EXTRACT

From an Act prescribing Rules for the Government of the State Library, passed March 8th, 1861.

SECTION 11. The Librarian shall cause to be kept a register of all books issued and returned; and all books taken by the members of the Legislature, or its officers, shall be returned at the close of the session. If any person injure or fail to return any book taken from the Library, he shall forfeit and pay to the Librarian, for the benefit of the Library, three times the value thereof; and before the Controller shall issue his warrant in favor of any member or officer of the Legislature, or of this State, for his per diem, allowance, or salary, he shall be satisfied that such member or officer has returned all books taken out of the Library by him, and has settled all accounts for injuring such books or otherwise.

SEC. 15. Books may be taken from the Library by the members of the Legislature and its officers during the session of the same, and at any time by the Governor and the officers of the Executive Department of this State who are required to keep their offices at the seat of government, the Justices of the Supreme Court, the Attorney-General and the Trustees of the Library.

After each issue there is a section of advertisements & miscellanea which is missing. Verified in correspondence with Bancroft Library.
May 26, 1966 RK

THE

CALIFORNIA CULTURIST.

A JOURNAL

OF

AGRICULTURE, HORTICULTURE, MECHANISM AND MINING.

VOLUME I.

June, 1858, to May, 1859.

W. WADSWORTH, ... Editor.

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CALIFORNIA FRUIT

THE CALIFORNIA CULTURIST.

JUNE, 1858.

INTRODUCTORY.

THE public mind demands at the hand of every one responsible for the appearance of a new journal—whether in the form of a penny half-sheet, a ponderous quarterly, or an elegant annual—some apology for the presumption. Bowing to the mandate, we attempt the task:

First. There is a large, fertile, unoccupied field, demanding the hand of the laborer.

Second. We have been urged to enter and attempt to cultivate it.

We take the chair, and become editorially responsible for such a work as is needed, with many misgivings, and the most sincere distrust of our own ability to meet public expectation. But we rely, with great confidence, upon the ability and integrity of the many able minds already pledged, and those equally able whom we expect to engage, to furnish such contributions as cannot fail to commend themselves, to every one interested in any of the departments designed to be aided by the CULTURIST.

Our NAME has been chosen with especial reference to the character we design to have the work bear, viz: one who encourages "the application of labor, or other means, to produce or improve good objects or qualities." In our various departments, we shall endeavor, by the collation of reliable statistics, and the experience of practical operators, to deduce principles and illustrate practices, the adoption and imitation of which, cannot fail to benefit every one who will take the trouble to read the columns of the CULTURIST.

In our AGRICULTURAL department, we have undertaken an Herculean task. In a country so new in all its general characteristics of soil, climate and productions as is the Pacific Coast, there must, of necessity, be much variation from what has been regarded as the established theories and fixed laws of Agriculture, in other portions of the globe. So peculiar and so strongly marked are our "climates," that a *new system* of cultivating the soil seems almost indispensable. This can be attained only by the proper comparison of multiplied experiments, scattered over many portions of the country, and repeated through a series of years. The importation of books, and the republication of reports and dissertations, founded upon the results of labor in countries where rains refresh the earth, and invigorate vegetation, every week in the

year, will never teach the Agriculturist, in a land destitute of rain and parched with dehumidized winds and a burning sun for six months in the year, how to overcome such great natural obstacles, and properly develop the resources of the soil. Those books will be of value in many respects, but they are not sufficient. Our cultivators want to have, in a tangible form, the results of their own and their co-laborers' experience—books of facts realized here in California — such a book, we intend the California Culturist shall make, each year.

In our Horticultural department, we design to afford our readers the richest experience of our most careful cultivators of every variety of vegetable, tree, shrub, plant, fruit, and flower, adapted to be grown in the garden, nursery, and orchard. We trust that our pages will, from time to time, teach the lady, who wishes to "plant her tulip bulb or train her passiflora," how each and every individual variety needs to be attended to in order to meet the peculiarities of this unique climate; and the gentleman, that desires to know the different treatment which various kinds of fruits need in order to secure equal success. Until experience has taught us *how* to do, we do all in the dark. Our fruits and flowers may have been the companions of our youth, and their culture in other climes as familiar as household words, yet here they droop and die, unless their treatment is so changed as to adapt it to our soil and our climate. The indigenous fruits of California are comparatively few, and not of a character that promise much improvement by cultivation. The value, however, of such as we do possess, will be discussed in the Culturist, as opportunity presents. Amateur experimentists and others are invited to an interchange of views through our pages, upon any subject connected with the improvement of our Horticulture. Of the Flora of California, we believe few will deny its superiority over that of almost any other country. It will be the purpose of the Culturist to bring out, from time to time, some of its rare beauties, presenting specimens, *colored to the life*, that our patrons, both at home and abroad, may judge of the truthfulness of the praises heretofore so lavishly bestowed.

Mechanism: It is generally conceded that Horticulture was man's first employment. That his primitive effort at labor was the cultivation of the garden, in which a beneficient Deity had placed him; and, therefore, that horticulture should take precedence in the scale of man's industrial pursuits and efforts for the benefit of his species. Now, though we are willing to concede its great usefulness and importance to the well-being of mankind, yet we claim that Mechanism, though not generally *admitted* to have been the first, can, as an industrial pursuit, claim a priority over any other. Deity was the first architect; the earth was the "work of his hands," and this long before he planted a garden, or taught Adam how "to dress it, and to keep it." But it is claimed that Horticulture was man's first employment. Be it so. But, while we accord to Horticulture the high rank it so justly deserves, we shall ever maintain that mechanism first occupied the mind of Deity, that it cannot therefore rank second to any effort or employment engaging the attention of mankind. Keeping pace, therefore, with the progress of the mechanism of the age, disseminating its improvements and usefulness, will ever constitute a prominent feature of the Culturist.

In our department of Natural History, we hope to present much that will interest every reader. In animals, in minerals, in fossils, in extended plains and lofty mountains, in fertile soils and salubrious climates, in majestic rivers and extended bays, few countries equal the field whose natural history we shall, from time to time, endeavor to render familiar to our readers.

With this brief apology, and these few hints at the general aim of our work, summoning all the energy of our natures, and whatever of talent we may possess; with a personal experience of nine years on the field, we enter upon our labor for life.

EFFECTS OF CLIMATE UPON VEGETATION.

IT is a well established axiom, that upon the *climate* of a country depends the development of its vegetation. For, let the soil possess every element of fertility, if the climate is not congenial, if too wet or too dry, too hot or too cold, vegetation dwindles, or wholly disappears. Do we wish, therefore, to solve the problem, in which is wrapped the mystery of the truly anomalous growth, variety and superiority of the vegetable products of California, and which are giving it a notoriety almost equal to that of its precious metals, we have but to analyze its climate, and we have a solution of the phenomena.

In a small pamphlet, recently from the press of Whitton, Towne & Co., San Francisco, we find a reprint of an article, from the *New Englander*, upon the "Characteristics and Prospects of California," by Horace Bushnell, D. D., in which the subject of climate, and its effects upon the vegetation of our State, is so ably discussed, that we appropriate it nearly entire; believing that all who read it will be pleased with its perusal, and convinced of its accuracy:

Whoever wishes, for health's sake or for any other reason, to change the scenery or the objects and associations of his life, should set off, not for Europe, but for California. And this the more certainly, if he is a loving and sharp observer of nature; for nature meets us here in moods entirely new; so that we have even to make her acquaintance over again; going back, as it were, to be started in a fresh childhood. All our common, or previously formed impressions, calculations and weather-wisdoms are at fault. We find that we really understand nothing and have everything to learn. We begin to imagine, for example, that her way is to be thus, or thus; or that her operations are to be solved in this, or that manner, but we very soon discover that it will not hold. Our guess must be given up and we must try again. A person who is at all curious in the study of natural phenomena, will be held in a puzzle thus for whole months, and will nearly complete the cycle of the year, before he seems to himself to have come into any real understanding with the new world he is in; just as if he were sent on a visit to Jupiter, and wanted to sail round the sun with him, for at least once, and feel out his year, before he can be sure that he understands a single day.

California being to this extent a new world, having its own combinations, characters, and colors, it is not to be supposed that we can make any reader acquainted with it by words of description. The most we can hope to accomplish is, that by giving some notes on its physical and social characteristics, we may excite a more curious

and possibly a more intelligent interest in California life, and the certainly great scenes preparing to be revealed in that far off, outside, isolated state of the Republic. It is not to be supposed that every particular representation or suggestion we may offer will be verified by the experiments and exact observations of science, or by the tests of moral and economical statistics; we only look on with our mere eyes, giving our impressions, and venturing what guesses and possible applications may occur to us.

The first and most difficult thing to apprehend respecting California is the climate, upon which, of course, depend the advantages of health and physical development, the growths and their conditions and kinds, and the *modus operandi*, or general cast, of the seasons. But this, again, is scarcely possible, without dismissing, first of all, the word *climate*, and substituting the plural climates. For it cannot be said of California, as of New England, or the Middle States, that it has a climate. On the contrary, it has a great multitude of them, curiously pitched together, at short distances, one from another, defying too, not seldom, our most accepted notions of the effects of latitude and altitude and the defences of mountain ranges. The only way, therefore, is to dismiss generalities, cease to look for a climate, and find, if we can, by what process the combinations and varieties are made; for when we get hold of the manner and going on of cause, all the varieties are easily reducible.

To make this matter intelligible, conceive that middle California, the region of which we now speak, lying between the head waters of the two great rivers, and about four hundred and fifty or five hundred miles long from north to south, is divided lengthwise, parallel to the coast, into three strips, or ribands of about equal width. First, the coast-wise region, comprising two, three, and sometimes four parallel tiers of mountains, from five hundred to four thousand, five thousand, or even ten thousand feet high. Next, advancing inward, we have a middle strip, from fifty to seventy miles wide, of almost dead plain, which is called the great valley; down the scarcely perceptible slopes of which, from north, and south, run the two great rivers, the Sacramento and the San Joaquin, to join their waters at the middle of the basin and pass off to the sea. The third long strip, or riband, is the slope of the Sierra Nevada chain, which bounds the great valley on the east, and contains in its foot-hills, or rather in its lower half, all the gold mines. The upper half is, to a great extent, bare granite rock, and is crowned at the summit with snow, about eight months of the year.

Now the climate of these parallel strips will be different almost of course, and subordinate, local differences, quite as remarkable, will result from subordinate features in the local configurations, particularly of the seaward strip or portion. For all the varieties of climate, distinct as they become, are made by variations wrought in the rates of motion, the courses, the temperature, and the dryness of a single wind, viz: the trade wind of the summer months, which blows directly inward all the time, only with much greater power during that part of the day when the rarefaction of the great central valley comes to its aid; that is from ten o'clock in the morning until the setting of the sun. Conceive such a wind, chilled by the cold waters which have come down from the Northern Pacific, perhaps from Behring Straits, combing the tops and wheeling through the valleys of the coast-wise mountains, crossing the great valley at a much retarded rate, and growing hot and dry, fanning gently the foot-hills and sides of the Sierra, still more retarded by the piling necessary to break over into Utah, and the conditions of the California climate, or climates, will be understood with general accuracy. Greater simplicity in the matter of climate is impossible, and greater variety is hardly to be imagined.

For the whole dry season, viz: from May to November, this wind is in full blast, day by day, only sometimes approaching a little more nearly to a tempest than at others. It never brings a drop of rain, however thick and rain-like the clouds it sometimes drives before it. The cloud element, indeed, is always in it. Sometimes it is floated

above, in the manner commonly designated by the term cloud. Sometimes, as in the early morning, when the wind is most quiet, it may be seen as a kind of fog bank resting on the sea-wall mountains, or rolling down landward through the interstices of their summits. When the wind begins to hurry and take on less composedly, the fog becomes blown fog, a kind of lead dust driven through the air, reducing it from a transparent to a semi-transparent or merely translucent state, so that if any one looks up the bay, from a point twenty or thirty miles south of San Francisco, in the afternoon, he will commonly see, directly abreast of the Golden Gate, where the wind drives in with its greatest power, a pencil of the lead dust shooting upwards at an angle of thirty or forty degrees, (which is the aim of the wind preparing to leap the second chain of mountains, the other side of the bay,) and finally tapering off and vanishing, at a mid-air point eight or ten miles inland, where the increased heat of the atmosphere has taken up the moisture, and restored its complete transparency. The wind is so cold, that one who will sit upon the deck of the afternoon steamer passing up the Bay, will even require his heaviest winter clothing. And so rough are the waters of the Bay, land-locked and narrow as it is, that sea-sickness is a kind of regular experience, with such as are candidates for that kind of felicity.

We return now to the middle strip of the great valley, where the engine, or rather boiler power, that operates the coast wind in a great part of its velocity, is located. Here the heat, reverberated as in a forge or oven, whence *Cali—fornia* (*Caleo* and *fornan*) becomes, even in the early spring, so much raised that the ground is no longer able, by any remaining cold there is in it, to condense the clouds, and rain ceases. A little further in the season, there is not cooling influence enough left to allow even the phenomena of a cloud, and for weeks together not a cloud will be seen, unless, by chance, the skirt of one may appear now and then, hanging upon the summit of the western mountains. The sun rises, fixing his hot stare on the world, and stares through the day. Then he returns as in an orrery, and stares through another, in exactly the same way. The thermometer will go up, not seldom, to 100 or even 110 deg., and judging by what we know of effects here in New England, we should suppose that life would scarcely be supportable. And yet there is much less suffering from heat in this valley than with us, for the reason probably that the nights are uniformly cool. The thermometer goes down regularly with the sun, and one or two blankets are wanted for the comfort of the night. This cooling of the night is probably determined by the fact that the cool sea-wind, sweeping through the upper air of the valley, from the coast mountains on one side, over the mountains and mountain passes of the Sierra on the other, is not able to get down to the ground of the valley during the day, because of the powerfully steaming column of heat that rises from it; but as soon as the sun goes down, it drops immediately to the level of the plain, bathing it for the night with a kind of perpendicular sea breeze, that has lost for the time a great part of its lateral motion. The consequence is, that no one is greatly debilitated by the heat. On the contrary, it is the general testimony, that a man can do as much of mental or bodily labor in this climate, as in any other. And it is good confirmation of this opinion, that horses will here maintain a wonderful energy, travelling greater distances, complaining far less of heat, and sustaining their spirit a good deal better than with us. It is also noted that there is no special tendency to fevers in this hot region, except in what is called the *tule* bottom, a kind of giant bulrush region, along the most depressed and marshiest portions of the rivers.

Passing now to the eastern strip or portion, the slope of the Nevada, the heat, except in those deep cañons where the reverberations makes it sometimes even insupportable, is qualified in degree, according to altitude. A gentle west wind, heated in the lower part of the foothills by the heat of the valley, fans it all day. At points which are higher, the wind is cooler. Here also, on the slope of the Nevada, the nights are always cool in summer; so cool that the late and early frosts leave too

short a space for the ordinary summer crop to mature, even where the altitude is not more than three thousand or four thousand feet. Meantime, at the top of the Sierra, where the west wind piling up from below, breaks over into Utah, travelers undertake to say that, in some passes it blows with such stress as even to polish the rocks, by the gravel and sand which it drives before it. The day is cloudless on the slope of the Sierra, as in the valley, but on the top there is now and then, or once in a year or two, a moderate thunder shower. With this exception, as referring to a part uninhabitable, thunder is scarcely ever heard in California. The principal thunders of California are under ground.

We return now to the coast-wise mountains, where the multiplicity and confusion of climates is most remarkable. Their variety we shall find depends on the courses of the wind currents, turned hither and thither by the mountains; partly also on the side any given place occupies of its valley or mountain; and partly on the proximity of the sea. Sprinkled in among these mountains, and more or less enclosed by them, are valleys, large and small, of the highest beauty. But a valley in California means something more than a scoop or depression. It means a rich land-lake, leveled between the mountains, with a sharply defined, picturesque shore, where it meets the sides and runs into the indentations of the mountains. What is called the Bay of San Francisco, is a large salt water lake in the middle of a much larger land-lake, sometimes called the San José valley. It extends south of the city forty miles, and northward among islands and mountains twenty-five more, if we include what is called the San Pablo Bay. Three beautiful valleys of agricultural country, the Petaluma, Sonoma, and Napa valleys, open into this larger valley of the Bay on the north end of it, between four mountain barriers, having each a short navigable creek or inlet. Still farther north is the Russian River valley, opening towards the sea, and the Clear Lake valley and region, which is the Switzerland of California. East of the San José valley, too, at the foot of Diablo, and up among the mountains, are the large Amador and San Ramon valleys, also the little gem of the Suñole. Now these valleys, if we except the great valleys of the two rivers, comprise the plow-land of middle California, have each a climate of their own, and productions that correspond. We have only to observe further, that the east side of any valley will commonly be much warmer than the west; for the very paradoxical reason that the cold coast-wind always blows much harder on the side or steep slope even, of a mountain, opposite or away from the wind, than it does on the side towards it, reversing all our notions of the sheltering effects of the mountain ridges.

Nothing will so fatally puzzle a stranger as the observing of this fact; for he will doubt for a long time; first, whether it be a fact, and then, what possible account to make of it. Crossing the Golden Gate in a small steamer, for example, to Saucelito, whence the water is brought for the city, he will look for a quiet shelter to the little craft, apparently in danger of foundering, when it comes under the lee of that grand mountain wall that overhangs the water on the west. But he is surprised when he arrives, to find the wind blowing straight down the face of it, harder even than elsewhere, gouging into the water by a visible depression, and actually raising caps of white within a rod of the shore. In San Francisco itself, he will find the cold coast-wind pouring down over the western barrier with uncomfortable rawness, when returning from a ride at Point Lobos, on the very beach of the sea, where the air was comparatively soft and quiet. So, crossing the Sonoma valley, he will come out into it from the west, through a cold windy gorge, to find orange trees growing in Gen. Vallejo's garden, close under the eastern valley wall, as finely as in Cuba. In multitudes of places, too, on the eastern slopes of the mountains, he will notice that the trees, which have all their growth in the coast-wind season, have their tops thrown over, like cock's tails turned away from the wind. After he has been sufficiently perplexed and stumbled by these facts, he will finally strike upon the reason, viz:

that this cold, trade wind, being once lifted or driven over the sea-wall mountains, and being specifically heavier than the atmosphere into which it is going, no sooner reaches the summit than it pitches down as a cold cataract, with the uniformly accelerated motion of falling bodies. Then as confirmation, it will occur to him, perhaps, that he has been seeing it demonstrated all summer long, from his residence on the opposite or eastern side of the Bay; where, during all the fore part of the day, and sometimes for the whole afternoon, he has noticed a fog cap, or cloud rolling over the distant top of the western mountain, and driving more than half-way down the hither side of it, before it has caught sun enough or heat enough to become transparent.

Having gotten over the understanding of this fact, many things are made plain. For example, in travelling down the western side of the Bay from San Francisco to San José, and passing directly under the mountain range just referred to, he has found himself passing through as many as four or five distinct climates; for, when abreast of some gap or depression in the western wall, the heavy wind has poured down with a chilling coldness, making even an overcoat desirable, though it be a clear summer day; and then, when he is abreast of some high summit, which the fog-wind sweeps by, and therefore need not pass over, a sweltering and burning heat is felt, in which the lightest summer clothing is more than enough. He has also observed that directly opposite the Golden Gate, at Oakland, and the Alameda point, where the central column of this wind might be supposed to press most uncomfortably, the land is covered with growths of evergreen oak, standing fresh and erect, while north and south, on either side, scarcely a tree is to be seen for many miles; a mystery that is now explained by the fact that the wind, driving here square against the Contra Costa or second range, is piled and gets no current, till it slides off north and south from the point of quiet here made; which also is confirmed by the fact, that, in riding down from San Pablo on the north, he has the wind in his face, finds it slacken as he approaches Oakland, and passing on, still southward to San Leandro, has it blowing at his back.

The varieties, and even what appeared to be the incredible anomalies of the California climates, begins at last to be intelligible. The remarkable contrast, for example, between the climates of Benicia and Martinez, is clearly accounted for. These two places, only a mile and a half apart, on opposite sides of the straits of Carquinez, and connected by a ferry, like two points on a river, are yet more strikingly contrasted, in their summer climates, than Charleston and Quebec. Thus the Golden Gate column, wheeling upon Oakland, and just now described, sweeps along the face of the Contra Costa chain in its northward course, setting the few tree-tops of San Pablo aslant, as weather vanes stuck fast by rust, and drives its cold sea-dust full in the face of Benicia. Meantime, at Martinez, close under the end of the mountain which has turned the wind directly by, and is itself cloven down here to let the straits of Carquinez pass through, the sun shines hot and with an almost dazzling clearness, and all the characters of the climate belong rather to the great valley cauldron, whose rim it may be said is here.

Equally plain now is the solution of those apparent inversions of latitude, which at first perplex the stranger. In the region about Marysville, for example, he is overtaken by a fierce sweltering heat in April, and scarcely hears, perhaps, in the travel of a day, a single bird sing as if meaning it for a song. He descends by steamer to San Francisco, and thence to San José, making a distance in all of more than two hundred miles, where he finds a cool, spring-like freshness in the air, and hears the birds screaming with song even more vehement than in New England. It is as if he had passed out of a tropical into a temperate climate, when, in fact, he is due south of Marysville by the whole distance passed over. But the mystery is all removed by the discovery, that instead of keeping in the great valley, he broke out of it, through the straits of Carquinez into the Bay valley, and the cold bath atmosphere of the

coast-wise mountains; that now he is in fact within twenty miles of the sea, separated from it only by a single wall, while at Marysville, he was more than a hundred miles from the sea, with four or five high mountain tiers between them.

This much for the summer climate of California. The winter climate is the trade wind reversed. The Sierra is covered with snows of incredible depth at the top, and they extend even down to its foot, whitening also, not seldom, the great valley, which is much colder, at this season, than the coast-mountain region. Temperature, in short, is inverted, just as the winds are. The temperature in San Francisco, for example, between 60° and 70°, as in the summer between 65° and 80°; though the cold of experience will be scarcely greater in the winter than in the summer, because, in winter the air is comparatively still, and in summer adds a cooling effect by its motion. Probably there is not a more even climate in the world. Now and then the thermometer will sink low enough, at night, to produce a thin scale of ice; but geraniums will be seen in full blossom, on the terraces of the gardens, throughout the winter.

It is hardly necessary to say that this westward return of the trade winds brings the rainy season. All the rain of the year is from it. It sometimes blows too with terrific violence, and pours even cascades of rain for whole days together, producing immense floods; though generally the whole amount of rain which it brings is much too small for the supply of the springs and due moistening of the soil for the year. It is not to be understood that what is called the rainy season is a season of continual rain. It is scarcely more rainy, if at all, than our three autumnal months. And at about the mid-point of the season, or in the month of February, there is commonly a suspension, which separates what may be called the early from the latter rain, as in Palestine. This month of February is, in fact, the most lovely, and in many respects, the most beautiful month of the year. The green of the landscape is then freshest, the air is soft, the sky clear, the roads neither wet nor dusty—all the conditions of comfort and beauty meet, to crown as it as the June of the Pacific.

