIMALS.

Some idea of the immense consumption of oxygen by animals, may be formed by taking the following computation by Boussingault: An adult man consumes 19.9 oz. carbon, daily, in his food, and requires 37 oz. oxygen for its conversion into carbonic acid gas. A horse consumes 97½ oz. (more than 8 lbs. Troy) of carbon in 24 hours, and this requires 13 lbs. 3½ oz. oxygen for the same purpose; while a cow consumes 69.9 oz. carbon (nearly 6 lbs. Troy), which calls for 11 lbs. 10½ oz. oxygen.

From this circumstance alone, we see the necessity of ventilation in places where animals are kept; and the danger that results from crowding them together is heightened by the excretions being allowed to accumulate and to throw off their pestilential gasses, which are necessarily evolved by decomposing bodies. Hence, in ill-ventilated stables we meet with the compounds of hydrogen, sulphuretted and carbonated, ammonia and its carbonate, and the hydro sulphate, besides the carbonic acid and free nitrogen given off by respiration ; and, from the inhalation of these compound gasses, heated as such an atmosphere necessarily is by the congregating of animals, we have frequently inflammation and other diseases of those all-important organs, the lungs, set up, which, from the debility induced, is followed by farcy and glanders, and this more especially, should the predisposing causes of hard work and bad food co-exist. Or we have ophthalmia, both local and constitutional, engendered; and often that insidious but too frequently fatal disease, phthisis pulmonatis.

The conversion of oxygen into carbonic acid, plain and obvious as the fact itself is, and all-important as it also is to the animal economy, has, unfortunately, awakened much difference of opinion among philosophers as to the manner in which it is brought about. Doubtless the change is effected through the medium of the blood; and the older chemists taught that the venous blood being returned to the lungs surcharged with carbon, this united in the lungs with the oxygen of the air, and was expelled as carbonic acid gas. This theory, simple and explanatory as it really is, unfortunately involved some insurmountable objections ; and it at length gave way to that of absorption of oxygen by the blood in its transit through the lungs and the gradual conversion of it into the compound gas—carbonic acid—during the circulation. Yet there was still much that remained inexplicable until Liebig advanced the beautiful theory of the iron in the hæmatisisim being the carrier of the oxygen. Thus this metal, it was taught by him, in arterial blood existed in the state of peroxide of iron; but as it yielded up its oxygen it generally became converted into the carbonate or protoxide, and, as such, it was said to be found in

the venous blood, when in its passage through the lungs, by endosmose, a displacement of the carbonic acid by the oxygen of the air took place, and thus the necessary change became affected.

Unfortunately, Liebig himself now seems to doubt the validity of this theory, for he makes the phosphate of soda met with in the blood the carrier of the carbonic acid out of the system. "There is," he says, in his lately published work on the 'Chemistry of Food,' "no known salt, the chemical characters of which approach more closely to those of the serum of blood, than the phosphate of soda; there is none more fitted for the absorption and entire removal from the organism of carbonic acid." So that the alteration in color which the blood undergoes in its conversion from venous to arterial is not so much dependent on the iron it contains, as on the saline matters which react on the hæmatosine. —*London Far. Magazine.*

ANALYSES OF MILK.

The chief component parts of milk are those, which, when separated, are known as forming butter and cheese; the residue of which is called whey. These are distinguished by scientific persons as the *butyraceous*, or oily substance producing cream, of which butter is composed; the *caseous* matter of which cheese is formed, and *scrum* or whey:

Cream forming,	4.5 parts of 100.
Cheese,	3.5 do
Whey,	92.0 do

This can only convey a general idea of the component parts, for they must necessarily vary according to the quality of milk.

The analysis of skimmed cows' milk is stated by chemists to be:

Water,	978.75 of 1000
Cheese, with a trace of butter,	38.00
Sugar of milk,	35.00
Muriate of potash,	1.70
Phosphate of potash,	0.25
Lactic acid with acetate of potash	6.00
Earthy phosphates	0.30

Instruments have been invented, called lactometers, for ascertaining the richness of milk in nearly the same manner as that employed for trying the strength of spirits. The difference in the quality of milk between particular cows may thus be determined, but it does not show whether the caseous or butyraceous matter predominates.—*Rep. of Com. on Cheese Dairies, N. Y. S. Ag. Soc.*

ANALYSES OF SALT.

"Complaints have heretofore been made in relation to salt from our public works," say the committee of the N. Y. State Agricultural Society on butter dairies; "and there can be no doubt, that there has been much salt sent from our works, that was justly liable to the objections which have been made. It is then, all-important to ascertain the true character of the salt that is manufactured, so that the dairymen may be informed of the kinds which are suitable for use, as well as those which should be avoided; and also the manner in which the salt may be prepared, so as to be entirely free from objection."

Dr. L. C. Beck, in Natural History of N. Y., speaking of the improvement of the manufacture of the fine salt at Salina, says: "To the question which is so frequently asked, How can the manufacture of fine salt be improved? I can answer only in general terms, by imitating as closely as possible, the processes observed in the coarse salt fields. This should be the standard, for here salt is obtained in the purest form, and yet by operations entirely simple, and easily varied to suit particular cases. In applying these principles to the manufacture of fine salt, it cannot be too strongly urged, that the first purification of the brine, or the separation of the less insoluble impurities which subsequently form the pan scale, should be effected in vessels (whether reservoirs or pans) other than those in which the *salting* is to take place. A want of attention to this point is, in my opinion, one of the principal causes of the complaints which have been made in regard to this salt. Indeed, the condition of the kettles, containing, as they often do, a deposit of these impurities of three or four inches in thickness, on which the salt is deposited, and from which it is removed by simple *ladling* and drainage, forcibly exhibits the objections to which this mode of manufacture is ordinarily exposed."

"Another objection to the fine salt, as it is often manufactured at the Onondaga furnaces is, that it is wet, and forms into solid masses which can with difficulty be removed from the barrels into which it has been packed. . . . This arises from the want of care in removing the *bitterns*, a term applied to designate the highly deliquescent chlorides of calcium and magnesium. These substances, in consequence of their great solubility, remain with the salt; and the drainage to which it is subjected after being taken from the kettles, is intended to effect their removal. . . . I am satisfied that a strict attention to the two points above noticed, viz., the separation of the less soluble materials in vessels other than those in which the *salting* is effected, and the complete

removal of the *bitterns* by drainage or washing, would entirely remove the objections which have heretofore, with too much truth, been urged against the Onondaga salt."

Dr. Beck remarks of salt made by solar evaporation, after describing the process: "And if, *as there can be no doubt*, the purest salt may thus be obtained, the difficulties which attend the other modes of manufacture, may all be referred to some departure from the principles which are here unfolded."

In speaking of salt made by evaporation with artificial heat by steam, he says: "In this way, salt of great purity is obtained, of the chrystalized variety. In Great Britain, a similar process has long been advantageously pursued; and the only reason why it has not been more generally introduced here, seems to be the outlay of capital which is required."

In order further to test the quality of the Onondaga salt, especially those varieties that are sold in market for daily purposes, as well as for preserving meats, Professor Emmons was requested to analyze several samples, all of which, except No. 5, were procured from dealers in this city, from their ordinary stock on hand, and from which they are constantly making sales. The analysis speaks for itself, and in all essential particulars, corroborates that made by Dr. Beck.

"*Analysis of five specimens of Onondaga salt, as it is found in the market, by Prof. E. Emmons.*

"Complaints having been made in some portions of the State, that the Onondaga (or Salina) salt, as it is found in market, is unsuited to the preservation of cheese or butter, the Secretary of the State Agricultural Society, procured the following kinds for analysis:

No. 1 The solar evaporated salt, which is of a medium coarse quality, (obtained from a store in Washington-street.)

No. 2. A bag of 20 lbs., branded W. H. Porter.

No. 3. " " " J. P. Haskins.

No. 4. " " " H. Greenman & Co.

These three samples, finely ground, suitable for table purposes, were obtained from James Savage, No. 117 Pier, from his stock on hand.

No. 5. A box of steam refined salt, ground fine, from Hope frctory, Syracuse, R. W. Nolton & Co.

The results of the analysis are given as they were obtained, which is contrary to the practice often observed—the losses in those cases being divided among the several products. That a trifling loss will occur in obtaining each result, is well known, even in the most accurate analysis. In conducting the work, I first dried the salt in a water bath at nearly 212°, F. The loss sustained by the several samples was the greatest in the coarse or

solar made salt, amounting in that kind to 4.44 grs. The amount of water lost in this process is comparatively large, owing, as is supposed, to its having been made recently. In the fine varieties, the loss was only about 1.20 grains, these kinds having been steam dried for the purpose of grinding.

No. 1. Solar evaporated salt:

Chloride of sodium, (pure salt,)	92·980
Insoluble matter, (carbonate of lime,)	0·010
Sulphate of lime, (gypsum,)	1·315
" of magnesia,	0·035
Sulphuric acid,	0·669
	95·009

The sulphuric acid, in this case, being more than sufficient to saturate the lime and magnesia, it was probably in combination with soda. The comparatively large loss may probably be attributed to water, especially as the salt was dried in less than 212°, while each result was ignited.

No. 2. Bag of 20 lbs., branded W. H. Porter:

Chloride of sodium,	97·466
Insoluble matter,	0·010
Sulphate of lime,	1·799
Lime,	0·058
Magnesia,	0·082
	99·415

No. 3. Bag of 20 lbs., J. P. Haskins:

Chloride of sodium,	95·819
Insoluble matter,	0·020
Sulphate of lime,	1·753
Lime,	0·043
Magnesia,	0·074
Water,	1·190
	98·889

No. 4. Bag of 20 lbs., H. Greenman & Co.:

Chloride of sodium,	95·113
Sulphate of lime,	0·957
Lime,	0.402
Magnesia,	0·100
Water,	1·500
	98·092

No. 5. Box Steam refined, from Hope Factory, R. W. Nolton & Co.

In this case the impurities only were obtained, and were as follows:

Sulphate of lime,	1·438
Sulphuric acid,	0·078
Magnesia,	0·062
Insoluble matter,	0·030
	1·608

The chloride of sodium, probably exists in about the same proportions, as in the other samples of fine salt. Nos. 4 and 5 are of the steam refined variety. It does not appear that this variety is superior in purity to the other kinds analyzed.

From the foregoing analyses, it is evident that the impurities are very small in amount, and that the amount of pure salt, which they contain compare well with the best specimens of foreign salt. The substances which may be regarded as injurious to salt, are chlorides of magnesium and calcium and sulphate of magnesia. These are all bitter salts, and the first absorb water rapidly from the atmosphere. Magnesia however exists in a very small proproportion in those varieties, and cannot injure the salt in the least degree.

Water must also be regarded as an injurious body, though it cannot impart an unpleasant taste to materials in which it is used. But when it is considered, that the usefulness of salt as a preservative article, consists in its power to abstract water from the material to which it is applied, and which it is intended to preserve, it will be understood at once, that the more water salt contains, the less will it abstract, and the less it will be fitted for the preservation of meat and butter. Hence it is probable, that those who complain of the Onondaga salt, purchase a kind which is well saturated with water, and which is from this circumstance alone, useless as a preservative body."

In view of this analysis it will be aparent to any one, that good butter can be made, using this salt which in every respect equals any other variety. But how shall the dairyman know that the salt he purchases is of this quality? This is no doubt the all important matter to be ascertained. He must exercise the utmost care as to his purchases. The brand *should* be a security and guaranty for a good article. The character of the manufacturer ought to be such as to satisfy all, that the article bought, is what it purports to be. The salt which has been analyzed has been in market in this city for a long time, and has so far as we know given satisfaction. There may be other brands equally pure. Let the dairyman then require of the seller an article suited to his wants, and when found, let him continue its use while its character remains unchanged. Discard at once inferior varieties, and thus

render it for *the interest* of the manufacturer to substitute in its place a good article.

The complaints which have been made of the Onondaga salt, show the importance of having peculiar care given to its manufacture. The state is deeply interested in having the article of a superior quality. The analysis of Dr. Beck as well as that of Prof. Emmons, must be satisfactory as to the purity of the salt, when properly prepared, and the Superintendant, and Inspectors owe it to themselves as well as to the people, to leave no measures untried, that will be calculated to secure a pure article, and to guard against frauds that may be attempted.

It is supposed by some dairymen, that the flavor of the butter is affected by the use of the Onondaga salt, and some go so far as to say, that they can tell at once on tasting the butter, whether the salt used was Onondaga or imported. This may be true of the inferior kinds of salt in which there are large impurities, but that it can be so, when the purest kinds of dairy salt is used, we are not disposed to admit. A fair trial should be made, and the result ascertained with certainty, for this is a matter of too much importance to be passed over. We would ask the dairymen throughout the State, to give us their experience in the use of different varieties of salt, and the difficulties which they have experienced, if any, in the use of the salt of our own State?

We learn that some few years since, there was a kind of fine salt put up in bags for the dairy, that was prepared by the admixture of rosin or turpentine, which would impart an unpleasant flavor to butter, and which was found unsuited, and has not for some time been manufactured. It is possible that the use of salt of this description may have given rise to the opinion above referred to. The samples which have been analysed, are not of that character, and the analysis shows their purity.

The suggestions of Dr. Beck, which we have given, as to the manner in which the manufacture of the fine salt may be improved, have doubtless received attention at our works, as these directions were given several years since. It should be steadily kept in view, by those in charge of our salt works,, that improvement in the character of our salt is all important. If proper efforts are made by the superintendent and inspectors, if the manufacturers will endeavour to give to the salt prepared by them, uniformly, the character which some of it most clearly possesses, there can be little fear of foreign salt taking its place in our State. If neglected, and its character permitted to become impaired, the result eventually will be, the introduction throughout our State of salt from other countries.

AGRICULTURE AND ITS BEARINGS ON MEDICINE.

BY DR. THOMPSON.

As a fact not less worthy of remark than creditable to the profession, agricultural science has been more aided and advanced, and has received more valuable contributions from physicians, than from all other sources. As a class, they have been eminently the founders and conservators of natural science. Most of the brilliant discoveries in chemistry and valuable acquisitions in geology, mineralogy and botany, are due to them. They have defined the principles upon which the successful prosecution of this art is founded; and have been the well informed advisers in most of its practical operations. Wherever physicians have become practical agriculturists, they have usually been successful ones. If learned in their own profession, they were well prepared to investigate and comprehend the science of their adoption. They have ample opportunity to acquire much by observation. In their daily rounds of professional duty the systems and management of a great variety of individuals fall under their notice. They are thus prepared to institute numerous comparisons, and determine their various results. A series of observations thus conducted for a succession of years, of necessity ends in the insensible accumulation of a multidude of facts, and a vast amount of practical information. Why the professors of the agricultural art should have remained so long paralyzed, and permitted the honors of discovery in their own field of labor to be carried away by more industrious and energetic investigators, it is difficult to conjecture. A new era, however, has commenced. The dissemination of cheap writings, in the shape of periodicals, magazines, pamphlets, weekly papers, reports, and every possible form of publication has gradually awakened the public mind. Book farming and book farmers are no longer alluded to with derision, since it is postively ascertained that agriculture has its principles which admit of being discussed, and which are capable of being written out, and can be read and acted upon.

This large and influential class—influential in retarding improvement—has now dwindled down to a few sturdy grumblers, who now grumble more for the sake of consistency with opinions once expressed and formerly entertained, than from any real distrust of the merit of these innovations.

The remarks of Professor Johnston, the well known writer on agricultural chemistry, are pertinent to this point. "Human science is progressive in all its branches, and to refuse to follow the indications of existing knowledge, because it is to some

extent uncertain, would be as foolish as to refuse to avail ourselves of the morning light, because it is not equal to that of the mid day sun."

After the slumber of ages, agriculture is rousing its dormant energies. Ardent enquirers are every where springing up, eager to receive and impart instruction. If this spirit of investigation goes on increasing, the medical world are like to have the tables fairly turned upon them. There is danger that in future discoveries, the scientific agriculturist will more than divide the honors with his medical friends, that they will become the future pioneers in those very sciences in which the former have gained so many laurels.

The profound ignorance which very generally prevails with reference to the principles upon which medicine is founded, may be regarded as one of the chief causes why this science has made no more progress and why much remains to be accomplished.

It is a law in hydrostatics, that water can rise no higher in the fountain than the source from whence it flows, so the standing of medical men will be determined somewhat by the character of the community in which they live. If it be distinguished for its general intelligence, its mental elevation and its moral worth, acknowledged incapacity will not long be tolerated. If no great demand be made upon the physician for adequate knowledge, for intellectual culture or mental superiority, there is great danger that he will relax his energies and sink to mediocrity.

May we not then confidentially predict that the agricultural community, numerically, pecuniarily and influentially exceeding any other class, when their attention shall be fully awakened to the importance of becoming versed in those scientific principles which form the basis of their art, when their increasing intelligence shall enable them to point out the bearings of those principles upon other sciences, and that such are their intimate relations and connections and dependencies, that progress in the one is equivalent to advancement in the other, they will then become the competent tribunals, qualified to distinguish between the claims of mere quackery and real talent, cultivated and enriched by the accumulation of science and knowledge. The merits and claims of medicine will then be more duly appreciated and acknowledged. Natural science, to which both medicine and agriculture are singularly indebted and the source from which both must derive, in the future, valuable acquisitions, will prove a bond of union which shall more intimately cement them together.

No longer degraded and borne down in the unequal contest with ignorance, with prejudice and with error, some impediments will have been removed, which have long assisted in preventing medicine from rising to its true dignity as a profession.—*Trans. Med. Society.*

GYPSUM, OR PLASTER OF PARIS.

To Chancellor Livingston is owing the introduction into New York, and the common use of *gypsum* or plaster of Paris, as a manure. About the year 1789, he began to make experiments on his own farm, and succeeding, he communicated his results to the farmers of the State. And in a few years he had the satisfaction of seeing it generally used. It is this chiefly which has given New York its present primary station among the United States. The lands upon our Hudson river were fast deteriorating, having been worn out by constant tillage. On this account, the inhabitants of this district of country were fast removing into the more unsettled parts of this State, or more generally into some of the new States. But the seasonable introduction and use of plaster of Paris renewed our worn out lands, and brought them back to more than their original fertility. The depopulation of our State was prevented. Emigrations from other States were made into it; and New York, which in the year 1790 was only the fourth in population, and in 1800, only the third, at the last census in 1810, was the largest population of any in the Union. But it not only made our inhabitants numerous, it made them industrious, prosperous and rich. The *gypsum* was the true philosopher's stone, which had been so long sought for. It turned every thing it touched into gold.

To Chancellor Livingston this State is further indebted for the introduction of the Merino breed of sheep, and for the general emulation excited among our farmers to rear and improve these valuable animals. The introduction of these was a consequence of the Chancellor's mission to France, and must be of the greatest and most decisive advantage to the United States. Already its effects upon our manufactures have been seen. The most affluent among us now feel proud to wear and to exhibit the fruit of our infant manufactures. The American farmer feels a conscious greatness and independence, when he can appear clad in the vestments wrought by the hands of his sisters, or wife, or daughters. But above all, the real patriot sees and rejoices that our future dependence on foreign manufactures can be no longer asserted; and that our national wants can be supplied from our own internal resources, whenever the true policy of the government may require the measure. These are the consequences of the introduction of the Merino sheep. For ever honored by his county be the man, who obtained the *golden fleece*, and returned with it to our shores; who has declared a second independence for our country. —*Eulogium by T. Clowes.*

CLIMATE OF EUROPE AND AMERICA.

Dr. Forry thus concludes a series of elaborate researches in elucidation of the distribution of heat over the globe.

The fallacy of the opinion which ascribes the mild climate of Europe to the influence of agricultural improvements, becomes at once apparent when it is considered that the region of Oregon lying west of the Rocky mountains, which continues in a state of primitive nature, has a climate even milder than that of highly cultivated Europe in similar latitudes; and again, China, situated like the United States on the eastern coast of a continent, though subjected to cultivation for several thousand years, possesses a climate as rigorous, and some assert even more so, than that of the United States proper, on similar parallels.

It is thus sufficiently obvious, that the most diverse climatic phenomena on the same parallels find an explanation in the local influences of physical geography; and that contrary to the opinion of Lyell, even the apparent anomaly presented by the mild climate of Europe, and by the climatic rigor of Eastern North America, but confirms the harmony of these laws throughout the globe. But to explain this supposed exception to the general law, it has ever been found necessary, as appears by a recent treatise on comets, by M. Arago, to have recourse to the action of one of these bodies.

"As soon as the Northern regions of America," says he, "were discovered, it was remarked by the navigators, that at the same latitude they were much colder than those of Europe. This fact, which could not be satisfactorily explained by the astronomic theory of climates, regarded the attention of many naturalists, and among others, of Halley. According to that celebrated philosopher, a comet had formerly struck the earth obliquely, and changed the position of its axis of rotation. In consequence of that event, the North Pole, which had originally been very near to Hudson's Bay, was changed to a more easterly position ; but the countries which it abandoned had been so long a time, and so deeply frozen, that evident vestiges still remain of its ancient polar rigor. A long series of years would be required for the solar action to impart to the northern parts of the new continent the climate of their present geographical position."

Fortunately our knowledge of meteorology is now sufficiently advanced to enable us to laugh at this crude explanation of a change in the position of the terrestial axis resulting from the concussion of a comet.—*Am. Jour. Sci. and Arts.*

CANTELO'S PATENT HYDRO-INCUBATOR, FOR HATCHING CHICKENS.

This machine is very simple : it consists of a cistern of water, hot, which is heated by a peculiar stove, the heat of which is shown by a thermometer. This water is heated to 109°, and flows over a surface of vulcanized caoutchouc, the lower surface of which is in contact with a tray or nest of eggs, and maintains a heat of 106°. The tray is open at the sides, the bottom is made of wire gauze lined with cotton canvass, and is raised or lowered by wedges, thus merely presenting a small surface to the lower surface of the caoutchouc, which represents the breast of the parent fowl, and thus only a *top contact heat* is communicated to the egg. Around the stove is a warm chamber, in which the chickens are put as soon as hatched, and where they remain about thirty-six hours before taking food; they are then placed under the hydro-mothers, which consist of a series of pipes, kept at a heat of 106°, and under which the chickens nestle as under a real mother.

There is now no further trouble. During the first ten days, the chickens feed themselves in the house, and are then only permitted to go out in the open air, returning at pleasure to the protection of the hydro-mother. At the end of six weeks they are put into a common roosting-house, and henceforth shift for themselves.

In a large hydro-mother, 44 feet long, the warm water pipes are placed about four inches from the ground, and a movable board is so placed that the backs of the youngest chicks just touch the pipes; the board being lowered as the chickens increase in size.

The Hydro-incubator has been exhibited in Regent street, London; as also at Mr. Cantelo's Model Farm, at Cheswick, where he has more than 2000 head of poultry running about, from one day to three months old.—*Illustrated London News.*

CHEESE.

The manufacturing of cheese in our State is rapidly increasing, and the demand for foreign markets continues also to increase. If our dairymen give attention to the preparation of cheese for export, there can be little doubt that the demand will equal the supply for a long time to come. Already the American cheese has almost superseded in the English market all other foreign cheese, and it will soon affect materially the price of English cheese.

The amount shipped on the canal, in 1847, the product of our

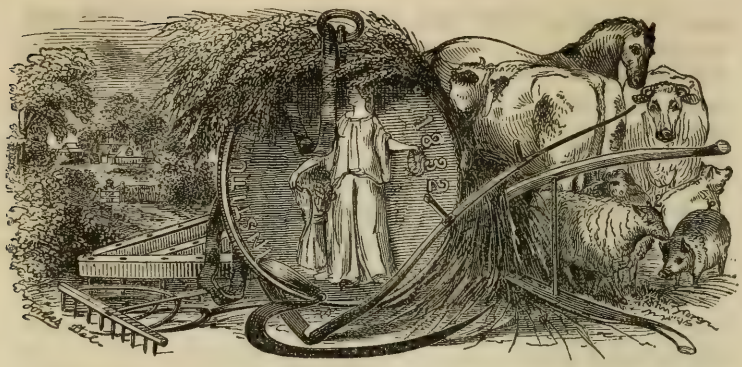
own State, was, 15,983 tons, exceeding that of 1846, 566 tons, as will be seen by a statement from the books in the canal office. The quantity of cheese from out of the State, in 1847, was 4,056 tons. The value of cheese received at tide water, the product of our own State, at 7 cents per pound, which is the average price as estimated by the canal board, will be $2,237,620. To this is to be added the cheese consumed in the interior of the State, as well as that which reaches the market from the landings on the North River, and the value of the cheese manufactured in the State probably exceeds $8,000,000.—*Rep. of Com. on Cheese Dairies, for the N. Y. State Ag. Society.*

PURE SALT FOR DAIRY PURPOSES.

A mode of manufacture entirely new, and different from any heretofore employed, has been adopted in the steam mill of Mr. B. Ransom, of Brooklyn, for grinding rock salt and preparing it for the table and the dairy. In this manner, a perfectly pure article is obtained, free from admixture with all foreign matter, and there can be no doubt that whenever it shall come into general use, our markets will no longer be clogged with that most unhealthful of all things taken into the human system—rancid butter, especially when impure salt is the cause. It has a most beautiful appearance, and in flavor is most suitable for the table, and those who have been so fortunate as to obtain it once, will, as a matter of economy and comfort, be sure to procure a constant supply of this useful and necessary article.—*Far. and Mec.*

A NEW DISCOVERY—SUBSTITUTE FOR SILK.

We learn from recent intelligence from Europe, that a new production, which had excited much interest, had been discovered on the continent, which is described as exceedingly valuable. The account states that the owner of some spinning mills in Berlin, has lately brought into the market a new species of flaxen thread, which is extremely long and silky, and spun and dyed with extraordinary facility. This preliminary material, which possesses, even in a superior degree, all the qualities of silk, is likely to compete with it from its simple and rapid fabrication, and from its price being very low as compared to that of silk. The appearance of this new article of commerce has caused a general sensation among the dealers at the fair of Leipsic, and an Englishman has offered the inventor £20,000 for his secret, but this was refused, as the owner intends to reserve to himself the benefits of his discovery.—*Far. and Mec.*



MEETING OF EXECUTIVE COMMITTEE, NEW YORK STATE AGRICULTURAL SOCIETY.

PRESENT—Lewis F. Allen, President; A. Van Bergen, A. Stevens, T. C. Peters, Luther Tucker, J. McD. McIntyre, B. P. Johnson.

Letters received from Prof. J. P. Norton, Yale College; T. C. Peters; L. F. Allen, President; Chas. Mc. Lean, Secretary of Otsego County Society—(fair to be held at Cooperstown, 28th and 29th September); J. Delafield, President of Seneca Agricultural Society—(fair to be held at Seneca Falls on 5th and 6th October); F. Follett; A. O. Spencer; A. K. Maynard, Secretary of Chenango Agricultural Society; W. C. Watson, Port Kent; Jas. B. Todd, President of Genesee Agricultural Society; G. W. Pratt; John A. King, Vice President, expressing his regret at being prevented from attendance at this meeting; A. S. Roberts, President of Philadelphia Agricultural Society; Aaron H. Palmer, Esq., Corresponding Member of the National Institute, Washington; H. L. Day; Gen. J. T. Blanchard; Henry Watson, Esq., of Alabama, in answer to a letter addressed to his father, the late Henry Watson, Esq., of East Winsdor, Conn., a distinguished friend of agriculture.

Received from Dr. J. M. Ward, cions, Bartlett, Winter Nelis Van Mons Leon Le Clerc Pears.

From C. N. Bement, cions of German and Sweet Gilliflower Apples. These have been distributed.

From W. C. Watson, Esq., Port Kent, Essex county, from the library of his father, the late Elkanah Watson—Daubenton's Advice to Shepherds; McKenzie's Treatise on the Diseases and Management of Sheep; Transactions of the Society of Useful Arts, 1815, vol. 4; Memoirs of Philadelphia Agricultural Society, vol. 4; Memoirs of the Board of Agriculture, New York, vol. 2.

In relation to the works on the sheep, Mr. Watson remarks, "they are the identical volumes which my father procured at a very early day, to inform himself as to the wool growing interest,

and were used by him in his first efforts, (1811) in the introduction of sheep into Berkshire county; and though I part with these volumes with reluctance, yet I trust I make an appropriate disposition of them, and one that my father would have approved."

One of these volumes is accompanied with many manuscript notes, in the hand writing of the late Elkanah Watson, and bound with it is his first Agricultural Address, delivered at Pittsfield, at the first meeting of the Berkshire Agricultural Society, 1811.

The committee esteem this a most valuable donation, and assure Mr. W. that these volumes will be most highly prized, and retained as valued reminiscences of one of the earliest, most devoted and patriotic promoters of agriculture which our country has known.

From J. Van Brocklin, Middleport, Niagara co., a Cast Iron Double Guaged Clevis, very simple in its construction, and so arranged as to guage the furrow to the desired depth or width in every variety of soil, and works equally well with two or three horses. It is recommended for its cheapness and durability by a very large number of farmers of Niagara county, who have tested its qualities. Sample left at the rooms.

From Alexander Walsh, Lansingburgh, an interesting article of his, relative to the manufacture of butter, from which we extract the following:

"But the manufacture of butter, an article that enters so directly into the preparation of a good breakfast, is permitted to drag along the old fashioned way, with hardly an attempt at improvement. This is rendered somewhat inexplicable, when we reflect how simple the rules are for making perfect butter. It is in fact

A liberal art that costs no pains
Of study, industry or brains.

The cream should be kept in a dry, cool place, where no bad air nor bad odor is permitted to enter. After the process of churning, *all* the milk and superfluous matter should be pressed out; then with half the usual quantity of salt applied, pack it down *solid* in heart-ash tubs or firkins for commercial uses, or stone jars for immediate uses."

J. Hayes, Esq., Montreal, pamphlet containing first annual report of the Montreal Horticultural Society.

Proceedings of the State Ag. Society of S. Carolina, from Col. Sumner, Sec'y, through J. S. Skinner, Esq., editor Farmer's Library.

Report of Lieut. Howison, U. S. Navy, on the productions, climate, &c., of Oregon, from Hon. Timothy Jenkins, House of Representatives, Washington.

From Jas. Hudson, Secretary Royal Agricultural Society, 8 vols. of the Tranactions of the Royal Society, through His Excellency, George Bancroft, Minister of the U. S. at the court of St. James.

Premium List and Regulations of Cayuga Agricultural Society, with several copies of address delivered at the Fair 1847; also seed of the New German Orange Sugar Beet, said to be a very valuable variety, from J. B. Dill, Esq.

E. Bullen, Esq., Secretary Royal Impt. Society, Ireland Farmer's Gazette. Westchester Agricultural Society list of officers 1848, and proceedings of Society.

From T. B. Wakeman, Secretary American Institute, seeds of the Boston Marrow Squash, distributed.

From J. W. Bailey, Plattsburgh, samples of diseased buds, and cions of Peas, apparently from insects, but different from anything seen in this vicinity. They were submitted to Prof. Emmons for examination.

A. Stevens, Esq., presented a fine specimen of the Middle Apple, raised in New Jersey, in fine preservation, showing the variety to be a most valuable one.

Also for the Library, Dog and Sportsmen, by J. S. Skinner, Townley on Honey Bees, American Almanac, 1830—1831.

Thanks were tendered to the respective donors.

J. R. Stafford's Patent Dryer and Cooler. Samples of flour, Indian meal, and corn, prepared by J. R. Stafford's Patent Dryers, were exhibited by Mr. Stafford. The sample of Indian meal had been prepared 15 months, and was now in as fresh a state as that recently prepared; and all the samples were pronounced of the finest quality. The apparatus—employs steam to heat cylinders and secures at all times an uniform and proper temperature. The cylinder is made of sheet iron; the steam passes through its centre, and with flanges on its outer surface, the flour meal or grain is carried round as it revolves, and completely dries the flour or grain without scorching.

From the examination which the committee have been enabled to give it, as well as from the abundant testimonials exhibited by Mr. Stafford, which are in the highest degree satisfactory, the committee deem the invention a most valuable one, and of the highest importance to the agricultural interest of the country.

On motion of T. C. Peters, *Resolved*, That we consider the Steam Drying apparatus of Mr. Stafford, for the preservation of bread stuffs from souring or heating, a most valuable invention, and one deserving of extensive encouragement, and that we deem it important that the government of the United States should adopt measures to test the qualities of the flour and meal, by sending quantities of it in our public vessels on long voyages in warm climates, and in such other manner as will be best calculated fully to test its preserving qualities.

Samples of the flour, Indian meal and corn, may be seen at the rooms.

Dr. E. Emmons resigned his office as Corresponding Secretary, and the resignation was accepted. On motion of Mr. Tucker, B. P. Johnson was appointed Corresponding Secretary, and the duties appertaining to the Agricultural Rooms are assigned to him in addition to the duties of the office.

A committee on foreign fruits was raised for the Show at Buffalo, and additions to the Premium List made for that department.

On motion of T. C. Peters, the resolution heretofore passed, fixing the time of holding the Show, was reconsidered; and on his motion it was

Resolved, That the time of holding the next Show and Fair of the Society be on the *5th, 6th and 7th days of September next*; and that the Secretary give notice of the change of time through the Agricultural Journals.

Hon. A. Van Bergen, of Coxsackie, exhibited his improved Cultivator. A very valuable and labor-saving implement.

The manner of using it:

1. It is operated with a double set of cutters to scarify and prepare the soil, and if necessary, by reversing these, all the rubbish can be taken off.

2. By using paring blades after the ground is cleared by scarifier if necessary. If not, the paring standards, two right and two left on the frame of the Cultivator.

3. The mould boards are to be used inverted so as to turn the earth in form of a ridge.

4. The mould boards are to be turned out, and to be used with the sub-soil point in the centre of the machine—the depth in all cases to be graduated by the wheel.

The instrument exhibited is about three feet in width, of a square form, and this size is more particularly designed for root culture. It can be made of any desired width, and will doubtless prove a very useful as well as labor-saving machine in the preparation and thorough cultivation of most crops. It may be seen at the farm of Mr. Prentice, at Mt. Hope.

The Executive Committee proceeded to the selection of Judges for the annual show, and having completed the list, directed the Secretary to correspond with the persons appointed, and ascertain if they will serve, and report at the next monthly meeting, on the second Monday in June, to be held at the Mansion House, Buffalo.

B. P. Johnson, of Albany; J. B. Burnet, of Syracuse; J. M. Sherwood, of Auburn; and T. C. Peters, of Buffalo, were appointed a committee to make arrangements with the rail road companies, steam and canal boat proprietors, for the transportation of articles and stock for exhibition and visitors to and from the Fair.

B. P. JOHNSON, Secretary.

ALBANY AND RENSSELAER HORTICUTURAL SOCIETY.

The annual meeting of the Society was held at the agricultural rooms on Saturday, 6th May. JOEL RATHBONE, esq., President, in the chair.

The amendments to the constitution proposed at last meeting were adopted.

The report of the Ex. Com. of the proceedings of the Society during the past year, was presented and ordered published.

Mr. D. THOMAS VAIL, from the committee on nominations, reported a list of names for officers for the ensuing year. The following gentlemen were elected—being those reported by the committee.

President—JOEL RATHBONE, of Bethlehem.

Vice Presidents—D. THOMAS VAIL, Troy; Dr. HERMAN WENDELL, Albany; EZRA P. PRENTICE, Bethlehem; V. P. DOUW, Greenbush.

Secretary—B. P. JOHNSON, Albany.

Treasurer—A. E. BROWN, Albany.

Managers—AMOS BRIGGS, Schaghticoke; STEPHEN E. WARREN, Troy; J. M. LOVETT, Albany; WILLIAM BUSWELL, Troy; J. McD. McINTYRE, Albany; JAMES HENRY, Watervliet; WM NEWCOMB, Pittstown; JAMES WILSON, Albany; A. OSBORN, Watervliet.

COMMITTEES FOR 1848.

On Green House Plants and Flowers—Wm. Newcomb, of Pittstown, chairman; Dr. Stephen Wicks, Troy; A. J. Parker, Albany; C. Hemstreet, Troy; J. M. Lovett, Bethlehem.

On Fruit — Dr. Herman Wendell, Albany, chairman; V. P. Douw, Greenbush; David Benson, Albany; B. Kirtland, Greenbush; Wm. Buswell, Troy.

On Vegetables—John S. Walsh, Bethlehem, chairman; Dennis Belden, Troy; C. N. Bement, Albany; John H. Haydock, Troy; —— Johnson, Albany county.

On Gardens—Luther Tucker, Albany, Chairman; B. T. Cushman, Troy; Clarkson F. Crosby, Watervliet.

On Essays, and for establishing the Synonyms of Fruits—Dr. E. Emmons, Albany, chairman; Amos Briggs, Schaghticoke; Sanford Howard, Albany; John H. Willard, Troy; Dr. J. M. Ward, Albany.

On Discretionary Premiums — E. P. Prentice, Albany, chairman; Henry Vail, Troy; William Cooper, Albany; David Hamilton, Watervliet; Seth H. Terry, Troy.

On Floral Designs, Bouquets, Ornaments, &c. &c. — S. E. Warren, Troy, chairman; Abel French, Albany; George Gould, Troy; E. R. Pease, Albany; John B. Gale, Troy.

On Arrangements for exhibition—For Albany—J. McD. McIntyre, chairman, James Wilson, William Thorburn, Charles B. Lansing, Dr. John Wilson.

For Troy—S. E. Warren, D. T. Vail, Wm. Buswell, C. Hemstreet, Charles Dauchy.

EXHIBITIONS FOR 1848–9.

At *Albany*, 2d Wednesday, 14th June—For fruits, cherries, strawberries, flowers, vegetables, &c..

At *Troy*, 2d Wednesday 12th July—For fruits, cherries, currants, gooseberries, raspberries, flowers, vegetables, &c.

At *Albany*, September—Annual Show.

At *Albany*, 2d Wednesday of February, 1849. Annual meeting—fruit, flowers, &c.

The Secretary was directed to have the proceedings published in pamphlet form, with premium list and list of members the past year, and constitution and rules and regulations.

B. P. JOHNSON, *Secretary.*

ORIGIN OF VARIOUS PLANTS.

FROM THE GERMAN.

Wheat was brought from the central table-land of Thibet, where its representative yet exists as a grass, with small mealy seeds.

Rye exists wild in Siberia. Oats, wild in North Africa.

Barley exists wild in the mountains of Himalaya.

Millet, one species is a native of India, another of Egypt and Abyssinia. Maize was brought from America.

Canary Seed, from the Canary Islands.

Rice, from South Africa, whence it was taken to India, and thence to Europe and America.

Peas are of an unknown origin.

Lentil grows wild on the shores of the Mediterranean.

Vetches are natives of Germany.

Chick-Pea was brought from the south of Europe.

The Garden-Bean, from the East Indies.

The Horse-Bean, from the Caspian sea.

Buck Wheat came originally from Siberia and Tartary.

Rape-Seed and Cabbage grow wild in Sicily and Naples.

The Poppy was brought from the east.

The Sunflower, from Peru. The Lupin, from the Levant.

Flax or Linseed, is in southern Europe, a weed in the ordinary grain crops. Hemp is a native of Persia and the East Indies.

The Garden Cress, out of Egypt and the east.

The Zealand Flax and Syrian Swallow show their origin by their names.

The Nettle, which sometimes furnishes fibres for spinning, is a native of Europe.

Woad is a native of Europe. Madder came from the east.

Dyer's-Weed grows in southern Germany.

Safflower came from Egypt. Dill is an eastern plant.

Hops came to perfection as a wild plant, in Germany.

Mustard and Carraway Seed, the same.

Anise was brought from Egypt and the Grecian Archipelago.

Coriander grows wild near the Mediterranean.

Saffron came from the Levant. The Onion, out of Egypt.

Horse Radish, from the south of Europe.

Chickory grows wild in Germany.

Tobacco is a native of Virginia, and Tobago, another species, has also been found wild in Asia.

Fuller's Teasel grows wild in southern Europe.

Lucerne is a native of Sicily. Spurry is a European plant.

The Gourd is probably an eastern plant.

The Potatoe is a well-known native of Peru and Mexico.

The Jerusalem Artichoke is a Brazilian product.

Turnips and Mangold Wurzel came from the shores of the Mediterranean.

Kohlrabi and White Turnip are natives of Germany.

The Carrot is by some supposed to have been brought from Asia, but others maintain it to be a native of the same country as the Turnip.

The Parsnip is also supposed to be a native of the same place.

Spinnach is attributed to Arabia. White Millet, to Greece.

The Radish, to China and Japan. Parsley grows in Sardinia.

The Cucumber, to the East Indies. Tarragon, in Central Asia.

The Melon, is from Kalmuck. Celery, in Germany.

OF FRUIT TREES AND SHRUBS.

The Currant and Gooseberry came from southern Europe.

The Pear and Apple are likewise European plants.

The Cherry, Plumb, Olive and Almond came from Asia Minor.

The Mulberry tree, from Persia.

The Walnut and Peach, from the same country.

The Quince, from the Island of Crete.

The Citron, from Media. The Chestnut, from Italy.

OF TREES.

The Pine is a native of America.

Horse Chesnut, from Thibet.

The Hurtleberry is a native of both Asia and Europe. The Cranberry, of Europe and America.

CATTLE, NOTICES, &c.

On referring to the cover of this number it will be seen that Mr. Geo. Vail of Troy, offers for sale some of his fine stock of thorough-bred Durham Short Horned cattle. Those gentlemen desirous of possessing some of this valuable herd, will do well to call and make selections. Mr. Vail has been at great expense in procuring some superior animals of this celebrated breed, and has paid particular attention to their milking properties. He has been very successful too, in obtaining prizes whenever he has exhibited at the different fairs. We therefore advise those wishing to purchase, to examine his herd previous to making selections.

We would also call attention to the Herefordshire and Ayrshire bulls advertised on 2d the page.

Sale of Durham Cattle.—Since writing the above, we have learned that Mr. Vail has purchased the entire stock of Durham Short Horned cattle from Mr. Prentice, of this city, and added to his herd at Troy. It may, probably, now be said that Mr. Vail has the largest, if not the best herd in this state.

☞ Wool-growers will find it to their interest to look at and examine the advertisement of Mr. Blanchard.

A meeting of the Albany and Rensselaer County Horticultural Society will be held at Albany, on the 2d Wednesday (14th) of June. Exhibition of fruits, cherries, strawberries, flowers, &c.

ANNUAL FAIRS OF COUNTY AG. SOCIETIES FOR 1848.

Seneca County.—In the notice of the Annual Meeting of this society in our last number it was set down to be held on the 5th and 6th of Sept. next. It should have been 5th and 6th of October.

Ontario County.—Fair to be held at Canandaigua on the 10th and 11th of October next.

Rensselaer County.—Fair and cattle show to be held at Troy on the 20th and 21st of September. The cattle shows and fairs of this society have always been got up with great spirit and liberality. On the present occasion it has offered in premiums about $1500.

Windsor County, Vt.—Fair to be held at North Springfield, on the 4th and 5th of October next.

METEOROLOGICAL OBSERVATIONS FOR MAY, 1848.

Made at the Albany Academy, by Dr. T. R. Beck, Principal, &c.

Days.	THERMOMETER. 6 A. M.	3 P. M.	9 P. M.	Mean.	WINDS. A. M.	P. M.	WEATHER. A. M.	P. M.	RAIN Inch's	REMARKS.
1	39	63	53	53·67	S.	S.	Clear.	Cloudy.	0·10	Rain.
2	51	63	54	56·00	S. W.	N. E	Cloudy.	Cloudy.	1·34	Rain.
3	51	60	53	53·67	N.	N.	Cloudy.	Cloudy.		Rain.
4	45	75	67	64·33	N. E.	N. E.	Clear.	Cloudy.		
5	57	75	65	66·50	S.	S.	Cloudy	Clear.	0·37	Rain.
6	62	80	75	72 83	S.	S.	Clear.	Clear.		
7	65	79	65	67·67	S. E.	N. W.	Clear.	Cloudy.	0·36	Rain—Thunder [Shower.
8	53	73	66	64·00	N. W.	N. W.	Clear.	Cloudy.		
9	53	61	54	56·17	N. W.	N.	Cloudy.	Cloudy.	0·29	Rain.
10	54	68	55	58·33	S.	S.	Cloudy.	Cloudy.	2·32	Rain { Commenc'd
11	50	50	49	49·50	N. E	N.	Cloudy.	Cloudy.		Rain { with thun-
12	49	61	57	55·17	N. W.	N. W.	Cloudy.	Cloudy.		[der storm.
13	46	64	55	54·83	N. W.	S.	Clear.	Cloudy.		
14	45	55	53	51·33	N. W.	N. W.	Cloudy.	Cloudy.	0·03	Rain.
15	47	69	61	60·67	N. W.	N. W	Clear.	Clear.		
	Semi-	mo'ly	mean,	58·98					4·81	
16	57	68	60	61·00	S.	S.	Cloudy.	Cloudy.	0·10	Rain.
17	53	75	65	64·33	S.	N. W.	Clear.	Clear.		
18	53	80	70	68·33	S. E.	N. W	Clear.	Clear		
19	60	83	77	74·17	S.	S.	Clear.	Clear.	0·41	Rain, thunder strm.
20	65	72	71	69·50	S.	N.	Cloudy.	Cloudy.	0·46	Rain. do do
21	66	76	66	69·33	N. E.	S.	Cloudy.	Cloudy.	1·44	Rain. do do
22	66	68	63	65·00	E.	N. E.	Cloudy.	Cloudy.		Rain.
23	62	73	69	68·17	N. W.	N.	Cloudy.	Clear.		
24	63	66	64	64·17	S.	S.	Cloudy.	Cloudy.		
25	62	78	71	71 17	S.	S.	Clear.	Cloudy.		
26	67	78	68	69·33	E.	S.	Cloudy.	Clear.		
27	57	77	68	68·17	N.	E.	Clear.	Clear.		
28	62	76	70	69·83	S.	S.	Clear.	Cloudy.		
29	65	79	70	72·00	S.	S.	Cloudy.	Clear.		
30	69	74	65	66·83	S.	S.	Cloudy.	Cloudy.	0·89	Rain—thunder and [some hail.
31	54	57	51	52·00	N. W.	N. W.	Clear.	Clear.		
	Semi-	mo'ly	mean,	67·08					3·30	Rain Gage 8·11.

Monthly mean,.... 63·03.

1st, Rain, 6 to 8 p. m.,.... ..... 0·10
2d, Rain, 5 p. m. to 10 a. m. of 3d,.. 1·34
5th, Rain, early a. m.,..... 0·37
7th, Rain early a. m.; thunder shower 0·05
7th, Rain 2 to 4 p. m.; thunder shower 0·31
9th, Rain a. m.,..... 0·29
10th, Rain a. m. 0·02; rain 3 p. m. & 11th, till late in the evening,..... } 2·32
14th, Rain early a. m. and p. m.,.... 0·03
16th, Rain, a. m.,..... 0·10
19th, Rain 9 to 11 p. m.,..... 0·41
20th, Rain 12 to 3 p. m.,..... 0·41
21st, Rain 2 p m. to 11 a. m. of 22d, 1·41
22d, Rain p. m ,..... 0·03
30th, Rain, early to 4 p. m.,....0·30 } 0·89
30th, Rain 6 to 7 p. m ,.....0 59 }
8·11

Winds—N. 3 1-2 days; N. E. 3; E. 1 1-2; S. E. 1; S. 13 1-2; S. W. 1-2; N. W. 8.
Weather—Fair 12 1-2 days; Cloudy 18 1-2 days. Rain on 15 days.
Rain gage 8·11. Warmest day 19th; coldest 11th. Highest 83°; lowest 39°.
Numbers for first half month,..... 88·467
Numbers for second half month,..... 107.333

31)195·800(63·16

The Storm of May 21.—The thunder storm on Sunday, was particularly severe in many parts of the country. A schooner at the mouth of the Connecticut river, was struck by lightning, the masts shivered to fragments and the vessel otherwise injured. A sloop also capsized and sunk near the same place. In Guilford, the wheelwright shop of Mr. George Davis, was struck by lightning and consumed, together with the tools and a considerable quantity of stock. Two dwelling houses were struck at the same time in New Haven, although both were protected by lightning rods.

The barn of Daniel Noyes in Byfield, Mass., was struck by lightning and consumed, with fifteen tons of hay. Two houses were also struck in Providence, R. I. In Whately, Mass., on Saturday, the church of the first parish was struck, together with the dwelling house of Mr. Isaac Sanderson. Besides these, trees were struck in no less than seven different instances. We do not notice that any person, in any of the above cases, was seriously injured.—*Springfield Republican.*

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

CONDUCTED BY C. N. BEMENT, ALBANY.

VOL. VII. JULY, 1848. No. 7.

SUMMER—JULY.

The season of mid-summer has now reached us, with all its richness and splendor; but it brings also that degree of heat which as it regards our feelings at the time, we should like to dispense with. The month of temperate breezes and interminable verdure, has now given way to a season of parching heat and scorching sunshine, which has seared the verdant brows of the hills, and driven away the vernal flowers that crowned their summits. They have all fled from the uplands, to escape the heat and drought, and have sought shelter in the watery meadows or under the damp shade of the woods. And yet even this degree of heat may be useful for many purposes. It teaches us, at least, that great and various and preponderating as are our blessings and our means of enjoyment, we are not without some alloy of our pleasures, and cannot claim an entire exemption from suffering.

The cattle have taken shelter under the canopy of trees, to escape from the hot beams of the sun, and many of them may be seen standing in the pools, in the shallow streams, or the margins of ponds, for refreshment and protection from insects. All animated nature is indulging a languishing repose, and the feeble breeze is scarcely sufficient to shake the leaves of the aspen, as they pass by them faint and exhausted with the sultry heats of July.

As June was peculiarly the month of music and flowers, July is the early harvest of summer fruits, many of which are now in full perfection; and though the man of feeling would prefer the last month, the present certainly offers the most attractions to the epicure. Strawberries are during the first of the month in their ripest abundance, and fill the air with a fragrance even more delicious than their fruits. While these are becoming scarce, raspberry bushes that embroider the walls and fences, hang out their tempting red, ripe clusters of berries, where the wild rose, the sweet-briar, and the elder-flower purify the summer atmosphere with sweet and healthful emotions. Nature seems to be inviting all her children to partake of the pleasure of sense, and would convert us all into epicures, by changing into delicious fruits those beautiful things which we contemplated with pleasure in the months of spring.

The morning dawn bursting from the womb of darkness—the full splendor of noon—the softened charm of sunset—the evening twilight—and the glories of night, which lights its thousand lamps—the balmy softness of the air—the ever changing curtain of the floating clouds gracefully drawn over the sky to mitigate the excessive fervor with the refreshing coolness of the shade and the gentle breeze, speak the same language. The flowers that enamel the meadows, graceful in their form, lovely in their harmonizing hues, grateful in the sweetness of their perfume; the bushy shrubs—the majestic trees, differing in size, in shape, and in shade—the living world in all its diversities—the busy insect fluttering in the sunbeam or moving across our path—the bird with its painted wing—the herds and flocks quietly grazing on hill or dale—each and all seem formed to fill the mind with agreeable sensations, and to raise it in adoration to the Giver of all Good.

"Every where," says Sturm, "nature works to procure us new enjoyments—even the smallest insects, leaves, and grains of sand, offer objects of admiration—the same brook that waters the valleys, murmurs sweet music to our ear, invites us to soft repose, and refreshes the parched tongue. The grove which shields us from the piercing rays of the sun by its protecting shade, makes us experience a delicious coolness. The trees, whose beautiful blossoms so lately delighted us, will soon produce the most agreeable

fruits; and the fields, waving with the ripening grain, promise an abundant harvest. She clothes and adorns the earth with green, a color most beneficial and agreeable to the eye, and adds to its beauty by diversifying shades; for though pleasing in itself its charms are much increased by this happy distribution of shade. Each species of plant has its peculiar color; landscapes covered with wood, bushes, plants, herbs, and corn, present a most beautiful scene of verdure, where the coloring is infinitely varied, and its shades insensibly blended, increasing from the lightest tints to the darkest hue, and yet a perfect harmony is always present."

But what is chiefly to be observed and admired in the diversities of nature, is the adaptation of every thing to some particular use, and all of the completeness of the whole system. There is nothing isolated, nothing useless. The two divisions of organized existence are formed for each other. Every plant has some corresponding tribe or fribes of animals which it supports, and to whose properties and modes of existence it is peculiarly adapted; if there are succulent leaves, there are caterpillars to feed on them; if there are flowers which secrete honey, there are bees and other insects to sip the sweets; if there are fruits, there are birds to feast upon them; if there is herbage, there are cattle to crop it; and if there is death, there are living beings which convert even this to the support of life by devouring the inanimate carcass.

There is here a complicated and most wonderful system; and this is so nicely balanced, that every part is preserved in its due proportion, and one species contributes to the benefit of others.

There is no pleasanter recreation at this season than a water excursion in some one of the romantic lakes that diversify our forests. The white water-lilies now spangle their borders with a profusion of their sweet-scented double blossoms; and among the lofty grass and shrubs, the side-saddle flower, (*Saracena purpura*) nod their purple heads over their curious pitcher-shaped leaves. The clusters of ripe raspberries overhang the banks within your reach, as you sail along their shelvy sides.

The hay harvest, which commences this month, is amongst the various occupations of the farmer, and excites the most general interest throughout the whole country. Few people who have beheld the occupations of the hay field, which this beautiful season every where presents, without feeling a very pure and elevated

delight. The mowers moving gracefully in concert, the grass falling beneath the scythe—its grateful fragrance—the tending and raking the hay—the loading of the carts to remove it to the barn, all excite a sensible pleasure in almost every mind.

The present month, taken generally, may be considered as the busiest time of hay-making, for while in some warm and favored situations we often find old meadows and some luxuriant fields of clover fit to cut the latter part of June, yet the greater bulk of the crop in this section is usually carried to the barn during this month. In some districts, where the weather proves rainy and unsettled, the farmer who does not wish to incur much expense in wages, may frequently be seen engaged in hay-making so late in the season as the month of September. On the whole, however, they are losers by making hay so out of the season; for although the grass that has remained uncut till it is so old and sapless may not require so much labor in the curing, in quality it is hardly superior to straw; and besides the soil being greatly impoverished by permitting the plants to mature their seeds, there is no second crop to afford pasture for milk cows and other cattle during the latter part of autumn, when the summer pastures have become exhausted; besides which, from the general want of covering, should the winter prove severe, and the fields remain naked, the future crops will in some measure be injuriously affected.

Every person knows that good husbandry, in all ordinary circumstances, requires the farmer to cut his grass only when he has indications of fair weather for a day or two. He should mow when the prospect is good that the sun will shine. We have seen it sometimes recommended to hay makers to rise very early, commencing their labors in the cool of the morning, get their work along so as to rest for two or three hours in the hottest part of the day, and then extend their labors into the evening. This advice has come from those probably, who know but little about the matter in question, and who benevolently design to inform the haymaker how he can perform his labors successfully, and yet avoid part of his customary exposure to the heat of the midday sun.

So far from advising hay makers to rest in the shade awhile at noon, our advice to them is to be stirring most actively in the middle of the day. "Make hay while the sun shines," is an old proverb and a good one. If this process is found too exhausting,

in connexion with labor early in the morning and late in the evening, then the work should be so planned that it may be accomplished before night. The last hour's work, when the dampness of evening begins to collect upon the hay, is the least profitable of any.

The proper time of cutting grass is a matter upon which, among the best of farmers, a diversity of opinion prevails. Clover, it is believed, should be cut when the flower first begins to fade. In respect to timothy grass it is a debateable point whether it shall be cut in the flower, or when the seed is formed and almost ripened. For market, the greener the color of the hay, provided it is sweet, the better it sells. According to the analytical experiments of Sinclair, the nearer it approaches to ripeness, the more nutricious matter it contains. We are of opinion, however, that a jury of cattle would be much more conclusive and satisfactory.

Sundry modes have been suggested for the curing of clover hay, No grass in our humble opinion, suffers greater deterioration from excessive drying and much stirring and tossing about. Our practice, and which of course we think the best, has been not to spread clover, but simply to turn the swarth after the top is wilted, and in the afternoon of the day on which it is cut, put it carefully into small cocks and let it remain until it is sufficiently cured to carry to the barn. When this is to be done, the cocks should be turned over, so that any moisture, which may be at the bottom of them, may be dried off. Cured in this way it comes out perfectly bright and sweet, the leaves and blossoms remain on, and we value it more than any other grass for our sheep and cattle.

Procure a good scythe for every man and boy on the farm who is to do any thing at mowing. This work is hard enough with the best implements that can be made. When the tool is poor, the work must be done either poorly or slowly, and in either case the farmer is losing more than the cost of the instrument. It is the practice of some to put the cast off scythe in the hands of the boy, who is learning to mow; this should not be done. He wants and should have, in his feeble and unpractised hand, a sharper edge than is required by the man. We say give him a good and a light tool, or else excuse him from this work.

All kinds of grain should, whenever practicable, in every instance, be cut before it becomes dead ripe, and for these reasons:

First, because much is lost by shattering; secondly, the straw is, when cut under such circumstances much more nutricious, and better relished by stock; thirdly, because the soil is thereby relieved from a source of great exhaustion. Experience also teaches us that grain cut before it gets entirely ripe, furnishes much more flour and of a superior quality.

But while the haying and harvesting is going on weeds will spring up among the corn and the potato roots, and rob them of their food. At this time we know it will be hard to hang up the scythe or cradle and take the hoe, but is it better to let the weeds get possession of our tilled lands, or leave the corn and roots with the earth unstirred among them? All crops should be kept free from weeds, and more especially when young and tender. Our plants are much impeded in growth by these intruders upon the cultivated lands; and when they are permitted to ripen their seeds the future crop will call for much more labor for their extermination, or which will be vastly injurious to our grain crops. We have found great benefit in stirring the earth, especially when a drought occurs, until our corn is in tassel.

For a drink in the hay and harvest field, we recommend oatmeal and water. It is grateful, wholesome and nourishing, without a single bad property. Put two or three table spoons full of meal into a three pint pitcher with water; let it stand fifteen minutes and it is fit for use. N. B. "When taken, to be well shaken." A very good drink also, and some prefer it, is to mix molasses, ginger and vinegar with water, in proportions most agreeable to the palate. Spirituous liquor, is, we believe, entirely abolished, and we have the satisfaction of believing we were the first in this section, to prohibit the use of it in our hay and harvest field.

TREES MOST AFFECTED BY LIGHTNING.

Fig trees and cedars are rarely struck with lightning; the beech, larch-fir and chestnut, are obnoxious to it; but the trees which attract it most are the oak, yew and Lombardy poplar; whence it follows that the last are the trees most proper to be placed near a building, since they will act as so many lightning conductors to it. Again, the electric fluid attacks in preference such trees as are verging to decay by reason of age or disease.—*Mechanics' Magazine.*

HISTORICAL REMARKS ON THE EARLY SETTLEMENT OF THE GENESEE COUNTRY.

BY J. TREMPER.

In 1796, the different settlements which had been made in the Genesee Country, as it was then denominated, began to assume an appearance of respectability and prosperity which was not to be expected in so new and at that time remote a country, by the perseverance however and the energy of its inhabitants, it advanced with rapid steps in the course of improvement. The privations and wants of former years were soon forgotten, or began to be talked over the evening fire as things which could annoy them no more. The number of immigrants each year was estimated at 3000 persons. It is recorded as a fact not unworthy of notice, that an inhabitant of Steuben proceeded from the centre of that county with a raft consisting of 100,000 feet of lumber, to Baltimore, and met with so good a market that he agreed to deliver the same quantity the next spring Of the settlements begun in 1796, one that attracted much attention, was commenced by the Rev. Mr. Gray, who moved in, with a large portion of his former parish, from Pennsylvania; another person from New Jersey commenced a settlement at the same time—both of which exhibited rare instances of enterprise and industry. A company of grenadiers was raised in Steuben, and the latter individual appeared as their captain, at the head of the company, consisting of twenty-seven men. The same season, as a beginning of the militia of Genesee, a troop of horse and a company of light infantry was added to the battalion. Great efforts were made at an early period to induce the settlers to erect mills; as a consequence the country was unusually well supplied with conveniences of this description. The influence of such a course was very soon made evident in the appearance of nice houses and farms; a greater number of framed houses and barns were to be found than in many settlements much older. This year a printing office was established in the town of Bath, and a newspaper printed, entitled the Bath Gazette. The county of Ontario, having had several years the advantage in point of settlement, and of many extensive Indian clearings of very great extent, already had the appearance of an old settled country. Near Geneva the king of Canadasaga had reared his wigwam, and around him spread his broad fields, covered with fruit trees and waving grain; but Destruction was to raise her hand and light her fires around him, and when the American army moved on to the Genesee river, no human voice raised an echo among the smoking roof-trees and deserted groves of Canadasaga. The In-

dian orchard had been trimmed up and the fruit secured from injury. At the head of the Seneca Lake was another extensive clearing and village called Catharine's Town; where the celebrated Catharine Montour lit her council fires among the drooping hemlocks of Catharine's Creek; but her domains were compelled to undergo the desolation that awaited every Indian possession among the Senecas during the invasion of General Sullivan. Fire and the axe were destructive weapons when directed by an army of 5000 men, and silence brooded over the broad domains of Kate Montour. Her bitter exclamations upon her return to the spot where once stood her home, it is needless here to detail. Fruit was very abundant where the Indian clearings had been, at the time of the settlement of the Genesee country. The trees cut down by the army in its progress, had sprouted up and bore fruit in great abundance. One farmer near Geneva at this time made 100 barrels of cider during the season. The town of Canandarqua from consisting of a few straggling huts as described in 1792, had now assumed the appearance of a handsome village. A tract of country extending from this place to Genesee river, was interspersed with rich and elegant farms and filled with a population of respectable inhabitants. In this year, (1796) a sloop of 40 tons burthen was put upon the stocks at Geneva to ply as a packet from that place to Catharine's Town, a distance of about 40 miles. Towards the close of the season the sloop was launched, and this event was sufficient to draw together several thousand people, and no circumstance having occurred previously, to assemble the inhabitants of the country, they were not a little surprised to find themselves, as a body, so numerous. Every State in the Union, almost, was represented, and natives of almost every country in Europe mingled in the throng. This season a printing office was established at Geneva, and the subscription list exhibited about 800 names. The flour manufactured in this country was so much superior to what was made upon the Mohawk, that samples were sent to different places as presents. The only part of the Genesee country which until now failed to keep even pace, was the country lying on the Genesee river, below Hertford, nearly west of Canandarqua; settlers were intimidated by the idea of exposure to Indian depredations upon the frontier, always sufficient to deter the peaceable and industrious inhabitants from settling. The moment however that the western posts were delivered up by the British to the Americans, in 1795, by virtue of a treaty made between these two powers, the Indians gave up all hopes of attempting hostilities, and this part of the country was rendered safe, so that the industrious settler directed his attention to the rich lands west of the river. The immigration that took place in the year 1797, into this western country, not only exceeded former years

in numbers, but also in the substantial character of the immigrants; a very great portion of the settlers were among the most wealthy farmers of Pennsylvania, Maryland, the Jerseys and New England. The country had at this period arrived at that state of improvement that enables the inhabitants to live in comfort and luxury. Already were weekly markets established at the larger villages, and the United States had established a weekly post for the conveyance of letters. To improve the communication with the coast seemed to be all that was necessary to render the Genesee country as desirable as any part of America. To remedy the inconvenience arising from the want of roads, the Legislature of the State had by a law passed in this year, taken the road from Whitestown to Geneva under their supervision. A lottery was granted for making certain great roads, among which this was included. The inhabitants of the country through which this was to pass, made an offer of their services to aid the State Commissioner to the amount of 4000 days work, which was faithfully performed. By these uncommon exertions the road, nearly 100 miles in length, was completed 64 feet in width and paved with logs, under a covering of gravel through the low country, which rendered such a construction necessary. In consequence, the road from Fort Schuyler, on the Mohawk river, was so far improved that *a stage* started on the 30th of September and arrived at the hotel in Geneva, in the afternoon of the third day, with four passengers. This season a new settlement was begun on the west side of the Falls of the Genesee river, about nine miles from its junction with Lake Ontario.

1798.—It is stated that not less than 3000 people came into the counties of Ontario and Steuben, in the space of six weeks, and as soon as the navigation opened, the number rapidly increased. The rapid progress of the country in improvement, besides wealthy farmers, induced many persons of liberal education to move in, who were enabled already to find society suited to their different tastes. The opening of a market at Baltimore for the lumber and fat cattle of the country, created a desire among the inhabitants to improve the navigation of the river. A court house and jail this season was erected at Bath, and the inhabitants at the same period encouraged a clergyman to settle among them; this was the first establishment of the kind in the country. It had been generally supposed that the Genesee country was a flat, level tract of land, interspersed thickly with stagnant waters; but it was soon ascertained that this was not the case; it was discovered that the whole tract of country from Geneva to the Genesee river, with few exceptions, was composed of a range of gently swelling ridges of land, inclining generally from north to south, in their relative position, with small streams running in the inter-

vals, which presented fine bottom lands. On the high ground were found principally hickory, oak and walnut, while the low ground was covered with elm, basswood and sugar-maple; in many places were seen large tracts entirely devoid of timber, and showing many signs of having once been in a state of cultivation. This kind of land encountered the predjudice of the early settlers; it was supposed to be barren and of no value. Necessity at length induced some to attempt the cultivation of it, and we may imagine their surprise at the luxuriance of the crops produced upon it. After croping several years in succession, its fertility was found but little diminished. The same land which six years previously could not have been sold at 25 cents an acre, was now thought cheap at ten dollars. These openings were numerous in different parts; and on the Genesee river, 10,000 acres of open flats could be found in one body, where not even a bush would meet the eye, but where the grass grew so dense and tall, that cattle were hid from view a few feet from the path. Throughout the country there were numerous signs of its having once been extensively cultivated at a very early period.

West Dresden, June 7, 1848.

KYANIZING WOOD.

The process of preserving wood and fabrics composed of vegetable fibre, is likely to become very serviceable, and is already very extensively employed in Great Britain. Its efficacy in preserving timber from the dry rot, had been amply demonstrated in various experiments made in the ship yards of England. Wood and various vegetable fabrics, which had undergone the preparatory process, had been exposed for years, to the influence of moisture and bad air, without sustaining any apparent injury, while the like materials, not submitted to the process, suffered rapid decay and destruction. The process of Kyanizing, as it is now termed, consists in immersing the wood or cloth, for a few hours or days, in a mixture of water and corrosive sublimate, in the proportion of one pound of the latter to five gallons of water. The mercury combines with the albumen of the vegetable matter, its most perishable part, and renders it insoluble, in the same manner that tan renders the gelatinous matter in hides so. Wood, or linen or hempen fabrics, which are to be exposed to the weather, particularly in humid situations, or in the earth, may, by this process, be preserved for a great length of time.

CHERRY PLUM.

Cherry Plum. (Fig. 23.)

The annexed cut is a figure of the cherry plum, sometimes called the early scarlet, and known in Europe as the Mirobolan. Mr. Downing describes this fruit in the *Horticulturist* as follows:

"The cherry plum is not a high flavored fruit; it is only what may be called one of pleasant flavor. But it is, we believe, the earliest of plums; it ripens at a season when fruit of every kind is exceedingly scarce; and it is quite an ornamental as well as acceptable addition to the dessert in the month of July."

It is considered a poor bearer; but Mr. D. states that Mr. Samuel Reeve, of Salem, N. J., has adopted a method by which the variety is made productive, and he finds its culture as a market fruit, very profitable. He supposes its usual nonproductiveness is owing to too great a production of leaves, and wood. "He, therefore," it is said, "*transplants* his bearing trees every five or six years. In this way, the overluxuriance is checked, and an abundant crop of fruit sets and ripens every year." It is stated that Mr. R. sends this kind of plum to the Philadelphia market early in July, when it brings from five to eight dollars per bushel. Mr. Downing suggests that *root* pruning, performed every two or three years, would answer the same purpose as transplanting.—*Cultivator.*

FOOD OF PLANTS.

BY DR. LEE.

All thinking, reasoning men have become satisfied that to form one, two, or three tons of any crop on an acre of land in a season, the vegetable vitality which changes earth, air and water into such crop can operate successfully no further than the supply of matter precisely adapted to the wants of each plant extends. The theory is that no amount of hard work can possibly make corn, potatoes, wheat, or apples, or any other living thing, out of nothing. Nor can it form them by any possibility out of other ingredients than the things which God has appointed for that purpose. Hence, if your soil has 99 parts in 100 within reach of a crop of potatoes or corn, of all that is required to make 80 bushels of the latter and 400 of the former, on an acre, these 99 parts go for nothing, just so far as the other *one part is lacking.* To illustrate: 100 pounds of gypsum have often added 2,000 pounds of clover hay, to an acre; and could you fairly estimate the increase of clover roots, and all below where the scythe clips, the net gain would be 3,000 pounds.

Your reason, kind reader, informs you that 100 pounds of sulphur, oxygen, and the metal called *calcium*, (which are the constituents of gypsum,) never created 29,000 pounds of clover out of nothing. The 2,900 pounds of matter, which with the addition of the *sulphur* and perhaps lime in the gypsum, formed 3,000 lbs. of the plants named, existed within reach of the clover as well before as after the lacking elements were applied. But, as no other element in the world can fill the place which God has assigned to *sulphur* in organizing the living bodies of vegetables and animals, wherever and whenever this substance is lacking, such organization cannot proceed. Any bird which can organize a perfect egg without a particle of sulpbur to enter into the composition of its yolk, can create and lay a little world, with all its inhabitants! In 100 lbs. of feathers, wool and hair there is 5 lbs. of sulphur. If clover contained not an atom of this substance, how could the sheep, the cow, the horse, or the pig, subsist on food which lacked an indispensable constituent of its brain and nerves, its flesh and hair, and of the milk designed by the Creator to build up every tissue of its young offspring?

You know, for Heaven has made you a reasoning, intelligent human being, that neither children nor brutes can know whether the plants on which they live—the seeds of maize, beans and wheat—the fruits of the apple, pear, peach, and the vine—contain the elements necessary to form their bones and their muscles.

What then? Only this: that Infinite Wisdom protects their lives and health by preventing your crops from growing—organizing grass roots, tubers, seeds or fruit of any kind—one pound beyond the supply of each constituent element required to make the whole body of a Man. Think of this truth, and remember God has endowed us with high intellectual faculties, for the great purpose that we may study and understand "how wonderfully and fearfully we are made!"

In using vegetable vitality with a view to organize food for man, you have much to learn. All that the writer can do is to give a few hints. Salt this remark down in one corner of your memory: Vegetable vitality alone is endowed with the power to combine those constituent elements of plants and animals, called lime, potash, soda, silicia, magnesia, iron, chlorine, sulphur, phosphorus, carbon, oxygen, hydrogen and nitrogen, into living compounds. A man, a bird, a fish, an insect, a worm--all animals—can alike subsist on a slice of good wheat bread; that is, they can organize their bones, feathers, scales, flesh, &c., out of the elements already organized by the vitality in the germs of the wheat plant. Mark well the grand natural distinction between *animal* and *vegetable* vitality. Decompose your slice of bread by burning it, or any other means, into its original mineral elements, (*air* and *water* are minerals as much as *iron* in the language of science); and collect all the constituents of the bread in a clean glass vessel. Now, neither man, fish, bird nor insect can form a particle of flesh out of the matter which made the bread; but a young plant, under favorable circumstances of light, warmth, &c., can reorganize all the constituents of the bread into nutritious food for animals. Vegetable life has infinitely greater force than that of animals; but it cannot transmute one element into another—iron into gold, for instance—nor create anew one particle of any element when perchance it shall be lacking and needed this season to organize for you a large yield of sound potatoes. Vegetable life is older than animal life.

That portion of the food of cultivated plants which is most deficient in ordinary soils, viz: bone-earth or phosphate of lime, sulphate of lime or gypsum, chloride of sodium or common salt, salts of potash and magnesia, we find from a great number of analyses, more abundant in the *sub* than in the *surface* soil. This is a fact of much importance as a purely practical question of tillage. It indicates the utility of breaking up, and making fine the *undercrust*, so that all hungry roots may readily penetrate far into the bosom of their mother earth. The subsoil need not be brought to the surface, unless you prefer so to do. Deep tilth and thorough drainage are still sadly neglected in all parts of the United States. As an ounce of copperas, alum, or other salt will spoil an other-

wise good meal for a hungry man, so a compact subsoil that collects moisture and the salts of iron, alumina and other minerals in excess, may truly poison the otherwise nutritious food of your crops. Too much of a good thing, like too much heat applied to the body in a cold day, may be more suddenly destructive than none at all.

We don't know a farmer in the Union who makes the best known use of lime, ashes, bones, gypsum, stable manure, night soil, marl and other fertilizers, such as green sand, forest leaves, salt, and swamp muck. The food given to each plant, not being adapted to its wants—having some elements in excess, while deficient in others—a large share of it is wasted. If a tanner wastes his hides and bark with which he makes leather, every body calls him a dunce; but an agriculturist may waste any quantity of the substances required to form bread, meat and wool, and yet pass for a wise farmer. Nearly all night soil, in every part of the country, is thrown away. But a small portion of the liquid excretions of man and his domestic animals is ever restored to the fields at the proper season, and in due quantity per square rod.—*Genesee Farmer.*

FLOWERS—THE DAHLIA.

Among the many indications of the advance of our country, in taste and refinement, none can afford a surer criterion than the increased attention which is given to flowers and fruit. Every thing which tends to increase domestic enjoyment, which furnishes to a family that pleasure at home, which otherwise they would be impelled to seek elsewhere, is valuable.

There is certainly nothing of the flower kind which for brilliancy of color and magnificence of effect, can compare with the Dahlia. And it is a little flattering to the pride of American Florists that they have brought them to a much higher degree of perfection during the short period they have been cultivated here than they have been in Europe. The facility with which they may be cultivated should render them a favorite, nothing more being necessary than to place them in a rich moist loam, well manured, where they will grow with the greatest luxuriance, nothing else being necessary than to keep them clean, and watered in dry seasons.

The following extracts from the London Horticultural Magazine, we do not hesitate to say, will be perused with pleasure and profit:

"The admirers of that magnificent autumn flower, the Dahlia," says the editor of the Genesee Farmer, to whom we are indebted for the cut, "will peruse the following extracts from the London

Horticultural Magazine, with pleasure and profit. We do not expect that cultivators, in this country, will discard all the varieties that fall short in the characters given below; we give them in order to show what a really fine *Double Dahlia* is, that growers may know at least what to aim at:

CHARACTER OF A FINE DAHLIA.—PROPAGATION, &c.

A perfect Dahlia. (Fig. 24.)

1. The flower should be a perfect circle when viewed in front: the petals should be broad at the ends, smooth at the edges, thick in substance, perfectly free from indenture or point, stiff to hold their form; they should cup a little, but not enough to show the under surface; they should be in regular rows, forming an outline of a perfect circle, without any vacancy between them, and all in the circle should be of the same size, uniformly open to the same shape, and not crumpled.

2. The flower should form two-thirds of a ball, when looked at sideways. The rows of petals should rise one above another symmetrically; every petal should cover the join of the two petals under it—what the florists call imbricating, by which means the circular appearance is perfected throughout.

3. The center should be perfect, the unbloomed petals laying with their points towards the center, should form a button, and should be the highest part of the flower, completing the ball.

4. The flower should be symmetrical. The petals should open boldly, without showing their under side, even when half opened, and should form circular rows, uniformly laid, evenly opened, and enlarging by degrees to the outer row of all.

5. The flower should be very double. The rows of petals laying one above another, should cover one another very nearly; not more should be seen in depth than half the breadth; the more they are covered so as to leave them distinct, the better in that respect; the petals, therefore, though cupped, must be shallow.

6. The size of the flowers when well grown, should be four inches in diameter, and not more than six.

7. The color should be dense, whatever it be—not as if it were a white dipped in color, but as if the whole flower was colored throughout. Whether tipped or edged, it must be free from

splashes or blotches, or indefinite marks of any kind; and new flowers, unless they beat all the old ones of the same color, or are a novel color themselves, with a majority of the points of excellence, should be rejected.

If the petals show the under side too much, even when looked at sideways—if they do not cover each other well—if the center is composed of petals pointed upwards, or those which are around the center are confused—if the petals are too deep and funnel-like—if the petals are too narrow, or exhibit too much of their length—or if they show any of the green scale at the bottoms of the petals—if the eye is sunk—if the shoulder is too high, the face flat, or the sides too upright—if the petals show an indenture, as if heart-shaped—if the petals are too large and coarse, or are flimsy, or do not hold their form—in any or all of these cases the flowers are objectionable; and if there be one or two of these faults conspicuous, the flower is second or third rate.

If flowers are exhibited which show the disc, or a green scale, or have been eaten by vermin, or damaged by carriage, or are evidently decayed, the censors should reject them at once.

PROPAGATION.

There are several modes of increasing the Dahlia. For an amateur, who does not require many plants from each tuber, it will be enough to put the tubers in a warm stove, or in a slight hot-bed, without planting or potting them, and sprinkle them occasionally with water; this will cause the eyes to start. The tubers may then be separated into as many pieces as there are eyes, each eye having a portion of tuber to it. There is no necessity for a large piece of tuber; it may be cut so as to go into a moderate sized pot, and be grown in the hot-bed stove, or even green-house; but the season at which they are separated must be selected according to the convenience. If there be no hot-house, nor green house, nor hot-bed, the roots may be kept in a basket near the kitchen fire, and there be sprinkled occasionally, until they are separated which cannot be done with advantage until the eyes have all fairly started. This plan will generally produce as much increase as an amateur requires. Where there is no convenience for potting, plant them at once in the ground, with the crowns six inches below the surface. Those who desire a larger increase should pot them, and as the shoots get two inches long, carefully break them out, by pressing them backwards and forwards near the bottom; place them one each in thumb-pots, and put them in a hot-bed to strike, which if kept moist, they will do in a few days, and continue doing this until there are enough plants; but if a large number be required, let the shoots all grow three inches long, and with a sharp knife cut them off just under the lower pair of leaves, which will cause numerous other shoots

to come forward, fit for the same treatment, which may be kept on until any quantity required is secured; but it should be remembered that this could be continued until by excessive and rapid propagation the constitution of the plant would be changed, and very double varieties rendered semi-double, or even single. Nobody, however, who could procure pot-roots, however small, or a piece of tuber with a single eye, should ever use plants; for a piece of tuber with an eye, or a pot-root however small, will make a far better plant than even an early cutting. The cuttings as they are struck, should be put into a frame rather cooler, and by degrees be inured to a cold frame, previous to planting out.