If now it should appear that we have spent too much time on the winds and meteorological phenomena of California, it is sufficient to answer, that while such an impression would be right if New England were the subject, it is not right when the subject is California. The winds of our eastern shore are a confused mixture, of which nothing can be predicated with certainty, except the uncertainty of the weather. The Pacific winds, on the other hand, are very nearly calculable quantities; and by them are determined, to a great degree, the temperature of places, the rains, the seasons, the almost uniform salubrity of the country, (for with all its varieties there is probably no healthier region on the globe,) the growths also, as respects both their rates and kinds, and further still, the immense commercial advantages; for California, as we shall by and by see, is elected for the great metropolitan centre of the commerce of the Pacific, quite as much by its winds, as by the magnificent harbor, whose Gate is here set open to let the ships fly in, as doves to their windows, from all the seas of the world. The gold of California, taken as a determining cause and physical endowment of its future, is not once to be compared with its winds. They are more necessary, by a thousand times, to the greatness of California than the mines. If any one judges from our description, that they are too cold, or too strong, or too much laden with moisture, he will greatly mistake. If they were warmer, softer and more dry on the coast, even by a few degrees, it would greatly injure the country and might even be a fatal blight on its prospects. Indeed, if California has any prospects, it is just because the light baffling winds, or rather no winds of the coast below, are here displaced by such blasts as have power to drive across its whole width and fan it with their cooling breath. Otherwise its rich valleys and lowlands would be arid deserts, its shores and rivers reeking places of disease, and its mining region too hot to be worked or even inhabited, in the summer months.

LATE FROSTS.—CHOICE OF ORCHARD GROUNDS.

THE blighting frosts of last April, so generally destructive to the stone fruits of our horticulturists, occupying positions bordering upon the foot-hills, or among the arable valleys of the lower mountains of the Coast Range or Sierra Nevada, has, in many instances we find, shaken the faith of fruit growers, as to the propriety of largely extending their efforts in this branch of horticulture.

Throughout the middle and northern portions of the State, if we except the great valleys of the Sacramento and San Joaquin, the peach and apricot crops were more or less injured; in a few places amounting to a total loss, and from that to a half or three fourths of the ordinary or expected yield, as in many places its effects were modified by a variety of circumstances, some of a local character depending upon natural, in others upon artificial causes.

At the time the frosts occurred, we were on a horticultural and business tour through the counties of Tuolumne, Calaveras and Amador, visiting numerous gardens and ranches, in every variety of locality, giving us an opportunity to compare the effects of the frost upon the blossoms and germs of the peach and other fruits, under a great variety of phases, as the early or late maturity of the blossoms, the nature and consistency of the soil, altitude, and exposure. And, in the absence of information from those whom we hope may favor us hereafter with an account of the extent of injury done, and the peculiarities attendant upon its visitation in their respective localities, we shall give only that view of the subject presented to us in our hurried, though exceedingly interesting tour.

We shall first speak as encouragingly to the lovers of good fruits as we possibly can, by saying, that the loss of the peach crop by the late April frosts, though very general among the highlands, was far from being total. In many localities one half, in others one fourth, of the ordinary crop will be realized; and in many localities, where it was supposed the destruction was complete, a single tree here and there escaped; so that but very few who cultivate it to any considerable extent, will be entirely without a taste of their expected fruits.

Although the fruits among the foot hills, and highlands bordering upon the mountains, were more severely injured than were those of the great lower valleys, yet in nearly every locality among the highlands, where fruit trees were exposed in both high and low situations in close proximity, those in the low grounds almost invariably suffered most; and yet instances were not wanting, where, from some local cause, a small section of a garden where all was alike low, escaped the more general destruction. This being the fact, it would be well that fruit growers carefully observe and make a note of the probable cause of such exemptions; as in many cases, doubtless, a hint might be communicated that would prove highly beneficial to the cultivators of fruits, enabling them, to some extent, to guard against a recurrence of the evil. As a general feature among our highland gardens, they occupy the very lowest portions of those highlands, generally the alluvials and moist lands along the streams, or the low and wet portions around the numerous large springs that flow forth low

down among the hill sides. The necessity of irrigation to the successful production of fruits, except in such localities as are naturally watered, has heretofore prevented many from attempting it upon the more elevated grounds. And yet, there are good reasons why, in many localities, these elevated grounds are the best for fruit growing, provided they can be irrigated; and among the reasons that might be offered, is their almost certain immunity from frosts, whilst the low grounds in their immediate vicinity suffer from its effects.

We endeavor to account for this phenomena, if such it is, in this way. For the greater part of spring and summer, the prevailing winds among the highlands, or foot-hills of the Sierras, sweep upward during the day, heated from the lower valleys; these at night are reversed, when a cold wind rolls down from the snowy summits of the higher mountains, the colder portions, from their density, following more directly down the bottoms of the narrow valleys and ravines, that from their pent up situations had been the most heated during the long and cloudless day. This cause, alone, subjects them to very great and sudden changes of temperature.

Another cause we find in the alluvial or bottom lands of the ravines and mountains, being what may be termed black lands; and, simply because the land is black or dark, absorbs more of the sun's rays and heat during the day than do the lighter colored soils of the uplands, at the same time that its powers of radiation, or throwing off the heat, from the same cause—color—is far greater when the sun is withdrawn; thus loosing its heat more rapidly than the highlands, or light colored soils, during the night. Thus it is that fruit trees on black lands, and in low situations, are forced prematurely into bloom by the heat of the day, only to be made the more liable to injury by the frosts of succeeding nights. These sudden changes to the two extremes, prevail in all the low grounds of the foot-hills to a far greater extent than upon the surrounding hills and ridges, or even in the broad low valleys of the Sacramento and San Joaquin Rivers.

The diurnal flow of the great wind tides of California, to and from the mountains, is one of the various striking peculiarities of her climate; in many places producing effects upon vegetation quite local in character, so that its effects upon the introduced vegetation of the country, should be carefully observed. Its effects upon the indigenous vegetation is apparent to any one who gives the subject proper attention, and should have consideration before determining where to locate for orchard or fruit growing purposes; as, doubtless, in many instances it will lead quite as unerringly to a knowledge of the proper position, soil, altitude and exposure, the best for the production of orchard fruits among the highlands, as can be otherwise reliably obtained, except by years of experiments. The difference in the vegetation upon the north and south sides of the same deep ravine or narrow valley, lying east and west, is everywhere apparent in California, and would at once indicate which of the two would be the most likely to prove favorable for the culture of an introduced vegetation. And yet, if proper artificial irrigation can be secured, the very positions marked out by the natural vegetation as the best for its growth without such irrigation, may be, with it, directly reversed; for nowhere do the rays of the sun destroy the vegetation of a country, that at all times is sufficiently supplied with moisture; so

that our success in many localities may yet be found to depend more upon artificial irrigation, with the proper altitude, than upon position naturally favorable without such irrigation.

There are among the Sierras, elevated tracts of country far above the present limits of our introduced fruits, where the common wild plum, of very fair flavor, the choke cherry, gooseberry, whortleberry, and California chesnut, are produced in great abundance; and from recent examination, the present season will not be an exception, notwithstanding the frosts of April killed the fruit of the same description of plum trees, that after transplanting, have for two years produced their fruit in the ravines and valleys of the foot-hills. It will be noticed, however, that these plum trees, with other fruits and nuts in their natural positions, occupy almost invariably the broad tops of the great ridges, instead of the sides and bottoms of the ravines and hollows. Thus it would seem, that were we to follow nature to some extent in the choice of our fruit and orchard grounds, with a due regard to a supply of moisture in the soil, either naturally, or by artificial means, we may yet find that no more hazard attends the culture of the ordinary fruits of our latitude, among the highlands or even the mountains of our State, than is incident to many other apparently far more favorable localities.—Æ.

DEEP PLOWING.

A GREAT deal has been said and compiled upon the advantages to be derived from deep plowing, in the cultivation of our more important and staple field crops. And the reasons urged, are the same old hackneyed ones that we have heard used since our boyhood; that to stir the soil deeply, keeping it mellow and light, was the surest guaranty of a crop in seasons of unusual drouth.

Now we admit that upon the Atlantic border, not only for the purpose of obtaining a larger body of available soil for the production of field crops, but also to furnish a reservoir for the rains and nightly dews that fall and are absorbed, that a frequent and deep stirring of the surface is conceded to be beneficial, and is recognized by many as an established principle in good husbandry. And why? Simply because *repeated experiments* have proven the superiority and truth of the system. But this does not make it certain that the same practice will produce the same effects upon the land and crops of California, where we have neither rain nor dew, or but very little for the entire six months of summer; and where, except in the immediate vicinity of San Francisco, or a few places where the fogs from the ocean break through or pass the barrier of the coast range, that clothes washed and hung out at night will be dry in the morning. We repeat, that it does not follow that in California, where the atmosphere is almost without a particle of available moisture for months together, that field crops are to be greatly benefitted by repeated deep stirrings of the surface of the soil.

On the contrary, there are very many experienced grain growers in California, who are total disbelievers in the doctrine. And why? Because *repeated experiments* have convinced them of its fallacy, precisely in the same way that an opposite theory,

under different circumstances and a different climate, was established. Very many of our largest corn and potato growers are convinced from experience, that repeated and deep stirrings of the soil, work a positive injury to their crops; because, in the absence of rain and dew, it is but the most effectual mode that could well be devised, to *dry up* the surface to the depth the soil is stirred. What of moisture the crop is to receive, after the spring rains have ceased, must be from below; and to plow or stir deeply the surface earth, is to dry it and force the plant to go still further down, and often below the more fertile soil in search of moisture. In the growing of wheat and barley, farmers are every year reminded that the volunteer crops which receive no other attention than the harrowing in, upon land just harvested, and without any plowing, are often greatly superior to those upon adjoining lands, prepared by deep plowing and mellowing. And particularly is this the case in seasons of drouth.

Thus it is evident, that to harp upon old agricultural theories, or even practices, as being applicable in all cases to California, is to propagate error and do positive harm; and is reprehensible in the highest degree in those who persist in it, particularly when every day's experience is proving the fallacy of their position.—Æ.

CUTTING-IN FRUIT TREES.

CUTTING-IN consists in shortening the limbs of trees, with a view of promoting a more compact growth of head or top, and nearer to the ground than would otherwise be formed. The principle involved is this: if left without shortening, the vigor of the tree is barely sufficient—in addition to the production of fruit—to force a renewed growth of wood, from but few more than the terminal buds. As a consequence, the limbs are extended, but with very little thickening up of the top; but cut back the limbs one half, or more, and three or four wood buds will burst forth instead of only one.

It is no new system of cutting-in that we propose to introduce, but to urge the importance of a greater attention to the methods that have long been practiced by the most experienced fruit growers in all countries, to give symmetry of form and produce fruitfulness in their trees.

The peach seems to be almost the only tree that receives this attention, and this is probably owing to its generally exuberant growth, in which the loss of a portion of the outer limbs are not as much missed, as would be the clipped branches of many other of our favorite fruit or ornamental trees. It is because so many dislike to see their trees mutilated, as they consider it, or checked in their vigorous, upward growth, that we see so many long, spindling, unsightly trees, without limbs or leaves to cover their naked bodies, and swinging to and fro, the sport of every breath of wind that blows. A tree to be beautiful, must be symmetrical. Not that we would force every tree alike to assume a certain arbitrary form, for this would not be what we mean by symmetry; different varieties have their peculiar forms, differing from one another, and yet all may be beautiful and symmetrical, or can be made so by proper training. There are *two* seasons in California proper for cutting-in fruit trees, whilst, as a

general rule with few exceptions, there is but *one* in the Atlantic States. This is owing to the exceedingly vigorous and long continued growth of trees, during the protracted summer of our climate. Trees of all descriptions in California seem to "have nothing else to do" but grow, from March to November, and most of them make good use of their time; for nowhere does fruit, or do fruit trees, make such astonishing growth upward as here. We say upward, because this is another peculiarity of vegetable growth in California. Almost every variety of fruit tree seems inclined to push the terminal bud, to the exclusion of all latteral or side shoots. This, with their protracted season of growth, causes the numerous unsightly trees everywhere seen in the grounds of the inexperienced cultivator.

In the Atlantic States, cutting-in is usually performed in early spring, at which time the shoots of last year are cut back to one third or one half their entire length; and this is all they require for the season, except in a few instances of exceedingly vigorous growth, because the best they can do, is no more than the desired growth upward and outward. But here the case is different. Trees in the nursery row not unfrequently send their shoots upward, in a single season, to the hight of six or eight feet from the graft at the ground; and we have seen cherry trees, that last summer, standing singly and in open ground, made shoots of ten and twelve feet in hight, without throwing out a single lateral shoot. One of these cherry trees has been left to take its own course unchecked the present season, and the effect is already another advance of the terminal bud, even now over two feet in length, with but a single latteral that started out three feet from the top—if we except short fruit spurs and leaves, that have started out nearly its entire length. The other trees, on the first swelling of the bud in February, were all cut back to four or five feet, at the hight at which it was desired they should form a head. The effect has been, a bursting forth of from four to eight strong shoots, that seem to be vieing with each other for supremacy, making a beautiful, round, bushy top, with a center shoot leading the rest a few inches.

And here is what we wish to inculcate, the propriety and positive benefit of cutting back trees of a vigorous growth, *twice* during the season. First, on the approach of spring, and again, when the tree shall have made *half* its season's growth; and this must be determined by studying the habits of the tree, its thrift and effects of locality upon its growth; and which for most fruit trees that continue their growth during the entire summer, the middle or last of June is the proper time. By cutting back at that time, for every limb thus shortened three, four, or even more, will soon make their appearance, to grow for the remainder of the season, thus thickening up the top, and thereby affording a far better protection to the body and larger limbs of the tree, from the scorching effects of the sun's rays, than could otherwise be secured.—Æ.

BLANCHING ASPARAGUS AN ERROR.

WE expect that in offering our views upon the culture of so common an esculent as asparagus, nothing less than that we shall be met at once by the opinions of those who may differ from us. They will say—we are practical gardeners, we have cultivated it for years, we have succeeded in producing it beautifully blanched and of

very fair growth—and to which you can very truthfully add—tough and stringy as whalebone. It is not our purpose to go into detail upon the nature and quality of the soil, or preparation of the border, most suitable for the growth of asparagus; this we shall do at another time.

For our present purpose, we will suppose your borders are fertile, and your plants as healthy as they well can be under their course of treatment. All know that the tenderest portion of the plant as we find it in our markets, cooked or uncooked, is the top or greenest part, that it is almost the only part that can be eaten; then why not have more of it *green*? Why destroy all its tenderness and richness by blanching? It would seem as though gardeners had determined to produce the toughest, and consequently, the poorest asparagus that they in their wits can make grow. And it arises solely from the belief, that because celery is the better for being blanched, that asparagus must necessarily be; and so they keep on a covering, above the crown of their asparagus plants, from four to eight inches in depth in order to blanch it, to make it grow up as spindling as possible and to toughen it; for this is the direct effect of such treatment, besides greatly weakening the power of the plant to throw up strong, thick shoots, the deep covering preventing the invigorating rays of the sun from reaching and warming the earth about the roots.

It is perfectly proper to earth up celery, but it does not follow that any other plant as lettuce or asparagus, must necessarily be benefitted by the same treatment. It is this mistaken notion that it must be whitened by earthing up, that floods our market with the miserable, stingy, insipid trash, we find under the name of asparagus. Let any gardener try the experiment of simply making his asparagus borders extremely rich, and in the early spring before the rains shall have ceased, give them a top-dressing of compost of not more than an inch above the crown of the plant or root, and his shoots will come forth of double the size of any at present found in our markets; and when four to six inches above the surface, will, nine out of ten, on being bent down by the hand, snap off at or beneath the surface of the ground, as tender and brittle as a peeled radish; though they should be always cut, and close to the crown of the root. And we venture the assertion that in two years from this, not a bunch of blanched, or purposely toughened asparagus, will be found in our markets. Certainly not, if large, tender succulent cuttings, even though green in color, are preferable to the miserable, stringy apology for asparagus, now only obtainable. Is it not true that the green tops of the asparagus, now in our markets, is the only part of the cuttings tender and fit for use? It must not be expected that to uncover the present shoots that are now blanched and toughened, and exposing them to the sun, that they will become tender and brittle, for they will not; but the new shoots that spring from the plant will be, unless the season be too far advanced to obtain a good article under any circumstances.—Æ.

Philadelphia Iron Manufactures.—The Philadelphia *North American* states that in that city and neighborhood there are over ten thousand persons engaged in iron manufactures, whose products of industry amount to $12,857,000 annually.

ARTIFICIAL IRRIGATION.

THE irrigation or watering of lands for the support of vegetation, is as ancient as Adam, for in his time "a river went out of Eden to water the garden." Its utility and practice, therefore, has an early precedent and high authority. It was, perhaps, the more necessary then, from the fact that it had never yet rained upon the earth. But in all ages of the world since that period, wherever agriculture has been man's chief employment, there artificial irrigation has been practised to a greater or less degree; but to the greater extent always, in countries where the climate is marked by an almost total absence of rain, as in Egypt, or a periodical recurrence of protracted rains, followed by corresponding seasons of drouth as in ancient Palestine, Mexico, and much of Central America. And now California with a climate and soil not dissimilar to those countries in many respects, to bring her broad acres to the highest degree of productiveness, needs a proper system of irrigation, extensively applied.

The wealth of Egypt has ever been, the waters of the Nile, naturally overflowing and rendering fertile large districts, and by artificial means made to water or irrigate immense additional tracts, that otherwise would ever have remained comparatively barren. In Mexico and Central America, irrigation, though extensively practised now in many places, was, at no greatly remote period, made a matter of interest or necessity to an extent far greater than anything that the present application of the art in those countries would indicate. The ruins of immense aqueducts are seen on every hand, some high upon the mountain's side, others bordering upon the valleys, and traceable for miles on miles, and in situations where the water in such quantities as the capacity of these ruins would indicate them once capable of conveying, could never have been required except for purposes of extensive irrigation. And even as far north as the Gila river the remains of aqueducts are found, of such magnitude and frequency as to astonish those who have had the opportunity of visiting them.

But it is not alone in countries subject to protracted seasons of drouth, that irrigation is practised with marked success. In England, a land of fogs, humidity and rains, irrigation has long been ranked among the important appliances of a skillful agriculture, and is in constant practice to an extent far beyond what we of the United States would suppose, except from positive information or inspection. And yet, how little is known of the science! how sparsely practised in the Atlantic States! And, consequently, the most of our horticulturists here have commenced without previous knowledge upon the subject. Its successful application and practice then with us, and here, is yet a problem; and as the character of soils, altitude, exposure, winds, all have their influence upon vegetation in connection with humidity and must be studied in connection, years of experience will be required before anything like a perfect system will have been developed; and yet, without the little we already know of its proper application our horticulture would be but limited.

As a medium, through which the experience and practice of cultivators, in the application of this important and in many places indispensable auxiliary to a suc-

cessful and full development of our horticulture, the pages of the CULTURIST will be ever opened; and we invite the co-operation of the practical experimentist everywhere, in aid of a speedy solution of the important problem—*A scientific system of irrigation, applicable to the peculiarities of the soil and climate of California.*—Æ.

THINNING OUT FRUIT.

FRUIT Trees, in many localities, have a tendency to overbear; setting more fruit than the vigor of the tree can bring to perfect maturity. The effect is to deteriorate the fruit both in size and flavor. In order to remedy the evils incident to this disposition to overbear, various modes are practised by the skillful horticulturist; the most effectual, and probably the best when properly applied, is *root pruning*. Our purpose in this is not to discuss the mode of prevention, but, now that the fruit for the season is all set and advancing towards maturity, to advise as to the treatment where the tree is found overburdened with fruit and needs thinning.

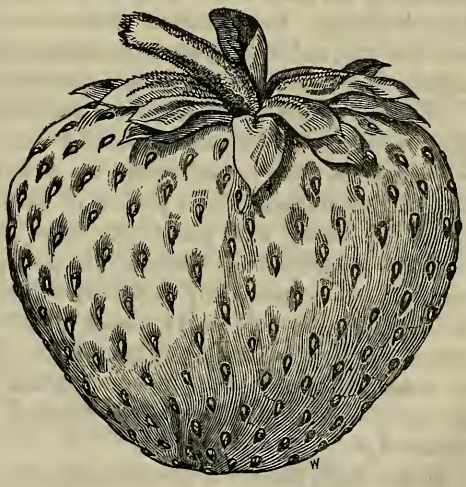
There are but two modes usually adopted: *hand picking* and *shaking*. The former consists in removing by hand all the defective fruit, and is the only mode used by the judicious cultivator, because its operation as far as extended is perfect, without the slightest detriment to the remaining fruit. Not so with *shaking*. Loudon, the English horticulturist, on this subject says: "The effect of too much fruit upon the limb is, a failure of the sap vessels to carry to all the young fruit the necessary nutriment for its full development." The *California Farmer* says: "The sap vessels fail to lead to some of the young fruit, and the consequences are, it *weakens* quickly, loses its vital hold upon the branch, and drops." If this is so, then there is no need of *shaking* it off. The *Farmer* continues: "Other fruit remains stationary, while still another portion swells and grows very rapidly." This is also our experience; but we have invariably found that the *small* fruit, if not defective or blighted from any cause, as insects or a diminution of nutriment, clings with even greater tenacity to the limb than the larger fruit, and that shaking or pounding the limbs with "a stick of wood or a heavy mallet," brings down more of the large fruit than the small, besides weakening the hold of other of the larger specimens, that are prepared to fall at the next unnatural shaking, the effect of "smart raps, say *every two* days"

We recommend hand picking. It may be urged, that to effect the desired thinning in large orchards by hand only, would be impossible of accomplishment. We believe that if it will *pay* to do it upon ten trees in the most perfect manner possible, it will also *pay* upon the next ten trees, and so on indefinitely. Worm-eaten and other imperfect fruit, produced by the deposit of the eggs of insects so destructive to the fruit, should never be suffered to remain on the ground, to propagate the larva it may contain; but should be gathered up and fed to swine, or in any other way destroyed. So that the thinning by hand process, and throwing the imperfect fruit into baskets, is but little more labor than shaking down and then picking up the fallen fruit, whilst the advantages are all in favor of the thinning by hand process. It is our uniform "practice," the result of "experience," which we believe is better than theorizing upon the use of blows from "round sticks of wood or muffled mallets."—Æ.

THE CHILI STRAWBERRY.