CLOVER SEED SOWN WITH BUCKWHEAT.

On a late visit to Hydepark, we were shown several fields of heavy clover on the farm of J. W. Wheeler, Esq., which was sown last season, with buckwheat and timothy. The soil is a gravelly loam, and the grass exhibits a burthen superior to that generally sown in the spring. This, we believe, is the practice of Judge Van Bergen, of Coxsackie, who is one of our most successful farmers.

THE CURRANT—ITS CULTIVATION, &c.

We are glad to observe a considerable degree of attention given to the improvement of this most valuable of all the small fruits. For years its importance seems to have been greatly overlooked or underrated—while special shows and high premiums have every where been bestowed on the strawberry and gooseberry, neither of which in our opinion, can be compared for general usefulness to the currant. The latter has been permitted to remain as though it had attained the ultimatum of perfection. This is very far from being true. The *red* and *white Dutch*, the best varieties now in general culture, are no doubt very good; but we have every reason to believe that in a few years they will stand in the same relation to our *best* varieties that the *common* Mazzard cherry does to the black Tartarian or bigarreau, or as our common wood strawberry to Hovey's seedling.

We see several new varieties noticed in England and France, said to combine large fruit with fine flavor. We have taken

pains to procure all the varieties of noted merit, and in a year or two shall have them fully tested here. The following notice of one of the best, we copy from Hovey's Magazine:

MAY'S VICTORIA CURRANT.

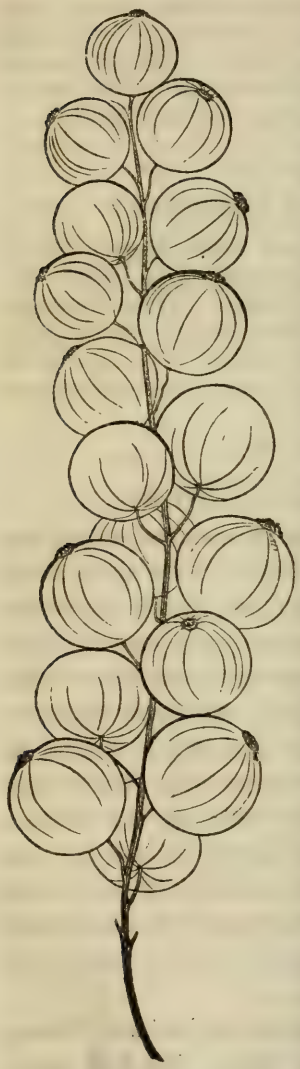


Fig. 25—May's Victoria Currant.

"In our article upon the Cultivation of the Currant, in a previous volume, we offered some remarks upon the importance of raising currants from seed with a view to the production of new and improved varieties. Among the smaller fruits, none possess a greater value than the currant, and yet none have received less attention at the hands of the cultivator. Mr. Knight, impressed with the idea that very superior kinds would be the result of proper attention to the growth of seedlings, wrote an article upon the subject, which was published in the *Transactions* of the Society. He also raised a great number of seedlings, and three of them were thought to possess such merits as to be deserving of names. The gooseberry has been improved from a small and austere berry, to a very large and delicious fruit: the strawberry has also been produced of such size and flavor, as to be scarcely recognized as the offspring of the wild berry of the woods and pastures. And why may not the same success attend experiments to improve the currant? There is no reason to doubt they will, and we may yet hope to see currants nearly as large as cherries, and possessing a flavor much sweeter and richer than any we now possess.

The white and red Dutch currants have been cultivated for a great length of time, and have not, until now, been displaced by any new varieties. Mr. Knight's seedlings, though good, did not supersede these old sorts. We

have, however, in the variety under notice, one which bids fair to take a place at the head of them all. This is "May's Victoria." Though recently raised from seed, and as yet confined to a limited number of collections, its merits are so great, that it will soon find its way into every garden. The berries are of very large size, of a rich deep color, often measuring five-eighths of an inch in diameter, and the bunches are from five to six inches long. The flavor is also excellent, and what is of greater importance, the fruit will hang in perfection for a much longer time than the white or red Dutch.

This variety was raised by Mr. William May, nursery-man, of Yorkshire, England, and the fruit was exhibited at one of the shows of the London Horticultural Society, and was awarded the prize, both for its size and excellence. It has been but little disseminated, owing to the high price of the plants; but, as they are easily multiplied, we may soon hope to see it introduced into every garden where the production of fine fruit is an object.

Our plants produced a few specimens last year, and from the ordinary size of the clusters and berries, we thought it had been overrated; but the present season, when the bushes had acquired sufficient strength to bear a crop, we were happily disappointed in finding the fruit and branches of such large size and beautiful appearance; and our drawing (Fig. 25,) is an accurate representation, by measurement, of the size of both berry and bunch.

The plants are of exceedingly vigorous habit, with foliage differing from the white and red Dutch, in being thicker, deeper green, and not so firmly cut at the edge; in good rich soil, the annual shoots are very stout and strong.

The currant, as we have stated in the article before alluded to, requires to be severely pruned when the object is large, and handsome bunches and berries—it would be useless to expect fine fruit unless this is attended to. At the spring pruning, every new shoot should be headed back to four or five eyes, and the old wood wholly cut out, or as much of it as possible, as it is only on the young and vigorous wood that the best fruit is to be produced. By attending to these suggestions, the cultivator may have the finest fruit.

We may therefore highly recommend the Victoria currant; and as its production is one step towards a superior fruit, we hope our amateur cultivators may be induced to follow up the experiment, until something still better shall be the result."

We find the history of this currant given in a recent number of the Gardeners' Chronicle, from its discoverer, Mr. Charlton, a well-known nursery-man in Northumberland. It appears some forty years ago, Mr. C., then an apprentice to a jobbing gardener, who took care of Capt. Smith's gardens at Houghton Castle, was

sent to gather red currants. In the course of his labors, he came to a bush, the last in the row, which bore large and superior fruit. He then went to his master to enquire what sort it was. He replied he did not know; but went and looked at it, and then remembered that when he planted the row, he lacked one plant, and looking around the garden, found a seedling under a gooseberry bush, which he took and planted—and this proves to be the bush in question. It was then propagated extensively, and when Mr. Charlton commenced a nursery on his own account, he advertised and sold it as the Houghton Castle currant. It has since been called "Victoria" and "Raby Castle red currant," by other cultivators, and has been received in this country under the name of "May's Victoria currant."—*Genesee Farmer.*

GRAFTING CURRANTS.

The Gardeners' Chronicle recommends, for the pretty appearance presented, as well as improved flavor, to graft currants of different colors, as the red, black, and white, variously intermixed on stocks trimmed up to a single stem, three or four feet high. The tops may be headed down to a dense compact head, or trained as espaliers in the horizontal or fan method, the two latter modes of training, by the free exposure to the sun and air, much improving the quality of the fruit. The importance of trimming the bushes up to the single stem, to improve the fruit, and facilitate clean culture, instead of suffering two hundred and fifty suckers to shoot up all around into a dense brush heap, is very obvious to those who have tried both.—*Boston Cult.*

TIMOTHY GRASS.

This plant forms the "third" in our list of the grasses ranged in the order of utility. It is the "phleum pratense," or the "meadow fox tail," of botany—so called from (*Greek,*) an arundo, or a gramentiphinum, growing in moist places. "Fleau de près," (*French,*) and called "cat's tail" grass, from the resemblance of the spike to the tail of the cat.

The English Flora enumerates six species of this grass, and of these only "one" claims the notice of the farmer, which is called "meadow cat's tail," and very often "Timothy grass," from the name of the gentlemen who introduced it by recommendation and example.

This plant constitutes the best grass in the continent of North

America; and in Sweden it is much cultivated, and reckoned very productive, and more agreeable to cattle than any other grass. In our country it has rather undeservedly sunk in estimation, as being harsh, late, and yielding little lattermarth and from possessing no quality in which it is supposed not to be excelled by the fox tail grass. This last observation must have proceeded from a very limited experience; for in general purposes, and in a variety of soils and climates, it very far exceeds the fox tail, and also in yielding readily an abundance of sound healthy seed, while many of the seeds of fox tail are abortive, and the plant is very shy of growth and to the best cultivation. At the time of flowering, "Timothy grass" produced on one acre, 40,837 lbs.—when ripe it yielded the same weight, but the quantity of nutritive matter was more than doubled—the lattermarth yielded 9,528 lbs., and the same quantity of nutritive matter, at the time of flowering. 1,920 grains of leaves gave 80 grains of nutritive matter; and 100 grains of nutritive matter gave 74 of mucilage or starch, 10 of saccharine matter or sugar, and 16 of bitter extractive or saline matter. The ripe crop exceeds the flowering in value, as 14 to 5, which circumstance gives great value to the plant for the purpose of hay. When these statements of comparative produce and value are admitted as an authority, it will be seen that cat's tail grass exceeds the fox tail in every respect, except in the produce of the lattermarth—an advantage that is much overbalanced by the greater produce and ready growth of the Timothy grass. It thrives much on peaty lands, and in humid climates, and on all damp soils, and on those that possess a degree of loamy softness in their composition; and it is unfit for hot sands, gravels, chalk, and hard sterile clays. With that exception, my experience on a great variety of soils, and for a long period of time, places the grass next to ray grass for general utility. It grows readily and abundantly, and yields much seed of a good quality. On very good lands it has a tendency to produce a height of stems in the place of number, and the leaves are soon blanched and yellowed by rain, in the making into hay; but the other grasses have a similar tendency, and they are all of them inferior to "ray grass," in producing a crop of the greatest number of stems of a moderate and equal height. The time of flowering is little, if any, later than the cock's foot, fescue, or ray grass; and for one crop of hay, or for two and three years' pasturage, and for permanent purposes, the meadow cat's tail must form a very considerable part of the seeds that are sown. A comparative trial of plants, on a scale of superior cultivation and refined management, can afford no criterion of general value. One plant will produce an abundance in such circumstances, but will fail when subjected to ordinary cultivation; and another, will

maintain it more nearly in ordinary management, and take the place of others. For it does not follow that a superiority in one state of trial will attend the plant in other circumstances, which are probably more unfavorable to itself, and more agreeable to others.

The common "ray grass," and the "meadow fesscue," are superior to all other grasses in readiness of growth on the greatest variety of soils, in yielding a produce of the greatest general value in the points of bulk and of nutritive quality, and in affording the largest quantity of sound healthy seed, easily gathered and managed. Timothy grass is equal to them in all respects save one—the certainty of growth on gravels, sands, chalks, and clays. On damp soils, and on cool loams, it is equal to the above mentioned grasses, and is superior to them in more points than one. But as an exception must be made in the case above stated, and which is of some value in the view of general utility, Timothy grass must occupy the third place in the graduated list of useful graminivorous plants.—*Mark Lane Express.*

REMARKS ON RAISING CELERY.

BY R. L., LONG ISLAND.

The raising of celery is a subject that may appear to your readers to need very few directions, as it is so generally understood in our gardens. But having been more than usually successful in growing this fine vegetable on a large scale, perhaps a few remarks, giving the detail of my mode, may not be unacceptable to your readers.

I raise my crop of celery mostly for the winter's supply; and, to simplify the matter, I shall only speak here of the main crop. Those of your readers who wish to have it *earlier*, may easily do so by starting the plants in a hot-bed, about the middle of March.

The best time for the sowing for the main winter's crop, is about the first of April. Although I have succeeded perfectly well, by sowing on a rich warm border, yet to insure against the accidents of a cold and untoward season, I usually sow in a slight hot-bed, and cover, as usual, with glass.

About the middle of May I choose a bit of ground in the warmest and richest part of the garden for the "stock bed." This I prepare, by digging it thoroughly, and mixing with the uppermost six inches of the soil, as rich a coat of old manure as I can well incorporate with it. In this plat or bed, thus well prepared,

I prick out the plants from the hot bed, three inches apart every way, watering them thoroughly every day, when the weather is not damp or rainy.

Here they grow until about the 10th or 15th of June—the season for the final planting out. Having fixed up the ground for my celery patch, I have it well *trenched* two feet deep, with a spade, if it has not been trenched previously. In the trenching, I bury all the best top soil in the bottom of the lower spit, and throw the clayey or gravelly subsoil on the top. The reason for this procedure is obvious. You always set celery plants in a *trench.* If you take off half the top soil to make this trench, it is evident that you have but a very poor bottom left, on which to grow celery. On the other hand, if you make the soil of double the usual depth, and put the best soil at the bottom of the two feet, it is placed exactly where it is of most benefit to the roots of the plants; while the poorer subsoil, being on the top, answers equally well to raise about the stalks, in order to blanch them.

Very well; at the 10th of June, then, I mark out my plat of trenched ground into trenches three feet from each other. The trenches themselves should be dug a foot wide, and eight inches deep. You can scarcely make the soil in them too rich; and I have ascertained by experiment, that the celery plant not only likes common stable manure, but is also very fond of bone dust, or horn shavings. I therefore, in preparing the trench, put half a *peck* of either of these substances to the soil of *every fifty feet* of trench, and a quart of fine packing salt. Then the whole manure, bone dust, etc., is well incorporated in the sôil of the trench, to the depth of six or eight inches, and you are ready for the transplanting.

It is best to do this in a dull or cloudy day. But if it is properly done, that is, with *balls* of earth to each plant, one day will answer nearly as well as another. In order to accomplish this, the stock, or nursery bed, in which the plants grow in their second stage, must be thoroughly saturated with water, two or three hours in advance. Then, with a trowel, take up each plant separately, with a small ball of earth, lay the balls in a sieve or basket, and carry them at once and plant them in the trenches. If it is well done, as it may indeed be with the greatest facility, not one plant in five hundred will fail; and they will scarcely suffer the least check, and will require no shading.

About earthing up the plants, in order to blanch or whiten the stalks, there is a good deal of difference of opinion; but it is all easily reconciled. If you wish *very large* plants, you must not commence blanching till the last three or four weeks. If you do not care about the size of the celery, but only the *delicacy* and *crispness* of flavor, you must commence earthing up about the

middle of August; doing it frequently, and very little at a time, in fine dry weather.

The two best sorts of celery that I have tried, are *Seymour's White Solid* and *Red Solid.* But, after all, I have raised as heavy and as fine plants of the *Common White*, by the mode here given, as of either of those varieties.

A word or two about *keeping celery for winter use*, may not be out of place here. Many persons complain of the difficulty of keeping it in winter—its rotting in the cellar, root house, etc. The method I have employed for nine years, is a very simple, easy one, and I have never lost a single head by it, though I have raised and kept many thousands. It is as follows: in November, when the frosty weather sets in, and the time for digging the plant comes, choose a high and dry part of the garden, in any convenient place; level it, and begin at one side to-open a shallow trench, deep enough to *lay in* the roots of the celery close together, burying them in an *inclined position*, so as to cover all the blanched part of the stalks, only leaving the green leaves at the top exposed. The next row may be put within three inches of the last, and so on, row inclining upon row, till the whole is laid in. In this compact way, the space required for a large crop, will be only a few feet square. This done, cover the whole, as soon as the winter sets in, with *two and a half feet of straw*, covered with a few bits of wood to keep it down. This will most effectually keep out all frost, while the temperature of the soil itself is so low, that there can be no decay or change in the plants. At the same time, by removing a portion of the straw on one side, the celery may be reached at any time during the winter when required.—*Horticulturist.*

MOUNT AIRY AGRICULTURAL INSTITUTE.

(See Plate—Fig. 26.)

We took occasion in a former number of this Journal to notice, briefly, this institution. It is now in successful operation, and bids fair to be very useful to the rising generation. The want of such an institution has long been felt, and we presume will be properly appreciated.

Mount Airy is situated in Germantown, seven miles north of the city of Philadelphia. The situation is proverbial for its salubrity, and is, we are informed, eminently adapted to the objects of such a seminary.

MOUNT AIRY AGRICULTURAL INSTITUTE, GERMANTOWN, NEAR PHILADELPHIA.—Fig. 26.

"The system of instruction is such as to afford the student every facility for acquiring a thorough knowledge of scientific and practical agriculture, with the use of the best modern farm implements and machinery. But the subjects which receive attention are not such as are calculated to make *farmers* merely. The institution is a literary one, of which the department of agriculture forms an important and distinguished branch, and it will afford the best opportunities in regard to commercial and classical education. Here, therefore, young gentlemen may prepare for the counting house, for college, or for any other respectable course or profession."

"To secure these ends, the branches to be pursued, and the facilities enjoyed, are briefly as follows: The subjects being arranged under four heads or courses; the *General Primary*, the *Agricultural*, the *Commercial*, and the *Classical*."

"*General Primary Course.* This consists of the ordinary English studies, and also includes simple book-keeping, general mathematics, as geometry, algebra, &c., the science of government, and the principles of laws."

"*Agricultural Course.* Instruction in natural philosophy, particularly mechanics, hydraulics, and pneumatics, and their connection with the construction of implements, and the movement of machinery. Also the natural sciences generally, including elementary and agricultural chemistry, with practice in the *analysis of soils*, and their varied products. Mineralogy and geology, as well as botany, and the phisiological structure and economy of the vegetable kingdom will receive special attention. Entomology, and other branches of natural history, will be attended to."

"Those applications of mechanics which interest the culturist, will form a portion of this course: surveying, trigonometry, leveling, mensuration, &c., with the use of instruments, field practice and mapping. The sketching of implements, animals, views from nature, and architectural and prospective drawing, will receive its share of attention."

"The practical facilities which the institution has the means of affording in this course, cannot be surpassed. There are seventy acres of tillable land which has been for years under a highly judicious method of cultivation."

"The students engage directly in all that is connected with every description of crop to which the climate is adapted. There being an abundance of fruit, and ornamental trees and nurseries on the premises, their care and management occupy much attention. The gardens, the exotic plants, and the shrubbery, are such as to afford the advantages of instruction in horticulture and floriculture."

"Particular attention is given to the management and breeding of domestic animals. The farm supports a large herd, and the students are expected to have the most complete knowledge of all that is connected with such particulars."

"A library of American and European works, and the agricultural journals of the country, are furnished for the reading of the students."

"A term of four years will be necessary to complete a full course in this department."

"*Commercial Course.* Book-keeping by double entry, business arithmetic, and commercial forms and correspondence, will be taught in the best manner."

"*Classical Course.* This includes the Greek and Latin languages, and the necessary preparation for any class in college."

"The nature of the institution is, therefore, such, that here, free from circumstances that are repulsive, and from influences that are immoral, is a location attractive and healthful, in extensive grounds, and surrounded by whatever can incite to study, to exertion, and to ennobling employment, by the assistance of competent and experienced teachers with whom they are associated as members of the same family, enjoy the most desirable opportunities, and prepare themselves to occupy respectable and useful positions in society.

Such is the character and instruction at this institution, and we have no hesitation of recommending it to the notice of young gentlemen who have not finished their education, whether they design to embark in agricultural or any other business.

RATIONALE OF CLIMATE.

However great may be the fluctuations of temperature in the same months and seasons—however sultry the summer or cold the winter, in any particular year, its mean temperature varies but little from the climatic or average actual mean of the locality, when once correctly ascertained; and, even the greatest variation between one year, and any other the most opposite in character, and extending over a long period of time, when accurately expressed in figures, appears so trivial, that except to the meteorologist it fails to convey any adequate idea of the excess or deficiency of heat, or of the absolute difference in temperature between the periods in question.—*Jameson's Jour.*

ANIMAL EXCREMENTS CONSIDERED AS MANURE,

[From the Journal of Agriculture.]

It is always a pleasure to read a book when the author is in earnest on his subject—the importance of which the question bears in his own estimation is sure to be communicated to his readers. It is in opposition to the most settled opinion of human nature to expect that we can interest others in that in which we are not interested ourselves. There can be little doubt but that it is to the earnestness with which they have treated their subject, that the honored names of Liebig, Boussingault, Johnston and others are indebted for their present position. Though the author of the interesting work now before us, has only treated on one subject connected with scientific agriculture, yet he has done so in such a clear, lucid manner as to merit our attention.

M. Gerardin, in his introductory address, states that his greatest wish is to show, not *the theory, but the practice* best adapted to general use. His text is—

"The base of agriculture is manures; and of all manures, animal excrements are the best adapted to our varied soils and crops. Observation of the plainest facts must have shown you that good crops are insured by the abundant application of manures. But to manure well, you must have plenty of manures; and if you are unable to do the former, it is because you neglect the means within your reach of improving the quality and increasing the quantity of your farm-yard manures. Your own interest requires the immediate removal of this evil."

It is well known that the nature and properties of manures depend on, 1st, the species of animal from which they are derived; 2d, on the food given to them; 3d, on the substances with which they are littered; and, 4th, especially upon the care bestowed upon their management.

1*st. On the relative value of the different Manures derived from various Animals.*

From Birds.—The attention of the whole civilized world has been for the last few years directed to the desert shores of Africa and Peru, whence, between 1841 and 1844, England imported not less than 70,000 tons of the *excrements of birds.* This guano, or *huano*, (as it is called by the natives,) has undoubtedly proved of great utility to English agriculture; but its value has been very much diminished by the unscrupulous manner in which it was adulterated, rendering it impossible for any one but a scientific chemist to judge of its worth. Nothing can be more fallaciou

than to form an opinion of the value of guano by its smell or appearance. Suppose the farmer possessed of a genuine sample, he will much "improve its quality by the addition of a small quantity of gypsum or charcoal, both of which substances have the property of absorbing free ammoniacal gas."

Our author states as his opinion, that it is impossible that the aquatic birds of the present geological period can have produced the immense deposits found on the shores of Peru; there is, therefore, every reason to believe them to be *capriolites*, or fossil excrements of antediluvian birds." Though we believe this subject has never been carefully examined, yet it seems likely that Girardin is mistaken in the above assertion. Without seeing the place, we can form no idea of the countless myriads of birds which flock to these shores century after century. Besides, seals have been found imbedded in the guano of the same form as those which still exist in the adjoining seas; and in one case a human mummy has been found.—(*American Jour. of Science.*) We are not without hope that the fossil animal excrements, or capriolites, will ultimately be used in agriculture. They are known to exist in considerable quantities in some parts of England, especially oolite, and contain the same chemical substances as the modern deposits. It has even been shown that *urea* exists in some of these capriolites; thus making them agree to an unexpected extent, with the dung of birds now living.—(*Jour. Geological Society.*) We know of few more interesting discoveries in modern chemistry and geology than the above, except that of the little aquatic animal yielding sapia in a fossil state, when it had been entombed for countless ages, and yet furnished sufficient of its own peculiar color as to enable the artist to paint its own likeness. The English farmer will be surprised to learn, that in Flanders it is customary to pay £4 per annum for the dung of 600 to 650 pigeons.

The following analysis of the dung of pigeons and barn-door fowls will give an idea of their comparative value:

	Pigeons.	Poultry.
Water	79·00	72·00
Azotised vegetable matter	18·11	16·20
Saline, or mineral do	2·28	5·24
Insolvent matter, sand, &c.	0·61	5·66
	100·00	100·00

Both these substances have been applied with success to clover when mixed with charcoal."

Johnston, in his *Agricultural Chemistry*, has given a recipe for artificial guano, which has not, however, as yet, fulfilled every expectation. But we doubt not, in a few years, to see that substance successfully imitated.

Excrements of Herbivora.—" These manures may be arranged in the following order, to show their relative value:—1st, the sheep; 2d, the horse; 3d, horned animals; 4th, the pig." Here again it must be stated, the relative value of these substancs depends on the food given. "By way of comparison with the above analysis of pigeon and poultry manure, I now add the following of

	The Bow	The Horse	The Sheep	The Pig
Water	79·724	78·36	68·71	75·00
Azotised matter	16·046	19·10	23·16	20·15
Saline do	4·230	2·54	8·13	4·85
	100·00	100·00	100·00	100·00

It may be necessary to add, that in the above table, which places sheep manure at the top of the list, it is not the simple excrement which is alluded to. In many parts of Europe the sheep are kept in folds, where, by the constant treading of their feet, they press the dung and litter into such a compact mass as to prevent fermentation, and consequent waste of ammonia. "It is beyond dispute that the *fertilzing power* which shows itself with the greatest promptitude, is also that which is soonest exhausted. In this respect the excrements of the various domestic animals vary as much as in chemical constitution, and is an item not to be overlooked in estimating their relative value."

According to Boussingault, fresh horse-dung (when dried) contains 2·7 per cent of azote. The same substance when allowed to ferment, as it does in practice, will contain *only* 1 *per cent of azote, and loses besides nearly* 9-10*ths of its weight.*" This gives some idea of the waste which always attends the practice of neglecting the manures of the farm.

Influence of the food on the value of the manures.—"It is a fact, beyond dispute, that the well fed animal gives more excrement than the ill fed one; and that the healthy animal, particularly when fat, gives a much better manure than the lean and unhealthy animal."

By the experiments of Bloch, the proportion of manure to the food consumed, is (by weight)—

For the ox	0·42
" " horse	0·42
" " sheep	0·40

But these results vary not only with the food given, but also "the condition under which the animal is placed. For instance, the milk cow will give a much less azotised manure than that of the ox; because the azotised principles of the food are employed in the production of milk. For the same reason, observes M. Boussingault, the excrements of young animals form a much poorer manure than that derived from adults."

On the nature of litter given to animals.—It has been ascertained that the straw of our various cultivated plants is of very different relative value as manure. It is not, however, our intention to enter at too great length on this part of the subject, and we will only urge upon those interested in this question to waste no kind of vegetable matter within their reach. "And when they have not sufficient straw to absorb the liquid manure, we would strongly urge the use of sawdust, or even sand,—above all, waste *nothing*.

Without saying more, we give the following extracts:--Oat straw contains a large quantity of potash: we may thence conclude, that for a field to produce good oats, the soil must at least contain a sufficient quantity of that substance. There can be no disputing this assertion, and it may, perhaps, in part explain why such beautiful oats are grown in the neighborhood of the Cheviot Hills There is a good deal of basalt in that district, which it is well known yields a large proportion of potash. "The straw of buckwheat contains a much greater proportion of magnesia than almost any other of our cultivated plants. It may, therefore, be inferred that a favorable soil for this plant must contain plenty of magnesia. These soils are generally very poor, yet seem the most favorable for the growth of buckwheat. It is evident from the above that the future researches of science will undoubtedly prove of great importance to practical acgriculture."

Without entirely disagreeing from the above statements, it is also necessary to bear in mind that the presence of one substanc alone is not sufficient to insure the vigorous growth of plants. Though potash and magnesia may be *necessary* to the growth of oats and buckwheat, there are many other substances which we must at least allow to be *useful* to these two plants.

Improvement in Grinding Wheat.—A new mode of grinding has of late been invented in Maryland, consisting of ridding the grain of its skin or bran before grinding. This is said to be done very completely, and to be attended with several important advantages. These are, that all the different sorts of wheat, the red as well as white, are rendered equally good, other things being equal, whereas the red wheats are now sold in most markets for several cents less per bushel than the white. All the brown particles are removed effectually from the flour; a saving of from 40 or 50 pounds per barrel is gained; time is also saved to the amount of from 25 to 50 per cent. The flour is greatly improved for hot climates—a very important item to the shipping interest. —*Prairie Farmer.*

LIME.

By burning and slakeing, the lime is reduced to the state of impalpable powder, finer than could be obtained by any available method of crushing. It can in consequence be diffused more uniformly through the soil, and hence a smaller quantity will produce an equal effect. This minute state of division also promotes in a wonderful degree the chemical action of the lime. In all cases chemical action takes place between exceedingly minute particles of matter, and among solid substances the more rapidly, the finer the powder to which they can be reduced.

The effect of burned lime is more powerful and more immediate than that of unburned lime in the form of chalk, oyster-shells or marl. Hence it sooner neutralizes the acids which exist in the soil, and sooner causes the decomposition of vegetable matter of every kind to commence, upon which its efficacy, in a greater degree, depends.

Further, quick-lime is soluble in water, and hence every shower that falls and sinks into the soil carries with it a portion of lime, so long as any of it remains in the caustic state. It thus reaches acid matters that lie beneath the surface, and alters and ameliorates even the subsoil itself.

In the analysis of the ashes of wheat it is found to contain 37 per ct. of lime; oats 26, barley 16, rye 21, potatoes 66, red clover 38.

Among the elements which enter into the composition of soil, lime would seem one of the most useful. From the above, it would appear that potatoes take from the soil nearly twice as much lime as either article named. In order, therefore, to raise a good crop of potatoes, it is necessary the soil should be replenished with lime. It is evident that in course of time, and constant cropping, especially with the before mentioned articles, lime would be constantly consumed, therefore it requires replenishing.

Quick lime in its pure state, whether in powder or dissolved by water, is injurious to plants. Grass is killed by watering it with lime water. But lime in its state of combination with carbonic acid, is a useful ingredient in soils. Lime is found in the ashes of the greater number of plants.

To Destroy Sorrel.—Manure well early; plow deep early; harrow well; plant corn three or four feet each way; pass the cultivator through every ten days, till the middle of summer; then sow twelve pounds of clover seed per acre, and pass the cultivator again. Clover will take the place of the sorrel.

BUCKWHEAT.—POLYGONUM FAGOPYRUM.

Fig. 27—Buckwheat.

This grain is much grown in this country, and is supposed to be a native of Siberia. It grows freely on poor soils, of a silicious or calcareous nature, but like other cultivated plants, only yield a remunerating crop on those soils which are fertile. Sandy loams seem best adapted to its growth, and from twenty to thirty bushels are obtained from an acre. The blossoms afford considerable food for bees, and it is often cultivated for that purpose, although the honey thus obtained is considered much inferior to that made from clover blossoms.

There are other varieties than those specified, *Polygonum fagopyrum*, (*a*), *tartaricum*, (*b*), but none of equal value for general cultivation. A new Italian species, called Indian Buckwheat, was introduced a few years ago which yields more abundantly, but of a very inferior quality. Some yield good yellow dye; others are acrid and poisonous.

The seeds of this plant contain 50 per cent. of starch, and 1½ per cent. of earthy matter. When ground into meal or flour, it is much used as human food, for making griddle cakes which are highly relished for breakfast in many sections of this country.

The Maine Farmer recommends the cultivation of buckwheat to destroy couch grass, and it was formerly employed as a fertilizer; but for this object it is now considered inferior to the clovers. Its rapid growth will admit of two crops being turned under in one season. It is also cut for soiling milk cows, and is very good mixed with clover, but too much is apt to produce looseness and drowsiness. The stalk, when well cured, is a good rough fodder, and forms a valuable addition to the cattle yard. It has been shown on the most authéntic data, that it is superior to common straw, and of half the value of prime hay.

The grain is much used for fattening swine, but is much improved by being mixed with corn and ground. Cattle and poultry eat the seeds or meal; it is rather superior to oats, as the following composition shows:

"Woody fibre,	25·
Starch,	50·
Albumen, &c.,	14·5
Oil,	0·4
Salts,	1·5
Water,	16·0
	100·0

Its ashes sometimes contain an excess of potash salts, sometimes of lime, there being isomorphous."

It may be sown in the latter part of May for a full crop; or immediately after rye or wheat for a fall crop. In favorable seasons it will do well sown as late as the first week in July. It is sown broad-cast, and from one to one and a half bushels of seed to the acre. It soon starts in a warm dry soil; flowers early and continues producing flowers until full-grown. It is sometimes injured by early frosts, which are fatal to it. It should therefore be cut in September or early in October. As the seeds are apt to scatter, it should be cut early in the day. In consequence of the succulence of the stems, and is so liable to heat, it requires to be put in small bundles, tops twisted together, and the bottom spread out to admit air. When perfectly dry it should be threshed out at once, and the straw may be stacked with layers of straw, and when well cured, it will be a valuable fodder for cattle. Sheep will feed and thrive as well on this straw as good hay.

THE STRIPED BUG.

We find in the Vermont Agriculturalist the following, recommended as a sovereign remedy for that pest of the melon vines—the striped bug.

Take half a peck of manure from the hen-roost, put it in an old tub or box, and add four gallons of water. In twenty-four hours, by stirring it two or three times, it will be ready for use. Put half a pint of this liquid upon a hill of melons or squashes, and the *striped bugs* will certainly vanish. At least we have found it so on repeated trials, for several successive seasons. The bugs may not every one vanish on the first trial; and they may re-appear; but we have never had a vine injured after this application. Besides protecting the vines, this liquid is the very best of manure, and the application may be frequently repeated, wetting the leaves if a stray bug or two should linger on them, without apprehending any harm. The manure tub will bear to be filled up several times with fresh water. The only objection to this plan is made by the olfactory nerves.

FISHES—NEW SPECIES.

During the visit of Prof. M. Agassiz to this city for the purpose of delivering a series of lectures, on natural history, it was our good fortune to obtain from our friend Simmons, three specimens of fish which were brought from Oneida Lake. At the time of purchasing we were not aware of obtaining a new variety or species, that had escaped the notice of Dr. DeKay in the natural history of the state. Two of them being new to *us*, we presented them to Prof. Agassiz for examination, who immediately said they had not been noticed in the above work, nor by any naturalist. The "mud-fish," as the Prof. calls it, we purchased for a muscalunge! Never having seen one, we purchased it for our table, supposing we should have a rarity, which, no doubt, would have been the case, but not of that kind to please the palate.

The centrarchus, as the Professor calls it, is a very fine looking fish, resembling in external appearance, in a measure, the common sun-fish of our lakes and streams, but larger and more beautifully marked. The pickerel, to us, looked just like—a pickerel.

The following letter was received a few days since from our friend Agassiz, which we take great pleasure in laying before our readers, and feel not a little gratified that our Journal should be the medium by which it should first be made known:

Dear Sir—I ought to have thanked you sooner for the fishes from Lake Oneida, which you presented me. They have proved highly interesting. The mud-fish, *Amia occidentalis*, was not known to occur in the state of New York, except in Lake Champlain. The pickerel which might have been mistaken for *Esox sucius*, has proved, after close comparison with European specimens, to be a distinct species; and as to the other fish, it is altogether new. It belongs to the genus *Centrarchus* and is allied to the *C. sparoides* of South Carolina, but from actual comparison with southern species, I have ascertained that it is a distinct species. A few days ago I received another specimen of the same species from Chicago, through the kindness of Mr. Clarke.

My draftsman having left me for the west, I have not been able to have a drawing of it made for you.

Sincerely yours,

M. AGASSIZ.

ON USEFUL INSECTS AND THEIR PRODUCTS.

BY JAMES H. FENNELL.

Though insects far exceed, in the number of species every other class of animals, yet comparatively few species of this class are turned to any useful account in the arts, manufactures, and domestic economy. We must not, however, conclude from this circumstance, that the thousands of species that are never used by man are therefore destitute of any properties that might be advantageous to him. When the manufacturing portion of the people shall have acquired a more extensive knowledge of the various properties and secretions of insects which entomologists have already noticed and recorded, then, perhaps, a greater number of species will be recognized as useful. Linneus observes that "the man who shall take delight in studying insects, may have his labor rewarded by the discovery of a more grateful sweet than honey, a stronger thread than that of common silk, a more glowing crimson than that of cochineal; but he will require patience, perseverance, and repeated observation." Admitting that the number of species that are rendered useful is comparatively small, yet I doubt not that I shall be able to show that it exceeds what most persons would suppose.

To render the subject more clear and intelligible, and also for the sake of convenience, I shall arrange my examples according to the classification of the species to be cited, and not according to the nature of their services.

1st. *Coleoptera.*—In this order, consisting entirely of beetles, are many that contribute to the necessities and some to the vanities of man. The larvæ, or grubs, of various species, are eaten in different parts of the world; and those who eat them assure us that they equal in excellence the best dishes that are enumerated in our cookery books. The grubs of all the African beetles that feed upon decayed wood, Smeathman affirms to be rich and delicate eating; and every traveller might, therefore, get plenty of this wholesome nourishment, did he but know where to seek it. In the cavity formed in the stem of the cabbage palm, owing to the removal of its cabbage-like produce, the palm-weevil (*Calandra*, or *Cordylia palmarum*) deposit her eggs, and the grubs which are hatched from these are eaten as great delicacies. These grubs are also found in some places, devouring the terminal buds of cocoa trees. Each of these grubs has a black head, and when fully grown is about as large as the thumb—that is to say, from two to three inches in length, and three quarters of an inch in diameter. Ælian mentions an Indian king who sat before his Grecian guests some roasted worms taken from a plant; but there can be no doubt that the historian alludes

to the grubs of this beetle, for he adds, that the Indians esteemed them very delicious, and that so, likewise, did these Grecians, who were prevailed on to taste them.—(*Ælian Hist.*) In both the East and West Indies, these grubs are in great repute at the present day. Madame Merian, in her very faulty work on the insects of Surinam, tells us that the natives of that country roast these grubs, and then eat them with great enjoyment.—(*Merian's Insects of Surinam.*) Stedman relates that a Negro brought him a feast of *gru-gru*, by which name these cabbage-palm grubs are known throughout the West Indies. "However disgusting they may be in appearance, these extremely fat grubs are," he declares, "a delicious treat to many people, and they are regularly sold at Paramaribo. The manner of dressing them is by frying them in a very little butter and salt, or by spitting them on wooden skewers. In taste, they savor of all the Indian spices, as mace, cinnamon, cloves, nutmegs, &c. Several species of these grubs are produced in all the palm-trees, when beginning to rot, but some are larger than others; they have all, however, pale yellow bodies, with black heads."—(*Stedman's Surinam.*) The Rev. Lansdown Guilding says the cabbage-palm grubs are eaten by a few persons in Surinam, that they are fried in butter, and that the greedy epicure, holding the hard, horny head of the insect between his fingers, sucks out the fat entrails.—(*Mag. of Nat. Hist.*) Kirby and Spence were informed by a person who had long resided in the West Indies, that Sir John La Forey, who was somewhat of an epicure, was extremely fond of these grubs when properly cooked. (*Introduction to Entomology.*) Mr. H. Marshall, deputy-inspector of army hospitals, says that in British Guiana, where these grubs are called *ducuma*, or *grugan*, they are reckoned a great delicacy by the gourmands and wood-cutters, and are generally cooked in a frying-pan. Some, however, prefer them raw, and in that state they seize them by the black head, dip them in lime-juice, and then swallow them.—(*Field Naturalist.*) Another traveller states that the palm-tree grubs are esteemed such great delicacies in one part of the world, that they are monopolized by the royal family and mandarins of the first distinction. "A present," says he, of about a dozen of these grubs was sent to us by the viceroy as a mark of great respect. We did not eat them, but gave them privately to a woman, who was highly delighted with the delicacy that our fastidious taste rejected." The Rev. F. W. Hope says, "In Surinam, in America, (?) and in the West Indies, not only the black but the white inhabitants, wash and roast the grubs of the *Cerambyx damicornis*, (each as thick as a man's finger,) and then eat them, and assert that they are delicious."—(*Merian's Sur. Insects.*) The adoption of the foregoing hints would soon have the good effect of lessening the numbers of these destructive insects.

In order to acquire that plumpness which is deemed in the East a beauty, the women of Arabia and Turkey swallow every morning, three specimens of a *Tenebrio* dug out of the filth of the garden and fried in butter. Curtis says that the Turkish women cook and eat a certain beetle (*Blaps sulcata*,) in butter, to fatten themselves.—(*British Entom.*) By this time some readers will have shrugged their shoulders and turned up their noses with disgust at the grub-eating epicures, who, it must be observed, are by no means few in number nor peculiar to one locality. There exists no sound reason why grubs, when cleaned and nicely cooked, should not be as proper for the table as poultry, which are so fond of them. When an English traveller expressed his surprise and disgust at some Arabs eating insects, the men justly retorted that it was poor affectation in a person who could swallow a raw oyster. The first man that ever made the experiment of swallowing a raw oyster must have been a rare brave fellow; but while we thank him for introducing us to this delicicious mollusk, we may regret that he did not display his gastronomic courage upon cockchafers and other small short-horns.

Kirby remarks that "many insects emit very powerful odors, and some produce extraordinary effects upon the human frame; and it is an idea not altogether to be rejected, that they concentrate into a smaller compass the properties and virtues of the plants upon which they feed, and thus afford medicine more powerful in operation than the plants themselves. It would be worth while to institute experiments to ascertain the truth of this view. Several species of beetles are used medicinally. In Europe, the *Lytta*, or *Cantharis vesicatoria*, is an important article, better known by the incorrect appellation of Spanish-fly. It is exceedingly abundant in the southern parts of Europe, particularly in Spain. Numbers of this useful and beautiful beetle are collected from the leaves of different trees which they haunt in June and July, and are then destroyed according to the recommedation of Dioscorides, by the fumes of strong vinegar, and then dried in the sun. They are not only used externally as a vesicatory, but internally as a stimulant and diuretic. Dioscorides, Galen and Pliny, entertained the notion that the *virus* existed only in the body of the beetle, and that the head, feet and wings contained its antidote. Mr. G. Munby says that *Cantharis vesicatoria* is extremely abundant in certain parts of Dijon, in France. "I saw," says he, "an ash tree hanging over the road so crowded with them, that their excrements literally blackened the ground; and on passing underneath the tree, I felt my face as if bit by gnats. They have a disagreeable, sickening smell, which may be perceived twenty or thirty yards off, according to the direction of the wind. They are sold at about six shillings per pound, when dried.—(*Mag. Nat.*

Hist.) In America, where this species is sold at sixteen dollars per pound, two other species (*L. Cinerea*, *L. vittata*), that are extremely common and noxious, have been substituted for it with great success, and are said to vesicate more speedily, and at the same time less painfully, from their causing no strangury.

The Chinese ladies embroider and adorn their dress with the elytra or wing-cases of a brilliant species of beetle (*Buprestis vittata*). In Chili and the Brazils, splendid necklaces are formed of golden tinted weevils (*Curculionidæ*) and of certain other beetles (*Chrysomelæ.*) At Rio Janeiro, a rather lucrative trade is carried on in brilliant beetles, which are sold at fourteen shillings per hundred, being purchased for the sake of their pretty wing-cases, now employed to adorn the ladies of Europe. The diamond-beetle is in great request for gentlemen's broaches, and ten piasters are often paid for a single specimen. In some parts of the continent, the burnished violet-colored thighs of the dorr beetle (*Geotrupes stercorarious*) are strung together for the same purpose; and it is remarkable that similar necklaces made of several specimens of a small species of *Scaraboeus*, are frequently found on the Egyptian mummies.—(*Wild's Narrative.*)

Several species of luminous insects are used instead of candles in various parts of the world. Among the beetles so employed, the most distinguished is the phosphorescent click beetle, (*Elater noctilucus.*) "It is called *cocujas* in South America, where it is not uncommon; it is about an inch and an half long, of a brown color, with the thorax marked on each side by a smooth yellow, transparent spot, highly luminous, and diffusing so brilliant a light at night that a person may, in a favorable position of the insect, see to read the smallest print. Besides these, however, there are two luminous spots beneath the elytra, or wing cases, only visible, of course, when the insect is on the wing, and then it appears studded with four rich and vivid gems of a blue lustre; in fact, the whole body seems a flood of pure light. In the West Indies, particularly at St. Domingo, the natives employ these insects to give light in managing their household concerns. In traveling they are wont to attach one to each toe, and it is stated that in fishing and hunting they require no other light. Pietro Martire informs us that this beetle serves the natives of the Spanish West Indies not only as a light to illuminate their houses but to extirpate the gnats; on introducing the fiery beetles the gnats become their prey. On festive days these beetles are collected and attached to their clothes and horses; and, according to the same author, the luminous matter is sometimes rubbed over the face. We are told by Mouffet that the appearance of the tropical fiery beetles on one occasion led to a singular result. When Sir Thomas Cavendish and Sir Robert Dudley first landed in the West Indies,

the flitting and moving lights of these insects in the woods impressed them with the idea that the Spaniards were advancing, and they returned in consequence to their ships.—(*Murray's Researches in Nat. Hist.*) Eight or ten of these insects put into a phial will yield a light equal to that from a common candle; and it is said that this was the only light used by the natives of Hispaniola, &c., prior to the arrival of the Spaniards." This species is not the only one of the genus that is used in this way. We are told that the ladies in India inclose the fiery beetles in gauze, and thus carry them in their hair when they take their evening walks. Mrs. Ashmole says that at night time the fiery beetle will cause some alarm to the stranger in India, when its bright glow is discovered amidst the folds of a delicate white muslin garment. Mr. Turnbull tells us that luminous insects are numerous in Cuba, and that a dozen of the large fiery beetle, called the *cocuyo*, will, when enclosed in a cage, emit so much light, of a brilliant green color, as to enable you to read by it; and that the late clever and excentric Mr. Joseph of Trinidad, is stated to have written several volumes by this light. The insects, he adds, may be preserved alive for three months or more, provided they are frequently bathed, and their favorite food—a piece of sugar-cane, stripped of its bark —renewed at least daily.—*Turnbull's Travels.*

The space forbids us pursuing this subject further for the present. We shall, however, recur to it again in our next number.

COMPOSTS.

BY WILLIAM BACON.

It is a universal principle in nature, that nothing shall be lost. Hence we see the firmest rocks of the mountain, as they are worn down by the rough hand of time, borne along in their disintegrated parts by the wild rivulet that skips from precipice to precipice, until they are deposited in the vale below, to give fertility to its lovely surface. The leaves fall from the forest trees when they have done their service to the spreading branches, to moulder in decay, and not only do they protect the earth by a kind covering from the extremes of varying atmospheres, but as they waste away they are resolved into new elements, contribute to new combinations, and again appear to regale the senses and gladden the heart of man with new forms of beauty, and fresh objects of utility to the various purposes which his necessities demand. And it is so with every object which we can present to the imagination in this world of constant and uninterrupted changes.

To all the causes and effects of the changes of the natural world offers subjects full of interest and worthy of investigation, and especially to the cultivators of the soil, men whose operations are almost restricted to this *grand laboratory*, where analysis and combinations are continually taking place; men whose interests, whose deep successes or irrecoverable losses are wholly to result from such arrangements; these subjects require studious and practical attention. To them "gather up the fragments, that nothing be lost," is a lesson clearly inculcated by these observations.

In no part of the farmer's operation is there more remissness manifested than in the saving and application of manures, whereby the productiveness of his lands are increased. It is probably safe to suppose that the real benefits which might result from judicious creation and application of fertilizing agencies, are not one-third realized. How many substances are yearly allowed to moulder away around every farmer's premises each year, which are not only nuisances, secret underminers of health and comfort, while the process of decomposition is going on, but which give their richness to the winds, to be distributed like the loathsome weed and the useful plant. How much richness is annually borne away by showers, to lands from which there is no returning benefit? The stagnant pond-hole, the ditches of the way side, the bottom of the river, and even the bed of the ocean, are full of enriching substances, which have been borne from contigious regions, and are lost to all the practical purposes of utility.

To prevent such great wastes of valuable materials, it should be the object of the farmer each year, to form a compost heap or general receptacle, where all substances tending to decay, and liable to be floated off by rains, or wafted by wind, should be collected for careful preservation.

To facilitate this, the dishing barn yard forms a suitable depository, where weeds, muck, turf, the offal of butchering, soap suds from the wash-room, indeed every thing liable to waste or decay may be thrown into a heterogenous mass, and ere long constitute a mine of more value to the possessor, certainly, than many of the fancied deposites of Kidd's treasures, on the equally risky gold mines of which the imaginations of too many dream so fondly.

If such a compost heap has not been already began *now*, when weeds are growing rapidly, and decay will work fast, it is a proper season for commencing. Throw in weeds, brake leaves, straw, if you had any left, ashes leached or unleached, lime, and let your swine work what they will among it, and your cows trample over it, and there will be no mistake but you will accumulate a valuable mass before the setting in of winter. But be sure to keep plenty of loam there, for its absorbent powers will

drink in quantities which, not for it, might pass off to load the atmosphere with noxious effluvia that may engender disease.

We have seen liberal quantities of compost manufactured in a season, by thus collecting the *littles* which would otherwise been of trifling account, without much encroachment of time, or toil of labor. In November, previous to the setting in of frost, we have seen these contributions distributed over the meadow as top-dressings, and when spring awoke at the soft whisperings of southern breezes, we have seen the tender herbs and the blade of grass spring up at her early bidding, there arrayed in robes of richness and health — and when summer came, bringing the rich treasures of the early harvest, we have seen the rich swath and the heavy winrow there; and in autumn, when fierce winds were driving the dry leaves from the solitary forest, we looked upon that spot, and verdure lingered there, to bid farewell to the last fading leaf, and deck the grave of faded vegetable nature with its lovely assurances of a resurrection, when the death-like winter of the year was passed.

And when a second spring time came, it was from that spot last visited by decay, that the earliest shootings of green gems was seen to awaken joy in the heart of the husbandmen, that nature was ever ready to aid his operations in causing the earth to smile in beauty and produce abundantly for the comfort and happiness of man.

Elmwood, July, 1848.

BEST PLAN OF A BARN.

It has been remarked that no building on the farm in the northern states is of more importance than the barn. Those who have had the charge of cattle during our long winters, can at once see that much time and hard labor could be saved by a judicious arrangement of stalls, and bays, granaries, &c., so that every creature could be fed by taking as few steps as possible. One very important thing to be considered, is the best mode of preserving as well as collecting manure, so that it shall retain all its valuable properties in the spring and be easily got out. We like the plan of having a barn on the side of a hill, and so arranged that you may drive your team or cart load pretty near the ridge pole, and thus pitch most of your hay down, instead of up. Having your stalls near, you can continue to pitch the hay down, and if you have a cellar beneath, you can throw the manure down also, and thus make the attraction of gravitation perform much of the labor of transportation from the mow to the manure cart.

ALBANY AND RENSSELAER HORTICULTURAL SOCIETY.

The first meeting of the above flourishing and useful society for 1848, was held in the large and spacious saloon of the Geological Museum, on the 14th ult., when a rich display of choice fruits, flowers, and vegetables were brought forward, proving that the cultivators and members of the society are fully alive to the acquisition of new and rare articles from all parts of the world. A more rich and rare display of roses, we venture to say, has not been seen at the shows of many of the older societies.

The Hall was opened to the public at 2 o'clock, when an admiring throng, comprising the rank and beauty of the city and neigborhood, honored the society with their presence.

We take the liberty of reminding the members of the importance of these exhibitions, in exciting competition, and in diffusing a taste for the cultivation of flowers, fruits and vegetables, and that every member might contribute in keeping alive and in increasing the interest of their meetings, by producing whatever fruits or vegetable production he may have in his possession that is remarkable of its kind.

We will not close this brief notice, however, without calling the attention of our *citizens* to the commendable efforts of the active members of the society in endeavoring to give character to its displays, and we cannot but hope that though they cannot generally contribute to the shows, they will by becoming members of the society contribute by their means to its prosperity and usefulness.

The following are the reports of the committees, &c.

Fruit.

The Committee on Fruit reported that there was exhibited by Joel Rathbone, of Kenwood, Cincinnati Pine and Virginia Scarlet Strawberries. The Cincinnati Pine is a new variety from the West, said to be prolific and hardy, and without being of first character, is a desirable variety.

By Volkert P. Douw, of Wolvenhook, Greenbush—Iowa and Ross Phœnix Strawberries.

By Dr. John Wilson, of Bethlehem—White Alpine, early Virginia Scarlet, and Black Prince Strawberries.

By E. P. Prentice, of Mount Hope—Ross Phœnix, Virginia Scarlet, Bishop's Orange, early Scarlet and Hovey's seedling Strawberries.

By Dr. Herman Wendell—Boston Pine, Iowa, and Hovey's seedling Strawberries; also, foliage, flowers and unripe fruit, of the new and much talked of Aberdeen Beehive—but the plants, having been imported this season, were not sufficiently strong to develope the fruit so that the committee might be enabled to judge of its true character.

By B. B. Kirtland of Greenbush—Iowa Strawberries of beautiful appearance.

By Luther Tucker of Hope Cottage, Bethlehem—Royal Scarlet, a fine variety, of beautiful appearance, much resembling the Ross Phœnix, and Stoddart's Washington Alpine Strawberries.

By Jacob Henry of Watervliet—early Virginia Scarlet Strawberries.

By E. Wickes, of Albany—Royal Scarlet and Iowa Strawberries—the latter is a variety recently introduced from the West; it is prolific, hardy, agreeable in flavor, large in size and beautiful in appearance, but will not bear transportation, as it becomes soft, and it does not possess the high flavor of many of the older and favorite varieties.

The committee awarded the first premium of $2 to Volkert P. Douw of Greenbush, for beautiful specimens of Ross Phœnix; and the second premium of $1, to E. P. Prentice of Mount Hope, for well grown and beautiful specimens of Bishop's Orange—a well known favorite variety.

In coming to a decision as to the merits of the respective varieties, the committee took into consideration the size, flavor and general appearance of the specimens offered for competition.

HERMAN WENDELL, Chairman,
B. B. KIRTLAND,
WM. BUSWELL, Committee.

Plants and Flowers.

The committee on green house plants and flowers report that there were exhibited by Joel Rathbone, of Kenwood, pelargoniums in pots, Bridegroom, Dowager Queen, Victoria, Garths Perfection, Duchess of Kent, Anson's Superb and Imperial; Fuchsias, Coccinea, Globoso, Fulgens, Venus Victrix, Multiflora, Emeli Perfecti, Passiflora Loudonii, Stapelia Variegata, Burchillea, &c.; twelve distinct varieties of Picotee pinks and several varieties of roses, among them were Solfaterre, La Reine, Prince Albert, Rivers, Souvenir de Malmaison, &c., &c.

By V. P. Douw, of Greenbush—several varieties of pansies, eight varieties of Picotee pinks and a large number of choice roses, a list of which were not handed to the committee.

By Dr. Herman Wendell—twenty-five different varieties of roses, among them were Madam Laffay, Gen. Dubourg, Dr. Roques, Prince Albert, Great Western, London Pride, Fulgens, George the 4th, Henry Planter, Souvenir de Malmaison, Tuscan, Palagii, Luxemburgh moss, Cristata moss, Old Blush moss, Persian yellow, &c. &c.; Phloxes Van Houtii, Grato and Sauveolens, Philadelphus multiplex, several varieties of pansies, Paisley pinks, pæonies, Lady Hume and Roseum Fragrans, &c.

By James Wilson—seventy-five varieties of roses, among them were Persian yellow, Donna Sol, Marjolin, George the 4th, Madam Hardy, Queen, Leda, Princess Lambelle, Great Western, La Tour D'Auvergne, Leopold, Washington, London Pride, Nelly, Pompon Bicolor, Cerise Superba, Village Maid, Cristata moss, &c., &c.; twenty varieties of pansies, three varieties of daisies, red and white Fraxinella, Clematis Erecta and Integrifolia, perennial Indian Poppy, Pyretheums, Pæonies, Humii, Fragrans, Potsii, Revesii, &c., six varieties of beautiful Rocket Larkspurs, twelve varieties of Verbenas, six varieties of Petunias, Phloxes Maculata, Van Houtii, Suaveolens, and a large and beautiful collection of perennial and biennial flowers.

Charles H. Merritt, of Troy—twelves varieties of roses, viz: White Unique Moss, Cristata Moss, Striped Unique, London Pride, Pink Moss, Madam Hardy, Royal Greatness, Lord Nelson, Lanseseur, Queen of France, London Pride, &c.; ten varieties of Verbenas, and also a collection of perennial flowers.

Henry Vail, of Ida Farm, Troy—A large collection of beautiful Pæonies.

Wm. H. DeWitt, Albany—Royal Provence, George the 4th, Provence, York and Lancaster roses; Red Maroon and Sulfurea Dahlias; several varieties of Sweet Williams; Canterbury bells, and Pæonia Humii.

E. P. Prentice, of Mount Hope—A number of choice Roses, Pæonies and other flowers.

Dr. J. M. Ward—A most splendid specimen of Magnolia Macrophylla, grown on his farm in New Jersey, which elicited much admiration from the visitors at the exhibition.

Premiums.

The committee awarded the premiums as follows:

Roses—For the best exhibition, to James Wilson, $3. For the best twelve distinct varieties, viz: Persian Yellow, Gen. Foy, Village Maid, Washington, Pompon Bicolor, Cerise Superba, Nelly, Donna Sol, London Pride, Margolin, La Tour D'Auvergne, and Leopold, $2; for the best six distinct varieties, viz: Cristata Moss, Great Western, Leda, Queen, Danviers, Princess Lambelle, $1—both to Jas. Wilson.

Pinks—For the best six distinct varieties, to Joel Rathbone, $2. For the best three distinct varieties, to Joel Rathbone, $1.

Pæonies—For the best collection, to V. P. Douw, $2. For the best six varieties, viz: Humii, Fragrans, Potsii, Revesii, Whitlejii, and Alba, to Jas. Wilson, $1.

Pansies—For the best twelve distinct varieties, to Jas. Wilson, $2. For the best six do., to Dr. Herman Wendell, $1.

Fuchsias—For the best six varieties in pots, viz: Fulgens, Venus Victrix, Multiflora, Emile's Perfection, Globosa, and Coccinea, to Joel Rathbone, $2.

Annual and Perennial Flowers—For the best display, to James Wilson, $2. For the best six different varieties of plants in pots, to Joel Rathbone, $2.

The committee also award a gratuity of $1 to Wm. H. DeWitt, for five varieties of beautiful Dahlias.

The committee cannot close their report without expressing to the society their satisfaction at the beautiful display of choice and rare flowers offered for exhibition, nearly all of which exhibited great skill in their respective growers.

WM. NEWCOMB, Chairman,
V. P. DOUW,
J. M. LOVETT, Committee.

Vegetables.

The committee on vegetables respectfully report, that although the weather for the past month has been very unfavorable to the growth and ripening of all vegetables in the open air, in this vicinity, there was presented quite a respectable show of a number of varieties of very fine esculents in competition for premiums.

V. P. Douw, of Wolvenhook, Greenbush, exhibited Landreth's early peas, four very beautiful heads of cauliflowers, (these attracted the attention of all visitors,) some fine heads of lettuce, turnip beets, giant rhubarb, and three remarkably large cucumbers, of a variety called the "Roman Emperor."

E. P. Prentice, of Mount Hope, exhibited cauliflowers, turnip beets, giant and Victoria rhubarb, (six stalks of the latter weighing four pounds,)

early race horse and Prince Albert peas, white-spine cucumbers, (very fine,) early York cabbage, and some fine heads of Silesian lettuce.

Dr. Herman Wendell, of Albany, exhibited some stems of the Hoo-Sung, a new vegetable lately introduced from China by the London Horticultural Society, and which Dr. W. informed us, should, after being stripped of its leaves, be cooked and eaten in the same manner as asparagus, which the stems in some degree resemble. He also exhibited four new varieties of lettuce, viz: the Artichoke-leaved, the Malta, the Swedish or Sugar, and the Imperial, and some fine stems of Victoria rhubarb. The Malta was a remarkably bitter variety, but one which the committee believe, when eaten as a salad prepared with the proper condiments, will be greatly relished by *bon vivants.* The artichoked-leaved variety is a curious but very agreeable one. So also is the sugar and imperial.

The committee cannot allow the opportunity to pass without calling the attention of the Society to these successful attempts of Dr. Wendell, to introduce new varieties of vegetables from other countries, as worthy of all praise, and highly honorable to him, as a member of the Society, and they would recommend that a discretionary premium be awarded him.

Joel Rathbone, of Kenwood, exhibited giant rhubarb, early York cabbages, admiral lettuce, early June and race horse peas.

D. Thomas Vail, of Ida Farm, Troy, exhibited some very fine heads of early York cabbage.

Jacob Henry, of Watervliet, exhibited some very fine early June peas.

Frederick Keisel, near the Orphan Asylum, Albany, exhibited early June peas, turnip beets, some beautiful heads of Silesian lettuce, fine double curled parsley, six heads of fine white celery, and some white-spine cucumbers.

The committee recommend that a discretionary premium be allowed Mr. Keisel for his parsley, beets, cucumbers, and peas, which were very fine.

James Wilson, of Albany, exhibited six stems of hybrid rhubarb, which weighed six pounds.

The committee have awarded the premiums as follows:

On Beets, to E. P. Prentice, of Mount Hope, $1.
On Cabbage, to D. T. Vail, of Ida Farm, Troy, $1.
On Cauliflowers, to V. P. Douw, of Wolvenhook, Greenbush, $1.
On Celery, to F. Keisel, of Albany, $1.
On Cucumbers, to V. P. Douw, of Wolvenhook, Greenbush, $1.
On Lettuce, to F. Keisel, of Albany, $1.
On Peas, to V. P. Douw, of Wolvenhook, Greenbush, $1.
On Rhubarb, to James Wilson, of Albany, $1.

C. N. BEMENT, Chairman,
ROBERT F. JOHNSTONE,
S. CHEEVER, Committee.

Floral Designs, Bouquets, &c.

The committee beg leave to report that Dr. Herman Wendell exhibited a large pyramidal floral design composed of roses, pinks, lilies, verbenas, &c., &c.—a centre table bouquet composed of rare roses, phloxes, pinks, verbenas, &c., &c.—a basket bouquet with handle composed of rare rose buds, pansys, pinks, verbenas, forget-me-nots, &c., &c., on a moss ground, to which the committee awarded the premium of $2.

Mr. E. P. Prentice exhibited a large round bouquet for centre table, composed of roses, larkspurs, pæonies, &c., &c., to which they have awarded a discretionary premium of $1.

Mr. James Wilson exhibited a large flat bouquet for mantle vase, composed of roses, hydrange, larkspurs, pæonies, honeysuckles, &c.—a flat hand bouquet, composed of hoyas, scabious, epacris, camellias, moss rose buds, pinks, geraniums, &c., to which the committee awarded the premium of $1; also a round hand bouquet composed of about the same varieties, to which the committee awarded the premium of $1.

Mr. Joel Rathbone exhibited two beautiful basket bouquets, with handles composed of roses, pinks, &c.; also a large pyramidal floral design.

Mr. D. T. Vail exhibited a large round bouquet for centre table vase, composed of roses, pinks, larkspurs, calceolarias, &c., to which the committee awarded the premium of $2.

Mr. Wm. Newcomb exhibited a large flat bouquet for mantle vase, composed of a choice collection of rare and beautiful perennial and biennial flowers:—verbenas, ten varieties, campanula pyramidalis, pearl flower, pelargonium, periwinkle, pinks, dianthus barbatus, varieties carnation, lonicera, trumpet monthly, do. variegated, cyanus-major, six varieties roses, burnet, red moss, nigra, and three other varieties, delphinum ajaces, do. elatum, do. grandiflora, do. cerulea, French rocket, phloxes, lilies, polemoniums, white and purple, lupinus polyphyllus, feathered hyacinth, flos adonis, iris, yellow and blue, columbines, silens, rose acacia, gum acacia, escholtsia Californica, musk flower, pæonia, whitlejii, humci and fragrans, myasotis, garden elder, lychnis flore pleno, to which the committee awarded the premium of $2; also, a small hand bouquet, composed of roses, verbenas, feathered hyacinths, Greek polimohium, &c., &c.

Mr. John Wilcox exhibited a large floral design, of pyramidial shape and leaning, (after the manner of the Tower of Pisa,) composed of roses, lilies, pæonias, larkspurs, pinks, campanulæs, valerians, phloxes, &c., &c., $2.

JOHN B. GALE, Chairman,
ERASTUS H. PEASE,
ABEL FRENCH, Committee.

FLORAL DESIGNS.

Among the splendid bouquets exhibited at the meeting of the Horticultural Society, in the saloon of the Geological Museum, on the 14th ult., none seemed to attract more attention than the large and splendid Floral Pyramid, exhibited by John Wilcox. It was about four feet in height, two feet at the base, composed of some thousands of flowers, and of almost every hue and color that is penciled by the prolific hand of nature, and so disposed as to form various figures on the sides of the column. This beautiful pyramid was designed and executed by Miss Plank, of Catskill, and what is much more to her credit, we are informed the flowers were grown under her care and supervision.

NEW OXFORDSHIRE SHEEP.

We would respectfully invite the particular attention of breeders of long-wool Sheep to the sale, by auction, advertised on the fourth page of the cover of this Journal, of twenty-five yearling bucks of the New Oxfordshire breed, by Clayton B. Reybold, Esq., which is to take place at Marsh Mount, near Delaware City, Delaware, on the 2d day of August next. These bucks are represented of the purest blood and of the finest beauty of form, true to character and of magnificent growth. This will afford a rare opportunity to those persons in possession of the Coteswold, Lincoln, and New Leicester, to improve their flocks with such sheep as are not to be found elsewhere in this country.

Our northern friends could not have failed to observe the two very large and superior bucks of this new breed of sheep, which were exhibited, and carried the first prize at the meeting of the New York State Agricultural Society at Saratoga Springs last fall.

Mr. Reybold writes us that the old imported buck "is much finer now than he was at Saratoga; he weighs 40 lbs. more now than he did then. I think if he keeps on improving, as he has done, he will weigh 400 lbs. next Christmas."

SALE OF DURHAM CATTLE BY AUCTION.

By referring to the advertisement of Mr. Wilkinson, on the fourth page of the cover of this number, it will be seen that the herd formerly belonging to Mr. James Gowen, will be sold at auction. The character of this herd is so well known that it is needless for us to say anything in its favor. We however, recommend those wishing to purchase choice animals, to attend, as we are informed by Mr. W. that they will be sold without reserve.

Errata.—In Climatic Observations, inserted in the last number of this Journal, for "ascends" read "descends," in the 12th line from the beginning. And in the 4th line from the end, for "more diseases" read "those diseases."

METEOROLOGICAL OBSERVATIONS FOR JUNE, 1848.

Made at the Albany Academy, by Dr. T. R. Beck, Principal, &c.

Days.	THERMOMETER.				WINDS.		WEATHER.		RAIN	REMARKS.
	6 A. M.	3 P. M.	9 P. M.	Mean.	A. M.	P. M.	A. M.	P. M.	Inch's	
1	42	62	56	54·83	N. W.	N. W.	Clear.	Clear.		
2	51	74	70	66·83	S. W.	S.	Cloudy.	do		
3	62	76	71	69·83	S.	E.	Cloudy.	do		
4	63	83	75	74·83	N.	S.	Clear.	do		
5	70	80	65	70·33	S.	S.	Clear.	Cloudy.	0·53	Rain.
6	62	68	56	60·17	N. W	N. W.	Cloudy.	Clear.	0·04	Rain.
7	51	58	54	54·83	N. W.	N. W	Cloudy.	Cloudy.	0·06	Rain.
8	54	70	63	62·83	N.	N.	Cloudy.	Clear.	0 06	Rain.
9	57	77	70	69·17	N.	N. E.	Clear.	do		
10	64	66	66	65·33	S.	S.	Clear.	Cloudy.	0·28	Rain.
11	64	73	65	64·83	N. W.	N. W	Clear.	Clear.		
12	49	64	52	54·50	N. W.	N. W.	Clear.	do		
13	46	67	59	58·50	N. W.	N. W	Clear.	do		
14	53	73	62	64·17	N. W.	N. W	Clear.	do		
15	62	81	69	72·00	S.	N. E	Cloudy	do		
	Semi-	mo'ly	mean.	64·20					0·97	
16	70	93	85	83·00	N. W.	N W.	Clear.	Clear		
17	72	89	82	81·50	S. W.	S.	Clear.	do		
18	75	87	79	80·67	S.	S.	Clear.	Cloudy.	0·26	Rain.
19	77	87	79	80·67	S.	S.	Cloudy.	Clear.	0·02	Rain.
20	75	82	69	74·00	S.	S.	Cloudy.	do		Rain
21	67	77	69	70·50	S.	S.W	Cloudy.	do	1·15	Rain.
22	64	78	70	71·50	N. W.	S.	Clear.	Cloudy.		Rain.
23	69	81	73	73·67	S.	N W.	Cloudy.	Cloudy.	0·34	Rain.
24	65	77	65	68 ·7	N. W.	N. W.	Clear.	Clear.		
25	60	80	70	70·50	N. W	N.W	Clear.	do		
26	63	82	76	74·50	E	S.	Clear.	do		
27	68	84	78	77·67	S.	S.	Cloudy.	do		Rain.
28	74	88	71	76·83	S.	S.	Clear.	Cloudy.	1·74	Rain.
29	69	83	76	76·67	N. W.	S.	Cloudy.	Clear.		Rain.
30	73	81	73	75·33	S.	S.	Cloudy.	Cloudy.	0·24	Rain.
	Semi-	mo'ly	mean,	75·68					3·75	

Monthly mean,.... 69·94. Rain Gage 4·72.

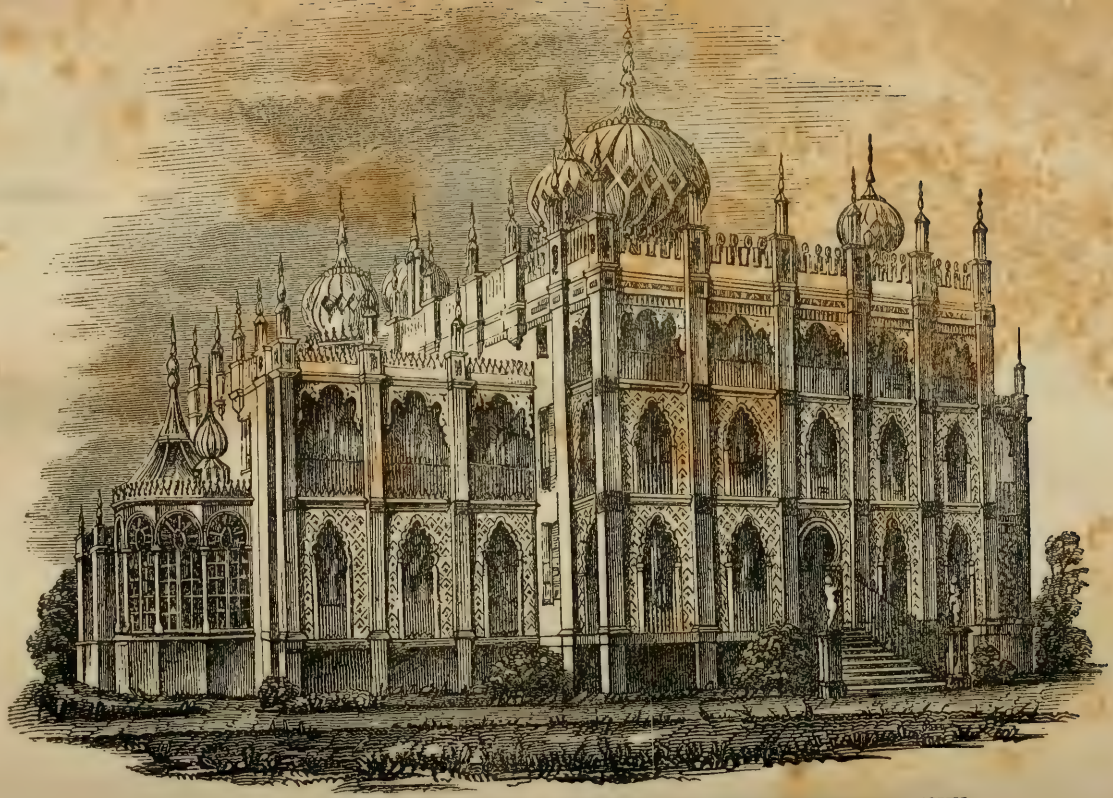
5th, Rain early A. M. and 4 to 7 P. M.,..... 0·53
6th, Rain 6 to 9 A. M.,..... 0·04
7th, Rain P. M.,..... 0·06
8th, Rain 9 to 10 A. M. and 9 to 10 P. M., ... 0·06
10th, Rain commenced at 4 P. M ,..... 0·28
18th, A. M., slight rain 0 01, and 9 P. M. (thunder, &c.).. 0·26
19th, Rain 10 A. M. and 12 A. M. to 1, (thunder, &c,)... 0·02
20th, 10 P. M. to 21st at noon,..... 0·20
21st, 7 P. M. to 5 A. M. of the 22d, (thunder,)..... 0.95
23d, 4 to 5 P. M., and 9 to 10 P. M.,..... 0·34
28th, 3 to 9 P. M. 29th and during night, (thunder storm,) 1·74
30th, 5 to 7 A. M., and 6 P. M., (thunder storm,)..... 0·24

4·72

Winds.—North 2; North-east 1; East 1; South-east 0; South 13; South-west $1\frac{1}{2}$; West 0; North-west $11\frac{1}{2}$.

Weather.—Fair $19\frac{1}{2}$, Cloudy $10\frac{1}{2}$ days. Rain on 14 days.

Warmest day 16th, Highest 93°,
Coldest day 12th, Lowest 42°.



IRANISTAN—THE COUNTRY SEAT OF P. T. BARNUM, ESQ., NEAR BRIDGEPORT, CONN.

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

CONDUCTED BY C. N. BEMENT, ALBANY.

VOL. VII. AUGUST, 1848. No. 7.

AUGUST IN PROSPECT.

In warm and dry seasons it frequently happens that this is the hottest month of the year, and is frequently so intense as to abate something of personal comfort. Not, however, that the sun's rays continue to possess the same power that they did a month ago; but when once the ground has become heated and parched, and the whole surrounding medium has attained a high temperature from a continuance of warm weather, a less degree of intensity, under such circumstances, is sufficient to make the state of the atmosphere oppressive to the feelings. It is dreaded therefore, by many as the least auspicious month in the year, for its sultry atmosphere and its tendency to generate disease. Yet it may be considered as one of the most prolific months of the twelve: and it should be remembered, that a great degree of heat is requisite for the growth and maturity of many rich fruits, and of the corn and grain which contribute so largely to the support and comfort of man. The nights, however, particularly towards the latter part of the month, begin to lose their summer sultriness; while we often find the pastures have become so parched, and the foliage so dried and shriveled, that a premature decay of nature seems rapidly approaching; so that by the end of the month the bloom of summer may be said to have departed from the land.

But the autumnal rains may be expected soon to set in, when should the state of the atmosphere be favorable to vegetation, the late parched meadows and fields will again assume freshness and lively green, almost equaling the appearance of spring; but the leafy groves never regain their original verdure and beauty, although the ripening fruit in the orchards and gardens presents a pleasing and enticing aspect, an aspect which many persons, no doubt, greatly prefer to the lovely blossoms of promise of May and June.

The time of the early harvest has also commenced. The reaper has cast in his cradle, and the rye and wheat has been gathered into the barns. It is a season of joy to the laborious husbandman. He is now beginning to realize the hopes of spring, and to gather in his stores for approaching winter. He is now receiving the reward of his industry. This month is the great maturer of the summer crops; for though some of the later ones, particularly in bleak and elevated situations, may when the month closes, be still unfit for gathering in—by this advanced period of the season the hopes or the fears of the husbandman begin to be proved and realized. The crops of hay, excepting in particular localities, and under extraordinary circumstances, will have been stowed away in the barn or stack; and taking the seasons in general, the grain harvest will every where be drawing towards a conclusion, except in those late situations already alluded to.

While we are gathering into our store houses the rich grain and fruit of summer for the sterile season of winter, are we not reminded of the importance of seeking food for our intellectual and moral nature, that when the goods of earth fail, or cease to delight us, we may still have treasures, which "moth and rust cannot corrupt," and whence we may derive a spiritual happiness, undecaying and endless.

The peculiar changeableness and uncertainty respecting the weather, and "what another day may bring forth," strongly tend to render it almost necessary, or at least very desirable, for the husbandman to keep some account, some register in his memory or

otherwise, of the state and character of the various past seasons, with their general effects upon crops and vegetable productions, as well as upon the state of the markets. It is only from past experience that the foundation of a thorough practical knowledge in farming matters, as well as in matters of business generally can be laid. And we would suggest to those who feel an interest in agricultural affairs, that, at the expiration of each month, they should take the trouble to note in some memorandum book a few of the most striking and influential features of the month, with the prospects and appearances of the various products of the country at the time; since by so doing, in after years it will not only be amusing to refer and compare, but often prove advantageous to have such precedents of past years from which to draw deductions and inferences concerning the future.

This month is replete with interest to the tiller of the soil, if he be wise enough to improve the present moment. Prudence, interest and a wise economy, all combine to produce such a result the present season. An all wise and bountiful providence has not only blessed our country with abundant crops, but also with the most favorable season for their ingathering.

The cutting of grass and grain, in most sections, was commenced about the same time as last year. The haying season is now pretty much over, especially on highly cultivated and new lands, or lands recently laid down to grass, the crops have been large, in other situations, such as old meadows not so large, but less than last year.

The pressure of work which farmers are obliged to attend to through haying and harvesting, often causes them to neglect the extirpation of weeds at this time when they are almost going to seed. This should be carefully avoided. After the second hoeing of corn, the weeds among the crop, of which more or less will always spring up, are suffered on some farms, to have undisturbed possession, and the ground becomes completely seeded with them by another year. A little seasonable labor would prevent this toil.

This is the season also, for exitrpating bushes, thistles, and

other vegetable intruders, which infest our premises. During the busy season of harvest, weeds have been springing up; some are on the eve of ripening their seeds—these should be destroyed without delay, so far as can be done without injury to the crops. It will not only prove advantageous for the present year, but will by destroying the seed save a large amount of labor in extirpating weeds in future seasons. Mullens and thistles in pasture grounds, which have been neglected, should now be destroyed without delay. This will be good employment for boys, and a good sharp hoe is the best and most efficient implement used. Wet weather is generally preferred for this purpose, because the sap vessels will continue open longer than they would in dry weather, the sap will thus be discharged, and the roots so much weakened, that eventually their power to produce new shoots, will be annihilated. The same method of management will answer for thistles, which should be cut in hot weather, while in blossom.

Although farmers will soon have completed their harvesting and haying, they will find no time for remaining inactive—a great many things of apparently minor importance will merit their unwearied attention.

The corn and potatoe fields should be kept well stirred with the cultivator, and the ground immediately around the stalks loosened with the hoe. The late potatoes must be watched, kept clear, and the earth open. In the cultivation of this root, the great art seems to be to do the right thing, at the right time; therefore, that which should command our attention to-day must not be delayed until to-morrow.

If you would be wise, and let us impress this upon your minds, you should occupy all the spare time of your hands, in husbanding manure. Cut the weeds which infest the corners of your fences, and disfigure your fields, and haul them to your compost heap, and by adding a little lime, ashes or soil, they can be converted into a rich manure, and benefit instead of deteriorating your soil.