THIS superb strawberry, a native of Chili, South America, has long been known to eastern culturists; but until recently has never appeared here, in sufficient quantities to attract the attention of fruit dealers. This season, however, as early as the third of May, this variety commenced ripening, and from that time to the present, duplicate or more specimens at a time of this truly magnificent fruit, have appeared in the show windows of San Francisco. They are grown in the beautiful private grounds of Mr. Edward Duisenberg, on Harrison street, near Russ' Garden. Two years since, Mr. Duisenberg obtained five plants, which he has increased to several hundreds; and by his mode of culture, with adaptedness of soil, has been eminently successful in fruiting them. And, certainly, if great size and delicious flavor constitute a standard of excellence in strawberries, these will rank high. Mr. Duisenberg assures us—having been for years a resident of Chili—that the fruit really attains to a larger size here, than he ever saw it in its native soil and clime. Another proof that there is something peculiar in the soil or climate, or both, of California, favorable to a development of fruits and vegetable growth, unequalled by any other land.

The engraving here presented, is the exact size and form of outline of a specimen, among many others of nearly equal size, presented us by the proprietor; and though it appears almost incredible, we assert that it was no montrosity, but a perfect berry, full and plump; that it measured seven inches in circumference, and weighed with the stem—three fourths of an inch in length — a trifle more than two ounces; and that eleven other berries picked a few hours before, weighed one pound.



It is, doubtless, the same variety as is described by Downing as the True Chili, in distinction from the Yellow Chili, and other varieties that have originated from their seeds. His description is —"Fruit very large, bluntly conical or ovate, and red; seeds dark brown, projecting; flesh very firm, hollow cored, of a rather indifferent sweet flavor." To which we add, it is a *pistillate* variety, and yet produces a large number of *staminate* blossoms, always barren; fruit upon a short thick stem, leaf large and downy. Begins to ripen in San Francisco about the first of May, and in suitable ground continues in bearing till nearly the last of October; an extraordinary fruit, and deserves to be extensively cultivated.

In the vicinity of New York, it is not sufficiently hardy to withstand the winters

perfectly, and to the unsuitableness of the climate for its perfect development, can be attributed its quality there, which Downing terms "rather indifferent sweet flavor." Mr. Duisenberg's *experience* is, that ground can easily be made *too rich* for this variety of strawberry; his greatest success having been upon a low site, ground naturally wet from beneath, and only moderately rich. That as much of the fruit, from its great weight, lies upon or nearly touches the ground, that rain showers, natural or artificial, injure the crop.—Æ.

SHOWERING STRAWBERRIES.

A PRACTICE more erroneous than that recommended by a cotemporary, the irrigation of strawberries by artificial *showerings*, when approaching maturity, could hardly have been inculcated. It is the very exemption of our climate from constantly recurring showers, during the season of the more general ripening of the strawberry, that renders it so peculiarly favorable to the growth of this valuable and truly luscious fruit. Where the ground is naturally moist enough from beneath for their growth, they should never be watered by showering, after the first fruit is two thirds grown; and when the ground is to be kept moist by artificial means, any mode of conducting the water to the roots of the plants, without touching the tops, is better than showering. Even a natural shower has a tendency greatly to soften, as well as sour the fruit, and what is worse, to completely cover the berries with sand and dirt, making their washing before use indispensable, which always injures them.

We had a perfect exemplification of the truth of this, in the effects of the late rains upon the strawberry grounds of Oakland and vicinity. The fruit for four days after was inferior in every respect, except size, to that obtained before or since. The strawberry derives its name from a practice of the early cultivators of covering completely the ground among their plants with *straw*, purposely to keep the fruit from being beaten to the ground and sanded by the peltings of the rain drops. Neither is vegetation anywhere particularly benefitted by showering under an unclouded sky at noonday, or "about 10 or 11 o'clock A. M." On the contrary, it is often, and to many varieties of plants, highly detrimental. Instead of being "nature's own plan" to water strawberries, it is just the opposite of this: for even in California, where almost everything else is reversed, "nature" usually rains from clouds, and not a cloudless sky.—Æ.

In the March number of the *Horticulturist*, we find the following upon the subject of "Subsoil Irrigation," that we are confident will be read with interest, as in very many localities a system of irrigation can be adopted upon the principle here advanced, at a cost entirely within the means of all, by substituting other materials than "drain tiles" for the introduction of the water to the roots of the plants. In our next number, we shall speak of the mode and material for the construction of aqeducts for the subirrigation of grounds, and the advantages likely to be derived from the introduction of the system:—

"Subsoil Irrigation is a tried, lasting, and substantial application of art," says the *Cottage Gardener*, "in perfect unison with nature, in the shape of a system of culti-

vation which, in connection with agriculture, by means of which the great labor attached to watering gardens may be almost entirely dispensed with." If not too expensive, we agree with the writer, and give his *modus operandi* as follows: In the formation of beds on this system, it will be necessary in the first place to "dig out the earth from one to two feet deep, so as to be able to form a bottom nearly water-tight, with sides about four or six inches high, to prevent the liquid from running over until the earth has been moistened by it. The bottom may be of clay and chalk, or gravel, or lime, or any hard substance rammed; and upon the bottom put one row of half-drain tiles in the center (that is to say, in the center of beds three feet in width; or, if six feet, two rows), and loose, not jointed. There is an admission pipe sloping at one end to each rank of drain tiles, and a pipe at the other end of the bed to see when the liquid stands at four inches, and then to stop. The earth is then filled in as before, and proceeded with as in ordinary gardening. Water, or liquid manure, on being poured into the pipes, will pass along the whole length of the beds; and rising through the small spaces between the drain pipes, partly by the capillary attraction of the mould, and partly by the attractive power of the roots themselves, will feed and nourish the plants." So writes Mr. Wilkinson, the able promulgator of this new system of cultivation, in his pamphlet on subsoil irrigation; and that it does nourish and greatly increase the size and produce of roots, vegetables, etc., is an undeniable fact; and that it may be applied with equal advantage to the flower garden is sufficiently obvious. The system is patented in England.

THE STRAWBERRY PEST.

IN the vicinity of San Francisco, there are but few, if any, birds to annoy the fruit grower. Indeed, their presence would prove rather a benefit to him than otherwise were they far more numerous than we find them, as the song of birds is music terrible to the insect ear. Nearly all growers of strawberries in this vicinity are annoyed to some extent by the ravages of an insect, a variety of the *melolontha*, of the order *coleoptera*, a life size appearance of which is here given, with head magnified.

This insect attacks not the growing plant, but the fruit as it approaches maturity; and not for the purpose of depositing its eggs for the propagation of its kind, but for the very purposes that we do, good living, and certainly they are not backward in procuring it, as many fine specimens of berries upon the vines, as well as in the markets, too clearly attest.

Various modes are adopted to destroy them; but as they are not only exceedingly quick of foot during the day, and fly at night, there seems but little more hope of their extinction than of the curculio, so destructive to the smooth skinned stone fruits of the east. Their ravages to some extent are lessened by the use of strong, offensive smelling substances placed among the plants, as fresh powdered guano, coal tar, turpentine, and even camphor, but any or all of these in practice are but partially successful. Any suggestions made to us, the result of experience, that will tend to destroy or prevent the ravages of this pest, will be gladly received and disseminated by the CULTURIST.—Æ.

FRUIT TREES FROM CUTTINGS.

EVERY three or four years since our boyhood, have we seen going the rounds of the papers the same short article upon the growing of trees from scions or cuttings; the substance of which is, that a "horticulturist of Bohemia,"—rather indefinite, we think—has an orchard which was raised entirely from cuttings of approved varieties, without resorting to grafting. His method being to insert the scions each in a good sized potato, then plant them out at a proper depth in good soil. The *rationale* being, that the potato supplied the cutting with nutriment, until it had taken sufficient root for its own support. Not two months ago we saw, in a paper claiming to be the exponent of horticultural science and experience, the same absurd thing repeated, without a word of comment or contradiction.

Now we well remember, the first time we saw it, of supposing we had gained a piece of valuable information; so gathering up a fine selection of scions of apple, pear, cherry, and other fruit trees, inserted the butt end of each in a potato, really believing that we were devoting the more humble vegetable to the nourishment and growth of the cuttings. Well, we planted them all out, in good ground well prepared; and here is the result: *every one grew!*—i. e., the *potatoes*, but not *one* of the scions. Whilst of a dozen or more that were planted without the potatoe, *a few did* grow. So we came very quietly to the conclusion, that the juice of the potatoe is not as well adapted to the growth of scions, as rain water in a warm, rich soil.

That many kinds of fruit trees can be propagated from cuttings, almost as easily as the rose or geranium, we are well aware, and when the proper season arrives shall discuss the various modes applicable to several varieties.—Æ.

HONEY BEE CULTURE.

IF there are any who have entertained doubts, in reference to the final success of the Honey Bee culture in California, they can now lay them aside. Experiment and experience unite in furnishing proof of the entire adaptedness of our climate, to the health of the bee, and our vegetation, to their thrift as honey gatherers.

It is with pleasure that we record the success of one of the pioneers in the introduction of the honey bee. William Buck, Esq., about one mile south of San José, in what is there known as the Willows, has established his apiary. In his first importation of the bee from the States east, he was not successful; but nothing discouraged, tried it over again and succeeded in getting a few bees here in a healthy condition, and so rapidly has his little colony increased, that after selling numerous swarms, he had remaining as his spring stock for the summer's care, one hundred and thirty hives. From these he has already—May 20th—saved one hundred and fifty new swarms, and losing but *two*, and this the fault of the attendants rather than the bees. This is quite different from the report that has gone abroad, and copied by many of the papers, that the owners of bees were losing the greater part of their new swarms.

Mr. Buck expects about one hundred and seventy new swarms in all, before the swarming season is over, which is about the 5th or 10th of June. In a few instances a single hive has sent forth three new swarms.

He has hives of a variety of patterns, made generally of redwood, and so constructed that the honey in boxes can be taken away without injury to the bees. His swarms thus far have given him an average of twenty-five pounds to the hive of surplus honey, in some instances as many as forty pounds from a single hive in one season. By repeated weighings of the hives, it is ascertained that the bees make more honey than they consume every month in the year except October, November and December, which make the honey bees' winter in California. During these three months, ordinary swarms consume about ten pounds of honey, the same hive weighing about ten pounds less on the first of January, than on the first of October.

From the first of January they increase in weight monthly, till the following October, making due allowance for the rearing and departure of new swarms. The bees in the vicinity of San José, have not the present season, made quite as much honey in the same length of time as formerly, which is attributed to the probable destruction or injury of the sweets of the spring flowers by the late frosts, which were felt to a considerable extent in that locality. At present all are doing much better, their principal source of supply being the blossoms of the wild mustard, which afford an abundant pasture, and from which they make an excellent quality of honey.

There are other bee growers in the vicinity of San José. C. P. Easley has some thirty hives, all the product or increase of four swarms in two years. S. J. Easley in the town of San José, has also some sixteen or twenty hives, all doing well and swarming. And the same can be said of Mr. Appleton, of the Stockton Ranch on the Alameda road.

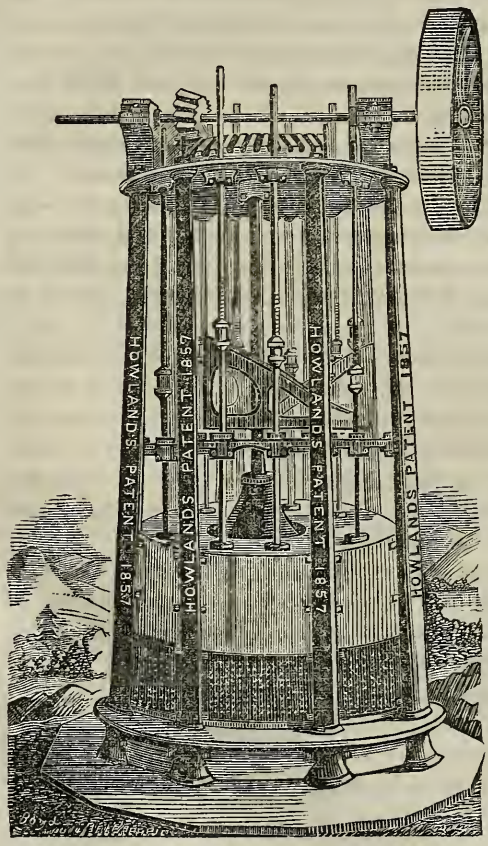
In every instance in which we have obtained reliable information, we are assured of the entire success of the bee enterprize; and of the several swarms sent by Mr. Buck to Oregon, all are doing well—as also those disposed of to various persons in Columbia, Tuolumne county, and elsewhere. So that we consider the fact as established; not only that the honey bee can be perfectly and advantageously acclimated here, but that like almost everything else of animal or vegetable, introduced into California, are even more prolific than in their native clime.

From all the apiaries in the vicinity of San José, about fifteen swarms have been lost to their owners the present season. Of these, every swarm—seen at the time of their leaving, made a straight flight for the Santa Clara gap, distant about twelve miles, their object being doubtless the old hollow sycamores and the pure living water of that district. As swarms of bees in good condition are bringing one hundred dollars each, and honey worth one dollar a pound, it would not be a bad speculation to hunt up the fly-aways, as they can be found by an experienced bee-hunter, almost as easily and as certainly, as the poulterer can look up his flock of runaway turkeys.—Æ.

"An all-wise Being created flowers; not to notice them, shows a corrupted taste, and a total want of grateful sensibility."

HOWLAND'S PATENT ROTARY QUARTZ MILL.

THE increasing interest on the subject of gold mining from quartz, and the very general success that has attended the more recent efforts, has given a corresponding impetus to the business of all the principal founderies and machine shops throughout the State. A large part of their work at the present time being upon machinery of some description, for extracting the gold from the rock containing it; and from present indications, judging from the new discoveries constantly being made, there is likely to be a continuous and even greatly increased demand. It is not our purpose, at present, to speak of the various kinds of machinery or appliances for the reduction of quartz, but only to bring to the notice of the reader, *one* of the many inventions for that purpose.



Annexed is an engraving of Howland's Circular Quartz Mill, a California invention, and one which promises to be of very great importance to the great business of this country,—*i. e.*: quartz mining. There are now running several of these mill in different parts of the mines, and their owners, and all who have examined and seen them in operation, claim for them very great advantages over any other mill or battery now in use. Among which are—first, its small cost compared with other mills, being at least one half less than any other can be built for and do the same amount of work; second, it takes one third less power to run it and do the same amount of crushing, than any other mill; and its compactness, being less liable to get out of repair, and ease with which it can be put up and taken down. Its completeness and perfect adaptation to the purpose for which it is intended, makes it a perfect mill.

The first one was put up in November last by the Pleasant Valley Quartz Co., El Dorado county, under the supervision of I. S. Diehl, and has been running constantly ever since, without one dollar's worth of repairs, and has—although it was the first and several improvements have been made in them since,—paid its owners largely; this is an eight stamp mill.

The next was put up by the Oriental Quartz Co. near Nevada, now under the superintendence of Mr. A. B. Paul. The Merced Mining Co., of Bear Valley, Mariposa county, have one running. There is also one near Sonora, on the Confidence claim, and two at Coulterville. In all cases they have given full satisfaction, and would not be exchanged for any other by their owners, or those who have become acquainted with them, for any consideration.

We give as perfect a description of the mill as we well can, without sectional drawings. From the bottom or foundation, first comes the bed plate or mortar, which is a circular casting about four and a half feet in diameter, with a cone or standard in the center three and a half feet high, and graduating from twenty-six inches at the bottom to ten inches at the top, and leaving at the bottom a circular mortar twelve inches in width, having sunken recesses to receive the dies. On the outside, is a rim eight inches high, which forms a trough; this is all one piece of casting, being four inches thick on the bottom, weighing between four and five thousand pounds. From the outer edge of this mortar, rise six columns (as shown in the engraving,) which form the outer frame, and help to support the gearing cam wheel, box plates, guides for the pestle stems, etc. On the top, and at about one third of the way down, are placed thick circular flanges or plates, in which are sets of boxes to act as guides for the pestle stems, and in the center of the top one is the box for the cam shaft. On an upright shaft, four and a half inches in diameter, stepped in the top of the center cone, is the cam wheel, which is some three and a half feet in diameter, running horizontally, and has on its outer edge three wedge shaped cams, each of which carries four stamps in regular order up the incline, and drops them in succession into the battery. The discs are beveled to fit the cams, and when it goes up the incline, the pestle revolves with a regular motion. These tapits are fastened to the stem by means of a screw cut on the stem and in the tapits long enough to allow for wear of shoes and discs, and is kept from turning by a small set screw. Below the cam and middle set of boxes is the feed hopper, over and through which the rock passes next to the cam, down to the bottom, and under the stampers, which weigh, including stem and tapit, from five to six hundred pounds as the purchaser may choose. It is inclosed from the feed hopper down to within eight inches of the upper edge of the mortar, by plates of boiler iron bolted on to the columns. Eight inches from the upper edge of the mortar, all round, is a space which is occupied by the sieves, through which the pulp or powdered rock flows and runs over a flange into a circular trough to the amalgamators. On the top box plate over all are placed the pillow blocks, in which runs a horizontal shaft with a pinion working into a bevel gear, and connects by a pulley and belt to the driving shaft.

The whole of which to the eye of the mechanic, and those experienced in quartz crushing, makes a most complete, massive and efficient quartz mill, and which, in connection with the high encomiums it has elicited from many of the most experienced quartz workers in the State, seem to warrant us in giving it the first rank among quartz crushing machinery; and is now being extensively manufactured by Goddard & Co., San Francisco.—Æ.

STEAM WAGONS ON COMMON ROADS.

AT intervals of only a few years, ever since the first application of steam to the propulsion of machinery, has the subject been discussed anew, and repeated experiments made; and though ever resulting in failure and disappointment, there are not wanting those, who, either because they forget that the experiment has been often tried by ingenious and skillful mechanics both in England and America, or because they think they have discovered some new and certain mode of applying the power to their machinery that must insure success, are ready to repeat the experiment, no matter at what cost of labor or expense to themselves or their friends.

By reference to reliable authorities we find that as early as in 1787 steam wagons were projected in Great Britain, and though placed upon the best roads in the kingdom, were found after repeated experiments and large expenditures, to be wholly impracticable for any useful purpose, on account of their inability to overcome the most ordinary ascending grades. The power in these instances was applied directly to the wheels or their axles, in the same manner as it is to the railroad locomotive of the present day.

Another attempt was made in 1802, and a patent was taken out for the invention; but this too, after repeated trials, was pronounced a failure.

Again in 1805; and in this experiment the inventor so far succeeded, as to be able to propel his wagon over a road expressly prepared for the purpose, and the greater part of the way upon a dead level, at the rate of four miles an hour; but as it proved powerless upon ascending grades or the ordinary roads of the country, the project was again abandoned.

In 1811 it was once more revived, and was so far successful as to render it certain, that upon hard, level roads, the object sought was attainable, and resulted in the successful application of the steam engine to the propulsion of land carriages, and at such cost as to render their adoption under certain circumstances, feasible beyond a doubt. This last experiment however was upon a railroad, though of primitive construction, used for carrying coals from Middleton to Leeds. And from this really first successful experiment as a beginning, has the present system of railroads and locomotives, with all their multiplied improvements and advantages over animal power proceeded.

And though the effort to succeed upon common roads, was for a time lost sight of, in the increased attention given to the construction and improvement of railroads and locomotives, it was not wholly abandoned; for long after railroads had become a certain improvement in the progress of locomotion upon land, we find such men as Gurney, Maceroni, Hancock, Burrel, Ogel, Church, Williamson and others experimenting with various success.

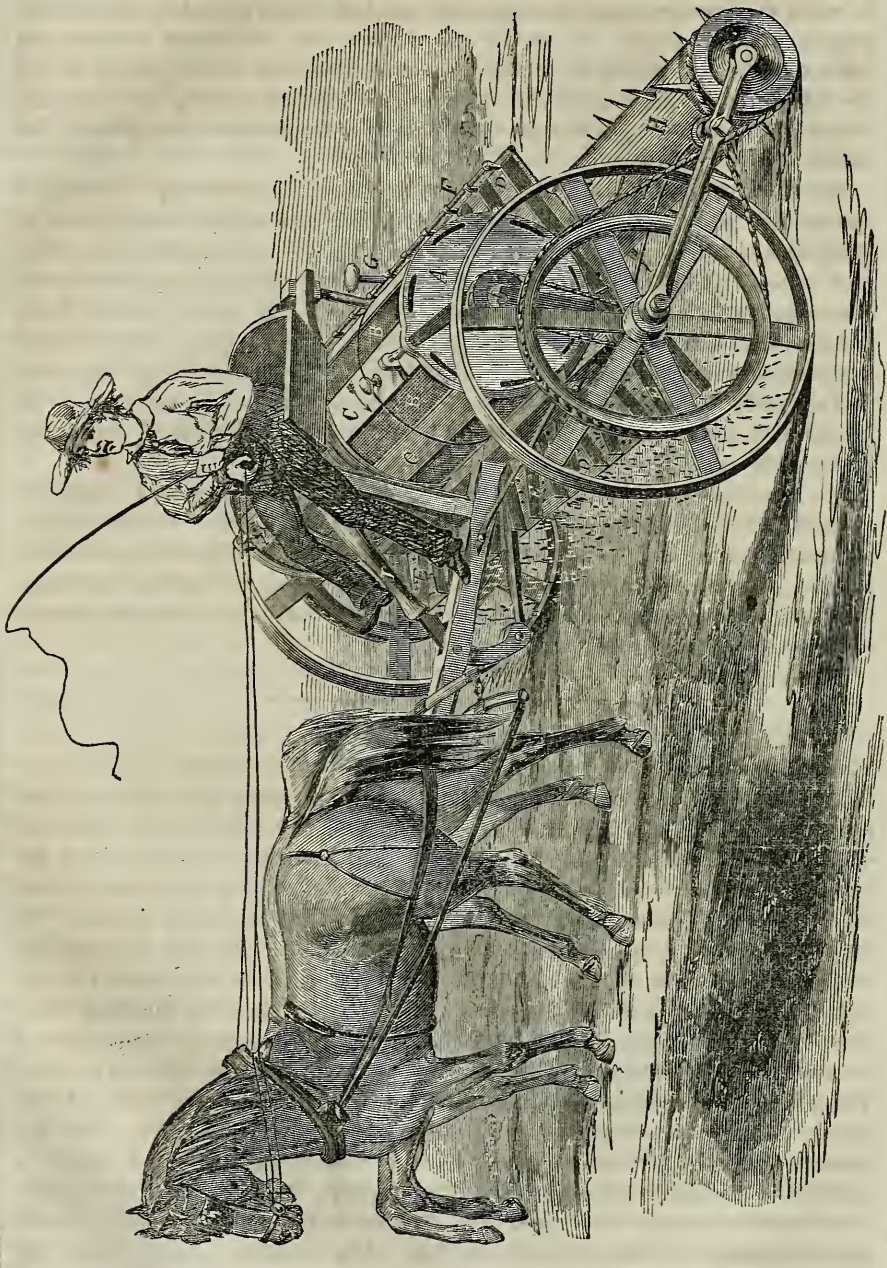
Gurney, with an engine weighing a little over a tun, conveying in a separate carriage, sixteen passengers over the most level roads around Southampton at a moderate speed varying from two to five miles an hour; whilst Hancock at London, was doing even better than this in point of speed; but in both cases at an expense far exceeding the use of animal power.