The mean average of heat of August for ten years, is about 67°. The order of ripening our cereal grain is—rye, wheat, barley and oats. The routine of our larger fruits begin to ripen

this month, such as apples, pears, peaches and plums. Vegetables, tomatoes and green corn will make their appearance. Flowers, such as China asters, dahlias and sun flowers.

Apples should be budded early in this month, and peaches from middle to the end.

CATTLE.

Next to the horse, the cow is perhaps the most justly valued and useful animal, longest domesticated, and most extensively propagated of any animal which man has been able to domesticate. Man may be said to be more dependent on this race than on any other which the creator has in his wisdom called into existence; and the readiness with which it acclimates itself to the nature of its food, and increases and diminishes in size according to the plenty or scarcity of the pasture, and the circumstances of climate, is an obvious indication of benevolent accommodation to the varied localities in which the human family, whose habitation it was destined to accompany, were to be found. Its nature is equally capable of sustaining the rigors of heat and cold, of inhabiting the frozen fields of Iceland, as well as the burning deserts of Lybia. It seems, in some of its form, an ancient inmate in every climate—savage and wild in the countries which are less peopled, but capable of being made useful in all.

We need not enumerate all the blessings which have been bestowed on man in the possession of this useful quadruped. Every one is acquainted with the patient labor of the ox, and knows that the cow supplies him with a delicious beverage, which when prepared in the form of butter and cheese, furnishes agreeable varieties to the luxuries of his table; and that when the animal is killed, its flesh affords him substantial and acceptable food, and its hide contributes in various ways to his service in the form of leather, while its very bones are ground down to manure and fertilize his fields.

"Deprive man of the ox, the dog and the horse," says Dr. Macculloch, "and he could not maintain his position in the world for a year; he never could have attained the one which he holds, nor could he discover a compensation." He who reflects on the vast importance these animals are to the comfort and convenience of man, and in the addition which they afford to his power, will at once perceive that there is no exaggeration to this assertion.

AYRSHIRE CATTLE.

Fig. 29—Imported Ayrshire Cow Alice.

The above is a fair portrait of the imported Ayrshire cow, *Alice*, now in our possession, to whom was awarded the first prize at Utica and the second prize at Poughkeepsie, at the meeting of the New-York State Agricultural Society, held in 1844, and 1845.

The excellency of a dairy cow is estimated by the quantity and quality of her milk. The grand desideratum is to discover a breed that will be useful to the grazier, the dairy-man, and the small farmer. The quantity of milk yielded by the Ayrshire cow is, considering her size, very great. It has been asserted that twenty quarts daily for two or three months after calving, may be considered as not more than an average quantity. Twelve quarts daily will be given for the next three months. This would amount to more than 850 gallons; but allowing for

some unproductive cows, 600 gallans per year, may be considered as the average quantity obtained annually from each.

The quality of the milk is estimated by the quantity of butter that it will yield. Fourteen quarts of this milk will yield about one and a half pounds of butter. An Ayrshire cow, therefore, may be reckoned to yield 257 lbs. of butter per annum, or about 5 lbs per week all the year round. This is certainly an extraordinary quantity of butter, and fully establishes the reputation of the Ayrshire cow, so far as the dairy is concerned.

"To sum up all in one sentence," says Mr. Aiton, "I now repeat that hundreds and thousands of the best Scotch dairy cows, when they are in their best condition and well fed, yield at the rate of 4000 quarts of milk in one year; that in general 10 or 10½ quarts of their milk will yield one pound of butter."

Mr. Geo. Randall, of New-Bedford, in a letter to the writer of this, speaking of one of his Ayrshire cows, says, "On the 7th of October, 1844, the cream taken from six quarts of her (Medal,) milk, made *one pound and nine ounces fresh butter*, which is, I think, a thing unheard of before. I put a certificate into the hand of the chairman of the committee on cows, signed by three young ladies that saw the whole process of setting the milk, taking off the cream, and making the butter. I saw the butter weighed the second time, believing there had been some mistake in the weighing, but found there had not. (A Dearborn balance was used.) I will add that Medal had not tasted a particle of meal or grain of any kind, and nothing but hay, and grass, and water, from the time she arrived in the United States to the time the butter was made."

We have now in our possession a cow, got by the Ayrshire bull imported by the Massachusetts Society for Promoting Agriculture, imported in 1837; from eight quarts of her milk we obtained one pound of butter. She calved about six weeks ago, and now fills a common sized pail night and morning. We have several that will give from 16 to 20 quarts per day.

It is conceded, we believe, that the Ayrshire cows will yield as much milk in proportion to their size and the food consumed, as

any other breed, and that they produce an unusual quantity of rich cream.

Alice is now ten years old, has a calf by her side, and fills a common sized pail with milk night and morning, averaging from 18 to 20 quarts per day.

The editor of the Cultivator, in speaking of Mr. Prentice's cow, Ayr, says—"Though of very small size, she is in shape a perfect model of a milch cow, and her product at the pail is remarkable, giving this season, on grass feed, upwards of *twenty quarts* of milk per day; the quantity having been ascertained by actual measurement. Considering her diminutive size, which, compared with most other cows, scarcely bears a greater proportion than that of the Shetland pony to a coach horse, we think this very extraordinary."

"Mr. Phinney found that the Ayrshire cow," says Mr. Howard in the Cultivator, "(one of the three first imported by the Massachusetts Society in 1837,) put on trial with the best native cow selected from a lot of twenty, made a pound and a half more butter in a week, than the native, both being fed alike."

"Our conclusion is," continues Mr. H., "from what we have seen of the various breeds of cattle, that if we wished to obtain a stock for the production of the greatest quantity of butter in proportion to the cost of keep or the food consumed, we should make one trial, at least, with a selection of Ayrshires."

While on a visit to Boston, a few years since, we had the pleasure of viewing the Ayrshire cows imported by Mr. Cushing, as well as those more recently imported by Capt. Geo. Randall, of New-Bedford. Being desirous of obtaining the opinion of Mr. Haggerston, the then manager of Mr. Cushing's farm, we addressed him on the subject, and the following is his reply:

"I will with pleasure give you my experience of the Ayrshire stock. As milkers they are quite equal to the best native stock I have ever seen, and for years we procured the best native cows that could be found, without regard to price; some of which we paid as high as two hundred dollars, which was not for fancy, but was considered the actual worth of the animals for their milking qualities, but have found at all times of the year, when the cows were in full milk, the Ayrshires were the best, and whenever we have kept an account of milk given for a length of time from a native cow and an Ayrshire, the Ayrshire invariably held out the

best. This I consider one of their best qualities. Another good quality they have, the progeny are as good as the parents in all cases. Our heifers have proved as good for milk as their mothers, and this has also been the case with those which Mr. Cushing has given near home. I know at least twenty of them, that last season fully developed their milking qualities; and the owners all say that they are the best cows they have ever owned; many of them have milk farms, with large stocks of cows. We all know this is far from the case with the native stock, for usually the best milking cows produce very inferior milking daughters."

"After taking all things into consideration," continues Mr. H., "I have come to this positive conclusion, that the Ayrshire stock, for milkers, are superior to natives:

"1st. In all cases of fair trial between natives and Ayrshire stock, as to quantity and quality of milk for making butter, that has come under my observation, the Ayrshire has proved the best.

"2d. The Ayrshire are more docile and much less apt to be unruly, in regard to fence breaking.

"3d. The Ayrshires are equally hardy and healthy, and will give more milk on short feed than the natives.

"4th. The Ayrshires are decidedly the handsomest animals, and most pleasing to the eye.

"5th. In breeding from the Ayrshires you can depend upon the young stock. I have found them in all cases equal to their parents; I mean the heifers."

In 1837, Mr. R. D. Shepherd, of Baltimore, imported some Ayrshire cattle, and the following is the account given of them, when first imported, by the editor of the American Farmer:

"We were first usherd into the apartment in which Mr. Shepherd's Ayrshires were stalled. On the north range stood two 3 year olds, who had but a few days previous given birth to their first calves; and although from our acquaintance with the history of their breed—although we knew they were the pride and boast of the place of their nativity—candor obliges us to declare that they far more than realized our most sanguine expectations of their peculiar excellence. England is justly proud of her Durhams, Devons, and her Herefords; and Scotland, with an ambition equally well placed, reposes her claim to prëeminence in her Ayrshires. Cows, it is well known, do not attain the height of their capacity for secreting milk, until they have borne their third calf. Here were two 3 year olds, with their first calves, with udders possessing a volume so potent as to create a suspicion of their age, if the ring around their horns and the certificate of pedigree had not settled the point. That we were surprised is natural; for although we have, in our day, seen many, very

many, fine young cows with their firstlings, we certainly never had seen any thing that could compare with *these.* In answer to an inquiry which we made of him, the cowherd assured us that one of them gave 20 quarts a day, and the other 24 quarts."

The Ayrshire cow is not large, but beautiful in form and color, and makes ample amends for the absence of great size by her copious contributions to the pail.

"The origin of the Ayrshire cow," says Youatt, "is even at the present day a matter of dispute; all that is certainly known about her is, that a century ago there was no such breed in Cunningham or Ayrshire, or Scotland." It is asserted by Quade, who wrote the Agricultural Survey of Jersey, "that the Ayrshire was a cross between the short horned breed and the Alderney." And Count De Gourcey seems to be of the opinion, as he says, "there is a considerable affinity between the two breeds."

Mr. Robertson, in his Rural Recollections, conjectures, "that they are either of the Holderness breed, or derived from it; judging from the varied color, or from somewhat better evidence, the small head and slender neck, in which they bear a striking resemblance to them."

There is no doubt but that it is an artificial variety, but, as Prof. Low observes, "authentic records are wanting to show by what progressive steps it has been moulded into its present form."

"Tradition," continues Mr. Low, "refers to an importation of individuals of the Alderney breed to the parish of Dunlop, which became first distinguished for its cows and the produce of its dairy. The tradition is almost confirmed by the similarity existing between the Alderney breed and the modern Ayrshire, which is so great as to lead us independently of tradition, to the conclusion, that the blood of the one has been largely mingled with that of the other."

Prof. Low concludes by saying that, "from all the evidence, which in the absence of authentic documents the case admits of, the dairy breed of Ayrshire cows owes the characteristics which distinguish it from the older race, to a mixture with the blood of the races of the continent, and the dairy breed of Alderney."

The modern breed has, no doubt, been improved by judicious selection, coupling, and general treatment. The prevailing color of those which have fallen under our observation, is red and white,

some inclining to a redish brown and white. The muzzle is generally dark, though we often find them with yellow or flesh colored noses. Their limbs are short and small; head small and rather short; horns fine and a little depressed at base, and turning in and up at the extremity. They are generally light in the forequarter, but deep and heavy behind; body large and compact; udders of fair size and good form; teats rather small; milk veins prominent. They possess a strong, hardy constitution, and seem to stand the vicissitudes of our climate much better than other foreign breeds. The bulls as well as cows are docile and gentle.

"The fattening properties," says Mr. Youatt, "of the Ayrshire cattle, we believe to be a little exaggerated. They will feed kindly and profitably, and their meat will be good. They will fatten on farms and in districts where others could not be made to thrive at all. They unite, perhaps, to a greater degree than any other breed, the supposed incompatible properties of yielding a great deal of milk and beef." Their fat is mingled with the flesh rather than separated in the form of tallow; yet this would give a more beautiful appearance to the meat, and should enhance the price to the consumer."

ON ACQUIRING A KNOWLEDGE OF THE NATURAL SCIENCES.

BY J. H. FENNELL.

Numerous facts on record unite to convince me that agriculturists would find it very advantageous to habituate themselves to making minute examinations of little objects and incidents in nature which occur at every step, but are too often disregarded. It is desirable that agriculturists should not only read books on natural history, but that they should closely observe with their own eyes every thing in the fields, orchards and gardens, that they may glean some useful hints from Nature's own volume.

In the cultivation of plants, it has been found best to proceed on such scientific principles as a correct knowledge of their structure and functions will suggest. The system of the rotation of crops by which the produce of our land has been quadrupled, and the acclimation of plants by hybridiration or engrafting, by which means the fruit and flowers of more southern regions are reconciled to our climate, are only two out of many examples which

might be adduced of the benefits conferred by botany upon agriculture. While science dictates such valuable improvements as those, the mere observation of trifling facts often suggests useful ideas. It is said that the occasional natural union of boughs of distinct trees, demonstrated the practicability of grafting, and that the observation of the circumstance of a vine shooting more vigorously after a goat had browsed on it, suggested the valuable art of pruning fruit trees. One of the Emperors of China having noticed that a particular stalk in his garden produced better rice than the rest, cultivated it for several years; and then having fully satisfied himself and his subjects of its superiority, he distributed its grains among them for their general benefit. A farmer having remarked that some gooseberry bushes, growing under an elder tree, were exempt from caterpillars, was induced to try the efficacy of a decoction of elder leaves in destroying the grubs that infested his turnip crops, and he and other farmers who repeated the experiment found it successful.

It is not only necessary that the agriculturist should be well acquainted with the nature of the different vegetables which he cultivates for economical purposes, but that he should rightly understand the causes of the several ravages and diseases to which they are subject, so that he may be able to devise proper remedies and preventions. In nine cases out of ten, the failure of crops and the pecuniary losses experienced thereby, arise from the attack of some particular species of destructive insect, which, from unknown causes, has appeared in unusually great numbers. Before any effectual steps can be taken against it, it is absolutely necessary to ascertain correctly what species of insect is causing the mischief, and to study the creature's habits in all its transformations; for what will prove more or less effectual in one stage of its existence, will be totally useless, or perhaps, increase the evil in another. Notwithstanding the immense annual losses which must be caused by the millions of destructive insects that infest all kinds of crops, the science of entomology is comparatively neglected by agriculturists, who are, therefore, frequently unable to give a definite description of any noxious insect to a naturalist, when they enquire his opinion and advice.

Those husbandmen who have possessed some knowledge of natural history, have not merely been better able to cultivate their plants and protect them from the attack of hurtful creatures, but they have ascertained thereby what creatures are harmless and useful, and therefore to be spared and encouraged. Without this power of discrimination, they may be unwittingly led into the error of destroying creatures which were absolutely beneficial to them.

Natural history in its most extended sense, being inseparably

connected with all the arts of life, ought to form a part of the education of those who wish to promote them, and benefit by them. In very school, whether intended for males or females, for the rich or for the poor, natural history should find a foremost place as an elegant and useful accomplishment.

The culture of plants will become a comparatively easy process when we are better acquainted with their peculiar functions, and with the chemical elements which they require for their growth and maturation. We must not be content with knowing what are their respective natural locations, climates, and seasons, but must learn what chemical gases each species imbibes from the atmosphere, through its leaves, and what substances from the soil, through its roots. "If a plant be distinguished by its containing a notable portion of soda, silica, &c., the soil in which it is to be grown must contain the elements, otherwise the attempt will be abortive," for a plant can no more create soda or silica within itself, than it can form water for its support, independent of the soil or atmosphere. From a knowledge of the principles, therefore, a rational theory of agriculture may be formed; and what has hitherto been little better than an expensive and often distressing system of trial and error, becomes a science guided by fixed laws. Agriculture will always have to contend with the fluctuations of seasons and climate; but it is for human ingenuity to modify their influence, and this only can be effected by rational and scientific proceedure As yet, the science of Agriculture is in its infancy, but the time is not far distant when it will rank with other maturer branches of knowledge—when every soil will be systematically treated for the species of crop to be raised upon it — in short, when the farmer will sow and reap with as much security as the distiller produces his spirit. The value of the science of chemistry to the agriculturist, may be judged from the fact that when the great chemist, Lavoisier, took a quantity of land into his own cultivation, he very soon succeeded in doubling its produce.—*Jour. of Ag.*

The Oak and the Ash Leaf—Some observers of nature have broached the theory, that the future character of the summer is indicated by the relative periods at which the oak and the ash put forth their leaves in spring. If the oak has a start, a dry summer is generally productive of a good crop of wheat, it prevents the plant from exhausting itself in straw, and is propitious to the blooming and kerning process, and of course indispensable to its being well harvested.—*Plym. Journal.*

RURAL ARCHITECTURE

See Plate.

The taste for villas and cottage residences, for the last few years, has undergone a great change. Formerly, when any attempt at style was made, every dwelling was formed without the thought of fitness or propriety, after some Grecian model. Now, of late years, the rural Gothic seems to prevail, and with the same ambitious desire to make every building, no matter how humble, complete in all its parts—the same unmeaning expression is stamped on all.

"The general characteristics of a residence must be determined," says Ranlett, "by the taste, habits and circumstances of the family who are to occupy it. A cottage indicates a disposition in the proprietor to live within his income and to appropriate his means rather for the convenience and comfort of his family, than for show which he is ill prepared to sustain."

Few men who build know what they in reality want; the carpenter, therefore, rather than the architect is consulted, and with the idea, too common with many of the former where mistaken ideas of profuseness of decoration for beauty of expression often destroy the completeness, of a very well arranged plan.

Some very beautiful surburban residences, in the form of villas and cottages, have been erected in the vicinity of this city within a few years, and the improvement in rural architecture has been very great and added much to the improvement and appearance of the suburbs; but they all fall far short in show and costliness, when compared with the residence of P. T. Burnum, Esq., near Bridgeport, Connecticut, a figure of which accompanies this number; and the following full description of the same, we have extracted from the Farmer and Mechanic.

IRANISTAN—THE COUNTRY SEAT OF P. T. BARNUM, ESQ.

We this week present our readers with a beautiful specimen of oriental architecture, in the elegant villa of the enterprising proprietor of the American Museum of this city, and recently erected by him, as a country seat, near Bridgeport, Conn.

This villa, to which we have before alluded, is a splendid and unique structure, of a composite oriental order, having in it the most striking characteristics of the Byzantine, Moorish, and Turkish styles of palace architecture. The entire front of the villa is 124 feet, the wings being thrown off irregularly, with domed conservatories at each extremity. The main building is of three stories, each story having broad piazzas, supported by colonnades of graceful pillars, reaching the whole height of the wall, and surmounted by tapering minarets of the most elegant appearance. These pillars are ornamented with rich sculptures, and connected by carved trellis work, thrown into graceful arches, of the Moorish and Arabic style, which differs from any other in the horseshoe shape of the arch. The appearance of this ornate and elaborate mass of sculptured work upon the front, is light and pleasing, from the beautiful forms into which it is thrown, and is rendered more chaste, from the color being that of the reddish brown sand stone.

This ornate style absolutely requires to be surmounted in a graceful and picturesque manner. Hence, the pillars run into tapering minarets, while each portion of the roof springs into Turkish domes, in the midst of which the grand central dome is thrown up into the sky, to the height of ninety feet, and with its perfect combination of Chinese and Moorish outlines, finishes the beautiful, and purely oriental aspect of the edifice.

One of the beauties of this style consists in its seeming variety. With most buildings there is but a single view, the only alteration being in the lines of perspective, but this villa alters in its appearance at every point of view, the dome and minarets constantly changing their relative positions, and forming new and picturesque combinations.

But however unique and picturesque the external appearance of this villa, the interior is still more worthy of attention, and its combination of comfort and magnificence shows that good taste has everywhere presided over lavish expenditure. Thus the broad piazzas, so finely shaded, and so delightfully cool in summer, are in winter enclosed with glazed lattice work. The great hall runs through the centre of the mansion, with corresponding doors, surrounded by lights of stained, cut glass, opening upon the front and rear piazzas.

From the centre of the hall springs a noble winding staircase, with carved balustrade of black walnut, which gradually contracting, winds to the observatory of the central dome. The niches of the staircase are embellished with marble statuary imported by Mr. Barnum from Florence.

Opposite the base of the staircase, large sliding doors open into a very beautiful drawing room. The walls of this room are covered

with a rich fresco paper, the principal pannels of which represen. the four seasons. The ceiling is of rich arabesque mouldings of white and gold. The mantels are of the purest Italian statuary marble, conforming in their style to the architecture of the building. The large folding doors opening into the hall and dining room, which are of plate mirror pannels, on each side, multiply infinitely, this beautiful apartment.

Throwing open the mirrored doors, you enter the dining room, a striking contrast to the drawing-room. It is perfectly square. The walls are covered with a paper of dark English oak, the rich pannels of which represent the three fine arts, music, painting and poetry.

The dining room, intended for forty persons, opens upon a rich conservatory, domed with stained glass, and is of convenient access to the kitchen and pantries.

Opposite the drawing room is the Chinese library, the walls of which are covered with Chinese landscapes in oil, done expressly for the measure of this room by one of the best artists in Paris. Contiguous to the library are the family apartments, bed rooms, dressing rooms, and conservatory.

The second story is occupied with sumptuously furnished chambers, a picture room, filled with rare and beautiful paintings and engravings, and especially with every thing connected with Napoleon, and forming a passage to the *bijou* apartment of the villa, the private study of the proprietor, the walls and ceiling of which are hung with the richest orange satin, with curtains and furniture of corresponding richness and elegance. Adjoining this is a bathing room, with plunge and shower bath, and furnished like all the chambers with hot and cold water.

The whole establishment cost, complete, the sum of $150,000, a large portion of which has been paid out in the city of Bridgeport, and giving employment to some five hundred artizans, and laborers.—*Farmer and Mechanic.*

Longevity of the Rose.—There is a rose-bush flourishing at the residence of A. McIlvane, near Bristol, Pa., known to be more than a hundred years old. In the year 1742, there was a kitchen built, which encroached on the corner of the garden, and the masons laid the corner stone with great care, saying "it was a pity to destroy so fine a bush." Since then it has never failed to produce a profusion of flowers, shedding around the most delicate of all perfumes.—*Selected.*

HISTORICAL REMARKS ON THE EARLY SETTLEMENT OF THE GENESEE COUNTRY.

BY J. TREMPER.

Through all the country there were signs of extensive cultivations having been made at a very early period; the ruins of old forts were also discovered, the gates and ditches still remaining, with evidence of their positions being well chosen for defence; from the decayed timber lying within them, and the standing timber growing over the fallen, it was conjectured that they must have been built over 200 years previously; swords with French inscriptions were frequently found among them, and also large collections of human bones. 1798—The soil of the country has in every instance proved favorable to the production of grain; the long moderate summers seem well adapted to the raising of wheat, barley and oats; the two last so inferior on the coast, to the English, are here of a quality nearly as good. The crops of timothy, hay and clover, are here superior to most in America, and have been frequently known to produce from 3 to 4 tons per acre, of excellent well dried hay. The price of grain and average produce per acre, is nearly as follows:

	Price per Bushel.	Bushels per Acre.
Wheat--------	$1·00	from 25 to 30
Rye----------	·75	40 to 00
Oats ---------	·50	40 to 50
Indian Corn ---	·50	30 to 60 according to cultivation.
Barley--------	·70	60

Timothy and clover, 10 dollars per ton, and from 2 to 3 tons per acre. The farmer of 1848 in looking over the above scale of prices and productivness of crops, as experienced by his predecessor of 1798 will be fully convinced that there has been a great falling off in the latter, at least since those days. The price of hay at that period seems to have been far above the average price per ton of the present day, while the scale of prices for grain would prove quite satisfactory as an average one. The productiveness of the land seems to have very much diminished and indeed it has been for some years a general complaint, although, from the mode of cultivation it could not well be otherwise; I very much question if some of our good wheat counties, upon an estimate of five years, would present an average of over 10 bushels to the acre.

The following statement will present the views entertained by

well informed persons of capital, in relation to investments of money in agricultural operations among the lands of the Genesee country during its early days of improvement. It had been found by many experiments, that when wheat was worth about one dollar per bushel, an acre of ground taken from a state of nature and well timbered, would require with great economy an expense of 14 dollars per acre, to put it into a crop of wheat or rye, including every expence; this had been ascertained, with great accuracy in a field of 40 acres near Geneva. The forty acres were correctly anticipated to yield 1000 bushels, averaging 25 bushels to the acre, and after deducting two-tenths, or 200 bushels of wheat for reaping and threshing, left a balance of 800 bushels to pay for the expence, and profit for the value of the land used; and the land was left in complete order for a second crop, without any further expence or trouble than that of plowing and sowing. This season (1798) a field of 20 acres was averaged at Bath, and was found to bear of good hay, 3 tons, 8 cwt, 46 lbs, per acre, in many places. The red clover was 4 feet, 7 inches long. The temperate climate of the country and richness of the pastures were found extremely favorable to the rearing of cattle; as at that time it is stated that the weather permitted the making and salting of butter for market, even in the warmest season; the settlers early directed their attention to this branch of rural economy. Settlements were rapidly forming upon the principal navigable waters and a surplus of produce was being raised, so that beef, salt, pork, flour and whiskey, were sent in large quantities to Canada. As great quantities of whiskey were necessary for the military posts in the west and Indian trade in Canada, it had been manufactured for several years previously, and sent from Northumberland, in Pennsylvania. After a carriage of 400 miles, it had been sold for 12 shillings a gallon at Niagara, and 20 shillings at Detroit. The Susquehanna entering upon the south part of the county, was navigated for 5 or 6 months in the year, by boats carrying from 5 to 8 tons, in ascending the streams; but for about 2 months in the spring, while the waters were high, it was navigated in its descent by arks carrying from 200 to 500 barrels. The success of those who had immigrated to the Genesee country, had given it a reputation which induced excellent mechanics and men of business to settle in it, and also brought many foreigners to form communities among themselves, or scatter themselves among the other settlers. With this influx of strangers came of course much wealth and intelligence, which contributed materially to the prosperity of the country. In many instances these communities were found to have kept themselves so unmixed with their neighbors, as to have preserved in its purity their native language for many years; examples of this were to

be found both of Scotch and German. The facility with which heavy articles could be transported upon the Susquehanna river, from the southern part of the Genesee country, at an early period, presented advantages which were not overlooked. A large portion of the tract being in the possession of foreign owners, through the sale of Mr. Morris, efforts were used by them to induce immigration to those lands from Great Britain upon an extensive scale; by a law at this time passed by the Legislature of the State of New York, aliens were enabled to purchase and hold real estate in this state. It was also stated to them that the climate and soil was by no means inferior to England, that there was much similarity in the laws of the two countries, and that they would already find many Europeans mingled with the various settlements; with such inducements, together with the very cheap price of land, and the disturbed state of Europe, it may be readily supposed that many embraced the flattering opportunity presented. A Scotch settlement was projected upon the following plan: 10,000 acres were to be purchased and occupied by them in the following manner:

For the minister and schoolmaster a glebe of --	150 acres.
For ten gentlemen, 500 acres,----------	5000
For ten farmers, 100 acres, ----------	1000
For forty farmers, 78 acres, ----------	3130
To be laid off in a village, in 60 12 acre lots--	720
	10·000 acres.

It was recommended to Europeans that they should form settlements in close proximity in order to mutual assistance, and as forming a less sudden contrast to the change produced by an abandonment of their homes and friends. The writer from whom these incidents are derived, adds, that the forming of such establishments at an early period of the settlement, was attended with great expense; money could not at that time obviate the inconveniences the immigrants had to struggle with. He further adds, that during the first two years himself and companions spent in this country, they scarcely ever slept upon a bed, and seldom could obtain the most common necessaries of life. But the opening of roads, improving the navigation and building of mills, not only brought necessaries from a distance, but conduced to a rapid progress of the country in cultivation and every species of improvement, so that within four years, what was impracticable became of easy attainment, and the settlers were not only supplied reasonably with the necessaries, but even luxuries of life. At this period (1798) the price of lands of course depended much on their situation and quality, but generally upon the three yearly

payments, lands were procurable at from four to six dollars per acre with a large discount for ready money. The following was given as the cost of what was deemed the least a family could do with in those days:

A good log house with two rooms, if made by hired men will cost ---------- $100
Oxen per yoke, ---------- 70
A cow, ---------- 15
Farming utensils, such as a plow, a harrow, two chains, two axes, one hoe, ---------- 20

$205

Where many combined, however, in forming a settlement, it was expected to cost individually still less; a small grist and saw mill, it was estimated might be built for about $1000, where the dam was not of difficult construction.

In 1806 when villages were few and very far between, and taverns were the great landmarks upon the roads, we find the following given as the route and distances through the Genesee country to Niagara:

From Albany to

	Miles.		Miles.
Humphrey's Tavern,	2	John Denna's,	7
McKown's,	3	Foster's,	5
Douw's,	2	Morehouse's,	6
Truax's,	5	Keeler's or Danforth's,	5
Schenectady,	4–16	Carpenter's,	15
Groat's,	12	Buck's,	3
John Fonda's,	12	Goodrich's,	8
Conolly's,	7	Huggins',	4
Roseboom's Ferry, Canajoharie,	3–50	Cayuga Bridge,	7–76
Hudson's, (Indian Castle,)	13	Seneca,	3
Aldridge's, (German Flats,)	11–74	Geneva,	11–190
Brayton's	13	Amsden's,	6
Utica, (Old Fort Schuyler,)	3	Wells',	8
Whitestown,	4–94	Sanburn's, (Canandaigua,)	4–208
Ladd's Tavern,	9	Sears and Peck's	13
Rome, (Fort Stanwix,)	3	Genesee river,	14–235
Oneida Castle,	8	Indian town of Towanda,	40
Wemps,	5	Niagara,	35–310

The above details may serve to exhibit some of the changes which have taken place since those days, and recall to the traveller the gratification he experienced in finding a good tavern and obliging host, upon the route of his laborious journey.

Note.—It has been asserted by various authorities that a tradition exists among the Red-men, that the various Tumuli throughout the country, have some connexion with white men who once took up their residence among the Indians for the purpose of trading; the many forts covered by the full grown forest tree are supposed to have had the same origin. A tradition as to a gene-

ral fact is entitled to some degree of credit, but in relation to particular incidents and details, it must naturally be received with suspicion; when we reflect upon the deceptiveness of memory, the various proprieties and characters of the narators, together with the love of the marvelous which ever characterize a rude and illiterate people, we may distrust a minutely wrought tale, which has descended for a term of generations through such a channel. The general tradition that these forts were constructed by the whites is of value, when we find it confirmed by other circumstances. Mr. Stone, in his life of the Indian chief, Brant, says that the latter in a visit that he made to France endeavored to obtain some light upon this subject, as many of the tools dug up in those places were evidently of French origin; and that researches were made in the public libraries with the assistance of several literary gentlemen; nothing, he says, could be found in their histories concerning the object of their inquiries, excepting that about the year 1520, several ships were fitted out and sailed from L'Orient bound to North America, freighted with goods suitable for that market, and carrying out a number of traders and enterprising persons with their families, to plant a colony in that part of the world. This date referred to by Mr. Stone, however, is evidently incorrect and doubtless refers briefly to an expedition which I shall immediately make mention of. Historical statements inform us that this region remained unknown until 1508, when some Norman and Briton adventurers accidently approached it; they examined superficially some portions of the coast, but that it subsequently became known to some of their countrymen who went to fish upon their shores; the information which they imparted induced Francis 1st to cause it to be examined; minute directions were accordingly drawn up, for equiping and victualing the expedition and adventurers when sojourning in Canada, which consisted of 6 ships of about 110 tons each, with two barks of 45 or 50 tons, with numerous boats for ascending the streams, and 120 mariners to man the latter and guard the ships which were to remain in Canada. The expedition was to consist of harquebussiers, carpenters, masons, men to make lime, tile makers, charcoal burners, farriers, locksmiths, smiths to search for iron, vine dressers, barbers, apothecaries, a physician, goldsmiths, tailors and hosiers, joiners, rope makers, cannoneers and 6 churchmen, in all 276 men, to be victualed for two years; the amount of stores which was to attend the expedition was minutely particularized, among which were mill-stones for water mills, wind mills and hand mills, all kinds of domestic beasts and birds, as well to do the work, as to breed in the country, together with all sorts of grains and seeds. To these were added munitions of war to land for the forts; artillery, pikes, hal-

berts, lead, ball, powder and other things. To the above number of men 100 were to be added to bring back five of the ships, the others were to remain. This expedition for the purpose of colonization, set sail, and in 1540 reached Canada, under the Sieur Robeval; and in 1543, another fleet under his superintendence was sent to it. As the annular expansion of the trees growing in the forts referred to at the head of this article, were probably not examined, the supposition of 200 years having passed away since their occupancy, founded upon the size of the trees and the fallen timber beneath them, is not subject to much precision. What the size of the timber was at the early settlement of the country, in the neighborhood of the Genesee river, I am unable to say. The largest oak tree, however, that I have examined in this vicinity, indicated an age of only 150 years, and was 47 inches in diameter. But even if the proof was complete that these forts had not been inhabited for 200 years previously to 1798, when the examination referred to was made, yet the first expedition having arrived in Canada in 1540 would leave an interval of 258 years between that period and 1798, which would have allowed over half a century for their occupancy.

West Dresden, July, 1848.

RHUBARB.

This wholesome and agreeable vegetatble has become so popular as a substitute for fruit in the early spring, that no garden should be without it. It will grow any where, is so prolific that a few plants will yield a plentiful supply of stalks for a large family. Yet, notwithstanding the ease with which it is cultivated, we often see it badly grown, and sometimes hear the complaint that parties have failed in their efforts to get a crop. Our remarks will obviate every objection, if attended to, and enable our readers to grow rhubarb for themselves with ease and success.

Rhubarb has a hard underground stem, which pushes forth buds plentifully at the crown, or part nearest the surface; every one of these buds taken off with a portion of root adhering to it, will form a large plant in one season. If you wish to make a plantation, get as many buds or crowns as your bed will admit of, allowing each two or three feet every way, according to the habits of the varieties you prefer. The plan generally adopted is to purchase as many roots as are necessary to fill the allotted space, but this is a more expensive and far less eligible method than the

one now recommended. Last year a new sort of rhubarb was offered in the neighborhood of the writer at 5s. a plant. Some of his friends purchased four or five roots, but he was satisfied with one. On receiving it he placed it in a hole, and covered it up with soil until February, when, on examination, five good buds were developed. The root was then divided into five parts, each of which, at the present time, is a large, flourishing plant, equal to any of those which were not divided. A bed was thus obtained for five shillings, equal, indeed superior, to some costing twenty-five shillings. We are convinced, from actual experiment, that rhubarb may be brought to perfection in one year; that old beds are inferior to new ones; and that fresh plantations should be made every two years. The old plan of making a bed to descend to posterity should be exploded, in reference to many garden productions. Strawberries, raspberries, rhubarb, &c., &c., should be removed often, if fine healthy produce is wished for.

Having a sufficient number of buds or crowns, let them be planted in a well trenched and manured soil. If the leaves are developed, care must be taken to prevent their flagging. This may be done by placing over them some long litter, sufficient to answer the purpose without excluding light and air. The young plants will soon be established, and will grow rapidly. No leaves must be taken off the first year, as the object is to convey all the elaborated sap possible to the stem for future use. If the ground is good, and kept free from weeds, no more care is required, and abundance of fine stalks can be taken off next spring. An exposed situation, with plenty of sun and air, will of course bring this production to the greatest perfection; but it will produce good crops without having these advantages fully. Every house with a garden, however small, may thus furnish the table of its owner, with little expense and trouble.

But rhubarb possesses the advantage of being forced with as much ease and as cheaply as it is grown in the open air. This may be done by growing it against a wall in a sunny aspect, and covering it when required with pots or boxes, over which fermenting materials must be placed. But decidedly the best method is to take the roots into the house to be forced. For this purpose they must be grown exactly as recommended above, that as much power may be treasured up in the roots as possible. To take up exhausted plants from a crowded bed, which has been stripped of its leaves during the season, is to deprive them of their natural advantages, and to expend the forcing process on weakened and imperfect subjects. Let cuttings, with a crown to each, be now put in, in the best possible situations, and by autumn they will be admirably adapted to your purpose. When the foliage is withered take up the roots, and put them singly into large pots or boxes.

These may be stood away anywhere, and introduced, two or three at a time, into a warm situation. The writer placed his pots this winter in a dark closet, at the back of a kitchen range, and the rhubarb grew rapidly. Every house can find some spot having the advantage of greater warmth than the ordinary temperature. Rhubarb may thus be had at any time, and a good supply kept up until it is produced in the open air. It is very necessary to get it as early as possible, as its value is much lessened when gooseberries are plentiful.—*Gardener's Chron.*

THE PEAR—EARLY FRUITFULNESS INDUCED.

During the last fifteen or twenty years, the culture of the pear has received more attention from pomologists in the principal horticultural districts of both Europe and America, than any other fruit, and perhaps more, indeed, than *all* the others united. The long years of patient, zealous investigation devoted to this subject by the late Dr. Van Mons, of Belgium; Knight, of England, and others, as well as the late R. Manning, and others, in our own country—have improved and multiplied the number of varieties to an astonishing degree—that is, if any thing could be astonishing in this age of startling progression. We have ourselves seen 60 varieties exhibited on one table; but this is trifling, considering the fact that some American nurseries enumerate 300 sorts in their catalogue; and, including Europe and America, there are not less, and probably more, than 1,000 varieties now cultivated. About the commencement of the present century, the most extensive catalogues published in France, which then was foremost in the culture of the pear, did not exceed 180 or 190 sorts, and most of these are now superseded by recent productions. The world may now be said to be *rich* in this delicious fruit, and the great subject of inquiry and research at present seems to be, what system of culture is the best adapted to spread the benefits of these vast improvements amongst the tillers of the soil,—to place them within the reach of every man who owns a square rod of earth, and that, in *the shortest period of time?* The importance of this question has, for several years past, been fully appreciated in Europe; and multitudes of experiments have been made by practical fruit-growers, with a view to discover a method of inducing early fruitfulness, and adapting them to garden culture.

We have felt a deep interest in this subject. We were aware that the great mass of the people of this country were discouraged

from attempting to cultivate the pear on account of the length of time it requires, usually, to bring it into a bearing state; it being a very common saying, that if you do plant a pear tree, you need not expect to live to see it bear; or, as it has been said poetically—

> He that plants pears,
> Plants for his heirs.

This obstacle in the way of the general culture of the pear has, as we have remarked, awakened a spirit of investigation on the subject, that, so far, has been attended with the most cheering success.

Root Pruning and Growing on Quince Stocks, after being thoroughly tested by the most skilful and practiced fruit-growers for eight or ten years, have been found eminently successful in obviating the objections we have mentioned. A treatise on the subject, the result of eight years, careful experience, by T. Rivers, of the Sawbridgeworth Nurseries, near London, was read before the London Horticultural Society in 1840, and shortly after published in Hovey's Magazine of Horticulture, in this country.

Mr. Rivers states, in his treatise, that he was led to the discovery of the benefits of this system in the endeavor to test his specimen trees. His object was to confine them to a small space, and promote early fruitfulness. After resorting to several methods, such as planting in brick pits, plunging in large pots, &c., all of which were expensive and unsatisfactory, the idea of frequent transplanting occured to him, from observing that some apple trees in his nursery, that had been removed one or two consecutive years, had "acquired a stunted and prolific habit, making abundance of bloom-buds, and bearing profusely." These trees, he found, had no large feeding roots, but only a mass of fibres. "It then occured to me," he says, "if I could keep the roots of my pear trees in a fibrous state, by frequent removals, I should make them acquire the stunted and prolific habit I had so long observed in the apples. In attempting to remove my pear trees, a second thought occured, that it would be less trouble to dig a trench round them, and cut all their roots at a certain distance from the stem: and this completely fulfilled my anticipations. I have pruned thus radically for five seasons, and with the most satisfactory results." This is the basis of this new and improved method of fruiting the pear. At the time this treatise was published, it excited great interest, and since then it has been thoroughly put to the test, and the results, as far as we have been able to learn, have been highly satisfactory. We are familiar with numerous instances where the pear is successfully cultivated, as dwarfs, on quince stocks, standing 6 feet apart, and bearing abundantly. We cannot say that we have seen root pruning fairly tested.

Mr. Rivers published in the summer of 1844, in a supplement to his catalogue, some additional information on this subject, the results of still farther experience. His system is illustruted by engravings of the trees, roots, a nd tops, trained in the several methods. We copy the annexed figure from "Horey's Magazine," which represents a pear tree trained in the pyramidial form, accompanied by the explanatory Remarks of Mr. Rivers:

Fig. 29—Pear Tree, trained in the Pyramidal form.

The adjoining cut is a portrait of a tree, of Louise Bonne, of Jersey, taken here in autumn, 1843; the tree four years old, six feet in height, grafted on a quince stock, and root-pruned. This approaches to the pyramidal shape, so well adapted to small gardens; for trees of this form may be planted six feet apart, either in a square appropriated to them, or in rows by the sides of garden walks. The adjoining was one of a group, all of which were laden with fine fruit—so much so, that they required to be fastened to stakes. It will be seen that its roots are a mass of fibres, showing the effects of root-pruning. The tree was taken up, that the artist might give it, with its roots, exactly after nature, or rather art. The pyramidal form is, perhaps, of all shapes the most eligible for pears in the open quarters, as scarcely any pruning of their branches is required. By merely going over the trees in June and July, and pinching off the ends of the side shoot to within two or three buds of their base, they soon become well furnished with bearing shoots, and assume a close pyramidal form. The height of the trees may be regulated by fancy: from six to eight feet seems the most eligible. Nothing can be more interesting than these pyramidal trees when in full bearing; indeed, they are perfectly beautiful, and their fruit, from being fully exposed to the sun, are always fine and high flavored.

We are anxious to turn public attention to this subject, so that every family may enjoy, if possible, an abundance of choice pears. We shall publish, in a future number, the detailed method of root pruning of Mr. Rivers. We would add, that trees propagated on quince stocks, intended for this mode of culture, are to be found at the Mount Hope Nurseries, as will be seen by referrence to the advertising columns. They are of large size, full of bearing-buds, and will produce fruit the year after being transplanted.—*Gen. Far.*

NOTES ON THE SEASON.

BY W. BACON.

In our last notice of the season, we closed our remarks with April, and in speaking of that month, inquired what had become of our April showers, those beautiful features which so distinctly marked the opening spring in bygone years, when in our juvenile wanderings we so often had our sky over-spread with clouds almost in a moment, and took a good ducking before we could reach the shelter of the nearest projecting rock, or perchance the wide spreading branches of a friendly evergreen, which alone, of all the trees of the wood, at that early season offered to screen us from the unsought libations which came so uncalled for, to throw sadness over our joys, and a wet jacket around our persons. But there was a mellow sunshine following so close upon those showers, that their influence upon our feelings and our garments were forgotten, almost as soon as realized, and we were ready for another hearty dash of rain, and another interlude of revivifying influence from the king of day. But where are those beautiful showers that called the early blossoms so early from their beds, and swelled the rippling streams that skipped so joyously from rock to rock all day long, gone now? Surely their repetition has not been so frequent in these latter days, as they were in olden time.

The May of 1848, however, bore a close resemblance in this respect to our good, old fashioned Aprils. Clouds were frequently flitting across the atmosphere, dispensing their influence and passing away, so that the month possessed all the moisture necessary to advance vegetation in a healthful growth; yet the earth was seldom so saturated as to cause delay in the labors of the season. The advance of vegetation through the month, was rapid, most so, however, in grass and the grains, while forest and fruit trees were tardy in throwing out the habiliments of summer. Pear, which blossoms liberally, were in bloom the 15th; apples, the 20th; cherries gave few blossoms; plums, none; peaches, none. The wood of the latter was worse killed in the winter, than for many previous seasons. The plum crop was probably ruined by the warm weather in December, during which the buds started so much, as to make them an easy prey to the severities of cold which followed. Though we had many cool days and nights in May, there was no frost until the last night of the month, when the ground in some places was slightly frozen, and in a few instances ice formed, of the thickness of window glass. It

was remarkable that the effects of this freeze were so slight upon fruit, which, with the exception of currants, suffered but little; these are probably about one-third destroyed. It was an event worthy of note, that plants were slightly injured, if at all. Had the cold settled in a *white* frost, it must have cut down and done essential injury to many of the productions of the field and the garden.

June came in cool, and on the whole sustained that character through the month. There were but few warm days, while the nights were for the most part chilly and unfavorable to corn and kindred crops. Many of the longest days were distinguished for high cold winds, so that to the traveller, the overcoat was not an unwelcome appendage. Rains were sufficiently frequent during the month to meet the demands of vegetation, but the high, drying winds had a tendency to diminish their influence, and leave the surface of the earth, especially in plowed lands, in a hard and impenetrable condition, thus making more frequent demands for the use of the hoe and cultivator, among corn, and in the garden, than would otherwise be necessary.

July came in cool. A heavy rain fell on the third, which cleared off at night, with a change of wind from S. E. to N. W. The 4th was a cool windy day; the weather continued cool until the 8th, when the wind changed to S. W., and the weather became warm, with foggy and frequent indications of rain, which continued, with very little fall of water, to the 13th; the 15th was the warmest day of the season; thus the mercury reached 98 in the shade.

So it appears that the season thus far has been cool, interspersed with but few warm days. The amount of wind and cloudy weather has been great. The number of thunder showers have been greater for the time than for several preceding years.

The crops, winter grain, although the winter may be considered unfavorable to its success, so far as freezing and thawing are concerned, came out in spring in a fine, healthy condition. The quantity on the ground is small, but it gives a fine crop, and is undoubtedly worthy of more attention than it is at present receiving.

Spring grain uniformly *looks* well. Spring wheat, without exception, is fine, and if no accident befals it, will be better than for several years. But it is not yet beyond the influence of insects or blight, and with its fair promise it *may* after all prove a failure. Oats, barley, peas, are fine as a reasonable cultivator can wish. The season, thus far, has been highly favorable to all these crops.

Grass is an article which, so far as the production of the

meadows are concerned, cannot be fairly estimated until the process of gathering is more advanced than at present. The hay crop, however, is an improvement on last year. The quantity of white daisies, both in mowing land and pastures, is immense. This is probably owing in a great extent, to the killing out of grass in the spring of '47, from which the fields will not recover entirely, until restocked, though in many instances a partial and perhaps nearly entire renovation would result from the application of gypsum or manure.

When so much cold has chilled the atmosphere, and such howling winds have been speeding their passage over the land, the natural supposition would be that corn must necessarily suffer, and yield but a poor return for days of hard labor expended, and hours of anxious solicitude in its behalf. But at the present time, corn universally looks well; the complaint of worms destroying its root has been almost unheard. The crows too, who often call for more than miller's toll, more liberal in their views of "the protective system," and made less demands than has been usual for them. What motives caused this act of clemency in them, we cannot decide, but are led to suppose that the almost universal practice of stringing twine around the cornfield, as soon as planting is finished, had its full share of influence in the matter, for why may not they, like other rogues, have such a fear of the halter or twine, when placed before their eyes, as to deter them from acts which certainly merit punishment. Corn for our mountain region, may be said to be forward, for in spite of adverse circumstances attending its growth, it began to show its tassels on the first of the month.

With regard to fruits, apples and pears promise fairly, while peaches and plums are an entire failure. The latter trees, however, are making wood well, and exhibit an unusually healthy appearance. Of the smaller and early fruits such as strawberries, raspberries, blackberries, &c., are in rich profusion. The abundance of the former, is probably attributed to the killing out of grass in old fields, where, in some instances, the vines became so thick as to be annoying. But one bushel of plaster to the acre on such lands will almost entirely eradicate and introduce a fine grass in the midst of them.

A beautiful feature in the labors of the last spring, was the increased number of fruit, shade and ornamental trees which were put out in various sections of the country, we are happy to say that general and unusual success has attended all labors in these matters. So far as we have seen or heard, but very few of these trees have failed either in leaf or growth. May a renewal of efforts in similar good works, be every year more and more manifest, until the work of tree planting shall be complete.

WILD FLOWERS—THEIR CULTIVATION, &c.

The great and increasing taste for the cultivation of flowers, has induced us to devote a few pages to the subject, more particularly to the cultivation of our native or wild flowers. In some of our former numbers, we have noticed some new and rare foreign plants, with figures and drawings of them. The interest of many cultivators has been drawn away by foreign productions, "far fetched and dear bought," while our natives, many of which are far superior in richness, have been left to bloom and fade, in all their beauty "unknown and unseen, to waste their fragrance in the desert air."

It is our present purpose to endeavor to awaken a greater zeal among cultivators and amateurs, for the growth of some of the brilliant plants and shrubs, which deck our fields and woods. Few persons seem to appreciate or even know to what perfection of culture many of our wild flowers may be brought, in the hands of skilful gardeners.

Here we cannot help remarking, that many flower gardens are almost destitute of bloom, during a great part of the season, which could be easily avoided, and a blaze of flowers kept up, both in the garden as well as pleasure grounds, from April to November, by introducing from our woods and fields, the various beautiful ornaments with which nature has so profusely decorated them. Is it because they are indigenous that we should neglect them?

Floriculture and other branches of ornamental gardening, have hitherto been less attended to in this country than those of a more useful kind, viz: the rearing of fruits and culinary vegetables. A change, however, for the last few years has taken place, of a more favorable character. The hand of nature has scattered the richest beauties of the flowery world around us in every direction, and there is nothing to prevent us from ornamenting our gardens with native plants and flowers, from every wood, from every swamp, from every field, and from every brook side, to which the eye can turn.

Among the great number of wild plants found in this section, we have succeeded in cultivating some of the following named varieties:

Cardinal Flower—*Libelia Cardinalis.* Among other plants found in the United States, remarkable for elegance, is the Cardinal Flower, which in the last summer months, may be found along our swampy grounds near fresh water streams. From its great beauty and showy appearance, it is a great favorite in

Europe, and is generally cultivated in pots. It is a perennial plant, growing in a simple stem from two to three feet high; leaves, from three to five inches long and an inch or more in breadth, with a long tapering base. Flowers of a bright scarlet color, and very showy.

Whoever has traveled on the river road, in the months of August and September, from Waterford to the Borough, could not have failed to observe, in an open wood, on the left hand side of the road, about six miles from the former place, a large number of those splendid flowers in all their native beauty.

Although its habits are wild and is generally found in marshy or wet ground, and borders of rivulets, it grows readily when transplanted into a dry soil, if in a shady position. It is in flower from August to October. We once removed some of these plants to our garden, in the month of April, and they grew and flourished finely, producing an abundance of splendid flowers the same season, and were much admired by all who saw them.

GENTIAN—*Gentiana augustifolia*, a wild flower of extreme beauty, which grows likewise in swamps, and is worthy of cultivation. Rare in this section.

ANDREWS GENTIAN—*Gentiana Andrewsi*—GRISEB, a biennial, stem simple, smooth, and rising erect from twelve to eighteen inches high. Leaves about three inches long, and an inch or more in breadth, very smooth except on the margin, which is a little rough. Flowers crowded in a terminal fascicle or head, with one or two in axils of the upper pairs of leaves. Corolla, about an inch and a half long, tubular, nearly closed at the orifice, bright blue, sometimes pale. It is found in low, moist woods, and flowers in September and October. We have found it growing on the borders of the Norman's Kill, in Bethlehem.

SMALL FRINGED GENTIAN—*Gentiana Detonsi.* This species grows in various parts of British America; "and I have received," says Torry, "from Mr. Lapham, beautiful specimens which he collected in Wisconsin. It is found on wet limestone rocks, Goat Island, Niagara Falls, and near Irondequoit Mills." It is supposed to be annual or perennial. Flowers yellow at base, with a bright blue top, beautifully fringed like the pink. It is a very pretty plant and would show well in the garden.

PRINCE'S PINE—*Chimaphilla umbelata.* (From the Greek *Chima*, *winter*, and *phileo*, to love, in allusion to the English name, *wintergreen.*)

This little unobtrusive evergreen plant is common in our woods, and it is said also to grow in the north of Europe. It is reputed to possess valuable medicinal qualities, and has long been used by the Indians as a tonic and diuretic. It is astringent and

somewhat aromatic to the taste; it is often used with other plants and roots in the making of small beer.

The root is long and woody, throwing up leafy and flowring stems at intervals, from four to six inches high, bearing from four to six nodding white flowers tinged with purple. Leaves from 1½ to 2 inches long, often in two or three imperfect whorls, smooth, of a dark glossy green, rather acute, sharply serate.

This plant would make a beautiful appearance in a pot, or in the shady borders of the flower garden, and may be cultivated with very little trouble, by attending to its habits, &c.

Round-Leaved Wintergreen — *Pyrola rotundifolia* — Linn. This is a very ornamental plant, not rare, found in rich woodlands. Its flowers are something like those of the hyacinth, or lily of the valley, and highly fragrant. This species is also a native of Europe. The leaves are broad and roundish, of a deep green color, often spreading or lying flat on the ground. They would make a handsome show in a flower garden or in pots.

Red Lily—*Lilium Philadelphicum.* Of all the tribes of wild flowering plants the lily stands preeminent. It is noticed in the sacred writings as of great brilliancy and beauty. "Consider the lily of the fields, how they grow; they toil not; neither do they spin; yet I say unto you, that Solomon, in all his glory, was not arrayed like one of these."

The red lily may be found in bushy places, borders of woods; and are growing in abundance on the sandy plain, between Albany and Schenectady. The stalk rises from two to three feet high, supporting one solitary upright flower. It blooms in June and July. The color varies from dark to light red with a tinge of yellow. This is a highly ornamental plant and deserves a place in every garden. Number of flowers increases by cultivation.

Wild Yellow Lily—*Lilium Canadensis*—Linn. This variety is common and is found in moist meadows, flowers in June and July. It grows from two to three feet high, bearing from one to five or six nodding yellow flowers, spotted inside with dark purple. It is a bulbous-rooted plant, and we have transplanted them, when in flower, with good success, some of which are now growing in our garden in full vigor, bearing five or six beautiful flowers on each stalk.

Turk's Cap, or Superb Lily—*Lilium supurbum.* This, in favorable situations, is said to be truly a magnificent plant. It delights in moist meadows, and flowers the latter part of July and first of August. It is regarded by some botanists as only a variety of the yellow lily, but its characters seem constant. The stem rises from three to six feet high, leaves narrow, from five to eight, in a whorl, and from two to four inches long. Flowers

varying from three to twenty, or in very luxurious plants, to thirty or forty, arranged in a pyramidal manner, or in the form of a chandelier. Color, a bright orange with numerous redish purple spots. We have no recollection of ever having seen any of this variety in the vicinity of Albany. According to the description it would make a splendid appearance in the flower garden, and is worthy of cultivation.

Large Yellow Lady's Slipper — *Cypripedium pubecens.* Swartz. This much admired flower, is found in moist, shady woods, and swamps. There are three varieties of this species, and some rather rare. The root of this plant consists of numerous thick fibres. Flowering stem simple, and rising from one to two feet high. Flowers large and showy, solitary, sometimes in pairs with a large foliaceous bract at the base. Petals greenish, stained with purple, and from 1½ to 2 inches long. Upper sepal rather broadly lanceolate; the two lower ones commonly united nearly to the tip, but sometimes distinct. Petals lanceolate linear, undulate and twisted. Lip yellow, 1 to 1½ inches long, somewhat obovoid, much inflated.

Smaller Yellow Lady's Slipper—*Cypripedium parviflorum.* This and the preceding are very nearly allied, and many of our botanists do not consider them distinct. "I have had no opportunity," says Dr. Torrey, "of comparing them in a living state." The diagonostic characters given are those of Hooker, who has, no doubt, (having examined cultivated specimens) those that are perfectly distinct. The character of this plant does not differ materially from the preceding. Flowers purplish-brown mixed with green. Petals much narrower and rather larger, undulate and twisted, green spotted, with purplish brown, or sometimes wholly purplish. Lip 1 to 1½ inches long, somewhat flattened above and below, the sides swelling out. Flowers in May and June. Rare, found in woods, swamps and on hill sides.

Noah's Ark. Purple Lady's Slipper—*Cypripedium acaule.* Ait. This plant is found in the vicinity of Albany, in woods, in both dry and moist situations; flowers in May. Roots thick and fibrous. Leaves from three to six inches long, from 1 to 1½ inches wide, at first erect, but finally spreading. Stalk rises from eight to twelve inches high, flowers pendulous, with a shallow fissure or indentation in front, greenish mixed with purple.

This plant bears cultivation remarkably well and improves by care and attention. We have had no difficulty in cultivating them, and considered ourselves well paid in their splendid show, for all our trouble.

There are a great number of other beautiful native plants that are worthy of cultivation, which we intend to notice at some other time. We hope to succeed in introducing to the notice of

our young readers, a taste for the cultivation and study of the beautiful floral productions of our country. Three-fourths of the beautiful flowers, so highly prized in European gardens, are actually natives of this country. It is also our intention to take up the subject of cultivating flowering shrubs, probably in our next number.

HISTORY OF A SOD.

"Always examine what other men reject as worthless."

We may perhaps be thought jesting when we affirm that the history of a sod of grass is one of great interest; and we are content to refer to what follows for our justification, as we state our serious conviction, that the reflections to which a little clump of green turf give rise, are replete with instruction of no mean order. The sod before us, and the pen in hand, we must proceed methodically to our investigation—investigate it historically, botanically, and chemically. Observing this order, we may first inquire how the sod took origin. If we examine its structure, we shall find that it is a thick and consistent mass of roots, which, by their countless entanglements, have enclosed a quantity of the soil beneath in such a manner that it is scarcely to be separated from them. This structure enables us to remove the sod wholly from the surface of the place upon which it is found. How, then, was the foundation, so to speak, of this mass of vegetable fibres and mould laid? If our sod was cut from the stony bosom of a rock, the answer lies far back in ages gone by. A tiny lichen began the work there; and after serving its purpose in coating the naked and desolate surface with a thin layer of vegetable mould, it was at length vanquished by a stronger than itself in the form of a waving, clustering moss. The winds and tempests of years tried the courage of the moss, and many times threatened its utter destruction; but it still held firm. The lichen which preceded it had roughened the hard surface, and the clasping fibre of the moss laid hold of the smallest inequalities. The rain descended, and the winds blew; but neither conquered; for the moss flourished, and had a thriving family, which being rapidly joined by vagrant relations and friends, the rock began to look green. This was the first robe. By and by the birds of a distant region found rest on the rock, and left behind them the undigested grains of herbs plucked and devoured many miles away. Of these, some lived, some remained dead. Of the living ones, eventually only a few

survived, for some were too delicately appetized to exist on the thin face of their new cradle, and became rapidly choked by those sturdy rustics who were content with a draught of rain (containing a fraction of ammonia), and with such a minute amount of alkalies as was left by the mosses and lichens in their decaying remains. A wiry vegetation was now busy in constructing the foundation of the future sod. Little rootlets, tough as cords, and pushing themselves in every direction, bound together the loose and incoherent mass of decaying tissues, sand, and degraded soil, which the previous occupants had left behind them. The rock itself suffers change. Water and carbonic acid attack it, and it slowly crumbles. The plants now formed help the work; they appropriate its ingredients; the depth of soil increases. It has also become richer; consequently a better class of plants can live thereon. Now the hardy constitutioned wiry grass either dies of too much food, or is choked in retribution by the decendants of those which it formerly killed. The soft green blades of fragrant grasses come up, and paint the once gray and dreary landscape in the most refreshing colors. Year succeeds to year; the winter kills some; the sprihg awakens others; and the summer ripens the seeds of a multitude of grasses which the autumn shakes to the earth, and by its heavy rains, causes to take root in the soil. Layer after layer of roots overtops the last. All traces of the early mosses are lost in the brown humus at the bottom, so that one could scarcely form even a conjecture as to how the work began.

But possibly our sod has been taken from a rich meadow, lying along the sides of a deep inland-penetrating stream, thick, rank, and luxurious, with crowding blades and towering stems. This green meadow was once a quiet lake, or perhaps a part of a more tumultuous sea. From those "heaven-kissing hills" which form the rough, uneven outline of the horizon, and from which the stream takes origin, centuries have washed down tons upon tons of alluvial soil. The waters of the lake grew shallow, aquatic plants fringed its edges, and assisted the process. The waters sank, the land rose. No sooner did it appear above the surface, than, as if with wings, the seeds of numberless grasses and other plants flew thither, and rapidly colonized the spot. But though the surface looked quietly green, much time must clapse before the due thickness of a sod is formed. Many a contest also will take place between sturdy docks, and noisome weeds, and the sweet-leafed grass, before the latter gains the entire supremacy; and in fact this it never absolutely succeeds in effecting without aid from man. In a few years this work, too, is completed, and the surface over which in bygone times the ripple rolled, or the billow heaved, now rejoices in a waving garment of the freshest green.

So far for the pure history of the sod; now for its botany. Those who have never taken the pains to examine the herbage of a sod, will be disposed to believe all grass to be pretty much the same, if indeed a difference be admitted at all. We believe very few are really aware of the number and beauty of the species which may be, and often are, contained within an area to which a hat would form an ample tent. Mr. Curtis, well known for his various works on natural history and botany, tried a curious experiment with the assistance of a friend. Sods of grass six inches only in diameter were cut from nine different places in Hampshire and Sussex, and were selected indiscriminately from the spots whence they were removed. They were than planted in Mr. Curtis's garden where they thrived luxuriantly. On being examined, the following interesting discovery was made: One piece of sod from Selborn Common, *six inches* diameter, contained *fourteen* different species of grass; and, singular enough, a similar sod from Ringmer Down contained an equal number. Others bore respectively nine, seven, six, and five species—none contained fewer than *three*. Who has not inhaled with pleasure the sweet perfume of new hay? This perfume is due to the presence of the *Anthoxanthum odoratum* (sweet-scented vernal grass). Even the green leaves of this graceful grass readily impart this perfume to the fingers by which they are bruised. Another species somewhat like it in appearance is the fox-tail grass; but it is more coarse in foliage, and is destitute of the fragrant odor of the former. Another, and a more elegant species, is the well-known, almost ubiquitous, *Poa pratensis*, which springs up alike on our old walls and on the fostering bosom of our fertile pastures. Every one must have admired the beautifully fine hair-like grass which clothes the surface of our dry heaths, downs, and sheep-walks—a grass upon whose velvet-like surface the foot is seldom weary of resting. This grass is called the *Agrostic capillaris*, in evident allusion to its character; and being admirably constituted so as to endure heat and drouth, it furnishes a valuable food to the mountain-fed sheep, that would otherwise be altogether destitute at such seasons, or could feed only in the sheltered valleys of these regions. Another grass equally adapted for a peculiar situation, and almost certain to be found in our lump of sod, if it was taken from the hard bosom of a northern limestone rock, is called the *blue dog's-tail* grass; and for such situations as it is found in it is well adapted, from its at all times affording sheep a tolerable fair pasture. Beside these, there are probably in our sod the curious, inconstant, yet common grass called rye-grass, or *Lolium perenne*, of the most vigorous growth, and in rich meadows greedily consumed by cattle. Mr. Curtis says that this grass appears to vary *ad infinitum* even in its wild state: he had seen a variety of it

with double flowers, and one with awns, both of which are very uncommon. In some pastures, such as are not very moist, the stalks are sometimes viviparous towards autumn; sometimes it produces scarcely any stem, and much foliage; at others, little foliage, and an abundance of flowering stems. It is a curious fact, that if we examine this same sod, having returned it again to the earth, in the next year, or in the year following, we shall in all probability find that an entire change of species has taken place. Some that are now luxuriant will then have degenerated, and some that are now weak will then have become entirely removed from the army of green blades. Why is this? It is found that if the grasses are kept close shaven to the ground, or are fed down, to use the agricultural phrase, this deterioration is avoided; whereas it is almost sure to follow if the herb is allowed to run to seed. It is a sort of natural rotation. Changes in the soil very probably take place which are favorable to the other varieties, but detrimental, or less favorable to these; and the natural consequence is, that the healthiest wins the field.

Let us lay the grass stem under the knife. On removing its leaves from the glistening surface of the stem, they will be found attached at their base to a joint, which they also partly embrace. What are these joints? Passing the knife through the stem, it is found that it has this striking difference from other plants: it is a hollow tube, and at each joint a sort of diaphragm or cross partition is stretched so as to divide the stem into a number of closed cylinders, each having no connection whatever with the one above or below. This is exactly the structure of a bamboo. It is on this account that a great botanist has declared that our tiny inhabitants of the sod, which we have been wont to despise and trample under foot, belong to a noble family, which under favoring influences of sun and warmth, carry their heads near ten times higher in the heavens than we ourselves—these are the bamboos. In his own words—the words of Nees Von Esenbeck—grasses are but dwarf bamboos. The microscope only can reveal the true beauty and structure of the minute flowers which adorn the lowly grasses. Thus examined, they present a pleasing and interesting study. Every one must have seen the curious little spikelets of the brome, or meadow grasses; and the attentive eye will have marked here and there a yellow stamen peeping out of its unattractive flower. The microscope, or a good lens, reveals the fact, that every spikelet is made up of many flowers beautifully arranged together, as if they were the coverings of one which does not appear. Each little flower consists of a couple of tiny scales, supporting the hairs or bristles with which we are so familiar. These little scales —technically, *paleæ*—cover two other smaller scales, which appear to be the rudimentary calyx or corolla of the flower; and

these, with the others, enclose and shelter the stamens and ovary. With the structure of the seed we do not think it necessary to deal. Suffice it to add, that in the counsels of a watchful Providence, it has been so ordained that that rapidity of growth which is essential to the speedy covering of the earth with her green mantle, has been both foreseen and beautifully provided for in its fabrication.

We may consider that two chemical processes meet in our sod—the one belonging to the chemistry of life, the other to that of decay and death. To take the last first. If the roots of the sod are carefully examined, it will not be difficult to separate the living from the dead; and the latter class includes the decaying and decayed. The brown, friable, pulverulent matter which is called mould, and composes a considerable portion of the underground mass of the sod, is vegetable fibre having undergone its complete decay. Chemists call it *humus*. It is insoluble, or nearly so, in water; it cannot, therefore, although rich in carbon, contribute any of that element directly to the thick vegetation flourishing above. Yet it was long considered that this very humus was the real and only origin of the wood of plants. As, however, plants can only receive soluble particles by their roots, and those of humus are insoluble, it is a very simple and just conclusion to arrive at, that the source of carbon in vegetation lies not for the most part in the soil. The thin air and the viewless winds will better answer the question. Is the humus of the sod, then, altogether useless? Not so. It is the reservoir of all the alkaline and mineral ingredients of the last generation of plants, and these are absolutely essential to the well being, even to the existence, of vegetation. In the undisturbed greensward, allowed to lie for years by the grazier, this stock of salts amount to a large quantity; and if the plow is now sent through it, the smiling sod torn up, broken, and crushed and sown for wheat, a crop of vast luxuriance follows. But this only lasts for a year or two, and the land returns to its former average, or possibly falls under, for reasons not to be here entered into. In the upper layers of the sod, vegetable fibre in the actual process of decay is sure to be found. It may be recognized by its crumbling character and brown color. Possibly it consists of the slain bodies of the grasses which were felled by the last winter's frosts. Water and air are busy here; the work of destruction hastens on; the woody fibres undergo "eremecausis," to use the Liebigian phrase—that is, they are slowly, or by degrees, consumed. In so doing, they are continually evolving small portions of carbonic acid gas; the fibres become more and more broken up; until at length it is not possible to distinguish them from the pulverulent humus above mentioned. In this process all the salts and mineral constituents which entered into the composition of the

original fibres are again surrendered to the soil in their turn, to enter into new relations, and to serve new purposes in the physiological economy of another generation. The carbonic acid gas eliminated in decay is not produced in vain. When the rootlets of the young grasses are feeble, while the growing stem and leaves draw much upon them, the genial rain descending dissolves this gas, and supplies it to the spongioles of the roots in a liquid form, to be then carried up into the vegetable system, and there decomposed. So far for the chemistry of death in the sod. How little do we prize the purifying influence of our green fields! How little value the myriads of minute laboratories in the greensward, which, busy all the day long, drink up the detrimental carbonic acid gas of our impoisoned air, and pour out in return, volume for volume, invisible fountains of purest oxygen! Such, humble as they are, is their high vocation, so far as it directly relates to man. That fatal gas which he and his manufactures, and his humbler relatives in the zoological scheme—animals, birds, and the almost invisible insect—alike combine to produce, the cheerful sward seeds upon, gladly appropriates, makes into wood, turns into leaves and stems, and, more useful still, converts into health-sustaining food for man and beast. During the shades of night the grass lands, in common with the rest of vegetation, evolve carbonic acid; but it has been satisfactorily demonstrated that the preponderance is incomparably in favor of the oxygen evolution during the day.

We have spoken of the tender blades which crown our sod as forming food. The chemical analysis effected by Sir H. Davy shows that the following principles in the grasses are those by the possession of which it is adapted for this end. Their remarkable simplicity will not fail to be observed: mucilage, sugar, bitter extractive matter, a substance analogous to albumen, and various saline ingredients. Let this suffice for the history of a sod. The desire has been to exhibit, however imperfectly, the rich and varied amount of interest and instruction which may be made to flow out of the contemplation of one of the commonest objects in nature.

ALBANY AND RENSSELAER HORTICULTURAL SOCIETY.

The second meeting of this society, for the present year, was held at the court house in the city of Troy, on the 12th ult. The President, Joel Rathbone, in the chair.

The exhibition of fruits, flowers and vegetables was fully equal, if not superior, to either of the former exhibitions; and the show was such, in all respects, as to satisfy the friends of the society

that a growing taste for horticulture is manifest in the various departments. This continued evidence of the growing interest among the exhibitors, is very encouraging to the officers and members, and stimulates them to further exertions in the great and good cause.

The following are the names of the exhibitors and the articles exhibited:

Fruit.

By Joel Rathbone, of Kenwood—Five varieties of Gooseberries, three varieties of Currants, and Stoddart's Alpine Strawberries.

By William Newcomb, of Pittstown, Woodward's Whitesmith, and Crown Bob Gooseberries, Red Dutch, Black Missouri and Black English Currants.

By V. P. Douw, of Wolvenhook, Green Amber and Woodward's Whitesmith Gooseberries, Red Antwerp and White Antwerp Raspberries.

By Charles H. Merrit, of Troy—English Morrello Cherries; the committee cannot omit this opportunity to add that owing to the extreme vicissitudes of the last winter the cherry trees in this whole vicinity, with the exception of an occasional isolated instance in well protected yards in the cities, have not borne fruit this season.

By J. W. Haydock, Greenbush, near Troy—White Dutch Currants.

By Dr. J. Wilson, of Bethlehem—White Antwerp Raspberries, Yellow Amber and Cottage Girl Gooseberries, White Dutch and Red Dutch Currants.

By Henry Vail, of Mount Ida, near Troy—Twelve varieties of Gooseberries, four varieties of Currants, four varieties of Raspberries.

By Dr. Herman Wendell—Five varieties of Gooseberries, White Antwerp Raspberries, and six varieties of Currants.

By Spencer Daniels of Albany—Whitesmith, and two varieties of seedling Gooseberries of medium size and fair character.

By James Wilson of Albany—Three varieties of Gooseberries, two varieties of Currants, Knight's Sweet Red and White Grape—a large and beautiful new variety, but more acid than the White Dutch.

By Lawson Annesley of Albany—Six varieties of Gooseberries.

Premiums.

The committee have awarded the premiums as follows:—

Cherries—For the best one variety—the only one exhibited—English Morello, to Charles H. Merrit, of Troy, $1.

Currants—for the best and finest flavored variety, to James Wilson, of Albany, for beautiful specimens of Knight's Sweet Red—a rich and favorite new currant, having much less acidity than any other variety, $2. For the second best and finest flavored, to Dr. Herman Wendell, for very large and beautiful specimens of the White Dutch, $1.

Gooseberries—For the best and finest flavored variety, to Henry Vail, for very large and beautiful specimens of the White Eagle, a rich, sweet and delicious variety, $2. For the second best with same requirements, to Henry Vail, for very finely grown specimens of the Edwards Jolly Tar—a rich variety and very little inferior to the above, $1.

Raspberries—For the best and finest flavored variety, to Henry Vail, for beautiful specimens of the new Red Antwerp, a large, firm, rich and delicious variety, $2. For the second best, with same requirements, to Volkert P. Douw, for very fine grown specimens of the favorite old Red Antwerp, $1.

Plants and Flowers.

The committee on green house plants and flowers reports that there was exhibited by Louis Menand of Watervliet, twelve plants in pots, beautifully grown and showing in their culture evidences of Mr. Menand's well-known skill. Two varieties of Carnations and Crassula Coccinnia, and the following cut flowers, viz:—Gloxinias, Candida Maxima, Coccinnia and Speciosa; *Roses*, *Noisette*, Fellenburgh; *Bourbons*, Hermosa, Madam Desprez and Marshall Villars; *Hyb Perpet*, Gloire de Guerin; *Tea*, Flavescens; *China*, Arch Duke Charles, also Hlox Onosmasflora.

By Dr. Herman Wendell—Thirty-four varieties of large and beautiful Seedling Pansies; *Phloxes*, Auguste, Anias Chauvier, Fleur de Marie, Picta Van Houtii, Rosea Superbissima, Norfolkii, Grato, Charles, and Alcarda; *Dahlias*, Sylph, Oddity, Madame Chauvier, Lees Bloomsbury Striata Formasissium, and Mrs. Rushton. Three varieties of Carnations, and a variety of other flowers, as Eucharidium Grandiflora, Nemophila Discoides, Viscaria Occulata, Fidelia Graciferra, Calliopsis Drummondii, Silene, Shafti, Phlox Drummondii, several varieties of Spireas, &c., &c.

By Wm. Buswell of Troy—Fourteen varieties of Carnations and Picotees; *Roses*, Sovenier de Malmaison and Queen of the Prairies, Verbenas Pansies, Heliotropeums, and a very fine plant of Fuchsia Brookmanii in a pot.

By Joel Rathbone, of Kenwood—*Roses*, La Reine, Solfaterre, Prince Albert, Doctor Marx and Queen of the Prairies. Nine varieties of Verbenas, ten varieties of Pansies, seven varieties of Pinks, Euphorbia Splendens, Spireas, Pelargoniums, Salvia Splendens, Plumbagos, Gladiolas Pzittacinus Copea, Scandens &c.

By Frederick Keisel, of Albany—Ten varieties of beautiful double seedling Pinks.

By James Wilson, of Albany—*Roses*, Flavescens, Bougere, Le Pactiolis, Solfaterre, LaReine; *Phloxes*, Princess Marianne and Alcarda. Several varieties of Carnations and Picotees, Coccinea Cordata; *Lythrums*, Alata and Salicerea, Epilobeums; *Spireas*, Lobata, and several other varieties — Potentilla Spotswoodii, Clematis Integrifolia and Erecta, Dracocephalum Specioso, *Campanulas* Persicifolia, and Persicifolia Alba Plena; *Delphinums*, Elatum and Grandiflorum, Agrostema flos cucula, Lychnis Viscosa, Oenothera Odorata, Verbascums, several varieties of beautiful Pansies, Verbenas, and a large number of beautiful Annuals.

By D. Thomas Vail, of Mount Ida, near Troy—*Dahlias*, Mrs. Shelly, Model, Hamlet, Venusta, Marquis of Aylesbury, Princess Radzville, &c.

By William Newcomb, of Pittstown—*Roses*, La Reine, La Marque, Pallida, Pink Moss, George the Fourth, Cabbage, and Queen of the Prairies; *Dahlias*, sixty-two varieties; seventy-one varieties of annual and perennial flowers, viz., Spireas four varieties, Lychnis three varieties, Delphinums three varieties, Verbenas six varieties, Dianthus six varieties, Iberis two varieties, Pyrethrums, Bletia Hyacinthina, Clematis Erecta, Aconitum Napelus, Aconitum Variegata, Campanula Urticifolia, Ageratum Mexicanum, Petunias several varieties, Digitalis Alba, Digitalis Purpurea, Phlox Suaveolens, Ipomopsis Elegans, Polemoniums, Malope Argentum, Funkia Japonica, Godetias, Lilium Longiflora and Lilium Japonicum, Pansies; six varieties Loniceras, Calceolaria, Phlox Drummondii, &c.

Premiums.

On Carnations and Picotees—For the best six varieties to William Buswell, of Troy, for Empress, Portia, Euterpe, Flora, Incomparable, and Desdemona, $2. For the best three varieties to Dr. Herman Wendell, for Ariadne, Ceres, and Josephine, $1.

On Dahlias—For the best display, to Wm. Newcomb, $2. For the best twelve varieties, to Wm. Newcomb, for Caleb Cope, Conductor, Constantia, Mrs. Shelly, Essex Goldfinch, Princess Radzville, Isis, Ithuriel, Beeswing, Lady Featherstone, Marquis of Aylesbury, and Dowager Lady Cooper, $2. For the best six, to D. T. Vail, of Mount Ida, for Hamlet, Mrs. Shelly, Model, Marquis of Aylesbury, Princess Radzville, and Venusta, $1.

For the best display of biennial, perennial, and annuals, to Wm. Newcomb, $2.

For the best six green-house plants, in pots, to L. Menand, for Agapanthus Umbellata, Begonia Sanguinea, Clethra Arborea, Fuchsia Chauvierii, Gloxinia Coccinea, and Veronica Speciosa, $2.

Floral Designs, Bouquets, &c.

The committee reported that D. Thomas Vail, of Mount Ida, exhibited one splendid large round Bouquet for centre table vase, arranged with exquisite taste, and composed of choice Roses, Pelargoniums, Pansies, Fuchsias, Verbenas, Heliotropeums, &c., to which the committee awarded the premium of $2.

One beautiful flat-hand Bouquet, composed of choice flowers. One round-hand Bouquet, composed of rare flowers beautifully arranged; and one beautiful basket Bouquet, composed of choice Roses, Pansies, Pelargoniums, Fuchsias, &c., arranged with good taste.

By Louis Menand, of Watervliet, a very beautiful flat-hand Bouquet, composed of Gloxinia Coccinea, Phlox Van Houtii, Phlox Anosmœflora, Euphorbia Splendens, Erica Bowiana, Hoya Carnosa, Russelia Johnsonii, Gardenias, Campanula Persicifolia, Gladiolus Formasissimum, Roses in several varieties, &c. Also, a beautifully arranged round-hand Bouquet, composed of about the same varieties of flowers.

By Wm. Buswell, of Troy, a flat-hand Bouquet, composed of Spireas, Campanulas, Iberis, Delphinums, &c.

By Mrs. Charles H. Merritt, a beautifully arranged vase of choice cut Roses, Pelargoniums, Heliotropes, Verbenas, Pansies, &c.

By Dr. Herman Wendell, an exquisitely arranged basket Bouquet, composed of a large number of choice rose-buds, Pelargoniums, Pansies, Heliotropeums, &c., to which the premium was awarded of $2.

A round centre table Bouquet, arranged in good taste, and composed of choice Roses, Spireas, Salvias, Verbenas, Carnations, Pelargoniums, &c.

By Wm. Newcomb, a flat Bouquet for mantle vase, composed of choice flowers, and arranged with good taste, to which the committee awarded the premium of $2.

By Joel Rathbone, of Kenwood, two round centre table Bouquets, composed of choice Roses, Pinks, Fuchsias, Spireas, &c.

By James Wilson, of Albany, a beautiful flat-hand Bouquet, composed of choice flowers, as Hoya Carnosa, Gardenias, Calcolarias, Neriums; *Roses*—Ophire, Le Pactiolis, Solfaterre, Achimenes Picta, Fuchsias, Gloxineas, Crassula Coccinea; *Verbenas*, Eclipse, Polki, Roseum, Feasts White, &c., and arranged with taste and skill, to which the committee awarded the premium of $1,

Also, a very beautiful round-hand Bouquet, composed of about the same varieties of flowers, and exquisitely arranged, to which the committee awarded the premium of $1.

Vegetables, &c.

There was exhibited by Henry Vail, of Mount Ida, Troy, two varieties of Beets, three varieties of Squashes, Biscuit Potatoes of large size and very fine appearance, said to be a valuable variety, and superior Ox-Heart Cabbages.

By Dr. Herman Wendell, a brace of Victory of Bath Cucumbers, twelve inches long, and a brace of Latter's Victory of England Cucumbers, ten inches long. These new varieties were tasted by the committee, and pronounced very good; but having been grown under glass, were not entered for competition.

By Joel Rathbone, of Kenwood, two varieties of String Beans, several varieties of seedling hybrid Rhubarb, of very fine appearance; yellow Carrots, fine and very large for the season; double Parsley, fine ripe Tomatoes, ash-leaved Potatoes, and very large early York Cabbage.

By V. P. Douw, of Wolvenhook, Greenbush, ripe Tomatoes, Blood Beets, large early York Cabbages, Bell Peppers, and fine early Sweet Corn.

By F. Keisel, of Albany, Seymour's white solid Celery, very large and fine; and three beautiful specimens of Kohl Rabi, which, being new in this vicinity, attracted much attention from visitors at the exhibition.

By Wm. Newcomb, of Pittstown, very fine Bassano Beets, Lentils, large and superior Onions, Salsify, fine white and yellow Carrots.

By John Willard, of Troy, three varieties of Cabbage, all very large and fine,—Ox-Heart, early York, and Bergen; very large and fine silver-skin Onions; long Blood and Turnip Beets, very fine; yellow Altringham Carrots; early frame Cucumbers, very fine, but not entered for competition, as they were grown under glass; Salsify, and very superior Mountain June Potatoes, of large size.

The premiums were awarded as follows:—

On Squashes, to Henry Vail of Mount Ida, $1.

On early Corn, to V. P. Douw, of Wolvenhook, $1.

On String Beans, to Joel Rathbone, of Kenwood, $1.

On Potatoes, to John Willard, of Troy, for Mountain Junes, $1.

A special premium was awarded to F. Kiesel, for Kohl Rabi, $1.

Vegetables, constituting as they do so large a portion of the necessary aliment of the community, deserve, as we are happy to perceive they are receiving, great attention from horticulturists, both professional and amateur; and we commend the laudable efforts of a few, for introducing among us new and valuable vari-

eties, and we congratulate the Society on the great improvements in the cultivation of vegetables in this vicinity. Heretofore we were dependent on the south part of the state and New-Jersey for a great proportion of early vegetables; we can now grow them in this section with very little extra trouble.

JUNIPERINE.

BY J. H. SALISBURY.

In January of 1847, after having obtained a peculiar chrystalizable principle* from the outside bark of the white birch (betula populifolia), and while examining for similar principles in the hemlock (pinus Canadensis), black birch (betula lenta), red cedar (juniperus Virginiana), and several other species, tufts of acicular crystals were observed shooting out from the wood of the red cedar, which, on further examination, seemed to conduct themselves, in many respects, very similar to those of the white birch. This body, at that time, was supposed to be new. It has since been obtained in considerable quantities, and the examinations which have been made seem to confirm the former opinion. It may, however, turn out to be nothing more than the solid essence of the plant noticed before by others, though the manner of obtaining it is very different. There is so little said of the solid essence of cedar wood, that it is difficult to decide yet whether it be the same substance or not.

The liberty has been taken, till other examinations be made which are now under way, to call it Juniperine.

It is extremely volatile, passing off at the ordinary temperature of the atmosphere. It smells strongly of the heart wood of the red cedar, and seems to be the principle to which it owes its agreeable and fragrant odor.

When sublimed from the wood, it crystalizes in beautiful fasciculated tufts. These recrystalized from ether, often take a stellated arrangement, and from oil of turpentine a pinnate. Some of the crystals, under favorable circumstances, when the process is continued for a considerable length of time, at a proper temperature, are occasionally extended from one to two inches in length.

* The crystals observed in the bark of the white birch may be *betuline*, noticed first by Lowry. A method of obtaining them was noticed by Prof. Emmons, in the January No. of 1847, of his Journal of Agriculture and Science.

It is continually escaping, at ordinary temperatures, from the wood, and may be seen crystalized on cedar posts, boards, or timber, either exposed or sheltered, presenting the appearance, at first sight, of white mould. It is readily soluble in ether and boiling alcohol; less readily soluble in cold alcohol and oil of turpentine; slowly soluble in acetic and oxalic acids; and almost, if not entirely, insoluble in water. Readily soluble in sulphuric, less readily soluble in hydrochloric and nitric acids; and slightly soluble in ammonia and solutions of caustic potash.

The crystaline principle of red cedar, and that of the outside bark of the white birch, are both under examination. They agree very closely in many of their characters.

ANNUAL FAIR OF THE AMERICAN INSTITUTE.

The twenty-first annual fair and exhibition of this very useful institution will commence on the 3d of October next, at Castle Garden, in the city of New-York.

The following are some of the general arrangements.

"Exhibitors of specimens for premiums, excepting cattle and other live stock, agricultural and horticultural productions, &c., are required to bring them to the Garden, and obtain a certificate from the clerk of the Fair, on Friday or Saturday, the 29th and 30th days of September, previous to the opening of the exhibition.

Monday, October 2d, will be appropriated for the arrangement of the contributions. Vegetables, fruits, and flowers, for the horticultural room, should be brought this day, before 12 o'clock.

Great show of choice roses and dahlias on the 9th, at 12 o'clock, at the Garden, for special premiums.

All contributors are earnestly desired to bring their articles early on the receiving days, as it will increase their claims to the best locations, enable the managers to open the Fair more perfectly arranged, particularly operating machines, as time is required to adjust and fit their connexion with the propelling steam power.

"Each exhibiter is requested to hand to the clerk, at the time of entry, the name of the article, the name and residence of the manufacturer, and by whom sold, distinctly written; it will facilitate the completion of a full and perfect catalogue, be satisfactory to visiters, and useful to the contributor; but to insure impartiality from the judges, it should not appear on the article until the decision is made by them; also, a written description, and the process of fabricating or producing, if peculiar, and particularly of

labor-saving machines, as sometimes the object and uses of important improvements have escaped the attention of the judges."

"To awaken genius and sharpen competition, premiums of reward for merit, in number and value unprecedented by any other similar institution, have been awarded. Within the last three years they have numbered 2,635. To reach the varied occupations of industry and art, and to give effect to the premiums, the collection of exhibited articles is required to be very extensive."

The cattle and other live stock to be exhibited on the 11th, must be entered on the books on Monday, the 9th of October, and pedigrees delivered to the clerk at the committee room, at the Washington Drove-Yard Hotel, in 44th-street, between 4th and 5th avenues. Cattle Show opens on Wednesday, Oct. 11th.

The exhibition at the Garden will commence at 9 o'clock, A. M., on Tuesday, October 3d. The opening address will be delivered in the evening, at 7½ o'clock.

For further particulars we would refer our readers to the printed circular of the Institute.

ACKNOWLEDGMENTS.

We are indebted to Hon. Hugh White, M. C., for a copy of the Reports of the Commissioner of Patents, and Secretary of the Treasury, for 1847; and to Daniel Gold, Esq. for Report of the Commissioner of Patents, for 1847; for which we tender our thanks.

"*School of Applied Chemistry.*" We are in receipt of a circular issued from the Analytical Laboratory, Yale College, New-Haven, for 1848, in which it is stated that "A regular course of lectures will be delivered in the winter of each year, commencing in January, and continuing about two months, there being four lectures in each week. The subjects of the course will be,—the composition and nature of the soil, the plant, and the animal; theories of rotation of crops, and of feeding; modes of draining; the different kinds of manures, their value, and how beneficial; the improvement of waste lands, &c., &c. The text-books will be indicated for study during leisure hours.

In connection with the lectures will be a short course of Elementary Chemistry, for such as wish to study somewhat more of chemistry than is given in the course, and to qualify themselves for making ordinary testings and qualitative examinations of soils, manures, &c.; this course will occupy two hours of five days in each week during two months.

The fee for the lectures on Agricultural Chemistry will be $10. That for the Elementary Chemical Course, including apparatus and re-agents, will be $25.

METEOROLOGICAL OBSERVATIONS FOR JULY, 1848.

Made at the Albany Academy, by Dr. T. R. Beck, Principal, &c.

Days.	THERMOMETER.				WINDS.		WEATHER.		RAIN	REMARKS.
	6 A. M.	3 P. M.	9 P. M.	Mean.	A. M	P. M.	A. M.	P. M.	Inch's	
1	71	76	68	69·83	S.	N.	Clear.	Clear.	0·38	Rain.
2	60	77	72	71·17	S.	S.	Clear.	Cloudy.		
3	69	67	65	65·83	S.	N. W.	Cloudy.	Cloudy.	0·72	Rain.
4	62	73	64	66·00	N. W.	N. W	Clear.	Clear.		
5	60	78	66	67·67	N. W.	S.	Clear.	do		
6	58	72	65	65·33	N.	N.	Clear.	Cloudy.		
7	60	70	63	64·00	N. E.	E.	Clear.	do		
8	58	75	67	67·33	S.	S.	Clear.	Clear.		
9	62	73	67	67·67	S.	S. E.	Cloudy.	Cloudy.	0·27	Rain.
10	64	76	72	71·67	N.	E.	Cloudy.	Clear.		
11	70	85	77	77·83	S.	S.	Cloudy.	do		
12	73	85	78	79·00	S.	S.	Clear.	Cloudy.		
13	75	70	68	69·33	S.	S.	Clear.	do	1·82	Rain.
14	65	85	77	75·83	N. W	N W.	Clear.	Clear.		
15	66	79	69	70·83	N. W.	N. W.	Clear.	do		
Semi-monthly mean,				69·95					3·19	
16	63	71	61	64·.7	N. W.	N. W.	Clear.	Clear.		
17	58	76	68	68·00	S.	N. W.	do	do		
18	62	75	73	70·50	S. W.	S.	do	do		
19	65	84	77	76·50	S.	S.	do	Cloudy.		
20	70	87	78	78·67	S.	S.	do	Clear.	0·13	Rain.
21	72	88	80	80·17	S.	S.	do	do		
22	73	86	73	76·50	S.	S.	Cloudy.	Cloudy.	1·35	Rain.
23	68	73	72	71·00	N.	N.	Cloudy.	Cloudy.		Rain.
24	68	83	73	74 83	N. W	N. W.	Clear.	Clear.		
25	69	78	75	74·17	S.	N.	Cloudy.	Cloudy.		
26	70	83	76	77·33	N. E	N. E.	Clear.	Clear.		
27	76	87	73	77·07	S.	S.	do	Cloudy.	0·67	Rain.
28	67	79	70	71·67	N. W.	N. W.	do	Clear.		
29	65	78	71	71·00	N.	W.	do	Clear.		
30	63	80	73	72·50	N E.	S.	do	Clear.		
31	66	74	67	68·67	S.	S.	Cloudy.	Cloudy.	2·58	Rain
Semi-monthly mean,				73·30					4·73	

Monthly mean,.... 71·62. Rain Gage 7·92.

Winds.—North 4; North-east 2; East 1; South-east $\frac{1}{4}$; South 15; South-west $\frac{1}{4}$; West $\frac{1}{2}$; North-west $7\frac{1}{2}$.

Weather.—Fair $20\frac{1}{2}$, Cloudy $10\frac{1}{2}$ days. Rain on 9 days.

Warmest day 21st, Highest 88°,
Coldest day 7th, Lowest 58°.

1st, Thunder shower 12 to 2 P. M.,..... 0·38
3d, Rain 8 A. M. to 3 P. M.,..... 0·72
9th, Rain 6 to 9 A. M.,..... 0·06
9th, Rain 3 P. M. and during night,..... 0·21
13th, Rain early A. M., 0·04; thunder storm 1 to 4 P. M. 1·50; thunder shower 7 to 9 P. M. 0·28, ... 1·82
20th, Rain 6 P. M., ... 0·13
22d, Rain 5 to 6 P. M., ... 0·32
Rain 10 P. M. till 8 A. M. 23d,..... 1·03
27th, Thunder shower 5 P. M., ... 0·67
31st, Rain 5 A. M. to 3 P. M.,..... 0·45
Rain 9 P. M. to midnight, ... 2·13

Rain Gage, ... 7·92

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

CONDUCTED BY C. N. BEMENT, ALBANY.

VOL. VII. SEPTEMBER, 1848. No. 9.

FALL—SEPTEMBER.

In the revolutions of the seasons, autumn has again come. The seasons are beautiful illustrations of our lives. We all have our *spring* of hope, our *summer* of joy and happiness, our growth and maturity; our *fall* mixed with joy and happiness, favorable breezes and adverse winds; our *winter* of gloom and final decay.

Of all the seasons that of autumn *we* admire most. The beauties of earth are propitiously spread out before us. It calls to the vigorous mind profound contemplation. It is now the pride and glory of the year. The earth is covered with plenteousness, and the sun is pursuing, like a giant, his course through the heavens, dispensing light and vigor over the world beneath him. Are there no classes or conditions of men, of whose character and condition this season is descriptive? Are there no moral lessons which they who love the Lord may gather from this season that brings the sere and yellow leaf?

The grain that summer ripens, and fall harvests, are but ripened and harvested to be transplanted, and yield perhaps an hundred fold. So with man; though he dies, yet shall he live again, for death shall no longer have dominion over him. We see all nature's works decaying, we are reminded that we, too, must die. The frost of death will soon cut down our mortal

bodies, as the frost of autumn has cut down the vegetable kingdom. Let us then ripen for the harvest, and be always ready for the reaper, death.

Autumn has come; and as winter is rapidly coming, we shall be wise and work while the sun shines; fill our granaries so as to be provided for when the storm and darkness overtakes us. With thankful hearts we look around us, knowing that all our wants have been supplied.

September is the month to prepare our grounds and sow our winter crops, such as wheat, and rye. In preparing our grounds no pains should be spared to have them *deeply* plowed; to have no bauks left untouched, and that it be thoroughly pulverised with the harrow. Although we do not believe that *pulverization* alone will make sterile soils produce luxuriant crops, still we do *believe* it will make any, whether poor or rich, yield in a greatly augmented ratio, and this will be the more readily conceded by the thinking farmer, when he reflects that in the *atmosphere*, the *rain*, and the *snow*, are to be found most if not all the elements of fertility, and by having his grounds in a state the best adapted to attract and appropriate these elements to their uses, the better chance will he stand of being profited by these fruitful sources of enrichment. Again, by deep tillage and minute subdivision of the soil, the roots of the plants have a bed prepared, which instead of offering any impediment to their embedding themselves beyond the reach of frosts—beyond the influence of sudden freezings and thawings—encourage their expansion, and increases the pasture on which they feed.

In addition to what we have already said upon this subject, we will remark, that the sooner ground intended for wheat or rye shall be plowed and put in order for the reception of seed, the better chance will there be of the crop being a good one, as the ground once ready and in good tilth, the farmer may choose his own time for sowing. Besides good plowing and fine tilth, it is essential that wheat or rye fields should be secured by judiciously arranged water furrows, at proper intervals, so constructed, and so leveled, as that the water which may fall, will speedily pass

off, and be conducted to leading drains around the field, of sufficient depth and descent to receive and carry it away.

Should the ground be deficient in lime or marl, the wheat grower should be sure to put at least ten bushels to the acre on it, and if possible, add as much ashes to the lime, as both are necessary ingredients in the constitution of the straw and grain, and will not only tend to prevent the lodging of the former, but to promote the fructification of the latter.

In the selection of seed too much care can not be taken in the choice of varieties, to select those which combine the qualities of early maturity, good flouring properties, and resistance of the fly; and it is equally important to procure the best and cleanest seed that can be obtained; it should be plump, heavy, and free from extraneous matters, so that in sowing it, the earth may not be filled with weeds also.

In preparing seed for sowing, to prevent smut, it should be well washed in clean water, so that all the lighter grains, and the seeds of weeds may be skimmed off. After this has been effected, let a brine be made of salt, or ley of ashes, sufficiently strong to bear up an egg, cover the seed wheat with it, and let it soak for twelve hours, then drain off the soak, spread the wheat on the floor, sprinkle slacked lime or ashes over it, and stir up the mass so as to coat each grain with the substance used. When this is done it is ready for sowing. Seed prepared in this way will come up quicker, grow more rapidly, and of consequence, obtain a much better series of roots before winter, than would such as may be sown without preparation.

Rye should be sown as early in this month as possible. One and an half bushels to the acre, in a good soil is required. It is our practice, and experience teaches us that rye is one of the best crops to seed down with, and we sow with a liberal hand, say half a bushel of timothy to the acre in the fall, and twelve pounds of clover seed in the spring. From seeding as above mentioned, we have taken at least two and an half tons per acre of first quality of timothy hay this season.

But while we advise to promptness of action, we would equally

impress upon all this truth, that almost as much depends upon having whatever may be undertaken, *done well*, as it does in doing it at the *right time*. No circumstances whatsoever should interfere or prevent doing full justice; no matter what else may claim attention, whether of pleasure or of business, push ahead with those labors, the consummation of which, will enable us to realize that most delightful position of all others to a farmer—of being in advance of his work.

Particular attention should be paid to the extermination of those pests of the farmer, weeds, which often encumber our fields, sides and corners of fences. Take our word for it, that it is as profitable a labor as you can employ a part of your force in. By collecting them and casting them into your hog-stye, cattle yard, or compost heap to convert into manure, you may make them contribute towards the growth of your crop next year, and thus repay for having robbed your soil of its riches this.

As your pastures will be getting thin, and instinct will teach your cattle to seek elsewhere to satisfy their hunger, look to your corn field fences. Examine every pannel *yourself*, and have the whole made secure, so that no beast may be tempted by weak points to break in and depredate upon the fruits of your labor.

ON THE CLOUDS.

BY J. TREMPER.

The clouds have an important influence assigned to them, and constitute one of the simple though mighty means by which all things that possess the principle of life, are enabled to preserve it. By evaporation from the surface of the earth those masses of vapor are formed which float in the atmosphere above us, assuming a variety of shapes which meteorologists have classified, attributing to each particular form an indication of a particular kind of weather. To fortel the state of the weather at a given period, would be a valuable knowledge to the agriculturist, and frequently prevent losses and vexations which he is often compelled to suffer in his peculiar vocation. The eye of the observer may

frequently discern clouds of different altitudes moving towards various points, owing to eddies or currents in the atmosphere having different directions, just as we see the same effect produced in a lake or pool of water. The height of the clouds is an interesting subject of curiosity, and an opportunity is not often presented to meteorologists of obtaining by observation a knowledge of this subject. I subjoin a table containing the results of five years observations. The observations were made by Mr. Crosthwaite, of Cumberland, (England,) by ascertaining the heights of certain points upon the mountain Skiddaw, above Derwent Lake, and noting the approach of clouds to those points, he was enabled to construct the table referred to:

	Clouds from 0 to 100 yards high	From 100 to 200 yards high.	From 200 to 300 yards high.	From 300 to 400 yards high.	From 400 to 500 yards high	From 500 to 600 yards high.	From 600 to 700 yards high.	From 700 to 800 yards high.	From 800 to 900 yards high.	From 900 to 1000 yards high	From 1000 to 1050 yards high.	Above 1050 yards high.	Number of observations.
January,	0	9	12	28	53	39	37	32	30	39	36	116	417
February,	5	10	5	15	41	45	45	27	43	38	29	94	384
March,	2	1	6	11	22	40	32	36	24	32	44	184	420
April,	0	4	5	18	21	34	37	26	23	38	35	206	435
May,	0	1	4	8	13	31	22	25	30	34	27	270	449
June,	0	2	2	6	24	24	29	21	34	41	34	233	435
July,	0	2	2	18	35	36	35	25	35	48	38	191	449
August,	0	4	5	13	27	39	35	26	25	45	30	215	450
September,	0	1	7	13	38	38	32	30	27	51	27	186	435
October,	2	0	5	13	26	49	31	31	46	61	37	164	449
November,	0	0	3	13	30	58	42	38	46	45	47	128	435
December,	1	8	6	23	41	53	39	50	47	46	35	111	450
Total	10	42	62	179	374	486	416	367	410	518	419	2098	5208

The same observer remarked, that in very heavy and continued rains, the clouds were mostly below the summit of the mountain, whose altitude is 1050 yards or 3510 feet, but that it frequently rained when they were entirely above it.

Observations of a similar nature made in this country where an opportunity presents itself, would prove an interesting subject of comparison.

We have all felt the grateful influence of an overshadowing cloud upon a warm summer's day, and yet we are so constituted, that a similar interruption of the sun's rays at a different season would have an opposite tendency. I was very much interested in a phenomenon I observed while passing in the early part of last August, over the elevated tract of country between the head of lake Seneca and the Chemung river. This ridge is about 18 miles across, and forms the water shed between some of the tributaries of the Chemung and of the lake. It was a fine day for the season, and clouds of a small oval form were floating in the atmosphere at a distance from each other; there was a remarkable

uniformity in their size, and perhaps the eye might number twenty of them above the horizon. Upon attaining the superior elevation of the country, a broad extent entirely uninterrupted presented itself, forming a circuit of many miles. At intervals of distance, I observed several columns of smoke ascending, apparently produced by the burning of logs upon new clearings; the lower stratum of air was perfectly calm, so that the columns arose perpendicularly from the earth; the next stratum above had a very gentle motion from the east, which imparted to the clouds a barely perceptible westerly progress; as they respectively approached the vicinity of the columns, they swerved from their direct course, and became stationary for a short time over them, and gradually disappear in the ascending smoke.

Vapors are supposed to be merely small bubbles or vesiculæ, arising from the surface of the earth, mainly through the influence of heat. These vesiculæ being specifically lighter than the atmosphere, are buoyed up by it, until they arrive at a region where the air is of that degree of density to form an equilibrium with them, until by some new agent they are converted into clouds, and thence descend in the shape of rain, snow, hail, or mist. The cause of the precipitation of rain is perhaps not yet accounted for in a satisfactory manner; it rests principally upon theories, which owing to our slight connexion with the upper strata of the atmosphere, and the few observers upon elevated positions, are as yet imperfect, and not sufficiently supported by observation and experiment. The observations made upon elevated points by men of science, have been few and hasty, and have not tended materially to elucidate the subject. It does not seem probable that the moon exerts any influence upon the atmosphere so far as rain is concerned, the effect of its attraction as shown by calculation being so very slight; as also exemplified in the little consistencies in the observations advanced in favor of such a theory. As a general rule, the quantity of rain which falls is greatest at the equator, and diminishes toward the pole, although this rule is much modified by local causes. It is stated that in some parts of St. Domingo the annual amount of rain is 150 inches, while at St. Petersburgh, in Russia, it is but about 17 inches, at Paris it is 19 inches, and at Pisa, in Italy, 43 inches. In England there is a great difference in the annual quantity of rain that falls at various points, for instance

	inches.		inches.
At Keswick, in Cumberland,	67	At Manchester,	33
Plymouth,	46	Bristol,	29
Lancaster,	45	London,	23
Dover,	37	Upminster,	19

The mean annual amount for England, is estimated at 35 inches

Our own country is so extensive, and embraces so many parallels of latitude and longitude, that it presents a great variety of climates as well as local features that exert their respective influence upon the weather; it would be impossible to fix even within approximation the mean annual amount of rain for the United States, in fact so few are the observations, so brief and unsatisfactory are the data, that I regret to say it, we know nothing at all about it. The state of Pennsylvania adopted a useful course in relation to meteorological science, by supplying each county in the state with a set of instruments, the observations from which were directed to be reported to the Franklin Institute at Philadelphia, by which means much useful information relative to meteorology of the state is annually obtained.

It has been found by repeated experiments that more rain is collected in the rain guage when placed near the earth, than when placed at a distance from it, as upon the top of a building, or other elevated structure; we can only account for this by supposing that the vapour near the earth is more dense, and gradually expands as it rises in the atmosphere, and when the latter is in a condition to convert the vapor into rain, it will have a greater quantity to condense near the earth than at a higher point of atmosphere.

The tendency of rain is to soften and moisten the ground, and put it in a condition to convey nutriment to vegetation, and by falling upon ranges of elevated land to convey to the plains fertilizing particles of soil, washed from their mellowed surface; and while it tends to purify the air, at the same time contributes its fertilizing influence to the soil. It moderates the heat of the surrounding atmosphere, and forms the source of every stream or river that irrigates the land. All no doubt have observed the beneficial effects of rain water upon the vegetation of plants, and the blighting effects produced by a want of it; how after a shower in the spring or summer, vegetation assumes a greener hue, and more luxuriant growth. A superabundance of rain may have an injurious influence upon crops by destroying the cohesion of the soil, and their consequent prostration, together with the dispersion of the soluble particles which are borne away by the temporary rills and streams, visible after a heavy rain, into the reservoirs of the vicinity, or the low bottoms where there is not descent sufficient to carry them further.

It seems the greatest quantity of rain falls during the months whose temperature is highest; consequently the summer months are productive of the most rain, whilst the colder months exhibit the greatest number of cloudy and rainy days.

In some countries excessive rains are found to be accompanied with barrenness and sterility of the land in the ensuing season,

owing to the drenching it receives, and which requires years to reattain its accustomed fertility, so that the inhabitants have been compelled to plant fruit trees to evade the loss produced by this cause.

Since the influence of rain is so very sensible upon vegetation, it would be an interesting and useful, though slight labor, for the agriculturist to keep his rain guage, and record the quantity of rain that it has designated through the year, together with the state of fertility, infertility, drouth or moisture of his land, by which means he might have in advance some conjecture of the probable state of his crops the ensuing season; and as he marked each inch that fell, could trace from previous observations its probable effects upon his grain or fields

The quantity of rain that falls upon the earth has a great influence upon the temperature of the district in which it falls, modifying the heat to a great extent, and preventing an extreme elevation of temperature, and through this it exerts another influence upon vegetation in connection with the proper solution of matter contained in the soil.

West Dresden, August, 1848.

Erratum.—In historical remarks on the settlement of the Genesee country, page 357, line 4th from top; for "proprieties" read "propensities."

THE STRAWBERRY QUESTION.

BY WM. R. PRINCE.

After perusing various articles that have recently appeared upon the "Strawberry Question," and especially the lengthy article by Mr. Downing, in the August number of the Horticulturist, I recalled to mind an oriental tale, which may serve "to define my position." It is related that a certain prince, desiring to test the depth of the philosophy of the various pretenders who were continually pressing their so called axioms upon him, propounded for their solution the following question: What is the reason that a vessel filled brim full of water will not run over if a fish is put in it? All but one of the philosophers immediately set their wits to work to solve this princely problem, and numerous were the reasons advanced, which were so satisfactory in themselves, that although each had adopted different views as to the cause, yet each one was fully convinced that he had arrived at a most satisfactory and scientific solution. These responses were all delivered to the prince, but he marvelled that one of the philosophers had withheld his answer, and on questioning him as to

his delay, his reply was, that "*he denied the fact.*" Such is my response to most of the assertions to which I have referred. I shall now proceed to elucidate my views, and I shall commence by setting forth certain positions, from which I shall make deductions and amplifications, sustaining all by facts and arguments.

POSTULATES.

1st. A normal strawberry blossom, be it of what character it may, never changes, and all the runners from each parent plant being component and identical parts of the original, serve only to perpetuate its primitive character.

2d. Normal blossoms of the strawberry are of three forms, first, perfect—having fertile stamens and pistils; second, staminate—having sterile or abortive pistils; third, pistillate—devoid of perfect stamens.

3. Plants of the "perfect" character sometimes produce a few of their earliest and latest blossoms so weak as to be without stamens, or with very imperfect ones, which is caused by weakness or exhaustion, in the same way as numerous other plants produce occasional imperfect flowers, and as even is the case with some double flowering plants, which produce single flowers from the same cause. But this in no wise affects the general character of the plant, which is always maintained in all vigorous blossoms.

4th. Staminate and pistillate varieties (absolutely so) never vary under any circumstances whatever, and those who advocate such change might with equal justice assert that male and female animals transpose their sexual characters.

5th. The flowers of two only of the normal forms produce fruit—the perfect and the pistillate; the staminate is invariably barren. The pistillate is also barren, except when attended by plants of one of the other normal forms. The remarks of Mr. Huntsman, in regard to normal forms, are very much to the point, and highly deserving of respect, as they emanate from a practical botanist.

DEDUCTIONS.

The fertility of any variety cannot be positively tested and decided upon, where other varieties that may affect the result exist in proximity.

1st. "Hovey's Seedling," whatever assertions may have been made to the contrary by various persons without proper scrutiny, was in the original, is now, and ever will be "a distinctly and perfectly pistillate plant;" consequently no Hovey's Seedling has ever produced, or ever will produce fruit, without the aid of some variety possessing stamens.

2d. No one of the plants called "Hovey's Seedling," and described otherwise than pistillate by Mr. Downing and others, (un-

less they erred as to their character,) was *a genuine Hovey's Seedling*, but they were misled by confusing other varieties with it—in some cases the whole bed being of a different kind and in other cases, the beds must have been composed of Hovey's Seedling and some other variety mixed. Not one of the Transpositions of Hovey's Seedling that Mr. D. speaks of ever took place, but he was misled by the circumstances to which I have alluded, or by others.

The error of Mr. Hovey in originally supposing his seeding a perfect plant capable of producing fruit of itself, arose from the proximity of some staminate variety; and the errors of Mr. Downing, both on this and various other points at issue, have arisen from the juxtaposition referred to, one variety fertilizing the other, and also from errors in the names, and from admixure of varieties in the same bed, as Mr. Longworth supposes; which several causes have prevented him from forming correct conclusions, and have resulted in an incongruous mass of erroneous positions.

The ideal doctrine of Mr. Downing, that "all strawberry plants in their natural state are perfect in both organs, and that staminate or pistillate ones are chance monstrosities produced from high cultivation," is a radical error, and contradicted by facts well known to every close observer. And the opinion expressed by Mr. D. that plants, however perfect, will degenerate into the pistillate form from overbearing and consequent debility, and that Hovey's Seeding has done so, carries with it two absurdities. In the first place,—if such variation were caused by exhaustion, powerful nourishment would produce a restoration, and secondly, the position that a plant overworked and debilitated, should thenceforth assume the power of being more productive than ever, is contrary to the whole order of nature. If such a rule could be applied to man and quadrupeds, the result would be vastly important and beneficial, and it is with much regret that I express my doubts. This second position, it will be also perceived, strikes directly at another opinion advanced by Mr. D., that when a plant has reached this state, it will produce finer and more abundant crops "because the whole blossoms (meaning the whole force,) of the pistillate plant is devoted to the fruit itself," for, however rational and correct this position may be as advanced by Mr. Huntsman in respect to plants in their natural vigorous state, it can scarcely be deemed by any rational mind to apply with equal force to varieties that have attained this character from unnatural and absolute prostration. I have waded along thus far in this question, although, after reading several articles and finishing with Mr. Downing's last one, I felt as to replying just as Mr. Webster did at Faneuil Hall two years since, only with the difference of a single word: Mr. Webster then remarked, "Where shall I go?" I asked myself, Where shall I begin?

All the remarks I have ventured to make in the foregoing article have been advanced without seeing Mr. Downing's strawberry beds, and are based solely on any own investigations and on the unerring order of nature. Previous, however, to the conclusion of my comments, I hope to inspect the beds he has referred to, as I am desirous that the Strawberry Question should be settled, and set at rest forever; it having hitherto savored too much of wheat changing to chess or rather of a worn out bull changing to a prolific heifer. In the meantime I shall be gratified at any facts and arguments calculated to sustain the following statement made by Mr. Downing, and also that the "many persons," referred to by him may be named, so that their strawberry beds may be examined. "Notwithstanding Mr. Longworth's incredulity, we still assure him that two years ago we raised a remarkably large and fine crop of Hovey's Seedling strawberry, *without the proximity of any sort whatever. The same results* have, to our own knowledge, been attained by *many persons* this reason, who have grown large and perfect crops of the same variety for the first time, in gardens where there has been no other strawberry of any kind, or only in distant portions of the same *garden.* We have examined these plants of Hovey's Seedling when in flower, and found the blossoms large, and *perfect in stamens and pistils.*"

NOTE—The italicism of some passages in the above extract is my own, and intended to elicit attention thereto.—*Flsh. Journal.*

AGRICULTURAL EDUCATION.

BY L. DURAND.

Much has been said of late, and written, on the all important subject of agriculturral education. And yet a great deal more remains to be said, before much will be done on this subject. As to the best way of bringing about a thorough reform in this matter, we of course do not pretend to devise. That there is a necessity of more earnest and efficient effort to educate the farmer and his sons in their business, every one who is at all interested must see at once. We of course shall not attempt to lay out any plan, or rule, whereby this system can be brought about speedily, but shall simply give a few plans which we think have been, and still continue to be, leading steps towards accomplishing this great object. And first, agricultural papers and journals we think have done much, and are still doing more, to elevate the farmer, and excite him to emulation in his calling, than all other objects put

together. These perhaps growing from small means, small patronage, and little influence, up to powerful influences, have become mighty engines, in carrying forward this work. And next up to this, we think that agricultural associations, and farmers' clubs have done much toward bringing about this object. These societies have been in operation so long, and their objects are so well understood by all farmers who take any interest at all in them, that their support needs no commendation from us. What can be more interesting to the eye, than the annual gathering of the farmers of the county and state, at the *cattle shows*, for it is here that they meet to exchange civilities and greetings, to compare their practice and theories together, and thus the day is spent in cheerful hilarity and excitement, and no farmer we think can go to his home without saying that he has profited by the gathering. But it is with this organization as with all others, we have not yet arrived at perfection in management. One great difficulty as yet is, in the distribution of "premiums," so as to have all parties satisfied, for we find that mankind are a *little selfish* yet and will continue so for some time. Perhaps it is next to impossible to have premiums so given out, but that there will be some "grumblers" left. As an improvement, we think with others, that giving out agricultural books and periodicals for premiums, instead of money, would be an inducement for farmers to read more then they have done. One other reform we would suggest, and it is that gentlemen "committees" would put their "veto" at once, on all fat animals, which have been "pampered" and laid over from one fair to another, merely for the sake of *premium.* For agricultural education, as we understand it, does not consist in raising fat steers, large porkers, or dark red cattle.

Another means for the promotion of agricultural education has lately come up, and it is the formation of *agricultural schools*, with an experimental farm connected. And of these institutions, we think that one or more ought to be established in every state, for it is here, with good management, that farmers might depend that their sons would receive a thorough (practical and scientific) education, to fit them for their business. But it may be said, and with some truth, that perhaps the great mass of farmers could never find the time, nor spare the means to send their sons to *institutions* of this kind for an education. As a remedy for this, we cannot see any better plan than the establishing in every state, of *Normal Schools*, like the one in your city, for the education of teachers in agriculture and the sciences, and these teachers to be distributed throughout the state, in our common schools, and thus a system of agricultural education would be introduced into our schools which would meet the condition of all classes, whether rich or poor. If this system is carried out as begun, we look

upon it as worth all the others as a means of educating the great mass of farmers' sons, of the rising generation. This idea of carrying agricultural instruction into common schools, is not talked upon here, as being new by any means, for the subject was broached and written upon years ago, by men eminently engaged in the cause of agriculture.

After all the means which are being used at the present day for the promotion of agricultural improvement and emulation, it will depend entirely on the individual efforts of the farmers themselves, and their sons, whether they succeed or not. Every one has got to use personal and untiring efforts themselves, or they cannot expect to advance in their calling.

It cannot, and will not be expected, that farmers' sons will seek for aid and emulation in their calling uncared for, or uninstructed. For this digging out of ones own brains, all the privilege he is to possess of his own business, is not the thing. No, the young farmer must have instruction, he must have the means placed in his hands, he must see before him something to induce him to emulation and improvement. But he must remember too, that after the means are fairly within his reach, it will depend entirely on his own efforts whether he profit by them or not. All that we can say is that we earnestly hope for the best.

Derby, Ct., July 1848.

IMPORTANCE OF GOOD SEED.

BY S. REED.

No one who has attentively examined a growing crop, can have failed to notice the difference in the vigor of different plants on the same square foot of surface. Some will start with a full broad leaf of a dark green color; others with a narrow one of a pale green or yellow and sickly hue. During the early period in the growth of these plants, the difference will increase, and a large full head will crown the one, while a short shrivelled one will be all that can be yielded by the other. For this difference there may be many causes. I think it better to confine the examination to the early period in the growth of the plant. After it is a few inches high, causes, obvious, yet entirely beyond our control, will continue and increase the difference. The powers of life in one, being in greater activity, and more fully developed; its vessels are sent out on longer excursions, and nourishment gathered from a greater distance, even from the very threshold of its neighbor's dwelling. Like the stronger animals, it not only takes the

first and the last piece, but the best of all the pieces. Not satisfied with the robery below the surface of the ground, it extends its broad leaves to the sun, and makes the first use of the light and heat, transmitting to its weak neighbor what remains; and from the dews and rains, its own water casks must first be filled, however thirsty its feeble companion may be. Of the early causes, imperfect tillage undoubtedly, has much effect. One kernel may be half covered, upon a bunch of grass sods; another buried under the same turf below the full influence of light and heat, while a third is placed at a suitable depth in mellow earth. This is often most strikingly exhibited in buck-wheat, a crop for which mellow ground in ordinary cases is indispensable. If the ground is plowed in large furrows and sown without previous harrowing, as many are in the habit of doing, no inconsiderable part of the seed will fall so low, and be buried by the harrow so amply, that a late and sickly dwarf at the feet of its more fortunate neighbor, will be all that can be expected.

But the cause to which I must more particularly call attention at this time, is a difference in the seed sown. In my neighborhood, great pains are taken by farmers and gardeners, to secure good seed. I speak not now of *clean seed;* not if sowing a mixture of rye, chess, cockle, charlock, red root, tares, dock, southern plaintain, and Canada thistles, and calling it wheat, but of seed, the individual grains of which shall be full and sound, ripe and fat. An excellent farmer taught me, while yet in early boyhood, that *seed-corn* should be selected in the field, and only the long, full ripe ears be saved, and other things being equal, they should be selected where two ears grow upon one stalk. This I suppose is in accordance with the practice of all careful farmers. If this selection is made before the husk is changed by frost, the earliest ears are easily distinguished. They should be braided by the husk in bunches of convenient size, and hung up where the possibility of heating or moulding is out of the question. By this course I am satisfied that not only vegetation, and a fuller and more thrifty blade is insured, but the best kinds may be made better, and foreign varieties be acclimated, and perhaps some of them made valuable.

Let those who raise seed for sale, answer for themselves, but sure I am, that no sensible man would think of saving *for his own use*, the seeds of a small insipid melon, or of a thin fleshed, watery, coarse grained pumpkin or squash, although he might be confident they were fully ripe, and would in all probability vegetate.

The short, yet massive "cabbage turnip," which produces a large, compact head, is selected to furnish seed for another season. Such beets, and carrots, and turnips, as you would wish your future crop to be, are to be put out for seed, and the product of

the largest branches and fullest umbels only should be saved. For early use, the short cucumber, growing near the root, should be saved for seed. In the latter variety for pickling, if one gives early indications of unusual straightness, length, and thrift, a stake is put by it, and it becomes forbidden fruit.

A gentleman of my acquaintance, a merchant in the country, once mentioned to me a circumstance in point. Having just received a box of seeds from a family, celebrated the world over for their garden seeds, he asked the individual who brought them to furnish him, as a personal favor, some cucumber seeds for his own garden. He was reminded that the box just opened contained an abundance of the article. The merchant replied, "Friend, I want a few of those seeds you have saved for your own garden." A few days after a little package of seeds was received, which the merchant assured me was of more worth, five times, the nominal value of ordinary seeds; each seed produced a vigorous, broad-leaved plant, leaving nothing to be desired, either in the rapidity of its growth, or in the quantity or quality of its productions.

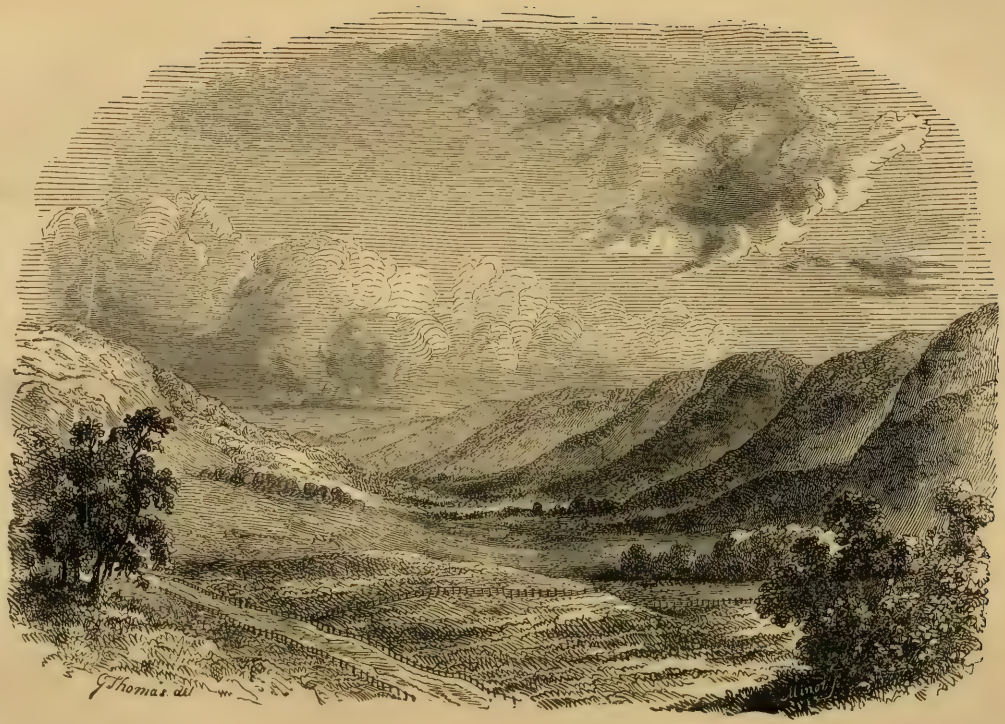
In crops cultivated during their growth, all feeble stalks should usually be removed, at least when the numbers of vigorous ones will admit of that disposition. When pumpkins are cultivated with corn, from one-third to two-thirds of the vines may be pulled up at the last hoeing, or soon after, and consigned to the hog pen with decided advantage. They will show by that time, that a green pumpkin, too small for a foot-ball, is all that is to be expected from them. But although the subject is so important in regard to the seeds which have been mentioned, I know not why it is not equally so in reference to the kinds of grain, etc., which in this country are almost universally sown broad cast, and yet so far as I know, but little has been written or said on that part of the subject. I have even heard farmers object to sowing wheat with a large, full berry, because it would take more in measure, for the same quantity of ground, than of a sample of the small berried, shriveled kind. They said that shrunk wheat would "come up," and if the berry was shrivelled to half the full size, half the expense of seed would be saved. If there are but few who would attempt to speculate by exchanging full, well fed seed, for a poor, half-starved specimen, then am I fearful multitudes who would not take the trouble of exchanging the poor for that which was better, paying a little difference. But in the best specimens there will be many small, imperfect grains. The cause mentioned in the early part of this article will account for some of them. In oats, every individual stalk will produce grain, differing widely in their size and weight. Some of the branchlets of the panicle will put out later, and produce inferior kernels. The same is emphatically true with buckwheat. The small

kernels of any of the grains, with those broken by any cause, would be of value as food for animals, but if some, in connexion with the full kernels, they would do little more than shade the ground, and take some nourishment which would otherwise go to perfect more fully the fruit of the other stalks. But here some one may ask how is the separation of the large from the small, the fat from the lean kernels, to be effected? Very readily by a good set of sieves or screens. In addition to those belonging to your fanning mill, let others be prepared of the same size and form, from wire cloth of the different textures you desire. The cost will not be great. They will be extra sizes for your mill, and will be worth twice their cost for this purpose. Then make of firm, light boards, the sides and ends of a box, which will just admit one of these sieves. Attach to the inside of your box some little support near the lower edge for the screen to rest upon, and you will have at command, as many screens as you have sieves, both proper and extra to your fanning mill. One of them of suitable fineness, will take from your oats all small or broken grains, and all cockle, dock, and thistles, &c., which you can consign to your cauldron, and after being boiled thoroughly, they will hurt neither your hogs or your land, and a richer harvest of better grain will richly reward you for all your care and expense.

Dwight Place, Richmond, July 1848.

ANIMAL MILK.

M. Dumas has read to the Paris Academy of Sciences, the first portion of a paper on the nature of the milk of different animals. He observes that the milk of herbivorous animals always contains four orders of substances, which form part of their food, viz: the albumenous represented by the caseum, the fatty substances represented by butter, the saccharine portion of their food represented by their sugar of milk, and finally the salts of different kinds, which exist in all the tissues of these animals. In the milk of carnivorous annimals, there is no sugar, and there are only the albumenous, fatty and saline substances which form the general constituents of meat. If, however, bread be added to the food of these animals, the sugar of milk will be found, although not in large quantities. M. Dumas concluded by stating that his investigations have enabled him to arrive at a perfect analysis of milk.



VIEW OF PART OF THE TACONIC RANGE AT STONE HILL.

GEOLOGY—TACONIC RANGE OF MOUNTAINS.

The view accompanying this, illustrates the appearance of the Taconic range generally. It was taken from the south part of Stonehill in Williamstown, (Mass.) looking south. The hills are composed of slate gravel, and the rocks are usually deeply covered with soil. Most of the hills and ridges of this range abound in chesnut, intermixed with black and white oak; the highest portions of the ridges are clothed with white birch as a second growth. sugar maple, (acer sacarinum,) frequently forms by itself large groves. Beech also abounds; and ash, bass, walnut, and soft maple are intermixed, and assist in making up the forest. The northern slopes of these ranges are beautiful in autumn, when they appear decked in all the gay colors that adorn the windows of a print shop; or arrayed rather in the brilliant robes of a bridal ceremony, than in the sombre habiliments proper to announce the speedy approach of winter, as the grave of the year.

The magnesian slate is one of the most permanent and extensive members of the Taconic system. It crosses the Hudson about thirty miles above the city of New York, and passes south through New Jersey into Pennsylvania, beneath the new red sandstone, under which rock it disappears near Stony Point, upon the Hudson river. It ranges north as far as my knowledge extends, having seen specimens of it from townships in Canada East.

The breadth of country over which it prevails, is not much less than fifteen miles, leaving out of consideration the Stockbridge limestone, and brown sandstone or granular quartz. Its absolute thickness cannot be determined with any certainty; it is undoubtedly great, and ranks in this respect with the primary schists. No trace of organic bodies has hitherto been found in this rock.

The slate disintegrates slowly; it forms a flat gravel, but more tenacious of water by far, than siliceous gravel. By itself, or unmixed, it makes poor soil; but when compounded with the calcareous matter of the sparry and Stockbridge limestones, it forms an excellent and suitable soil for (Indian corn,) maize.

The scenery, through a great extent of country north and south, is very uniform, but is occasionly bold in the highest parts of the chain. The most interesting, and generally admired view, is that of Hopper and Gray Lock, about five miles south-west of Williams College. In some parts of this elevated region, rocks are bare for hundreds of feet in elevation, with a steep slope, and may without much difficulty, be examined from the base to the top; still the summits are thickly clothed with soil, and good pasturage is obtained upon the highest parts of the ridges.—*Dr. Emmons in Nat. Hist. New York.*

EXAMINATION OF THE RUMEX CRISPUS—YELLOW DOCK.

By J. H. Salisbury, *Assistant in the Laboratory of Prof. Emmons.*

General remarks.—This species belongs to an extensive family of plants, familiarly known as sorrel and dock, inhabiting Europe, the temperate parts of Africa, and the United States. Several plants of this genus have acid leaves, owing to the presence mainly of oxalic acid. Those as a general rule which have the most of this acid, are distinguished by the common name of sorrel; some of which are highly esteemed in many places as culinary vegetables. They are cooling, and somewhat diuretic, and are not considered injurious unless too freely and frequently eaten. A small portion of oxalic acid is likewise found in many of those known by the common name of dock; but in these it is principally in the petioles and stalks, instead of the leaves. Tannic acid is found in the roots and seeds of many of the species, and it is to this acid that they owe their astringency.

The Rumex crispus, which is the subject of this essay, is considered by most authorities as a native of Europe, having been introduced into the United States. Griffith, however, in his medical botany, says it is a native of this country. It is very common, inhabiting not only waste places, but often to the great annoyance of the farmer, taking possession of, and literally overrunning his richest fields. When it has once thoroughly obtained a foothold, it is not easy to eradicate it. It is very tenacious of life, and will often take root and grow after having been exposed for several days to the direct rays of the sun.

Description and composition.—The flowers are numerous in a large panicle of axillary racemes, made up of half whorls, spirally arranged. Calyx, 6 parted, the 3 outside sepels are connected at their base, short, rugose, filiform, alternating with the 3 inside ones which envelope the seed, and which are much larger than the outer ones, and irregularly denticulated on their margins. One of these has a large tubercle on its back, filled with a starchy astringent substance, like the seed; the others have an imperfect tubercle. The seeds are astringent like the root, but less bitter, containing considerable tannic acid.

100 grs. of the seeds pedicels and calyces, taken when the seeds were in their milk, gave of

Water,	77·06
Dry matter,	22·94
Ash,	·76
Organic matter,	22·18
Ash calculated dry,	3.313
Organic matter calculated dry,	96·687

100 grs. of the ash gave the following result.

Carbonic acid,		10·660
Silicic acid,		3·000
Phosphates 26·40	Phosphate of iron,	·800
	Lime,	4·838
	Magnesia,	·760
	Silicic acid,	·050
	Phosphoric acid.	19·952
Lime,		4·558
Magnesia,		3·120
Potash,		11·309
Soda,		15·495
Sodium,		4·206
Chlorine,		6·414
Sulphuric acid,		·532
Organic acids,		10·000
		96·694

In the vicinity of Albany, this plant flowers in June, and the seed ripens the last of July and the first of August.

The leaves have a slightly pungent bitter astringent taste, with an odor when bruised of sorrel. They contain a small amount of oxalic and tannic acids. They are lanceolate, acute, slightly waved, particularly along their margins, radical ones large, having very long petioles.

Organic analysis of the fresh leaves

100 grs. of fresh leaf blades gave of

Starch,	0
Chlorophylle,	1·755
Albumen,	·030
Caseine,	·200
Dextrine or gum,	·920
Extractive matter, very bitter, slightly astringent, odor somewhat like that of tobacco, nauseating,	3·570
Fibre or lignin,	9·685
Per cent ash in fibre 8·053 strongly alkaline.	
Total dry matter,	16·160
Water,	83·520
	99·680

The above calculated dry.

Starch,	0
Chlorophylle,	10·869
Albumen,	·185
Caseine,	1·238
Dextrine,	5·693
Extractive matter,	22·092
Fibre or lignin,	59.932
	100·000

The petioles are quite sour with free oxalic acid.

100 grs. of the fresh petioles gave of

Water,	94·66
Dry matter,	5·34
Ash, strongly alkaline,	1·03
Organic matter,	4·31
Ash calculated dry,	19·288
Organic matter calculated dry,	80·712

100 grs. of fresh leaf blades gave of

Water,	85·70
Dry matter,	14·30
Ash, very saline,	2·18
Organic matter,	12·12
Ash calculated dry,	15·245
Organic matter calculated dry,	84·755

100 grs. of the ash of the leaf blades and petioles, gave the following:

Carbonic acid,		12·400
Silicic acid,		3·900
Phosphates 24·00	Silicic acid,	·050
	Lime,	·020
	Magnesia, proxide of iron, and phosphoric acid,	23·830
Lime,		1·633
Magnesia,		·880
Potash,		10·613
Soda,		22·880
Sodium,		3·889
Chlorine,		5·920
Sulphuric acid,		1·477
Organic acids,		8·500
		96·092

100 grs. of fresh petioles gave of oxalic acid ·8363 of a grain, being almost 1 per cent of acid.

Stalks from 18 to 42 inches high, woody, smooth at base, but becoming striated as you ascend. Slightly acid.

100 grs. of the ash of stalks gave of

Carbonid acid,		12·800
Silicic acid,		2·800
Phosphates 21·70	Silicic acid,	·050
	Lime,	4·953
	Magnesia,	·850
	Phosphate of iron,	1·100
	Phosphoric acid,	14·747
Lime,		2·590
Magnesia,		2·040
Potash,		12·430

Soda,	19·753
Sodium,	3·368
Chlorine,	5·130
Sulphuric acid,	5·085
Organic acids,	9·200
	96·896

100 grs. of fresh stalks gave of

Water,	83·80
Dry matter,	16·20
Ash,	1·48
Organic matter,	14·72
Ash calculated dry,	9·512
Organic matter calculated dry,	90·488

Root perennial, fusiform, yellow, having from 3 to 5 rows of rootlets extending its whole length, slightly spiral in their course, covered with a loose epidermis, easily separated, and having but little taste. Inside of root less farinaceous than outside, and containing less of the pungent, bitter astringent principle. Main root not as active as the small divisions. It consists of four distinct parts; the medulla or pith, the woody portion, the cortical layer, and the epidermis. The pith is a light spongy mass of cellular tissue, (in very old roots it becomes woody,) and is often nearly tasteless.

100 grs. of pith gave of

Water,	78·225
Dry matter,	21·775
Ash,	1·747
Organic matter,	20·028
Ash calculated dry,	8·028
Organic matter calculated dry,	91·976

The woody part is fibrous and tough, and contains less of the active principles than the cortical layer. It contains in 100 parts

Water,	72·779
Dry matter,	27·221
Ash,	1·139
Organic matter,	26·082
Ash calculated dry,	4·184
Organic matter calculated dry,	95·816

The cortical layer is easily separated from the woody portion, adhering to it firmly only in the line of the rootlets, and is fleshy and tender, and contains more of the active principles than any other part of the plant.

100 grs. of this layer with the epidermis attached, gave of

Water,	70·809
Dry matter,	29·191
Ash,	1·398
Organic matter,	27·793
Ash calculated dry,	4·789
Organic matter calculated dry,	95·211

The epidermis is loose and thin, and easily separated. Numerous medullary rays extend from the pith into the cortical layer.

Organic analysis of a root $\frac{3}{4}$ *inch diameter, and* 10 *inches in length.*

100 grs. gave the following results:

Starch,	5·987
Albumen,	1·431
Caseine,	·226
Dextrine or gum,	2·024
Extractive matter,	5·184
This contains a trace of oxalic acid, and considerable tannic; very bitter and astringent.	
Fibre or lignin,	14·228
Per cent ash in fibre 1·998 Strongly alkaline.	
Total dry matter,	29·080
Water,	70·320
	99·400

The above calculated dry.

Starch,	20·600
Albumen,	4·982
Caseine,	·777
Dextrine or gum,	6·690
Extractive matter,	17·856
Fibre or lignin,	49·095
	100·000

100 grs. of the root of another plant gave of

Water,	79·363
Dry matter,	20·637
Ash,	1·321
Organic matter,	19·316
Ash calculated dry,	6·401
Organic matter calculated dry,	93·599

100 grs. of the ash gave the following results:

Carbonic acid,		11·000
Silicic acid,		·500
Phosphates 26·20	Silicic acid,	·060
	Lime,	4·220
	Magnesia,	4·250
	Phosphate of Iron,	·400
	Phosphoric acid,	17·380
Lime,		3·827
Magnesia,		7·620
Potash,		9·723
Soda,		18·480
Sulphuric acid,		4·502
Chlorine,		3·898
Organic acids,		11·600
		97·460

In an agricultural light, this may be considered as a very exhausting plant to the soil—as the analysis will show—if removed every year from it. The ash of all parts of the plant is made up principally of phosphates and alkalies, with considerable chlorine. The root and stalk contain a respectable quantity of sulphuric acid, while the leaf blades, seeds, pedicels, and petioles, contain but little. The root is rich in magnesia, while but a moderate quantity is found in other parts.

About one-fifth of the dry matter of the root is starch. Calling the extractive matter a nitrogenous body, from 30 to 40 per cent of the dry matter of the whole plant consists of nitrogenous compounds. Excluding this amorphous body, from 12 to 17 per cent is nitrogenous.

Comparative View of the Water, Inorganic, and Organic Matter, of different Parts of the Plant, with the Ratio of the Parts; Plant taken when Seeds were in their Milk.

Parts of plant.	Fresh plant.				Same plant deprived of water.	
	Ratio of parts	Water.	Inorganic matter.	Organic matter.	Inorganic matter.	Organic matter.
Petioles,	14·409	94·66	1·03	4·31	19·288	80·712
Leaf blades,	34·582	85·70	2·18	12·12	15·245	84·755
Stalks,	25·649	83·80	1·48	14.72	9·512	90·488
Root,	17·291	79·363	1·321	19·316	6·401	93.599
Seeds, pedicels, and calyces,	8·069	77·060	·760	22·180	3·313	96·687
Medulla of root,	6.40	78·225	1·747	20·028	8·024	91·976
Cortical layer & epidermis of root,	52·00	70·809	1·398	27·793	4·789	95·211
Woody portion of root,	41·60	72·779	1·139	26·082	4·184	95·816

In the plant deprived of water—at this stage of its growth—the petioles stand first in the amount of inorganic matter, the leaf blades second, the stalks third, the roots fourth, and the seeds, pedicels and calyces contain the smallest proportion. In the fresh plant the proportion of inorganic matter is greater in the leaf blades, stalk and root than in the petioles. It will be seen that in the root, the pith contains nearly twice as much ash as either of the other parts, the cortical layer stands next, and the woody portion has the least. The woody layer, into which the rootlets discharge themselves, is filled with large ducts arranged between the medullary rays for transmitting the juices of the plant.

The petioles contain, besides about one per cent of oxalic acid, a small amount of tartaric, and tannic acids; the root has a slight quantity of acetic, tartaric, and gallic acids, with considerable tannic acid. The tannic acid is that variety which gives with the salts of the peroxide of iron a greenish color.

There is a crystalline principle, in small quantity, in the root which conducts itself somewhat like gallic acid. I have not yet examined it sufficiently to satisfy myself whether it is this or some other body. It shows itself in small acicular crystals, taking often a stellated arrangement. They are readily soluble in water, less readily soluble in absolute alcohol, and sparingly soluble in ether. They are found in the water and spirit extracts, from which they can be separated in a tolerably pure state by sulphuric ether, which slowly dissolves the crystals without taking up much of the amorphous extractive matter. The crystals dissolved in sulphuric acid and the solution raised to a temperature of about 200° is changed to a light amber color. The examination of this body will be resumed as soon as there is time to take it up.

Riegel found in the root of the Rumex obtusifolius a peculiar principle which he called *rumicin*, and which bears a close resemblance to *rhabarbarin*, one of the active principles of rhubarb. The crystals observed in the R. crispus, may be identical with the rumicin of the R. obtusifolius.

The root also contains a small amount of sugar and a slight quantity of an oily resinous body.

Uses and Medical Properties. The leaves are sometimes eaten for greens. They are somewhat laxative, and form an excellent diet in scorbutic complaints. The roots contain a yellow dye, and are said to be sometimes used in coloring. The dye on exposure to the atmosphere for some time, changes to a reddish yellow color.

Though this species is not officinal, yet it has enjoyed at different times considerable reputation as a medicine. Its medical properties are those of an astringent and mild tonic. In this respect it has some resemblance to rhubarb. It is supposed to possess an alterative property, and has been employed in decoction and ointment in scorbutic disorders and cutaneous eruptions, and has attracted some attention in the treatment of itch. The powdered root has been recommended as a dentifrice in cases of spongy gums. Recently it has been employed quite extensively in syrups and patent medicines.

It yields its active properties to water and alcohol. The infusion or decoction is of a light yellow, and the tincture of a dark yellow color, (the latter takes up nearly all the coloring matter,) with an odor of the root and an excessively pungent bitter taste. It requires several fresh additions of water or alcohol, before the active properties can all be abstracted. The residue after sufficient maceration is inodorous, and almost tasteless. In several trials of this kind, it was found necessary to add water or alcohol from four to five times, keeping the whole after each ad-

dition briskly boiling for 10 or 15 minutes, before the bitter astringent principles could be all taken up.

On subjecting the green root to a temperature of 212° in a partially closed vessel, it turns to a dark brown color, and gives off a very strong pungent odor, like that of the root. The same odor, but less intense, is given off from it when boiled in water or alcohol. By long continued boiling, the pungent bitter properties become greatly diminished in consequence of their volatility. They can be distilled over with water, giving to that liquid the odor of the root and a light yellow color. A yellowish gummy mass remains on evaporating at a low temperature, which I have not had time to examine further. The medicinal virtues of the root probably depend in a great measure upon the volatile matter; if so, by subjecting it to protracted heat in any way, must tend to diminish its activity as a medicine.

I have not yet succeeded in obtaining an extract as bitter as the decoction at the commencement of the evaporation. The bitter principles seem to escape during the evaporation of the liquid, leaving a residue which is less bitter than the solution started with, but more nauseating. The examination of this plant will be continued.

Remarks.—By the foregoing analyses the farmer will at once perceive what constituents of the soil are taken up by this pest of our fields. It will be observed that it partakes largely of the phosphates, robbing our cultivated plants of their richest food. But as much as this plant is now detested by the agriculturist, it may yet be turned to his advantage, and may become a favorite and profitable plant among his cultivated crops.

It has always been known to possess medicinal qualities, and of late has been extensively used in syrups, &c. Persons are employed to procure the roots, for which three cents a pound is paid for them in a green state. When dried, twelve cents a pound is allowed by some of our druggists.

Our attention was first directed to this subject on being applied to for the privilege of taking the dock from our fields. This we very readily assented to, rejoicing in the fact of having them taken from our fields without any expense.

The proper time to pull them is when in flower, and immediately after a rain, while the soil is moist, as they can then be

raised with greater ease. The roots should be washed if from a tenacious soil, or the earth shaken off, if from a sandy soil.

This discovery we conceive of some importance to the farmer, as it will enable him to clear his fields of a pestiferous plant, and if he chooses make it profitable.

Now, if some of our chemists would discover some useful purpose for which the Canada thistle might be appropriated to advantage, they would be hailed as benefactors of the age.

WILD FLOWERS—THEIR CULTIVATION, &c.

In our last number we gave a short catalogue of wild or native flowers, worthy and susceptible of cultivation, and promised to extend the list some other time. We now redeem that promise and give the following, which are not only susceptible of cultivation, but highly meritorious.

For the following description of the purple side-saddle flower we are indebted to Dr. James Eights of this city.

Purple Side-Saddle Flower—*Sarracenia purpurea.* Whoever may have occasion to wander out among the numerous sphagnous swamps that diversify the sandy plains in the neighborhood of our city, any time during the month of June, will not fail to have his attention directed to singularly beautiful clusters of reddish purple flowers, each one nodding on a solitary footstalk, that ascends from a whorl of far more singularly constituted leaves. This is the *Sarracenia purpurea.* It has received its generic appellation from Tournefort, a distinguished French botanist, in honor of Dr. Sarrazin, an eminent physician, who died at Quebec about the commencement of the eighteenth century, and by whom it was for the first time made known to Europe. It is exclusively an American genus, and is composed of six well defined species, five being confined to the southern states, while the present one appears to be equally disseminated from the shores of the Mexican Gulf, as far north as Hudson's Bay. The flowers are large, and of a deep reddish purple color, with the petals greatly incurved, whilst the pale yellow stigma occupying the centre, expands in such a manner as effectually to conceal the more important organs of fructification from the sight.

The leaves when mature, are of a fine green color, more or less stained with purple, and beautifully veined with a tint of a much deeper hue; they have the form and appearance of some antique Roman lamps, indeed so striking is the resemblance, that had we been informed that this ancient people possesed any knowledge of this singular plant, we should have had little hesitation in assigning to it a suggestive original to their skilful artificers. The cavity, or reservoir as it has not inaptly been termed, which occupies the centre of the leaf, is at all times partially filled with water, originating from rains and dews, into which numerous species of coleoptera and other insects are not unfrequently found, which have met their death in pursuit of a saccharine concretion, that copiously exudes from their internal surfaces. By this beautiful provision of nature, these plants are abundantly supplied with moisture when the excessive heats of summer prevail for any considerable time, and create unusual drouths; they are likewise thus furnished with the usual amount of animal food which they may necessarily require for their sustenance. The manner in which these insects are imprisoned, is thus described by the late Dr. Macbride, of South Carolina. "It may be sufficient here to remark that the throat or orifice of those leaves is generally covered with a saccharine secretion or exudation. Immediately below the throat, for the space of nearly an inch, the surface is highly polished, while the lower part of the tube is covered with hairs all pointing downwards. When an insect is attracted in the first instance by the secretion of the plant, or perhaps even by the water, descends, as it easily can do along the declining pubescence, it appears incapable of ascending by its feet alone, and can only escape by a flight so perpendicular as to surpass the power of most insects. Whenever they touch the bristly sides of the tube, they are precipited again to the bottom, and have to renew their efforts, and many insects, even of a larger size, perish in this arduous and hopeless struggle."

These plants, are perfectly susceptible of cultivation; all that is required is to remove with them a sufficient quantity of the decomposed vegetable matter and sphagnum in which they are found; place them in any partially water-tight vessel, and keep them saturated. These substances, when necessary, can easily be renewed. E.

Phlox. This is a very beautiful tribe of American perennial flowering plants; there are sixteen species enumerated, and all of them worthy a place in the flower garden; most of the species are natives of the southern states, but bear cultivation in every part of the United States.

The merits of phloxes are not sufficiently appreciated. Being of great diversity of height, habit, and color, they possess many

claims to recommendation. Planted *en masse*, the taller varieties in the centre, and gradually diminishing to the edge, which might be planted with low growing sorts, they form a beautiful bed. Well cultivated too, they form fine objects in pots, and might be introduced with advantage amongst other plants into the green house or conservatory.—*Gard. Chron.*

Trillium. There are ten species of this plant, natives of this country, from Carolina to Canada. Some one or other of the kinds may be found in all our low woody swamps, or on the borders of them. The Trilliums are a curious and beautiful tribe of plants, and very ornamental, flowering in April and May. The flowers are universally of three petals, and the leaves grow in threes; called by botanists *trifoliate*—probably from this circumstance the name Trillium is derived; being all native of shady woods and swamps. They can be cultivated in the common garden soil, and ought, therefore, to be planted in the border.

Venus's fly trap—*Dionea muscipula.* This little delicate curious plant, with leaves in the form of a rat trap, which spring up and catch the poor flies that trespass upon them. The flowers are pretty large for so small a plant; native of moss bogs in North Carolina, and has not been found, we believe, in any other part of the country.

Veronica Virginica, flowers white, growing in spikes, and handsome; native on the mountains and hills, in sunny exposures in many parts of the country. There is a variety said to grow in the mountains in Virginia, with purple flowers and growing very tall.

Lily of the Valley—*Convallaria majalis*, deserves a place in every garden. It thrives best in a shady situation, a low growing plant with racemes of white, sweet scented, flowers in May, and is very hardy.

Aster—*Starwort*, a larger genus of American plants, abounding all over the country in almost every situation, enlivening the fields, road sides, and swamps, in the fall of the year. Pursh enumerates seventy-five species, native of North America; some of the kinds are very handsome, and if they were not so common, would be thought worthy a place in the gardens and shrubberies as they are in Europe.

Asclepias Tuberosa—*Milk-weed.* The flowers are orange yellow, and very beautiful; it has been proved to be an infallible cure for the plurisy, and well known to the physicians; native all over the country in fields. A plant or two should be introduced into every garden for its use and beauty; it will grow without any trouble.

American Columbine—*Aqueiegia canadensis.* This plant grows among rocks, and may be found growing from Canada to

South Carolina; may be easily transplanted to the garden. The flowers are scarlet and yellow mixed. It is very showy.

Lupines—*Lupinus perennius*, an elegant and showy plant, a native of our dry hills, scattered over certain parts of the country from Canada to Florida; well worth cultivation. Three or four sorts have been introduced from the north west coast by Douglass. *L. polyphyllus.* The spike of elegant blueish purple flower, from two to three feet high; continues in flower a month, common on our dry sandy lands, would make a fine show in a cluster or bed. There is another kind, bicolor, flowers white and yellow, and very sweet scented. Can be grown from the seed.

Cowslip—*Dodecatheon*; one of our little native beauties, and easily cultivated; grows wild in Pennsylvania, about a foot high, with a large bunch of beautiful and spotted flowers; there is also a yellow and white variety, well worthy a place in the flower garden.

Coriyalis fungosa, a delicate twining plant; native of the woods from Canada to Pennsylvania; pretty to train on poles on the back of a shady border.

Spikenard—*Arabia racemosa*, highly esteemed as a medicine, and a beautiful plant; generally full of small red berries in large bunches, covering the plant all over during the summer and fall months; a native of rocky and shady situations from Canada to Carolina; will grow without trouble in any part of the garden.

Sarsaparilla—*Arabia nudicaulis*, a well known medicinal plant; a native plant found from Canada to Carolina, in shady, rocky woods; will bear cultivation very well.

ORIGIN OF VARIOUS PLANTS.

Celery — (*Apium graveolens*,) is a hardy biennial plant, a native of Great Britain, and when in its wild state, it is denominated Smellage.

Endive — (*Chicorium indivia*,) a hardy annual, a native of China and Japan.

Lavender — (*Lavandula pica*,) a hardy shrub, a native of the south of Europe.

Salsify or Oyster Plant. — (*Tragopogon porifolius*,) a hardy biennial, and a native of England.

Onion — (*Alium cepa*,) supposed to be a native of Asia.

Parsley — (*Apium petrolinum*,) is a biennial, and a native of Sardinia.

Rhubarb — (*Rheum,*) there are three species of this plant in cultivation; two natives of Asia and one of Tartary.

Pea — (*Pisum satioum,*) is a native of the south of Europe.

Sun-Flower — (*Helianthus annuus,*) is a native of South America.

Dill — (*Anethum graveolens,*) a hardy biennial, and a native of Spain.

Sea Kale — (*Cramba maritima,*) grows spontaneously in many parts of the sea cost of Great Britain.

Pumpkin — (*Cucurbita pepo,*) is a native of India.

Rosemary — (*Rosmarinus officinalis,*) a hardy shrub, a native of the south of Europe.

Coriander — (*Coriandrum sativum,*) is a hardy annual plant, which originated in the east.

Fennel — (*Anetheum forniculum,*) a perennial, and naturalized in England.

Chive — (*Allium shoenoprasum,*) a hardy perennial plant, a native of Britain.

Elecampane — (*Inula,*) is found wild in moist pastures, both in England and America.

Tomato — (*Solanum lycopersicum.*) This plant is a native of South America.

Skirret — (*Sium sisaum,*) A perennial, and a native of China.

Thyme — *Common garden thyme* is a native of Spain and Italy.

Garlick — (*Allium sativum,*) is a hardy perennial plant, a native of Sicily and the south of France.

Savory — (*Satureja,*) a perennial. Winter Savory is a hardy under shrub, a perennial, a native of the south of France and Italy. Summer Savory is a hardy annual, a native of Italy.

Leek — (*Alium pornum,*) is a hardy biennial, a native of Switzerland.

Sweet Marjorum four species — (*O. marjorana,*) is a hardy biennial, and a native of Portugal. Pot Marjorum — (*O. onites,*) a native of Italy. Winter Sweet Marjorum — is the (*O. Heracleaticum,*) a hardy perennial, a native of Greece. The common is a native of Great Britain.

Hyssop — (*Hyssopus officinalis,*) is a hardy annual, a native of the south of Europe.

Trees.

Locust — (*Robina pseudo-acacia,*) is a native of the United States.

Peach — (*Amygdalus persica,*) is a native of Asia.

SHEEP KILLED BY DOGS.

We, as well as many of our neighbors, have suffered for the last few years, considerable losses by the depredations of dogs among our sheep. Last year we had several very valuable animals killed and wounded by a number of curs, the owners of which we never could ascertain, and the sheep were a total loss. In May last, our whole flock of South Downs and Cotswold sheep were attacked in the yard, by two dogs, and before discovered, two-thirds of them killed and the remainder badly wounded, which is about as bad as being killed, for we never had a sheep wounded by dogs that ever thrived well after. They are tender animals, and pine away and die. The lambs, wrth the exceptıon of one, escaped.

It is not generally known, we believe, to farmers, that there is a remedy by law, to recover damages from the county, if the owner of the dog or dogs cannot be ascertained, or if irresponsible. For the benefit of those who may hereafter suffer from the depredation of dogs, we give the law which designates the manner of proceeding. It is as follows:

"The owner of any sheep or lambs that may be killed or injured by any dog, may apply to any two fence-viewers of the town, (or to the assessor and commissioner of highways,) who shall inquire into the matter, and view the sheep injured or killed, and may examine witnesses in relation thereto, for which purpose either of them shall have power to administer oaths. If they are satisfied that the same were killed or hurt only by dogs, and in no other way, they shall certify such fact, the number of sheep killed or hurt, and the amount of the damages sustained thereby by the owner, together with the value of the sheep hurt or killed.

"The said certificate shall be presumptive evidence of the facts therein contained, in any suit that may be brought by the party injured against the owner or possessor of any dog, if it shall appear on the trial of such suit, that due notice was given to the owner of the dog of the intended application of the fence-viewers.

"If the party injured cannot discover the owner or possessor of the dog, by which such damage was done, or shall fail to recover the value of the sheep killed or injured, against such owner or pos-

sessor, he may apply to the supervisor of the town, and upon producing to him the certificate of the fence-viewers, (assessor and commissioners of highways,) made as aforesaid, and his own affidavit that he has not been able to discover such owner or possessor, or that he has failed to recover his damages from such owner or possessor, the said supervisor shall lay the same before the board of supervisors of the county, at their next meeting.

"The board of supervisors shall issue their order on the county treasurer, for the amount of the damages appearing by the certificate of the fence-viewers, to have been sustained by the owner of any sheep, killed or injured by dogs, when they shall be satisfied that the owner or possessor of such dogs cannot be discovered, or that the party injured has failed to recover such damages of such owner or possessor; which shall be paid by the county treasurer, from the funds constituted eighth section of this title, and from no other moneys."

LAFAYETTE MOONSHINE, OR THE BOY THAT DISLIKED FARMING.

BY WILLIAM BACON.

"I always had an antipathy to farming," said Master Lafayette Moonshine, as he entered the field on a rosy morning, where Charles Wiseman, in all the glee that youth, health, the beauty of the season, and the scenery around him could inspire, was hitching his team to the plow, "I always had an antipathy to farming, it brings so much hard work, so many exposures to hot sunshines and cold storms—so much toiling and drudging in dirt. Besides being laborious, it is not a very *genteel* employment, taking care of calves and lambs, pigs and chickens, and all that servile sort of thing. Then one's hands will become so hard through toil, and his countenance so dark from exposure to all weathers, it really makes him look coarse and vulgar. So I've concluded to submit to this drudgery no longer, and as an opportunity now offers, I am going to the city to fill a clerkship in a retail store. Come Charles, you had better relinquish this plodding after the plow to the old man and go with me. I'm sure you'd enjoy yourself better than you can in this clodpole way of living." Thus on as beautiful a May morning as ever broke upon a world in all the smiling lovliness of spring spake Master Lafayette Moonshine to Charles Wiseman, and as he closed his grandiloquent harrangue, he gave his head one of those significant tos-

sings which imply neither more nor less than that he felt himself about being removed from the vile rubbish of toil and labor, to enter upon a sphere of elegance and leisure, where soiled hands have no proximity, and labor wrings no sweat drops from the care-worn brow.

Lafayette, or as the family cognomen more usually recognize him, Fay-ette, was the eldest of rather a numerous family, consequently he was an only, and of course a petted child, until the birth of a sister called in the claims of parental solicitude. His parents had lived on the farm, though perhaps not by farming, for his father had to some extent, indulged the same feelings which was actuating the son, and hence, had managed to get along with his farm by hiring, while his own time was spent in the to many, unprofitable, but more genteel employment of teaming, when and where circumstances invited. Up to the morning we have spoken of, Master Fay-ette had not only heard his father speak in terms which expressed an utter dislike to the labor of the farm, but amid many declarations of his own prettiness and aptness had met with oft repeated assurances that he was destined to a higher and more noble calling. No wonder then, that nurtured as he had been in the hot bed of folly and sprinkled with the waters of disgust, he should give utterance to expressions denunciatory to the culture of the earth. But where the elevation of position was found by taking a clerkship we cannot imagine and do not premise. Our successful merchants are men of great industry and will uniformly acknowledge that they owe this position to unremitting care and close application to business. As to the difference of dignity in the two professions, this can be determined at once. All lawful and honorable callings are alike respectable and the existence and prosperity of each are alike essential to the prosperity of the whole, so that society at large, whether located in cities, towns or rural hamlets, may be compared to a vast machine, in which if a part be wanting, its absence is felt through all its complications. The city and the country are mutually benefited by each other's existence, and while the denizens of each are pursuing their several occupations, they aid in advancing the prosperity of the other.

Not so however thought Master Lafayette and his discriminating parents. The latter saw at one vivid glance of thought, that the course they had marked out for their hopeful son, would raise him at once from the depths of plebeian degradation in which they were so unfortuately born, to an elevated position worthy of their high aspirations.