One great obstacle to success, was the difficulty experienced in making the wheels to which the power was applied, take a sufficient hold of the ground to prevent slipping on ascending grades. To obviate this difficulty, Mr. Williamson invented and patented a plan for running the wheels upon an endless chain or belt, passing around the fore and hind wheels, and by a very simple arrangement pressing the lower part of the belt its whole length between the wheels upon the surface of the ground; but this also proved a failure.

In 1824 in the United States, David Gordon patented his invention. Instead of applying the power to the wheels or axle, he constructed a series of setting poles or plungers, beneath the body of the wagon, in imitation both in appearance and action of a horse's legs, and supposed he had hit upon the very plan that must succeed. His wagon worked reasonably well at a very ordinary speed, upon a smooth, hard, and level road, but was sure to stop in every mud hole or soft place, for the want of a substantial footing for his artificial feet and legs. The invention, though ingenious, proved wholly inadequate to the purpose designed; nor can we see anything in the invention, or any modification of the principle, that can equal the direct application of the power to the wheels.

We have heard much of the attempts recently made in this state, to construct steam wagons that shall operate successfully upon common roads. We have no faith in them, they being but the revamping of old and long since exploded experiments; and not until the power of steam engines can be greatly increased, without increasing their weight, do we expect to see them advantageously employed in the propulsion of carriages upon common roads.—Æ.

Suspended Vitality in Seeds.—Every horticulturist on the Pacific coast has painful experience with seeds, more especially with those of fruiting and ornamental trees and shrubs. In transporting trees so great a distance and through such vicissitudes of climate as intervene between us and those portions of the globe where they are mostly prepared for market, the great body of them suffer a suspension of their vitality, near allied to, and under ordinary treatment, quite equivalent to death. To revive the slumbering spark and develop vegetative power under such circumstances is a delicate, and often a difficult task. The following, from the experience of an old practitioner, has often proved of great service, especially under the paralizing influence of our parching atmosphere:—Dissolve oxalic acid in water at a temperature of ninety to one hundred degrees Farenheit, in the proportion of one ounce to a gallon. Put into this solution pear, apple, quince, locust, or any other seed of tree or shrub; maintain as far as possible a perfect equanimity of temperature; examine them frequently, and when you observe developments of vitality, then plant, with care, in a seed bed of fine mould and sand thoroughly pulverized, and cover but very slightly. Should you see no signs of life after three days of soaking in the solution, you need not plant them—it is time, land and labor lost. After planting, maintain a good and an even degree of moisture.



WILLARD'S PATENT SEED SOWER AND HARROWER.

AN adequate substitute for the *hand*, in the important preliminary of sowing grain, has long been a desideratum in agriculture. · The Patent Office is lumbered and crowded with ingenious machines for this purpose, which have been tested and substantially cast aside; and from the days of the patriarchs to the present, the hand of man has been the chief instrument for distributing the seed upon the ground. ·

The next step in husbandry to seed sowing is that of harrowing, and in this department also, science and mechanical ingenuity have not made an important advance for centuries. The harrow, with teeth of wood, is succeeded by the harrow, with teeth of iron; the triangular form by the square form; the single by the hinged double harrow; but no departure from the *principle* of construction of this important implement, no improvement except in the arrangement of its teeth, has been made since agriculture became a science.

Our attention has been recently called to a combined sower and harrower, of which the engraving upon the preceding page is a tolerably fair representation. We have examined the machine, and read the testimony of its working at Oakland and at Napa in this State, and also of its rapid introduction into use in the eastern States, it having been patented but two years the present month; and from the evidence before us, we have no hesitation in saying we believe it to be the most perfect machine ever invented for sowing grain; and that the harrow attached to it, will effect a saving of from one half to three fourths of the labor usually required by the old method, besides doing perfectly what is impossible for the old style of harrow scarcely to do at all, the *pulverizing*, instead of merely displacing the clods.

The grain, by the revolution of the seed cylinders, is dropped uniformly and evenly in such a manner as to be independent of wind. The harrow, revolving contrawise from the wheels of the machine, combines the horizontal draught of the old with the revolution of the new—and hence its power of pulverizing the clods—covers the seed instantly, perfectly and uniformly. This reverse motion, also, draws the weeds from the furrow slice, and throws them behind, free from adhering soil. But it is upon our stiff clay and adobe lands that its efficiency is pre-eminent, and as these soils constitute a large portion of the intrinsically valuable lands of our State, once introduced upon them will ever after be deemed indispensable for their cultivation; whilst upon this kind of soil the old harrow is almost useless, unless at the cost of oft repeated harrowings.

The proprietors of the sower and harrower, Henry Hewitt & Co., San Francisco, are getting up a machine in which cast cog gearing will be substituted for the chain, and of weight, strength and power equal to the perfect pulverization of any clay or adobe land. We have given this new arrangement a careful examination and feel confident of its complete success. We deem the seed sower and harrower a valuable and important invention, and we are glad to know that the proprietors of the patent for this State and Oregon Territory, have determined to manufacture them *here;* and for this purpose, in connection with Hobbs, Gilmore & Co., on Market street, near Pine, have erected buildings and commenced their manufacture.—Æ.

SCHOOLY'S PRESERVATORY.

WE are happy to introduce to the notice of our readers, an invention for the preservation of fruits, vegetables, meats, milk, and every other supporter of life, whether a necessary, a delicacy, or a luxury. This, like all other great inventions, is a simple subjection of the well known laws of nature to the advancement of human prosperity. It may be briefly described, thus: A building with two apartments; the one, a good, well built, domestic ice house—the other, a common larder, the partition between the two being perforated, or constructed with air flues at the floor and the ceiling. The ice department is filled, leaving a small space between the ice and the air-tight roof, a series of openings up and down the back side of the ice, and also small arches when laying the first tier of cakes at the bottom to connect with the air flues in the partition at the floor. The larder, or preservatory, is constructed with shelves, hooks, etc., like any well arranged cellar, upon which to place such fruits, vegetables, meats, and other articles as it is the proprietor's wish to preserve. The door is then closed, and the whole thing is comparatively air tight. As the air which is in contact with the ice will be of equal temperature, at the top, at the sides, and at the bottom, it has no tendency to move. In the larder it is different, and the warmer will, according to well known laws, be found rising to the top. Hence, it will force its way through the air flues at the ceiling, into the cold chamber over the ice. This relieves the pressure at the bottom, and permits the ingress of the perfectly cold air through the flues at the floor. A current is thus established and continues with the most perfect order, being kept steady in its pace by the unchangeable temperature of the ice.

It is an established fact that moisture and heat are the corroding agencies before which, when combined, no fabric or structure, whether of vegetable or animal, wood or iron, can long endure; so it must be true, that in proportion as these are removed, all decomposition will be arrested. Hence, the thing sought is some means of neutralizing the action of these devitalizing forces. The warm, humid atmosphere of the valley rises to the mountain top, when the cold condenses the moisture into snow, and leaves it a clear, cold material entirely devoifl of all decomposing power. So the air in the larder, charged as it must be at first with a slight amount of these elements, in passing over the ice is shorn of both. The humidity condenses upon the ice, ond the air passes down the flues on the back side and under the ice and emerges through the flues in the floor, very nearly divested of all humidity and all caloric,—a pure, cold, harmless, life sustaining substance. Thus, after the first circuit, the atmosphere has no other work than to bear off, and deposit upon the ice, whatever of moisture or of heat may accumulate from those minute communications with the external atmosphere, where exclusion cannot be expected to be *perfect*. And this operation will continue to be performed to the safety of the contents of the larder just in proportion as all external atmosphere is excluded.

In a room thus constructed, the thermometer will range from thirty-five to forty degrees, according to the frequency with which the door is opened. To test the

absence of moisture, a good hygrometrical instrument is every way desirable. Its place may, however, in a good measure be supplied by the presence of friction or lucifer matches, which so truly as they keep in good order indicate the desired dryness. In a well constructed room of this kind, the hygrometer will indicate the presence of a very small fraction of a grain of water to a cubic foot of atmosphere, which manifests the almost perfect condensing power of the ice chamber.

The failure of previous inventions for this purpose have mostly been founded in the false notion that a continued ventilation was essential to the preservation of the real life of meats, or the native flavor of vegetables and fruits. Were gasses present to any considerable extent, then ventilation would be indispensable, but would bring with it other difficulties which seem impossible to overcome. In the construction now under consideration, no gasses to any practical or tangible amount will be generated, except from the breath of persons who enter the room; and of this it can be relieved by a ventilator in the roof which closes air tight.

With this brief description, (condensed from more elaborate ones found in other publications,) and which we hope is intelligible to our readers, we present the following statement of J. L. Alberger, Esq., of Buffalo, N. Y., who constructs and warrants the preservators. On the 30th of October last, he writes:

"I have now at my store, in a small preservatory, the identical fruit exhibited at the Fair—that is to say: peaches, thirty four days from the trees; pears, thirty days, fully ripe when placed in the preservatory, and were in a perfect state of preservation; also chickens, in perfect condition; melons, the same placed there thirty days since; an assortment of vegetables all well preserved; milk, perfectly sweet, fourteen days, and raised about twice the usual amount of cream. This last must give great value to the preservatory, for dairymen as well as for private families. Meats seem to keep an indefinite time entirely fresh.

"We have since June last slaughtered and cured, during the warmest weather, fifty to one hundred hogs, daily, with entire success. The cost of construction is small compared with the benefits derived. A house well built and protected, large enough to contain ice packed in winter to last the entire year, can be built at the cost of a common ice house, (say $150 to $200,) and is to be filled during summer, when needed, at a much less expense."

This testimony comes to us corroborated by the best of men officially connected with the N. Y. State Agricultural Society, at whose annual fair in October last, the preservatory was exhibited, and for which the proprietor received both a diploma and a silver medal. Shall we not have one exhibited at our fair at Marysville in August, and at San Francisco in September next? We suggest that some gentlemen in each place make the experiment. Who will have the credit, the pleasure, and the profit, of being the first to introduce this invaluable improvement to California?

We think that the walls of such a structure, in this climate, should be made hollow, and the space filled with tan or charcoal, or some other substance equally a non-conductor of caloric. With this precaution, we have not the slightest doubt that the enterprise will be completely successful. To eat green corn off the cob at Christmas, and early York peaches at New Years, and Virgalieu pears at Candlemas, watermelons in Lent, and green peas from the pod the year around, and all without the aid of the

nauseating tin can is surely a consummation devoutly to be wished. With the preservatory once generally established, our California homes will have no superior in the wide world.

We propose to give full, engraved illustrations, and letter press descriptions of the first one successfully constructed, for the benefit of all our readers.

PERFORMANCES OF STEAM ENGINES.

MESSRS. Hamlin & Heath, in the *Scientific American* of March 6th, asked the very important question: What "a low pressure condensing steam engine can do, or had done, in grinding grain, with the amount of fuel consumed." In the same invaluable journal, of April 17th, we find the following articles upon the power and performance of steam engines. The first, a somewhat scientific elucidation of the subject; the second, a plain statement of what an engine of certain capacity can do, and the cost of fuel; which we commend to those who are about to purchase steam engines and boilers, for quartz mills and other purposes.—Æ.

The late John Farey, Esq., used to say that a bushel of wheat had never been ground with less fuel than was consumed by Bolton & Watt's steam engine seventy years ago. "A bushel of wheat ground in one hour with eight pounds of coal is one horse power." The horse power may also be represented by grinding one pound of wheat, or raising 33,000 pounds one foot, or evaporating 1·158 pounds of water, or burning ·1343 of a pound of coal in one minute. On pages 515-16 of Mr. Farey's work on the steam engine, it is stated that $8\frac{1}{3}$ pounds of coal sufficed to grind a bushel of wheat, and dress some flour, and that 8·06 pounds of coal evaporated 69·477 pounds of water or 8·62 times its own weight—time, one hour. The steam engine did not work with expansion, therefore allowance must be made for this. The whole mechanical power contained in one pound of water is represented by its pressure and expansion. In the case in question, the pressure was 12·572 pounds per square inch, or 29·05 pounds on a base of water one foot high and weighing one pound; and its expansion from water to steam of that elasticity, 1,955 times, the product of which is 56,778 pounds, from which, by deducting one twelfth for back pressure, we have 52,047 pounds or 1·577 horse power (52047÷33,000). Thus then, of the whole laboring forces, only two thirds of it was effective. Anything which can beat that, without expansion, is a clear gain. The power is in the steam, not in the engine, therefore when a pound of water evaporated into steam does not come up to the standard above, the engine or transmitter of power is at fault. One pound of water evaporated under a pressure of 90 pounds per square inch, or 208 pounds on a water base of one foot high to the pound, expands 321 times, and its mechanical power is equal to lifting 66,776 pounds one foot high, but from this we must deduct the back pressure of the atmosphere and the obstruction from the exhaust port and pipe, which if we call one fourth, we have a total working power of about $1\frac{3}{4}$ horse power as the utmost attainable.

Your's, respectfully,

New York, April, 1858. THOMAS PROSSER.

The following is another letter on the same subject:—

I have a "Corliss engine," four feet stroke, fourteen inches cylinder, and have kept a correct account of fuel for the last year ending Dec. 31, which I consider the only correct way to get at the cost. Have run two hundred and ninety-two days of ten

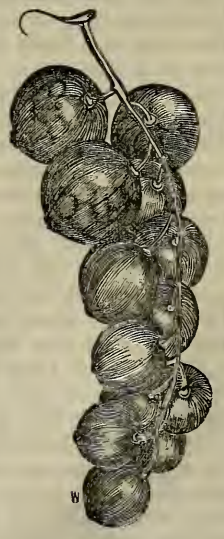
hours each; used thirty-eight horse power per day, without allowing anything for shafting and small machinery, which would add three horse power certain per day —the cost of fuel per day is just $5 77. This is a trifle over fifteen cents per horse power per day. The work done was cutting and grinding dyewoods, and grinding corn with an "Old's mill" at about three fourths the power required to do the same work on the old fashioned grist mill. The engine has run thirty-three months, and three dollars will pay all the expense of repairs, and that has been in broken bolts, done through the carelessness of the engineer. The two boilers used are the common cylinder kind, thirty feet long, thirty inches in diameter, and I am satisfied they are the cheapest boilers in use when properly made, and as for safety no one can dispute that point. I will state that the steam carried is from sixty to eighty pounds per square inch pressure by Ashcroft's steam gauge.

Providence, R. I., April, 1858. Wm. B. Riden.

RED DUTCH CURRANTS.

ALTHOUGH the currant bush seems to thrive well in a few localities in the State, our gardeners have not been so generally successful in its cultivation and fruiting, as with almost every other description of small fruits; and in many places, even where the bush grows healthy and strong, it seems an exceedingly shy bearer.

As it is a native of northern Europe, and since its introduction into this country has proven prolific of fruit high north in the Canadas, doubtless the greatest obstacle to its perfect growth and productiveness here, is the high temperature of our summer climate, in nearly all the lower valleys. At an altitude of three thousand feet above the Sacramento valley, among the foot-hills in El Dorado, and other mountain counties, we find it producing a fair yield; and were it carried still higher up, to elevations where the wild gooseberry and other native berries and fruits grow spontaneously, doubtless it would prove as generally productive as in any part of the middle or northern States.



In the vicinity of San Francisco, where the cold damp ocean breeze has its effect upon vegetation, we find the currant producing very fine large fruit; but as if necessary that it should possess a type or character, Californian, differing from its prototype in other lands, the fruit is produced in short and sparcely filled bunches, seldom more than two and a half inches in length, and oftener not exceeding an inch, and with but four or five berries upon a stem; but as if to make up for their deficiency in this respect, the size of the berry is unequalled. Ripe red Dutch currants of the size here figured, made their appearance on the stands of Cummings & Swan, Washington Market, on the 28th of May, from the nursery grounds of Mr. John Cochrane, at the Presidio, near San Francisco; and though excellent in flavor and of large size, we

could find no bunch exceeding in length the one presented us, form, size and number of berries as here shown; which we have all doubtless seen exceeded in the gardens of our old homes east, though seldom equalled there in the size of the berry. At a proper season, we shall give the practice of the most successful California growers of this fine fruit.—Æ.

SOME THOUGHTS ON PEAR CULTURE.

THE cultivation of dwarf fruit trees is so rapidly gaining favor with the amateur culturists of our State, both in city and country, we deem it not out of place to give the following from the *Horticulturist*, as the experience of a practical grower of dwarf pears, WILLIAM BACON, Richmond, Mass., even though the locality be New England. His comments upon tree culture for the highway, too, are full of good sense, and his practice might, in many places with us, be imitated with like success and pleasing results.—Æ.

Although the culture of the pear on the quince is gradually extending, and though, under favorable circumstances, each year brings new evidence of its practicability, the cry with many still is, "it never will succeed." If the trees do well for a few years, they will be so small they never can produce much, and in a few years will soon die off.

In my early days, tree planting was a hobby with me, and I rode it until the highway through the ancestral premises was well lined by trees of different species; and when the work was done, I regretted that there was no more territory to occupy, because the trees of the wood were not all represented in our home-made avenue. How often was I told then that our labor was all vanity; that my trees would not live, or, if they did, they would never come to any size in my day. In part, the prediction was verified. Through my boyish inexperience (no other cause whatever), a few of them died; with the fall of the leaf, however, their places were supplied, so that soon every niche was fully and beatifully occupied. Now these trees are tall and stately. Youth would call them old trees; they are admired by all. Many a traveler, on a sultry day, has found them a blessing. When the tempest roars, and the storm beats down, they are a protection to the adjoining lands; but those far-seeing economists that folded their hands, and pitied my folly, and warned me by their kind counsels, when, with toil and sweat, I planted out these trees, have no such beautiful creations of their own to look upon. No; "I wish I had such rows of trees, and if I had known I would have planted." Now, is it altogether improbable that similar results will yet show themselves in the matter of dwarf pear culture?

The winter of 1856–7, taken in its length and breadth, was the most trying one for fruit trees we have ever known. Apple, cherry, and plum trees, suffered from its rigors, and were seen in unusual numbers, standing naked through the shooting forth of spring and verdure of summer; yet, in a plantation of sixty dwarf pears, I lost but a single tree, and this not from the fact of its being a pear on the quince, nor from the undue severity of the season, by any means. On the contrary, our dwarfs came out as uninjured, so far as I can judge, as so many young mountain oaks; all of the fifty-nine remaining trees have made all desirable growth. On several, I have measured well matured shoots of the last year's growth more than four feet long, which is all a reasonable cultivator can ask. Some have borne fruit enough to pay their first cost, if it had been marketed, but it was too good to sell, and quite good enough to eat.

Thus much I have spoken from the experience of the past. I take courage from it, and anticipate a triumphant future. But in speaking of my success, I have said nothing of the soil and management—two items in fruit growing of special importance, but which are quite too much passed over in talking about trees.

First, then, the soil. This rests on a bed of limestone (so far as we know) of impenetrable depth. Over this is a firm, hard pan or clay subsoil, and, uppermost, a clayey loam.

Before planting the trees, and as a preparatory work, I spaded the ground full ten inches deep, and, as far as possible, inverted it—*i. e.*, put the top soil at the bottom, and brought up a new soil never before disturbed by plow or spade. The land was in good cultivation, but no manure was applied the year the trees were planted out. The trees were obtained mainly from the reliable nursery of Messrs. Ellwanger & Barry, of Rochester, N. Y. In making the order, I was not particular to call for large trees; only good roots with reliable tops. The trees were received in April, and planted out, so that the junction of the stock and scion should be as low as the surface. I kept the soil clean with the hoe, around the trees (other crops being on the land, but not near enough to interfere with the trees), and this was all the attention I gave them until autumn. Of course, no watering was given when they were planted, or at any time during the summer, some part of which was dry. In autumn I put probably a bushel of well rotted mature around each tree. This served to protect the most tender part (the point where budded) from extreme cold, and turned off surplus water from heavy rains and melting snows. In the spring, this manure is taken away from the body of the tree, and spread so that the extending roots will have the benefit of it. I spade our ground, yearly, as near to the tree as we can without interfering with the roots, and subject the surface to frequent stirring through the summer.

I have been thus particular, that none may be led astray in this matter of dwarf culture—a system of which, on proper soils, and with proper varieties, I have much confidence; yet I doubt much if it will succeed on all soils to the satisfaction or profits of the cultivator. Nor do I think it adapted to all varieties. With us, some kinds do much better than others, though we have no particular reason to complain of any kind we have tried. Nor will it answer for all cultivators. There certainly are those who think, judging from their actions, that when a tree is set, their whole duty is done. No wonder that, with them, putting out trees don't pay. They may surely expect that their trees will die in self-defense. All fruit trees require watching and care, and especially so the dwarf; but it is a pleasant care, and a watching that does not fatigue. The full reward follows the labor.

THE CALIFORNIA WALNUT.

SCATTERED over the bottom lands, on the banks of the river and sloughs in the vicinity of Grand Island, and in the region of country where the Sacramento River opens out to make the beautiful bay of Suisun, the native walnut is found in abundance. The early settlers, with a perverse desire to "clear the land," and rid it of everything that created shade or was beautiful in form, cut down many of these valuable trees, and after enduring the heat of one summer, planted in their place the filthy cottonwood. Since the worth of the walnut has been ascertained, and it has become known that it is valuable for its fruit as well as for its timber, and in addition is cleanly and ornamental, it has been spared on the farms more lately cleared and

inclosed. The tract of country in the vicinity of the bay of Suisun, where the water of the river empties through the main channel and numerous sloughs, and mingles with the salt water of the bay, has a local Flora well worthy the study of the botanist, and which has thus far almost escaped attention.

The walnut trees were first discovered in this portion of the Sacramento Valley by the seekers after gold, who, in ascending the river in boats from San Francisco to Sacramento, found them growing near the bank. The tree is not the English walnut of commerce (*Juglans Regia*), nor the Black Walnut of the Atlantic States (*Juglans Nigra*), but a variety peculiar to California. The nut is as large as the English Walnut—on many trees, much larger—almost as round as a billiard ball, and, unlike the black walnut, quite smooth. The kernel is large, of an excellent flavor, and has none of the astringent taste peculiar to the best English walnuts. Some of the nuts were forwarded to the Patent Office for distribution, and to J. Jay Smith, conductor of the *Horticulturist* and editor of a new edition of *Mechaux's North American Sylva.* He immediately sent to California for specimens of the leaves and fruit, and, after obtaining them, pronounced the tree a new variety, which he will describe and name in his forthcoming edition of the *Sylva.*

The tree grows rapidly, with a clean, straight trunk, and wide spreading head. It often attains a hight of fifty or sixty feet, and with a trunk of a diameter of three feet. The foliage is dense, and the leaves when bruised are highly aromatic. It is not subject to disease, and does not harbor insects. It is one of our earliest trees in putting forth its foliage, which it retains until after a severe frost, which causes all its leaves to fade at one time. It commences bearing in five or six years from planting the nut. How many years it will continue to bear is not known. In December, 1855, I planted a few of the nuts, some of the trees from which are now eighteen feet high and nine inches in diameter. There hardly could be a more beautiful or cleanly tree for planting on the line of our streets; and when people have become tired of the cotton, the dripping, and insects of the Cottonwood, and the odor of the Ailanthus, it will, with elms and maples, adorn the streets of our towns and villages. The soil, where it is indigenous, is a rich sandy loam, but it will succeed in almost any place where the earth is porous and not too hard to prevent its sending down its long tap root. The walnut is proverbial for thriving under rough treatment; it bears its fruit near the end of its branches, and in orchards where the tree is grown for profit, the nuts have to be knocked off with poles. In breaking off the nuts, the ends of many of the branches are broken; this unsystematic mode of pruning appears to increase the fertility of the tree. There is an old, but ungallant Gloucestershire proverb which says—

> "A woman, a dog, and a walnut tree,
> The more you lick 'em, the better they be."