With these feelings growing in parental hearts, and dreams of waking renown inspiring the breast of our young hero, we behold him transferred to the city and initiated as clerk in the retail establishment of Miles Blenheim & Co. Dear youth! how enviable

is his condition! With country dust fairly shaken off against country life; with country air exchanged for the more sickly atmosphere of town; with brick walls in unbroken prospect in the place of smiling fields and variegated hills and valleys; with rumbling carriages and the noisy hum of an untiring wave of moving beings instead of bleating flocks and lowing herds gambolling on a thousand hills, he is highly delighted. Now he can mingle with the busy throng, sport a cane or tip a beaver, and though he thinks his confinement to business is rather severe, he, on the whole is not willing to exchange business with any country chap.

It is not necessary for us to enter into all the particulars of Mr. Lafayette Moonshine's city life. The reader will anticipate, perhaps, that an individual who had been brought up in utter distaste to an honorable employment and allowed, if not taught from his early infancy to look upon labor as drudgery, and attention to business as servility, must look upon constant employment in any occupation as an oppressive burthen. We leave it for the merchant to say whether such an individual ever can make so faithful and trust-worthy assistant, as one who has been educated in habits of industry and accustomed to treat the minutiæ of business, such as keeping things in proper places and doing all things at proper times with promptness and care, even if those services were ever so humble.

Time is untiring in his rapid flight, and three short months had been borne away on his restless wing, when it was announced that young Mr. Moonshine would soon visit the parental roof. The ecstacy that filled the ambitious hearts of the parents, when the joyful intelligence first penetrated the inmost recesses of those hearts, was partially developed by the tranquil smile that played upon the lip and gave new lustre to the eye, repeated the thrice told news to the neighbors, "that our son from the city was coming home." And who can tell the raptures of the young Moonshines, in anticipation of candies, sugar whistles, and all the et ceteras of childhood knicknackery when brother came home.

It was the busiest season of the year, the time of the ingathering of the early harvest, when Mr. Lafayette Moonshine arrived to make his first visit to his country friends. His personal appearance during the time of his absence had passed through changes which may well be anticipated in one who had thrown aside the rustic characteristics which so illy befitted his dignity. Every article of his, (rather sparse to be sure) wardrobe was city cut and city made. His head was dressed in the latest city style and his complexion had passed from the brown features, to which out door employments give an almost certain assurance, to the delicacy which dwellers in the shade so often exhibit. A pair of

feeble whiskers, too, were in a state of incipient growth, but of so sickly an appearance as to give but little prospect that they would ever reach maturity, without a total exhaustion of the soil that gave them existence. In short, Mr. Moonshine had made such advances in every thing toward becoming a city dandy, as all the means in his limited power would permit. Can you wonder, kind reader, under these circumstances, taking also into account the fondness of his weak but doting parents, that this, their hopeful son, who was to restore the family to a name and a place which nature had hitherto denied them, should be received to the parental roof with feelings bordering on idolatry? Could you blame that loving mother when she said that Lafayette must not do this, or that, because it would *soil his hands?* Could you pronounce that father in an error when, from the midst of toil he went to catch the horse for Fay-ette to ride out, through fear that one on whom such mighty consequences depended should get his feet wet? And can you blame the son, who had been so long absent from rural sights, rural sounds and rural labors for not understanding how to place the harness on the jaded steed? Can you wonder then, one who for three long months had been almost exclusively engaged with weights and measures, had forgotten not only the uses but the vulgar names of such useless appendages of human labor, as hoes and rakes, and sythes and plows? All this, and more, Mr. Moonshine claimed to have done; indeed, had you heard him discourse upon these articles, you might well imagine that they were inventions that had sprung up long since the almost forgotten day when he began to emerge from the chrysalis to the butterfly state. "He is certainly improved" said the discriminating mother to the no less discerning father," and I think the time *will come* when we shall see him in a nice store of his own and then Jefferson shall be his clerk, and Cornelia Elizabeth shall go and live with him and attend boarding school. Dear me, I don't see how some folks can bring up their children as they do, to live in the country and work in the dirt all their days. There is Charles Wiseman, who for aught I know, would be as smart as our Lafayette if he only had the chance, and Mr. Wiseman has money enough to set him up with a good store. But there he is, trudging after the plow, up early and late, summer and winter. But Charles appears happy and contented after all. I wonder if you can't persuade his father, to let him go with son and be somebody. It is a real pity that such a clever boy should look for nothing better than a farmer's life. And as his father is rich, it might be a good plan for the boys to go into partnership in their first setting out. Do speak to him and see what he says."

Meanwhile our merchant in prospect had almost forgotten his early playmate of the plow, but as the suggestion fell from his

mother's lips, he assented so far as to not know but it might be a good plan, though he thought he should rather that Charles should go into some other store, until he had worn off some of his country habits and assumed at least the outlines of refined life.

Circumstances however, forbade his suffering the chagrin which he was so fearful would follow the course marked out by his mother. Charles, in the first place, had no inclination to leave the plow, and in the second, Mr. Lafayette Moonshine's visit was protracted some weeks beyond the time first specified for his departure and at length he concluded "not to go back." Whether this conclusion came on through any reflections of his own during his "country visit," or whether it was actually settled before he came that his employers had no further need of his services, is not a point for us to settle. Rumor, however, gave some insinuations that Mr. Moonshine had an antipathy to the busy employments behind the counter, or rather that he was above his business, and altogether a more important personage than either of the firm that employed him.

Several months passed away before "a suitable opening presented itself" to give employment to our man of consequence. It is needless for us to imagine how these passing days were spent. Any thing but profitable employment occupied his time. He did, however, enter into one or two *speculations*, but the result of these was any thing but flattering to his business talents. At last he found a vacancy in a village store, where he secured a place wherein his time would pass in *the appearance* of business; and here, dividing his time between employment and pleasure, for a wonder, he spent a long New England winter. The opening spring broke propitiously upon his opening prospects. During the winter, he had made acquaintance with one Jerome Bonaparte Bangup, a young man of congenial temperament, and upon whom Dame Fortune had dispensed a small amount of *cash*, an article whose importance is fully appreciated in testing individual merit, and whose presence is absolutely necessary in order to the accomplishment of all great and daring enterprises. And a full month before May-day might be seen in glittering letters, over a late vacant store in a neighboring village, the names "Bangup & Moonshine."

The reader may well imagine, that to the whole Moonshine family it now appeared conclusive that the tide of fortune was turning rapidly in their favor. "Mr. Moonshine, the merchant," was applauded as an "elegant man,"—"a splendid fellow," by at least a dozen street spinsters, and the whole village population quoted his opinion as putting all matters of dispute at final issue. Miss Elizabeth Cornelia came to see "brother's new establish-

ment." Thomas Jefferson Moonshine was inducted as first clerk in his "brother's commercial house."

"Cornelia Elizabeth" became enamored of the village, and of course when she returned to the home of her parents, the old trees under which she sported so joyously in her childhood, looked "so dismal and sad, and every thing was so still and gloomy that she besought pa, with all the eloquence of woman's tongue, to sell out and move to Follytown. Then the family would all be together, for they could board brothers and Mr. Bangup, and besides every thing was so lively and cheerful there. The people were so much more refined." Oh! she was in agony to go.

With such arguments, urged by continual pleadings, who could blame a fond parent from yielding to their force? And who can imagine otherwise than that the old homestead was sold, and what remained, after paying debts which had been accumulating ever since Lafayette went to the city, was invested in the purchase of "a house and lot" in the village of the family aspirings? It was even so; but it need not be surmised that the Moonshines had enough cash on hand to pay for the aforesaid premises. Nor need it be so, for cash, wherever it may be found, will always purchase credit. It was so here. A credit of $2000 was obtained and a mortgage given on the premises as security. And what was this paltry sum to those going on so swimmingly. A mere nothing. But then there were contingencies. New furniture must be obtained, for the old country wares were "ancient and frightful." The old horses must be exchanged for a pair of young prancing animals, and, in fact, change and improvement were the order of every thing.

Will the reader anticipate the result of this mighty march of progress, and allow us to bring our "long yarn" to a close? Methinks we hear some curious little body say, "pass over the intervening time and give us the sequel of your tale." We will do so in few words and brief sentences. When the winter solstice came round, Bangup & Moonshine could not make their credits balance the debtor side of the page by some hundreds of dollars. They attributed this to *a mistake* in entry. A mistake it most certainly was, or it would not have been. But the error possibly lay in *early impressions.* The firm went down, though not with a very heavy crash or productive of much wonder, and Lafayette again became a gentleman and disentangled of business, further than waiting on creditors and dodging, to avoid sheriffs, can be called employment. His name was now seldom repeated by anxious mothers in the family circle, and blooming daughters, when they saw him approaching, were looking down as if seeking to avoid the mud, or discover a new plant by the wayside, or something best known to themselves. The men of the village

questioned his profundity in law, politics, and all the et ceteras of village controversy, and forgot to make him their oracle.

And the family, you say, give us their destiny. Well then, spring came round and brought with it that day which will forever come, when all dues are demanded. But no cash was ready, and the searching eyes of creditors could find no "goods or chattels" whereon to levy to satisfy their claims. The mortgage was closed and village life wound up, for in the stillness of night, though at different periods, the whole family took up a line of march for "the west," where they at length all safely arrived, but whether to profit by the bitterness of past experience or to enter upon new scenes of Moonshine castle building, your deponent knoweth not.

USEFUL INSECTS AND THEIR PRODUCTS.

BY JAMES H. FENNELL.

Hymenoptera.—Although the galls of commerce are essentially of a vegetable nature, yet they owe their origin to what are called gall-flies, and therefore we may fairly include these substances among the products of insects. Galls arise from punctures which the female gall-fly (*Cynips*, of which there are numerous species) makes in various parts of plants, shrubs, and trees, that she may deposit her eggs therein; inserting, generally, but one egg in each puncture. At such parts the plant assumes unusual forms—the egg, or the hatched grub of the fly becoming surrounded by a vegetable growth, of a firm texture, generally globular, and mostly possessing, at first, a bright, healthy color, like that of young bark or fresh fruit. This production continues to grow on all sides during the sojourn of the grub within it. The operating cause of the growth of the gall, and of the regularity of its form, does not appear to be clearly understood by either entomologists or botanists; but there is positive proof that none of these galls are produced without the presence of the insects. What is objectionably called the oak-*apple* is a gall of this kind; and if cleft in two at the proper time, the grub of the gall-fly will be discovered reposing in the central chamber of it. Those galls which different species of gall-fly produce on three species of sage (*Salvia officinalis, triloba, and pomifera,*) are very juicy, and crowned with rudimentary leaves, resembling the calyx of a young apple. In the Levant, these sage galls are highly prized for their aromatic and acid flavor, especially when prepared with sugar. They

constitute, in fact, a considerable article of commerce from Scio to Constantinople, where they are regularly sold in the market. Dr. Lankester, referring to these galls, says, that those which project from the branches of the *Salvia pomifera*—a species of sage of peculiar growth, and common to the Greek islands,—are called sage-apples, and are supposed to be produced by the puncture of a gall-fly. They are about three-quarters of an inch in thickness, of a fleshy appearance, and semi-transparent, like jelly. They are constantly exposed for sale in the markets of Greece, where they are made into a kind of conserve, which is highly esteemed. Dr. Clarke assures us of the excellence of this delicacy, with which he was regaled by the English consul at the island of Syros. In France, the galls of ground-ivy have been eaten; but Reaumer, who tasted them, doubts that they will ever become a part of the dessert. The *nut-galls* which are so extensively used in the black-ink manufacture, arise from the punctures which a certain species of gall-fly (first described by Olivier, under the name of *Diplolepsis gallæ tinctoriæ*) makes in the leaves of a species of oak (*Quercus infectoria*, Oliv.) very common throughout Asia Minor, where, in many places, these galls are collected by the poorer people, and exported at Smyrna, Aleppo, and other ports in the Levant, as well as from the East Indies, whither a part of those collected are now carried. The oak-galls most prized are those commonly known as *blue* galls, being those gathered at an early period—that is to say, before the gall-flies have been disclosed from the galls. Those of the second gathering, from most of which the insects have made their escape, are called *white* galls, and are of an inferior quality, containing one-third less of the astringent principle than the blue galls. Both the white and the blue galls are usually imported mixed in about equal proportion, and in this state are called *galls in sorts.* To the dyer, galls are important materials for imparting a black color to garments and other articles. This can, indeed, be accomplished without the use of galls; yet notwithstanding all the improvements in the art of dyeing, galls are found to offer at once the cheapest and most effectual means. Molina tells us that in Chili on oil is obtained from the large globular cellules found upon the wild rosemary, and which are supposed to be galls produced by the punctures of a gall-fly. In the East, the west of Europe, the Levant, and Greek islands, certain species of gall-flies are of great use in assisting the ripening of the fig (*Ficus carica.*) "The fig consists of a pulp, containing a number of seed-like pericarps, inclosed in a rind. It has no visible flower, for the fruit arises immediately from the joints of the tree, in the form of little buds, with a perforation at the end, but not opening or showing any thing like petals, or the ordinary parts of fructification. As the fig enlarges, the flower comes to

maturity in its concealment; and in some countries the fruit is improved by a singular operation, called *caprification*. This is performed by suspending on threads, above the cultivated figs, branches of the wild fig, which are full of a species of gall-fly. When the insect has become winged, it quits the wild figs, and penetrates the cultivated figs, for the purpose of laying its eggs; and thus it appears both to ensure the fructification, by dispersing the *pollen*, and afterwards to hasten the ripening, by puncturing the pulp, and causing a 'dispersion or circulation of the nutritious juices." A second crop is also obtained by this means, but is thought to deteriorate the fruit. In France, the effect of caprification is gained by puncturing the figs with straws dipped in olive oil.

A certain species of ant (*Formica bispinosa*, Oliv.; *F. fungosa*, F.) collects from the Bombax and silk-cotton tree a kind of lint, which, as a styptic, or stancher of blood, is preferable to the puff-ball (*Lycoperdon.*) At Cayenne this lint is taken from the ants, and succesfully used to stop even the most violent hæmorrhages. A traveller, whose name and that of the country of which he speaks, I have unfortunately omitted to preserve, says, "It is customary here to apply, at the commencement of the *goître*, poultices of warm gourds, the patient at the same time drinking water which has stood for several days upon a pounded mass of large ant-hills. The component parts of these ant-hills, which are from 5 to 6 feet high, in the construction of which the insects make use of a peculiar animal slime as a cement, certainly seem capable of counteracting the causes which produce that frightful disease. Perhaps, too, the acid of the ants may have a beneficial influence on the relaxed nerves of the patient, as well as on the debility of the lymphatic system."

In America it is not uncommon for a nest of hornets to be suspended in the parlors, that they may destroy the flies and gnats which are very troublesome to the inhabitants. Reaumer states, that the French butchers are glad to have wasps about their stalls, for the purpose of driving away the blow-flies. In our own country wasps do us some service in destroying great numbers of tormenting flies and moths.

Knox informs us that bees are eaten in Ceylon. Gilbert White mentions a poor idiot boy, who, from his childhood, showed a strong propensity for eating honey-bees, humble-bees, and wasps, wherever he could find them. He had no apprehensions from their stings, but would seize them in his naked hand, and at once disarm them of their weapons, and suck their bodies for the sake of their honey-bags. He was wonderfully adroit in the pursuit of these insects, and when he ran about, he used to make a humming noise with his lips, resembling the buzzing of bees. He was very injurious to bee-keepers; for he would enter their gardens, and,

sitting down before the stoods, would rap with his finger on the hives, and so take the bees as they came out. He had been known to overturn hives for the sake of honey, of which he was passionately found.—*Jour. of Ag.*

STRAWBERRY CULTIVATION, &c., &c.

BY. WM. R. PRINCE.

Although pressingly occupied, I cannot forbear making a few comments on the article in your May number, headed "Strawberries—their Cultivation." Having devoted more time to the critical investigation of the merits of the different varieties of the Strawberrry and their culture, than perhaps any other person, and being desirous only of candidly communicating such views as will facilitate the production of this palateable and healthy fruit throughout our land. I trust my remarks will not be deemed superfluous, although so much has already been written on the subject. The soil should not be "gravelly," but should be a firm loam, naturally rich, or made so by manure, such as will retain moisture, but sufficiently friable for filtration. A sodden soil is entirely inappropriate. The beds should be about four feet wide, and the plants set at about fifteen inches asunder. You have advised correctly as to the preparation of the soil for their reception, and on various other points. But I would suggest further, that as the numerous small weeds which usually spring up in the beds form the greatest difficulty to be surmounted, that the beds be dug over several times, at intervals of three or four weeks, which will allow nearly or quite all the weed seeds to vegetate, and they may thus be annihilated, and the land rendered free in a great measure from such annoyance. The trouble and expense which will be thus saved in their after culture, will most amply repay this extra labor of preparation. In localities north of New York, it will be well during the winter to cover the beds with four inches of leaves, straw, or salt hay, the former preferred. As strawberry beds are usually renewed every two years, they will, if well manured beforehand, produce two full crops without any additional manuring, but if this should be requisite, the proper period for performing it is late in the autumn. The manure should be that which is perfectly decomposed, or the vegetable mould from a forest which has been formed by decayed leaves. This should be pulverized, and then strewed among the plants throughout the beds to the depth of an inch. I notice among the varieties you recommend, several

which although extolled at fairs, have now given place to more valuable varieties, and are consequently at present deemed comparatively valueless; and I also notice errors of sexuality.

Swanstone Seedling, (hermaphrodite,) is very high flavored, but valueless for its small crops, and is also subject to being burnt by our sun.

Large Lima is hermaphrodite, an indifferent bearer, and a synonym of the true Chili.

Bishop's Orange, (so called at Boston,) is very different from the true variety. The blossoms are both hermaphrodite and pistillate, and the fruit dark red or crimson, whereas the true variety is pistillate only, with fruit of a beautiful orange scarlet hue, and is far the most productive and estimable, the erroneous variety being now superseded.

Bayne's Prolific is a synonym of one of the older varieties.

Hudson comprises both hermaphrodite and pistillate plants, and I shall ere long give a complete history of this variety, with some singular elucidations. It is highly productive and valuable.

Hovey's Seedling, as is well known, produces great crops, as also the other pistillates invariably do, when accompanied by a staminate or hermaphrodite impregnator, of which one to twenty or even less will suffice.

Large Early Scarlet is hermaphrodite, and produces usually a half crop, sometimes less, and sometimes rather more.

Black Prince is pistillate, a large and showy fruit, borne on strong peduncles, sweet and fine flavored at full maturity. It does not succeed well in the moist climate of England, but our glowing sun and dry atmosphere seem congenial to its full development.

Ross Phœnix is hermaphrodite, and like its congeners, Keen's Seedling, and with which I deem it *identical*, it is utterly worthless for its barrenness, and for other defects.

Burr'sLate Prolific is a valuable variety, but not more productive than a number of others.

Burr's New Pine is a large, very productive, and high flavored variety, and the best of his seedlings in point of excellence.

Melon is of the same character as to sexuality and paucity of fruit as Keen's Seedling, or Ross' Phœnix.

Southborough Seedling is hermaphrodite, the fruit large but few in number, borne on very strong peduncles. It is valueless for a crop. In the extract you made from Hovey's Magazine, there is the following remark. "I believe every flower on the above varieties (as therein enumerated,) is female, and *if planted separately, will fail to yield abundantly.*" The truth is, *that female plants would not produce at all*, and how any man can be

found in this enlightened age, who will believe in the production of progeny without an union of the sexes, when a school boy would be deemed an ignoramus for talking of effect without a cause, is to my mind absolutely unaccountable.

As regards the culture of the larger hermaphrodite varieties, (usually termed staminates), it is true that the most of them, if cultivated as distinct plants, and kept perfectly free from runners, will produce tolerable crops, and occasionally very fair crops, although at other times they will yield few or none; but the excessive labor of this course of culture renders them comparatively valueless when contrasted with the simple culture exacted by the pistillate varieties, which may be allowed to run together in a mass, and will be found more profitable under this mode than under any other. There are however a few exceptions among the medium and large hermaphrodites, as the Primate, Eberlein, American Prolific, and one or two others, which will produce large crops when cultivated in the same manner as recommended for the pistillates. The European Wood and Alpine varieties, which are hermaphrodites, are also exceptions, being quite productive, but their fruit is small.

Flushing, August, 1848.

GLEANINGS.

Gutta Percha.—The present is an age of discovery, and every week new inventions and useful combinations are brought in requisition for the furtherance of the arts, or the comfort and convenience of the public. It is but a short time since the first application of Gutta Percha to the useful arts was first undertaken, and now it is applied to an almost infinite variety of purposes. It is manufactured into thread for piece goods, ribbons, paper, and other articles. Hancock's patent is the most comprehensive, who unites it with caoutchouc and another substance called *jintawan*, by which an elastic material results, impervious to and insoluble in water. The hardness and elasticity of the compound are varied by varying the proportions of the components. Springs for clocks, clasps, belts, and strings are made of it; and by giving it a greater hardness, it may be formed into picture-frames, incredibly tough canes, door handles, buttons, combs, and flutes, embossed alphabets and maps for the blind, receiving and retaining a clear sharp impression. It has been proposed to apply it as a stopping for decayed teeth, being perfectly harmless. It can be united with coloring

matters, and may then be employed in printing; the colors so printed will probably prove as lasting as the fabrics or materials on which they are impressed.

Another and equally valuable use to which it has been applied by our enterprising townsman, D. Hodgeman, Esq., of 27 Maiden Lane, is that of boot and shoe soles, which is a most admirable improvement. Pleasant to the wearer, light, durable, and perfectly impervious to wet. Hodgeman's Gutta Percha bottomed boots and shoes are a real luxury. We invite the attention of the public to the subject.—*Farmer and Mechanic.*

On Ergot.—Dr. Latham states his conviction that ergot is on the increase in this country. When he first observed it, some eight years ago, he found it on only a few plants; he now finds it in great quantities. He has collected it altogether from eighteen different species of grasses. It has also increased on the cultivated grain, and he believes that ergot is at this moment increasing absolutely and indefinitely. A friend of his attributes its increase to the use of animal manure, and states that he has always found the ergot most abundant in the grasses of churchyards.—*Pro. British Ass.*

Caterpillars.—An English agricultural paper gives the following method of destroying caterpillars, which was accidentally discovered, and is practised by a gardener near Glasgow. A piece of woolen rag had been blown by the wind into a currant bush, and when taken out was found covered by the leaf devouring insects. Taking the hint, he immediately placed pieces of woolen cloth in every bush in his garden, and found the next day that the caterpillars had universally taken to them for shelter. In this way he destroys many thousand every morning.

Cast Iron Roofing.—A specimen of cast iron plates for roofing of buildings, says the Philadelphia Ledger, has been exhibited at the Exchange, in Philadelphia, by the inventor and patentee, Mr. William Beach. The plates are about a foot square, and are made to fit one into another so as to render the roof perfectly water-tight, with the application of white lead to the joints. In every respect this material for roofing is preferable to every other description now in use. As to its durability, there can be no doubt that it would remain perfectly whole for ages, if covered occasionally with a coat of paint, and even without that preservative, rust would not affect it materially for a period of fifty years at least. As compared with copper, the cost would be nearly one half, as it is expected the iron can be furnished at 16 cents per square foot, while copper would at the most moderate estimate cost 28 cents. As regards the weight of an iron roof,

which at first sight would appear an objection, it is far less than one formed of slate, and does not much exceed one of copper. The iron plates weigh three and an half pounds per square foot. A slate roof would cost about eight cents per square foot, but for durability and the ease with which it can be put on and made water-tight, the iron roofing would appear to be far preferable. The plates exhibited were cast at Troy, N. Y., and are of the very best quality. The patent for the eastern states is now owned by Mr. Hiram Hemmestone, of Troy, in which neighborhood the adaptation of such a durable material for roofing is rapidly attracting public attention there. Starbuck's machine shop and foundry at Troy has been covered on this plan, and it has also been adopted for the roofing of an arsenal at West Point.

Corn Mills of the Shetland Islands.—"We had this day an opportunity of inspecting one of the primitive mills of Scotland. The grinding stones, usually formed of micaceous schist, are placed upon a frame work and beneath a roof. A strong iron spindle is wedged into the upper stone, and, passing through a hole in the centre of the lower one, is firmly fixed into the upper end of a strong wooden post, at the base of which are mortices in a slanting direction, a number of flat boards forming the cogs of a kind of horizontal wheel. A trough from a natural rill of water is made to convey the motive power upon the wheel, which turns the upper mill-stone slowly round, and so grinds the grain, supplied either by an old straw basket, or other rustic hopper, or more patiently by human hands.—*Wilson's Coast of Scotland.*

Glass Spring.—It is difficult to foresee to what perfection the manufacture of glass may be brought, and to what purposes the article may yet be applied. The balance spring of a chronometer is now made of glass, as a substitute for steel, and possesses a greater degree of elasticity and a greater power of resisting the alternations of heat and cold. A chronometer with a glass spring was sent to the North Sea, and exposed to a competition with nine other chronometers, and the result of the experiment was a report in favor of the chronometer with the glass spring.

Glass Milk Pans are coming more and more into use in Europe. Their advantages on the score of cleanliness must be obvious. It were to be wished that societies or institutes would appoint a standing committee, and put aside a small portion of their ample funds for the instant importation of sample articles invented abroad, connected with agricultural and rural economy. True it is, that in general, this may be left to the vigilance and rivalry of tradesmen and manufacturers; but many years may elapse before we get the benefit of many things which might at once be profit-

ably introduced. The same reason and policy that prompt the offer of premiums for useful things of home invention, would warrant the introduction of things which have been recently invented and patronized by agricultural societies abroad. Satisfied that glass milk pans (on which the manufacturer should indicate the capacity of the vessel) would be a valuable acquisition to our dairy women, we respectfully suggest the importation of a dozen, and the offer of a premium to the glass manufacturer who shall first produce them in this country at a cost that will justify their being brought into general use. It has been seen in an interesting and valuable "Essay on the Management of Holstein Dairies," published in the Farmers' Library, that there the dairy women are allowed one dollar a year for "pan money," and charged for all they break; yet they always "make by the operation." Let us have glass milk pans.—*Farmers' Library.*

Marks of Sheep.—The sheep, cattle and horses, which run on the common pastures in the Shetland Islands are all marked on the ears to distinguish individual property. In the island of Unst there are as many as three hundred different marks. Mr. Willson, in his coasting voyage round Scotland, says:—"When any new person desires to have a mark, he has one assigned and appropriated to himself, which must be publicly advertised or made known, to ensure that no one else has already selected the same. He then pays half a crown for registration, which sum goes to the maintenance of the poor. But if he requires to take even a lamb from the hill-side for family use, he must warn his neighbors of his intention, that they, if they please, may go with him to see that he helps himself to nothing but his own."

Artificial Iceing.—An invention for generating ice by artificial means, has just been discovered in London. The ice is produced by means of a powder composed of salts, ammonia, and various chemical mixtures. This powder is placed in a simple apparatus, something in the shape of a churn, but small in size, and being mixed with water, is kept in motion by a rotary process around the vessel of water or wine to be cooled. In a few minutes, and at a very trifling expense, the water or wine is sufficiently cooled, and if kept a few minutes longer in the vessel, would be actually frozen. The most inexperienced in chemical experiments can produce the required results, which in fact require nothing but the labor of the hand for a few minutes. At sea, and in climates where ice is a costly luxury, we should think this invention would be an invaluable one.

ACKNOWLEDGMENTS.

We have received from the hands of the Secretary, B. P. Johnson, Esq., vol. 7 of Transactions of the New-York State Agricultural Society, for 1847. This volume contains 800 pages, embracing, besides the local and business matters of the Society, a very large amount of very useful information on subjects interesting to the general reader as well as to the farmer. A great proportion of the volume is taken up by the reports of the County Societies, which are much more full and uncommonly interesting. Besides the Biography and Address of the late Silas Wright, there are a number of very valuable and highly interesting essays; among which is one on "The economical uses of Bones as a Manure," by Prof. J. F. W. Johnstone, of Durham, England; an address of Prof. J. P. Norton, on "Agricultural Chemistry," before the New-York State Agricultural Society; address of Dr. A. H. Stephens, "On the Food of Plants," at one of the Agricultural Discussions in the Assembly Chamber; "The Currant Moth," (*Abraxas? Ribearia*), by Dr. A. Fitch; "On the Potato Disease," by C. E. Goodrich. In short, the communications, &c., in the present volume are all excellent, and many of them of great practical value.

The present is a decided improvement on the former volumes, both in the style and manner in which it has been got up, and reflects great credit on the indefatigable exertions of the Secretary of the Society, B. P. Johnson, Esq.

We have received from the hands of the author, Z. Pratt, Esq., "Report of the Greene County Agricultural Society for 1847." From a careful examination, it appears to us that this report would be a good model for other societies. It is short and comprehensive; and embraces statistics of every town in the county; population, voters, militia, common schools, academies, and churches. Agricultural and horticultural statistics;—number of acres of land under cultivation, bushels of wheat, barley, rye, oats, corn, buckwheat, peas, beans, potatoes, turnips, and flax raised in each town. Number of cattle, horses, sheep, and swine. Produce of butter, cheese, and wool. Manufactories; amount of articles manufactured, and household manufactures, &c.; showing at a glance the resources of the county. These are all interesting, and if every county society would follow this, a mass of very valuable information would be collected, useful and interesting to all classes.

METEOROLOGICAL OBSERVATIONS FOR AUGUST, 1848.

Made at the Albany Academy, by Dr. T. R. Beck, Principal, &c.

Days.	THERMOMETER.				WINDS.		WEATHER.		RAIN	REMARKS.
	6 A. M.	3 P. M.	9 P. M.	Mean.	A. M	P. M.	A. M.	P. M.	Inch's	
1	64	79	70	70·50	N. W.	N. W	Clear.	Clear.		
2	61	76	71	69·50	N.	N. E.	Clear.	do		
3	62	80	73	72·67	N. E.	S.	Clear.	do		
4	68	77	74	73·50	S.	S.	Clear.	Cloudy.		
5	71	81	71	73·17	S.	N. W.	Cloudy.	Cloudy.	0·05	Rain.
6	64	78	67	69·00	N. W.	N. W.	Clear.	Clear.		
7	60	81	73	71·83	N.	N.	Clear.	do		
8	63	82	75	74·00	S.	S.	Clear.	Clear.		
9	67	83	74	74·33	S W.	S.W.	Cloudy.	Clear.		
10	65	85	76	75·83	S.	S.W.	Clear.	do		
11	68	87	78	79·00	S.W.	S.	Clear.	do		
12	76	86	78	79.00	S.	S.	Clear.	do		
13	70	86	76	77·33	S.W.	S.	Clear.	do		
14	70	89	[illegible]	81·00	S.	S.	do	do		
15	76	89	80	81·50	S.	S.W.	do	do		
Semi-monthly mean,				74·81					0·05	
16	75	87	80	81·00	S.	S.	Clear.	Clear.		
17	77	86	74	76·83	S.	N. W.	Clear.	Cloudy.	3·04	Rain.
18	65	70	65	66·50	N. E.	N.	Cloudy.	Cloudy.		Rain.
19	64	68	63	63·67	N.	N.	Cloudy.	Clear.		
20	56	75	66	65·50	N.	N.	Clear.	do		
21	55	74	68	65·67	N.	N.	do	do		
22	55	76	68	68·50	N.	N.	do	do		
23	58	74	69	66·83	N. E.	N. W.	Cloudy.	do		
24	57	78	70	68 50	S.	S.	Clear.	do		
25	58	76	66	66·33	S. W.	E.	do	do		
26	56	72	67	65·33	N E.	S. E	Cloudy.	Cloudy.		
27	58	77	71	69·67	S.	S. W.	Clear.	Clear.		
28	64	67	68	67·00	S.	S.	Cloudy.	Cloudy.	0·70	Rain.
29	68	76	69	69·83	N. W.	N. E	do	Clear.		Rain.
30	61	79	70	69·83	S.	S. E.	Clear.	do		
31	60	82	73	73·67	S. E.	S.	do	do		
Semi-monthly mean,				69·04					3·74	

Monthly mean,.... 71·92. Rain Gage 3·79.

Winds.—North 6; North-east 3; East ½; South-east 1½; South 12; South west 4; West 0; North-west 4.

Weather.—Fair 24, Cloudy 7 days. Rain on 5 days.

Warmest day 15th, Highest 89°,
Coldest day 19th, Lowest 55°.

5th, Rain early A. M.,..... 0·05
17th, Rain 5 P. M. with thunder to next morning, ... 2·49
18th, Rain A. M.,..... 0·55
28th, Rain 11 A. M. to 6 of 29th,..... 0·70

Rain Gage,..... 3·79

Communications for the next No. have been received from J. E., Thomas Barlow, J. Tremper, William Bacon, and M. T. Brockelbank.

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

CONDUCTED BY C. N. BEMENT, ALBANY.

VOL. VII. OCTOBER, 1848. No. 10.

OCTOBER IN PROSPECT.

Jack Frost has been at work again among the forest leaves. Vegetation is fast disappearing from the sight; few plants are now in flower, save the many species of asters. Already crimson and russet hues are peeping among the strong deep green of summer. And like the first gray hairs which stray intrudingly upon our ear-locks—the first shrunken leaves rustle past us with a sad foreboding story. They tell us the melancholy tale of nature's faded loveliness. The time is near at hand when we must stoically bow to the behest of Nature, and bid a short adieu to the green and sunny seasons of the year. To many this farewell will be the last—for the last time some of us now look out upon the green drapery of this beautiful earth, upon the structure of which the immaculate Creator has displayed so much of his power, his goodness, and inexhaustible benevolence. For the last time we watch the silver mountain streams leaping from their unbroken fastnesses, laving the mossy banks, and smoothing the long grass which dapples in their mimic eddies. The same stern hand whose strange thrall lock up their energies in its icy manacles, may also lay upon us its cold stilly ruin.

Our migratory birds, which have for some time been congregating in flocks, are now rapidly departing to the more genial

regions of the south, and many of those which have spent the summer season much farther to the north, are now again making their appearance.

To the farmer this is a very important month, and it should be the object of each to perform all the duties required of him as early as possible in the month. It is that period of fair or foul weather, sunshine and shower, which usually takes place before most field business is stopped by rain, snow or frost; hence it may not unfrequently happen that work, requiring to be done must be finished next month. "Delays are dangerous," is an old and trite saying; and to none will it apply with more force than those engaged in the cultivation of the soil, for by delaying the performance of things which should be done at the time till a remote period, we not only lose a season, but frequently hazard our very success. We have been so strongly impressed with the truth of the above, that we have often thought that it would be to our interest to have painted in some conspicuous place in large capitals—DO ALL THINGS IN SEASON—as it should serve to remind us of the value of time. "Time is money," said Dr. Franklin, and he certainly must have had the farmer in view when he wrote it; for there is no class to which it will apply with more force. Besides the moral it inculcates, it would impress upon our minds how essential it is to prosperity to follow its wholesome advice.

Potatoes should be dug as early as convenient, and should not be exposed to the sun, for it injures them materially. It has been recommended by some, and the late Judge Buel among the number, to let all the soil adhere to them that will, and to put into the cask or bin dry sand, and we will add, or fine charcoal, and to cover the top with turf to exclude the air. Potatoes should be packed away in such a manner as to secure them from frost and moisture. We frequently hear housekeepers complain that their potatoes, turnips and other vegetables soon deteriorate and lose their fine flavor, after they have been a short time in their cellar. This is a natural consequence of the injudicious way in which they are too frequently kept—exposed to the atmosphere, and to

a high temperature, in a cellar adjoining the kitchen, or perhaps in the kitchen itself.

Collecting apples and fruits for winter should be attended to as soon as convenient. Apples gathered from the tree before they are over ripe, keep better than those which are allowed to hang on the trees till they are frost-bitten.

Corn should be picked, and the stalks secured for fodder, under cover if possible.

If you have any fall plowing to do it should be particularly recollected that during October and November, ground intended for spring crops should be plowed. At this season of the year, teams are strong and the weather cool, and moreover, sward grounds plowed in the fall for spring crops, our experience teaches us, produce much better and are easier tilled, than when plowed in the spring.

During this month most garden vegetables should be secured, such as beets, carrots, cabbages, &c.

The last of this month is a proper season for transplanting most kinds of fruit and forest trees. Beans are often neglected, and injured by the fall rains, they should be gathered and secured as soon as ripe.

AZOTE FOOD NECESSARY FOR FOWLS.

A letter was read before the British Association from M. Sace, of Neufchatel, Switzerland, giving an account of some experiments in the feeding of domestic fowls. He states first, that fowls to which a portion of chalk is given with their food lay eggs, the shells of which are remarkable for their whiteness. By substituting for chalk a calcareous earth, rich in oxide of iron, the shells become of an orange-red color. Secondly he informs us that some hens fed upon barley alone would not lay well, and that they tore off each others feathers. He then mixed with the barley some feathers chopped up, which they ate eagerly and digested freely. By adding milk to the food they began to lay, and cease plucking out each other's feathers. He concludes that this proceeding arose from the desire of the hens for azote food.

THE HOP—ITS CULTIVATION, &c.

The hop (*Humulus lupulus*) is a dioeceas plant, (*a*) that is, some of the individuals are male plants, and others female, which have respectively flowers of a different construction and of different habitudes. The male or staminiferous flowers, (*a*) which grow on stalks quite distinct from the female flowers, prepare the pollen, or fertilizing dust, and afterwards wither away, when this dust has escaped from the anthers, and been committed to the air, to be by it conveyed to the female flowers. The female flowers are in the form of strobuli, (*b*) or cones, consisting of scales, which have at their base the germ of the future seed, which have the habit of enlarging as the scales of the fir-cones do, more particularly after the fertilization of the ovul, or future seed, by a quantity of the pollen falling upon it.

Humulus Lupulus.—Fig. 30

Though the pollen, from its extreme lightness, can be wafted to a considerable distance, and some seeds in each cone may be so fertilized, yet it would be well to rear a number of the male plants among the others, or along the edges of the hop fields, to insure the fertilization of *all* the seeds. But as the farmers observe that the flowers of the male (termed by some the wild hop,) wither away, they generally extirpate them at the digging season, as unfruitful, cumberers of the ground. That this is an error, may be proved in various ways, but an appeal to the result of an opposite practice is the most convincing. A bushel of hops, collected from plants of the fourth year, raised from seed, weighed 36 lbs., there being male plants near; a second instance, when the plants were raised from cuttings, weighed 35 lbs., while a bushel grown in a garden where the male plants were always eradicated weighed only 22 lbs. Besides the greater quantity of hops thus obtained, the aroma is much greater, and the strength of the bitter much greater. The value of a specimen of hops depends upon the amount of lupulin dust it contains; when of the best quality, they command from sixteen to twenty cents the pound. After the period when the males have elaborated the pollen, and the strobuli of the females begin to enlarge, the males may be cut down and the stalks employed to make cordage for hop-bags against the following harvest.

Hops are a valuable plant, and are extensively cultivated for the flowers, which give flavor and permanence to beer, by being boiled with the wort in brewing. They impart a pleasant, bitter, and aromatic flavor, and prevent the too rapid progress of fermentation. Beer which is well hopped, will keep long and become very fine without any of those artificial means of fining which make the common brewer's beer so much inferior in quality to that which is home-brewed.

The land should be naturally rich, or made so, by well rotted manure, lime, and ashes. Chemistry informs the practical farmer that the hop blossom (*strobulus*,) and bitter elements (*lupulin*) abound in salt-petre, or nitrate of potash; while long experience teaches him that this plant grows most luxuriously in a soil about as rich as an old *nitre bed* near a stable or barn-yard can make it. In England the gronnd is often trenched, and the excavation filled with compost, that the roots may go deep, and imbibe their appropriate nourishment from a large surface. Deep, and thorough plowing, are indispensable. A side hill, or a southern exposure should be selected if practicable.—*Gen. Farmer.*

The roots are perennial, and will live and bear annual crops for many years with good culture, and good luck. They are usually planted in rows six feet apart either way, and from four to six inches deep. They are cut from the hills of old plants, where roots have been laid bare by the plow. The portions planted should contain one or two eyes, of which eight or ten are enough for a hill. They should be well separated on the ground, that is, placed a foot apart, that the future roots may have room, and easily spread in all directions. No poles are needed the first season, and a hoed crop may be grown on the land, which should be kept clean and in good tilth. In November, the ground should be plowed and the earth turned towards the hills. Early in the spring the hillocks are opened, and the last year's shoots cut off within an inch of the main stem; and all the suckers quite close to it. Two or three substantial poles, from 16 to 25 feet in length, should be firmly set with an iron bar in each hill. When the plant has grown three or four feet, it should be trained and tied to the pole below the third set of leaves, and started in its windings upward in the direction of the sun. Care should be taken not to let too many vines grow from a hill as their foliage will shade the blossoms and greatly injure their fruitfulness. Two or three vines to a pole are enough. Some hop-growers allow only *one* vine to a pole. Hops are plowed and hoed in this state like corn.

The hop, as every one knows, is a slender, climbing plant, which requires careful cultivation. It is very tender and the produce is precarious, sometimes giving great profit to the grower, and at other times failing altogether. It is very liable to diseases;

it suffers from the aphis; a species of haltica attacks the young plants; several moths deposit their eggs upon it; honey dew is often destructive; it is also liable to attacks of mildew and fire-blight towards maturity.

The poles of oak, ash, larch and chestnut, are the most durable. They should be put into a shed during winter; where this cannot be done, they are placed on end in the form of a cone, leaning against each other.—*Gard. Far. Dic.*

The gathering, kiln-drying and bagging of hops, is an important branch of the business of the planter. It is in this part of the process that experience and judgment are most valuable. The time to gather the blossoms is indicated by the turning of the lower leaves on the vine, and the bright straw color of the seeds.

The vines should be cut a foot or two from the ground, as the bleeding of the stems will weaken the roots if severed close to the earth. The poles are laid over long, narrow boxes, which receive the hops as girls and others pick them from the vines. After the latter become dry, they should be cut off the poles, burnt and the ashes kept to apply to the hills of the parent roots next season.—*Genesee Far.*

SOME OF OUR INJURIOUS COLEOPTERA.

BY JAMES EIGHTS.

Scolytus Destructor.—The intelligent observer in traversing the streets of our city, any time during the season of summer, will not unfrequently have his attention attracted to the partially decayed and dead appearance of many of the smaller twigs at the extremity of the branches of some of the fine elm trees that so beautifully adorn our waysides and various parks. And he will likewise have cause to remark that the remainder of the foliage presents an unusually withered and unhealthy aspect to the sight. This appearance has been chiefly attributed to the deleterious effects of the gas made use of in lighting the city, and which has been communicated to the trees, by some accidental leakage of the pipes made use of for its conveyance. How far this may be correct we have had no accurate means of determining, but, upon a closer inspection of the trunks and larger branches, he will not fail to perceive, in the greatest profusion, small circular perforations through the bark, leading to thousands of equally small

canals, ramifying and crossing each other, between the bark and the wood, in almost every possible direction. These canals not unfrequently contain, in large numbers, a small caterpillar, or grub, of a yellowish white color, without legs, and a brownish head armed with a formidable pair of jaws; and sometimes the perfect insect distributed among them. This is undoubtedly the *Scolytus destructor* of authors. It is of a cylindrical form about one-eighth of an inch in length, and of a chestnut brown color. It may not unfrequently be found during the early part of August, crawling over the furniture of our dwellings, attracted no doubt by the light of our lamps, during the hours of darkness. To an individual but slightly acquainted with the peculiar habits of this little insect, it would be exceedingly difficult for him to realize the vast amount of injury it is capable of accomplishing in a comparatively short period of time, in the vegetable creation. In the vicinity of London, a few years since, it was known to destroy entire avenues of graceful elms, nor was scarcely a single tree of its species but that was more or less injured by its destructive wanderings. "In the year 1780, an insect of this family made its appearance in the pine trees of one of the mining districts of Germany, where it increased so rapidly that in three years afterwards whole forests had disappeared beneath its ravages, and an end was nearly put to the working of the extensive mines in this range of country for the want of fuel to carry on the operations.

These depredators, though small in size, multiply with prodigious rapidity; they are continually working their way out to the surface, where, after pairing, the female gnaws small holes through the bark and deposits her eggs within; here on being hatched, the larvæ immediately commence mining the soft inner surface, and by this means, interrupt the descent of the sap and effectually prevent the layers of new wood from forming, so that in a short time the branches gradually lose their foliage, the stems begin to decay, and the whole tree becomes destitute of life. These insects, in the fall of the year, may be seen in great numbers, both in the larvæ and perfect state, merely by removing the bark, which has become loose from their depredations.

It would be well if some of the readers of this journal could bestow some little time and attention to these minute ravagers, and discover some remedy for their removal; if not, we much fear that in a very few years we shall be called upon to deplore the loss of many of the finest ornamental trees of our city and country.

Scolytus? Piri.—The extensive cultivator of fruit in this vicinity, will not unfrequently find as the summer advances, that occasionally some of his choicest pear trees, upon whose delicious fruits he has so often regaled his friends with no little pride and exultation of heart, have suddenly undergone a fearful change,

from the hitherto luxuriant appearances they presented, to one of premature decay—the fruit becoming shrivelled, the leaves withering on the stems, the bark discolored in spots and the branches exhibiting the very form and aspect of death. The insect which produces this malady has frequently eluded the scrutinizing glance of the most attentive observers, from its diminutive size and the smallness of the aperture through which it makes its escape. It has been named the *Scolytus Piri*, from the tree upon which it most usually breeds. It is about the tenth of an inch in length and of a fine deep brown color, the legs and antennæ exhibiting a much paler aspect; the wing-cases are seen to slope off suddenly and in an oblique manner towards the tail, and are minutely punctured in corresponding lines. This will be sufficient to enable any one to recognize this little depredator when investigations are properly conducted.

The more minute details of the proceedings of this insect seems to be involved in some obscurity, but from those which have been observed it appears that sometime during the month of August the female places her egg beneath the bud, from whence it pursues its devastating march along its eye, through the alburnum, and so into the hardest portion of the wood; here, by a circular canal, it surrounds the pith, destroying the ascending sap-vessels, and as the heats of the season are on the increase, an unusual quantity of this fluid is required to descend and supply the place of that which has been lost by the rapidity of evaporation. It is supposed that by this copious drainage from above the wound, that the branch loses its vital principle, and so suddenly becomes dead. In this burrow it is that the insect passes through the different stages of its existence to the perfect state, from whence it escapes to renew its ravages, some time either in the month of June or July.

The remedy suggested is to remove the diseased limb immediately below the wound, and have it speedily consumed, before the insect can escape : let it by no means be left upon the ground beneath the tree.

Phyllaphaga Quercina.—In the spring of the year, during the month of May, by driving a spade into the ground where the grass appears most withered and unhealthy, we generally find with the soil thrown up, a large nnmber of thick, white grubs, with a scaly, brownish head, together with the more perfect insects. Of these latter, some may be seen to exhibit a soft, whitish appearance, owing to the superabundant moisture which their bodies contain, not having been evaporated by exposure to the light, and air. They are of a robust form, nearly an inch in length, and when mature, of a chestnut brown color. Their wing-cases are finely punctured with ranges of small dots, as if im-

pressed with the point of a needle alternating with slightly elevated ridges. This is the *Phyllaphaga quercina*, May beetle, or American cock-chafer. In its perfect state it feeds on the leaves of many of our most common trees and shrubs, particularly on those of the different species of cherry; it may easily be obtained during the hours of day merely by shaking the branches. In the larvæ state they voraciously devour the tender roots of grass, so that in a short time the whole surface of the ground presents the appearance of having been run over with fire. This was peculiarly the case a few years since, in the Capitol Park of this city, and great was the consternation which for some time prevailed in consequence of its desolating ravages. Lime turned in with the soil, we believe, was the remedy made use of for its perfect restoration; every spring, however, more or less of the perfect insect may daily be seen, crawling slowly along the gravelled walks and in their vicinity. The most effectual method for destroying them that we have seen, is to shake the trees in the early morning, when, without attempting to fly, they quietly drop to the earth in great numbers; here they are to be gathered, thrown into boiling water, and fed either to fowls or swine. These insects live but a short period in the perfect state. The female descends about two feet in the earth, deposits her eggs, and again returns to the surface to perish. Crows become benefactors to the human race by devouring vast quantities of these pernicious grubs.

Bruchus Pisi.—Whoever takes up a handful of dry peas, will frequently find some of the number to be perforated by smooth, circular holes, leading far into their interior. This has been produced by one of the devastating insects, the *Bruchus pisi*, or pea weevil. It is small in size and of an oval form, its color is of a rusty black, with a white spot on the back part of the thorax, and four or five more near the extremity of the wing-cases. It may likewise be distinguished by a white spot, resembling the letter T, on the abdomen. When the plants have flowered, and the peas are young and tender, the female of this insect pierces the green covering and inserts an egg within ; this in a short time hatches into a small white grub, and without feet; it now commences its labors, by boring directly into the centre of the pea, where it continues to live upon the rich marrow until it arrives at its full size, at the time, when the seed becomes dry and hard; and what is a little singular, they devour the entire centre and leave the germ of the future sprout uninjured; thus we often find sprouts shooting from perforated peas. As the spring advances it changes from the pupa to the perfect state, and endeavors to escape by perforating its now fragile covering; this does not always take place until after the seeds are planted. The injury accomplished

by this little insect has frequently been so great as to oblige the farmer to give up the cultivation of the plant. They do not confine their ravages to the pea alone, but are also found in the seed of many other of the leguminous vegetables. In this neighborhood, of late years, we have been informed that they have been gradually decreasing in numbers, much to the gratification, no doubt, of the cultivators of pulse.

Deane has suggested an exceedingly simple remedy for the destruction of this devastator, but it requires that it should be universally adopted, to become successful; it consists merely in keeping seed peas in tight vessels rather more than a year before planting. Another method is to dip them in hot water previous to depositing them in the earth; this destroys the insect and likewise quickens the seed. The orioles and crow black-birds are here the benefactors, for they devour vast numbers of the larvæ.

Lamia Titillator.—In wandering through the forests in the neighborhood of our city, almost any time during the months of summer, the attention of an individual will frequently be arrested by a peculiar gnawing, or saw-like sound, proceeding from some aged and decaying pine tree, and more particularly so, should it be placed in an inclined or fallen position. Should he be induced to give it a closer inspection, it will be no unusual thing for him to discover some three or four large insects slowly perambulating over its surface, repeatedly tapping it with their lengthened antennæ, as they pursue their course along; by placing his ear to the tree, he will distinctly hear the same singular sounds issuing from various portions of the trunk, with a sometimes feeble and then a louder noise: even in the aged log fences in the vicinity, these gnawings are likewise to be heard. These sounds proceed from the larvæ of the insects observed upon the trees, while employed at their usual depredations within. It is the *Lamia titillator* of Fabricius, commonly called the tickler, no doubt from the singular manner in which it taps with its antennæ the surface of the tree upon which it walks.

Well established instances are on record of some of the species of this family having remained a dozen or more years, in the larvæ state, in some pieces of household furniture, which had been in constant use by the residents, and finally issuing out in the perfect state.

A few years since, while seated on a piece of hewn pine timber, which formed the door-way to one of the most ancient buildings of our city, we were somewhat surprised to hear this scratching noise directly alongside, and upon a close inspection a slight movement could be observed among the dry fibres of the wood, at the surface. On enlarging the orifice with the point of a knife, the perfect insect quickly emerged and was captured. It proved

to be this species of Lamia. When the egg from which this insect sprung was originally inserted, we have no means of determining, but may necessarily infer that years must have elapsed from that period to its present appearance. Local causes, we have no doubt may long retard the developement of the egg of an insect, and we may reasonably suppose that this, in the present instance, was the case.

This insect is about an inch and a quarter in length, with the antennæ, or horns, extending from once, and in the males to twice that distance: on each side of the thorax is a pointed tubercle or wart. Its color is a mottled black and gray, while the wing-covers are coarsely punctured, and contained several tufted spots of black.

The pine trees in this vicinity are sometimes completely riddled into strange labyrinthical forms, by what is supposed to be the larvæ of this species. The habits of this insect, together with those of many others that infest the trees of our forests, have had so few intelligent observers to record their various systems of proceeding, in their devastating progress, that few remedies have been suggested for their destruction.

GOLD MINES OF VIRGINIA.

BY M. T. BROCKELBANK.

The monopoly of the quicksilver mines created by the Rothschilds, has been of great injury to the mining interests everywhere. Could quicksilver be purchased at a reasonable rate, the great mining interests, which to every country are of incalculable worth, would receive new energy and assume a more inviting and important aspect. Greedy speculation has almost had its day and men have at last learned that nothing but unremitting enterprize, in most departments of labor, can be sure of a reward. The evolving of new principles and methods by experiment and perfecting them by practice, are the order of the day; and are what thinking people rejoice at as an evidence of a more rational age. Especially so is it in agriculture. *Yet*, a few years ago, farmers looked imploringly to the stars, the seasons, the clouds and the rain, thinking that these alone would determine the fate of their crops, never dreaming that it belonged to them to study books in order to make the wheat grow, or that a more potent fate than is given to the stars and seasons, rested in their own heads and hands, if they would but consult science, cast aside their old

dogmas, and become a little more enlightened. As in agriculture so it is in mining. It is not enough that hills whose bowels are gold, be purchased at a heavy expense by those who talk much of investments, discounts and fortunes springing up in one night. Nor will they be apt to become rich by setting a lot of negroes (faithful though they may be) to manage their mines, when the whole depends firstly upon science. Science is required in sinking the shaft, in exhausting the water, in raising the ore, and in all the processes of separating the gold from it. In Virginia the unbounded mineral wealth will pay for the most labored and excellent method of stamping and smelting. The success, and often too, the failure of the different mining speculations through the country are known to all. I have seen and heard the best evidence of success in the "copper enterprise," and I must freely admit that they are sorry prospects compared to many in the gold mining regions of Virginia. For the last few days I have been detained on some matter of business in the interior counties of the state and embraced, as I have long desired to, the opportunity of visiting the gold mines of that region. Thinking that it may be of much interest to many, I offer a few observations upon the extent, wealth and importance of those mines, some of which have been worked to a limited extent for fifteen or twenty years, but seldom with success, owing to the imperfect knowledge of a right method of separating the gold from the ore.

The gold-mining district of Virginia extends in a southwest direction through the counties of Stafford, Spottsylvania, Orange, Louisa, Fluvanna, Goochland, Buckingham and doubtless through the other counties lying in the same direction, and it forms a belt of from five to ten miles wide. Now, notwithstanding the extent of this vast field of enterprise, it is a fact that as yet but little comparatively has been done, notwithstanding the richness of the ore and the evidences of its existence in large quantities, found in all parts. Many mines have been sold from time to time at large prices to incorporated companies, but for want of individual enterprise and the necessary skill, together with an almost total disregard of economy in their expenditures, they were soon abandoned and entered upon the list of "humbugs," giving to such enterprises a check from which they are just recovering. Many of these mines have recently been revived under more favorable auspices, and are now proving a source of considerable revenue to Virginia, whilst new discoveries are being constantly made and are a source of considerable profit, even under the present imperfect system of management.

In the county of Buckingham there are eight or ten mines, many of which are in successful operation. In a new mine, owned and worked by Messrs. Wm. M. Mosely, Miller & Co., I found a

fine specimen of native ore, also pyrites, oxide of iron, oxide of copper, sulphate of iron and copper, &c., and indeed many things to make a visit to the mine interesting. It is without doubt one of the most valuable mines in Virginia; it averages $:00 per day and often more; and this too with only six or eight hands, and a miserable stamping and washing machinery. Following the shaft, the vein seems to widen and at thirty feet below the surface presents one of the finest veins imaginable. On bearing from it to the west at a distance of fifty feet another equally massive vein was struck, and on leaving that, another still was found. None of which lay in a vertical position, but inclined to the west as they approach the surface. Their position clearly indicates their great depth. Upon going to the branch or brook at the bottom of the hill, it was found that the alluvial sand thrown out from the veins, contained large quantities of gold; this, with other indications, proved the great depth and extent of the veins, also the existence of native gold through the whole range. Years ago much gold was obtained from these branches, by simply washing the sand in a tin or iron vessel. Vast stream mines may yet be discovered; of this kind many have been productive. Another mine, owned by Wm. M. Mosely & Co., is now being worked with fine success, though it was once owned by an incorporated company and for the want of energy and knowledge, was abandoned. The ore in it is exhaustless, and with the right facilities for separating the ore, it will be of great value, and indeed, it cannot be otherwise but that the mining district of Virginia will yield unbounded wealth to the hard hand of toil and enterprise. At the Vaucluse mine in Orange county, preparations are being made to introduce the *smelting* process which has proved so eminently successful in Russia and other parts of Europe, and which if successful, in the hands of the enterprising proprietors of the Vaucluse mine, will give to this branch of industry an impetus hitherto unknown in this country. Indeed, I know of no subject which is more worthy the attention of the man of science and the capitalist, than this mining district of Virginia.

Birth, Parentage, and Education of a Book.—The following twenty-five occupations are engaged in the production of a single book: The author, rag-merchant, paper-maker, stationer, pen-maker, ink-maker, type-founder, press-maker, roll-maker, chase-maker, compositor, press-man, reader, folder, gatherer, sticher, twine-maker, thread-merchant, leather-seller, binder, coppersmith, designer, engraver, copper-plate printer, and bookseller.

ELEMENTS OF VEGETABLE FOOD.

We are taught by those who have long studied the subject, that all substances susceptible of digestion and assimilation may come under the denomination of food; but the proximate principles of organic bodies, on which their nutritive powers depend, are comparatively few. Hence, although the articles employed in different countries for the support of animal life are various, their sustaining powers may be referred to certain substances capable of being separated and identified by chemical analysis and tests. Amongst the proximate elements of vegetable food, gluten, and its congeneers, starch, gum, sugar, and lignin or woody fibre, are by far the most important; and amongst those of animal food, albumen, gelatin, casein, together with fats and oils, which are common to the kingdoms of nature.

The following table, by Professor Brand, shows the ultimate composition of 1000 parts of the following proximate principles of animal and vegetable food:

	Carbon.	*Hydrogen.*	*Oxygen.*	*Nitrogen.*
Albumen,	516	75	258	150
Gelatin,	483	80	276	161
Fat,	780	122	98	
Curd of Milk,	609	75	116	203
Sugar of Milk,	454	61	485	
Gluten,	557	78	220	145
Starch,	438	62	500	
Gum,	419	68	513	
Sugar,	444	62	494	
Lignin,	500	56	444	

By the same author we are informed that there is another important point in the history of our food, namely, its ultimate composition. We have spoken of starch, sugar, gum, albumen, and other substances, as the proximate principles upon which we live. But what is the ultimate constitution of these secondary products? What are their true elements? It is curious that four elements only are principally concerned in the production of our food; these are carbon, hydrogen, oxygen and nitrogen. Among vegetable substances, gluten, including vegetable allumen, is the only one which abounds in nitrogen—gum, sugar, starch, and the rest are constituted of carbon, hydrogen and oxygen only; and what is very remarkable is, that in all these important principles, and also in lignin, the oxygen and hydrogen bear to each other the same relative proportions as in water, so that they may be figuratively described as compounds of charcoal and water. Now there

are two very curious points in reference to that part of the chemical history of our food which has been adverted to: the one is, that no animal can subsist for any length of time upon food which is destitute of nitrogen; and the other, that a certain mixture of different kinds of food is absolutely essential.

Before concluding our remarks at this time, we think the following table may be of use to those who may take an interest in such important studies. The proportion of nutritive matter in beans, compared with other grain is, according to Einhoff, as follows:

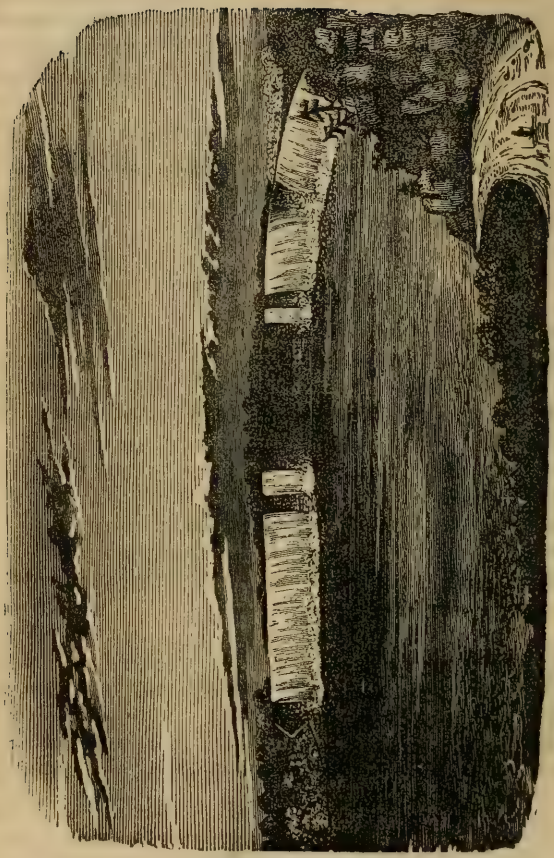
		By weight or in bushels.
Wheat	74 per cent.	about 47 lbs.
Rye	70 "	" 39 "
Barley	65 "	" 33 "
Oats	58 "	" 23 "
Beans	68 "	" 45 "
Peas	75 "	" 49 "
French Beans	84 "	" 54 "

Professor Johnston "on the composition of the potato, compared with that of the mangel-wurzal, carrot," &c., says in round numbers, the average composition of the dry potatoe may be represented pretty nearly as follows:

Starch	64
Sugar and gum	14
Protean compounds	9
Fat	1
Fibre	11
	100

We will conclude with the words of Dr. Paley, who says, "that so far as the state of population is governed and limited by the quantity of provision, perhaps there is no single cause that affects it so powerfully as the kind and quality of food which chance or usage hath introduced into a country."—*Jour. of Ag.*

Whitewash.—By adding one gill of wheat flour made into paste by the process usually adopted by shoemakers and paper-hangers, to every pail-full of whitewash, and carefully stirring the ingredients till a thorough incorporation is effected, the durability of the wash will not only be greatly increased, but it will not be easily detached when brushed by clothes or other articles suspended or placed against or in contact with the walls.



VIEW OF NIAGARA FALLS.—Fig. 31.

NIAGARA FALLS—ITS PAST, PRESENT AND PROSPECTIVE CONDITION.

BY DR. E. EMMONS.

Among the phenomena of waterfalls and river gorges the Cataract of Niagara is justly regarded as holding the first rank, and as standing an index in the path of time, by which the influence of numberless ages upon the surface of our planet may be recorded. Its present, its former and its prospective conditions have engaged the investigation and speculation of many philosophers. The possible consequence of its entire reduction, and the drainage of the upper lakes have excited the wonder and apprehensions of many. The estimated time of its recession has sprinkled grey hairs among the fresh locks of the young and blooming earth, and alarmed those who would consider her still youthful in years.

But amid all these speculations, Niagara still remains; the thunder of its cataract still reverberates through its deep chasms, and its ocean of waters still rolls on as, unknown to the white man, it rolled a thousand years ago. When we come to the investigation of facts, we find that, except to travellers and the aborigines, Niagara was unknown until within the last fifty years; and that even during this time no accurate observations have been made, no monument erected to determine whether the falls are retrograding or not. The testimony of living witnesses and historical evidence unite in confirming the opinion that the water is wearing away the rock, and that the outline of the falls has changed. From these general observations, it has been estimated that they have receded at the rate of about forty feet in fifty years. Without pretending to question the accuracy of this or any other estimate of the kind, or to establish any rate of retrogression in the falls, we may examine its present, and from numerous facts infer its past condition, and from these we are entitled to draw an inference for the future, though without specifying time.

Both in relation to the former condition and to the future recession of the falls, we may regard the problem as undecided with respect to time. So many disturbing causes are constantly presenting themselves, that, although the great principles may be regarded as established, still it is impossible to calculate accurately the effect of these minor influences. The recession of every mile changes the whole aspect: new elements are brought into operation; the nature of the strata varies; the relative height of certain portions, and the elevation of the whole cascade is altered; and we have had time to observe only one of the phases, and to reason from that to the future, before the condition is changed,

and we must take into the account new influences, which the previous changes have called into operation.

The great difference in elevation between Lake Ontario and Lake Erie, and the occurrence of the Cataract of Niagara, form one of the most striking features in the topography of Western New York. The difference in elevation of the upper great lakes is comparatively small, they being nearly in the range of the strike of the strata, while the passage from Lake Erie to Lake Ontario is directly across the line of dip.* Lake Erie is three hundred and thirty-four feet above Lake Ontario, and the greater part of the descent from one to the other is overcome by the rapids and falls of the Niagara river in the space of one mile.

Niagara Limestone.—Asilico argillaceous limestone forms the bed of passage from the soft shale below, to the purer limestone above. When freshly exposed it is often of a dark or bluish color, but soon changes to light gray or ashen; and though variable in character, it is a constant accompaniment of the group as far as observed. It forms a good hydraulic cement, where it has been used for that purpose.

In the eastern part of the district, these beds of passage are succeeded by a dark bluish gray, subcrystalline limestone, of a rough fracture, and separated into thin courses by dark shaly matter. When not too much divided by seams, it forms a durable building material. This again is succeeded by a coarse-grained concretionary mass in irregular layers, exhibiting an appearance as if much disturbed while in a semi-fluid or yielding condition. The concretions often present cavities lined with crystals, or the remains of some fossil body. The upper strata are finer grained, with a resinous lustre; and on weathering the surface is harsh and sandy to the touch; this, however, seems due to the presence of magnesia rather than silex.

Agricultural Characters.—The two members of this group are marked, to a considerable degree, by a difference in the soil. The destruction of the shale has given rise to a clay, which mingling with the more sandy productions of the Medina sandstone on the north, has produced a soil of unequalled fertility; and there is rarely, if ever, to be found a better wheat-growing soil, than the portion overlying this rock. In some places it has a greater amount of argillaceous matter than is desirable, and forms a stiff soil; but where the slope of the surface is sufficient for effectual drainage, it produces no inconvenience.

The soil covering the limestone, particularly where it is a little elevated above the country on the north, is of a loamy character, the argillaceous nature of the mass below having had little influ-

* The geological positions of Lake Superior and Lake Ontario, the highest and the lowest of this chain of lakes correspond very nearly with each other.

ence. In many places however, for a small extent, the surface is clayey, and even extremely so, as if the materials of the lower rock had been deposited upon the higher. An example of this kind occurs a little west of the village of Lockport, where the limestone is covered by a clayey soil, while a mile or two further east, the soil is a light loam. The latter character also prevails in some places near Rochester, and at other points along the outcrop of this limestone. This character of the soil, together with the rapid drainage to which it is subjected, from the fissures or joints in the limestone, as well as the proximity of the rock to the surface, has given rise to a different growth of timber, which every where marks the limestone terrace. While the country on the north and south sustains a forest of maple, beech, elm, ash, and the associated forest trees; that along this limestone is indicated by oak, chestnut, and others of the same nature.—*Naturul Hist. of New York.*

LAKE SENECA.

BY J. TREMPER.

The head of this lake lies about 26 miles above the southern line of the state, and the basin extends northwardly about 38 miles, where it discharges its waters into the Scayace, or Seneca river; it varies in breadth from one and a quarter to three and a half miles. Besides Catharines creek from the south, and the waters of the Crooked lake from the west, it receives several other smaller tributaries upon both its eastern and western limits. Those nearer its southern termination, by the superior elevation of the strata of rock, form very pretty cascades; that near Goff's Point in the deep retirement of a shaded dell, produces a sight and sound extremely pleasing. There are no islands in this lake to interrupt the expanse of water, and its geological position does not permit us to expect in its scenery anything of the rugged and sublime. There is however a quiet beauty in its deep blue waters, as it lies embosomed in the still deeper green of its gently rising hills, regularly and trimly formed, that is very agreeable to the eye. The greatest fathomed depth is about 530 feet, but in many places the water is of less depth; the surface of the lake may be estimated at 58,000 acres, and its water shed or drainage, including that of its sister lake, the water of which it receives, at 439,000 acres. The waters collected from this vast extent of country, after deducting the evaporation, are discharged by the

Scayace, and subsequently by the St. Lawrence, into the Atlantic. The elevation of the lake is about 431 feet above tide water at Albany, and the elevation of the valley of its inlet at its head, 440 feet higher. Through this valley, at some period it is probable the waters of the Chemung discharged themselves into the lake; vegetable remains have been found buried at a depth below the surface of the valley. There is a still farther rise southwardly from the Chemung, up one of its tributaries, the Tioga, of about 300 feet to Blossburg, and thence onward in the same direction 16 miles to Laurel mountain, in the county of Lycoming, Penn., where the barometer gives the height of the summit 2,800 feet above tide water. From this point the waters flow in opposite directions, viz: north and south to supply the same stream, the Susquehanna. Those flowing north to perform an immense circuit through the Chemung and north branch of the Susquehanna, to meet at Northumberland, after a passage of 300 miles, the waters which the same shower supplied. By observation of the dip of the coal strata at the Blossburg basin, if the angle was extended to lake Seneca, it shows we should be many thousand feet below its line. The waters flowing north from the Alleghanies, of which Laurel mountain is the most prominent point in that direction, having formerly been discharged through the lake, it presents the interesting spectacle of the water shed to large streams, being removed 60 miles north from the interior of Pennsylvania to the interior of New York.

The rocks lying upon the northerly shores of the lake, are composed of argillaceous slate. At Shingle Point there is an outcrop of limestone, and at, and near the head or southern extremity, we find a silicious slate. The argillaceous slate contains numerous fossils. Many parts of the rocks are made up of layers of shells several inches in thickness, consisting of bivalves and univalves, together with multitudes of trilobites; some of the latter are of a very large size. Fragments of the stone lily, (encrinites and pentacrinites) with several varieties of coral prevail in great abundance. I have however, never yet discovered any remains of vegetation among them. The gravel upon the shores of the lake represents almost every variety of rock, among which are specimens of coral, the cavities filled with siliceous matter, sometimes of several pounds weight. Upon the west side, in the neighborhood of the Miniseta, a large promontory jutting into the lake, are lofty banks of argillaceous marl, and blue clay stratified, removable with facility in layers of a moderate thickness. Saline springs have been discovered upon the west side, a few miles from the shore, and pyritous iron is thickly interspersed among the rocks in many places; in some instances the masses amounting to several pounds.

The fish which inhabit it are not so numerous as in some of the other lakes; but owing to the low temperature of the water in its deeper parts, and the character of the feeding grounds, the fish are of a very fine flavor. Salmon were once numerous here, but owing to the artificial obstructions upon the outlet, they have been unable since to get into the lake. The salmon trout is now first in size, and perhaps for general purposes of cookery, may also claim a superiority; the largest seldom exceed 12 pounds, although in some of the adjoining lakes in rare instances, there have been some caught which much exceeded this weight. Next in size is the pike, a powerful and ravenous fish, passably good for boiling, but indifferent for the pan. Third in size is the white fish, a delicious fish when fresh for most purposes. The black bass is an excellent fish, although it seldom exceeds four and a half pounds, and nearly resembles in flavor the sea bass. These are the most important varieties of the original fish of the lake; what are termed pickerel, were put into the crooked lake from one of the tributaries of the Susquehanna, and have descended hence seven miles through the outlet to the Seneca. There are several varieties of the soft mouthed fish that are eatable, when no better can be procured. The eels grow large and become very fat, and are highly esteemed as forming a peculiarly rich dish. The yellow perch sometimes reach two and a half pounds in weight. The pickerel do not increase, and are but seldom seen, having met in the pike, destroyers as great as they themselves prove to the fish of other waters. The bullpout and catfish are numerous, the latter particularly so. The dogfish, (Salamandra alleghaniensis,) belonging to the lizard family, is frequently seen. Frogs, toads, lizards, snakes, and turtles are numerous, and the variety of the latter denominated the soft shell, is often taken.

Of birds, the aquatic are the most interesting to the sportsman. There are numerous varieties which frequent the waters of the lake; some of them are excellent for the table; and the naturalist here finds many fine specimens. That singular bird, the old wife, (Anas glacialis,) may be heard until June, with its restless indescribable notes; and the little buffel-headed duck, (Anas albeola,) may be seen swimming in happy innocence on the water. Gulls and waders are numerous, but the wild goose seldom remains here any length of time. Of land birds, we find varieties in size from the bald-headed eagle to the little burnished humming bird. A family of the former occupy some of the venerable oaks of the M niseta, and I belive they are by universal consent, respected as lo ds paramount of those domains. The pheasant or partridge is fa t disappearing, but the whistle of the quail informs us that he likes the gleanings of the barn yard equally well as the solitude of the forest. The land birds are principally migratory, but few

species remaining through the winter. The martin is not numerous, while other varieties of the swallow are fully represented. The little tyrant king bird assumes unlimited authority over the feathered race, and the cuckoo and cat bird chide each other in the grove. First in music the boblink flutters a gush of song, while the harmonists of the night, the song sparrow, as if in despair at his wild revelry of song, pours forth his sweet notes in humble retirement from the branch of some leafy bush. First in beauty, Oriolus dashes with his wild whistle through the dense leaves, and the sober cardinal turns his head aside in envy; the little siskin plays in his yellow livery, and the plain but favorite wren seeks its daily allowance of insects. In their season they are all busy, and add materially to the beauty of the scene. As late as 1810, there were no crows in this part of the country, but this species was represented by the ravens; since the appearance of the former, the latter have disappeared entirely. Of animals the principal in point of numbers is the squirrel family, such as the grey, black, red, ground, and flying squirrel; woodchucks, foxes, &c., are still found, but the rabbit has disappeared.

Oak and hickory are the prevailing trees, interspersed with beech, maple and some pine. Many plants useful in medicine are found, and wild flowers full of fragrance and beauty. At the southern extremity of the lake the laurel region commences, and new varieties of plants accompany it in its course.

The surface temperature of the lake varies from 32° to 81°. The former temperature is produced by finely broken ice mingled with portions of the water in the severest winter weather; while the latter indicates the greatest heat of summer influence, and usually takes place during the last of July. The mean annual temperature is about 49°, and the mean annual standing of the barometer, 29.35 inches. The annual amount of rain is about 30 inches. The highest temperature during the last five years, was 96° of Fahrenheit; and the lowest during the same period being 3° below zero. The evaporation from the lake for six months, from May 1st to October 31st inclusive, may be estimated at 12 inches, and its seasonal rise and depression at 24 inches. In entomology we have nothing very peculiar which needs description. Butterflies of splendid hues disport among the flowers, and mosquitos, with stings of undoubted edge, occasionally give us notice, that though they are few in numbers they are of undaunted courage; and their attacks may rather be attributed to domestic nurseries than to any favorable harbors for them upon the lake, with the exception of a few marshy spots of narrow extent. The winds of winter in this region are principally northerly and westerly; in summer we frequently have a south wind in the morning and a northern breeze in the evening, in regular

succession; in the same season during the heat of the day, we sometimes have a light breeze blowing directly from the east, but not often from the north-east, from which quarter in the colder months we are pretty sure of a storm.

The atmosphere may be denominated a clear one; the clouds seem to tend to the more elevated country of the eastern counties, leaving us suffering frequently under severe drouths. Each border of the lake is favorable to the growth of wheat and other grain, while each variety of fruit finds here a genial climate and soil wherever cultivated.

From the end of the Miniseta, a step a mile broad extends some miles north, from the edge of which the water deepens very suddenly; upon this step granitic boulders are quite numerous and large; in many places lying in regular heaps, which when the water is calm are distinctly seen from the surface. One of many tons weight lies near this promontory, while the high sandy ridge, and the numerous rounded fragments, water worn and rubbed, indicate that the drift that transported these materials here, met with some obstruction to interrupt their progress. The banks of the lake contain much clay; some of the farms upon its borders are a stiff clay, very friendly to wheat, but frequently of difficult cultivation. At the head of the lake is a large marshy interval, formed by the embouchure of Catharines creek at this point, together with the comminuted slate and soil washed from the surrounding hills. The banks of the lake are remarkably regular, affording no deep bays or sheltered nooks, but they rise gradually from the water after the first ascent, where the slatey rock protrudes from the beach. Their rise also from the foot to the head, is almost a regularly ascending line upon the horizon, from one termination to the other, from which circumstance we frequently see here exhibited a beautiful example of the superior coldness of altitudes; for instance, when during a fall of snow the thermometer stands at about 33°, it will melt almost immediately, whilst on the opposite side of the water the country lying above 90 or 100 yards, will be entirely white with snow, extending nearly 30 miles to view, while all below that height will be entirely devoid of it, as well as all of that part of the country north some 8 or 10 miles, depressed by its formation below this line. Such an exhibition presenting 40 miles to view at one time, is a spectacle tending to confirm the truth of theories long since known, and presents to the uninstructed eye truth, palpable and impressive, which cannot be gainsayed.

The navigation is of importance, as it is unobstructed by ice during the winter, except for about a mile at the foot of the lake opposite Geneva, where the water is shallow. At its head the Chemung canal enters, upon which the lumber of the Tioga flow-

ing through northern Pennsylvania with its numerous tributaries is brought, together with the bituminous coal from the Blossburg basin, and the agricultural products of an extensive country lying in this and the adjoining state.

On the west side at Dresden, the Crooked lake canal enters, through which is brought lumber and the products of a fertile country bordering upon and south of the Crooked lake, the surface of whose water lies high enough to flow into Lake Superior. Some very great change has taken place since the Lake Seneca was formed, either the water has subsided very much, or the land at various points in its vicinity has been raised. Near the point where the waters of the crooked lake connect with it, I observe a gravelly and sandy beach more than 50 feet above its surface; similar appearances finely displayed I have observed on the west side of the lake, some miles high up in the lofty banks, flanking the Miniseta; the whole hills consisting of alternate layers of sand and clay, with broad bands of beech gravel. The gravel contains many pebbles of argillaceous slate, of which the rocks in this vicinity are composed, and which at this day appears largely in the composition of the gravel, that now lies undulating on the shore. The various depositions in the bank are almost as regular as though they had been laid by the hand of man, and frequently the alternations are so rapid they scarcely exceed an inch in thickness; a single deposit of ferruginous sand has a wavy appearance over an irregular deposit of red clay. A siliceous deposit has also taken place since the lake has rolled its pebbles upon the beach, as I have found frequent specimens of slate pebbles entirely enclosed in a covering of flint, the pebble entirely smooth and worn. In some places springs impregnated with lime, in flowing from the banks, have passed over deposits of sand, gravel, and pebbles, moulding them into large and hard masses of conglomerate, forming confused heaps; or displaced from their position, they lie scattered upon the beach. In excavations made at various points, 16 and 20 feet in depth back from its immediate border, the remains of trees have been exhumed, still measurably retaining their form; indicative of a change which has taken place, leaving the records as legibly written in the sloping bank and winding beach, as though penned by the hand of the historian; all but the years! they have glided unperceived away, no mortal now can count them! Before the red man drew his bow, or launched his canoe on the broad lake, these mighty changes were made; so that not even a tradition or an emblem touched on the rock with an arrow's point can number the untold ages that have passed away.