The nuts for planting may be procured in abundance from the seed stores at the proper season. Like any other nut containing oil, they should be planted immediately after they ripen. If the planting be delayed until spring a large majority of the nuts will decay in the ground, and a few will remain two years before making their appearance. If planted in November or December, the young trees will make their appearance the following May, and grow five or six feet the first season. If the

ground be very dry, the growth above the surface the first year will be slow, and the whole energies of the young tree will be expended in sending down a tap root, which in unfavorable situations is frequently twice the length of the stock above the surface. When the tap root is well developed, the tree grows as rapidly as the black Locust. They should not be transplanted until after the second year, for although hardy and readily bearing removal, it has been found that they make much more rapid growth if left in the seed bed until after the second year. The best season for transplanting is immediately after the leaves have fallen. It will succeed without much cultivation or care, and takes naturally an erect and graceful shape. The young tree makes an excellent stock for the English walnut, which, however can only be budded on it successfully by what the nurserymen call annular budding. I know of no native tree so well adapted to become popular for a street tree. It requires but little care, is hardy, handsome and clean. The nuts are to most persons superior in flavor to the English walnut; cultivation will, without doubt, improve them in size and quality. No experiment has been made in pickling the young fruit, they may be found after trial equal to the imported pickled walnut.

Hoping that my admiration for a native tree, and my experience in cultivating it may have the effect of inducing some of your readers to dig up an Ailanthos or Cottonwood and plant a Walnut— I am, yours, &c.,

Sacramento, June, 1857. A Young Digger.

TO CORRESPONDENTS.

Answers to Inquiring Friends.—*Mr. Editor:* I live in the mountains where it is exceedingly difficult to obtain fruit trees; after our spring has opened, the trees from the valleys being too far advanced. To obtain seed that will vegetate seems impossible. Can you inform whether I can grow apple, pear, cherry, plum, etc., from cuttings; and if so, when and how should they be planted? Nurseryman.

We would state for the encouragement of our mountain friend, that he can multiply his trees indefinitely from cuttings. They will *grow* in the valleys, but much better in the mountains. You may plant cuttings of almost any variety of fruiting or flowering tree, shrub, or vine, in the month of December, with confidence that a fair proportion will grow. Make your cuttings from healthy, ripe shoots, with full, short joints. Cut them smooth at the bottom, and set them in very nearly the whole length. The length must conform to the character of your soil; in a wet, springy soil, four or six inches will be long enough; in a dry or sandy soil, eight inches to a foot will not be too long. See that the earth is tight at the bottom, and yet they should not be crowded down or *stuck* into the ground, that will start the bark at the lower end and induce death. We have grown thousands of as fine trees as we ever saw, by this process.

Friend Wheeler: You have had something to do with the Chili Strawberry, and so have I, (with the vines), but I cannot make them bear—can you? And if so, how? Fruiticus.

The "Chili Strawberry is naturally a "shy bearer"; *i. e.* bears a small number of berries; but they are so large and so luscious, that we consider their culture worthy the attention of every family. Their great evil tendency, especially in a strong soil, is to run to vines. This must be checked if you would have fruit. Take the poorest piece of ground accessible, and cultivate it till it is very mellow; set your rows two feet apart, and your plants eighteen inches apart in the row; keep out the weeds, and allow no runners; give plenty of water and you may be sure of a crop.

Editor Culturist: Can you inform your readers, and me in particular, whether that celebrated variety of apricot, the "Golden Early," fruits well in this climate, and if not, why? Yuba.

In answer to the above, we can only say that with us they entirely fail to bear, and in that we are not alone. The *cause* of the barrenness in California—if it be so—we wish some one better versed, would explain through the Culturist.

Editor's Repository.

It was our earnest desire and intention to have issued the first number of the Culturist, in such condition as regards matter and general appearance, as well as time indicated by our Prospectus, as to have rendered an apology unnecessary. But we have not done it. The arduous duties devolving upon us, as one of the State Agricultural Society's committee for the examination of farms, orchards, vineyards, nurseries, mines, mining operations, and mining interests, having occupied our time exclusively for several weeks, we have not been able even to read the proof sheets as they came from the press; much less to direct as to the general arrangement of the matter contained, or even to bestow so much as a revisory care of much that appears in its pages.

The delay in publication has arisen from the following cause:—The group of fruit, which we present as our Frontispiece, we were compelled to procure from New York, not having at the time, perfected arrangements with California artists for their production here; and they only reached us by the last steamer—middle of June. Hereafter, we hope to have no delays from such a cause.

But we need to offer our most earnest apology on account of our paper—it is *too thin;* but the best than can at present be obtained, of a size suitable for our purpose. As soon as we can get better paper, will use it.

Our Frontispiece.—Nature's best effort produced the originals, and the copy is made by some of her most gifted sons. This is a copy, to the life, of actual fruit, both specimens grown in California—one of them originated here.

The Peach—Crawford's Late—is of a variety grown from seed, by the gentleman whose name it bears, some time since, in New Jersey; and for its immense size, its perfect symmetry of form, its thick, fine grained, golden colored flesh, its rich, juicy, vinous flavor, its deep, bright, yet soft and mingled colors, its uniformity and abundant bearing, its freedom, as a tree, from blight or disease, has already attained a world-wide celebrity. It is not, as its name would indicate, a late peach. It is only "late" in distinction from "Crawford's Early," another and very early variety originated by the same enterprising pomologist. The "late" ripens some ten or fifteen days after the "early," and is not unfrequently in perfection in the Sacramento Valley as early as the 15th to the 25th of July. In the coast valleys, and the more elevated lands of California, it is somewhat later. The specimen, of which our picture is perhaps as exact a copy of nature as art ever produced, both in size and color, measured more than twelve inches in circumference, and weighed three quarters of a pound. It was grown by our esteemed fellow-citizen and eminent horticulturist, A. P. Smith, Esq., the proprietor of the celebrated "Smith's Pomological Gardens," situated on the American River, two and a half miles from Sacramento, where multitudes spend pleasant hours in walking through the extensive floral and fruit gardens, while the products of the well filled greenhouses sweeten every breath with richest perfume.

The Strawberry is a fac-simile of a variety, which originated from seed in the same garden. It is a prolific bearer and of rich flavor, while the pulp is sufficiently solid to warrant transportation and long-keeping to an unusual extent.

Altogether we think no man can fail to be proud of the fruit as California productions, or to be interested in the work of our artist. We do not present these specimens because of their great size —for the same gentleman has raised many larger ones,—but because they give a fair idea of what may be reasonably expected in our soil and climate, under the hand of a scientific and skillful cultivator.

NOT AN ORGAN.—The CULTURIST is not the organ of any society, nor is any organizatian in the least responsible for its general course or particular acts. It is the individual property of its ostensible proprietors, to whom alone the public will please look for the correction of all errors, and the redress of all grievances, growing out of its publication. We have not asked, nor desired, the indorsement or patronage of any association, or body of men in its organized capacity; but have preferred that the work should stand or fall wholly upon its own merits. Yet we receive, with unfeigned gratitude, the countenance, the patronage, the real support of the *individuals* who compose the working material of the large and efficient societies, whose interests are identical with our own. For such coöperation, the public will be indebted to very much of the interest of our journal, and we shall hope to make the CULTURIST worthy of its continuance.

AN OFFICIAL TOUR OF THE STATE.—On Saturday morning, May 22d, we (the editor), as Corresponding Secretary of the State Agricultural Society, accompanied by J. C. FALL, Esq., President of the Society, we two constituting, for the time being, the acting committee for the examination of farms, orchards, vineyards, nurseries, mines, mining operations, and mining interests, left Marysville, crossed Feather River to Yuba City, and rode down the west bank of the stream, to make our first visit of the tour at Hock Farm, the home of the venerable pioneer, Gen. John A. Sutter. We saw, nailed to the gate-post at the upper end of the lane, in bold chirography, the following notice:—"Positively no admittance to Hock Farm, except on business or by special invitation." Concluding that ours was business, we opened the gate, and commenced the approach to the mansion, through an avenue lined on either side by fine forest trees so mingled that no two of the same kind shall stand contiguous. We were soon met by Major Emile Sutter, second son of the General, in full regimentals [of a practical farmer], who instead of running us through with his lance [hay fork], or decapitating us with his cutlass [scythe], greeted us with a most hearty welcome, conducted us to the house, introduced his brother Alphonse, and at once commenced, by our request, showing us around. When about half way down the peach avenue, extending along the river bank some two hundred yards, we were overtaken by the General himself, who, by this time, had doffed his working frock and donned his dress coat and white hat, and was ready to consummate our welcome by those polite attentions which few men, in any land, know better how to bestow. From personal observations we feel sure that the following statistics, furnished by the elder son, are entirely reliable. Vines, eight years old, in full bearing, two thousand; vines, from one to seven years old, thirty-four thousand; vine cuttings, rooted this season, thirty thousand; vines, bearing this season, twelve thousand. There are thirty acres set with vines 5x5 and 5x4 feet. His vines are not watered at all. The ground is kept clean by the hoe in the hands of Indian laborers, and the branches are tied up to a strong stake, forming a pyramid, in the European style of vine dressing. The crop of the present year promises to be very abundant. There are two avenues, one at a right angle and the other parallel to the river, each formed by about one hundred peach and fig trees, making a beautiful appearance. The orchard contains three thousand two hundred trees, among which there are, in fine bearing, apples, pears, plums, prunes, peaches, apricots, nectarines, cherries, figs, pomegranates, and almonds; also, currants, gooseberries, raspberries, strawberries, and blackberries. In the fruit nursery there are about thirty thousand trees, comprising a general variety. In the ornamental garden, there is a large variety; among which we found, in a flourishing condition and many specimens of vast growth, a large number of the Acassia family. We have never seen such development of the thorny department of the Triacanthos as we found here. There are many of our native trees and shrubs cultivated with care, and exhibiting forms and flowers of great beauty. The true "Laurus Nobilis" [Bay], the Cotoneaster Macrofilla, the Sterculia Platifolia, the Gincho Japonica, the hawthorne, and many other choice and rare trees and shrubs, both in fruit and flower, constitute an ornamental garden in front of Hock Farmhouse, evincing great skill and taste on the part of the manager, and very difficult to excel. Having made a brief survey of these premises, and learned that the vintage of '57 was still unexhausted and in excellent taste, we bade the old pioneer and his gentlemanly sons a hasty adieu, much gratified that we had commenced our labors with Hock Farm. The orchard and the ornamental gardens both enter the list of competitors for the first premium.

Our return to Marysville was by an excellent road, from which, far on either hand, most of the distance, eight miles, there stretch out fields of grain of exceeding richness and beauty, much of which is already cut and the remainder fast ripening.

At 2 P. M., Judge Woodruff and ex-Gov. Johnson entered the carriage with the committee, and aided us in the examination of the fine ornamental grounds, orchard, vineyard, stock and buildings of M. Covilaud, Esq., two and a half miles up the Yuba River. The gentlemanly proprietor being absent, his lady volunteered to show us the place, and although under a warm sun and against our protestations, she, without a hat, breaking off a branch of a peach tree to supply the lack of a parasol, continued to point out and describe article after article, until we had seen the "Sweet June" apple, nearly ripe; grape vines, on an arbor frame of great length, in full bearing; a cluster of thirteen peaches of good and nearly equal size, on a single limb not as large as a pipe stem, and within a space of five and a half inches; strawberries, almonds, and a general assortment of fruit trees in bearing; five acres of very fine Indian corn; a specimen of Sierra spruce, five feet high, not a whit inferior to the Norway; a well, twelve feet in diameter, for irrigation, the water being raised by horse power; a lot of superior domestic small animals, and the finest two-year old colt we have seen in the State. Such a place is an honor to its proprietor, and such a woman, we think, must be "a good wife," and if so, according to King Solomon, she is "From the Lord."

Twenty minutes' drive brought us to the farm of Geo. G. Briggs, Esq. Whether this is large, extensive, celebrated or noteworthy, we leave the following statistics to determine, after stating that we know of no better soil, that it is highly cultivated, and that the size, thrift and beauty of the trees are equal to the best. The orchard covers one hundred and fifty-five acres, and contains five thousand apple trees, fifteen thousand peach trees, one thousand five hundred plum trees, one thousand five hundred cherry trees, three thousand apricots, three thousand nectarines, two thousand five hundred pear trees, five hundred quince trees, and two thousand grape vines, besides thirty thousand trees in nursery, with which to enlarge his orchard next year. His land needs no irrigation. In the year 1851, he planted twenty-five acres of this ground to watermelons. With the aid of two men, he cultivated and gathered them, selling them at his own door and realized for the crop, above all expenses, over sixteen thousand dollars. He enters his orchard for premium.

Eight miles above Marysville, on the Yuba, by request we examined the farm of John Adrian. His chief object in wishing us to see his place, was to show his new variety of barley. The head is round like an ear of corn—its center, when the grain is shelled off, resembling the cob. There are six rows of very large kernels, each protected by a long, fine out standing beard, giving the head a most beautiful appearance. The uniformity of the hight, the length of head, together with the strength of stock, which prevents its *lodging*, and its great weight, being quite equal to wheat, all combine to prove it a new variety, and to commend it to the notice of all farmers. In the spring of 1855, when Mr. A. was about cutting his barley, he discovered thirty-two heads of this peculiar kind standing together. Finding that they all sprang from one root, and that they contained an aggregate of more than twenty-two hundred kernels, he resolved to save and plant it. He has continued to do the same till he now has eighty acres of it, presenting a most interesting appearance. Mr. Adrian is also experimenting with various kinds of wheat, planting in drills, and tending with great care to ascertain which is least likely to smut, or fail from any other cause. Such efforts are worthy of much praise, and are sure of their deserts.

Two and a half miles on our return we examined the wheat farm of Mr. Drum, who has one hundred acres of Sonora wheat, two hundred and ninety-seven of Australia, and thirty of Club, of the finest quality. Mr. Drum has the reputation of being as good a farmer as there is in Yuba County, and from what we saw we doubt not it is well-earned. Half a mile further towards town we took supper at "Zabriskie's"—the *model landlord*. As no verbal praise could equal the excellence of the entertainment, we will attempt none. If you want a good and no ill, go to Zabriskie's.

At 8 P. M. reached town and attended the meeting of the Executive Committee, where it was resolved to lay the corner stone of the new Agricultural Hall, with appropriate ceremonies, on Monday, June 7th. Measures were also taken to secure one hundred volumes of choice books for premiums according to schedule for the next Fair; and the tour of the northern portion of the

State marked out, and the several individuals to accompany the Corresponding Secretary on the various portions of it, agreed upon.

On Monday, May 24th, at 5 A. M., started to visit the "New England Orchard and Nursery" of George H. Beach, four miles below Marysville, on the east bank of the Feather River. Found the grounds in a most extraordinary state of cultivation, for which much of the credit (the proprietor says) is due to the enterprising foreman, Mr. Congdon. These grounds being viewed at this time with special regard to their *cultivation*, the statistics and general description will be deferred till another time; remarking, *en passant*, that the fruit crop is very promising, the cherries luscious, and the strawberrics unsurpassed.

At 11½ we, the Committee, mounted on the President's two spirited horses, geared in iron-gray Kentucky jeans, long leggings and blue shirt, saddlebags packed for fifteen days in the mountains, and other things in proportion, galloped across that fine substantial piece of mechanism, the new Yuba bridge, and up the south side of the stream across the rich bottom lands everywhere waving with an abundant harvest. An hour brought us to Brophy's, whose wheat field, containing one hundred and sixty acres, he confidently hopes will head the list when premiums are awarded next August. His three hundred acres of barley, forty-five acres of grass, and sixteen acres of Alfalfa hay, all speak the farmer. Mr. B. rolls his grain fields in March with a roller made of two-inch planks three inches wide, placed upon framework so as to constitute a hollow cylinder four feet across and eight long, with which one pair of horses and a driver will roll seventeen acres per day.

Two and a half hours more brought us to the "Empire," owned and kept by Moody & Moony, who have a very large house, and a barn one hundred by seventy feet, with high loft and good granary, and a shed attached sufficient to shelter twenty loads of hay at one time. The garden is not large, only about three acres, and yet being like all other portions of their possessions, exceedingly well kept, is a matter of very great interest. We here see the grape in all its glory—never have we seen vines of equal age and size promising so large a crop. Those trained over frames, and not cut back to less than fifteen or twenty feet, are setting more full than we ever before saw. The assortment of both fruits and vegetables, indicates a full knowledge of the wants of a public house in the mountains. These gentlemen evince a deep interest in the next Annual Fair, and design that the "Empire" shall not be unrepresented there.

[TO BE CONTINUED.]

MECHANICS' INSTITUTE.—We take pleasure in calling the attention of our readers to the circular in (another portion of this number), of the Mechanics' Institute of the city of San Francisco, which announces a second exhibition to come off in September next. That our readers may know something of the success which attended the first exhibition by this valuable Society, we will make a few quotations from the Report of the Executive Committee to the Institute, at the close of its labors:

The Executive Committee, constituted by a resolution adopted at the regular monthly meeting in April last, to carry out the determination expressed in a brief circular which was issued in December, 1856, entered immediately upon the discharge of their duties, fully impressed with the magnitude of the undertaking, and with no small degree of anxiety in regard to its result.

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Their first care was to prepare and distribute a circular, setting forth the objects and ends to be attained by the Exhibition, and prescribing the rules and regulations which would be enforced in its government.

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The next great desideratum was to find a building suited for the Exhibition. After a fruitless search for many days, it was found that our city did not possess one, and it was determined to erect a temporary edifice especially for the purpose. At this juncture, with becoming liberality, our generous fellow-citizen, Mr. JAMES LICK, came to our aid, and tendered us the free use of his beautiful block of lots bounded by Post, Montgomery and Sutter streets; than which a more eligible site could not have been selected. This point being settled, the next question to solve was what should be the character of the structure? The first impulse was to make it as plain and cheap as possible—prudence seeming to forbid any great expenditure upan a project which seemed so uncertain in its results; but the very favorable reports which were daily made by our special agents, gave promise of a hearty coöperation by all classes of the community; and the final

determination was, that the structure should cover an area of twenty-thousand square feet, and be built with some regard to style and architectural proportions. That the decision was a wise one, the sequel abundantly showed; for the pavilion was considered by almost every one, as the great feature of the exhibition—its general plan being that of a Greek cross, with a large swelling dome ninety feet in diameter, the design for which was generously furnished, without charge, by Messrs. CLARK & KENITZER, architects, of this city.

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The formal opening of the Exhibition took place on the evening of September 7th, at Musical Hall, when Mr. H. F. WILLIAMS delivered the Opening Address to a large and appreciative audience. It was well received, and will be found in the published proceedings. Mr. EDW. POLLOCK also delivered an appropriate Poem on the occasion. The doors of the Pavilion were thrown open to the public on the morning of the 8th, and for nineteen days consecutively, excepting Sundays, an unceasing throng of visitors gave unmistakable evidence of the approval of the public—with what success, pecuniarily, the financial report submitted will best exhibit.

Total receipts from sale of tickets, rent of Pavilion subsequent to the close of the Fair, etc.,	$22,347 68
Expenditures, cost of Pavilion, fixtures, donations, printing, incidentals, etc.	19,469 20
Balance in cash,	$2,878 48
The Institute has now on hand, the Pavilion for use at the next Fair, with fixtures etc., worth at a low estimate,	5,390 00
Total balance of cash and assets to the credit of the Exhibition,	$8,268 48

The Clergy, members of the Press, and children and teachers of the Public Schools and Orphan Asylums were admitted free.

The receipts of one day, amounting to $1253 12 were donated to the Orphan Asylums of this city, (the Catholic and the Protestant), one half to each.

In accordance with a previous understanding, and by our invitation, the State Horticultural Society joined in the Exhibition, and took the control of that branch of the Fair—so far, at least, as concerned the appointment of committees, and the determining of its awards—under the general supervision, however, of the Executive Committee of the Institute. It is needless to add, that this portion of the Exhibition was one of its most attractive features.

The closing Address (which will be found in the reports) was delivered by the President (Mr. JOHN SIME,) in the Pavilion on the last night of the exhibition; and on the evening of the 6th of October, after all the articles were removed, a ball was given which was thronged by a brilliant assembly, and at which everything passed off to the apparent satisfaction of all present.

If we may predicate an opinion of the coming Fair, upon the success of the first effort, it would require no stretch of the imagination to picture a more brilliant Exhibition than was ever before witnessed in a commonwealth so young as our own. The names appended to the circular is a sufficient guaranty that the Institute will again do its part, if its efforts are only seconded by the public.

We learn with pleasure that Mr. G. D. STREET, (one of the former Executive), has been selected as the Special Agent of the Society, to canvass the city to ascertain what is being done, and what may be expected in the way of contributions.

The Pavilion erected for the first Exhibition will be used for the second, and if it be found necessary will be much enlarged.

ANNUAL REPORTS OF KINDRED SOCIETIES.—*Report of California State Agricultural Society.*—This document, containing one hundred and ninety pages on good paper and in clean type—a fair specimen of good mechanism—is on our table. It contains much information of great value. Many of the reports of the committees are well written and evince marked ability, as well as an intimate acquaintance with their respective subjects. The essays will be found well worthy of attentive perusal; especially, do we think the one on "Alkaline Soils," by WILLIAM THOMPSON, an able production. No intelligent or scientific man can read it without interest and profit. But the gem of the whole thing is the Annual Address, by Hon. HENRY ENO, of Calaveras. It is not one of those flowery, ornate effusions, whose chief value is in the pleasure of hearing it delivered by an *orator*. Particularly would we call attention to the luminous presentation of the subject of irrigation, which occupies a large portion of the address, as it must, in a country like ours, a large share of the cultivator's attention.

The report, however, is not faultless. Omissions are somewhat numerous; the title page is cumbrous—it appears to be a copy of the report for '56—and its running title is decidedly objecjectionable. In our view, the beauty of a production of this kind is its convenience, or the readiness with which any one particular topic sought may be found. And this can in no other way—after a good index, which is indispensable—be so much facilitated as by expressing at the top of each page the subject treated of on that page. But the great fault of that work, and it is one without precedent, is the entire omission of the Treasurer's Report. We would not condemn any party unheard, but somebody is to blame. We do not believe there was any intentional wrong, or that there was a man in the executive committee for 1857 who is not a gentleman of high-toned integrity, altogether above suspicion; yet this omission to publish an account of their financial stewardship, for the information of that public which furnished the funds, has given rise to apprehensions, which can only be removed by a publication, *in extenso*, of the finances of the Society for the year. We hope this will be done at once, through such media as will be most likely to reach every part of the State. But taken as a whole, with this one exception, the report is such a decided improvement upon that of 1856, that we are highly pleased with it, and commend it to the careful attention of all who would become acquainted with the progress and the resources of our State.

Report of Mechanics' Institute, of San Francisco, and California Horticultural Society.—These two bodies held their first annual fair, in San Francisco, during the month of September last. Though an experiment it proved a *success*, beyond the anticipations of its most sanguine friends. The volume before us gives an account of the origin and progress of the Institute, the great fair and the result. The reports of committees are in good taste, and evince mature judgment. The opening address, by H. F. Williams, Esq., a practical mechanic of San Francisco, is a masterly production. We heard it delivered, and shall not soon forget the high appreciation evinced by the vast audience. The report, as a work of artistic skill, reflects much credit upon the house that published it, while the preparation for the press was evidently executed by no unused pen. It is a good report. Get it and read it, and keep it for future reference.

Annual Report of New Jersey State Agricultural Society.—This Society, though young in years seems not wanting in the elements of an abiding vitality. Its chief patrons are men of the richest experience, full of zeal, and fixed in their purpose to make the Society a chief pillar in the State's temple of fame. The range of subjects reported upon is liberal, and the reports are able, clear and instructive. An analysis, with more extended remarks, will appear in our next.

State Agricultural Society, Mass.—The annual report of this long established Society has just reached us. We have only time to glance at its pages. Enough, however, has been read to enable us to assert that it fully sustains the character of the Society. We hope to present some extracts from it in our next.

Cherries.—The first ripe cherries in San Francisco the present season, appeared on the stands of Cummings & Swan, Washington Market, on the 3d of May. They were from Lee's garden, Oakland, and of the variety known as the Van Slyke cherry. It is about medium size, pale red, inclining to yellow, slightly mottled and of excellent flavor. As it is the earliest variety known here—or as yet produced by our gardeners—it will always command a high price, and should be extensively cultivated. We declared these cherries to be of excellent flavor; to very many doubtless they were; but to us they possessed so strong a "taste of silver," it was difficult to distinguish between them and the real shining metal, selling as they were at one dollar per dozen. The next to appear was the Gov. Wood, on the 15th of May, a fine large cherry, specimens of which measured three and a quarter inches in circumference, and those of fair medium size three inches; a beautiful light red and white blended; stem one and three fourth inches long: from Lee's gardens. On the 22d of May, the Black Tartarian, that old and highly esteemed variety, was sold at five dollars a pound; in a very few days afterward at two dollars a pound; which latter price they readily command.

It must be many years before cherries can be raised here in sufficient quantities to bring them

down to an "eating price." Fruit growers would do well to give to the culture of the cherry, a greater attention than it has yet received.

BLACKBERRIES.—The native variety of this fruit, plentifully produced upon the coast range, and in numerous localities along the valleys, appeared first on sale in our markets, Saturday, May 15th. A few small lots appeared fully ripe; but the larger part presented a mixture of black and red berries better adapted to cooking than the dessert. Though growing in great abundance, and easily procured on going for them, they command, on first appearance, fifty cents a pound, and when more abundant, twenty-five cents a pound. Probably there is none other among all the small fruits and berries, that improves more upon cultivation than the blackberry; but owing to the great abundance of this berry of natural growth, its cultivation or improvement is seldom attempted. There is a variety, however, known as the Lawton blackberry, that should be possessed by every owner of a garden; it is a berry of extraordinary size, an abundant bearer, and of peculiar excellence.

WATERMELONS—From the Sandwich Islands, arrived in San Francisco in considerable quantities on the 22d of May, of excellent quality, and price also—if one and a half and two dollars each constitutes excellence.

RASPBERRIES.—The lovers of this fine fruit were greeted with its first appearance on the 24th of May, in appreciable quantities; and on the same day a few lots of green corn, plump and well grown.

NOTES FOR THE MONTH.

DONATIONS TO LIBRARY MUSEUM.—[The thanks of the Board of Managers are hereby tendered to each of the donors and contributors."]

His excellency, J. B. WELLER, Governor of California: 100 volumes—Patent Office Reports, Congressional Globe, Maps and Views, and other valuable public documents. [This timely supply enabled us to furnish many persons, who very much desired them, with those documents.]

Hon. FERRIS FORMAN, Secretary of State: Statutes of California—of 1851 in English, 1852–3 Spanish, of 1854–5–6–7, Spanish and English, Journals of Senate and Assembly of California with appendices for the 1st, 2d, 3d, 4th, 5th, 6th, 7th and 8th sessions, and Debates of California Constitutional Convention, in English and Spanish.

A. G. ABELL: Proceedings of the M. W. Grand Lodge F. and A. M., of the State of California at the eighth annual communication, held at Sacramento, May 12th–18th, 1857.

Transactions of the Essex Agricultural Society, Mass., for 1857.

From H. F. WILLIAMS, Esq., Cor. Sec. Mechanics' Institute, San Francisco: Six copies of the Opening Address and the Opening Poem, delivered at the inauguration of the fair of the Mechanics' Institute and the State Horticultural Society, at San Francisco, Sept. 7, 1857.

From WM. M. FORCE, Trenton, N. J.: Annual Report of the Agricultural Society of the State of New Jersey, for the year 1857.

Report of Fair, Annual Address, and List of Premiums awarded by the Kentucky State Agricultural Society at its Annual Exhibition, at Henderson, October 13th–17th, 1857.

Report of Trustees of the Agricultural College of the State of New York, made to the legislature, in March, 1858. [Everything pertaining to the subject of this work is peculiarly interesting and valuable.—*Ed. Culturist.*]

Sorgho Sugar, or, Experiments with Chinese Sugar Cane; also, Catalogue of Sugar Making apparatus, by Hedges, Free & Co., Cincinnati, Ohio.

Fifty copies First Annual Report of Mechanics' Institute, of San Francisco.

Circular and Rules pertaining to the united fair of the Mechanics' Institute and California Horticultural Society, to be held in San Francisco, in September next.

From W. WADSWORTH, Esq., (the author), the National Wagon Road Guide from St. Joseph's and Council Bluffs, on the Missouri River, *via* South Pass of the Rocky Mountains to California.

CALIFORNIA HORTICULTURAL SOCIETY.—*Letters Received.*—[In this, our first, we date back one

month .] Dr. T. J. White, Samuel Johnson, W. N. Thompson, J. L. Sanford, Ezra Williams, Wm. James, George Hughes.

Donations.—[The Board hereby tender cordial thanks to each donor for his gift.] P. BARRY, Rochester N. Y.: "Fruit Garden;" Transactions of Northern Fruit Growers' Convention; Transactions of the American Pomological Society.

B. P. JOHNSON, Journal of the New York State Agricultural Society, April, 1857 to April, 1858.

D. D. T. MOORE, Rural New Yorker, for the year 1857.

Dr. J. S. SKINNER: Circular of the California Society of Natural History at Stockton.

MECHANICS' INSTITUTE, SAN FRANCISCO.—Letters from Appleton & Co., New York, with advisement of the shipment of books for the library of the Institute. The Secretary also acknowledges the receipt of numerous favors from the Hons. D. C. Broderick, W. M. Gwin, Charles L. Scott, and Joseph C. McKibben.

CALIFORNIA STATE AGRICULTURAL SOCIETY.—*Letters Received.*—W. Wadsworth—2, S. B. Bell, Daniel T. Adams, J. Holt, M. Walthall, jr., J. A. Paxton, J. Q. A. Warren, B. P. Johnson, J. C. Holmes, W. B. Leonard, A. B. Smith, D. J. Staples, T. J. White, J. C. Fall, Kierski Bros, B. B. Redding.

ENTRIES FOR PREMIUMS.—Daniel T. Adams, San Jose—Fruit Nursery. D. J. Staples, Staples' Ranch, San Joaquin county—100 Acres Wheat. J. T. Taylor, Indian Valley—Stock Farm, First Class. George G. Briggs, Marysville—Orchard, First Class. J. A. Sutter, Hock Farm—Vineyard, and Ornamental Garden. Geo. H. Beach, Marysville—Orchard, First Class.

SAN FRANCISCO WHOLESALE PRICE CURRENT.

JUNE 10, 1858.

Staple Agricultural Products.

Barley,	per cwt	$1 00
Buckwheat,	"	2 25
Corn,	"	5 00
Corn Meal, Cal. bbl		6 00@6 12
Corn Meal, E'n	"	8 50@9 00
Flour,	"	12 00@15 00
Oats,	cwt	1 50
Potatoes,	sack	1 06
Potatoes, sweet,	pound	05
Onions,	pound	03
Turnips,	"	01
Hay,	ton	10 00@15 00

Wool, Hides and Tallow.

Wool, extra fine,	pound	25
Wool, American,	"	12½
Wool, California,	"	08
Hides, dry,	each	2 75
Tallow, rough,	pound	04½
Tallow, tried,	"	09

RETAIL PRICES CURRENT.

Products of the Dairy, Lard, etc.

Butter, California,	pound	00 45 @	00 62
Butter, Eastern,	"	00 20 @	00 35
Cheese, California,	"	00 25 @	00 37
Cheese, Eastern,	"	00 20 @	00 37
Lard, California,	"	—— @	00 30
Eggs,	dozen	00 50 @	00 60
Honey, California,	pound	00 75 @	1 00

Fruits.

Apples,	each	00 25 @	00 50
Apples, Pine,	each	1 00 @	1 25
Bananas,	each	00 06 @	00 12
Bananas,	per bunch	2 00 @	5 00
Cherries,	pound	—— @	1 50
Cranberries,	gallon	—— @	1 50
Gooseberries,	"	00 25 @	00 75
Limes,	dozen	—— @	00 25
Oranges,	dozen	00 75 @	1 00
Raspberries,	pound	—— @	00 75
Strawberries,	"	00 25 @	00 75
Watermelons, Sandwich Isl,	each	1 00 @	1 50

Garden Vegetables.

Asparagus,	pound	—— @	00 25
Beans,	pound		08
Beans, Green,	pound		12
Beets,	pound		03
Cabbage,	head		12
Cauliflower,	head		12
Carrots,	pound		03
Cucumbers,	each		12
Garlics,	pound		25
Green Corn,	dozen		50
Green Peas,	pound		05
Onions,	"		05
Parsnips,	"		03
Potatoes,	"		02
Potatoes, new,	"		04
Potatoes, sweet,	pound		08
Radishes,	dozen		38
Rhubarb,	pound		12
Salsify,	dozen		1 50
Tomatoes, ripe,	pound		75

Meats.

Bacon, California,	pound	00 28 @	00 30
Beef, best pieces,		—— @	00 25
Beef, corned,	pound	—— @	00 12
Hams, California,	pound	—— @	00 30
Hams, Eastern,	pound	—— @	00 25
Lamb		00 20 @	00 25
Mutton,	pound	00 20 @	00 25
Pork, fresh,	pound	00 20 @	00 25

Game and Poultry.

Hares,	each	1 00 @	1 25
Rabbits, tame,	each	00 75 @	1 25
Rabbits, wild,	dozen	—— @	3 00
Squirrels,	each	—— @	00 38
Chickens,	each	00 75 @	1 25
Ducks,	each	1 25 @	1 50
Snipe,	dozen	—— @	3 00
Turkeys,	pound	00 45 @	00 50

Fish.

Clams,	hundred	50
Codfish, fresh,	pound	12
Crabs,	dozen	75
Flounders,	pound	25
Halibut		31
Oysters, Shell,	hundred	1 50
Perch,	pound	12
Pike	"	12
Rock,	"	12
Smelts,	"	10
Shrimps	"	10
Trout, fresh mountain,	pound	1 00

"THE GIANT JUDGE," by Rev. Dr. SCOTT, of San Francisco, has been before the community several months, and the verdict of the public has been so far made up that anything we may say will not be likely to change the result. The gentlemanly publishers, Whitton, Towne & Co., have laid a copy upon our table; and from the portion of it we heard the author deliver in his own pulpit, and the superficial reading we have been enabled to give it, we confidently predict that he who commences to read and lays it down before it is finished, will yield to some unwelcome necessity, rather than follow his own inclinations. The "Story of Samson" is told as few could tell it—perhaps, as few would wish to. We freely confess that it is not *done* wholly to our liking. The style, in some instances, is too light for the subject, and in others too complicated for the comfort of the reader. Yet it will be read—read with interest—read with profit.

ELECTROTYPING.—In answer to G. C. of Texas, the *Scientific American* says:—Silver or copper are the best metals you can use for electro-plating. You should get "Smee's Electro-Metallurgy," published by Wiley & Halstead, New York. It will give you all the necessary instructions, and you may be able to make your own batteries.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending May 31st, 1858; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury 41 feet above the sea at San Francisco.

BY THOS. M. LOGAN, M. D.

MAY, 1858.	7h. A. M.	2h. P. M.	9h. P. M.	MONTH.
Barometer, Maxima	30.155	30.109	30.123	30.155 inch.
" Minima	29.796	29.783	29.768	29.768 "
" Mean	29.987	29.960	29.942	29.963 "
Thermometer, Maxima	70.00	80.00	73.00	80.00 deg.
" Minima	55.00	63.00	57.00	55.00 "
" Mean	60.87	70 61	64.10	65.19 "
Force of Vapor, Maxima	.429	.489	.470	.489 inch.
" " Minima	.268	.270	.218	.218 "
" " Mean	.342	.381	.377	.366 "
Relative Humidity, Maxima	82.00	75.00	82.00	82.00 deg.
" " Minima	43.00	30.00	33.00	30.00 "
" " Mean	65.74	53.39	65.32	61.48 "
Number of Clear Days	14	15	19	16 days.
Number of Cloudy and Foggy Days	17	16	12	15 "
Number of Rainy Days	.....	.....	.....	4 "
Quantity of Clouds	2.3	2.0	1.5	1.9
Quantity of Rain and Fog	.....	.....	.....	0.203 inch.
1st Days.—2d, Force of N. Wind	2 | 2.5	4 | 2.8	2 | 3.0	2⅜ | 2.8
" " " N. E. Wind	5 | 2.4	2 | 2.0	1 | 3.0	2⅜ | 2.5
" " " E. Wind	1 | 2.0	0 | 0.0	0 | 0.0	⅛ | 0.7
" " " S. E. Wind	11 | 2.4	0 | 0.0	3 | 2.0	4⅜ | 1 5
" " " S. Wind	6 | 2.9	7 | 2.7	5 | 2.8	6 | 2.8
" " " S. W. Wind	4 | 2.3	8 | 3.5	11 | 2.5	7⅜ | 2.8
" " " W. Wind	0 | 0.0	0 | 0.0	4 | 2.3	1⅛ | 0.8
" " " N. W. Wind	2 | 4.0	10 | 3.0	5 | 2.0	5⅜ | 3.0

Thermometrograph.

	DEG.		DEG.
Highest Reading by day on the 31st	81.00	Mean of all Highest Readings by day	72.90
Lowest Reading by night on the 16th	46.00	Mean of all Lowest Readings by night	53.32
Range of Temperature during Month	35,00	Mean daily range of Temperature during month	19.58

REMARKS.—The observations are made three times a day, conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and also put separately to show the number of these days on which rain falls during the month. The force of the wind is estimated and registered in figures from 0 calm, to 10 a hurricane.

GROUP OF EARLY SUMMER FRUITS.

No. 1—Red Astrachan Apple. No. 2—Early Strawberry Apple. No. 3—Early Harvest Apple. No. 4—Myers' Rareripe Peach. No. 5—Madeline Pear. No. 6—Spanish Pear. No. 7—Gooseberry. No. 8—Moorpark Apricot. No. 9—Early Golden. Cherries, Raspberry, Strawberry, and the Lawton Blackberry. *See page* 86.

THE CALIFORNIA CULTURIST.

JULY, 1858.

THE FALLACY OF A STRICT ADHERENCE TO OLD SYSTEMS.

WHILST every day's experience and observation serves to convince us the more fully that, in California, we must admit of exceptions to very many of the rules that have heretofore been tacitly admitted as of general application in the science of agriculture; there are, and always will be, some who look upon everything *new* as an innovation upon what they deem established systems; scouting every attempt at change or improvement, as though agriculture had already attained to the utmost limit of perfection.

We are not among those who choose to plod in the old paths of our agricultural fathers merely because *they* did, and particularly is this the case, when we find ourselves removed so far away from the fields in which they labored, and in a country of which they knew nothing. Nor is it certain but that many of the practices, that from olden time have received the sanction of the best practical cultivators, may yet be made to yield to the light of scientific research, finally to be cast aside as popular error.

We are led to remark thus on finding a disposition, in not a few, to cling to old notions in the preparation of soils and management of growing crops, as though a principle had been, or could be established, applicable alike to all manner of field crops, and every variety of soils. Thus we hear from one that deep plowing is essential to success and from another that their best wheat and barley crops are upon lands in which the grain was only harrowed in, after gathering a preceding crop. Again, that a thorough pulverization of the soil, keeping it open and loose upon the surface, is all important to the welfare of the growing crop; and yet, in the face of this, is presented the indubitable fact, that the best grain fields in the State the present year are those in which the surface of the ground received just the opposite treatment, being rolled with a heavy roller, and the soil upon the surface rendered as smooth and compact as possible.

But it may be said that the grain crops are an exception; if so, they are far from being the only exception to the generally received opinion or rule, that the frequent

stirring of the soil among hoed crops is always beneficial. This opinion cannot be maintained in reference to all such crops, particularly if in the least degree wet with rain, fog or dew, at the time of being hoed. In proof of this fact as applicable to the potato crop, we give the experience of a correspondent of the *Prairie Farmer*, Wm. Aldridge, of Goreland, Ind. He states, that having noticed how potatoes were interrupted in their growth, and invariably pined away and died if disturbed and bruised when wet with dew or rain, he selected a patch of a potato field, the whole of which was good soil and in good order to try an experiment. This patch he only plowed once, and then loosened the soil with the hoe when the vines were above ground, and in the heat of the day when they were perfectly dry. He never touched them afterward until they were dug in October last year. These vines kept green throughout the season, and the yield of potatoes was very large. The other portion of this same potato field was purposely worked three times, when the vines were wet with dew. These blighted early, did not produce half a crop, and the potatoes were of a very inferior quality. The ground, seed and time of planting in both patches were the same.

Thus we see, that a culture that may be best adapted to one variety of plants may not be to another, and a system applied to one locality and variety of soil, may be wholly inapplicable to others. But besides the potato, there are several other varieties of plants and vines, that suffer materially if brought in contact with the earth while their leaves are wet, among the more prominent are the grape, strawberry and bean. In the leaves are the lungs of plants, access to which is mostly upon the lower or rough side, the very roughness itself being but a screen or network of velvet-like fibers, as if purposely to protect the lungs from external injury. Any substance then brought in contact with the leaf, that tends to close up the pores of the rough side, works a positive injury to the plant, vine or tree; and which is too often felt, without the least suspicion on the part of the cultivator of the true cause of the evil.—Æ.

NEW VARIETIES OF FRUITS.

MOST fruit growers, but particularly those who have given their attention to the propagation of new varieties, are well aware of the exceedingly few really good kinds they have been able to originate. They see long catalogues, extended nomenclatures of fruits of superior excellence, and wonder why they are not able to produce at least a variety or two that shall be worthy a place among the best of such fruits; and it would appear, that out of many thousand seedling plants or trees we might expect a few superior sorts; but experience shows that the number is very few, and often not one.

True it is, however, that an experimentist may, as if by mere accident, obtain in a simple planting of a thousand seeds a new and fine variety, were all his seedlings permitted to attain to bearing; but as ninety-nine out of a hundred would doubtless prove even inferior to the kinds from which the seeds were obtained, the prevailing

custom and doubtless the true policy for the general producer of fruits, is to graft his trees at once with the best known varieties. The extended catalogues of fine fruits of the present day, are the result of the bringing together of the selections of amateurs from all fruit growing countries, and for hundreds of years; for many of the English and French varieties have been cultivated true to their kind for more than two hundred years. The origin of our fine varieties is often in this wise: A single tree here and another there, and yet another far remote from either, spring from seed casually dropped and growing by the wayside, or perhaps in some old hedge-row or pasture ground, and apparently without anything peculiar to effect a change, a new variety is produced quite unlike and greatly superior to any known variety in the vicinity; this is noticed by some amateur, and its superior quality once known and established over its fellows, it is disseminated by grafting and soon becomes a standard fruit.

There are some kinds of fruit trees, as the peach, that seem more inclined to reproduce from their seed, varieties that equal the parent tree, than do apples or pears; thus we find an almost infinite variety of excellent seedling peaches, and many new varieties are originated every year many of them equal to, and a few superior to the originals, and quite a number have already been produced in our own State. Not so with apples and pears, for we have yet to see the first new California variety that can take rank as a fruit of even ordinary excellence. And yet, in a country where all the introduced fruits are grown of superior size and excellence, there seems no good reason why we may not originate our share of the world's varieties of choice fruits. Let the amateur experimentist but devote his attention to the subject in a manner likely from the experience of the past to produce the desired results, and we doubt not but that new varieties equal to any the world ever saw would be produced, and fully equal to his highest hopes.

To those who may feel inclined to experiment in the formation of new varieties, we give as a starting point, the views of an amateur in this branch of pomology, W. Creed, Esq., Rochester, N. Y., as worthy of consideration, trusting that it may lead to experiments that will result in giving to the world new varieties worthy the efforts of the producer, as well as the country and climate in which the attempt is made. We extract from the *Horticulturist:*

Within the past few years much has been said and written, and numberless queries propounded in respect to the adaptability of certain varieties of fruit in particular localities or soils, or for the purpose of gratifying those who may desire to enter upon any enterprise in this direction; and while discussions upon these points have been continued without intermission, the idea of propagating new varieties from seeds has not received that share of intelligent support which the subject deserves, to make it popular with the public mind.

Whatever may have been the theory or success of various distinguished pomologists, either of ancient or modern times, in respect to this very interesting branch of culture, we will not weary the reader by speculating upon it, but merely give our views, in the hope of attracting more attention to its importance, as well as hold out a prospect of success to those who may experiment in a right direction.