West Dresden, Sep. 1848.

DOMESTIC FOWLS—THEIR SUPPOSED ORIGIN, &c.

The feathered tenants of the farm-yard, reclaimed from their original state of dependence, and pensioners on our bounty, are peculiarly interesting. Though less decidedly important than the cow, the sheep or the pig, they still rank among the useful; their flesh and eggs are esteemed as wholesome and delicate food, and most are remarked for grace and beauty.

The original stock or species from which our common fowl is derived is unknown. By some writers it was supposed to be of Persian origin; but the period of their servitude is hidden in the remotest ages of the world. The acquisition of the fowl 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, without being acquainted to whom we are indebted for them. The species has been since propagated and introduced into general use throughout the whole world, from east to west, from the burning climate of India to the frozen zone. They may be looked upon as a blessing to humanity. Among every polished nation on earth, and even among nations half-civilized, but united in sedentary societies, there is no country habitation around which fowls, more or less numerous, are not met with, which man rears, shelters and nourishes, and which are called *cocks* and *hens*. They 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 is positively known where the latter still exists in small quantities.

Oliver de Serres says, "Among the moderns, *I am the first* that had seen fowls in a state of liberty. On my return from a first voyage to Guiana in 1795, I published a note on the subject of the wild cock and hen, which I have every reason to think natives of the hottest countries of the new continent. In travelling 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 had 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 was produced by domesticated birds; and the natives of those parts, who were in company with me, assured me it was the voice of wild cocks. Every one of the colony of Cayenne, who have gone very far up the country, give the same account of the fact. Some have met with a few 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 they are smaller, being hardly larger than the common pigeon; their plumage is brown or rufous."

Some older travellers have spoken before of these wild fowl of South America. The Spaniard Acosta, provincial of the Jesuits at 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*. The ancient Mexican had reduced these small fowls to domestication; they called them, as Gemell Carreri informs us, *chiacchialacca;* and he adds, that they were similar to our domesticated fowl, except that they had brownish feathers, and that they are rather smaller. A fresh testimony, that of a traveller who has been all over Dutch Guiana after me, is again come in support of facts already certain. Captain Steadman has observed that the natives rear a very small species of fowls, whose feathers are ruffled, and which seem to be natives of that country." (*Voyages to Surinam, and in the interior of Guiana.*) It is then an indisputable fact, that a tribe of wild fowl, very much like our cocks and hens, exists in the inland parts of South America. One cannot reasonably suppose that this tribe springs from birds of the same genus which Europeans have transported thither, since they are only met with very far from any inhabited place; that there is a remarkable difference in the size of these and the common fowl; and that, according to the assertion of Acosta, they existed in Peru before the arrival of the Spaniards.

But a learned traveller, to whom ornithology in particular is indebted for many capital discoveries, M. Sonneret, has again found the species of the wild fowl on the antique land of India, in the mountains of the Gautes, which separate Malabar from Coromandel. More successful than other travellers, 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. He concurred in the opinion of Buffon, that most of our varieties of domestic fowl have proceeded from a single type; and that the differences which we percieve among them have resulted from accidents of climate, domestication, and crossing of varieties. Sonneret, who did not or would not know of any other species of wild cock than this—for he speaks slightly of the authority of Dampier, who mentions that he saw wild cocks in the Indian Archipelago—naturally enough concluded 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 Malaga 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 determine the era, and still more hopeless to ascertain the original species with precision.

THE LIFE, PRIVILEGES AND PREJUDICES OF THE FARMER.

BY THOMAS BARLOW.

Of all pursuits which man can follow, that of the farmer conduces most to his happiness. The life of the farmer is the one most conformable to the requirements of our nature and as a natural consequence must be one of the greatest enjoyment and peace. It is true that from the earliest day agricultural labor has been looked upon by certain pretendedly higher classes of men of various nations as one of subservient drudgery; but this is far from being the honest view drawn from a sense of the utility of things. Whilst this prejudice has obtained to a greater or less extent among most all nations, the wiser and better classes have understood and properly appreciated agricultural pursuits. Emperors and kings have been sensible of their dependence upon the tillers of the soil for their welfare and strength, and have periodically, in some countries, condescended to take off their gloves and take the plow by the handle and direct it through the soil, as a kind of special regard and encouragement for this industry. All these things, that is, all industrial pursuits, depend upon the popular opinion to a great extent, for the character they bear in the minds of men, that is, whether reputable or disreputable. All honest business professions are honorable if they enure to the benefit of man; but some will have more prominence in the views and estimation of man dependant upon the good which is to result from them. In this country the great body of the people are of the class of farmers, and the people hold the sovereign power in their own hands and bear the crown upon their own heads; so

that instead of the king of our country merely condescending once a year to guide the plow across the field, our sovereigns follow it as a profession for years and for life.

The farmers constitute the greater number of those who are to form the popular opinion; and unless they underrate and despise their own calling it must be popular.

I would not undervalue any business pursuit, for all are proper and useful to a greater or less extent, but it must of necessity and truth be admitted that the cultivation of the soil is of the most importance as well as most productive of happiness.

The farmers are the dependence of all other classes. They are the providers, strength and defenders of all and of our country. Let them rest from their labors for but one single year, or let there be a failure from their seed sowing, and the world, the business world, including the financial and commercial affairs, is at once paralyzed, thrown into confusion and ruin, from which there can be no possible relief without a return of business and prosperity to the tillers of the soil. The merchant, the mechanic, the clergyman, the lawyer, and every other class of men, may suspend their labors without any such truly serious consequences, although I will admit that all pursuits of men are intimately interwoven, and the suspension of any one of the wheels will jar to a greater or less extent the whole machinery. But experience has established it as a truism that the prosperity of the farmer is the prosperity of the world.

The life of the farmer is the most independent that man can live. With his own hands he can produce whatever he may need to eat, drink or wear; and whilst asleep and at rest, his crops and stock are growing in accumulation of his supplies and wealth. Neither night nor sickness stop their growth, nor the increase of wealth springing up from the farm.

Not so with any other class of citizens. When the mechanic lays down his hammer, or goes to rest at night, his capital ceases its increase until he returns to his toil again. Thus with the pen and tongue of the lawyer, and gown of the clergyman. The merchant stands behind his counter dependant upon the voluntary favor of customers, and when a customer leaves the shop the stock in trade suspends its increase. Thus with all others.

The life of the farmer is the one the creator of man intended him to enjoy. It affords that healthful exercise of the body essential to health and strength, and the best possible occupation of the mind for its moral developments and elevation. The cultivation of the fields will teach no moral pollutions nor carry man into those vain speculations which the political and trafficing world originate and carry him into, to take captive his honest judgment and pervert his moral sense. Turning the furrow, sowing the

seed, reaping the yellow harvest, watching the flock and gathering the crop into the garner, have no tendency to arouse the ambition for power over a fellow being, nor for a monopoly of the fruits of earth to the starvation of a neighbor. Morally impressed from a sense of the bounties of nature, he feels to share with the needy and hungry. From other and speculative pursuits spring sordid selfishness as from a more legitimate source. I do not pretend that moral honesty fills the bosoms of all farmers, far from it; but I speak of the legitimate tendency of business pursuits and their influence upon the moral and physical man. And by an examination of the various classes of men into which the world is divided, the greater proportion of benevolent and moral will be found among the farmers, and this from the legitimate tendency of the occupation of body and mind. And herein we see the wisdom of providence in causing it to be so. If the farmers constitute our dependence and strength, it is the wiser and safer that with them should rest the better standard of morality, if indeed there is to be degrees of variance springing from the various pursuits.

The prejudices of ages gone by have been entailed upon us, and have heretofore tended to keep down the reputation of the agriculturist. Even farmers have sought to honor sons—darling and favorite sons of their families with "learned professions," and have supposed that thereby they, the parents, brothers and sisters would be elevated above the common walks of life, by thus connecting themselves with the profession of the clergyman, doctor, or lawyer. This false pride and mistaken view of things has ruined many sons, and pauperized many parents in laboring to carry a student through to a profession. Many and many a constitution, which with the exercise of the farm would have been sound and healthy through a long life, have sunk to ruin and decay in a few brief years by habits of inactivity and study; or stubborn idleness and pride which the folly of the parents was well calculated to induce.

"How shall I honor my son?" inquires the father and farmer. The question is easily answered—educate him to the most honorble and useful pursuit—*agriculture.* "He is of a slender constitution," says the father. Then I say more emphatically he needs the fields to range in, that he may have exercise in the pure and free air, and enjoy the stimulant of seeing the crops and verdure spring forth from earth as a reward for his care and industry; and it may certainly be relied upon that he can never endure the sedentary, inactive life of a slave and fixture of a "chamber and library." He may by the career of a student grace his exterior by the brush, comb and perfumery of the closet, and arouse his mind to a different activity, and acquire a taste for the fashions

and a pride for fashionable things, and feel that life is passing and promising one of honor and elevation. But soon his folly will develope its fruits. His constitution, by its deprivation or want of exercise, will indicate its surrender. Then he will say to himself—" O that I had the health of the laboring man—with that I could enjoy life in the humblest sphere. But I have bartered it away for the foolishness of fashion, and vain ambition for a professional life."

He sees too late the error of his father and himself; the rude exterior of his rustic life passed through the change of " toilet improvements," and now shows the yellow changes of approaching dissolution. With what joy would he grasp the plow if he could but reassume the sturdy life of the farmer, reinvigorate his health and enjoy life in the pursuits of honest, useful industry. He learns too late that the laws of God, which were established to govern his physical being, were not to be trifled with or neglected. He finds that whilst the fashions and follies of the world may change and puff the pride of the thoughtless, the laws of his nature do not change, whilst he might and did violate them and sold his life for the mere bubbles and tinsels of a more fashionable and less useful life.

This is the picture and sad tale of thousands; and originates entirely from a false pride and false view of things. Did parents only see the truth, that honor and greatness are inseparable from industry and usefulness, they would not fall into this fatal error. Although it is true that the life of the farmer is, generally speaking, one of " hard labor," it is so only because it is *made* so unnecessarily! A man can make himself a slave at any thing, and can destroy himself by over application in any employment. The life of the farmer may be one of drudgery, toil and heavy labor constantly, or it may be one of steady, healthy and easy exercise. Hard as the life of the farmer is considered by some to be, it is scarcely possible to break down the constitution by following it, as soon as by intellectual and sedentary pursuits.

Our lunatic asylums prove the sad reality of ruined minds and constitutions by only a few brief months of literary application. Minds which would have been sane, buoyant and happy through lives of agricultural labor under the heaviest toil, have sunk to ruin and permanent imbecility in less than one brief year. He who traversed the fields in the beauty and healthful air of the early morning in gay and buoyant spirit, has been turned into a maniac in a few short months to end his days in melancholy or fury of a broken mind. Nature will not be overtaxed with impunity. If we bear too hard upon the laws that govern our intellectual being, they will recoil upon us with deadly vengeance, and overthrow the empire of mind and sink us in insanity and ruin, drawing after it physical destruction also.

That many minds and bodies survive many years of literary and sedentary pursuits I will admit, with health and prosperity; but many more fall victims to the ambition for such lives. Were we to consult our own happiness, health and usefulness, we should seek lives of bodily exercise and industry productive of the greatest good to others as well as ourselves; and among all the avocations and pursuits of man best adapted to this end is that of the agriculturist.

Thus have I spoken of the life of the farmer with regard to its character, tendency and importance, as well as to its influence upon the moral character, constitution, health and happiness of man. *Canastota, Aug.* 16, 1848.

Solvent Action of Rain Water on Soils.—In the autumn of 1844, it occurred to John Wilson, Esq., of East Lothian, where the system of thorough drainage is very extensively carried out, that the drainage-water during its percolation of the soil must necessarily dissolve out and carry away a great portion of soluble constituents of it, which by the practice as at present followed, are carried off the land and consequently lost to the farmer. He accordingly, between that time and the following spring took advantage of the fall of rain, subjected several samples of drainage-water he had collected, to chemical analysis, the results of which were quite sufficient to show that his conjectures were well founded. During the autumn there fell about the usual quantity of rain. On the 16th of May, 1845, he collected some drainage-water, from a field which had lain plowed in winter fallow, having been prepared a few days before for seed, and sown with guano and barley. From this sample of water, 18 lbs., on evaporation, gave 27½ grains of solid residue, or about 8·44 grains to the pound, which were composed of the following ingredients:

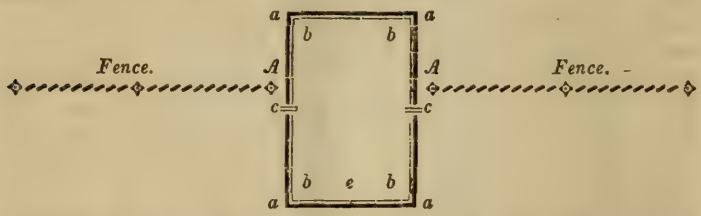
	Grain.		
Organic matter, &c.	7·8	Chloride of sodium	2·615
Silica	0·7	Chloride of calcium	2·107
Silicate of alumina,	0·2	Carbonate of lime	3·07
Peroxide of iron	2·25	Phosphate of lime	3·01
Phosphate of magnesia	1·08	Phosphate of alumina	0·45
Magnesia	1·69	Loss	2·088
			27·5

From the above experiment it would appear to be expedient for the farmer to avoid using large quantities of soluble manures, at a time, on porus, leachy soils; and instead of giving his land sufficient manure to last two or three years, to divide the quantity, and apply it in as small a proportion and as frequently as the nature of his crops will permit.—*Phila. Mag.*

PLATFORM GATE.

BY R. V. D. W.

A friend of mine residing at Oneida, near the Utica and Syracuse Rail Road, being very much annoyed by the conduct of the workmen engaged in the construction of the road, who having constant recourse to a well of water in his yard, were in the common habit of leaving the gate open and exposing his grounds to the depredations of cattle, and not caring to exclude them and create unpleasant feelings and subject himself to the chance of their resentment, set his wits to work to obviate the evil, and produced the following ingenious device, which fully answered his purpose, and is worth noting for the benefit of whom it may concern.



Taking his gate from between its posts *A A*, he dug a shallow pit from post to post *a a a a*, say 18 inches deep, 8 feet long, (I am not precise in the dimensions) curbed with wood. Over this pit, even with the surface of the ground, he placed a platform, *b b b b*, a trifle smaller than the area of the pit, and supported it on a horizontal axis, *c c*, which was so placed that the inner end *e*, of the platform would preponderate. Under that end a stop was placed so as to keep the platform at its proper level.

At the other end of the platform there was also placed a stop, but it was arranged so as to allow the platform to settle down a few inches before it was stopped, the platform was then so nearly balanced, that a few pounds placed on its latter end would depress it to the stop.

The operation of it was that whenever any animal, from a goose upwards, set its foot upon the outer end of the apparatus, the sudden and unexpected descent of that end, so alarmed the intruder, that it instantly backed off, nor made a second attempt to invade the premises. Even the old house dog could never be induced to walk in, but made it an invariable custom to jump from the outside edge of the platform to within the line of the posts, so as not to disturb the equilibrium of the platform.

CORN AND COB MEAL.

Much diversity of opinion seems to prevail as regards the value of cob-meal, for food for cattle, horses and hogs. It has been the opinion of most farmers that the cobs of corn were of little or no value, and they have either been used for fuel, or thrown aside as of little use except for manure. We have for a long time been much in favor of corn and cob meal, not only from our own experience but that of others. It is a great saving in point of economy; and it is generally asserted that horses, mules and cattle are not near as subject to cholic when fed on this kind of meal. Corn meal in its pure state, is generally considered too heating and too concentrated, particularly for working horses, but when mixed with the cob forms a very superior and nutricious food. It is supposed to act mechanically too, by distending the stomach, by which digestion is rendered much easier and more perfect. It renders the meal more light and bulky, when well mixed with the grain, by which the meal is more thoroughly acted upon by the gastric juice of the stomach, consequently more perfectly digested.

When it is considered how many thousands of bushels of corn cobs are annually thrown away, or wastefully used for fuel, it becomes a matter of deep interest to every farmer to know the value this offal of the farm is entitled to as food for cattle.

As to the benefit of grinding the corn with the cob, we think it varies with the nature of the corn—being greatest with the hardest and most flinty varieties.

By a nicely conducted experiment made some years since, by P. Minor, of Virginia, it was ascertained that five bushels of cobs yielded four gallons of spirit. But this experiment does not settle the question as to how much nutriment the cobs contain. Besides the principle of *alcohol* to be found in all *grain*, and most vegetables, there are other substances, or principles in all, possessing nutritive qualities, among which may be enumerated the saccharine and oleaginous properties of infinite value, as these are known to be active agents in the production of fat, et cetera.

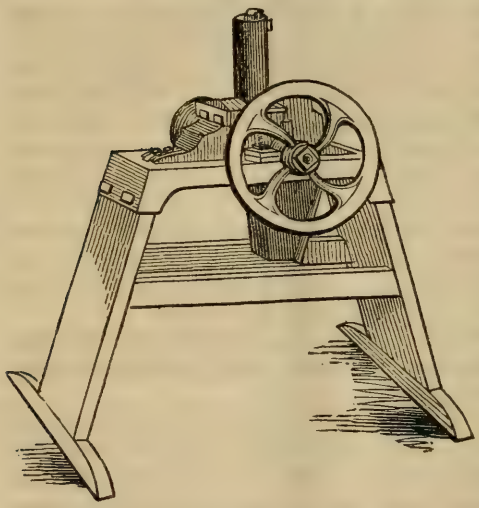
By an analysis, which is now being made in the laboratory of Dr. Emmons, by Mr. Salisbury, we are informed that the cob of corn affords over two per cent. of albumen and casein, besides other nutritive matter.

The opinion expressed of those who have given it a fair trial, is altogether in its favor. "We cannot," says the editor of the Am. Agriculturist, "too earnestly call the attention of our readers in those portions of the Union where labor is cheap and fuel dear, and mills are found for the purpose, to the importance of

grinding or crushing their corn cobs for horses, cattle and sheep, and when it can be cooked, for swine also. Sufficient experiments have been made to establish the great benefits of them when so used in proportion to their weight. Boiling or fermenting them after crushing, adds to their value."

CORN AND COB MILL.

We advise therefore, that every farmer that raises ten acres of corn should save his corn-cobs for his cattle, and that to render them available he should provide himself with the means of reducing them to meal, if not that of cooking them also.



Corn and Cob Mill.—Fig. 32.

Since the introduction of horse-powers, mills for grinding feed for stock have been in request. In 1842, at the Fair of the New York State Ag. Society, several mills were exhibited for reducing corn and cobs to meal, among which one was exhibited by O. Hussey of Baltimore, of his own invention, which took the first premium. This mill we have now in our possession, and has been in use for the last six years, without any repair, only renewing the grinders, as they wear out, at the trifling cost of about 80 cents a set. It will grind corn, oats and peas, as well as corn and cob, sufficiently fine for feeding stock. It requires the power of two horses to do good work.

We have also one of Pitt's corn and cob cutters, (a figure of which stands at the head of this article) which we have had in use for two years, which requires less power, and works equally well, whether the corn be soft or hard. It consists of a cast-iron wheel about 9 inches in diameter, the rim 4 inches wide, armed with a series of small chisel-shaped teeth or knives, set like plane-irons in the face, in a very simple manner; one set of teeth fol-

lowing in the space of the others, alternately, by which the chipping is done. These knives can be taken out, ground and replaced in a few moments; and a new set can be obtained for two dollars and fifty cents. If care is taken to introduce no hard substance, such as iron or stone, into the mill, one set of knives will last for a long period. It will grind from three to four hundred bushels before the knives require sharpening. When in good order, with a two horse power, it will reduce from three to four bushels of dry, hard corn in the hour, and nearly double that quantity when soft.

Mr. Pitts has made an improvement on this machine, by enlarging the diameter and width of the operating wheel and increasing the number of knives, by which means a much larger quantity can be ground in a given time. We have been informed by Mr. P. that it will grind in this form from ten to twelve bushels per hour. The price of the small mill is $40, and the larger one $50, and are manufactured by John A. Pitts, Rochester, N. Y.

TOMATO—ITS CULTIVATION AND USES.

This plant or vegetable, sometimes called *Love-Apple*, or *Jerusalem Apple*, which belongs to the same genus with the potato, was first found in South America. The use of this fruit as food, is said to have been derived from the Spaniards. It has been long used also by the French and Italians. The date of its introduction to this country is unknown. It is said that the tomato has been used in some parts of Illinois for more than fifty years. Its introduction on our tables, as a culinary vegetable, is of recent date. Thirty years ago, in this vicinity, it was scarcely known, except as an ornament to the flower garden, and for pickling. It is now cultivated in all parts of the country, and found either in a cooked or raw state on most tables. In warm climates it is said, that they are more used than in northern, and have a more agreeable taste. It is now much used in various parts of the country, in soups and sauces, to which it imparts an agreeable acid flavor; and is also stewed and dressed in various ways, very much admired, and many people consider it a great luxury.

We often hear it said that a relish for this vegetable is an acquired one; scarcely any person at first, liking it, but eventually becoming very fond of it. It has, indeed, within a few years come into very general use, and is considered a particularly healthy article. A learned medical professor in the west pronounces the tomato, a very wholesome food in various ways, and advises to the daily use of it. He says that it is very salutary in dyspepsy, and indigestion; and is a good antidote to bilious disorders, to which persons are liable in going from a northern to a warmer climate. He recommends the use of it also in diarrhœa, and thinks it preferable to calomel.

The tomato is a tender, herbaceous plant, of rank growth, but weak, fœted, and glutinous. The leaves resemble those of the potato but the flowers are yellow and arranged in large divided branches. The fruit is of a light yellow, and a bright red color, pendulous, and formed like the large squash-shaped pepper. There are smaller varieties, one pear-shaped, both red and yellow, and a small round plum-shaped variety, also red and yellow. These are eaten and relished by many, from the hand. The red are best for cooking; the yellow for slicing, like cucumbers, seasoned with pepper, salt and vinegar, and eaten raw.

The seeds should be sown in the early part of March, in a slight hot-bed, and the plants set out in the open ground early in May. In private gardens it will be necessary to plant them near a fence, or to provide trelices for them to be trained to, in the same manner as for Nasturtians; they will, however, do very well if planted out four feet distant from each other every way. But a nice way to keep the plant erect, and the fruit from the ground, is to drive down four stakes, so as to make a square, say two feet each way, around the plant, and then wrap three or four wisps of straw around the stakes. These will keep the vines from falling, and expose the fruit nicely to the sun for ripening. They will bear till frost.

Its uses.—There is, perhaps, no fruit or vegetable, now cultivated that can be converted into so many palatable dishes as the tomato; and to aid our female readers we subjoin several recipes,

some of which have been tested on our table, and pronounced good.

Stewed Tomatoes—Peal, slice and stew them slowly. When done season them—thicken a little with bits of bread or crackers, and put in a small lump of butter, and eat them as you would apple-sauce. When thus prepared, with good roast beef, green corn and lima beans, you'll find them first rate.

Tomatoes with Beef-steak.—Cut them in two, lay the flesh side upon the gridiron, over pretty hot coals, for a few minutes, turn them, season them well with pepper and salt, and when done dress them with butter, or eat them with gravy, as suits you best.

Tomato Omelet.—Slice and stew your tomatoes. Beat half a dozen fresh eggs, the yolk and white separate; when well beaten, mix with the tomato—put them in a pan and fry them, and you will have a fine omelet.

Tomato Tart.—Roll out your dough very thin, and place it on a plate in which you intend baking your tart, and slice your tomatoes very thin; spread them over the dough very thinly, take two table-spoons full of brown sugar, and one of ground cinnamon bark, spread the two over the tomatoes, bake it well, and you have a delightful tart.

Pickled Tomatoes.—Place your tomatoes in layers in a pickling jar, with garlic or shred onions, mustard seed, horse-radish, red pepper, spices, &c., as wanted, until the jar is filled. A little salt must also be added, as the layers are put in. When the jar is filled, pour over the tomatoes good cold cider vinegar, till all are covered, then close up tight for use.

Tomato Preserves—Prepare a syrip by clarifying sugar, melted over a slow fire with a little water, boiling it till the scum appears. Take the tomatoes when quite green, peal them and put them in cold syrup, with one orange sliced to every two pounds of your fruit: take pound for pound of sugar; simmer them for two or three hours over a slow fire. When a superior article is wished, add fresh lemons sliced, and boil with the tomatoes a few peach leaves and powdered ginger in bags. Tomatoes even when ripe, make a fine preserve, treated as above; but unless great care is used in the process, they will fall to pieces.

Tomato Figs.—Take six pounds of sugar to one peck, or sixteen pounds of the fruit. Scald, and remove the skin in the usual way. Cook them over a slow fire, their own juice being sufficient without the addition of water, until the sugar penetrates, and they are clarified. They are then to be taken out, spread in dishes, flattened and dried in the sun. A small quantity of the syrup should be occasionally sprinkled over them while drying; after which pack them down in boxes, treating each layer with pow-

dered sugar. Boil the remainder of the syrup and bottle it for use. They will keep from year to year, and retain a nice flavor. The pear shaped, or single smooth tomatoes, answer the best purpose.

Tomatoes instead of Cucumbers.—Peal and slice them as you would cucumbers; season with plenty of salt, pepper, and vinegar to your taste. A few slices of onions added will improve them very materially.

Tomatoes for Winter.—They may be preserved for winter use, by placing them in layers with salt, in jars or tight boxes. When wanted, they must be soaked in water, as you soak cucumbers preserved in the same way. Some stew the tomatoes till well cooked, then spread the mass on plates, or other smooth surfaces, and dry them fully, when they can be put in bags, and kept in a dry place.

Tomato Sauce.—Slice a quantity of green tomatoes and onions in proportion of one-fourth. Put a layer of tomatoes in your preserving kettle and a layer of onions; sprinkle over them a few green peppers, sliced, with cinnamon, cloves, black pepper and any other spices; also a little salt and ground mustard. Repeat the process until the kettle is nearly full. Then fill with vinegar, put over a plate and let it boil, and when cool put in jars for use.

Tomato Catsup.—To one gallon skinned tomatoes put four table-spoons full of salt, four do. of black pepper, two of allspice, eight of mustard-seed, and eight pods of red peppers. These to be bruised fine and simmered slowly in a pint of vinegar three hours. Then strain them through a fine sieve, and stew down to half a gallon.

Another.—To half a peck of peeled tomatoes, put four table-spoons full of salt, four do. black pepper, half do. allspice, three of mustard, and eight red-peppers, all ground fine, and simmered slowly with the tomatoes in sharp vinegar, for three or four hours. Use as much vinegar as to leave half a gallon of liquor when the process is over. Strain through a sieve, bottle and seal from the air. It may be used in a fortnight, but improves by age, and will keep for years. Those who like the flavor may add, after the ingredients are somewhat cool, two table-spoons full of the juice of garlic.

A quick mode of cooking Tomatoes.—Boil the tomatoes a quarter of an hour, with milk sufficient to cover them; add, while boiling, a little batter made of water and wheat flour, and season the dish according to your taste. The advantage of this mode over those usually practised are, that the tomatoes are rich, though less acid, and are much sooner cooked.

THE MEADOW.

BY WM. BACON.

The importance of the hay crop to the American farmer can never be too highly appreciated. Indeed, the same may be said of *all crops* in climates where they will attain perfection, for all are not only useful but extremely valuable, insomuch as they go to improve the condition of the earth or minister to the comfort and happiness of man. After all, the hay crop rises in importance, especially in our northern regions, and stands above all others, for it may be termed the fostering mother of all other crops. Common sense and the every year observation and experience of the farmer teaches this, for if the hay crop is short, the stock kept upon the farm must be reduced and consequently, the quantity of manure in the farm-yard is deficient, so that less land must be put in corn or wheat, or a less quantity of the *fertilizing medium* applied to the usual quantity of land, and as the consequence of either operation, a diminished harvest will be the result, which, of course implies that there is less of the commodity for market, and though a higher price may sometimes be the consequence, yet, on the whole there is a serious falling off in the returns to the farmer's pocket. This makes him, not only sad of countenance, but less inclined to employ labor or invest money in improvement, for the fact is, he has not the usual means to do either. Here is one loss, then, whose influence must be felt, perhaps for years. There is another, collateral with it, which may well claim a notice. The cornfield being contracted in its limits, or from not receiving its full supply of necessary aliment, is in a worse condition than it should be for successive tillage, consequently light crops may be expected in this part of the premises. So it may be seen that a short crop of hay in one season, inflicts a calamity for future ones, and beyond the wearisome and disheartening prospects of the farmer, as he looks upon his sparsely covered meadows and diminished hay mows.

How, then, shall the meadows be improved so as to furnish a uniformly good or a successively better crop? This is a question which the farmer cannot ponder too deeply and an operation which he cannot seek too sedulously to perform. No prescribed rule or set of rules laid down by theorists or chains of experiments satisfactorily made and fraught, in particular circumstances and various localities with desirable success, will serve as infallible criterions to his systems of operations. They may *aid* in deciding the best processes of renovation but they cannot decide what is best.

There are some causes of renovation which may be adapted to all soils and all climates, provided nevertheless that the soil in

question is not too wet. It is supposed, however, that natural meadows or such as are annually flowed by streams bringing rich deposites and spreading them over their surface. Such lands usually are provided with sufficient nutriment to facilitate the growth of luxuriant crops. But meadows which experience no such gifts of nature must depend on the liberality of man, who strips them of their burthen, for means of giving sustenance to new crops. Among these means and of those which come within the reach of every farmer we notice first, the compost heap, which consists of various accumulations of all the decomposable substances which can be collected and thrown together into one common heap in the farm-yard where they are subject to frequent trampings of the stock, heaving up by the powerful agency of the swines' snouts, absorbing the liquid which pour in upon them on every side, until they become a mass of finely pulverized matter, equal in fertilizing properties to the rich deposits of the Nile. This is as valuable for a top dressing, load for load, as common yard manure, and should be applied in similar quantities by the acre. The best time for us to carry it upon our lands has been late in autumn, giving just time to fill the yard with a new supply of turf, muck and weeds to act as absorbents during winter and spring. All manures should be carried to the meadow and spread just as the heavy fall rains are setting in. By so applying them, they become thoroughly incorporated by those rains with the soil and, while nothing is lost by evaporation or exposure to hot sunshine and high drying winds, the grass will show their influence early in spring.

Another general method by which meadows to a certain extent, may be improved, is by turning water from the highway upon them. This water becomes valuable in a greater or less extent, to be sure, by the amount of travel over the road from which it is taken. On large public roads it must necessarily be very rich from the quantity of manure which in the succession of dry times become thoroughly incorporated with the dust of the highway. On all roads from the earth's being reduced to fine particles, it becomes very valuable. How much better to open small channels and turn the earth with the water which is bearing away, upon the adjoining lands, than to see it run off into dismal ditches by the way side, or in being borne lengthwise of the road until deep gullies are formed to be the perpetual annoyance of the traveller. We insist upon it, that the fertilizing power which may be taken from the highway every year will compenstate for the few minutes labor three or four times in a year in more than a sixty fold proportion, and at the same time operate as an essential benefit to the highway, and we firmly believe that in seventy-five cases in a hundred the farmer will find an ample remuneration by

these little services, for keeping the highway through his premises in a good repair.

The use of gypsum or plaster on meadow lands is another method of keeping them in a productive condition. Though this substance has already come into much use among the best farmers its general adoption is not so great as the profit of the cultivator demands. From mistaken application, or some other cause, many still doubt its utility, while others may perhaps overrate its fertilizing qualities. It is but a few days since we heard a farmer of good observation and close calculation observe, that every ton of plaster sown upon his meadows gave him five tons of hay. This is surely a handsome profit. A ton of ground plaster, three-fourths of a mile from his farm costs seven dollars; allow for hauling to the farm and sowing two dollars, which at the ordinary prices of labor would be high, and the ton of plaster when sown stands at nine dollars. Take the five tons of hay and estimate it at seven dollars per ton, and he is benefitted by a net profit on the ton of plaster twenty-six dollars; a very handsome profit, to be sure on the investment. In many other instances as great a one may undoubtedly be realized, while in others it will no doubt fall short, and in some perhaps have an entire failure.

These circumstances must depend on the quality and condition of the soil, two facts with which every farmer should be well acquainted, especially on his own premises. As a general rule, however, plaster may be profitably used on lands adapted to the growth of clover, and the winter grains, or corn. That it has in some instances failed on such lands may be true, and these failures may be and probably in most cases are owing to a misapplication. If sown in a windy time, it is liable to be blown away; if sown in a very dry time its influence is checked if not lost. We have known instances when it was sown and a dry season followed and its effects were not visible until the next year. We have sown it when threatening clouds were stretched over the horizon, promising to drench the earth with their watery treasures, and despite the warning voice of neighbors and friends that it would all wash away, so that we should lose our money and labor too, and when the rains descended in torrents we began to think ourselves that something would happen to our plaster, and in fact we think there did, for having sown in haste lest the rain should catch us with our work unfinished we were rather partial in our bestowment and sowed in streaks. The grass told every looker-on what we had done, and in two weeks those streaks were visible in the different color of the grass for two miles.

With regard to the condition of land at the time of application of plaster, we find that it is the opinion of many that it should be new stocked and recently manured. These things may be well

and in some cases necessary; we have sown on old stocked lands where there had been no recent manurings with a good effect. But a light dressing of manure before the application of plaster is probably in all cases advisable, where it can be given, and in such applications the quantity less manure and less plaster will be found necessary than where either are applied alone. In the application of plaster to meadows we have found a benefit in dividing the yearly allowance, sowing one half in the spring and the other half immediately after taking the grass off in summer. The rationale of the latter process is this: the earth has partially exhausted its energies in bringing forth the crop, and the roots have in a measure expended theirs in giving it perfection. They are like a hungry man, when the labor of the day is over, needing food for nourishment before they go to rest. Plaster furnishes this, and enables them to weave a blanket for their protection from the cold of winter and enable them to shoot far in new and rich luxuriance at the earliest touches of spring.

Plaster upon meadows is beneficial in eradicating foul and noxious weeds. Johnswort, wild wormwood, and even the tenacious strawberry, so prone to spread itself caressingly over vast tracts of exhausted meadows shrink from its application and quit their firm hold at its bidding. Even the white daisy which has shown itself so universal a pest the season past and given large territories the appearance of specious flower gardens, in the distance, may be fairly ousted on a few applications, and had the use of plaster been liberal on lands infested with this weed last spring, many farmers would probably have joined in hearty response to the exclamation, "my ton has made five tons."

THE SPANGLED HAMBURGH FOWL.

In "The American Poulterer's Companion," we have given descriptions of the Golden and Silver Top Knot or crested fowl, which if not identical, is nearly allied to the above, which is figured and described in a recent European publication. We are indebted to the Editors of the American Agriculturist for the illustrations.

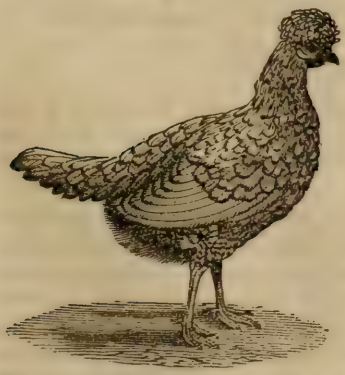
"I do not," says the author, "follow blindly the descriptions furnished by my predecessors, however highly I may conceive their writings are, in many respects, to be esteemed. I am this moment writing my description of the Hamburgh fowl from two beautiful specimens as they stand before me on the table in the house of their owner, my very kind friend Mr. Nolan, of Dublin."

The Spangled Hamburgh fowl are divided into two varieties, the distinctive characteristics being slight, and nearly altogether

dependent upon color; these varieties are termed the GOLDEN and SILVER spangled. The former will suffice for me to describe, as the points of form, &c., excepting only *color*, are identical.

The Spangled Hamburgh Cock.—Fig. 33.

The Golden Spangled Hamburgh Fowl is one of no ordinary beauty; it is well and very neatly made; has a good body, and no very great offal. On the crest, immediately above the beak, are two small fleshy horns, resembling, to some extent, an abortive comb. In some specimens this crest is divided into more than two horns; but two are the ordinary and more legitimate number. Above the crest, and occupying the place of a comb, is a very large brown or yellow tuft, the feathers composing it darkening towards their extremities. Under the insertion of the lower mandible, or that portion of the neck corresponding to the chin in man, is a full, dark-colored tuft, somewhat resembling a beard. The wattles are very small. In the *golden* variety, the hackles on the neck are of a brilliant orange, or golden yellow; and the general ground color of the body is of the same hue, but somewhat darker. The thighs are of a dark brown, or blackish shade, and the legs and feet are of a bluish gray.



The Spangled Hamburgh Hen.—Fig. 34

In the *Silver Spangled* variety the only perceptible difference is, that the ground-color is a silvery white. The extremity, and a portion of the extreme margin of each feather, are black, presenting, when in a state of rest, the appearance of regular semicircular marks or *spangles;* and hence the name of "Spangled Hamburgh," the varieties being termed *gold* or *silver*, according to the prevailing color being bright yellow, or silvery white. These fowls have good plump bodies, a good skin, are good layers, and lay good-sized eggs.—*Richardson.*

THE KERGUELEN ISLAND CABBAGE.

In the Flora of the Antarctic Continent, (which numbers only 10, whilst Spitsbergen shows 45,) among the flowering plants is one which demands particular attention—the famous cabbage of Kerguelen Island, hitherto unpublished; first discovered during Capt. Cooke's voyage. Specimens, together with a manuscript description, under the name of *bringlea*, were deposited in the collection formed by Mr. Anderson, in the British Museum, where they still exist. To a crew long confined on salt provisions, or indeed to human beings under any circumstances, this is a most important vegetable; for it possesses all the essentially good qualities of its English namesake, whilst from its containing a great abundance of essential oil, it never produces heartburn or any of those disagreeable sensations which our pot herbs are apt to do. It abounds near the sea, and ascends the hills to their summits. The leaves form heads of the size of a good cabbage-lettuce, generally terminate an ascending or prostrate stalk; and the spike of flowers, borne on a leafy stem, rises from below the head, and is often two feet high. The root tastes like horse radish, and the young leaves or hearts resemble in flavor coarse mustard and cress. For one hundred and thirty days the crew of the *Erebus* and *Terror* required no fresh vegetable but this, which was for nine weeks served out with the salt beef or pork; during which time there was no sickness on board.—*Ross's Voyage to the Antarctic Continent.*

AN IMPROVED CONSTRUCTION OF ANEMOMETER.

BY MR. JAMES GODDARD.

We take the following from the Farmer and Mechanic, a very excellent publication, by the way, conducted by Messrs. Starr and Alburtis, New York, to whom we acknowledge our indebtedness for the cut.

The increasing attention which men of science are giving to the study of atmospheric influences must be generally known, from the late proceedings of the British Association. An improvement, therefore, in the anemometer, which furnishes the data for such philosophical researches, must, at this time, be peculiarly valuable. We have therefore availed ourselves of the author's communication, more especially as it refers to a subject which the Engineers' Society appears, from the list of premiums for 1847, to be desirous of rewarding.

The advantages obtained by this construction of instrument are stated by the inventor to be as follows:—

1st. The scale of time is five times as large as Mr. Osler's, within equal-sized sheets.

2d. The register of direction is more accurate, an equal quantity of paper being used, and it can never fail to register.

3d. The data are more comprehensive.

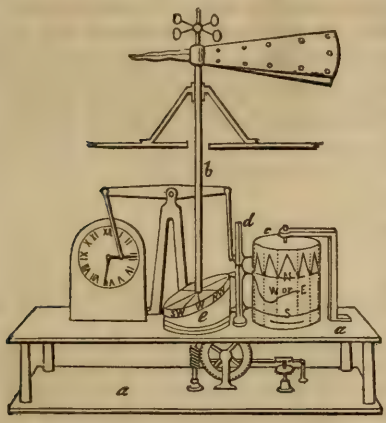


Fig. 35—Anemometer.

It consists of a double vane (shaped like a truncated cone,) the small ends being secured to a vertical brass tube *b*, (see the cut) which, passing through the roof of the building where it is mounted, rest, at its lower end, in a hollow socket fixed on a table *a*, that supports the instrument. To the lower end of this shaft is attached a cylinder, which rests upon the table, but follows every movement of the shaft. Its upper face is cut obliquely, and around its periphery the points of the compass are marked. In the centre of the shaft *b*, is a rod, which, at its upper end, carries a fan-wheel, and at its lower end is provided with a worm or endless screw. This worm takes into a worm-wheel mounted in bearings on the underneath part of the table *a;* and on the worm-wheel shaft is another worm for driving, through the agency of a wheel and screw-thread on a horizontal shaft, the axle of the drum *c*. Between the drum *c*, and the oblique-faced cylinder, a vertical guide is fixed firmly on the table, for the purpose of carrying three pencils, one under the other; the two upper of which rise and fall, as will be presently explained. To the top pencil an arm, pendent from one end of a vibrating lever, is attached. This lever is supported by a bracket from the table, and at its other and it is connected by a pendent-arm with the minute-hand of a clock. As the socket of the second pencil rides on the face of the cylinder attached to the shaft *b*, it is made to rise and fall by the rotation of that cylinder; and the lowest pencil is acted upon only when the eccentric portion of a ring *e*, on the cylinder, comes round, and forces it forward.

The action of the wind on the fan-wheel causes the apparatus to rotate; and the drum *c*, being furnished with paper, the miles of wind, its direction, and velocity at all hours, are registered

thereon. When the north-wind blows, the middle pencil is at its greatest height, and at the lowest when the wind is in the southern quarter: the east is distinguished from the west by the third pencil, which is placed below the lowest fall of the second, and is caused to mark only on the eastern semicircle by the eccentric *e*, before mentioned. The first pencil, which is placed above the highest limit of the second pencil, is alternately raised and depressed by the minute-hand, and thereby shows 30m. or 60m.: this is called the "time-pencil." It will now be evident, that by drawing vertical lines up the sheet of paper, so that they shall intersect the highest and lowest points marked by the time pencil, the movements of the wind, at any given time, may be clearly traced.—*London Journal.*

NEW YORK STATE FAIR AT BUFFALO.

The Fair lately held at Buffalo has been, from all accounts, one of the most successful ever held, and demonstrates most fully the strong hold which the State Agricultural Society has upon the farmers of the Empire State. The selection of Buffalo has proved most auspicious for the society. The number of entries were larger than at any former fair and the attendance from the Western States and from Canada, was immense, and the receipts of the society exceed the sum of $6000, a much larger amount than ever before received.

The public were accommodated as well as at any previous Fair, and the liberality of the citizens of Buffalo has elicited praise from every quarter, and they have acquired a character for hospitality that will endure for all time to come.

Interesting meetings were held during the Fair which were largely attended. Prof. J. P. Norton, of Yale College, delivered a most excellent address at the Court House on Wednesday evening, 6th of Sept., which, it is said, was fully attended by farmers and others, and showed the deep interest which is felt in the connexion of science with practical agriculture. At the close of the address an interesting discussion arose in which Hon. A. B. Dickinson, Hon. Dr. Lee, Hon. H. L. Ellsworth, and others participated. The exercises of the evening were spoken of by all who were in attendance, as one of the best of the exercises during the time. Hon. Dr. Lee addressed a very large assemblage under the Society's tent on the show grounds on Wednesday, and the attention which was given to his remarks, gave good evidence that the *day has* arrived when the farmers of New York are desirous of learning what can be done to advance their great interest.

The Pomological Convention which commenced its sessions on Friday before the Fair, was fully attended. Delegates were present from the Western and Eastern States and Canadas, and the show of fruits was very large; and the deliberations of the convention will produce the most happy results. A permanent organization was effected, called the "North American Pomological Convention," to meet annually—and the meeting

for 1849 to be the day succeeding the meeting of the New York State Agricultural Society, at the place where the Fair is held. We trust this will continue and the influence of such an assemblage will be most auspicious for the cause of Horticulture. This will give it a character which will place the deliberation of the convention above suspicion, beyond the reach of any self-constituted assembly.

On Thursday afternoon the address was delivered by Hon. J. C. Spencer, of which it is enough to say that it was every way worthy of its distinguished author.

The number of cattle entered was about 360. Horses, 150. Sheep, 597. Swine 50. Poultry, 250. In the agricultural implement department the number of articles entered was about 1000. And in the miscellaneous department the entries were equally numerous.

We think the society has cause of congratulation at the result of the Fair this year, and we trust it will lead to renewed efforts on the part of those who have the charge of the concerns of the society, to increase its usefulness, and extend its benefits to every portion of our state.

ALBANY AND RENSSELAER HORTICULTURAL SOCIETY.

The second annual meeting of this society was held on the 14th and 15th of September, in the Saloon of the Geological Rooms, State street, Albany.

The exhibition of fruits, flowers and vegetables, was in all respects, very gratifying to the friends of the society, and even better than what could have been anticipated by those most sanguine. From the success of this and former exhibitions, we have every reason to believe that the society is now so firmly established as to realize all that its most ardent friends anticipated from its organization.

Of fruit there was a splendid display, both in variety and quality, and great praise is due to David Thomas, of Aurora; J. J. Thomas, of Macedon; Wm. Rankin, Esq., of Newark, New Jersey, and S. C. Groot, of Schenectady, for the choice specimens of fruit presented by them for exhibition.

Of flowers there was a choice collection of beautiful specimens, and the floral designs and bouquets were models of exquisite taste and skill.

Of vegetables there was a rich display, which exceeded, by far, any former exhibition. Among the squashes we noticed some new and rare specimens; such as Custard and Brazil squashes. The size and quality of the vegetables exhibited, show most conclusively, the advance in cultivation, and what a little attention in the proper selection of seeds, and judicious culture will attain.

California Horses.—We have seen it stated, says the editor of the Am. Artizan, that Com. Stockton has taken measures to introduce to the United States, some of the breed of horses called *Canalos*, with which Col. Freemont performed his wonderful feats in traveling.

METEOROLOGICAL OBSERVATIONS FOR SEPTEMBER, 1848.

Made at the Albany Academy, by Rev. W. H. Campbell, Principal, &c.

Days.	THERMOMETER.				WINDS.		WEATHER.		RAIN	REMARKS.
	6 A. M	3 P. M.	9 P. M	Mean.	A. M	P. M.	A. M.	P. M.	Inch's	
1	72	77	69	71·66	S.W.	N. W.	Cloudy.	Clear.		
2	66	74	69	69·16	N. W.	W.	do	do		
3	63	76	70	70·	N. W.	N W.	do	do	0·06	Rain.
4	65	83	72	72·83	N. W	N. W.	Clear.	Cloudy.	0·04	do
5	62	76	73	70·16	S W.	W.	do	do	0·12	do
6	61	74	62	64·16	N.	N.	do	Clear.		
7	52	71	60	60·66	N.	N	do	do		
8	50	72	65	61·33	S W.	S.W.	do	do		
9	62	72	61	62·67	N W	N. W.	Cloudy.	do		
10	48	71	63	62·	N.	E.	Clear.	do		
11	56	77	66	67·67	S.	S.W.	do	Cloudy.	0·43	Rain.
12	64	61	53	56·17	N.	N.	Cloudy.	Clear.		
13	45	61	52	52·67	N.	N.	Clear.	do		
14	45	56	57	55·50	S.	S.	Cloudy.	Cloudy.	0·39	Rain.
15	62	60	53	54·67	S.W.	N W	do	do	0·06	do
Semi-monthly mean, 63·62									1·10	
16	42	56	49	48·33	N. W.	N. W.	Clear.	Cloudy.		
17	38	63	56	55·	N. W.	S.	do	do	0·60	Rain.
18	54	62	59	58·17	N. W	S.	Cloudy.	do	0·15	Rain.
19	53	70	65	64·50	S. W.	S.	Clear.	Clear.		
20	64	62	57	59·50	S.	N. W.	Cloudy.	Cloudy.	0·75	Rain.
21	55	63	54	55·67	N W	N. W.	Clear.	Clear.		
22	45	49	41	44·	N. W	N. W.	do	Cloudy.	0·45	Rain.
23	39	49	51	48·17	W.	W.	do	do		
24	50	64	54	56·	S.W	W.	Cloudy.	Clear.	0·02	Rain.
25	50	59	56	54·50	W.	N. W.	do	Cloudy.	0·13	Rain.
26	47	54	43	45·83	N. W.	N W.	Clear.	Clear.		
27	34	55	47	46·33	N. W.	S.W.	do	do		
28	40	55	47	48 67	S W.	W.	Cloudy.	do		
29	48	61	62	59·16	S.	S.	do	Cloudy.		
30	61	73	62	65·50	S.	S.	Clear.	do	0·02	Rain.
Semi-monthly mean, 53·95									2·12	

Monthly mean,.... 58·78. Rain Gage 3·22.

3d, Rain early A. M.,..... 0·06
4th, Rain early A. M.,..... 0·04
5th, Rain 6 to 10 P. M.,..... 0·12
11th, Rain 6 P. M. to 9 next morning, ... 0·43
14th. Rain P. M. with thunder, ... 0·39
15th, Rain A. M..... 0·06
17th, Rain 5 P. M. till next morning,..... 0·60
18th, 5 P. M..... 0·15
20th, Rain during the day and night, with thunder,..... 0·75
22d, Rain P. M..... 0·45
24th, Rain A. M..... 0·02
25th, Rain P. M..... 0·31
30th, Rain early A. M..... 0·02

Rain Gage,..... 3·22

Winds.—North 4½; East ½; South 5½; South-West 5; West 3; North-West 11¼.
Weather.—Fair 16½; Cloudy 13½ days. Rain on 11 days. 27th, Frost.
Warmest day 4th, Highest 83°,
Coldest day 22d, Lowest 34°.

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

CONDUCTED BY C. N. BEMENT, ALBANY.

VOL. VII. NOVEMBER, 1848. No. 11.

NOVEMBER IN PROSPECT.

In this month we see Autumn approaching towards its termination. Autumn! the glorious setting of the year; the last season of beauty. Around are fast falling the withered leaves of the trees which were lately clothed with a tapestry of the richest gold, and purple, and scarlet; resembling and almost rivaling the most gorgeous hues of our autumnal sunsets! It is a peculiarity of our forest trees, that their leaves in changing their hues, lose little or nothing of their brightness, and that their autumnal dress is not only far richer, but less lively then their freshest June liveries. The light of the sun sheds a more mellow and less fierce —a more kindly influence on our heads. Dark clouds are driving angrily across the sky. Cold, piercing winds whirl the dry leaves through the air, and moan piteously among the leafless branches. Every thing in nature wears a cheerless, frowning aspect. The herds crowd together for protection from the blast, and look around them as if in search of food. The water-fowls press towards their native element. But the sportsman, sallying forth with dog and gun, turns not aside from *his* sport, though he feels the peltings of the storm.

All seems like the ripe vigor of man; "When Ceres," to use

the language of Gay, whose works will be read and admired, so long as any taste for his beautiful style of writing shall exist,

> "When Ceres pours out plenty from her horn,
> And clothes the fields with golden ears of corn,
> Now, now, ye reapers to your task repair,
> Haste! save the product of the bounteous year;
> To the wide gathering hook long furrows yield,
> And rising sheaves extend through all the field.
>
> "But if for sylvan sports thy bosom glow,
> Let the fleet greyhound urge his flying foe.
> With what delight the rapid course I view!
> How does my eye the circling race pursue!
> He snaps deceitful air, with empty jaws;
> The subtle hare darts swift beneath his paws,
> She flies, he stretches, now with nimble bound
> Eager he presses on, but overshoots his ground;
> She turns; he winds, and soon regains the way,
> Then tears with gory mouth the screaming prey.
> What various sport does rural life afford!
> What unbought dainties heap the wholesome board!"

November is the eleventh month of the year, and though proverbially the gloomiest, it is conspiciously rich in many of the good things of this world; it is the season for fish, poultry, game, and fowl. Thus, by an admirable provision in the economy of nature, at the season when the human appetite is increasing in strength, the means of gratifying it are multiplied.

Notwithstanding that this is what has been proverbially styled "the gloomy month of November," the application of the term seems to be more directly intended for villages and cities, when the fogs, rain and mud, which frequently occur about this period, are presumed to have a baneful influence upon the atmosphere, than for that portion of the population engaged in agricultural affairs—or indeed, for the country at large. The laborer, whose general outdoor employment necessarily exposes him to the pelting of the storm, is rarely known to despond; and if he continue to enjoy robust health, he cares but little for the inclemency of the season; indeed many such persons prefer the winter to the summer season, and suffer less personal inconvenience from the winter cold than the summer heat. It does not, however, invariably happen, in spite of the near approach of what may be termed absolute winter, and the indifferent reputation that is commonly attached to the present month, that the weather is unfavorable to

farming operations; for there are autumns when this month is a more favorable one than its predecessor. This, however, can in no wise be depended upon; and it therefore behoves the husbandman to defer as few of those necessary farming affairs as possible, which annually devolve upon him during the autumn, until so late a period of the season as the present.

The season for harvesting the crops is now nearly over. The pressure of work for the past month may have prevented some from gathering their corn, but no time should now be lost in securing it. Circumstances may also have occurred which prevented the farmer from accomplishing all the work usually done in October, which consequently will be thrown upon this; the labors which are usually severe in November, will therefore be particularly so now. Let each and all then do all they can, and the reflection it will carry with it, will more than compensate for any disappointment. There is much which the prudent husbandman may find to do after his crops are harvested.

As bad or stormy weather usually sets in this month, farmers should keep a strict watch for fine clear weather to do all the out door work remaining unfinished.

Late as the season has now got, and harsh and cold as the weather frequently happens to be, it is recommended to turn up with the plow, the lands which are intended, particularly if they are of a tenacious nature, to be tilled the next season. The mellowing influences of rains, frosts and snows upon the soil, when thrown into furrows, is greater, we may suppose, than if it is suffered to lie in the position it was when the crop was taken from the field. This operation exposes the eggs of insects which pray on our crops, to the destroying action—cold.

Some prefer breaking up sward land in autumn, that is intended for planting the next year. Others choose to break up late in the spring. We have found it more advantageous to break up such lands in the fall, if there is time to do it without neglecting other work that can not be put off; for at this season of the year, your team will do the work with less exhaustion than in May, and the

having the work done in advance is an important step in facilitating the accomplishment of the work in spring.

Economy and policy both unite in recommending that you thresh out your grain and have it ready as soon as possible, as you may then watch the market, and avail yourself of the highest price. As a general rule, we think it most prudent for all farmers to place themselves, as early as possible in a situation to profit by the rise of the markets, and therefore we say to you get out your grain, and have it ready for market, and then the mind is free.

Do not let your teams stand idle, but cart muck, sand, and leaves from the woods, to the cattle yard to absorb the liquid manure. Scour out the ditches and cart the scrapings to the compost heap. Repair fences, dig up stumps if you have any, and clear your grounds of stones. See that the cow stables and cattle sheds are in good order. Implements and tools of all kinds which are not wanted for winter use, should be put away safe and dry in the tool house. And though last, not least, do not neglect to read carefully your agricultural papers.

RAILWAYS—THEIR EFFECT ON THE AGRICULTURAL INTERESTS.

The application of steam to locomotive engines on railways, is justly considered one of man's proudest triumphs in rendering physical laws subservient to his purposes. The art of printing enabled mankind to become acquainted with the knowledge and opinions of each other; railways will introduce them in person. The former was favorable to investigation and research, and had an effect on nations, similar to that of close reading and study on an individual; the latter for enterprise and enlarged views, having an effect not unlike that of an individual who visits other countries, mingling with the most intelligent, and inspecting every object worthy of notice. Through the instrumentality of printing we can obtain more information in a few hours reading, than by traveling for years. With the assistance of rail roads and steam, we can traverse, in a few weeks, an extent of country, which, in the old modes of journeying, would have consumed no inconsiderable portion of the medium length of human life. Printing is

something of a substitute for an universal language. The facilities of locomotion will tend to assimilate the manners and customs of mankind, and strengthen those ties of union that will remove the causes of war.

Over every other method of transportation they have decided advantages. They are more durable, and less expensive in their original cost and in repairs, than canals. The velocity is also much greater. By recent experiments in England, single cars have gone at the surprising rate of sixty miles within the hour. On canals the speed cannot, without a quadruple increase of power, and without endangering the banks, exceed five or six miles. They are applicable to all latitudes, and comparatively interrupted by no change of seasons; canals, on the contrary, in high latitudes, are frozen over in winter, and in warm climates are unhealthy, from the stagnancy of their waters.

The introduction of rail roads will tend to enhance the relative value of cultivated lands in their vicinity. Produce can be conveyed to market with much less expense, and with far greater expedition. The returns, too, for this produce, will be obtained for less expense in the charge of transportation. If the market price of agricultural products is reduced by the increased quantity of land bought within marketing distance, the greater variety of articles that can be raised for market, will compensate for this reduction. A farm in the vicinity of a rail road, and two hundred miles from market, is in value fully equal to one at forty miles distant, having only ordinary or turnpike roads for transportation.

One great item of expense in the management of a farm, is the amount of grass and grain consumed by horses.

In proportion as the produce is transported by rail roads, a less number of horses is necessary. If a farmer can dispose of one horse for two cows, he changes an outgo for an income. Let steam be successfully applied to the plow, and the horse, from being one of the most valuable of domestic animals, will become the least useful and profitable. A change would take place in ameliorating the condition of man, probably greater than any recorded on the pages of history. There are now, many millions of horses, that receive their support from the cultivated portions of the earth. On the supposition that these were diminished one-half, the produce thus saved and converted to the sustenance of man, would add much to the facilities of obtaining food.

Rail roads will also enhance the value of property, by increasing the sites for various manufactories, and thus creating more markets, and nearer home. But the great benefit will consist in that general prosperity of the country, which increases consumption and creates new demands.

CHOICE OF TREES—GROUPING, &c., &c.

"It has been often remarked," says D. J. Browne, in the Transactions of the New York State Agricultural Society, "by strangers, that, in sailing up the harbor of New York, they have been strongly impressed with the beauty of the scenery, particularly with the number and diversified forms of the trees; and that after landing, the whole appears like one vast garden, interspersed, not only with many trees indigenous to the neighboring woods, but with those of the most distant climes of the two worlds. In progressing inland, or in either direction along the seaboard, the same features are observable, though in a less degree in all our cities and larger towns. It has also been remarked, that the foreign trees most conspicious in the artificial scenery in America, are various kinds of pine trees, the Lombardy poplar, the weeping willow, the horse-chesnut, the European lime-tree, the ailanthus, and the paper mulbery. The contrast between the regular position and round-tufted heads of the fruit trees, and the erect branched summits of the poplars, and between these trees and the drooping heads of the willow and ailanthus, as well as between those of the wild luxuriance of the indigenous species, strikes the beholder with admiration. This love or desire for rural taste and ornament, speaks well for our people, whether they have been the most judicious in their choice and management, or not; and doubtless, the time is not far distant, when a due regard will be paid to the cultivation of such trees and shrubs for beautifying our parks, public highways, and private grounds, as will best subserve the purposes of health, ornament and shade."

"In ornamenting cities, villages, or rural towns, as well as public highways, farms, private grounds, &c., it is a great desideratum to find a class of trees and shrubs that will rapidly attain the desired form and size, afford a healthful and agreeable shade, and are free from attacks of insects or from accidents of any kind, and at the same time will tend to beautify the scenery, and ultimately prove useful for food or construction in the arts. With the great variety of species and varieties before us, whether in a wild state or under cultivation, one might be led to suppose it an easy matter to select from among them, all that could be desired; yet, when we take all their points or qualities into account, how few there are free from objection. One class seemingly answer the desired end for the first ten or fifteen years, and then, by exuberance of growth, become too much expanded for the situations they occupy, and unless their beauty is destroyed by pruning, they grow top heavy, and are finally uprooted or shattered by the winds; other kinds appear to flourish with vigor for the first few years, assuming a variety of graceful and picturesque forms, and then are checked in their growth, become sickly, or stag-headed

and unsightly to the eye; while a third class, although they may possess satisfactory qualities in most other respects, are attacked by noxious and disgusting insects during certain seasons of the year, and are often greatly injured thereby, if not totally destroyed. Hence the difficulties our early tree planters labor under, who grouped along in the dark, in many respects, and we need not be surprised, nor should we attach any blame to their praise-worthy efforts, even if they have not been the most choice in their selections, and the most judicious in their management."

"Tree culture, like music, architecture, dress, &c., has its *style*, and consequently its rise and decline, according to the age and country in which it may prevail. For instance, the box tree was much employed in verdant sculpture and close clipped hedges in the gardens of Roman villas in the Augustan age. Pliny describes his 'Tusculan villa,' as having a lawn adorned with figures of animals cut out in box trees, answering alternately to one another. This lawn was again surrounded by a walk enclosed with evergreen shrubs, sheared into a variety of forms. Beyond this was a place for exercise, of a circular form, ornamented in the middle with box trees, sheared as above into numerous devices; and the whole was surrounded by a sloping bank, covered with box, and rising in steps to the top. In another part of the grounds of the same villa, the box is mentioned as having been cut into a variety of shapes and letters; some expressing the name of the master, and others that of the artificer. The same practice is still followed in several Roman gardens. In that of the Vatican for instance, a few years since, the name of the pope, the date of his election, &c., might be read from the windows of the palace, in letters of box."

"Soon after the introduction of the Lombardy poplar, by Hamilton, in 1784, it uninterruptedly spread throughout the country, and by the end of the second decade of the present century (1819), it had multiplied to such an extent, that stiff formed rows of it were to be seen growing in front of dwellings and along the borders of fields and road sides in almost every civilized town in the Union. But owing to the monotony and whimsical effect it usually produced in the scenery, and to its long creeping roots, which insinuated themsblves below the surface of the ground, often to a distance of twice the height of its summit, forcing assunder pavements and celler walls, and robbing the neighboring vegetation of its legitimate food; this tree, for general purposes of ornament, was very justly condemned. Since the last named period, however, from the universal prejudice against its culture, the opposite extreme has prevailed, and it is feared that ten years hence scarcely an individual will be left in the country. This is to be regretted, as this poplar has a charac-

ter peculiar to itself, and in certain situations it will produce an effect in the landscape that cannot be imitated by any other tree, except the cypress, or perhaps, in some cases, by the spruce fir. For instance when employed for contrasting with masses of round

Fig. 35.

headed trees, the Lombardy poplar has a most pleasing effect. Let us take a belt, or thicket of trees, as denoted by Fig. 35, and when contemplated by themselves, they are quite fatiguing to the eye from their dull and monotonous appearance, although they might be displayed with advantage in the fore ground of a lofty tower,

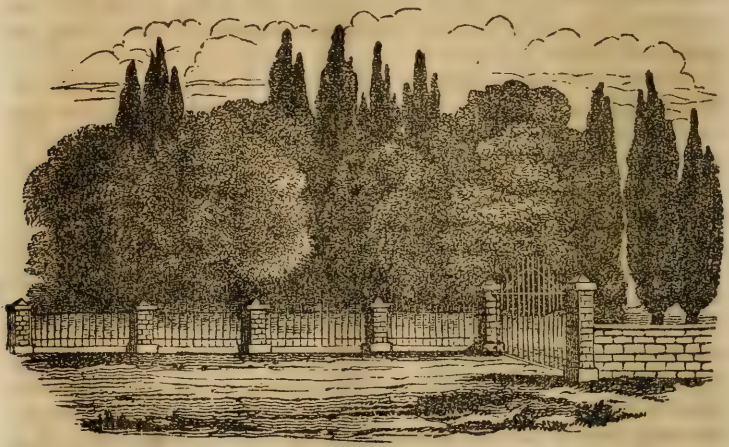


Fig. 36.

or the tall spire of a church, and perhaps many other objects; but add the poplars, as shown in Fig. 36, and immediately an interest

is created, and a character given to the group, it did not before possess. For the poplars, which are taller than the other trees, are so disposed as to break the mass into several groups, and give a new aspect to the whole scene. The pointed heads of the poplars also form a pleasing contrast with the round heads of other trees, and break the too uniform line depicted on the sky, while the branches which rise stifly upwards, contrast with, and render more graceful the horrizontal, or pendent masses of round headed trees."

"It is an established rule in the composition of landscapes, that all horrizontal lines should be balanced and supported by perpendicular ones; and it is allowed by all writers on the material sublime, that gradually tapering objects, of great height, create emotions of sublimity. Hence the Lombardy poplar, the cypress, and other fastigiate branched trees may be advantageously planted wherever there is a continuance of horizontal lines; but they should be so arranged as to form a part of these lines, and appear to grow out of them, rather than to break or oppose them in too abrupt a manner. In case of a bridge, displaying a long and conspicuous horizontal line, the effect is greatly increased by planting poplars on each side of it, as denoted in Fig. 37. Not

Fig. 37.

only the lines of the bridge are balanced and supported by the upright poplars, but lengthened and pleasing reflections from the water are produced; which, breaking the horizontal gleams of light, not only afford variety and richness, but, by increasing the length of the perpendicular lines, formed by the trees, confer a degree of sublimity on the picture attainable by no other means. Similar effects may be produced by planting this poplar near the

margins of lakes or streams, or beyond the horizontal lines in fortifications, an admirable illustration of which is displayed on Governor's Island, in the harbor of New York."

"Another beauty the Lombardy poplar possesses, which is almost peculiar to itself, is, the waving line it forms when agitated by the wind. Most other trees in this respect, are only partially moved at the same time one side being at rest, while the other is in motion." But this tree, as Gilpin expresses it, "waves in one single sweep from the top to the bottom, like an ostrich feather on a lady's head."

"The Lombardy poplar, when old, frequently decays at the extremity of its branches, which gives the tree an unsightly appearance. This may be remedied, however, by heading down the trunk early in the spring, to the lowermost limbs, and in the course of the season, new shoots will spring forth, and in two or three years it will assume the character of a young tree."

OAKS OF THE STATE OF NEW YORK.

BY L. C. BECK.

Trees, whether individually or in groups, have ever been considered objects of peculiar interest. The grove is associated with the earliest records of science; and among physical objects, the forest may be considered as exerting the most important influence upon the moral world. This idea is beautifully illustrated by Humboldt, in his *Tablau de la Nature.* "The species of animals," says he, "are comparatively few in number, and their fleetness is in general such as to remove them quickly from our sight. Vegetables, on the contrary, act upon our imagination by their immobility and by their grandeur. Their size indicates their age, and it is in vegetables alone, that with this age is associated the expression of a force which is constantly renewed. The gigantic dragonnier (*Dracœna draco*), which I have seen in the Canary Islands, is sixteen feet in diameter, and enjoying an eternal youth; bears still its flowers and its fruits. When the Bethencours, French adventurers, made in the 16th century the conquest of the Fortunate Isles, the dragonnier of Orotava, as sacred to the natives of these islands as the olive of the citadel of Athens, or the elm of Ephesus, was as colossal in its dimensions as at the present time. In the torrid zone, a forest of Cisalpina and of Hymenia, is perhaps the monument of a thousand years."

Though we cannot boast of such "monuments" as these, the

oaks of the forest are known with tolerable certainty to attain the ages of 8 or 900 years, and are the most aged trees that we possess. The pines are stated by Dr. Williams, in his History of Vermont, to be from 350 to 400 years. This information is obtained by counting the number of concentric layers or rings, a method of computation, the accuracy of which is admitted by a large majority of vegetable physiologists.

There is another consideration which renders an attention to our forest trees of high importance. In various European countries, not only individuals, but governments themselves have bestowed great care upon the cultivation of useful and ornamental, indigenous and foreign trees. Their destruction has been guarded by the most rigid enactments, and the highest favors have been conferred upon their most successful cultivators. Without wishing to see such examples in all respects imitated in our own country, it is worthy of attention whether we are not too prodigal of the abundance which we now possess. Whether it is not time to stop, or at least check the improvident and indiscriminate destruction of our forests. Whether it is not time to cultivate instead of destroying, and thus to keep open one great avenue to national wealth and independence.

For the great purposes to which timber is applied, a large part of Europe must be tributary. We, on the contrary, possess within our extended domain, timber for almost every use. With care, the supply can be continued. The forest can be pruned like the vineyard or shrubbery. That man would be deemed a madman, who should destroy the young and thrifty trees of his nursery, and yet where is the place in which the same madness is not exhibited with respect to our forests? The effect is already sufficiently evident in our populous towns, and if the practice is continued, it will soon become general throughout our country.

I have elsewhere remarked, that a great peculiarity in the vegetation of the United States, is the number and beauty of its forest trees. (*Geographical Botany of the United States, published in the Transactions of the Albany Institute.*) The number of these at present known, is about 200, which have a more or less extensive range of distribution. Some, as for example the magnolias, are exclusively natives of the southern section; some, as the willows, are mostly found in the northern, and some again are common to both.

The oaks comprised under the Linnean genus, *Quercus*, are by far the most numerous and important. Botanists are at present acquainted with more than one hundred and forty species of this genus, of which upwards of one-half belong to America. In the state of New York there are fifteen native species, viz.: mossy-cup oak, post oak, white oak, swamp white oak, swamp chestnut

oak, yellow oak, rock chestnut oak, dwarf chestnut oak, willow oak, black scrub oak, black oak, red or scarlet oak, pin oak, red oak. The trees are chiefly valued for their timber and bark, and the shrubs for their fruit.

Of all the arborescent species found in our state, the white oak is most deserving of notice, and its cultivation may be recommended as an object of primary importance. It is extensively employed in ship-building, and for strength and durability it holds the very first rank. It is well fitted for staves, which constitute an important article of export. Time would fail to enumerate the various other uses to which this timber is applied.

Considering the remarks made concerning the white oak as applying also to the swamp white oak, the next in importance is the rock oak, which is not surpassed by any other for fuel, and which may also be converted to most of the uses of the white oak.

The black oak is highly valuable for its bark, which furnishes the quercitron of commerce.

Should this country continue to be a commercial one, the cultivation of the more strong and durable species of this genus, will eventually become a matter of necessity. In England the price of ship-building advanced 100 per cent. in less than 100 years, and until some provision was made it was computed that there was not timber enough in the island to keep the navy in repair. In the United States, too, according to Seybert, the price of ship timber for ship building increased on an average 10 per cent, from 1800 to 1810.

The immense amount of timber used for ship-building, may be judged of by the fact stated in Sinclair's Code of Agriculture, that a 74 gun ship requires 3000 loads of wood, the produce of 50 acres, each tree standing a rod or 33 feet apart.

Sufficient has now been said to show the importance of an attention to the cultivation of our useful species of oak. I have neither the time nor the ability to point out the details of the manner in which this subject should be pursued, but I trust it will ere long receive the notice of patriotic individuals, and of our national and state legislatures.—*N. Y. Farmer.*

There are two distinct objects to be regarded in the cultivation of forest trees, their pecuniary value as fuel and timber, and their uses as ornaments, screens and shades. The cultivation in the two cases must be quite different; yet we suppose the first steps must in all cases be the same. The land on which the seed is to be sown, or the young trees planted, must for many years be cultivated while the plants are growing, in order that they may make any show at all, even in 20 years. Without cultivation they will grow but very slowly. After the acorns are sowed, or the trees

planted, the plow can go only between the rows, leaving the subsoil beneath the rows unmoved.

The best time for sowing the acorn is in the autnmn, immediately after they have fallen from the trees, and they should be planted just below the surface. The plants for some years should be kept free from weeds. The most profitable way to do this is to plant potatoes or bush beans, which will pay the expense.

FENCING—ITS IMPORTANCE, &c.

It is a conceded and well established fact, that the science of agriculture has been aroused from a "lethargic sleep," and that it is no longer considered a mere handicraft, but that it is a practicable demonstration of the greater part of all the arts and sciences combined. And since new light has dawned upon, and a new impulse been given to agriculture, the march of improvement has been onward. Within the last twenty years, men, eminent men, men of education, of wealth and enterprise, came forth and burst the bars of prejudice and superstition, by the power of their writings, their practice, and experience; new light has sprung up, and hence the vast improvements which now fully develope themselves in almost every quarter of our country.

It would require a volume to enumerate all the improvements which have been made within the last twenty years, not only in the art of cultivation itself, but in all the multiplicity of implements and apparatus required in the business of farming.

Notwithstanding the wonderful improvements of the age, there is one important item in the agricultural economy of our country, which has been almost entirely overlooked—the *fencing* of the *farm*, which is a heavy drawback annually upon the farmer's profits, and that drawback is annually increasing, and becoming more and more important every year in our country. Even when timber is plenty and cheap, it is still a heavy annual incumbrance upon the farmer's income.

The natural decay of fencing materials in the state of New York, has been variously estimated at from fifty to one hundred thousand cords of wood which is annually decomposed, and rendered valueless by the decay of fencing timber, in the form of rails, posts, boards, &c. Taking this amount, in connection with the timber annually consumed for fuel, for building, for shipping, and the multiplicity of other uses to which it is applied, the aggregate of the annual consumption would swell the amount beyond computation; and the alarming truth would be forced upon

the mind, that the annual consumption of timber is greater than the annual growth; which must ultimately produce a great scarcity of that article, as is the case in Europe at this time. And as "necessity is often the mother of invention," and the foresight, energy, enterprise, and ingenuity of the American people is ever on the prospective, the far seeing eye of her child of plenty penetrates into the mists of the future, and on the discovery of an approaching calamity, an antidote is sought for and discovered—a remedy meets the evil on its way, and is paralyzed before it is known or felt by the people; hence the discovery of a specific which will eventually revolutionize the present mode of farm fencing.

The patent cast-iron post, farm hurdle, wire, and ornamental fence lately introduced by Mr. Coon of Rensselaer county, N. Y., will eventually reduce the consumption of the quantity of timber, at least nine tenths of its present consumption, and by the same plan wood may be entirely dispensed with, and iron, either cast, rolled, or drawn, wholly substituted by a mineral of which almost every part of our country abounds. By an examination of his invention, it will readily be discovered that almost every difficulty which heretofore existed in fencing, has been wholly, or in part obviated, and may be ranked among the most important inventions of the present age.

It is well known that England and other European countries, has for the last century sought for a substitute for wood for fencing, but never succeeded in producing one that could be brought into common use. All the telegraph posts are now, of necessity, wood, but in a few years all that are now in existence must be replaced by new ones, which not only will deprive the country of its most thrifty growth of young and valuable timber, but subject those interested, to a heavy expense, which may be the means of putting a stop to this almost superhuman mode of conveying intelligence. The plan or form given to the cast-iron telegraph post renders it of light weight, and of sufficient strength for the purpose required, and the same may be said of the form for lamp-posts, piazza, or any posts required for pillars of any kind.

The advantages which this plan of fencing possesses over any other now known are numerous; and as the old system has been practically tested, in all its various ways heretofore adopted, the first cost of the different kinds, the various difficulties attending the erection of each kind, the annual expense for repairs, and the rapid decay, &c., are all well tested by experience, by almost every agriculturist, but by properly considering the various advantages of Coon's patent, the contrast between the old and the new way will at once offer plain and convincing arguments to every unprejudiced mind.

The first that may be considered is the iron post and wood

panel for common field fence. The durability of the iron posts need not be discussed, the form being of such a nature that a post for common, permanent, field or hurdle fence, need not exceed seven or eight pounds of iron, the cost of which will depend somewhat upon the locality where it is manufactured.

The post is inserted in a stone of any shape of sufficient size, having a two inch hole drilled into it four or five inches deep; this stone is buried in the ground, even with its surface, by which one great difficulty is completely obviated, that is, the action of the frost upon the fence. It is a well known fact that a stone or stick of timber placed in a wet or heavy soil, even with the surface, does not raise any higher or sink any lower, but as the ground rises by the frost, the stone or stick rises with it; and as the frost disappears, the stone or stick is left precisely in its former position; thus the action of the frost upon the fence is entirely obviated.

The wooden panels are constructed of rails or bars and pickets, twelve feet in length and of any required height, with or without a base board. The pickets are round and inserted in the two rails, top and bottom, and these rails are fastened to the posts without nails, pins, or bolts of any kind. The peculiar construction of the post secures the rails, and secures them firmly without the aid of any other means. When used as a hurdle or portable fence, the posts are inserted into a block of wood, two and an half or three feet long, and laid partially in the ground transversely. The pannels are put together by placing a post where the fence is to commence and hanging the panel on the post. The next post is placed, and the other end of the panel hung on; the next panel laps on to the first, and thus after the panels are put together, that is, the bars and the pickets, and the holes bored in the blocks of wood, and we are informed that a man and a boy will erect half a mile of fence in one day; and this fence when placed, may be considered a permanent barrier against all ordinary domestic animals, and the fence may be taken up and conveyed to any place with ease, and put under cover in a small place during winter, if necessary. The first cost of this fence is less than any other hurdle fence now known, and can be taken up and put down on any variety of soil, at less then half the expense of any other hurdle fence ever invented.

There are many sections of country which are subject to an annual inundation, and if the land is inclosed at all, a fence must be made in the spring, and removed in the fall, or be lost; thus a portable or hurdle fence is of great value, as it can be taken up and put down with ease and facility.

There are other sections of our country which are wholly deprived of timber for many miles in extent. The praries of the

west, and bottom lands in those regions, where a fence of this kind must be of incalculable value. All the materials required to make it are light, and may be manufactured and ready for use and transported any distance by land or water. A single canal boat will carry twenty panels of fence.

To make this fence more durable and permanent, a cast iron bar has been invented to receive wood or iron pickets. This bar though of light weight, is so formed, as to be strong and solid when placed in the fence. The pickets of wood may be of any desirable shape or size; when of iron, they have the same form, in principle as the posts.

It will readily be perceived that this fence must eventually become in general use. The durability none can question; the post of iron, placed in stone—both indestructible—wood placed upright and held by iron bars, and kept painted, would last fifty years. When the whole panel is of wood, the bars made of some durable timber, and well painted, will last from twenty-five to thirty years.