Our first impression, then, upon the amateur's mind as an index to the propagation of new varieties, is the great contrast observable in habit, wood, foliage, fruit and

seeds of each distinct class of fruit; this will lead us to other thoughts. Now, if we take the pear for illustration, and select a few varieties at random, such as the White Doyenne, Van Mons Leon le Clerc, Louise Bonne de Jersey, Bartlett, Stevens' Genessee, and Duchess d'Angoulemme, those who are familiar with them will be instantly reminded of the contrast spoken of; but the most important contrast in these distinguishing points, so far as the propagation of new varieties is concerned, is in the seeds themselves; take up your knife, and help *quarter* a pear from each of the above varieties, compare the seeds, and the contrast will be equally as convincing as in the fruit, foliage, etc. In reference to the seeds, however, we may expect that ninety-nine in a hundred in any particular variety closely resemble each other in shape, form, etc., *peculiar* to *that variety*, and producing *seedlings* exhibiting a *close affinity to each other*, and, therefore, not likely to result satisfactorily to the experimenter; but as soon as we find a marked difference in the *formation of a single seed* in any selected variety, *that seed* should be chosen by the amateur, for *in that seed* (which apparently is one of nature's freaks), is the symbol (in embryo) of a new variety, whether "good, very good, or best," will be left for Providence to work out; man also doing his share in the matter. Another part of the success, it is evident, will depend upon the choice of the best varieties, from which to select one of those "freaks," or "sports," which are more or less traceable throughout the whole classification of vegetable physiology, and intended by an all-wise Being to excite the wonder and admiration of man, prompt him to energetic action, and to study out the workings of Nature in all its beauty and complicity.

Experimenters should also be again reminded of the possibility of having to cut up quite a quantity of Bartletts, etc., before meeting with a seed so distinct in formation or appearance from the generality of seeds, to warrant its choice to propagate from. Those, therefore, who may be liable to mourn over this *destruction* of pears, should find a substitute in the apple, and as this fruit is quite liable to these "sports," and in frequent use for culinary purposes, it offers a good opportunity to closely inspect the seeds.

To test seedling pears at an early date, graft scions upon the Angers' quince stock, and the probability is a new variety may be known at two, three, or four years from grafting. Apples may be forwarded in the same manner by grafting upon the Paradise stock.

California possesses a feature that renders the production of new varieties of fruits easy, in comparison with other countries. It is found in the anomalous propensity of all fruit bearing trees to produce fruit at an exceedingly early stage of their growth; apples and pears not unfrequently producing to the utmost capacity of the tree to sustain its fruit in a single year, or two at most, from the graft. So that ours is a position peculiarly favorable to the early determining of the value of new varieties; and we hope our intelligent fruit growers will early institute a series of experiments upon this exceedingly interesting branch of pomological science.—Æ.

SUBIRRIGATION OF SOILS.

IN our June number, we promised to speak in this upon the interesting subject of the subirrigation of grounds. It is not that we propose a system of subirrigation as of general application to the great demands of agriculture, for we do not; but it is that in all countries where gardens are cultivated, there are those who, for purposes of convenience or pleasure, are ever ready to expend upon limited portions of their

grounds, in the production of rare fruits and flowers, an amount of labor and expense in the preparation of their borders and culture of their plants, that they would not feel warranted in extending to field operations.

Thus the amateur grower of dwarf pears, will expend in the preparation of an eighth of an acre an amount that he would never feel warranted in doing proportionably upon ten acres; and so he would, for his gratification, keep a bed of strawberries in perpetual fruitfulness from April to November, even though at a cost quite equal to the actual benefit derived—if estimated in dollars and cents—and expend in the preparation of a limited portion what he would not extend to his whole garden.

It is to persons so disposed that we recommend a system of subirrigation, as admirably adapted to meet their fullest expectations in the rendering of their grounds not only easily managed after proper preparation, but highly productive and remunerative. In a climate like ours, the practice may be applied advantageously to all manner of garden crops; but more especially is it applicable to such as occupy the ground for several seasons without removal. It will be understood, of course, that upon grounds naturally moist enough from beneath at all times, no necessity exists for its practice; therefore, wherever it is desired to prepare the soil for this mode of irrigation, a knowledge of the nature of the subsoil must first be obtained.

If it prove to be a tenacious clay, impervious to the percolation of water through it, the expense and time required in preparation are both much lessened. But as most soils where it may be desired to irrigate by this mode, rest upon a porous substratum through which the water would be lost, we describe the mode applicable to such soils, and the same mode as that described in the June number can be adopted, or the materials may differ. The soil is first thrown out to a sufficient depth, depending upon the nature of the plant or tree it is intended to cultivate. If for strawberries, eighteen inches is sufficient; if for dwarf trees and other deep rooting vegetation, two feet or thirty inches is better; and yet we have seen a most luxuriant and beautiful growth of cranberries, reared upon this plan with a depth of only one foot of soil. The soil being removed the width it is desired to have the bed, the bottom is made level, except narrow channels four inches in depth, rounded at bottom, and five inches in width at top, along the center and lengthwise of the beds; the whole bottom of the bed is then covered with a layer of tough clay mortar two inches thick, or what is even better, a coat of water cement; the channel is then covered its whole length, with hard burned bricks or flat stones without mortar or cement; a layer of two or three inches of coarse gravel and sand is then spread over the whole bottom, and the soil replaced; then proceed with another three or four feet in width as before, till your whole ground is completed.

Should your grounds be uneven, it is only necessary that such portions as can well be brought to the same level, be worked separately. It will be apparent that around the border of each distinct level, a rim of the same water holding material as the bottom, be raised to the hight of three or four inches. At one or both ends of the aqueducts or water channels, an opening should be maintained by which to feed them with water, and to know the hight at which it stands among the gravel of the bottom. Where bricks are not readily procured, the channel can be made of double the width

and depth named, and filled in with broken stones or large pebbles, and then covered with gravel and sand as already directed; the object being to provide and keep open a sufficient passage for the water to reach at all points the stratum of sand immediately beneath the soil.

Once properly constructed, and care used afterward in the admission of water or liquid manure to the channel ends, they will last for many years without obstruction; whilst the cement bottom will probably last for ages. After this plan, we have seen the cranberry—almost an aquatic plant—grown in the very midst of a garden of fruits and flowers, and producing abundantly; a beautiful and interesting feature of the grounds.

And thus can this system of subirrigation be made the means of adorning the grounds of our amateur culturist, with a variety of fruits and flowers, that without it would be impossible of accomplishment. It is also the most economical mode of irrigation, as regards the quantity of water used, that can be devised, as much of the loss by evaporation, usually attendant upon surface irrigation, is entirely avoided.—Æ.

SEED TIME---SUMMER FALLOWING.

THERE seems to be a diversity of opinions entertained in regard to the proper time of sowing wheat and other grains, in California. Some contending, with apparently a great deal of good sense, that the autumn months, after the earth has been sufficiently moistened by the rains to produce germination in the seed sown, is the proper time; whilst there are not wanting those who would teach us to "follow nature," and obey "nature's laws," inculcating the lesson, that because nature in California sows her "natural grains" and "plants her wild oats in summer," that man should do the same; and even ventures the assertion, though without bringing forward a single instance of actual demonstration in proof, "that if the hill-sides were prepared and left fallow one year, and then planted in summer, and the grain permitted to ripen *naturally*, we should have upon such lands some of the finest crops ever raised."

Now let us see for a moment if this would be "following nature." Nature sows her wild oats in California in summer, we admit; but not *in* the soil, but *upon* it; nor does it vegetate till the rains of autumn come. Then why sow grains so long before they can vegetate? or follow nature by leaving it upon the surface of the soil?

And what about this constant ringing of the same old changes, upon the system and theory of summer fallowing? Does "nature" summer fallow her lands for the production of her finest crops? And yet with one breath we are recommended to summer fallow, and with the next to "follow nature," "plant in summer upon the hill-sides, that it may rest in the soil [how does it get in?] till the rain comes."

The day has long since gone by, in which to advocate an undeviating system of summer fallowing as permanently beneficial to the agriculturist, even in countries where grass and weeds are the great annoyances of the grain crops. It is a system that upon our soils, and under our parching sunshine, is of extremely doubtful utility.

To recommend it then as of general application and benefit, without a single qualification, in a country and climate like ours, merely because it once attained to something like general adoption in countries where the ever recurring summer rains keep grass and weeds in constant thrift, is to perpetuate old fogy doctrines, that should long since have been put away as among the mouldy records of past, exploded systems.

One of the most able writers for the pages of the Philadelphia *Horticulturist*, (Cincinnatus), upon the subject of summer fallowing, says: "Formerly, great stress was placed on the necessity of summer fallowing and winter freezing in preparing the soil for the service of the husbandman; but these ideas are now pretty generally laid aside as relicts of the barbaric age of agriculture. In the case of light soils, it is universally considered by our most scientifically practical agriculturists as positively injurious, that the more modern, and as I think more accurate conclusion is, that all such treatment of soils is mere cobbling, and unworthy of our age."

We have much to say upon the theory and practice of summer fallowing as adapted to California agriculture, including *subsoiling*, and its effects upon the different grains and vegetables, and which will follow in future numbers.—Æ.

THE ABSORBENT PRINCIPLE IN SOILS.

THE different views entertained upon the propriety of frequently stirring the surface of the soil among growing crops, during seasons of protracted drouth, may doubtless be justly attributed more to the direct influence of the moisture upon the soil of different localities, than to any other cause.

Around the Bay of San Francisco, as well as to the west of the coast range, and along the valleys of the larger rivers of our State, there is more or less of dew, damp winds and fogs during the entire of summer. The air is charged with moisture; therefore, that condition of the soil most favorable for its absorption will be admitted by all as the most likely to be beneficial to vegetation, during the dry season. The more porous and light, then, we can render the surface, the more are the particles of which it is composed brought into direct contact with the moist atmosphere; and doubtless much good results to the growing crop from its effects.

To produce this effect, however, it must be admitted, that such moisture on being communicated to the soil passes *downward* to the roots of the plants. Doubtless it does; but how far down? for almost with the same breath that tells us of its *descent*, we are reminded that the soil is moistened, and the plants sustained, by the capillary attractive power of the soil drawing up the water from *below;* thus they make it move both ways, as doubtless it does, and in the localities we have named, very likely the effect of keeping the ground loose and porous is a benefit. But in California there are large districts of country in which dew is almost unknown. The night air is as dry as that of the day, and every particle of moisture that growing crops can receive without direct artificial irrigation, must come from below. In such cases, it admits of a doubt whether repeated stirrings of the surface soil serves to moisten it. In a spirit of candid inquiry; we ask: In what way, if it was desired to render thor-

oughly dry and as quickly as possible six inches of the surface soil, under a vertical sun, either with or without rain, how could it be done more quickly than by a constant stirring up of the same to the depth required? Is it not the very mode you would adopt to dry wet wheat, or any other substance, spread six inches deep upon land? And is not the effect the same upon soil so stirred?

But, says the advocate of deep and frequent stirrings, "it serves to give porosity to the soil, thus enabling it to receive moisture from beneath, drawing it up around the roots of the plants by capillary attraction." Do the roots occupy that portion of the soil so stirred? if so, what becomes of them in the process? Or do they not rather occupy the more solid unstirred portion adjoining? If the stirred portions obtain moisture by capillary attraction, then such moisture must be obtained from the solid portions beneath; then it is the more solid ground after all to which we look for a supply of moisture.

To say that roots will not penetrate this substratum, for the very moisture it contains, is controverted by the tap root of almost every plant and tree grown in California. But it is easy to make soil so light even that its capillary power of attraction is destroyed, and so loose that roots even cannot penetrate it. Thus we always, in transplanting trees, tread firmly the earth around the roots; not so much to support the young tree in its upright position, as that the fibers of the roots which are the real feeders of the plant, may be brought in direct, firm contact with the soil in every part of their length. Upon the same principle, grain crops are always benefitted by a thorough rolling in the spring, pressing the earth about the roots, and leaving the soil as smooth as possible, that the winds may not take so dehumidizing a hold upon the surface.

There is yet much to learn upon the subject of moisture in soils, and the mode of husbanding its effects, the better to subserve the interests of the agriculturist. We shall discuss the subject in many of its bearings.—Æ.

CALIFORNIA GARDEN SEEDS.

IN a country where every variety of fruit and vegetable attains an excellence unsurpassed, it is surprising that an opinion so erroneous as that entertained by many, that the seeds of California products are not suitable to propagate from, should have gained credence. What quality, we ask, should we expect fruits or vegetables to possess, that should better qualify them for the production of perfect seeds for the reproduction of their species, than perfection to the highest degree in the products themselves. We, therefore, unhesitatingly pronounce it a fallacy, and we do so because experiment with every variety of garden seeds warrants us in doing it. It is not surprising, however, that very many utterly fail in perfecting good seed; but the fault lies with themselves, not with the climate, nor justly with the plants or fruits producing the seeds.

It is a law of nature, or near enough to answer our purpose for argument, that *like* produces, or has a *tendency* to produce *like*, as well in the vegetable as the animal

kingdom. If there is any truth in this, let us apply it in its effects upon the seeds gathered in for future use, by very many of our otherwise best practical gardeners, and see if there is any wonder that they deteriorate in every good quality.

A field of peas of superior excellence is produced from Eastern seed; the crop approaches maturity, or a state fit for the market as green peas. The gathering immediately commences, and all the earliest, largest and best are picked and hurried off to market; and several times is the process repeated, till almost the entire crop has been gathered; but yet a few remain, and these are permitted to mature as best they can, as seed for a future crop.

Is it any wonder that seed thus matured should be found to produce an inferior product? Was not the very best portion of the crop, that which should have been preserved for seed, wantonly or unthinkingly plucked? whilst the very latest and smallest the plants could produce, and matured only when all the vigor was gone and old age in the plant began to show itself, preserved for seed? We ask, is it at all surprising that such seed should not reproduce its kind in the fullest perfection? And yet by many this practice is pursued in every department of seed saving, and such seed are often imposed upon the market and sold for the best. The practice is wrong, and highly detrimental to the best interests of all concerned. None but the best should be preserved for seed, and such seed should have the benefit of the first and fullest vigor of the plant's growth. The same rule will hold good in regard to potatoes, melons, beans, indeed any garden or field product. Who would think of using the seeds of the latest and poorest melons, when the best are so easily procured? and if of melons why not of every vegetable producing seed?

It is a short-sighted policy that consumes the earliest and best products, involving the destruction of their seeds, and then depend upon the latest inferior seed for a succeeding crop. To obtain the most perfect seed, a small or sufficient portion of a crop from which it is desired to save seed, thould be set aside and devoted to this object, and the plants be permitted to attain to their fullest development without check or mutilation, or the premature plucking or destruction of any portion of its product. By pursuing this practice, as good seed of every known variety of plant or vegetable, adapted to our latitude or climate, can be raised in California as is grown in any part of the world. The fact has been demonstrated by experiment and the experience of practical seed growers, and should have the effect to induce our gardeners to change their practice, and not rely upon imported seeds that so often prove utterly worthless.—Æ.

THE ROSE.

THE rose is universally conceded to be the queen of flowers. The very word carries with it the association of all that is charming in the floral world. Tastes differ as to other flowers, but all unite in admiration of the rose. The deep green of the leaves, its first opening buds, the brilliant flower, its fragrance and its continued bloom, all unite in making it the standard of floral beauty. The time was when the

varieties of roses were quite limited, but the zeal and enterprise of rose culturists have developed an astonishing number of new kinds, remarkable for properties not possessed by the old sorts. Chief among these is the habit of continual bloom. Roses can now be selected remarkable for richness of color, fragrance and a perpetual bloom, so that a garden need never be destitute of this richest of flowers during the growing season.

We do not remember the number of varieties now cultivated, but one gardener published a "*select list*, embracing only the most beautiful," of one thousand two hundred and fifty-three kinds. Among this vast number there are a few that stands pre-eminent, and as it is as easy to cultivate a plant of the choicest kind, as one of the most common, we advise our friends to purchase only the very best, where their garden room is limited. Who would cultivate a rose which blooms only once a year, when it is just as easy to have one that will bloom from February to Christmas? But there are different tastes to be consulted, and fortunately the rose affords varieties suited to all. If you want a plant to run over trellis to shade your house or a pathway from the scorching sun, and to yield a fragrance which will perfume the whole garden, there are roses which will cover a moderate sized cottage in two years, and afford a continued succession of flowers. If you want a rich swelling bud, covered with a mossy calyx, there is the Perpetual Moss. If you want a large, blooming, fragrant rose, there is the Bourbon class, and so of other classes each has its peculiar properties. We will now notice a few of the most generally approved kinds.

The *Giant de Battailes*, in our opinion, is the richest rose now cultivated. No other can compare with it for brilliancy of color. Its petals are of the most brilliant crimson, of a rich velvet shade, and are always conspicuous among the best. The bush has a vigorous upright growth, with deep green leaves, and blooms continually through the season. It is moderately fragrant. In our soil it grows very rapidly, notwithstanding it blooms so freely. We know of bushes ten feet high, and the plant still growing. It is better, however, to keep it trimmed down lower, as it would be liable to break down in a strong wind if trained too high. Every garden, however small, ought to have one of these charming roses. No man is so poor that he cannot buy one, and a single season will richly repay its cost.

The *Souvenir de la Malmaison* is another of our best roses. Its flowers are very large and very double, often measuring six inches in diameter, of a delicate blush in the opening bud and becoming white when fully expanded. It is a perpetual bloomer and has a thick green leaf. It is a free grower, and soon forms a large, compact bush; it is among the very best of roses.

The *Devoniensis* is a tea scented China rose, of a rich, creamy white color, remarkable for its fragance and its delicacy. These classes of Tea and China roses are kept as house plants in the Atlantic States, but in this climate they grow in the open garden, and endure our winters without any difficulty.

Hermosa: This is a most beautiful rose, a very fine bloomer, and keeps in bloom all the season. Its flowers are very double, and of a rich rose color. One of the very best.

Agrippina: This is a most brilliant crimson, velvet, China rose. It does not grow into a large bush, but blooms continually. It is unsurpassed in richness of color.

Saffrano: This is a tea scented China rose, and one of the very best. Its buds when just opening are of a rich coppery yellow shade. There is a class of half climbers, sometime called Pillar Roses. By a little training they may be made to cover a trellis, and they are thus a very useful class. Among these are: the *Gloin de Rosamene*, which has a brilliant purplish crimson flower, and is a perpetual bloomer. The *Lamarque*, of a light straw color, and a very fine bloomer. The *Chromatella*, or *Cloth of Gold*, a light yellow rose, but of a large size and a fine bloomer. The *Solfatime*, very similar to the last. And the *Souvenir de Auselum*, one of the very best of this class; it has a rich rose-colored flower.

We have enumerated only a few out of the vast number of choice roses, but they may serve to aid the beginner in making a selection.

Sacramento, June 20, 1848. E. B. C.

BEE HUNTING.

IN our article upon honey bee culture, in our first or June number, we made mention of the loss of some fifteen swarms of bees, that had gone from the vicinity of San José towards the timbered region of the Santa Clara gap, and that their value was such as to warrant a hunt for the fly-aways, as the task of looking them up was an easy one; and to which we now add, a very pleasing recreation. Since our article appeared we have received three communications on the subject, and all making inquiry as to the *modus operandi* of bee hunting.

From a personal knowledge of the practice—having, by the means we shall describe, found as many as three swarms in a day among the heavy timber of the River Raisin, in Michigan—we shall describe our process, and can assure those making the inquiry of the certainty of success, if practiced with skill. Procure a small box three or four inches in diameter and one inch and a half in depth, with a moveable transparent cover—a piece of common window glass will answer every purpose. Next procure a piece of honey comb containing honey, or pour honey into it, and let it be a half an inch or more below the cover. You now proceed to, or near, the locality where you expect to find the bees, and on finding one upon a flower—which, if you are within a mile or two of a swarm, upon a day when the bees are at work, will not be difficult—with the box in one hand and lid in the other, carefully approach and make the bee captive while he is partially hid in a flower. At first, the bee shows some trepidation or fright, but will soon alight upon the honeycomb and then immediately and eagerly begins to fill itself, entirely forgetting its confinement. Now place the box upon some prominent object as a log, stump or stone, carefully remove the lid, take your station as near to it as convenient, and remain quiet. In about two or three minutes the bee will take wing, and after rising up and making a few rapid circles around as if to mark well the place of his new discovery, flies off in a bee line for home, whilst it is for you to mark the direction. In from five to ten minutes, if the distance be not more than three miles, the bee will return bringing from one to three of its comrades in company. If the distance they have to go appears con-

siderable, judging from the time occupied, it is well to let all these fill themselves, go, and return again, as they will bring still others with them, till you get from six to a dozen at work before making a movement at finding them, except to mark well the direction they take; but when you have a number at work, and quietly feeding, close gently the box and proceed as rapidly as possible for the nearest timber, in the direction the bees had previously taken. Having reached the vicinity of where you suppose the swarm may be, let out a bee or two and again mark their direction; if they continue on the same line you have not passed the swarm, and you can make another advance and yet another, till you are ready to let out the last remaining bee or two; here make your second station and wait till you have secured another dozen bees to lead you as before, and repeat the process till you arrive at the home of the swarm.

As you approach the swarm nearer and nearer, so will the number of bees brought back by those last leaving the box, be greatly increased, and the more direct will be their flight to and from. They are sometimes found in cavities of rocks or trees, where you would least expect them; in such cases, the hunter as he carries his captives along in his box not unfrequently passes the tree or home of the swarm, but this is soon discovered by the direction the bees take. As you approach very near the swarm, the rapidity with which they go and return and the increase in numbers is surprising and pleasing, making the chances of their discovery certain. Oftentimes on first taking a bee, if in the vicinity of your own home, it is well, after placing the box in a secure place, to leave it for a half day or more, and let the bees work away at it till there are hundreds going and returning; this makes the matter of their discovery almost certain with very little trouble.

There is also another method to obtain the first bee or bees, even if none appear upon the flowers, provided you are certain there are swarms in the vicinity. Get on the windward side of the wood or forest where they are known to be, at a time when a gentle wind is blowing towards it. Then by a spirit lamp or small wood fire heat a thin stone or small piece of sheet iron quite hot, and burn upon it bits of honeycomb and drops of honey. If there are bees in the vicinity, in the direction the wind blows, whether in or out of their trees, they will soon be buzzing about you. Place your box over or near the burning comb; the bees will discover it at once, and commence carrying off the honey; then proceed as already directed. This last is more usually adopted at seasons of the year when bees are making little or no honey from flowers, and consequently not readily obtained from them.

If honeycomb cannot be procured for the box, wheat bread, or even a sponge filled with honey, can be substituted; the object being to have something containing the honey which the bees can light upon, when caught in the box, without being bedaubed or clogged by getting into the honey. In place of honey, water fully saturated with loaf sugar will answer nearly as well. We have been thus lengthy in our description, because we were requested to give our method in detail.—Æ.

[From the Scientific American.]

CAN THERE BE A GREAT SCARCITY OF TIMBER IN THE UNITED STATES?

ARTICLE I.