In a section of country where stone are not to be obtained, any kind of timber now used for posts, of sufficient size, may be used by cutting it about three feet in length, and a two inch hole bored in the centre, and imbeded in the ground transversely, even with the surface, and the iron post inserted, will be a substitute for stone, which will be far preferable to a post placed perpendicular in the ground. These blocks of wood, laid on top, or wholly in the ground, are not subjected to the action of frost or "heaving out," as it is generally termed, when posts are raised by the frost. It is well known that on moist soils, a post decays very fast at the surface of the ground; and even cedar posts are often found to have been eaten off by some chemical process acting upon that particular juncture. On sandy loam particularly, chestnut posts will decay even with the ground in a few years, whereas the top and bottom remain sound many years.

Though stone can not be found, and wood for blocks should be substituted to insert the iron posts, that alone would obviate one important difficulty, as it is well known that where posts are rotted off, the whole fence, boards and all, are nearly a total loss. It is entirely different with the iron post fence, for when the blocks of wood become decomposed, the position of the fence would show it, and the panels would yield to the inclined position of the post without any injury to it, and being light and incapable of resisting wind sufficient to break it, would consequently receive no injury from the storm.

Another advantage in the construction of fence, which would be quite a desideratum to farmers as well as turnpike and rail road companies, of the middle, northern, and western states, and of the public generally. It is well known that the drifting of

snow is very often a serious evil, and causes very many delays, and sometimes disasters. It is true, that a fence cannot wholly obviate this evil because snow drifts do form where there is no fence, on side hills, &c., but who has not traveled miles through deep drifts on level plains, when at the same time the adjoining fields were nearly bare. The cause was evident; a stone wall, a post and board, log, or rail fence was on either side of the road, thus causing a vacuum in the current of air, and the drifting snow as it was driven from the surrounding fields found a resting place within the fences, and when once deposited could not again be displaced, until forced from its position by the work of man. The iron post picket fence would obviate the latter difficulty, for it is well known that open picket fences offer but little resistance to the wind, and a sufficient current of air is afforded to pass through and drive all the surplus snow that may be driven by that wind. This has been fully proved by practical observation, and is only the dictates of common sense.

The cast iron posts may also be used in the construction of wire or iron rod fence. This kind of fence is cheap and will be durable. It is constructed by placing the posts firmly in the ground and stretching wire from post to post, secured in holes cast in the posts for the purpose. The posts are inserted in stone or wood, the same as the other posts. The rods, ten in number, should be 13 feet long, $\frac{3}{4}$ of an inch in diameter, and bent at the ends in the form of hooks; if used as a hurdle, the posts should be set in wood, to secure lightness in handling.

This kind of fence will be found very economical for cemeteries and door yard fences in cities and villages.

We noticed at the late fair of the Rensselaer Co. Ag. Society, that the pens for sheep and swine were constructed with the cast-iron post and wooden rails and pickets, and more neat and secure pens we have never witnessed. And we would suggest that our state and county agricultural societies provide this description of fence for their pens, in place of the ill looking, insecure, and uncomfortable fence heretofore used. The pens, which were found to be sufficiently capacious, were 12 feet square, and the range some 150 or 200 feet in length, two pens wide, by which one panel is saved.

The cast iron posts, rails, and fancy panels, may be obtained by applying to M. P. Coon, the inventor, Lansingburgh, N. Y.

ON MILLET.

BY E. EMMONS.

From some cause or causes not well known to the author, millet is rarely cultivated. I may however conjecture that it is owing to the smallness of the seed, which in itself appears of but little value. It may be due to the coarseness of the stalk when ripe, which unquestionably diminishes its value for our common stock, or it may be due to a misapprehension of the value of its grain.

Whatever may be the cause of its neglect, even though this neglect is just and proper, still it will be useful as I believe to state briefly its composition; for it is only by this kind of knowledge that we can determine its true value as an article of food. In investigating the composition and character of our cultivated plants, it is necessary that the proportion of water and ash should be first determined. I give therefore for this purpose the following results.

1. The millet plant, cut when in blossom,

Gives in	308·40 grains,	
Dry matter,	103·50	
Water,	204·90	66·43 per ct.
Ash,	11·35	3·68
Ash calculated upon the dry matter,		10·96
Dry matter,		33·56

Millet stalk and leaves, when ripe,

Gives in	2670 grains,	
Dry,	1309	
Water,	1361	50·97 per ct.
Ash,	99·73	3·735
Calculated dry,		7·619
Dry matter,		48·65

Millet seed or grain,

Dried in the shade,	840 grains,	
Ash,	28·615	3·52

The composition of the ripe straw of millet is as follows:

		Elements contained in a ton of straw.
Silica,	53·750	44·908 lbs.
Phosphates of Lime.		
Magnesia and iron,	18·150	15·164
Carbonate of lime,	·400	0·334
Magnesia,	·430	0·360
Potash,	17·395	14·533
Soda,	1·525	1·274
Sulphuric acid,	2·500	2·088
Chlorine,	0·512	0·427
Carbonic acid,	1·056	

It will be observed that a little over one half of the inorganic

matter is silica; that nearly one-fifth is a phosphate of lime and magnesia, and one-sixth potash. From an acre of millet there would probably be removed in valuable inorganic matter 134·7 lbs. of soluble silica, 45·48 lbs. of phosphates, 52·17 of potash, 7·50 of sulphuric acid.

The inorganic matter of the seed of millet is as follows:

Silica, - -	44·294	Soda, - -	8·239
Phosphates of Lime.		Sulphuric acid,	trace.
Magnesia and iron,	34·555	Chlorine, -	trace.
Carbonate of lime,	none.	Phosphate of the	
Magnesia, -	none.	alkalies, -	·620
Potash, - -	7·178	Organic matter,	1·459

An acre of the grains of millet will be deprived of 62·451 lbs. of silica, 47·313 of the phosphates, and 19·813 of potash and soda.

To exhibit the nutritive power of millet seed I made a proximate analysis of the organic matter. 100 grains of the flour gave,

Starch, - - - - - - - - -	34·840
Albumen, - - - - - - - - -	8·225
Casein, - - - - - - - - -	4·765
Dexterine or gum, - - - - - - -	4·080
Gluten and oil, - - - - - - -	2·400
Fibre and matter insoluble in water or alcohol,	20·230
Sugar and extract, - - - - - - -	10·200
Water, - - - - - - - - -	11·061

The oil though not accurately determined, exists in the seed in about 2 per cent.

From the foregoing analysis of millet we find it a valuable vegetable product, possessing in its grain a large per centage of nutritive matter. It is rich in nitrogenous products, as albumen and casein, and not at all deficient in fattening and respiratory elements, as oil and starch. Compared with wheat or Indian corn, except in oil, it exceeds both in its power of sustaining life. For bread it will probably be rarely employed, in consequence of the coarseness of its flour and its dark color. But for the food of animals it seems that it might be cultivated with profit, as it yields from 65 to 70 bushels of seed to the acre. When fed to cattle it requires grinding; it is however safe to feed it to swine in its entire state, though it would undoubtedly be more profitable to grind it even for them, inasmuch as its outer covering or cuticle is highly silicious, as will be seen on consulting the foregoing analysis.

The straw of millet, or rather the plant, when intended for hay or fodder by itself, should be cut when it is in blossom, as at this period it is not so coarse as when it stands till ripe. For fodder, it seems to possess about the same value as timothy, though rather

less if any thing. Its inorganic matter contains more silex and hence is less nutritious.

Whether then we cultivate millet for its grain or for its straw, we may be satisfied that so far as the crop is concerned, it is a valuable product, its grain being rich both in muscle and bone producing elements, and its straw is not deficient in the elements common to the cultivated grasses.

In closing this brief notice of millet it may be useful to state further, that the grain contains only a small amount of gluten or adhesive element of wheat flower. In this respect its flour resembles buckwheat. When millet flour is washed and freed from its starch, albumen, and caseine, a brittle or inadhesive mass remains.

EDUCATION FOR FARMERS.

BY WILLIAM BACON.

The education of farmers is a subject, which at the present day, is very properly claiming almost universal attention. Much is said upon this topic in almost every circle, and scarcely a paper comes to hand, but contains some remarks tending directly or indirectly to its advancement. All classes and all professions have their eyes directed and their ears open more or less to the demands which the farmer has upon larger and more liberal facilities for improving the mind; for enabling him to bring the fruit of active thought and scientific investigation to aid him more effectually to increase the productiveness of the field and the garden, and pour plenty with unlavishing hand into the laps of the multitudes of earth. Legislatures are listening to the subject, and test their sense of its importance by laudable endowments to aid in its advancement. Individual munificence too is opening wide her liberal hands in its behalf.

Men of learning are volunteers in the cause. Our colleges are opening their doors and inviting the young farmer to enter their laboratories, and witness their manipulations, and even to try his toil worn hands in separating the compounds that nature has so ingeniously formed in her own grand work-shop, and bring them into new and oftentimes more valuable affinities. Professors are calmly and scientifically discussing the important topics that bear directly upon the earth's fertility, and not only by oracular manifestations enlightening the public mind, but they are also employing the pen and the press to diffuse the knowledge which their

laborious researches bring to light, to illuminate the mind, lighten the toil, and share the labor of the laborious husbandman.

All this is right, a mere matter of justice, and one which the agricultural portion of our country have a right to demand. It is mere payment of a claim which they have upon men of wealth to whom they yielded the privilege of embarking in more lucrative callings, while they have contentedly trudged on, amid the heat of summer and the cold of winter; in the burning sunshine and while the frowning storm beat angrily upon them; in times of deluge and drought, in the hardy labor of cultivating the earth. It is no more then they have a right to expect from our colleges from whom they have from their earliest existence heard the oft repeated cry of *more funds* by individual munificence or heavy grants by legislative enactments. To these cries the people, the *agricultural*, working people have from time to time responded, if not with power to satisfy, at least with effect sufficient to induce them to call again.

It is asking none too much of our professors to require them to divide their labors among those who are to resuscitate the drooping energies of the earth, and cause her to bloom in the beauties of more lovely youth, to weave brighter garlands on her brows, and keep up richer and more abundant fruits upon her bosom. It is from the home of the farmer that many of the choicest intellectual gems appear to gladden them, and carry forth into all professions the glory of the alma mater, to whose honors their labors are so earnestly devoted.

So far then, we see that a right movement is in progress in those colleges that have already introduced the science of agriculture as one of the foster children of their care. They will undoubtedly accomplish much by educating young men to become teachers in their turn, either by the practicable and unmistakable operations of the garden and the field, or by becoming founders of, or connected with other institutions especially designed for the promotion of the same object.

But some other means are necessary for the advancement of general agricultural education, besides those furnished or like to be furnished by colleges and agricultural schools. Desirable as they are, and as rich in the prospects of usefulness as they may be, their influence for a while at least must be limited, and their effect if felt at all, so slight as hardly to produce a sensation. Their *immediate* benefits must mainly be restricted to those who can and have a disposition to afford the expense attendant on the course they prescribe, while many a young man upon whom fortune may appear to have been niggard in the bestowment of *golden* advantage, but liberal in the gift of an active and enquiring mind, must, for the want of the needful, sigh and turn his back upon

their advantages. Some of the latter class, there will undoubtedly be, who in the firmness of resolution will break over and crush down all obstacles that are of themselves in their pathway to the benefits expected to be derived from these schools, and by storm attain their object. Others there must be, whose way is so thoroughly hedged up, let their wishes be what they may, that they cannot partake of their value until its influence falls upon them through some second or third handed operation.

Besides all this there are many rich men as well as those in comfortable and middling circumstances, who yet look upon all knowledge save that acquired in the field as futile and unnecessary in order to success. Such men cannot be expected to send their sons where knowledge is acquired, or hardly countenance their going there, even if the young man takes the responsibility of furnishing the means and the prospect of success into his own hands.

Consequently as valuable as these resorts for acquiring knowledge may be, and successful as we hope they will prove, it appears conclusively that other means must be employed to effect the object before the whole mass of farmers can be found in the highway to that knowledge whose advantages are being more and more appreciated, and whose advancement so many are now laboring to promote. The question then is, what shall be done the more generally, and of course more effectually for its accomplishment?

In the first place there must be more general excitement in the public mind on this subject; and to effect this, we know of no method more effectual to adopt as a primary step, than the establishment of "farmer's clubs," or meetings wherein each member is a speaker, and each a hearer, where all may tell of their successes or their failures, with attending causes, where mind holds free and unrestricted intercourse with mind to its own advancement, while good cheer sits the presiding genius of the scene. Such meetings should be regularly held in every town, and if in every school district the better, especially in the more leisure seasons of fall, winter, and early spring, and if they are well kept up one season there is no doubt but they will be called up the next by an accession of members. The amount of knowledge that may be so acquired in a single season we will not attempt to compute. A club of this kind was established in Lenox some three years since, and to say nothing of knowledge acquired by the interchange of practical experience, it has already planted more ornamental trees, introduced more fine fruit and vegetables than had been planted and introduced in the fifteen years previous to its commencement; besides originating a county horticultural society which promises to rank honorably with similar institutions in our country. But it is not in raising trees and fruit alone that

they promise to excel. Every branch of husbandry comes within the scope of their discussions; and in spring, when the labors of the field and garden call out their energetic services, various subjects are given to different individuals on which they are to report the coming autumn. For instance, A has the subject of corn culture assigned to him. Of course he takes notes of all his operations, introduces experiments as he thinks proper, and in due time brings in the result. Now, can any one question the benefits of such meetings, or doubt but they have a tendency to awaken observation and thought in the minds of all who attend them? If they do, let them venture on the experiment for a single winter, and they will find their doubts removed and themselves refreshed in mind as well as body—wiser and better farmers the coming spring. Nor was the spirit of investigation allowed to rest satisfied with the means of improvement furnished by the foregoing causes. Conversation led to thought, and sought resource in reading, and now every member of that club takes at least one, and many of them three or four agricultural publications, which are always fraught with instruction sufficient to counter balance more than ten times the cost of their procurement.

We are well aware of the common plea, (and it is as vain as it is common,) that "such associations are no doubt very useful, but I have no time to do any thing. When the labors of the day are past, I am glad to stay by the fire and rest." The utter nonsense of such excuses is too evident to gain for them a moment's apology; and we have only to look into our own and other communities at the present moment of political excitement to witness their absurdity, with the air ringing with political huzzas, and party demagogues ready to offer their harangues from every stump and balcony; from one extremity of the country to the other, we see our farmers rushing with a zeal worthy of a better cause by day and by night, and swallowing in too many instances absurdities too gross to receive a momentary indulgence from rational and candid men. And still the cry is "we have no time to read an agricultural publication—no time to attend the farmer's club." Is there any wonder in such a state of things that the advancement of agricultural knowledge is so far in the back ground, or that no more interest is felt in improving the general condition of the cultivation of the soil?

Another means of education which may become available to the farmer and his family, is afforded in the well conducted agricultural publications which are now furnished in every section of the country. These afford to the farmer and his family a cheap and highly beneficial source of instruction. Their contents are mainly filled with the researches of practical and scientific men, who are devoting their lives in searching out valuable facts either

from experience or observation; and as such facts are illustrated, throwing them in the way of others at so cheap a rate that every individual may become a purchaser, and often at a great saving in the value of information above the purchase price. How often we have heard it said that "in such a paper I found an article worth more to me than twice the yearly subscription price?" And how much oftener should we have such explanations if all farmers were patrons of such papers and read them as those read who search for knowledge? Every farmer who would "look well to the ways of his household"—who would have his children respect his profession and "rise up and call him blessed," should not only take and read, but encourage his family to do the same, one or more journals.

An important means of educating farmers, especially the rising generation, the hope of the land, may be found in the *common school.* We approve of agricultural professorships in colleges of agricultural schools, and hail their rising as bright heralds of the day, when the profession of the cultivator of the earth shall be elevated to the high position which nature and nature's God assigned it when man in his purity was placed in the garden which the fingers of the Lord had planted "to dress and keep it." Much benefit will come from these institutions. But as we surmised their benefits cannot immediately be extended to all. A large proportion of the young who are hereafter to become the successful farmers of this country, will have no benefits of instruction beyond what the common school, and this perhaps for a limited period, will afford. Knowledge will tend as much to their advancement and happiness as it will to that of others. The means of acquiring it then, should be placed within their reach. This can be done successfully no where but in the humble school room that lifts its unassuming roof on the learner. We anticipate no difficulty, a starting point once obtained in accomplishing this object. We hear the objection that we are crowding too many studies into our common schools; but it should be remembered that the first things for us to learn should be those of most practical importance in after life. And are the studies now pursued in these seminaries all of this character? If so, let them remain and add to their importance those of other branches, such as agricultural chemistry and such other natural sciences as are intimately connected with the labors of the field or the garden. There will be room enough for all if there is a disposition in parents to encourage and in the scholars to pursue them.

The want of suitable teachers to instruct in these branches, may seem an apparent obstacle to their advancement, but it is in no way an insurperable one. In a short time we hope our colleges and agricultural schools will be furnished an abundance of such

teachers. In the intervening time we must do the best we can to remedy deficiencies, and if teachers can be found ambitious in their profession, there is but little doubt but they, by their own energies, will do much in accomplishing their object. What if they take up a new branch of science and become farmers as well as teachers, and thus enrich their own minds by furnishing food for others? The like has been done and can, no doubt, be again successfully acomplished.

In every district school library should be found a liberal quantity of agricultural books, and all the leading journals on the subject should be taken and preserved to make a part of it. In this way it will experience a healthy and rapid growth, and nurture the taste, while it enlightens the mind on rural subjects.

The last but in no way the least important means of educating farmers which we shall notice, consists in home instruction. This should be commenced with in the first lispings of infancy, and then it will "grow with the growth and strengthen with the strength" of the recipient to his latest years, and even when age comes on, bringing with the decay of nature through the toils of life, it will furnish solace for weary hours and sweet reflections on a life well spent. It has wisely been remarked that children are naturalists. Those who have witnessed the fondness of infants for flowers and animals, and other subjects of natural history ere yet their feeble frames could support them, will not question this assertion. It is then only for parents to foster this natural taste for the beautiful and useful, in order to have it expand into the beautiful and useful attributes of educated mind, that is necessary to accomplish our object. Your sons would then become, through choice, cultivators of what they were in infancy encouraged to admire, and in the operation would blend the *useful* with the sweet and the beautiful. The spirit of enquiry which prevails so generally in childhood, if kindly gratified will increase by instinctive nurturings, and education *will come* in consequence, let external obstacles be what they may.

Science in the Kitchen.—Professor Liebig, in a letter to Prof. Silliman, says :—"The method of *roasting* is obviously the best to make flesh the most nutricious. But it does not follow that boiling is to be interdicted. If a piece of meat be put into *cold* water, and this heated to boiling, and boiled until it is "done," it will become harder and have less taste, than if the same piece has been thrown into water already boiling. In the first case the matters grateful to the smell and taste, go into the extract—the soup; in the second, the albumen of the meat coagulates from the surface inward, and envelopes the interior with a layer which is impregnable to water. In the latter case, the soup will be indifferent, but the meat delicious."

WALDWIC COTTAGE.—Fig. 38.

RURAL ARCHITECTURE.

(See plate, Fig. 38.)

We are under special obligations to Mr. Ranlett, editor of the "Architect," for the loan of the cut of "Waldwic Cottage," which adorns this number of our Journal. The number from which we have taken the following interesting reminiscence is the fourth number of the 2d volume, and embraces besides "Waldwic Cottage," four beautiful drawings of villas in the Italian style, together with the ground plans, specifications, estimates, &c.

The circulation of such specimens of architecture, as are found in Mr. Ranlett's work, has already done much to refine and elevate the taste of our countrymen in the erection of buildings, whether for use or ornament, adding greatly to the comfort of the inhabitants and embellishment of our country. The work, when completed, will constitute a scientific and practical guide for the erection of country dwellings from plain cottages to costly and magnificent villas, in the most approved style of rural architecture.

To every person who begins to think of building a house, whether he designs to build on a large or small scale, we recommend this work; and every builder, who has any pretentions to taste, should possess a copy.

The designs are original, and the specifications and estimates are so minutely and clearly made out, the drawings are so full, and the directions so exact, that any gentleman wishing to build, if he adopts any of Mr. Ranlett's beautiful designs, may be his own architect.

"Waldwic is a Saxon word which means *beautiful grove*, and it has been most appropriately bestowed upon the cottage of which we have a fine engraved representation. Waldwic Cottage is one of the few remaining houses in the country which have been consecrated by historical events. It was once, in ante-revolutionary times, the residence of a wealthy English family, and during the war was at different times the stopping place, or head quarters of Washington, and the residence of the beautiful Theodosia Prevost,

who afterwards became renowned as the wife of Aaron Burr. At that time it was called the Little Hermitage, and many of her letters to Burr were dated here. It was while residing here that she first became acquainted with Burr, who was then stationed at Ramapo, not far distant. Davis, in his life of Burr, says, 'The house of Mrs. Prevost was the resort of the most accomplished officers in the American army when they were in the vicinity of it.' Col. Monroe, in a letter to Mrs. Prevost, says that the lady of Col. C—— had promised him to make a visit to the Little Hermitage; and the house is frequently alluded to by other persons whose letters have been preserved in the Burr correspondence.

But the house possesses sufficient interest from its beautiful situation in one of the loveliest and most fertile spots in New Jersey, to entitle it to notice, apart from all historical associations. It is situated near Paramus, on the bank of the Hohokus river, about thirty miles from New York. It is surrounded by the loveliest scenery that can be formed by a combination of rivers, forests, and cultivated plains. On the east is flanked by a noble grove of oaks, on the north by the primitive forest, on the west by the river on which are erected within view, a grist mill, two paper mills, and a cotton manufactory; on the south are the plains of Paramus and the valley of the Saddle river. Only a very small part of the original building, which was a substantial first class country house, now remains. The present owner of Waldwic Cottage, for whom it was designed and rebuilt, and to whom we are indebted for his refined taste and liberality, in giving free scope to our designs in the construction of his cottage, is Elijah Rosencrantz, Esq. None but an architect can fully appreciate the value of this acknowledgment, for there is no other profession whose members are so liable to annoyance and disappointment from the interference of their employers. Patients confidently put their lives into the hands of their physicians; clients trust their property to the management of their lawyers; parents confide the education of their children to teachers, and all trustingly resign the welfare of their souls into the keeping of their pastors; but when it comes to the construction of a house, the most difficult and complicate of all arts, the one which requires the most various learning and the clearest intellect, combined with natural talents for the business —then everybody feels competent to the task of giving advice, of making suggestions and altering the designs of the professional architect. As no one can have a greater interest in the cost and construction of a house than the man who is to pay for it and live in it, it is but right that it should conform to his tastes and means. But whoever employs an architect should first be satisfied of his capacity and honesty, and then having instructed him as to the kind of house desired, he should be left to execute the plans of

his employer; for as none but fools judge of work before it is finished, no sensible man will attempt to make alterations in a house while it is in the process of construction, because no one but the architect who designed it can see the fitness of all its parts, until it is completed. Many a good design has been spoiled by the hasty alteration of the proprietor, and it may be set down as an infallible rule in building that any interference with the architect on the part of the employer, will always result in his loss and disappointment. If a gentleman chooses to spoil his house and waste his money, it is his own business, to be sure, but he has no right to injure the reputation of another person by mixing up his own crudities with the designs of the architect he employs, and who will have to bear the censure of any defects in the house which he may unjustly have the credit of constructing.

Waldwic forms probably as good an example of a complete and well constructed farm cottage villa, as the surrounding country can afford. The design of the house is after the old English style, and it is finished inside and out in the most substantial manner: the walls are constructed of hammer-dressed brown stone, from extensive quarries in the vicinity, the timber of oak and chestnut, and the roof of cedar. The original house, like nearly all the old houses in this part of the country, had a piazza on the western front.

THE LIFE, PRIVILEGES AND PREJUDICES OF THE FARMER.

BY THOMAS BARLOW.

In my previous number of this volume, (page 459,) I dwelt somewhat upon the reputation of agriculturists, the inclination of parents to educate their children for other pursuits, and to abandon agriculture as not so honorable as a professional life. I endeavored to show the evil and folly of this inclination and view of things.

No man is truly honorable, unless he is both industrious and useful. If a man is industrious, his industry must be of an useful kind to be honorable. That agricultural industry is among the most useful, all must admit; and it must follow of course that those who pursue it, must class among our honorable and useful men, so far as vocations are concerned.

One great thing that has tended to prejudice the minds of many against agricultural pursuits, is the backward condition of the farming classes in a literary point of view. That literary im-

provements, and scientific advancements elevate the man, there can be no doubt. Whilst an illiterate man may be an upright, honest and honorable man, he is far from occupying that high station which intellectual improvements would qualify him for.

Many farmers are obstinately opposed to educating their children which they intend to bring up as farmers. They seem to think it prejudicial; that if they educate their sons, they apprehend they will feel "above their business."

One thing is certain, if all farmers were educated, then their sons would not feel such a vain pride; for they would see those with whom they were to live and associate, were an educated and enlightened class of people. The cause of popular education in our great state is rapidly enlivening the "whole lump," and the rising generation is growing up in intelligence, and will discard a thousand prejudices which have sat like an incubus upon the calling of the farmer.

Not many years ago, the prejudice of the farmer against improvement and change was so great, that it was all but impossible to get implements of new or improved forms and kinds into their hands. I can remember when the bull-plow was the only one in use, and the patent plow was condemned without trial, as good for nothing, and as an expensive thing, got up for mere speculation by some one who knew nothing about farming. They desired not to depart from the ways and implements of their fathers, and would lay it down as truth which need not be controverted, that their experience was better than all the study, theory, and mechanics in the world. But this stubborn prejudice has given away, and the beloved old bull-plow is among the things thrown aside forever. "Paper farming" has been denounced by an universal voice; that is, agricultural instructions through the press in books and periodicals.

Farmers have been so opposed to agricultural papers, that they have scarcely been willing to look at one. "Away with your book farming," said they, "I would rather hear what my neighbor Dunham said about fixing his field for corn one minute, than read your papers a week."

They were willing to hear neighbor Dunham talk, and would confess they were usefully instructed, but did not see that their neighbor might write out his information, and that it would be equally true and instructive on paper. Prejudice blinded them. But we now see these scales falling off, and the farmers are learning many things from periodicals and books, which lessen their toil, improve and restore their lands, and cultivate their taste and minds.

There is scarcely a branch of education that would not be useful to the farmer, either as a source of pleasure or profit. A

knowledge of chemistry is all important as people begin to concede. Botany would be useful and pleasing. For a farmer to be capable of analyzing the flowers of his field as he sees them aronnd him in his labors and travels over his farm the season through, in all their beauty and variety, would add interest and enjoyment to his life.

Then he would see the richness, use and beauty of those splendid ornaments of his hills and meadows, over which he now walks with indifference, or beholds them only as noxious weeds, offensive to his eye. With a knowledge of mineralogy, he would take pleasure in examining every thing forming his hills, rocks and soils, and in his soil. So with geology, and every branch of natural history. With a knowledge of entomology, every worm or insect now loathsome to his sight, would be interesting, even though it be injurious and predatory in its habits. The transformations from the larva to the perfect insect which he would constantly behold in infinite variety, would teach him the great wisdom which pervades the living world as established by the Great Author of all things. Ornithology would awaken him to the habits, language and songs of the birds which render his arbor, orchard and woodlands vocal with music, which otherwise he will see or listen to with indifference, and scarcely know or care when they come to cheer the land, or when they go to visit, cheer and enliven other climes.

Without a mind to see and appreciate all these things, our lands might as well be under a monotony of eternal barreness, so far as ornament and taste are concerned. Variety is the great source of pleasure of this world. And in order that we might enjoy the world in which we are placed, boundless variety prevails, and the farmer has the best possible opportunity of realizing the enjoyment of it, if he would awaken his senses to what is around him.

"This is all true," says the farmer, "but we have no time to study all these things, or if we understood them, we have no time to give to them." This is a great mistake. If one-half the time which is spent idly, should be given to study, a knowledge of all these branches would soon and easily be attained.

The habits of the farmer cause him to move in one continuous round of toil, to the almost entire neglect of reading and study, so much so, that it is believed by many, that his life is one of drudgery and slavery. This continuous toil, as I said, causes the neglect of books, and the neglect of books and study superinduces greater disadvantages in labor. If the laboring man performed his tasks with the advantages of an enlightened mind, he would save much, both of his time and strength.

Why should the life of the farmer be one of perpetual hard labor? There is no necessity for it. That he must be industrious, I will concede, and so should all men be, but he should not be a slave to the denial of all privileges of an intellectual nature. He can graduate his hands so as to take more or less time to himself weekly, for reading and study, and thereby cultivate a taste for books, the arts and sciences, and break the monotony of heavy toil, by a change that will greatly sweeten life, by adding to his knowledge and enriching his mind. A brief time daily at morning, noon or evening, devoted to books, will soon render a man familiar with almost any branch of education. It is truly surprising to see how many branches a man can learn, if he will give attention to it. If one-fourth part of the time which our farmers and mechanics spend idly, should be devoted to study, the improvement consequent upon it would surprise those who would pursue the course for a short time.

Our country, our government, our institutions, are all calculated for the recognition of our laboring classes as the privileged ones of the people. They are the source of our wealth and strength. Let them become educated, and our country may then be envied above all others on earth. We may then be truly called a great, a powerful, and an enlightened nation. But whilst the thousands and tens of thousands tillers of our soil remain ignorant or stand indifferent to intellectual and literary improvement, and numbers will set perching upon the reputation of their calling, and the agriculture of our country will be kept far in the background of the standing and prosperity it shold realize in the industrial pursuits of nations. An observer of the changes that come over the moral, social and literary conditions of a people, when he casts an eye over the world at this time, behold the yeomanry of this country far in advance of that of any other country in intelligence and moral standing; and not only this, but he can also see a great change in gradual progress of advancement in a social and literary point of view. We must not expect too rapid a progress. We are a great people, and the popular mind is like a mighty sea, which is not to be moved too hastily, but may by gentle, steady influences be turned into a current to run as wisdom and prudence shall dictate, and honor and prosperity shall require. We have cause to feel a pride in our country and her institutions, which no other country can feel; and this because our country is free, and its safety, wealth and prosperity are in the hands of the common and laboring classes of the people, rather than in those of an aristocratical few. *Esto perpetua.*

SCIENCE OF FARMERS.

BY LEVI BARTLETT.

The investigations and researches of chemists, have pretty clearly established many of the great principles of vegetable physiology. They have, as it were, with much exactness, ascertained the chemistry of vegetable food, or the sources and nature of the nutrition of plants, as also the relation subsisting between the seed that is deposited in the ground—the soil which furnishes the mineral or *inorganic* parts of plants, and which are found in their ash, after being burned—as well, also, as the nature and properties of the combustible, gaseous, or *organic* portions of plants which are dissipated and fly off into the air when burned.

The seed, as every one knows, when planted in the soil, and under favorable conditions, soon sends its shoot upwards, and its root downwards, both of which extend and enlarge; if the seed be that of an oak or a pine tree, this process of enlargement goes on for centuries, till this growth prepares the oak for a keel, or the pine for a mast of a "ship of the line."

Agricultural chemistry has most fully, further established the fact, that, all *that* the soil has furnished towards the growth of the largest tree, is what remains in the form of ashes, after being burned in the fire; and how small a portion in bulk is the ash of a tree, compared with its wood before being burned; an 100lbs. of pine wood leaves less than half a pound of ash, when completely burned. Well, say some, "if an 100lbs. of pine wood has only drawn half a pound of its weight from the soil, from what source has the 99½ lbs. that burns away been derived?" Well, kind reader, to attempt to answer this question, is the object of this article. In the ash of our cultivated plants there are found some ten or eleven elementary earthy substances, viz.: potash, soda, lime, magnesia, alumina, silex, iron, manganese, sulphur, phosphorus and chlorine, and these constituents of plants are termed *inorganic*, but as has been observed, they make up but a very small portion of the bulk of plants, and some of them are found in the ash in very minute quantity, but yet, they all seem to be essential to the healthy growth and full maturity of plants. These substances are invariably found in the ash of plants, not merely because they were in the soil in a soluble state in which the plants grew, but in accordance with those fixed physiological laws that govern the vegetable world, and so stringent are those laws, that a soil deficient in a very few of these inorganic bodies, cannot yield seed capable of reproducing its kind, they are absolutely essential to the full and perfect developement of the seed bearing plants.

There are four other elementary bodies that enter into the growth and composition of plants, and it is from these that the greater part or bulk of plants and animals are composed. These four substances are oxygen, nitrogen, hydrogen and carbon. The three first of these are known to us only in a gaseous form. Carbon is pure charcoal, and when burned, it combines with the oxygen of the air in certain and exact proportions forming carbonic acid, These four are termed by chemists *organic* bodies, and they are susceptible among themselves (and with the inorganic constituents of plants,) of forming an infinity of chemical combinations, and yielding an endless variety of products.

The atmosphere we breathe, and in which plants grow and live, is composed principally of a mixture of oxygen and nitrogen gases, in the proportion, very nearly, of 21 of the former to 79 of the latter. It also contains as a constituent necessary to the very existence of vegetable life, a small per centage of carbonic acid, on an average of about one twenty-five hundredth part, and however incredible it may seem to those unacquainted with agricultural chemistry, yet it is a fact, that from this source is derived about one-half of the solid substance of all plants that grow upon the face of the whole globe.

At the first view it would seem impossible that this apparently small amount of carbonic acid diffused through the atmosphere could supply to growing plants the *carbon* found in their solid parts, as it amounts to from 40 to 50 per cent of all trees, plants and vegetables, in fact all the parts of plants which are cultivated for food of man or animals, and unquestionably most of this carbon is derived directly from the air, by the agency of the leaves of plants, although there can be no doubt but a small portion of it is taken up by the roots mixed with water, and some of the inorganic matters that are in solution, such as potash, lime, &c.

When we reflect that the atmosphere not only entirely surrounds the earth, but extends in every direction about 45 miles, " and if the whole acid were collected in a stratum or bed occupying the lower part of the atmosphere, such a stratum would have a thickness of about thirteen feet," and this would be spread over the entire waters of the oceans, seas, lakes, rivers, the deserts of sand, the frozen regions of the poles, and in fact over every part and place of the globe, and by the wisdom of the Great Contriver, this gas is in innumerable ways, returned to the air as fast as abstracted by growing plants—here, then, our wonder ceases.

We know, if we take a given quantity, by weight, of well-seasoned wood, and distil it in a close vessel, or burn it in heaps covered over so as to exclude the free access of air, wood charcoal is left behind. When this process is well performed, the charcoal will weigh from 40 to 50 per cent as much as the wood

did.* The charcoal consists of *carbon*, with a slight admixture only of earthly and saline matter which remains behind when the coal or carbon is burned in the open air. When the charcoal or carbon is burned in the open air, it combines with the oxygen of the air to keep up the combustion, and the whole of the coal enters into a chemical union with the oxygen, and forms carbonic acid, or in other words carbonic acid consists of oxygen, with a definite and fixed quantity of charcoal or carbon *dissolved* in it. This gas is composed of two proportions of oxygen and one of carbon. In this state it is taken in by the leaves of plants. The leaves of plants are their lungs, and they possess the power of absorbing from the air, carbonic acid, and in day light it is decomposed, but much more rapidly in clear sun light. When thus decomposed in the leaf, the oxygen is set free, and is again restored to the atmosphere, the carbon is retained and mingled with the *true sap* of the plant, and in obedience to those mysterious laws of chemical combinations, is made to form a moiety of the endless variety of wood, fruits, seeds, &c., &c., which are the results of vegetable life.

It may seem a mystery, how the leaf of a plant can take from the air the carbonic acid, when in such apparent small quantity, and separate the carbon from its oxygen. We grant it is a mystery; but then we know for a certainty the fact of the leaves of plants possessing this power of absorption and decomposition; it is the way the growth of a plant has been provided for; the Creator has so willed it.

Plants take from the atmosphere by their leaves, carbonic acid, a deleterious gas, and decompose it and restore to it the oxygen; that is taken into the lungs of animals, combines with the carbon of the food, and by the process of respiration is given off to the atmosphere in the form of carbonic acid, the food of plants.

It is sometimes said, that politicians and gamblers play into each other's hands for their own private good. Animals and plants perform a more honorable operation; they play into each other's mouths for the general good.

It is no more mysterious how this invisible elastic gas can be converted into wood, or other solid substances, than are many other of its wonderful and well known combinations.

Every 100 lbs. of pure marble or limestone, as taken from the quarry, contains in round numbers 44 lbs. of this very gas. By subjecting the marble to a long continued red heat, this gas is driven off, and leaves but 56 lbs. of lime.

In this place, there is a pearl-ash factory. In every 100 lbs. of pearl-ash, the manufacturer sends to Boston, (the place of sale,) there is 32 lbs. of this gas, combined with 68 lbs. of caustic pot

* The moisture, or water in wood, or other vegetable productions, is not the solid part; potatoes when sliced and dried, lose 70 to 80 per cent of water.

or pearl-ash; or, to place it in another point of view, in sending 72 lbs. of pearl-ash, 22 lbs. of it is carbonic acid. The pearl-ash is there taken to the distillery, and a current of dry carbonic acid gas is made to pass through it, where another definite portion of the acid is made to combine with it, and the 70 lbs. of pearl-ash comes out 92 lbs. of salæratus; that is, 22 lbs. more of this gas is fixed in the pearl-ash. At the distilleries, this gas is disengaged in large quantity, from the molasses and water, while fermenting, preparatory to its being distilled into spirit. Now, can any one tell precisely how this 44 lbs. of dry gas got combined with 56 lbs. of lime, so as to form 100 lbs. of marble? Or, how 44 lbs. of carbonic acid entered into combination with 48 lbs. of caustic potash, to make 92 lbs. of salæratus? Whether any one can tell the "how and the wherefore" of this, it matters not. We know the fact, and we know further, that provision has been wisely made to keep up an equilibrium, or a constant quantity of the several components of the atmosphere. The diffusibility of gases regulates this. So, too, the "supply and demand" of carbonic acid has been provided for by Infinite Wisdom. Every cord of wood that is burned, restores to the atmosphere just sufficient carbon to grow another cord of wood.

Whether this *burning* is effected by the rapid combustion of fire in a steam engine, or the more tardy combustion, by the rotting process, ultimately it amounts to the same thing, and there is not an animal that breathes, nor a fire that burns, nor a particle of animal or vegetable matter that perishes unburied upon the earth, that does not yield to the atmosphere certain gases. We see them rise in the smoke from a fire, in the steam from a dung-heap, and from our own breath in frosty weather. Where do they go? Are they lost? No; there is no such word as *lost*, in the whole vocabulary of nature. Is the steam or vapor that rises from a vessel of boiling water lost? No; it rises into the atmosphere till it meets a colder stratum of air, and is condensed into water, and again gently descends to the earth, and hangs upon every leaflet and every blade of grass, in drops of pearly dew, or in larger masses falls in the rain, hail or snow. So, too, the gases arising from the combustion, putrefaction or decomposition of animal or vegetable matters, are, in the economy of nature, through the agency of vegetable life, again worked up into wood, hay, grain, roots, flesh, tallow, &c., &c.

But however abundant the organic food of plants may exist in the "free air of heaven"—however largely they may abound in simple mould or soil," or in the rains and snows that fall from the clouds—they will avail the indolent or ignorant farmer but little, if he neglects to supply to his soil, if it is deficient in them, the equally important mineral or inorganic constituents of plants; for without these in a soil, from which the skeleton or boney frame-

work, as it were, of a plant are formed, the organic bodies (oxygen, nitrogen, hydrogen and carbon,) can not be transformed and organized into vegetable tissues. But with a full supply of the mineral matters required for the growth of plants, and in a soluble condition in the soil, we can grow the largest of our cultivated crops, without the aid of guano or stable manure, (reputed so valuable from their organic constituents,) as is fully proved by the fertility of subsoils thrown from ditches, cellars, wells, and the cuttings of rail-roads; and also from the heavy crops of corn, grain, hay, &c., raised upon newly cleaned *burnt* land, and upon the ocean prairies of the west.

Said our friend Tucker, of the Cultivator, "Let it be remembered, that every plant requires its *specific* food; and that each successive crop, or generation of the same kind of plant, takes something from the soil. Hence it necessarily follows, that this loss must be supplied, or exhaustion will follow, and as the food required for the plant is lessened, it is evident that the amount of produce will be lessened in a corresponding ratio."

Here we have a whole volume of instruction embodied in one single sentence; and when *we*, practical farmers, shall have truly learned what this *something* is, "that each successive crop, or generation of the same kind of plant takes from the soil," and the *most* economical way of restoring this *something* to the exhausted soil, we shall have accomplished one great and important step in the *science* of farming. *Warner, N. H., Aug.*, 1848.

Fattening Animals.—A memoir was read to the Academy of Sciences, at Paris, by M. M. Dumas, Boussingault, and Payan, "Of Researches on the fattening of animals, and on the formation of milk." These philosophers announce their belief that fatty matters are formed in plants alone; that they thence pass, ready formed, into the bodies of herbiviri, entering the chyle duct by the lacteals, and so passing into the blood; that the first degree of oxidation forms stearine or oleac acid; a further degree produces the margaric acid which characterizes fat; a still further degree the volatile fatty acids—in opposition to Liebig, who traces the origin of fat to the sugar or starch of the food. In confirmation of their views, they show that hay contains more per cent. of oleaginous matter than is produced in the butter from a cow fed on this hay; and that cows fed on potatoes, or other roots poor in fat, produce much less butter. They advance an influence, which bears much on rural economy, that a cow eliminates twice as much fat from a given quantity of food as does an ox; and hence the commerce of milk and butter deserves a high degree of attention. Some relative experiments on fattening pigs bear out the same general principles.—*Pol. Review.*

THE POTATO DISEASE.

BY PROF. C. DEWEY.

The disease and destruction of one of the great staples of food for man, is fitted to arouse attention and awaken interest. When that destruction secures the loss of a third or half of a crop, which has been relied on as the aliment of the laboring millions with their children, the demand of the *cause* and the *remedy* of the disease becomes loud and even oppressive to the feelings of humanity.

This disease was first announced in England in 1845, and appeared, it is believed, about the same time in New England, and in the same or the succeeding year in the state of New York. It is said to have appeared fifteen years earlier in some parts of Germany, and to have extended itself so widely and fatally as to have attracted the attention of the government a little earlier than the year first mentioned.

Various causes have been assigned to this disease.

Some have maintained that worms, which eat in the stalk and descend toward the root devouring the interior part of the plant and poisoning its juices, are an adequate and the true source of the disease. That worms have often been found in the plants whose roots or tubers were attacked by the disease, there can not be a doubt. But whether they have been the cause or resulted from a specific disease, has not been ascertained, and seems not to be in a probable way of ascertainment.

Others have attributed the disease to the soil, the wetness of the season, the manures, and all the related sources. Though a drier soil seems more exempt from its ravages, no such connection has been traced to any or all of these operations as is satisfactory.

Trees and herbs die occasionally in the midst of their usual life without the influence of insects upon them, from a disease affecting primarily the leaves.

A distinguished German philosopher tried to prove that it arose from an excessive development of the flowers of the Potato and the upper portions of the stalk, by which development the fertilizing juices were prevented from descending, and the death of the plant at the root and the gangrene or mortification of the tubers were the result. The remedy proposed was the cutting off of the upper branch when the stalk was near a foot high and again when new branches had appeared at a greater height. Some farmers in our country had already practiced cutting off the diseased tops, and were partially convinced that the disease was arrested by this operation. How improbable is this supposed

cause, when such numbers of fields this summer have yielded a most luxuriant crop of flowers and foliage with very little, if any, indications of the disease.

Another distinguished writer attributed the disease to *fungi* forming within and without the tubers. It is agreed that the diseased tubers are infested with various fungi, but this is true of most decaying vegetable matter, and fungi are more probably the consequence than the cause of the disease.

Another cause assigned by some individuals and feared by more, is that the Potato, being all of them varieties of the same plant, and propagated by tubers so as to be considered the continuation of an individual, has lived through its allotted period and is disappearing under the infirmities and decrepitude of old age. This is the force of the prediction ascribed to Cobbett, and resembles many of the absurd notions of that generally wise man. Though the oak and many vegetables attain to a certain age and then die, it is yet to be proved that propagations by tubers, which are the mere reservoirs of the most nutritious matter for the use of the new plants to be developed from the eyes or buds, are governed by any such law. Besides, new forms of the Potato have been propagated from the seeds in the balls of this plant. As probable is it that wheat, produced from its seeds, shall in like manner be exterminated. Add to this that it has not been the course of Divine Beneficence to destroy the food of man utterly or without a better substitute.

From the influence of light on growing vegetables, others have asserted that there is a deficiency in the quantity of light sent from the sun to the earth, and that the disease originates in this supposed fact. The difficulty with this view is, that the fact is not known to exist. It is far more probable that light is sent to the earth in its usual amount. Why should not other plants be affected by this supposed cause of the disease?

A later notion is urged by Mr. Smee, a British surgeon of eminence and the author of an excellent work on Electro-Metallurgy.

Mr. Smee ascribes the disease to an insect which infests and infects the leaves of the plant, and destroying the leaves produces a diseased state of the fluids which affects and often destroys the stem and the tubers. The solid portion of the sap is extracted by the insect, and the remaining sap, being "too fluid," does not perform its proper office, and the leaf and stem decays, while a *gangrene*, *dry* or *humid*, for Mr. Smee finds both in the roots, destroys the tubers.

This insect is named by Mr. Smee, *Aphis vastator*, or Aphis the Destroyer, from its deadly ravages, and he believes it to be the *Aphis rapae* of Curtis, which was so named because it infested the white turnip. The Aphides form a large family of small in-

sects, many species of which multiply with astounding rapidity, producing many generations in a summer, and a single Aphis in five generations, being the "progenitor of 5,904,000,000 descendants," according to Reaumur. They are to be seen in great abundance on the leaves and stems of a multitude of plants both herbs and trees. They exist in three states, the larva, pupa, and winged state. Mr. Smee indeed believes that the A. vastator is also *viviparous* or brings forth its young alive, which is rather improbable.

The A. vastator is about one-tenth of an inch long in its maturity, with a large heavy body, of a greenish or olive color, and brownish in its advanced state, having two long and seven-jointed antennæ which are turned in its quiescent state from its head backwards along the body, and in its perfect state having two pairs of wings of which the forward pair have twice the length of the other, and furnished with two abdominal spines projecting backwards from near the extremity of the body; the beak or rostrum, by which it feeds on plants, is about one-fourth as long as the body, of three parts like to tongue and jaws and finely fitted for piercing the leaves and drawing up the aliment.

This Aphis vastator has been found in great numbers on the Potato the present summer, in Pittsfield, Mass., and carefully examined under a small and large magnifier, and identified as the insect described by Mr. Smee. Its numbers and its ravages on the Potato, Cabbage, Pigweed, Hop, and other plants, correspond to the descriptions of Mr. Smee, for he mentions perhaps thirty plants on which it lives, and on some of which it produces effects similar to those on the Potato. The male insect was not certainly recognized by Mr. Smee, and, if seen in Pittsfield, is destitute of the abdominal spines. Wind and rain have destroyed them here as in England; and here too, they are followed by the same enemies, which destroy such multitudes of them, the *Lady-bird* or *Coccinella*, and the *Scacoa pyrastri*, as figured by Mr. Smee.

The wings of A. vastator enable the insects to diffuse themselves widely and rapidly. They have not been noticed in such clouds as described in England. The Potato disease is known this year in Berkshire county, but has not yet been ascertained to be much destructive. Some careful observers have noticed the decay of the leaves as connected with the prevalence of this Aphis, and the resuscitated energies of the plant on the disappearance of the Aphis vastator after storms of rain and wind.

No remedy, proposed by Mr. Smee, is adequate to prevent the existence of the disease. The Aphis is so small, multiplies with such rapidity, is so protected by the position on the under side of a leaf, and carries on its work in a manner so noiseless and fatal, that its ravages must go on.

After all the examination and reasoning of Mr. Smee, there seems to be only a remote probability that he has ascertained the cause of the Potato Disease. The conviction is likely to remain, that this is one of the inscrutable visitations by which Divine Benevolence chastises guilty nations and teaches them their dependence on him for their "daily bread."

To the writer it has appeared far more probable that this is a disease, like the epidemics among men, and diseases of like nature among cattle or other animals, for which no adequate cause is known or which depend upon operations in nature which have so far been inexplicable. It will have its course like the Cholera, and in the same easy manner disappear under the operation of the benevolent arrangements of the Creator.

The fact urged by Mr. Smee, that the diseased tuber will continue the disease in the new plant appears to imply a cause which has a deeper seated origin than the action of insects on the leaves. At least a more extensive series of observations is required before this conclusion can be received.

The *Sweet Potato*, which the botanists name *Convolvulus batata*, and which has a vine-form stem, was introduced into Europe and well known before the year 1600. This is the Potato intended by Shakspeare, and seems never to have been cultivated to much extent in England, and is at this time rare and dear in that country.

The Common Potato, *Solanum tuberosum* of botanists, is a very different plant. It was first figured in Gerard's Herbal in 1597, and is a native of South America, growing wild and bearing only small and indifferent bulbs or tubers. By cultivation the tuber is larger and more nutritious. It is not certain by whom it was introduced into England, though it is commonly ascribed to Sir Walter Raleigh. It was the cultivated Solanum of Europe, which was brought to these States, and has become of such vast consequence as an article of food. Many varieties have been cultivated in this country, and at the *Horticultural* Gardens, it is stated by Mr. Smee, "two hundred kinds" (varieties) are cultivated, though not more than a tenth of these find a place in the markets of London.

The nitrogenous products of vegetables, or those parts containing nitrogen, are directly nutritious, and are found in very different proportions in the articles used for food by men. Thus 67 pounds of Peas, 108 of Buckwheat, 111 of Rye, 177 of Rice, 138 of Indian Corn, and 613 of Potatoes, are equivalent to 100 pounds of Wheat Flour, as given by Mr. Smee p. 20.

It is also stated by this author, that six pounds of Potatoes were alone an adequate daily allowance for a man, though an Irishman is said to eat several pounds more in a day.

"The Potato plant affords, for the labor and space required for its cultivation, more alimentary matter than any other plant whatever, and on that account is a valuable source of food for mankind." Page 138.

"It yields carbon for the lungs, nitrogen for the muscles, phosphorus and iron for the blood, lime for the bones; and in fact a human being might live on Potatoes alone." Smee, p. 139.

Such a plant is the bounty of God to his rational creation; its more perfect cultivation is a benefaction to the nation; practical protection from diseases and remedies for them are at once an obligation and a blessing to the human family.

SOMETHING ABOUT FOWLS.

New Duck.—There has been read to the Zoological Society the description of a new species of Duck, (*Fuligula ferinoides,*) by Mr. A. D. Bartlett. Three examples having passed through the hands of Mr. Bartlett, which appeared to resemble rather too closely to admit of their being hybrids, as was supposed of the first which occurred, the author was induced to examine all the species of this genus which are known to inhabit Europe and America. The result has been his conviction that the birds exhibited are not only new to Britain, but have hitherto escaped the knowledge of naturalists altogether. The capture of a female will complete the evidence ingeniously adduced by Mr. Bartlett; and his discovery will be a subject of interest to the students of British and northern ornithology, to whom a new species is now a thing scarcely to be hoped for.—*Book of Facts.*

Ways for Distinguishing the Age of Poultry.—There are various ways of deciding the age of poultry. If the bottom of the breast bone, which extends down between the legs, is soft and gives easily, it is a sign of youth; if stiff, the poultry is old. If young, the legs are lighter, and the feet do not look so hard, stiff, and worn.

There is more deception in geese than in any other kind of poultry. The above remarks are applied to them; but there are other signs more infallible. In a young goose, the cavity under the wings is very tender; it is a bad sign, if you cannot, with very little trouble, push your finger directly into the flesh. There is another means by which you may decide whether a goose be tender, if it be frozen or not. Pass the head of a pin along the breast or sides, and if the goose be young, the skin will rip like

fine paper under a knife. The web between the toes, when young, is tender and transparent; when old, coarser and harder.

Nest Eggs.—To those who keep fowls, and desire eggs in winter, a good nest is important. The qualities of a good nest egg is a tolerable resemblance to a real egg. A hen will not lay to an egg shell, however perfect it may be, for she knows by its want of weight that it is a counterfeit.

A good nest egg may be made of solid white maple or hickory wood turned to the right shape. But every one has not a lathe, and such eggs are not always to be had. Another nest egg which may be made by any body, any where, was lately described to us, says the editor of the Prairie Farmer, by Mr. D. Lathrop of Lasalle, a gentleman who keeps one hundred hens, and is very apt to find out the best mode of doing any particular thing.

The eggs are made of clay, formed to the right shape, in the hands. After being dried they are whitewashed; when they are ready for use. The matter is so simple, that it only requires to be thought of to be available. These eggs answer the purpose perfectly, the hens accepting them as fully as those of their own make.

But the best artificial nest egg we have ever tried was made of plaster, in the following manner. Take an egg and break a small hole in one end, of about a quarter of an inch in diameter; in the other make a small hole with a pin, and then blow the contents out of the large hole. Then take some calcined or boiled plaster, and make a thin paste with water, and fill the shell, which soon sets and becomes hard, and would even deceive a biped of larger growth.

Size of Poultry.—Small boned, well proportioned poultry greatly excel the large boned, long legged kind, in color and fineness of flesh, and delicacy of flavor; for it is held good, that all animals of the domestic kind, those which have the smallest, cleanest, finest bones, are in general, the best proportioned, and are covered with the best and finest grained meat; besides being, in the opinion of good judges, the most inclined to feed, and fattened with the smallest proportionable quantity of food, and the greatest comparative weight and size.

Killing Poultry.—The best method of killing fowls is to cut their heads off at a single blow with a sharp axe, and then hang them up and allow them to bleed freely. By this process they never know what hurts them, or endure pain for a second. Wringing the necks of poultry is almost as shocking as nailing their feet to planks, for the purpose of fattening them, and follows in the same barbarous category.—*Am. Agriculturist.*

WHEAT—METHOD OF INCREASING A CROP FROM TWENTY TO THIRTY BUSHELS.

BY IRA HOPKINS.

Where you have a good clover sod, let the clover grow until the first of June; then turn the clover all under, and roll the sod smooth and pulverize the ground with a light harrow, and about the 25th of June, sow 2½ bushels of corn to the acre; after harrowing it well roll the land smooth. About the last of August take your roller and press the corn down as flat as possible, (going round with the roller the same way you intend to plow the land,) then plow as deep as possible, and turn the corn all under, and follow with the roller, pressing all down flat.

Thus, you have two crops well mixed with the soil for manure. Then take a light harrow or cultivator and pulverise the ground fine and sow your wheat the middle of September, and if you do not have one-third more wheat than you do when you summer fallow, tell me I am mistaken in a cheap way for manuring land. The corn will grow so thick that it will keep every other vegetable down, and leave the land clean.

Auburn, September, 1848.

POMOLOGICAL CONVENTION.

The meeting of the Pomological Convention took place at New York as appointed on the 10th instant, and Gen. Talmadge was appointed temporary chairman. It was soon perceived that all the operations had been pre-arranged by an *eastern* clique, and even lists of names for officers and committees, all cut and dried, were placed during the initiatory proceedings in the hands of the temporary chairman, (but without any idea of the trick on his part) so as to insure to the clique referred to, the entire control from the advent, and every one whose homage was not sure, or who stood prominent in the State Agricultural Society, or who had enlisted warmly in the Buffalo Convention, was proscribed as a matter of course. The eastern clique after insulting our State Agricultural Society by refusing to send delegates to the Buffalo Pomological Convention, made it their primary object, on the present occasion, to nullify and set at naught as far as possible the proceedings of that primary meeting, in which several more states and territories

were represented, and a much greater combination of general information from remote localities existed, than on the present occasion, and which after having made great and important progress in the proposed investigations, had adopted as their permanent title "The North American Pomological Convention," with a decision that they would reassemble the ensuing year under the same auspices during the period of the State Fair.

In the initiatory proceedings, Mr. Walker, an Englishman, who is the president of the Massachusetts Horticultural Society, was made chairman of the committee for nominating permanent officers, and whom could he possibly think of for president of the convention, but the person who had preceded him in this present station, and who had recently (for fear of a removal, it is whispered,) resigned in his favor. But the most singular circumstance of all is the fact that Mr. Downing, who is a resident of the state of New York, was sent into the convention AS A DELEGATE FROM THE MASSACHUSETTS HORTICULTURAL SOCIETY, being appointed by the wire-pullers, and acting always in concert with them. This appointment, however, and the other honors confered upon him by Mr. Wilder after he became installed as permanent president, can only be viewed as a proper return, "*quid pro quo,*" for the abject fawning hitherto evinced by Mr. Downing, and especially for his biography of that gentleman in a recent number of the Horticulturist.

In selecting Mr. Downing as a delegate, it is however somewhat mortifying to know that the clique in that society discarded the name of C. M. Hovey, a gentleman far superior to Mr. Downing in general knowledge on Horticulture and Pomology, and who has evinced by his original and *unplagiarised* writings during a long course of years, that he is far better acquainted with both these subjects than any other member of the society. He, it appears, has been doomed and set aside, on account of his unconquerable independence of character, for *Haman is mortified that Mordecai will do him no reverence.*

It will be seen by the proceedings that the Massachusetts delegation usurped all the important business of the convention, and that its entire doings may be termed a wholesale attempt to foist particular men upon the community, crowned with Pomological glory, in order that certain nurserymen, (Messrs. Wilder and Walker being both embarked in that business) may command precedence over all others in the sale of their trees and scions, as they already do in the enormous prices they sell them at.

In fact Messrs. Wilder, Walker, and Downing, backed by a powerful delegation from Massachusetts, controlled the whole of the proceedings from the outset on the principle of "I tickle you tickle you and you tickle me."

The labors of the Convention have resulted in rendering but

little benefit to the country, far less than was performed by the Buffalo Convention. A list of 14 apples was reported by the fruit committee, and adopted without much objection as worthy of general cultivation. A list of 14 pears was also reported, one of which was referred back, and others accepted very doubtingly.

The Glout Morceau and the Rostierzer, two of the most eminent variety in point of excllence, and which had been highly recommended by the Buffalo Convention, were left out by some unaccountable lack of knowledge, or by prejudice. Even the Jargonelle, Fondante d'autumne, Dix, Columbia, and Laurence pears were left in oblivion by this highly intelligent committee. Of Plums only 8 varieties were reported, but by special amendment the Purple Gage was added. How this most estimable variety should have been left off and the inferior Frost Gage have been put on, can only be accounted for by the fact, that the Frost Gage (which is only a large Damson) is grown in great numbers from suckers in the vicinity of Newburgh.

The Prince's Imperial which flourshes more generally throughout our country than any other variety, and which is deemed one of the most useful and estimable of the whole class, was reported as "suited only to particular localities." The Lawrence's Favorite, Columbia, Diaprée Rouge, and Red Gage, four of the most estimable varieties, received no notice whatever, but Coe's Golden Drop, which does not mature well, if at all, in several sections of our country, was sent forth to the public as "worthy of general culture." Of Cherries 8 varieties were recommended, and the erroneous title of "Bigareau," misapplied in Downing's work on Fruits, was amended so as to read "Graffion or Bigarreau." Why the Black Eagle, a cherry of honeyed sweetness, and the American Amber, one of the most estimable known, the Flesh-colored Bigarreau, the Sweet Montmorency, Napoleon, Gros Cocuret, Archduke, and others, were left off, and inferior varieties adopted, requires explanation. Of Peaches, ten varieties were reported, but the early Tillots, so highly extolled by Downing, but which numbers declared was both inferior and sickly, was stricken out, and others were stricken out for being erroneously named by the committee; leaving but six out of the ten recommended by them, and two of the remaining six were disputed as to their value.* We here possess a most remarkable proof of the knowledge and discrimination of this Fruit Committee, acting under the advice of Mr. Downing as chairman.

But such results as are here presented might have been expected

* I have just been informed, that a few minutes before the breaking up of the Convention, and when but few persons besides the officers were present, Mr. Downing manouvered to have these three varieties reinstated, which had been voted down in full Convention.

from a committee not selected for a combination of the most information, but controlled by materials best suited for wire pulling. Indeed, the whole object of the controlling clique, seemed to be, not to elicit important information from the members generally, but *to limit the extent of information to the Fruit Committee;* and not to allow any amendments to pass that might depreciate the supposed accuracy of Mr. Downing, the Magnus Apollo of the committee, but to endorse, wholesale, his numerous errors, both past and present. Every proposition to vary or amend the lists of fruits reported by the committee, or to add other highly estimable varieties thereto, was met by the decided opposition and obstinacy of its adherents, and the weak argument advanced, that their adoption would be a reflection on the committee. Even the judicious amendments proposed by Mr. Prince and Mr. Hovey, to add an explanatory remark to certain fruits, as to the unthriftiness of the tree, &c., so that the public might receive them understandingly, were voted down.

At an early stage of the proceedings, Mr. Prince proposed that the Fruit Committee be instructed to report forthwith a list of rejected fruits, comprising such varieties as are unworthy of culture, but this was met by a deadly hostility on the part of the President, Mr. Walker, and others, and was voted down. On the last day, however, the question was again moved, and after the severest opposition from the clique referred to, it was carried, but the committee was not ordered to report until the ensuing year.

It was remarked that the Massachusetts Horticultural Society, although it had existed twenty years, had disappointed public expectation, by not presenting such a list as a general guide to purchasers, but had allowed their tables to be loaded annually with a multitude of base and inferior fruits.

Nothing was done as to the other classes of fruits, during an entire three days' sitting, not even with apricots and nectarines; nor with grapes, although the tables abounded with foreign and native varieties; nor yet with the quince, the gooseberry, the raspberry, the currant or the strawberry. We understand that Messrs. Wilder and Walker do not keep these latter fruits for sale, and therefore it was not necessary the public should be enlightened in regard to them.

With your permission, I will continue my comments on a future occasion. FIDELIUS.

Schenectady, Oct. 16, 1848

STEAM LABOR.—The amount of work now done by machinery, moved by steam in England, has been supposed to be equivalent to that of between three and four hundred millions of men by direct labor.

METEOROLOGICAL OBSERVATIONS FOR OCTOBER, 1848.

Made at the Albany Academy, by Rev. W. H. Campbell, Principal, &c.

Days.	THERMOMETER.				WINDS.		WEATHER.		RAIN	REMARKS.
	6 A. M.	3 P. M.	9 P. M.	Mean.	A. M.	P. M.	A. M.	P. M.	Inch's	
1	62	63	56	58·50	N.	N.	Cloudy.	Cloudy.	0·25	
2	51	56	51	52·50	N.	N.	do	do	0·96	Rain.
3	50	57	52	53·17	N. W.	W.	do	do	0·65	
4	51	61	59	57·83	N. W	N. W.	do	do		
5	56	65	59	59·17	N. W.	N. W.	Clear.	do		
6	51	63	51	54·	N.	N. E.	do	Clear.		
7	45	68	60	59·83	S.	S.	do	do		
8	58	53	44	48·33	N. W.	N. W.	do	do	0.05	Rain.
9	38	58	41	47·50	S.	S.	do	do		
10	49	62	48	50·50	S.	N. W.	Cloudy.	do		
11	34	54	46	45·00	N. W.	W.	Clear.	do		
12	36	63	53	50·67	S W.	N. W.	do	do		
13	36	55	45	45·83	N.	N. W.	do	do		
14	39	59	52	50·66	S.	S.W.	do	do		
15	43	65	54	54·33	N.	N. E.	do	do		
Semi-monthly mean, 52·52									1·91	
16	45	66	65	61·33	S.	S.	Cloudy.	Cloudy.	0·06	Rain.
17	61	64	52	57·67	S.	N. W.	Clear.	do	0·33	Rain.
18	41	43	40	41·17	N.	N.	Cloudy.	do	1·50	Rain.
19	40	46	47	45·17	N. W.	W.	do	do	0·05	Rain.
20	45	49	46	45·33	W.	N. W.	do	do		
21	37	51	46	45·50	S. E.	N.	do	do	0·27	Rain.
22	42	49	42	43·50	N. W.	N. W.	Clear.	Clear.		
23	37	51	42	43·33	N. W.	N. W.	do	do		
24	37	48	49	46·00	N. E	N. E.	Cloudy.	Cloudy.	0·14	Rain.
25	45	55	43	47·00	N. W.	N. W.	Clear.	Clear.		
26	41	54	48	47·50	S.	S.W.	do	do		
27	40	55	46	46·17	N. W.	N. E.	do	do		
28	35	57	50	49·83	N.	S.	do	do		
29	50	62	57	57·33	S. E.	S.	Cloudy.	Cloudy.		
30	56	66	56	59·	S.	N. W.	do	Clear.		
31	54	56	57	52·83	S.	N.	do	Cloudy.	0·05	Rain.
Semi-monthly mean, 49·29									2·40	

Monthly mean,.... 50·90. Rain Gage 4·31.

1st, Rain from 3 P. M. to next noon,..... 0·25
2d, Rain from 2 P. M. to next morning,..... 0·96
3d, Rain from 3 P. M. through the night,..... 0·65
8th, Rain early A. M..... 0·05
16th, Rain, evening,..... 0·06
17th, Rain from 9 P. M. at intervals till next noon,..... 0·33
18th, Rain from 4 P. M. to 6 A. M.,..... 1·50
19th, Rain during the day and night,..... 0·05
21st, Rain 3 P. M. and during the night,..... 0·27
24th, Rain during the day,..... 0·14
31st, Rain, morning, ... 0·05

Rain Gage,..... 4·31

Winds.—North 6; North East 2½; East 0; South East 1; South 7; South-West 1½; West 2; North-West 11.

Weather.—Fair 17; Cloudy 14 days. Rain on 9 days.

Warmest day 16th, Highest 68°,
Coldest day 18th, Lowest 35°.

AMERICAN JOURNAL

OF

AGRICULTURE AND SCIENCE.

CONDUCTED BY C. N. BEMENT, ALBANY.

VOL. VII. DECEMBER, 1848. No. 12.

WINTER IN PROSPECT—DECEMBER.

Winter, stern winter is upon us, with all its glories and all its terrors. December is the last—the old age—the grave of the year. The sun rises late and sets early. Dark clouds obscure the sky—howling tempests greet the ear—blast follows blast, and the dismantled groves moan and roar:

> "On driving gales, sharp hail indignant flies,
> And sleet, more irksome still, assails our eyes."

All nature is bound in icy fetters; the fast falling snow is filling the road and blinding our eyes; and the frozen earth yields no sustenance to animals.

We have traveled with the year, from month to month, and the year has traveled with us. It has brought us to the verge of December, and winter. Our month in prospect is the only month left to complete the year and calendar. Frost, the harbinger of whole months of settled cold, has given us unmistakable evidence of a visit—cut down our tender plants, and warns us to barricade our premises against his intrusion. Once more, therefore, we may look for frosts, sleet, hail, snow, and the sharp salute of keen "north-westers."

Now let us examine the other side of the picture. Nature has been both bountiful and kind to the husbandman. His garners are well filled and his heart gladdened by the unfailing beneficence of Providence. Dwelling constantly in the presence of Nature, and beholding the seasons in their round, he drinks unconscious joy from the magnificence of earth and sky, while the continued abundance which loads his board, and the happy peace of his home, fill his heart with a sense of satisfaction.

In the country, the farmer with his crops all in, his cattle in their stalls or at the crib, calls his friends about him, and whence such social, jolly dinners? The sound of the flail is his music, and the talk of markets his felicity.

To the young and strong and healthy, how beautiful and charming is winter. The clear, sharp, bright days, how they brace the nerves! How they make the blood bound! What a feeling of pleasure lives through the heart and the whole being! The splendid heavens at night, the moon, how beautiful! The snow in its abundance, the hoar frost in its silent magnificence, the ice-bound river, with its throngs of sliders and skaters! The merry bells, the sleigh-ride—all, all combine to render the season pleasant and deprive it of its terrors.

And then comes Christmas—"merry Christmas"—with all its roast turkeys, chicken pies, krullers and dough-nuts—such feasting for those who can get them—then comes, anon, a "Happy New Year." Happy indeed are those who have no cause to regret the passing of the present year.

Thus come we, however happy or unhappy, prosperous or unprosperous, to the end of our month and the year, and hence our observations upon agriculture and husbandry affairs being about to close, since the general farming operations of the present month are neither of a very interesting nor marked character, we propose to cast a retrospective eye over our past labors, for the sake of introducing whatever may by chance have been omitted, as we have traveled over the calendar.

It frequently happens that there is a smaller amount of labor

performed in December, than in any other month of the year. This, however, very much depends upon the state of the weather during the preceding months. If the season has, during the autumn, been favorable for out-door operations, then less remains to be performed so near the close of the year; but on the contrary, if the autumn has been very favorable, then December is a season when fewer duties are required at the hands of the husbandman, than at any other period.

Threshing, before the introduction of machinery, was a regular winter business with most farmers, and therefore can not be pointed out as particularly belonging to the duties of this or that month; yet during December and January there is commonly a great proportion of grain threshed out. Rats and mice often make great havoc in the grain mow; we advise, therefore, to thresh out all that can be done, and secure it from their depredations.

We will now take a retrospective view of our farm operations during the preceding part of the year. By scrutinizing what we may have done—looking closely into all our proceedings connected with our business—by comparing results—by minutely examining into the various modes of culture pursued by us in our improvement of the soil, and noting the cost and effects produced, we may not only be able to arrive at something like a definite opinion as to the value of our labors, but discover wherein those labors have been fruitful, or barren of reward; detect errors, if any have been committed, and correct them in the future. By resorting to this retrospection, if we will bring to our aid that critical observation which long practice qualify us to make, we may be enabled to improve upon our former modes, and thus introduce a more judicious system of culture; one having for its object the melioration of the soil upon those principles of agricultural physiology and enlightened economy, which look alike to the permanent improvement of the arable land, and the securement of the greatest amount of good, with the least expenditure of labor and means. These observations should always be held in active appreciation by all farmers who desire to be successful, as it is a truth that

there is no class of society more dependent upon the exercise of far-sighted economy than they, for the acquisition of those elements of wealth, which vouchsafe comfort to the homestead. In speaking of *economy*, we do not mean that contracted kind that would shut the door against that generous hospitality which brings neighbors together upon the broad platform of brotherhood, and impart to life its most enchanting charms; but that *true economy* which husbands means and directs them to noble ends—which in the application of fertilizers, adapts them to the peculiar necessities of the soils of our several fields—which takes pains to discover what those necessities are—which garners up manure from every available source and preserves it from the deteriorating effects of the weather, and which, in the *setting* and *cultivation* of our crops, are always timely and never out of season.

And now, since "the summer is ended" and the harvest has passed, let us return thanks to an all-wise and beneficent Providence, for the bountiful crops he has seen fit to bestow on us; and let our hearts be impressed with a high sense of gratitude to the Giver of all good. And while we pour out our gratitude for crowning our labors with success, let us not forget that kindness to our domestic animals is as much our duty as its performance will prove our interest; that in proportion to our attention in feeding them well and keeping them warm, will they increase in value.

MACLURA OR OSAGE ORANGE.

Very much having been published on the value of the Maclura for live fences, that is calculated to misguide the credulous and inexperienced in this matter, I have deemed it my duty to give a somewhat detailed account of my experience with the Maclura hedge as a farm fence.

We have, upon the Institute farm, not less than one hundred rods of this fence, between the lots used for common tillage, differing in age from three to nine years, and in all there is not but about thirty rods that forms an efficient fence. That is about

nine years old, and has so much root in proportion to the top, that the annual growth of the top to be trimmed off every winter, is from three to seven feet in length, and some of the limbs three-quarters of an inch in diameter. This can be done by no other means than by the use of a pair of long-handled pruning shears; the wood is very hard, and the top very dense, and thickly set with thorns about one and a half inches in length, that are about as sharp and inflexible as a steel needle.

This immense amount of brush can only be removed after it is pruned off, by means of a fork, which renders the work very tedious. The amount of labor required every year in pruning and removing the brush, is fully equal to that of laying a new zigzag rail fence, or even a post and rail, where the soil is free to dig. On one side of the fence above alluded to, I have this year had a field of rye, and on the other, sowed maize, followed by turnips, and the injurious effects of the hedge have been very considerable on all, but particularly on the turnips, causing an entire failure to the distance of ten or twelve feet from the hedge.

The teams dread to approach them as they would a fire; and they occupy more land than any other fence with which I am familiar. They appear to grow well in this vicinity, but they will not make a fence against sheep or swine unless they are kept headed down for several years at least, to cause a dense growth near the ground; hence when it is desired to have them constitute an effectual fence, the pruning process is indispensable.

The fine plausible stories of some who have large Maclura nurseries to dispose of, are truly very strong encouragement for many who have the means, and are impelled by that very commendable spirit, a determination to keep pace with the improvement of the day, to purchase largely, and remove even better fences, and substitute the Maclura hedges. To such as are inexperienced in the matter, I would only ask them one question:—Did you ever hear of the *Multicaulis speculation?* Beware! of the thorns!!!

The Maclura may be used in the absence of other fencing material, on the prairies, and as a division fence between large estates, where land is cheap, perhaps, with advantage and economy; but as a division fence on an ordinary farm, it is by no means desirable.

A Maclura hedge, when in full foliage, is very beautiful to behold, and to a certain extent may be said to be appropriate in ornamental grounds, where it can have the care of an experienced gardener or horticulturist; but if neglected, it soon becomes an unsightly nuisance. W.

Mount Airy Agricultural Institute, Nov. 11, 1848.

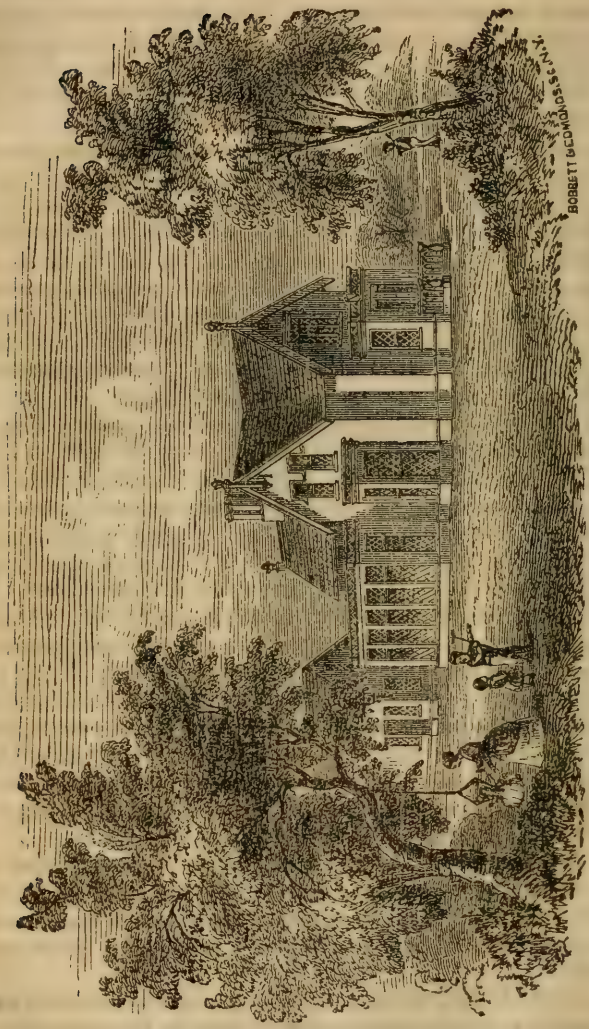


Fig. 38.—THE AUTHOR'S OWN—RESIDENCE OF W. H. RANLETT, Esq.

COTTAGE ARCHITECTURE—THE AUTHOR'S OWN.

The engraving (fig. 38,) which embellishes this number of our Journal, is a perspective view of the cottage residence of Mr. W. H. Ranlett, the popular and well-known author of *The Architect*, now in course of publication,which we have heretofore frequently noticed in our pages. It occupies a beautiful site on Staten Island, near Port Richmond, and stands about fifty yards from the road, which runs in a southerly direction, on a lot of something more than an acre, fronting the east, surrounded by fruit trees, which by many are preferred to fórest trees, though for shade and ornament, the latter are preferable.

The rear of the lot is bounded by a brook, on the margin of which there is a belt of fine forest trees. The bank is about ten feet high, and the declivity sufficiently steep to afford fine sites for an ice house, poultry house, stable, &c.

"The walks and carriage road are laid out in the natural style of landscape gardening. The borders are filled with a variety of shrubbery, producing a succession of flowers, through the season, and a variety of delicate fruit trees are arranged in such order as to ornament the place nearly or quite as much as the standard shrubs, that produce only flowers."

This cottage is designed to accommodate a family of four to six persons, and the cost of erection was about $1,350.

"In the composition of this design," says Mr. Ranlett, "the object is to combine convenience, economy and elegance in such a manner that neither shall predominate at the expense of the other. The exterior would be injured by more ornament, unless fully ornamented—and less would destroy the general harmony. The windows with the diagonal sashes, and the ornamented peaks of the roof, are the prominent features of the design."

For the ground plan and estimates, we would refer to the first volume of The Architect.

HISTORY OF STATEN ISLAND.

Staten Island was purchased from the Indians by Wouter Van Twiller, as agent for Michael Paauw, one of the directors of the Dutch West India Company, together with a large tract in Bergen county, New Jersey, by deed dated August 15th, 1630; and the whole tract received the name of Pavonia, which signifies the land of peacocks—probably from the number of wild turkeys with which the place abounded, and which were regarded by the first settlers as a species of that bird. Paauw soon relinquished his claim to the company. In the beginning of 1639, David Pieterszein De Vries, one of the leaders in the settlement on the Delaware, planted a colony on the island, which, during his absence, was cut off by the Indians, whose revengeful disposition had been roused by the policy pursued in relation to them by Gov. Keift. This island seems to have been a favorite spot with the primitive Dutch settlers; and the Indians, who seem never to have considered themselves to have lost possession by sale, and who were always willing to convey for a consideration, again sold the Island to Heer Melyne, who, under an alleged grant from the West India Company, and with the sanction of Gov. Keift, claimed it, and commenced a settlement, which shortly after was dispersed by the Indians. The Indians sold it again in 1651, to Augustin Herman, and in 1657 to the Baron Van Capellan, who founded a colony, which was broken up by the Indians.

During Gov. Stuyvesant's invasion of the Swedish settlements on the Delaware, in 1655, the Indians of the Raritan made a descent upon the island, and murdered sixty-seven of the colonists, which must have included nearly the whole white population. In 1658, Melyne obtained the exclusive title to the island, claimed to be independent of "Niew Amsterdam," and thereby gave Gov. Stuyvesant considerable trouble. In 1659 he conveyed his rights to the company. In 1664 the colony fell into the hands of the English. The first court of justice was established here in 1667. In 1670 it was once more purchased of the Indians by Gov. Lovelace. The island is divided into four towns, all of which were organized in 1688. Soon after this time it received an accession of inhabitants from the Huguenots, who fled from France on account of religious persecution.

On the 4th of July, 1776, the island was seized by Sir William Howe, who from thence issued his proclamations to the inhabitants of Long Island. The island was held by the British during the whole revolutionary struggle. On the 21st of August, 1777, Gen. Sullivan undertook an expedition against the British forces on Staten Island. He captured 150 prisoners, but from the terror

of the boatmen who conveyed his troops to the island, he was pressed by the British, and thirteen of his men killed, and the rear guard of one division, numbering 136 men, taken prisoners.

In November, 1777, another surprise was attempted by Gen. Dickinson, and in the winter of 1779 and '80, a third by Gen. Stirling, both were unsuccessful.

From the time the English obtained possession of Staten Island up to the year 1833, a controversy had existed between the states of New York and New Jersey, relative to the right of jurisdiction over it. This controversy was at length happily terminated in that year by the commissioners, who decided in favor of New York, but yielded to New Jersey the jurisdiction over a portion of the adjacent waters.

In a military point of view the island is one of the most important positions on the Atlantic coast, its possessor having command of New York bay and the adjacent country.

Staten Island is about fourteen miles long, and its greatest breadth eight miles, mean breadth five miles; population about 14,000.—*Am. Artizan.*

HARVEST MOON.

Peculiarity—Reason—Hunter's Moon—Name not appropriate here—Slow Vegetation in England, rapid here, and the cause—Indian Corn not raised in England, and why—Propitious climate.

BY PROF. C. DEWEY.

The works on Astronomy all mention the harvest moon. It occurs at the full moon near the 20th of September, the time of the autumnal equinox. The peculiarity is, that there is but a little difference in the times of rising of this full moon for several evenings. The mean difference is about fifty minutes, and is in one part of the year considerably more, but at the harvest moon is not one half of the above difference. A few years since, I heard a woman exclaim one evening near this equinox, "What is the matter with the moon? for she rises at the same time nearly as on last evening." She noticed the great peculiarity of the harvest moon.

The astronomical reason for this fact is obvious—the great obliquity of the moon's orbit to our horizon at the autumnal equinox, so that the diurnal motion of the earth brings up the moon in less time. In latitude as high as that of England, this obliquity is greater, and the difference in the times of rising is still less, and the appearance is far more striking. In the succeed-

ing full moon the difference is greater, but yet so much less than is usual, that it has long been noticed, and the phenomenon is called the *Hunter's Moon*, because it favors the pursuits of the hunter. The same cause is then operating as before. Indeed the constellation Aries always rises at a small angle with our horizon, and is of course attended with this result, but no attention is paid to it unless when the moon rises at or near its full in this constellation, and this happens in the months of September and October.

To us there is no reason for calling the full moon in September by its well known designation in England, of harvest moon, because our grain harvest has long been past, and that of Indian corn has not begun at that time. But in England the fact is otherwise, as their *corn*, meaning wheat, rye, barley and oats, is not wholly harvested at the autumnal equinox. A Liverpool paper of Sept. 18th, stated that the "weather has been favorable for harvesting for some days past, and a large proportion of the harvest has been gathered, and a few more such days will secure the whole." A Hull paper of Oct. 13th, has the statement that in consequence of the pleasant weather, nearly all the harvest was then secured. The full moon near the equinox, is in England emphatically the harvest moon.

In the state of New York, the harvesting of wheat, rye and barley is in July, and of oats only a little later; in states more southern, it is still earlier.

The cause of this difference is to be traced to difference of the climate.

In England, the mean temperature of the year is greater by several degrees than in our state, and the atmosphere contains more vapor. The fall of rain is more frequent, and there are more cloudy days. The summer months are not so hot as ours, and there is less difference between the temperatures of midday and night. In a more uniform and not a very high temperature, the progress of vegetation is even slower; while our hot days bring forward our grains with great rapidity. In England, the spring is earlier and wheat gives an earlier promise than here; but, for the reasons just given, it advances much slower. Our wheat was nearly ripe this season, when the English papers stated that the heads had just begun to appear there. The same causes make the heads slow in filling and in coming to maturity.

The same reasons account for the fact, that Indian corn can not be raised in England. The season is longer far than ours for its maturing, but is not hot enough, even with its length, for ripening the kernels. Nothing can be more striking than the fact of the rapid growth of Indian corn, in a few of our hottest days in July and August. It seems as if the earth, atmosphere and sun,

were laboring under high pressure to bring it to sudden and sure perfection. In two months from the middle of June, most of the growth is attained, and another month finds it loaded with ears matured for the use of man.

Propitious is the climate where the *lines have fallen to us in pleasant places.* The cold and snows of winter, as well as the heat and fertility of summer, our grasses, and grains, and agriculture, alike demand our gratitude to their beneficent Author.

A CHAPTER ON FOWLS.

Hybrids.—The variation of size, form and plumage, so remarkable among the different breeds of domestic fowls, has been usually attributed to the action of physical agents on a single original species. This supposition, however, is now found to be untenable; for the best ornithologists, and those, too, who have no view to collateral generalization, have succeeded in tracing this family of birds to, at least, ten different species. Without appealing to unnecessary details, it is sufficient to observe, that independently of certain admitted changes as the results of domestication, these birds are in a far greater degree modified by the power possessed by their several species, (so far, at least, as the experiment has been extended,) of mingling with each other, and producing a fertile hybrid progeny. Hence, in a great measure, these interminable varieties of exterior form, size and color, now every where familiar.

The tailless fowl, (*gallus ecaudatus*,) has been triumphantly quoted as an evidence of the power of climate and locality to produce changes, not only of plumage, but of anatomical conformation. This bird is deficient in the last dorsal vertebræ, and consequently has no tail. But it was asserted, even by some naturalists, that this fowl was originally possessed of a tail, but lost it on being sent from England to Virginia, and domesticated in the latter country. More recent investigations, however, have proved that it is a wild native species of Ceylon.—*Temminck.*

The fowl with rumpled or inverted feathers, which was long regarded as a mere accidental variety, is now believed to be a distinct species, and a native of Guiana. It breeds with all other domestic fowls, and the offspring is prolific, without end.

Fortunately, for the further elucidation of this question, the continent of America produces a family of gallinaceous birds—the *alectors* of ornithologists—among which the very same intermixture of species takes place, and consequent fertile offspring, as we have remarked, in the several species of domestic fowls.

All the *hoccos* or careasowi, (*crax*,) for example, which are derived from their native forest of Guiana, readily unite with each other, giving rise to a progeny that is reproductive without end. "It is probable," observes a judicious ornithologist, "that if the intercourse were repeated in a variety of ways, it would be possible to cultivate, by suitable care, many different races of these birds, whose descendants might be susceptible of multiplying, *ad infinitum*, and branching out into a number of singular varieties, under the superintendence of man.

In fact the Dutch menageries have already obtained the prolific hybrids of these species, (*crax*, *alector*, c. rubra and c. *globicera*,) of this species; and it has been observed that these mixed birds have their plumage more varied, and far more agreeable to the eye, than the uniform livery of the adult individuals of the pure race.—*Griffeth's Curv.*

Here then we have a family of wild birds, recently reclaimed from their native forests, so as to leave us no possible question of their origin and specific diversity; and by intermixing these species in a state of domestication, we have passing under our eyes, as it were, the identical series of phenomena, those very same changes which are so remarkable and familiar in the common fowl.

"We have met," says Dr. Morton, "with two hybrid gallinacious birds, between the common fowl and the Guinea fowl, (*numidia meleagris.*) They were bred in the state of Delaware, and possess, in a remarkable and unequivocal manner, the exterior character and the habits of both parents. One of them looks more like the common fowl; the other on the contrary, has a much stronger resemblance to the Guinea fowl. The sounds which they utter are intermediate, often analagous to those of the Guinea fowl, but occasionally having the *cluck* of the other parent. These birds are yet living, (1846,) and their sex has not been positively determined, but the male characters appear to predominate."

"Since they came under my notice," continues the doctor, "I have heard of three other examples of similar hybrids, occurring in different parts of the United States; but no progeny has resulted from them."

Beckstein states that the cock of the wood, (*tetrao urogallus*,) will breed with the black grouse, (*t. tetrex*,) and even with the domestic fowl and turkey. White of Selbourn, (Nat. Cal. for 1795,) gives a plate and description of a wild hybrid, between the pheasant and domestic fowl; and a bird of the same kind was preserved in the Levarian Museum at Oxford. A similar example is again recorded by Mr. Eyton, in his History of the Rarer

British Birds, in which five individuals were produced.—*Hort. Soc.*, 1835.

Further, the common ring pheasant of England, is now ascertained to be a hybrid between the *pheasaianus colchecus* and p. torquator of China. This cross is very prolific, and is said to be spreading faster than the ordinary breed.—*Onitho. Dic.*

"It is well known," says a writer in an English Journal, "that the male pheasant frequently visits the hens in the poultry yards adjoining preserves, (or it may be *vice versa*,) and in my own limited experience I know instances in which very good varieties of constant layers have been obtained by this means. In the autumn of last year (1846,) I saw a large flock of poultry in a farm-yard close to a preserve of Lord Hatherton's, which was well stocked with pheasants, and the results of the cross between these birds and the domestic fowls were very obvious. The poultry had originally been a mixed variety, bearing no resemblance whatever to the pheasant breed. In the cross to which I refer, the male birds generally show the greatest resemblance to the pheasants, and in one or two instances that I have noticed, the plumage was strictly similar to that of the cock pheasant."

In further corroboration, that the pheasant will cross with the domestic fowl, we give the following from the Journal of Agriculture, published in Scotland. "In the autumn of 1826, a wanderer of the pheasant tribe made his appearance in a small valley of the Grampians, the first of his family who had ventured so far north in that particular district. For some time he was only accidentally observed, and the actual presence of this *rara avis* was disputed by many; wintry wants, however, brought him more frequently into notice; and in due season, proofs still more unequivocal became apparent. When the chicken broods came forth, and began to assume a shape and form, no small admiration was excited by certain stately long-tailed game looking birds, standing forth amongst them, and continuing to grow in size and beauty, until all doubts of the stranger's interference with the rights of chanticleer effectually vanished. These hybrids partook largely of the pheasant character; and as they are of goodly size and hardy constitution, a useful and agreeable variety for our poultry-yards may be secured in a very simple and economical manner."

"In fine," says a writer in the American Journal of Science, "we are informed on the best authority, that many of the birds which compose the gallinaceous order, appear to be less difficult to be brought to unite with strange species, than those of any other. From the great majority of the pheasants, mongrels may be thus produced. All the *hoccos*, (crax,) will couple in a state of domestication; the pheasant will ally with the cock; the last with the

turkey, with which also the hoccos born in the domestic state will also unite. It appears, in fact, very possible to produce mongrels from the major part of the gallinace, which are susceptible of cultivation."

It is supposed that the English game fowl originated from a cross between the common hen and the pheasant, as the latter is known to be of so quarrelsome and determined a character, that when two cocks encounter in their wild state, they seldom separate until one or the other is killed. The game breed certainly much resembles them in their plumage, color of their legs, &c., for the best are mostly red and dark brown. But Mowbray says, "The progeny between the pheasant and the common fowl, are necessarily *mules*, as proceeding from different species, though of the same genus."

The game fowl is one of the most gracefully formed and most beautifully colored of our domestic breeds of poultry, and in its form, aspect, and that extraordinary courage which characterises its natural disposition, exhibited all that either the naturalist or the sportsman would at once recognise as the beau ideal of *high blood;* embodying, in short, in its individual person, all the most indubitable characteristics of gallinaceous aristocracy.

The game fowl is somewhat inferior in size to most other breeds, and in his shape he approximates more closely to the elegant and stately form of the pheasant. Among poulterers, he is what the Arabian is amongst horses, and the fleet greyhound amongst the canine race.

The flesh of the game fowl is of a beautifully white color, tender and delicate in the extreme. The hens are excellent layers; and although the eggs are somewhat under the average size, they are not to be surpassed, if indeed equalled as to excellence of flavor. Such being the character of this fowl, it is no wonder that many prefer them to any other breed.

Profits of Rearing Poultry.—The rearing of poultry and eggs, as a matter of profit, has not been properly appreciated by the farmers in this country. They have been considered as unprofitable, and kept more as a luxury than a necessary article of food; but from our own experience, we are enabled to say, that for the amount invested, there is no branch of farming more profitable than the poultry-yard, if properly managed.

In a late number of the Gardener's Chronicle, published in London, we find the following items of poultry keeping, furnished by a correspondent.

"They are," says the writer, "the *bona fide* costs and receipts of the produce of 10 hens and one cock in 1846, and of 12 hens in 1847. In the first year, two couple of ducks and one drake were of the family, but not in the second. The food was all

bought at a high price, the produce sold in the village. The fowls are kept clean and well housed and attended to; fed regularly three times a day when young, and have the run of a large grazing yard in the day time. This year I am varying their diet, giving them occasionally cooked liver, scraps of fat, and boiled potatoes, with the best shorts and barley.

Expenses—1846.		*Receipts*—1846.	
40 pints groats,	£0 8·6	For eggs sold,	£0·13·8
40 " oats,	0 19·4	For 10 ducks, at 1s. 9d.	0·17·6
Barley Meal,	0·19 4	For 12 ducks, at 1s. 8d.	1 0 0
Barley,	1 0 6	For 82 chickens, at 1s. 6d.	6 3 0
Tail wheat,	1 0 0		
Eggs for setting hens,	0 7·9		8·14·2
Collecting eggs, &c.,	0 2·9	Deduct expenses,	4·18 2
	£4·18·2	Net profit,	£3·16 0

1847.		1847.	
16 pints groats,	£0 3 4	For eggs sold at 9d per dozen,	2·11 6
9 bushels barley,	2·14 0	For 66 chickens, at 1s. 8d.	5·10 0
Barley meal,	0 7 9	For 8 " at 1s. 4d.	0·10 8
Collecting eggs, &c.,	0 2 9		£8·12 2
	£3 7·10	Deduct expenses,	3 7·10
		Net profit,	£5 4 4

Showing a net profit of over two dollars per head for each hen. Where, let us ask, is there a flock of sheep that will average that amount of clear profit per head?

We take the following, furnished by a lady, from the same paper.

"I shall," says the lady, "as I am addressing *practical men*, give you one or two *practical* statements respecting its profitableness as a branch of farm produce. On the farm from which I write, the poultry consists of 60 hens, principally of the Dorking breed; 6 ducks, and we generally buy from 70 to 80 geese in the autumn. The produce sold in 1847, was as follows:

3,400 eggs, at 5s. 6d. per long hundred,	£8 2·11
208 chickens, at 1s. 9d. each,	18 4 0
Eggs and chickens consumed,	4·15 0
60 geese, at 1s. 6d. each,	11·10 0
10 " consumed in house,	2·15 0
20 ducks, at 2s. 6d. each,	2·10 0
	£47·16·11

Expenses.

Barley, milk, meal and small corn,	£6 4·1	
Woman's wages and market expense,	4·12·7	
70 geese, at 1s. 6d.	5 5·0	
		16 1 8
		£31·15 3

"In 1845, we realized a profit of £28·5·7; in 1846, £29. We consider our profit small in comparison with the number of fowls we keep, and we feel confident that if we had suitable

houses and yards, we could realize a much greater profit than we do at present.

"I have received the following statement from a lady. She says: 'We have about 50 hens of different kinds, none of the best, or our profits ought to be much larger; also 10 ducks; they are fed upon small corn, which is only suitable for poultry or pigs; we do not breed any for sale, merely for our own use.

Amount received for eggs during last year, - - -	£16·10·0
Cost of food at 2s. per week, - - - - - -	5· 4·0
Net profit, - - - - - - -	£11· 6·0

Again another lady says, "I should think we have about forty hens. They are of no particular breed; just the common barn-door fowls. Some, I believe, are from the Duke of Northumberland's breed; they are grey and brown mottled, very large, and excellent layers. We have 5 or 6 ducks, and 3 turkey hens, which are very dark, nearly black. They brought up last spring 24 young ones. We had only about 30 chickens last year, which has rather thrown us back. We bought in 37 geese at 3s. 6d. each, in the autumn, and sold them again in a very short time, at 5s. 9d., 5s. 6d., and 5s. 4d. each. We do not get the highest price for eggs, as we generally send them by the carrier to the market. The turkey eggs, in the latter part of summer, we generally sell for one penny each. Our proceeds were as follows:

From Eggs, - - -	£9·16·11	Amount of sales, - - -			£27· 3· 5
" Chickens, - - - - -	1· 4·10		*Expenses.*		
" Ducks, - - - - -	0 18 6	30 Geese. - - -	£6·9·6		
" Turkeys - - - - -	4 17· 9	Oat Meal, &c., - -	3 0·0		
" Geese, - - - - -	10· 5· 5			9· 9· 6	
	£27· 3· 5	Net profit, - - - - -			£17 13·11

"The profits are not so very small, but they would have been more had we succeeded better. I should say, for such a number as we have, the profits, upon an average, should be about £20 or £22 per annum."

In "Baxster's Farmer's Library," there is a statement of what can be realized from poultry. The individual from whom this statement was obtained, keeps only 5 fowls, which includes one cock. The expense of keeping, with produce of eggs, together with the profit for two separate years, were as follows:

1830.		1831.	
4 bushels Barley, - - - -	£0·16·6	2½ bushels Barley, - - -	£0.11·0
2 " Sharps, - - - - -	0· 5·1	9½ gallons Sharps, - - -	0· 3·6½
½ " Bran, - - - - -	0· 0·5½	7 " Pollard, - - -	0· 0·9
1 " Pollard, - - - - -	0· 0·7	4 " Bran, - - - -	0· 0·6
	£1 2 7½		£0·15 9½
Number of Eggs 710, at 1d. each,	2·19·2	Number of Eggs 449, at 1d. each,	2 9·6
Net profit, - - - - - -	£1·16·7½	Net profit, - - - - -	£1·13 9½

or nearly 8s. 9½d. in the year for each hen.

Now let us see what the profits are on a larger scale. Mr. England, in the 4th volume of the "Prize Essays of the Highland Agricultural Society," gives the following statement of the expense and profit derived from a poultry establishment, consisting of five wards, each containing 24 hens and one cock.

Expense of building one ward, - - - - - -	£9·10·0
Live stock, consisting of 24 hens and one cock, - -	3· 2·6
	£12·12·6
Total expense of 5 wards, - - - -	£63· 2·6

The produce will be as follows, deducting the time of breeding and moulting, one hen will lay 144 eggs annually.

7½ dozen Eggs, at 6d. per dozen, - - - - - -	£0· 3·9
The remainder hatched, of which 3½ dozen produced chickens, which sold at 6d. per pair, - - - - - -	0· 9·9
1 dozen full grown fowls at 2s. 6d. per pair, - - -	1·10·0
Total, - - - - - - - - - -	£2·3·6
This sum multiplied by 24, - - - -	51·12·0
Again multiplied by 5, - - - - -	£258· 0·0

Outlay.

Rent for hen house, - - - - - -	£1·10·0	
Milk, meal, and wages, - - - - -	12·10·0	
Interest on £63 2s. 6d., - - - - - -	3· 1·0	
Amelioration and repairs, - - - - -	2· 0·0	
Grain for 5 wards 15 quarters, - - -	18· 0·0	
		37· 1·0
		£220·19·0

We could give many other "facts," further proving the profitableness of poultry, but we think we have brought forward sufficient evidence to prove it.

In order to accomplish any amelioration in the improvement of poultry, so as to make the keeping it profitable, it is essential that we should have suitable houses and yards, and young healthy fowls of the best breed.

Hen and Chickens.—A writer on this subject, and let no one say it is not an important one, in the Providence American, gives the results of his experience in economizing the time with hens; and we think it worthy of being communicated to our readers. All who are familiar with rearing chickens, know that there are very few hens that will allow newly hatched chickens to be committed to their care, when their own are a few days old. This the writer attributes to the fact that the hen has become acquainted with her own chickens, from color, marks, &c., and considers

the new-comers in the light of intruders, which she too frequently punishes with death. To obviate this he puts the first hen that hatches into a coop, and keeps her there with her chickens till another hen hatches, when he substitutes the second hen for the first, leaving the charge of the former; and when another hen hatches, she is put in place of the second, with all three broods—if the aggregate number do not exceed thirty, which he says she will take care of affectionately and efficiently.

Feecundity of Hens.—A young hen will lay the first year about 150 eggs; the second 120; the third 100; diminishing every year as she grows older; and says the editor of the Maine Farmer, she should "go to pot" after the fourth.

Analysis of the Egg.—M. Gobley has submitted to the Paris Academy of Science, an account of his analysis of the egg. In a former paper he stated that the yolk contains oleic, margaric and phosphoric acids; he now informs us that he has also found water and an albuminous substance, salts, lactic acid, two coloring substances, &c.

A Curious Nest.—A cute Yankee has invented a hen's nest, in the bottom of which there is a kind of trap-door, through which the egg, when laid, immediately drops; and the hen, looking round and perceiving none, lays another.—*Boston Paper.*

SUBSOIL PLOWING.

BY N. GOODSELL.

Much has been published within a few years past, on the subject of subsoil plowing, and various patterns of plows have been manufactured and recommended to the public, for loosening the soil to a greater depth than is usually done with the common plow; some of which I think have been of great service to our farmers; but I have seen some subsoil plowing the past season, which for economy in doing the work, and beneficial effects when done, I think preferable to any I have ever examined. This work was done with a plow manufactured in Massachusetts, by Messrs. Ruggles, Nourse & Mason, sold in Rochester as the "Eagle Sward Plow." The land in which this plow was used was smooth, free from stone, and had been mown many years. The plow was introduced in "full dress," having its gage-wheel and coulter attached, and gaged to cut from six to eight inches deep, and was drawn by three good horses. The first furrow was cut and laid flat—the second round, the gage-wheel was made to run in the

bottom of the first furrow, and close to the land side, the plow cutting as before, from six to eight inches below where it run before, raising the earth and depositing it upon the top of the first furrow. The third round the plow was made to cut the sward as in the first, and the furrow turned into the bottom of the second furrow. The fourth round was like the second, and the earth was deposited upon the third, and so on alternately. By this operation, the sward, bound together by the roots of grass, carrying with it all the seeds which were upon the surface, was evenly deposited at the depth of from twelve to sixteen inches, which was sufficient to prevent the seeds or grass roots from coming up through the virgin soil brought to the surface. The depth of soil brought from the bottom and placed upon the top, was sufficiently deep for all the operations connected with sowing for wheat, or planting for corn; in short, all the objects to be obtained by summer fallowing, seemed accomplished by this short and cheap process.

One advantage of this process over summer fallows is, that wheat may be sown upon lands that have been mown the same season, and with less labor, and the peculiar advantage over using the common subsoil plow is, that the soil is taken from the bottom and laid upon the top, whereas with the common instrument, the soil is merely loosened, but allowed to remain at the bottom, unmixed.

I think that every gardener and farmer who are attentive to their profession, will soon become convinced of the importance of reversing the soil to a greater depth than we have been in the habit of doing, in preference to shallow tillage, and filling the surface with fermenting manures, thereby encouraging the growth of innumerable species of fungi, which at present are doing such incalculable damage both to the produce of the garden and the farm.

Rochester, November 18, 1848.

NUTRITIVE QUALITIES OF BEANS, COMPARED WITH OTHER GRAIN.

The proportion of nutritive matter in beans, compared with other grain, is, according to Einhoff, as follows:

	By weight.			In bushels.
Wheat,	74	per cent,	about	47 lbs.
Rye,	70	"	"	39
Barley,	65	"	"	33
Oats,	58	"	"	23
Beans,	68	"	"	45
Peas,	75	"	"	48
French Beans,	84	"	"	54

CULTURE OF RICE IN THE PHILIPPINE ISLANDS.

Rice is, perhaps, of their agricultural products, the article upon which the inhabitants of the Philippine Islands most depend for food and profit; of this they have several different varieties, which the natives distinguish by their size and the shape of the grain: the birnambang, lamuyo, malagequit, bontot-cabayo, dumali, quinanda, bolohan, and tangi. The three first are aquatic; the five latter upland varieties. They each have their peculiar uses. The dumali is the early variety; it ripens in three months from planting, from which circumstance it derives its name; it is raised exclusively on the uplands. Although much esteemed, it is not extensively cultivated, as the birds and insects destroy a large part of the crop.

The malagequit is very much prized, and used for making sweet and fancy dishes; it becomes exceedingly glutinous, for which reason it is used in making whitewash, which it is said to cause to become of a brilliant white, and to withstand the weather. This variety is not, however, believed to be wholesome. There is also a variety of this last species which is used as food for horses, and supposed to be a remedy and preventive against worms.

The rice grounds or fields are laid out in squares, and surrounded by embankments, to retain the water of the rains or streams. After the rains have fallen in sufficient quantities to saturate the ground, a seed-bed is generally planted in one corner of the field, in which the rice is sown broadcast, about the month of June. The heavy rains take place in August, when the fields are plowed, and are soon filled with water. The young plants are about this time taken from the seed-bed, their tops and roots trimmed, and then planted in the field, by making holes in the ground with the fingers, and placing four or five sprouts in each of them; in this tedious labor the poor women are employed, whilst the males are lounging in their houses or in the shade of the trees.

The harvest for the aquatic rice begins in December. It is reaped with small sickles, peculiar to the country, called yatap; to the back of these a small stick is fastened, by which they are held, and the stalk is forced upon it and cut. The spikes of rice are cut with this implement, one by one. In this operation, men, women and children all take part.

The upland rice requires much more care and labor in its cultivation. The land must be plowed three or four times, and all the turf and lumps well broken up by the harrow.

During its growth it requires to be weeded two or three times,

to keep the weeds from choking the crop. The seed is sown broadcast in May. This kind of rice is harvested in November, and to collect the crop is still more tedious than in the other case, for it is always gathered earlier, and never reaped, in consequence of the grain not adhering to the ear. If it were gathered in any other way, the loss by transportation on the backs of buffaloes and horses, without any covering to the sheaf, would be so great as to dissipate a great portion of the crop.

It appears almost incredible that any people can remain in ignorance of a way of preventing so extravagant and wasteful a mode of harvesting. The government has been requested to prohibit it, on account of the great expense it gives rise to; but whether any steps have ever been taken in the matter, I did not learn. It is said that not unfrequently a third part of the crop is lost, in consequence of the scarcity of laborers; while those who are disengaged will refuse to work, unless they receive one-third, and even one-half of the crop, to be delivered free of expense at their houses. This the planters are often obliged to give, or lose the whole crop. Nay, unless the harvest is a good one, reapers are very unwilling to engage to take it even on these terms, and the entire crop is lost. The laborers, during the time of harvest, are supported by the planter, who is during that time exposed to great vexation, if not losses. The reapers are for the most part composed of the idle and vicious part of the population, who go abroad over the country to engage themselves in this employment, which affords a livelihood to the poorer classes; for the different periods at which the varieties of rice are planted and harvested, gives them work during a large portion of the year.

After the rice is harvested, there are different modes of treating it. Some of the proprietors take it home, where it is thrown into heaps, and left until it is desirable to separate it from the straw, when it is trodden out by men and women, with their bare feet. For this operation they usually receive another fifth of the rice.

Others stack it in a wet and green state, which subjects it to heat, from which cause the grain contracts a dark color, and an unpleasant taste and smell. The natives, however, impute these defects to the wetness of the season.

The crop of both the low and upland rice, is usually from thirty to fifty for one: this is on old land; but on that which is newly cleared, or which has never been cultivated, the yield is far beyond this. In some soils of the latter description, it is said that for a chupa (seven cubic inches) planted, the yield has been a caban. The former is the 208th part of the latter. This is not the only advantage gained in planting rich lands, but the saving of labor is equally great; for all that is required is to make a hole with the

fingers, and place three or four grains in it. The upland rice requires but little water, and is never irrigated.

The cultivator in the Philippine Islands is always enabled to secure plenty of manure; for vegetation is so luxuriant, that by pulling the weeds and laying them with earth, a good stock is quickly obtained, with which to cover his fields. Thus, although the growth is so rank as to cause him labor, yet in this hot climate its decay is equally rapid, which tends to make his labors more successful.

Fig. 39—Stacking Rice, Luzon.

The rice stacks form a picturesque object on the field; they are generally placed around or near a growth of bamboo, whose tall, graceful and feathery outline is of itself a beautiful object, but connected as it is often seen with the returns of the harvest, it furnishes an additional source of gratification.

The different kinds of rice, and especially the upland, would no doubt be an acquisition to our country. At the time we were at Manilla, it was not thought feasible to pack it, for it had just

been reaped, and was so green that it would not have kept. Although rice is a very prolific crop, yet it is subject to many casualties, from the locusts and other insects that devour it; the drought at other times affects it, particularly the aquatic varieties. There is a use to which the rice is applied here, which was new to us, namely, as a substance for razors; by using two grains of it between the fingers, they nip the beard, or extract it from the chin and face.—*Nar. of the U. S. Explor. Expedition.*

DISEASE AMONG CATTLE NEAR ALBANY IN THE SEASON OF 1848.

BY EBENEZER EMMONS.

The valley of the Hudson has, in the main, from its settlement, been free from diseases peculiar to cattle. This exemption from maladies which have infected other districts of the United States may, in part at least, be attributed to the natural drainage of the country. To this cause must be attributed the growth of those grasses which are best adapted to the constitution of all kinds of domestic cattle, and which may also be set down as one of the causes which exempts it from endemic diseases.

It is not, however, entirely free from occasional visitations of fatal diseases. This appears from the fact that during the past season a number of cattle have died from a peculiar malignant form of disease, which the writer believes to have been attended with some peculiar and remarkable phenomena; and as the reports of cases of post mortem examinations are quite unfrequent, it is proposed to state some of the facts as briefly as may be, for the information of persons who have much to do in the cattle business of the country.

The symptoms which accompany this malady are very imperfectly known. No opportunity presented itself by which an investigation could be made, which could throw much light upon the treatment required to arrest its progress. Indeed an ox which appeared well on one day, would be found dead on the next morning. It was remarked, however, that some of the cattle which died, appeared more stupid than usual; those for example which were wild and unmanageable, ordinarily were accessible and tame, and generally refused food. Nothing has been noticed of the circulation or the temperature of the body, or the condition of the digestive organs. The eye is dim and the ox is indifferent to external objects. All therefore which could throw light upon

the case, so far as diagnostic symptoms are concerned, are quite unknown. The effects of the disease, however, as revealed by dissection, are well known—at least as many as twelve individuals were examined after death, and they all showed the same class of diseased organs. A remarkable fact, however, ought not to be passed over unnoticed; it is, that all the cases of disease occurred in a herd confined in one pasture. The first case was that of an ox brought from Ohio; and subsequently others were attacked and died, which were purchased in Washington county, N. Y.

As I have already said, the disease came suddenly, and death speedily followed; and as I can say nothing more of the symptoms, I will proceed to state the results of the post mortem examinations. The first organ which appeared in a diseased condition, was the spleen. It is difficult, however, to convey an idea of the state of this organ, or even to form an opinion whether its abnormal state was a cause of death, or merely one of the effects of the disease. It was enormously enlarged, and in one or two instances would fill a half-bushel measure, and must have weighed many pounds more than when in its natural state. Still the appearances were not those of inflammation, but of a monstrous engorgement of its blood vessels, as if being a sort of waste gate it had received its load of blood for the purpose of relieving the neighboring diseased organs. At first sight it appeared much like a large and elongated clot of blood. But on a close inspection the investing membrane and the highly distended vascular system became visible. The organ appeared, however, softened and more tender than natural—but the most prominent fact was its enormous engorgement. A casual observer would be very likely to stop his examination with this discovery, inasmuch as it would seem to account for the death of the ox; it would appear to be enough to cause death without another derangement, and inasmuch too as externally, the neighboring organs scarcely exhibited marks of serious mischief. Inspection, however, revealed a more serious derangement than that of the spleen. This derangement was in the mucous or inner membrane of the small intestines. In every instance these were in different states of disease; some parts of the membrane were thickened simply; in others not only a thickness existed, but superficial ulcerations had began to form, and was accompanied with contraction of the tube; in other parts the inflammation manifested itself in a slight degree of redness, and of a vascularity above the natural color and standard. The large intestines did not partake of this diseased action; neither did the large stomach or paunch. It commenced generally in the fourth stomach, and the intensity of the disease was greater at this extremity of the canal. Those who have seen inflammation of the mucous surfaces, will very readily call to mind the prominent cha-

racters attending the cases under consideration. Others who have not, can scarcely form a true idea of this complaint.

It would seem from what was observed in this post mortem examination, that the disease was not so sudden in its attack, and rapid in its progress, as would appear from outward phenomena. It must have existed more than eight and forty hours, although facts outwardly seemed to indicate that the attack and whole course of it did not occupy twelve hours. Inflammations of this character are not developed in a night. Excravasations of blood may occur, and redness and swelling appear in a very brief period, but inflammations with ulcerations require time for development; sometimes longer and sometimes shorter. This is an important fact to be borne in mind, for if it is admitted or proved that the whole course of disease is passed in one brief summer's night, very little hope can be held out for the successful employment of remedial agents.

From the foregoing observations I think I shall be justified in the opinion that the mucous membrane of the small intestines, was the seat of disease, and that the state of the spleen was a secondary result that arose from sympathy with the diseased parts. I do not know that the spleen has been found in the condition described in a similar disease in the human family. I have not observed it, and yet it is highly probable that swelling of the kind may exist. I may state that it is now proved that the office of the spleen is to secrete a fluid which is designed to aid in digestion, and particularly in the solution of fat, so that a person laboring under a chronic disease of the spleen, is unable to take fat in his food. A very striking case of the kind I have witnessed the past summer. The remedies for this disease must evidently belong to the depleting class, and nothing to my mind bids so fair to be useful as free bleeding. A herd of cattle ought to be very carefully examined when cases of death occur among them, and if the nature of the disease partakes of an inflammatory character, bleeding the ailing ones at once may save them. Purgatives, however, would be injurious in inflammation of the intestines, and nothing but sweating and emolient drinks would be admissible.

In conclusion it is proper to observe that from the limited range of the disease, it was supposed that poison had much to do with the disease—but we are by no means warranted in an inference of the kind. There were really no phenomena which belonged to effects of any of the vegetable or mineral poisons. The fact is, we are totally in the dark, as it regards the cause of the appearance of many diseases. They occur often in small districts of country, as fatal visitants of the human family, and why not also of the lower orders of animals, whose organization is upon the

same general plan, and subject to the same inward and outward influences. We need not wonder then, that cattle at times become subject to epidemics in a limited area, even that within the boundary lines of the range of a single herd.

The foregoing remarks upon this disease were just penned, when a gentleman of Sandlake called upon me with the fourth stomach and a part of the small intestines of a cow which had just died suddenly of some disease, which had already killed two or three others of the same herd. The appearances in this case were identical with those which had occurred in Albany. The fourth stomach was inflamed over most of its surface, and the same redness extended through the whole intestinal canal, which was brought with the stomach. The cow had been milked as usual up to the day of her death, but it was observed that she did not eat well and her abdomen was distended and her milk had diminished.

The spleen also was described as being much larger than natural; and if I may credit the description, the lungs were somewhat congested. In one instance I had observed the same state of the lungs.

EXAMINATION OF FIVE VARIETIES OF CABBAGE.

BY J. H. SALISBURY.

The cabbage is one of the earliest cultivated and most highly esteemed of culinary plants. In the wild state it is a small biennial, with spreading leaves, very seldom showing much, if any, inclination to head. It occurs abundantly in some parts of England, choosing positions near the sea, often on cliffs and along ravines. Its liability to run into varieties by cultivation is so great, that they have become almost innumerable, many of which differ from each other so much, that one would hardly take them, from their general appearance, to have originated from a single species.

Among the most highly esteemed of the cultivated varieties, are the Scotch Strasburgh or *drum head*, the *Savoy*, the *red* or *purple cabbage*, the *sugar loaf*, the York, the *ox heart*, the *Battersea*, the *cauliflower*, the *broccoli*, the *turnip rooted cabbage*, the coleworts, and the Scotch kale.

They are arranged into: 1. Those which have spreading leaves without a head, as the coleworts. 2. Those which are close

hearted or whose inside leaves form into a head. 3. Those in which the stem divides, forming a *corymbose head* of the flower buds and stalks, as the cauliflower and broccoli. 4. Those whose roots or stalks are napiform, as the turnip rooted cabbage.

The varieties here examined are the *drum head*, the Savoy, the red or purple cabbage, the turnip rooted cabbage, and the cauliflower.

For the purpose of showing the nutritive qualities of the cabbage, I have given a proximate organic analysis of each variety. In connection with these I have also given an analysis of the inorganic matter of each, and the per centage of ash in the fresh plant, and in the plant after it is deprived of water. From these data I have calculated the amount of the several inorganic bodies removed in a ton of the fresh, and also in a ton of the dry produce, and about the quantity taken from an acre of land by a good crop annually.

For the purpose of furnishing a more ready means for comparing the composition of the dry matter of the different varieties, the proximate organic results in each case have been calculated without the water.

In giving my results I have endeavored to arrange them in such a manner as to present in as concise a form as possible, a clear idea of the composition of the cabbage. I have treated of each variety separately, and in order to prevent too great length, I have given but little more than a simple detail of the results obtained.

In every case the potash has been obtained with the bichloride of platinum, and the phosphoric acid with the per-oxide of iron.

In obtaining the phosphoric acid with the per-oxide of iron, I found in many and repeated trials, that it facilitated the operation very much, to add a little acetic acid to the solution containing the precipitate of the phosphate of the per-oxide of iron, after it had been thoroughly boiled, and before filtering.

When the precaution was not taken to add this, it was found quite impossible to separate more than half of the alkaline earths, (lime and magnesia,) from the phosphate of the per oxide of iron, although the method described in books was strictly adhered to. In using the acetic acid it is necessary to guard against adding more than enough to neutralize the solution, as an excess readily dissolves the precipitated per oxide of iron.

1. The *Scotch Strasburgh* or *drum head.* It belongs to the var. *capitata*, or the common white cabbage.

This is a fall and winter kind. It has a large compact oblately spheroidal head, yellowish green without, and blanched within. It varies from 8 to 15 inches in diameter, and weighs when properly cultivated, from 10 to 20, and sometimes 30 pounds. Stalks stout, and of medium length, leaves smooth.

The plant here examined was furnished by J. B. Hutson, of Albany. The part taken for organic analysis, was a section extending from the centre to the circumference of the head.

		Calculated without the water.
Sugar and extractive matter with the body which gives the peculiar odor to cabbage, - -	9·32	55·977
Oil and wax, - - - - - - - -	·16	·962
Fibre, with a little starch and chlorophyl, -	·94	5·646
Fibre, after digesting in alcohol and a weak solution of potash, - - - - - - -	2·16	12·974
Matter dissolved out of fibre by a weak solution of potash—resembles albumen, - - -	·88	5·281
Albumen, - - - - - - - - -	1·74	10·461
Casein, - - - - - - - - -	·36	2·157
Dextrine, - - - - - - - - -	1·09	6·542
Water, - - - - - - -	83·42	
	100·07	100·000

For proportions I took 200 grains from about half-way between the circumference and centre of the head. It gives a little more water than that taken for organic analysis.

Per cent of water, - - - - - - - - -	88·665
do of dry matter, - - - - - - - -	11·335
do of ash, - - - - - - - - -	·790
do ash calculated on the dry matter, - - - -	6·969

Allowing each head to weigh 15lbs., and each plant to occupy a space equal to a square yard, the produce per acre would be about 36 tons. Of this, 30 tons would be water, and 6 tons dry matter.

Nitrogenous products in a ton of the fresh plant, -	59·6lbs.
do do do dried plant, about,	358·
do in the annual produce of an acre, allowing the yield to be 36 tons, - - - - -	2148.
Inorganic bodies in a ton of the fresh plant, - -	15·8lbs.
do do do dried plant, - - -	139·38
do removed annually from an acre, -	569·
Water in a ton of the fresh plant, - - - -	1768lbs.
Dry matter do do do - - - -	232

Composition of the ash of the head.		Amount of the several inorganic bodies in a ton of fresh heads.	Amount of the several inorganic bodies removed annually from an acre.	Amount of the several inorganic bodies in a ton of cabbage deprived of water.
	grs.	*lbs.*	*lbs.*	*lbs.*
Carbonic acid, - - - -	13·500			
Silicia acid, - - - - -	·550	·087	2·958	·767
Sulphuric acid, - - - -	10·449	1·651	56·134	14·564
Phosphoric acid, - - - -	11·870	1·876	63·784	16·544
Phosphate of the peroxide of iron,	1·100	·174	5·916	3·761
Lime, - - - - - -	2·698	·426	14·484	4·662
Magnesia, - - - - - -	3·345	·529	17·986	1·533
Potash, - - - - -	20·078	4·172	142·448	27·985
Soda, - - - - - - -	30·116	4·758	161.772	41·976
Chlorine, - - - - - -	·741	·117	3·978	1·033
Organic acids, - - - -	4·805			
	99·252			

2. *Savoy.* This belongs to the var. *sabauda.*

Of this variety there are three kinds; the large yellow, the dwarf, and the green. The one here examined is the large yellow. As a fall and winter variety it is highly esteemed. It bears well the early frosts which improve materially its flavor. The savoy is distinguished from the other varieties that bear heads by its crisped leaves. When the plants are placed in a good soil, and allowed sufficient room, the stalks are short and stout; the lower leaves large and spreading; heads rather small, and less compact than those of the preceding variety, their diameter being from 6 to 10 inches, and weight from 4 to 10lbs.

The plant used for analysis was furnished by J. B. Hutson, of Albany. It had a large compact head for this variety. The part taken for organic analysis, was a section extending from the centre to the circumference of the head. This gave of:

		Calculated without the water.
Sugar and extractive matter with the body that gives the peculiar odor to cabbage, - -	8·60	46·386
Oil and wax, - - - - - - - -	·26	1·402
Fibre, with a little starch and chlorophyl, -	2·47	13·323
Fibre, after digesting in alcohol and a weak solution of potash, - - - - - -	2·41	12·999
Matter dissolved out of fibre by a weak solution of caustic potash—resembles albumen, - -	1·31	7·066
Albumen, - - - - - - - - -	2·05	11·057

Carried forward, - - -

Brought forward, - - - - -		
Casein, - - - - - - - - - -	·40	2·158
Dextrine, - - - - - - - - - -	1·04	5·609
Water, - - - - - - - - -	81·23	
	99·77	100·000

The part for proportions was taken from near the centre of the head. It gives a little more water than the section used for organic analysis.

Per cent of water, - - - - - - - - - -	86·525
do dry matter, - - - - - - - - -	13·475
do ash, - - - - - - - - - -	·890
do ash calculated on the dry matter, - - -	6·605

Allowing each head to weigh 7lbs., and each plant to occupy a space equal to a square yard, the produce per acre would be about 17 tons. Of this 13·8 tons would be water, and 3·2 tons dry matter.

Nitrogenous products in a ton of the fresh plant, - -	75·2lbs.
do do do dried plant, -	406·
do in the annual produce of an acre,	1297·
Inorganic bodies in a ton of the fresh plant, - - -	17·8lbs.
do do do dried plant, - -	132·1
do removed annually from an acre, allowing the produce to be 17 tons, - - - - - -	302·6
Water in a ton of the fresh plant, - - - - -	1625lbs.
Dry matter, - - - - - - - - - -	375

Composition of the ash of the head.		Amount of the several inorganic bodies in a ton of heads	Amount of the several inorganic bodies removed annually from an acre.	Amount of the several inorganic bodies in a ton of heads deprived of water.
	grs.	*lbs*	*lbs.*	*lbs.*
Carbonic acid, - - - - -	9·350			
Silicic acid, - - - - - -	1·100	·189	3·216	1·453
Sulphuric acid, - - - - -	15·811	2·814	47·838	20·886
Phosphoric acid, - - - - -	20·825	3·707	63·019	27·510
Phosphate of the per-oxide of iron,	1·050	·187	2·899	1·387
Lime, - - - - - -	·906	·162	2·754	1·197
Magnesia, - - - - - -	4·760	·847	14·399	6·288
Potash, - - - - - -	17·525	3·119	53·023	23·151
Soda, - - - - - - -	23·366	4·159	70·703	30·867
Chlorine, - - - - - -	1·974	·341	5·797	2·608
Organic acids, - - - - -	3·260	·580	9·860	
	99·827			

3. *Red or purple cabbage.* Var. *rubra.*

There are three kinds of this variety; the large red or red Dutch, the dwarf red and the Aberdeen red. The one here examined is the large red. As a fall and winter variety it is much esteemed, and for pickling it is considered preferable to any other. It bears a small round compact head, from 4 to 8 inches in diameter, and weighs from 6 to 12lbs. It is of a deep purple color without, and of a slightly lighter color within. The outside leaves are small, and less spreading than in the preceding varieties. The coloring matter may be in part due to the peroxide of iron, which is found quite largely in it, but mainly to an organic coloring matter, analagous to other fugitive blue colors, such as that of the hyacinth, the hollyhock, the lavender, the violet, and that of numerous other flowers. These coloring matters are all soluble in water and alcohol, and are all redened by acids, and restored again to their original blue color by alkalies. The stalks are of a medium length, and rather slender.

The specimen examined was furnished by J. B. Hutson. The head was very firm and good size for this variety, being over 7 inches in diameter. The part taken for proximate organic analysis, was a section extending from the centre to the circumference of the head. This gave of

		Calculated without the water.
Sugar and extractive matter, with the body that gives the peculiar odor to cabbage, - -	8·70	51·479
Oil and wax, - - - - - - - - -	·12	·710
Fibre, with a little starch and coloring matter,	1·20	7·101
Fibre, - - - - - - - - - -	2·98	17·134
Matter dissolved out of fibre and other bodies, insoluble in water and boiling alcohol, by a weak solution of caustic potash—resembles albumen,	·19	1·124
Albumen, - - - - - - - - - -	1·83	10·828
Casein, - - - - - - - - - -	·72	4·260
Dextrine, - - - - - - - - -	1·16	6·864
Water, - - - - - - - - -	83·35	
	100·25	100·000

The part for proportions was taken from the head, about halfway between the centre and circumference. It contains a little more water than the section used for organic analysis.

Per centage of water,	- - - - - - -	87·915
do	dry matter, - - - - - - -	12·085
do	ash, - - - - - - - - -	·930
do	ash calculated on the dry matter, - -	7·695

Allowing each head to weigh 10lbs., and each plant to occupy a space equal to a square yard, the produce per acre would be about 24·2 tons. Of this about 20·2 tons would be water, and 4 tons dry matter.

Nitrogenous products in a ton of the fresh plant, - -	54·8lbs.
do do do dried plant, -	324·
do in the annual produce of an acre, allowing the yield to be 24 tons, - - - - -	1315·
Inorganic bodies in a ton of the fresh plant, - -	18·6lbs.
do do do dried plant, - - -	153·9
do removed annually from an acre, -	446·
Water in a ton of the fresh plant, - - - - -	1667lbs.
Dry matter, - - - - - - - - -	333

Composition of the ash of the head.		Amount of the several inorganic bodies in a ton of heads.	Amount of the several inorganic bodies removed annually from an acre.	Amount of the several inorganic bodies in a ton of heads deprived of water.
	grs.	*lbs.*	*lbs.*	*lbs.*
Carbonic acid, - - - - -	8·600			
Silicic acid, - - - - - -	3·350	·623	15·077	5·156
Sulphuric acid, - - - - -	14·849	2·762	66·841	22·853
Phosphoric acid, - - - - -	10·110	1·881	44·520	15·559
Phosphate of the per oxide of iron,	3·600	·670	16·214	5·541
Lime, - - - - - -	2·869	·534	12·923	4·415
Magnesia, - - - - - -	3·530	·657	15·899	5·433
Potash, - - - - -	20·203	3·758	90·944	31·093
Soda, - - - - - -	26·937	5·011	121·266	41·456
Chlorine, - - - - - -	·987	·184	4·453	1·519
Organic acids, - - - - -	5·050			
	100·085			

4. The *cauliflower.* Var. *botrytis.*

Of all the varieties of cabbage, this is considered the least hardy. The care necessary to be taken in order to secure a fair crop, is much greater than in the preceding kinds; for this reason, it is not very much cultivated, except in private gardens. The heads are made up of an aggregation of the flower buds and stalks. They are very tender, and possess a peculiarly fine flavor, and are considered easier to be digested than either of the other varieties.

The specimen here examined was a fine plant. It was furnished by Mr. Douw, of Greenbush.

Proximate organic analysis ofthe Flower Buds and Pedicels.

Sugar and extractive matter, with the body that gives the peculiar odor to cabbage, - -	8·08	52·501
Fibre, with a little starch, - - - - - -	·63	4·094
Fibre, - - - - - - - - - -	1·76	11·436
Wax and chlorophyl, - - - - - -	·34	
Carried forward, - - -		

Matter dissolved out of fibre, by a weak solution of caustic potash—resembles albumen, -	2·19	14·230
Albumen, -	·94	6·108
Caseine, -	·05	·325
Dextrine, -	1·74	11·306
Water, -	85·70	
	101·43	100·000

Proportions.

Per centage of water, -	85·700
do dry matter, -	14·300
do ash, -	1·520
do ash calculated on the dry matter, -	10·629
Inorganic matter in a ton of the fresh plant, -	30·04lbs.
do do do dry plant, -	212·58
Nitrogenous products in a ton of the dry plant, about -	415lbs.

Composition of the ash of the pedicels and flower buds.		Amount of the several inorganic bodies in a ton of the fresh plant.	Amount of the several inorganic bodies in a ton of the dried plant.
		lbs.	*lbs.*
Carbonic acid, -	1·85		
Silicic acid, -	1·25	·380	2·652
Sulphuric acid, -	9·79	2·976	20·812
Phosphoric acid and per ox. of iron, -	28·65	8·710	60·904
Lime, -	·73	·222	1·542
Magnesia, -	2·16	·657	4·592
Potash, -	18·41	5·597	39·136
Soda, -	33·44	10·166	71·087
Sodium, -	·20	·061	·425
Chlorine, -	·30	·091	·638
Organic acids, -	3.05		
	99·83		

5. *Turnip rooted cabbage.* Sub. var. *caulo-rapa.*

This belongs to the variety borecole. It is considered a hybrid between the turnip and cabbage. This is distinguished from the other varieties by the swelling of the stalk, just above the ground, which becomes fleshy like the turnip; from this it is often called the bulb stalked cabbage. It is allied more closely to the turnep in general appearance and habits than to the cabbage. When cooked it has a slight flavor of the latter; in every other respect it resembles the former. The outside of the bulb is covered with a thick tough fibrous layer, like that which covers the cabbage

stalk. This was not included in the part analyzed. The leaves resemble in size and shape very closely those of the ruta baga. The plant on the whole is not much esteemed for table use. It is considered as very hardy, and is cultivated mostly for feeding.

The specimen examined was a very fine one. It was furnished by Mr. Douw, of Greenbush. The bulb or fleshy portion of the stalk was the only part analyzed.

Proximate organic analysis.		Calculated without the water.
Sugar and extractive matter, with a trace of the body that gives the peculiar odor to cabbage,	4·880	49·847
Starch, with a little fibre,	·285	2·911
Fibre,	1·560	15·935
Matter dissolved out of fibre, by a weak solution of caustic potash—resembles albumen,	·650	6·639
Albumen,	·655	6·691
Caseine,	·570	5·822
Dextrine or gum,	1·190	12·155
Water,	91·140	
	100·930	100·000

Proportions.	
Per centage of water,	91·140
do dry matter,	8·860
do ash,	·805
do ash calculated on the dry matter,	9·086
Inorganic matter removed in a ton of the fresh bulbs,	16·1lbs
do do do do dry bulbs,	181·72
Nitrogenous products do do do do about	380lbs,
do do do do fresh bulbs.	37½

Composition of the ash of the bulbs.		Amount of the several inorganic bodies in a ton of the fresh bulbs.	Amount of the several inorganic bodies in a ton of the dried bulbs.
100 grains gave of—		*lbs.*	*lbs.*
Carbonic acid,	8·850		
Silicic acid,	·675	·109	1·228
Sulphuric acid,	9·970	1·605	18·145
Phosphoric acid and phos. of per oxide of iron,	16·925	2·725	30·802
Lime,	3·380	·544	6·150
Magnesia,	1·875	·302	3·410
Potash,	21·575	3·474	39·266
Soda,	27·840	4·483	53·668
Sodium,	1·395	·225	2·538
Chlorine,	2·120	·342	6·415
Organic acids,	3·525		
	98·130		

In conclusion it may be well to notice briefly a few points in the preceding results. The matter dissolved out of the fibre by a weak solution of caustic potash, from its resemblance to albumen has, in the calculations, been ranked with the nitrogenized bodies. In reviewing the proximate organic analyses, we find that the dry matter of the cabbage is nearly as rich in the supporters of nutrition, or in those bodies which go to form most of the organized tissues of animals, as the dry matter of the grains; but the fresh cabbage contains so large a proportion of water, that it requires from 6 to 8 tons of it to furnish as much dry matter as is contained in a ton of grain.

The following is a comparative view of the nitrogen compounds in the five varieties examined.

	Drum Head.	Savoy.	Red or Purple cabbage	Cauli-flower.	Turnip rooted cabbage
Per cent. of nit. compounds in the fresh plant,	2·98	3·76	2·74	3·18	1 875
do do do dry do	17·899	20 281	16·212	20·763	19·052
do do in a ton of the fresh plant,	59·6lbs.	75·2lbs.	54·8lbs.	63 6lbs.	37·5lbs
do do do do dry do	358·	406	324·	415·	380·

It will be seen by inspecting the table, that the nitrogen compounds make up from one-sixth to one-fifth of the dry matter of the different varieties. The cauliflower and savoy contain a greater proportirn of these bodies than either of the others, and the red sort contains the least. The large quantity of nitrogen which the cabbage contains, is made evident while the plant is undergoing putrefaction, by the peculiar fœtid odor it evolves.

There is a body which often occurs in the cabbage in sufficient quantity to communicate to it a peculiar pungent burning taste not very unlike that of mustard. A very small quantity of this body was obtained from the savoy. As obtained it had a burning pungent taste, and was of a gummy consistence. It was soluble in alcohol and water, but insoluble in ether. This may be the *sulpho-sinapism* of Henry, changing to the acrid principle of the mustard.

A small quantity of a white wax occurs in the leaves. This is found more largely in the outside spreading ones, than in those which form the head. It is spread over their surface, imparting to them a greasy feel.

It is stated that Schrœder found in the expressed juice of the common cabbage, malic acid; and that Trommsdorf found in the juice of the cauliflower, both malic and oxalic acids. I did not detect these acids in either of the varieties examined. If they are in the cabbage they must exist in very minute quantities.

Another body was observed, which was rapidly dissipated by heat. What was not volatilized during the processes of analysis, was obtained with the extract communicating to it its peculiar odor.

It becomes sensible by its odor in the fresh plant, by exposing the leaves to the drying process at a low temperature.

Comparative view of the ash in the five preceding varieties.

	Drum Head.	Savoy.	Red cabbage	Cauli-flower.	Turnip cabbage
Per centage of ash in the fresh plant, - -	·790	·890	·930	1·520	·805
do do do dried do - -	6.969	6·605	7·695	10 629	9·086
Ash in a ton of the fresh plant, - - -	15·8lbs.	17·8lbs.	18 6lbs.	30·4lbs.	16 1lbs.
do do do dried do - - -	139 38	132 1	153·9	212 58	181 72

The per centage of ash in the cauliflower is greater, and at the same time richer in phosphoric acid and soda, than in either of the other kinds. A deficiency of these bodies in the soil may be one reason why this plant does not generally thrive better. The savoy contains the smallest proportion of ash, but ranks next to the cauliflower in the per centage of phosphoric acid it contains.

It will be seen by referring to the inorganic analyses, that all of the varieties examined are peculiarly rich in the phosphates and sulphates of the alkalies. These four bodies, as it will be seen in the following table, make up from 70 to 90 per cent of their ash.

Comparative view of the phosphoric and sulphuric acids and the alkalies in the ash of the five varieties examined.

	Drum Head.	Savoy.	Red cabbage.	Cauli-flower.	Turnip cabbage
Per centage of sulphuric acid, -	10·449	15·811	14·849	9·79	9·970
do phosphoric do	11·870	20·825	10·110	28·65	16·925
do potash, - -	20·078	17·525	20·203	18·41	21·575
do soda, - -	30·116	23·366	26·937	33·44	27·840
	72·513	77·527	72·099	90·29	76·210

In every instance the soda exceeds the potash by about one-third. It is an old custom to sprinkle salt upon the leaves of the cabbage, to facilitate the process of heading. I do not know whether this operates upon the plant by entering its circulation after being washed into the soil, or whether it acts mechanically upon the leaves causing them to fold up. We may, however, know from the composition of the ash of the plant, that soda as well as potash with sulphuric and phosphoric acids form essential constituents of its food.

These four bodies occur in the cauliflower more largely, as it will be seen above, than in either of the other varieties. In this plant they make up about 90 per cent of its ash, while in the other kinds they form from 72 to 78 per cent.

ON THE COMPOSITION OF THE DARI OR DOORA GRAIN.

BY PROF. JOHNSTON.

Under the names of Dura, Doora, Dhoora, Juwaree, Jondla, and Dari, the seed of the *Andropogon Sorghum*, forms an article of diet in India, Arabia Turkey, the Levant, and other parts of the world. Among other kinds of grain brought to this country on speculation, during the last two years, was a quantity of this doora. Mr. Thompson, of Leith, to whom it was consigned, put some of it in my hands for analysis, with a view of ascertaining how far it could be recommended as a wholesome and nourishing food for man or for stock. It weighs upwards of 60lbs. a bushel, is prized more highly than maize, (corn,) and brings a higher price than this grain in the Levant, where they are both abundant. It is of the size of a large millet seed, is covered with a husk or envelope, and gives a beautiful white flour. When analyzed it was found to consist of:

Water,		11·96 per cent.
Starch,		68·70
Sugar,		1·84
Gum,		1·23
Cellular fibre, (husk,)		4·66
Casein thrown down by acetic acid,	4·71	
Other protein compounds,	6·48	
		11·19
		99·58

This analysis shows that it has a nutritive quality about equal to that of the average of our samples of wheaten flour. It may, therefore, be mixed or ground up with wheaten flour, without any deterioration in the quality of the flower. It differs from wheat in containing a larger per centage of the substance above called casein — a variety of protein matter, which occurs more abundantly in the oat. This, however, does not affect its nutritive quality, though it may, in a slight degree, modify its flavor. The total per centage of protein compound, 11·19, is about equal to what is contained in our best wheaten flours.

This seed might be prepared and eaten as millet is, and it may be used with advantage in its unprepared state, in feeding cattle or poultry. The ripening of such a seed as this in our country, (England) is out of the question, but it is possible that it might be sown for cutting or eating green, and for affording an early bite in spring, or a late one after harvest, by sowing it upon stubble fields.—*Jour. of Ag.*

THE POTATO DISEASE.

BY N. GOODSELL.

I have read an article in the November No. of your "American Journal of Agriculture and Science," written by Prof. Dewey, on the potato disease. From the length with which he dwells upon causes of the disease, as advanced by a Mr. Smee, an English surgeon, might lead some of your readers to suppose that Prof. Dewey had confidence in the positions assumed by Mr. Smee. Such, however, I presume is not the ease, for near the close of his remarks he says, " After all the examination and reasoning of Mr. Smee, there seems to be only a remote probability that he has ascertained the cause of the potato disease." On the contrary the insect which he names as doing the injury, is incapable of doing it in the way he describes. He says, " The solid portion of the sap is extracted by the insect, and the remaining sap being too fluid, does not perform its proper office, &c." This insect Mr. Smee names *Aphis vastator*, but says it is the *Aphis rapae* of Curtis. If this is correct, then it is certain that he does not feed upon any solid part of the plant, as his anatomical structure would prevent his so doing. This numerous family of insects are a genera of the Third Order in the Fourth Class in Entomology. This class is called Ptilota, and includes winged insects, and the Third Order, Hemiptera, includes those which have one half of their wings thicker than the other, the front half being opake while the hinder part is thin and filmy. In many species of this genus the males only have wings, and are seldom seen during midsummer, as their presence does not appear to be necessary for the purpose of propagating their species, and the females continue to bring forth females only, for several months, without the intervention of the males. During this part of the season they are viviparous, which professor D. seems to doubt. As autumn approaches, and the weather becomes cool, winged males may be seen among the females, which then become oviparous, and produce eggs which are deposited upon plants where they remain until hatched by the warmth of the following spring. This appears a very singular arrangement in the order of nature that the same insect should be both oviparous, and viviparous. Yet such is the fact, and was it not for this, we might expect that they would soon become extinct, as their tender bodies do not appear capable of withstanding the frosts of our northern winters.

For the above reasons I would recommend our American farmters, to continue their observations, and search for the cause of this disease without placing the least confidence in the theory of Mr Smee.

Rochester, November 24th, 1848.

POMOLOGICAL CONVENTION.

It would seem that the article headed Pomological Convention, over the signature of "Fidelius," published in our November No. has given great offence to some of our friends as well as some of the officers and members of the convention. It has, we must confess, attracted much more notice than we supposed it entitled to. In justice to ourself, however, we would beg leave to state that the article alluded to was received by us in good faith, viewing it as a criticism on the acts and doings of a public body, and we published it as such. If we have been deceived by the writer, with whom we have no acquaintance, and if he has made false statements, we regret its publication.

We did not visit the sittings of the Convention, neither are we acquainted with the officers or leading members thereof; therefore we had no feelings to gratify, nor any particular object in its publication.

Since the above was written, we have received the following communication from Mr. Parsons, one of the secretaries of the Convention, in reply to Fidelius, which we cheerfully publish, giving the party aggrieved an opportunity to refute or contradict the statements made by Fidelius.

Under the above caption there appears in the last number of the Journal, an article so replete with error and mis-statement, and so abusive of the most valuable members of the convention, that it seems to devolve upon me, by virtue of my office as secretary of that body, to correct these statements as far as lies in my power. It is at best an unpleasant task, for I cannot, with a due preservation of self respect, descend to a style similar to that in which the article is couched—emanating as it evidently does from one whose character is somewhat notorious among those who have planted or purchased trees, and whose consciousness of the position in which the convention, with a proper discrimination of character had placed him, has engendered the bitterness which is displayed in the article in question. In any individual matter I should entirely decline any notice of an article of this character, but my duty as an officer of the body assailed, leaves me no choice. The article states that all the operations of the convention were prearranged by an "eastern clique," to the exclusion of those who were prominent in the State Agricultural Society, or in the Buffalo

Convention, and there is an evident endeavor to excite feelings of rivalry between the Buffalo Convention and the American Congress of Fruit-growers. That all this is untrue, is evident from the fact that Dr. Wendell and others, members of the State Agricultural Society, and who were also prominent at the Buffalo Convention, were among the most active and useful at the Congress in New York; and that Patrick Barry, another active member of the Buffalo Convention, was one of the secretaries of the Congress. The meeting in New York for pomological purposes, has been in agitation for some three years past, and the writer well recollects a conversation with A. J. Downing upon the subject on the Hudson river in the fall of 1845. The subject was at that time also mentioned to others, but delay was deemed advisable and a decisive movement was not made until the present year, and previous to the announcement of the Buffalo Convention, when the Pennsylvania Horticultural Society, the American Institute, and the Massachusetts Horticultural Society, all moved jointly in the matter. That these are well known facts and that the Massachusetts Horticultural Society was not the prime and only mover, is evident from the published circular and from the fact that the Congress was not held in Boston. We wish to pass lightly over the slur upon Samuel Walker's English birth,—a feature in the history of many whose descendants now enjoy the institutions of this country. He may be an adopted citizen, but we know that he has cast no stain upon the reputation of his adopted country by *dishonest transactions abroad.* He is deservedly esteemed and respected by those who know him, and it is not for me to pronounce his eulogy. Neither is it necessary for me to notice the remarks upon M. P. Wilder, whose character and ability stand too high to need my pen. He has long been valued as an efficient President of the Massachusetts Horticultural Society, and all its members deeply regret his resignation of that office, however well it may be filled at present. It is quite a new principle too, which the article advances, that the fact of their selling trees unfits these gentleman for any effort to improve the cultivation of fruit.

The remarks upon A. J. Downing are of the same jealous and bitter character, but still less does he need my defence, for his works have given him a reputation, which even Dr. Lindley, hostile as he is to American talent and effort, has readily acknowledged. He may have committed errors, for who has not, but he willingly submits to their correction; and he may also adhere closely to his opinions, but we are convinced that all unprejudiced minds will bear us out in the assertion that he has done more to advance pomological science, and to improve horticultural and architectural taste, than any other American whatever. We may

be accounted sincere in this opinion, for our willingness to correct his errors in past time is well known. Such being his reputation, it is not surprising that in addition to his appointment by the society of his own county, he was deemed a suitable delegate from the Massachusetts Horticultural Society, of which he was a member.

The experience of the delegates from this society gives them deservedly a prominent place wherever horticultural knowledge or action is required, but it will scarcely be credited that they "usurped all the important business of the convention," when such men as Dr. Hare and Dr. Brinkle, of Philadelphia, Dr. Munson, of New Haven, Dr. Wendell, of Albany, and others were so effectively useful in all its proceedings. The convention accomplished far more than its most ardent projectors anticipated. They supposed that very little more could be done this year than to organize and appoint a committee to report a list of select fruits another year. Not only was this effected, but a small list was reported at once by a committee appointed for the purpose and was adopted by the convention with, if we recollect aright, but two dissenting voices. The convention did almost unanimously disapprove of any attempt to change this list before its adoption, from the conviction that if it attempted to form a list according to the great variety of tastes and individual preferences of its members, founded upon experience or the reverse, nothing whatever could be accomplished, while it could, on the other hand, safely rely upon the deliberate and unanimous decision of a committee of knowledge and experience, representing various sections of the country.

There are some other points on which the author of the article in question attacks the members of the Massachusetts Horticultural Society, but they are scarcely worthy of notice. I have simply stated the facts which bear upon the case, and the public can readily decide between the two parties—the assailed, a highly respectable and most useful society, and the assailant, one whose character is also well known to the community, and whose dishonest transactions in France and England, have injuriously affected American reputation abroad. Between these parties the public can readily judge, and to its unerring verdict we willingly leave them. S. B. PARSONS, *Sec'y.*

Bone Pens. Pens made out of bones are now in use in England and sold at the rate of fifty for twenty-two cents. They are pronounced to be as inflexible as the quill and far more durable.

TURTLE SOUP BEAN.

We were presented with two quarts of black beans by our friend and neighbor, Mr. William Cooper, last spring, for cultivation and trial for soup for our table. They proved to be an early dwarf variety and very prolific, much more so than the small white pea bean generally cultivated in the field. We did not test them as a snap or string bean, but Mr. Downing, in the Horticulturist, says "It has proved to be the best *snap* or *string-bean* that we have ever cultivated—as a general crop for family use. Its superiority over the ordinary bush beans consists in the tenderness and excellent flavor of its pods, and the long time which they continue fit for use—certainly three times as long as the common dwarf bean. Where only one variety of dwarf bean is cultivated we would recommend this variety as decidedly preferable to the old sorts ; and it bears abundant crops on dry soils, where several others fail. It is said to have its name from superior flavor of the ripened beans in soup."

From the two quarts planted we obtained 3½ bushels. The crop would probably have been greater, had they been planted in a less rich soil.

We have had soup made from the beans in the same way that mock-turtle soup is made, with force-meat balls of veal, seasoned highly, and not one at table but supposed it was made from a calve's head. We afterwards had a soup made without the force-meat balls, and the flavor was equally good, and it has been universally pronounced fully equal, if not superior, to that usually made from calve's head. The beans are boiled with a piece of salt pork, the same as for bean soup, and pressed through a colander or sieve, which forms the base of the soup. Herbs and spices are added to suit the taste.

Steel Pens.—The quantity of steel annually consumed in the manufacture of steel pens is estimated at 120 tons, from which 100,000,000 pens are made yearly.

GLEANINGS.

Sweetening Butter.—Mr. Trevelgan has communicated to the *Mechanics' Magazine*, the following item of dietetic improvement. Whilst making some experiments, it occurred to him that butter, either fresh or salt, possessing a disagreeable effluvia and flavor might be rendered perfectly sweet by the addition of a little carbonate of soda. On trial this surmise proved correct. The proportions are, carbonate of soda 2½ drachms to butter three pounds. In makiug fresh butter, the soda is to be added after all the milk is washed out, and it is ready for making up. The unpleasant smell is produced by an acid, which being neutralized by the alkali, disperses at the same time the disagreeable flavor. This acid is generated by peculiarities in the constitutions of some cows, by the condition of certain fodders, by the length of time the cream is kept before being churned, but too often by the dairy utensils not being kept thoroughly clean. Soda produces the same results when added to the culinary greases—as drippings, lard, &c.

Raw and Cooked Food.—The following table shows the difference in bulk between cooked and uncooked food, and as *distension* forms an important point in the philosophy of feeding, the reader will be able to determine for himself the relative value of each. The table is taken from the Com. of Patents' Report:

4	measures of	Oats	have been	increased	by cooking to	7.
4	"	Barley	"	"	"	10.
4	"	Buckwheat or Bran			"	14.
4	"	Maize	"	"	"	13.
4	"	Wheat	"	"	"	10.
4	"	Rye	"	"	"	15.
4	"	Beans	"	"	"	8½.

Value per acre of certain kinds of Food.—The following calculation gives the relative value of certain kinds of food per acre:

Crops.	Average produce per acre.	No. of lbs. of true nutriment.
Beet, Mangel Wurzel and Turnips,	30 tons.	672 lbs.
Beans,	30 bu. or 1,980 lbs.	594 lbs.
Potatoes,	8 tons.	358 lbs.
Peas,	20 bu. or 1,160 lbs.	348 lbs.
Barley,	36 bu. or 1,872 lbs.	243 lbs.
Jerusalem Artichokes,	10 tons,	224 lbs.
Wheat,	25 bu. or 1,500 lbs.	180 lbs.
Oats,	30 bu. or 1,200 lbs.	132 lbs.

Chinese Flax.—Among the results of the extension of British intercourse with China, we have to record the introduction of Flax. Messrs. Hargreaves, of Leeds, have received samples of Chinese

grass which is believed to possess all the qualities of flax, but in a higher degree than any known to our spinners or manufacturers, surpassing the best qualities in strength, fineness, and length of staple. Fine linen manufactured with it greatly resembles French cambric, but has a more silky appearance. It would appear that the Chinese grass can be supplied in unlimited quantity.

Proper depth of Planting Wheat.—"Experiments have been tried with respect to the *depth* of planting *wheat.* M. Moreau, of Paris, formed 13 beds, in which he planted 150 kernels of wheat at various depths. The result was as follows:

At the depth of	*Come up.*	*No. of Heads.*	*No. of Grains*
7 inches	5	53	682
$6\frac{1}{4}$ "	14	140	2,520
$5\frac{3}{4}$ "	20	174	3,818
$4\frac{1}{2}$ "	40	400	8,000
$4\frac{1}{4}$ "	73	700	16,500
$3\frac{3}{4}$ "	93	992	18,534
$2\frac{3}{5}$ "	123	1,417	35,434
$2\frac{1}{3}$ "	130	1,560	34,349
2 "	140	1,590	36,480
$1\frac{3}{4}$ "	142	1,660	35,826
1 "	137	1,561	35,072
$\frac{1}{2}$ "	64	529	10,587
On the surface,	20	107	1,600

"By this experiment the *maximum* as the number that came up was $1\frac{3}{4}$ deep, the *minimum* at 7 inches; the *maximum* of the number of heads was also $1\frac{3}{4}$ deep, the *minimum* seven inches; but the *maximum* of the number of grains was two inches deep and the *minimum* 7 inches deep. The range from $2\frac{3}{5}$ inches down to 1 inch, varies in those that come up only about 20, for the extremes of maximum and miniumum of the heads 243, of the grains 2,331. Between $2\frac{1}{3}$, 2 and 1 inches of those that came up, there is only a difference of about 10 at most; of the heads only 30; of the number of grains, 1,476."

"Looking at it, however, in another light, we may rate the depth of 2 inches as best, then $1\frac{3}{4}$, then $2\frac{3}{5}$, then 1 inch, then $2\frac{1}{3}$ inches. After $4\frac{1}{2}$ inches, the falling off of the product is $\frac{1}{2}$; from $\frac{1}{2}$ inch to the surface it reached to 9-10. Where there may have been extraneous causes influencing, the difference between $2\frac{3}{5}$ inches and $2\frac{1}{3}$ inches, which seem to vary from the general rule; but it may doubtless be considered, *so far as this experiment goes*, that the grain should not be sown at much greater depth than 2 inches, nor nearer than 1 inch from the surface. The difference to be allowed should respect the season, the nature of the soil, &c."—*Com. Pat. Report.*

TO FRIENDS AND PATRONS.

Gentle readers, we have now reached the end of our voyage of the seasons, the end of the year, the end of this volume, and with it our editorial labors cease. Our voyage has not been a prosperous, though a pleasant one. Instead of making the port of *Prosperity*, which we started for, we were obliged to put in to the harbor of *Disappointment.* Our wares did not meet with a ready sale, and are left on our hands to perish "unsight, unseen,"—in plain English, *the support afforded is not sufficient to sustain us.* We have therefore come to the conclusion, (although earnestly pressed by many of our friends to continue the publication,) to discontinue it after this date.

And here we would remark, that it would be uncandid and ungrateful in us not to acknowledege that for its chief interest and usefulness, the credit is mainly, if not wholly, due to the correspondents of the Journal. While, therefore, we tender our cordial thanks to the correspondents and patrons, we beg their forbearance in reference to its imperfections, of which we are duly sensible. If we have succeeded in our efforts the past year, in aiding the advancement of agriculture and horticulture, we shall feel that our labors have not been lost. And now we seize this opportunity of tendering our readers our heartfelt wishes for their prosperity and happiness, and hope that good health may lend its wonted zest to their exertions, and that they may pursue their noble avocations with elastic step, a generous flow of spirits, and a heart impressed with a high sense of gratitude to an allwise and Beneficient Being.

To the gentlemen of the press who have so kindly noticed our Journal, from time to time, we tender our unfeigned thanks.

☞ Those who are in arrear for the subscription will please remit the amount per mail, at our expense.

☞ Back numbers supplied if application is made soon.

☞ Full sets of the Journal, from its commencement, bound, may be obtained by applying to Dr. E. Emmons, or A. Osborn, Esq. Albany.

METEOROLOGICAL OBSERVATIONS FOR NOVEMBER, 1848.

Made at the Albany Academy, by Rev. W. H. Campbell, Principal, &c.

Days.	THERMOMETER.				WINDS.		WEATHER.		RAIN	REMARKS.
	6 A. M.	3 P. M.	9 P. M.	Mean.	A. M	P. M.	A. M.	P. M.	Inch's	
1	37	58	46	47·50	S.	S.W.	Clear.	Clear.		
2	40	49	42	43·67	N. W	N. W.	do	Cloudy.		
3	40	52	41	43·67	S W.	W.	Cloudy.	Clear.		
4	36	49	53	49·67	S.	S.	do	Cloudy.	1·98	Rain.
5	58	39	38	41·67	S. E.	N. W.	do	do		
6	38	48	40	41·67	S.	S.	Clear.	Clear.		
7	36	41	36	36·83	S.W.	W.	do	do		
8	31	41	39	38·00	N. W.	S. W.	do	Cloudy.		
9	37	36	28	31·00	N. W.	N. W.	Cloudy.	do		
10	21	30	22	24·00	N W.	N. W.	Clear.	Clear.		
11	19	34	30	29·17	W.	S.	do	Cloudy		
12	28	34	33	32·50	N. E.	N.	Cloudy.	do	0·23	Snow.
13	33	43	33	35·00	N.	N. W.	do	do		
14	25	36	34	33·33	N. E.	S.	do	do		
15	35	45	41	40·67	S.	S.	do	do	0·03	Snow and rain.
Semi-monthly mean, 37·89									2 24	
16	37	51	43	44·17	S.	S.	Clear.	Clear.		
17	40	45	36	38·83	N. W.	N. W.	do	do		
18	31	43	33	35·50	N. W.	N. W.	do	do		
19	30	43	30	34·00	N.	N.	Cloudy.	Cloudy.		
20	28	34	32	30·50	N.	N.	do	do	0·14	Snow.
21	23	45	35	36·66	N. E	N. W.	Clear.	Clear.		
22	37	45	39	40·33	N. W.	N. E.	Cloudy.	Cloudy.		
23	37	51	38	41·33	S.	S.	Clear.	Clear.		
24	33	48	47	45·33	N.	S.	Cloudy.	Cloudy.	0·16	Rain.
25	49	48	43	45·00	S.W.	W.	do	Clear		
26	39	39	36	36·67	S.	N. W.	do	Cloudy.	0·07	Snow.
27	31	33	33	31·33	N. W.	N. W.	do	Clear		
28	25	41	36	35·50	S.	S.	Clear.	Cloudy.		
29	34	50	43	43·83	S.	S.	do	Clear.		
30	43	52	36	42·00	S.	N. W.	do	Cloudy.		
Semi-monthly mean, 38·73									·37	

Monthly mean,.... 38·31. Rain Gage 2·61.

4th, Rain commenced at noon and continued all next day, 1·98

7th, Snow, first,..... .....(no measure)

11th, Snow commenced at 9 P. M. and continued through next day,..... 0·23

15th, Snow and rain A. M.,..... 0·03

20th, Snow from 8 A. M. to 2 P. M.,..... 0·14

24th, Rain P. M.,..... 0·16

26th, Snow A. M ,..... 0·07

Rain Gage,..... 2·61

Winds.—North 3¼; North East 2; South East ¼; South 10; South West 2¼; West 2; North West 9½.

Weather.—Fair 14; Cloudy 16 days. Rain on 3 days; Snow on 3 days; Rain and snow on 1 day.

Warmest day 4th, Highest 58°,

Coldest day 10th, Lowest 19°.

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