TAKING, as a citizen, a deep interest in the welfare of the present and future inhabitants of this great commonwealth, I embrace with much pleasure the opportunity of bringing before the readers of your valuable paper, the views of a professional German forester—Charles Bertholdi—on a most important branch of national economy, namely, the culture of trees. Mr. B. recently traveled through the United States, and he treats the subject without any prejudice. He believes that if the present reckless destruction of timber is continued for a number of years longer, the United States will have to bear the disastrous consequences of that destruction. The bases of his conclusions are stubborn facts taken from the history of ancient and modern nations, such as the Persians, Greeks, Romans and Germans. He considers Persia to be one of the most remarkable illustrations of his views, and he says that there are in this respect three periods to be compared. The first is the time anterior to Persia's flourishing as a great empire, when ignorance and recklessness were dominant for the immense destruction of forests and woods; the second period is the time of its prosperity and greatness, when no difficulties were considered great enough to obstruct an extensive cultivation of trees; and the third period—which extends down to the present time—is that of relaxation in efforts to cultivate and preserve timber. During the middle period, even on the very verges of vast deserts where no rivers or brooks existed, every available source of water was used to supply aqueducts for producing the humidity necessary to the growth of trees. The contrast of desolate deserts and timber land impressed the Persians with a natural love for the cultivation of timber. Religious and political law-makers were so wise as to impose on the people a sacred duty of planting and of promoting the plantations of trees, and its fulfillment was shown to be the only way to be blessed in this and in the world to come. Kings and vice-kings, or satraps, early in their infancy, were taught this duty. Thus we understand why every wealthy Persian applied his riches to the transformation of barren land into gardens and groves of fruit trees; and Persia, in the time of its might and power, was covered with gardens, woods, parks, and groves, and thereby the Vandalic destructions of former time disappeared. This love of the Persians for woods accompanied them to other countries in their strife for conquest, and when their dominions extended to the Black and Mediterranean Seas, the same laws for the cultivation of trees were maintained. Generally, the Persian kings appointed wood overseers in their new provinces. The Israelites had to petition their conqueror Artaxerxes, the Persian king, for an order commanding the royal overseers of woods to allow them (the Israelites) to take timber from Mount Lebanon, to be used in the construction of their temple at Jerusalem, an account of which is given in the Bible. (Nehemiah, chap. 2.) As many cold parts of Persia were densely populated, there was a large annual consumption of timber.

In Greece there were provinces which were covered with woods, such as the mountainous regions of Tiber, Boetia, and Thessalonia. But in the province of Attica, with an extent of only forty square miles, and a number of inhabitants amounting to half a million, the people had to plant their trees so as to provide for ship and house building, and even for their mines. Under government care was placed the cultivation of the fig and olive trees, devoted respectively to their deities, Ceres and Mercury. In Greece, too, religious influence was exerted to keep sacred the temple groves, in which only the decayed trees were allowed to be cut down. The only State forest being at a great distance from the city, trees were planted on the adjacent mountains.

Almost every village had its woods, which were under the supervision of the government.

Under the rule of the Romans, the stringent laws for the cultivation and preservation of trees much resembled those of Greece, even to the extent of consecrating the groves surrounding their temples. Each farm was generally fenced with woods, which, together with the beautiful fruit and other trees in the gardens within the farms, imparted much beauty to the country residences.

As to Germany, the country was covered with dense forests a long time before the great nations mentioned disappeared from the scene of action; gigantic trees were found in these forests. Already in the seventh century of the Christian era, the increase of population and its need of agricultural productions caused the clearing of forests. But this clearance did not assume so large proportions as might be supposed, as rigid laws were in force to properly limitate the natural instinct of the peasantry for the destruction of woods. In the course of time, however, this regulation became perfectly tyrannical; large forests being in possession of individuals—kings, nobles and clergy. The first French revolution checked despotism in this direction; but on the other hand, the destruction of forests became at this period so prevailing, that a perfect barrenness of the soil was created in some parts of Germany; and it took many years of hard labor and the expenditure of much money to restore the fertility of these barren mountains, which restoration was also owing to the development of a better and more enlighthened public spirit, which counteracted the effect of vile passions and ignorance. At present, in all parts of Germany, laws and regulations for the cultivation of timber are enforced, which laws are unsurpassed in respect of having yielded the greatest possible quantity of wood, and at the same time provided for a most extensive growth in the future. L. R. Breisach.

QUACKERY IN HORTICULTURE.

A correspondent of an Eastern agricultural paper writes as follows:—

I tried a curious experiment with a few potatoes this season. Two years since I saw a letter from a farmer, stating the great success that had attended an experiment the writer had made in the previous season. It consisted in inserting a pea in each potato set and planting the potato set in the usual way. The result, he stated, was a large yield of peas, and a splendid crop of potatoes, but the most important result was the entire freedom of the potatoes so treated from any disease, while all those planted in the usual way, in the same field were extensively deteriorated. I was led upon this statement to try the experiment on a small scale in my own garden last season. I planted not quite half a peck, only fifty sets in six ranks, cutting a piece out of each and putting a pea firmly in. The pea grew up and flourished well, and last week I dug the potatoes. They were perfectly free from all taint or speck of disease, and very fine and large, while in the same bed close to them, was another lot planted in the old style, nearly half of which were rotten. I leave your readers to draw their own conclusions.

Having *drawn* a conclusion, it is this: that the writer is exceedingly fond of the marvelous; that no good did, or ever can, result from planting peas and potatoes in the same hill even, much less by inserting the pea in the potato. If the peas "flourished well," they must have completely overshadowed the potatoes, and consequently injured their growth, for no other vegetable suffers more from shade than the potato. If planted too closely, even the shade of their own tops will greatly diminish the crop. The pea crop could not have been equal to what it would have been without the

potatoes, if the latter grew at all. In gathering the potatoes, it must have been with the dried pea vines very much in the way. And lastly, the plan, from the very tediousness of the process of preparation is wholly inapplicable to general culture, even though there might be found those ready to swallow the humbug.

But the days of quackery and humbuggery, as applicable to agriculture in California, are past; we intend the CULTURIST shall choke out the one, and effectually clip short the wings of the other.—Æ.

DANIELS' PATENT GRANULAR FUEL.

HERE we have something that, in a country where fire wood is worth from six to ten dollars a cord, may well claim the attention of the consumer of and dealer in the article. It is a method by which the now useless brushwood of the banks of the Sacramento river and sloughs may be converted into a most valuable fuel, at a cost that would render its preparation and sale a speculation worthy of attention, as the cost of the raw material would be but trifling. The following notice of the subject we extract from one of the best practical scientific journals of the age:

An engraving illustrating the manufacture of this fuel, was presented to our readers on page 228, Vol. VI, *Scientific American.* It consists in converting the stunted growth of brushwood, with which farms generally abound, into a compact, excellent fuel for light fires, or for igniting the more solid materials employed in heavy ones. This is effected by cutting the several twigs and heavier portions of brushwood into lengths about equal to their average diameter, by means of a machine constructed and operating after the manner of an ordinary straw-cutter, and thus producing a new and useful article of manufacture from a material which has heretofore been considered as worse than useless. Whether the exclusive claim to a fuel prepared in this way is a legal one or not, we do not pretend to judge, as the question has not, to our knowledge, been subjected to any judicial test since the issue of the patent under which it is held.

As a fuel for kindling coal fires or for heating small apartments, it possesses the important desiderata of inflammability, cleanliness and economy, as we can confidently assert from experience. We think this invention well worthy the attention of farmers in the vicinity of cities, who are overrun with brushwood, and annually destroy large quantities of it, from the fact that from its nature and cumbersome character, they are unable to transport or store it in a compact form.

Our plan for the manufacture of this fuel for the San Francisco market, would be this: Procure a large flat-boat of light draft, but one that could safely navigate the bay and river, and propelled in part by a small steam engine. Let the machine for the manufacture of the fuel, which is small and compact though strong, be made a fixture of the boat and so arranged as to be operated upon by the engine, the wheels of the boat being uncoupled or detached while working the machine. Make the boat fast to the bank in any locality where the brushwood offers the best opportunity for action, then with hands sufficient, take off and work up all the wood and brush convenient to the place, and then drop a few rods down stream and commence again, and proceed thus till your boat is loaded to its utmost capacity, and then put off for market.

Fuel prepared in this manner, from the facility with which the air enters its pores, will dry in the process of preparation quite sufficient to make it highly inflammable, provided the green leaves of the brushwood are not permitted to mingle with the pile. In gathering in the brushwood, all larger than an inch and a half if green, or if dry an inch in diameter, is trimmed out and treated as ordinary cord wood, whilst all less than these sizes, is passed through the cutters and converted into granular fuel. Both alder and willow are the woods most in demand for making the coals used in the manufacture of gunpowder, for the reason that they contain a large per cent of pure carbon; but every variety and kind of brushwood usually found upon the low lands of the rivers, can be used to advantage in this form of fuel. Any further information that may be desired in relation to the machine, or where it may be procured, can be obtained by addressing California Culturist.—Æ.

GEORGE STEPHENSON.

WE are happy to have it in our power to lend our indorsement, free and full, to the following tribute to one whose genius gave to civilization, that great master piece of mechanism, the Locomotive. We copy from the *Scientific American*, a journal unequaled of its kind, and whose conductors are just the men to appreciate the high honor due to this Prince of Mechanics:

When the very paper you are now perusing, gentle reader, has traveled tens or hundreds of miles upon the iron road drawn by the locomotive engine at the rate of thirty miles an hour, without creating one emotion of surprise, or exciting in you an exclamation of astonishment, you can scarcely be expected to believe that thirty years ago, the man whose name heads this article was called a fool, a madman, and a dreamer, because he undertook to make a locomotive travel ten! Yet such was the case, and all the facilities of land locomotion that we now possess, all the good railways as social revolutionizers have done, the increase of commerce, and the strengthening of friendly relation between city and city, state and state, that iron roads have effected, we owe to the indomitable courage, heroism, perseverance, and energy of the self-taught, self-made George Stephenson. Not only this, but to him are we also indebted for the "Geordy" safety lamp, for the invention of which he has had the heartfelt blessing of many a poor miner who had nothing else to give. Let us know the history of this man's struggles, said the world, let us know the secret of his success, and give us an opportunity to compare him with the mighty dead whose lives are to us as household words. This has been done. We have before us the "Life of George Stephenson, Railway Engineer," by Samuel Smiles, published by Ticknor & Fields, Boston; a modest, unpretending volume, just in fact what it should be, quiet and strong. Of the work of the biographer, we cannot say too much. There is not one page of dry reading in the book, from the moment you take it in hand till the close. You are engrossed, absorbed; it is a story, not a life, full of incidents, each pregnant with results that have changed the aspect of the world. The reader follows, as through an enchanted grove, the career of this noble man. It is a book that should be on every shelf, and children should have it read to them that they may learn lessons of self-reliance. For the personal gratification that the author has afforded us, we are grateful, and we know that each reader will be laid under the same debt. Heartily do we wish the book success, sincerely can we recommend it to all, for it is a worthy monument to a great man, to a high priest of the nineteenth century civilization, George Stephenson!

AMERICAN AGRICULTURE—BOOK FARMING.

IT is not that we desire to make patent the great truth, that American agriculture as a system in the gross is faulty, and unworthy the genius and enterprise of our people; but when the evidence is produced—not from individual instances of the practice of a ruinous system, but from the aggregate of agricultural communities that embrace some of the oldest and most densely populated states of the Union,—that our agriculture is actually on the decline, that culture for less than two hundred years has reduced a virgin soil to absolute sterility, or caused a rapid deterioration of fertility, it certainly becomes the true patriot of such a land to look calmly at the facts as they exist, however humiliating they may be; that a remedy may be devised either from the experience of the past or the experiment of the future, that the next two hundred years may not witness a continuance of a system founded in error.

That such a system is the one our fathers have practised, notwithstanding the constant teachings and warnings of the few of our more enlightened and scientific agriculturists, is evident from the condition of the greater portion of the lands they have left to us, and the meager returns they now exhibit in comparison with their former yield, or even with the lands of European countries, subject as they have been to long, long centuries of cultivation before the first plough had upturned American soil. We believe, then, that there is something radically wrong in our American system—if we have a system—of agriculture. A system that has produced the evils that we find existing, is either founded in error or old fogy notions—do as our fathers did,—or they are based upon the more modern ground, the application of scientific principles in the culture of the soil; by large numbers called, *book farming*. Now, by comparing the effects of book farming in other countries with the effects produced by our system, we can better judge of the comparative benefits of the two, and be able thus to place ours in its true position.

It is *book farming* that makes one acre of land in England produce more wheat than two in New York, or four in Massachusetts. It is book farming that makes France, and Belgium, and Germany, more productive of agricultural products now than a century ago. And it is book farming that, within the last fifteen years, has reclaimed or reinvigorated thousands of acres of the sandy barrens of New Jersey and Pennsylvania, converting them again into fruitful fields and fertile grain lands. And it is book farming, or agricultural knowledge disseminated through the masses by agricultural schools and colleges, that is to reinvigorate and bring back to their pristine fertility, the worn-out soils of many of our eastern states.

We may be doubted when we assert a positive decline of the agriculture of the older states, and be called upon for proof showing that an erroneous system has been practised. We know of no better proof, no better way of giving it, than to quote from the speech of Hon. JUSTIN S. MORRILL, of Vermont, in the House of Representatives, April 20th, 1858, on the "Bill granting Lands for Agricultural Colleges;" and we believe every agriculturist in our state, who takes up the CULTURIST for a half

hour's reading, will only regret on perusing it that we did not give the speech entire. Mr. Morrill, having the floor, said:

Mr. Speaker—I know very well that when there is a lack of arguments to be brought against the merits of a measure, the Constitution is fled to as an inexhaustible arsenal of supply. From thence all sorts of missiles may be hurled, and though they "bear wide" of the mark, they do not "kick the owner over." I have also noticed that lions accustomed to roar around the Constitution are quite disposed to slumber whenever it is desirable for certain gentlemen, who carry extra baggage, to leap over the impediment. But, while I do not propose to consider the constitutional argument at any great length, I shall not wholly blink it out of sight; and all the favor asked is, that the Constitution may not be strained and perverted to defeat a measure no less of public good than of public justice, just politically, just to all the states, and just, above all, to the manhood of our country.

We exert our power and expend millions to protect and promote commerce through light houses, coast surveys, improvement of harbors, and through our Navy and Naval Academy. Our military "crown jewels" are manufactured at West Point on government account. We make immense grants of lands to railroads to open new fields of internal trade. We secure to literary labor the protection of copyright. We encourage the growth and discipline of hardy seamen by eking out their scanty rewards through governmental bounties. We secure to ingenious mechanics high profits by our system of patent rights. We make munificent grants to secure general education in all the new states. But all direct encouragement to agriculture has been rigidly withheld.

When Commerce comes to our doors, gay in its attire and lavish in its promises, we "hand and deliver" at once our gold. When Manufactures appears, with a needy and downcast look, we tender, at worst, a "compromise." And then the fiery little god of War bristles up and makes havoc of all we have left. So that, when Agriculture appears,

> "A creature not too wise or good,
> For human nature's daily food"—

though taxed to support all her sisters and idle brothers, and to espouse their quarrels—we coldly plead there is nothing left for her, and even spurn the admission of her affinity to the family by omitting all mention of her on the records of our statutes. Ceres does not appear among the gods of Olympus—only appears in a picture on one of our Treasury notes!

It is our province, as a nation and as individuals, to do *well* whatever we undertake. The genius and skill of our artists and artisans have been universally commended. Our naval architecture is a subject of national pride. Our engineers are doomed to no merely local fame. Our agricultural implements are beyond the reach of competition. Yet, while we may be in advance of the civilized world in many of the useful arts, it is a humiliating fact that we are far in the rear of the best husbandry in Europe; and, notwithstanding here and there an elevated spot, our tendency is still downward. Does not our general system of agriculture foreshadow ultimate decay? If so, is it beyond our constitutional power and duty to provide an incidental remedy?

The prosperity and happiness of a large and populous nation depend: 1. Upon the division of the land into small parcels. 2. Upon the education of the proprietors of the soil.

Our agriculturists, as a whole, instead of seeking a higher cultivation, are extending their boundaries; and their education, on the contrary, is limited to the metes and bounds of their forefathers.

If it be true that the common mode of cultivating the soil in all parts of our country is so defective as to make the soil poorer year by year, it is a most deplorable fact, and a fact of national concern. If we are steadily impairing the natural pro-

ductiveness of the soil, it is a national waste, compensated only by private robbery. What are the facts? In New England, the pasture-fed stock is not on the increase, and sheep husbandry is gradually growing of less importance, excepting perhaps in Vermont and New Hampshire. The wheat crop, once abundant, is now inconsiderable. The following table will exhibit something of the depreciation of the crops in ten years:

	Wheat—Bushels.		*Potatoes—Bushels.*	
	1840.	1850.	1840.	1850.
Connecticut	87,000	41,000	3,414,238	2,689,885
Massachusetts	157,823	31,211	5,385,652	3,385,384
Rhode Island	3,098	49	911,973	651,029
New Hampshire	422,124	185,658	6,206,606	4,304,919
Maine	848,166	296,259	10,392,280	3,436,040
Vermont	495,800	535,955	8,869,751	4,951,014
	2,014,111	1,090,132	35,180,500	19,418,191

In many of the Southern states the decreasing production is equally marked—

	Wheat, bushels, in 1840.	*In* 1850.
Tennessee	4,569,692	1,619,386
Kentucky	4,803,152	2,142,822
Georgia	1,801,830	1,088,534
Alabama	838,052	294,044
	12,012,726	5,144,796

These facts, after all proper allowances for errors and a short crop, establish, conclusively, that in all parts of our country important elements in the soil have been exhausted, and its fertility, in spite of all improvements, is steadily sinking. The number of acres of land in use in the state of New York, in 1825, was seven million one hundred and sixty thousand nine hundred and sixty-seven; in 1855, it had increased to twenty-six million seven hundred and fifty-eight thousand one hundred and eighty-two acres; but the number of sheep had decreased so that there were nearly three hundred thousand less than there were thirty years ago; and within a period of five years the decrease has been nearly fifty per cent., while the decrease in the number of horses, cows, and swine, is above fifteen per cent. In 1845 the product of wheat was thirteen million three hundred and ninety-one thousand seven hundred and seventy bushels. It has steadily declined since, until the product of the past year did not exceed six million bushels. The average yield of corn per acre in 1844 was 24.75 bushels; but in 1854 it was only 21.02 bushels.

The planting lands of southern states have also greatly deteriorated, and some new fertilizer, beyond rotation of crops, is anxiously sought. The average crop of wheat in Virginia, Tennessee, and North Carolina for 1850, was only seven bushels per acre. In Alabama and Georgia but five bushels per acre. And even the largest of any state in the Union, that of Massachusetts, was but sixteen bushels per acre; and this, with the leanest soil, proves her agricultural science far in advance of her sister states. While the crop of cotton in the new lands of Texas and Arkansas was seven hundred to seven hundred and fifty pounds per acre, it was but three hundred and twenty pounds per acre in the older cultivated fields of South Carolina.

In a southern journal I find the following statement:

"An Alabama planter says that cotton has destroyed more than earthquakes or volcanic eruptions. Witness the red hills of Georgia and South Carolina, which have produced cotton till the last dying gasp of the soil forbade any further attempt at cultivation; and the land, turned out to nature, reminds the traveler, as he views the dilapidated condition of the country, of the ruins of ancient Greece."

In Virginia, the crop of tobacco in 1850, was less than that of 1840, by over eighteen million pounds. No crop has proved more destructive to the fertility of the

soil than the tobacco crop, and this staple commodity, unless a cheap and effective remedy can be found, must be either banished or it will banish the cultivators. In this state where tobacco, corn, and wheat have been continued for a century, many districts are no longer cultivated. Liebig says, "that from every acre of this land, there were removed in the space of one hundred years, twelve hundred pounds of alkalies, in leaves, grain and straw." In a letter of Gen. Washington, dated August 6, 1786, to a friend (Arthur Young) in England, he writes:

"The system of agriculture, if the epithet system can be applied to it, which is in use in this part of the United States, is as unproductive to the practitioners as it is ruinous to the landholders. Yet it is pertinaciously adhered to."

Writing to the same person at a subsequent date, (December 5, 1791,) he says:

"The English farmer must entertain a contemptible opinion of our husbandry, or a more horrid idea of our land, when he is to be informed that not more than eight or ten bushels of wheat is the yield of an acre."

Since this was written, little has been done to elevate the character of Virginia farming, and Mount Vernon itself, losing the eye of its master, has lapsed into the general degeneracy. While the yield of wheat has increased in England to thirty bushels per acre, it has sunk to seven in Virginia. The opinion of the "English farmer" may be imagined.

In an address of the late Hon. A. Stevenson, in 1850, to the Agricultural Society of Albemarle, in Virginia, he said:

"It can hardly be necessary to attempt to impress upon you the depressed and wretched condition of the farming interests throughout the state at large, with the exceptions of some few portions of it, which constitute honorable and praiseworthy exceptions."

Even in Ohio the wheat crop is already less remunerative than formerly, and fields long cultivated are given up to pasturage. In Indiana, Kentucky and Illinois, where so large an amount of grain is sold and carried off, instead of being fed out to stock, they are selling their lands by the bushel in the shape of wheat and corn, and that for a price utterly ruinous. Commerce, founded upon such agricultural economy as this, must come to an end, although the folly will continue to be avenged on posterity even to the third and fourth generation.

In the agricultural survey of Mississippi, recently published, Mr. Harper, speaking of the system pursued in that state, says:

"This agriculture has hitherto been a very exhausting one. Mississippi is a new state; it dates its existence only from the year 1818; and notwithstanding all its fertility, a large part of the land is already exhausted; the state is full of old deserted fields."

A recent address issued by the agricultural convention in South Carolina, declares:

"Our stocks of hogs, horses, mules and cattle are diminishing in size and decreasing in number, and our purses are being strained for their last cent to supply their places from the northwestern states."

In the late message of the Governor of Georgia, he eloquently descants upon the "educational wants" of his state, and among many other facts, he notices "the exhaustion of the soil under a system of agriculture that glories in excluding the application of scientific principles."

My time will not permit a greater accumulation of evidence on this point, although I have a cloud of witnesses in reserve, nor is pointing out the nakedness of the land an agreeable duty. The leading fact, however, of a wide-spread deterioration of the soil, stands out too boldly to be denied. The great, irreversible law of American agriculture appears in the constant and increasing diminution of agricultural products, without any advance in prices. It follows, just in proportion, that capital is disappearing, and that labor receives a diminishing reward. Our country is growing debilitated, and we propagate the consumptive disease with all the energy of private enterprise and public patronage.

There is little doubt but that three fourths of the arable land of our whole country

is more or less subjected to this process of exhaustion. It has been estimated by Dr. Lee, of Georgia, that the annual income of the soil of not less than one hundred millions of acres of land in the United States is diminishing at the rate of ten cents an acre. This would amount to ten millions of dollars, and involve the loss of one hundred and sixty-six million six hundred and sixty-six thousand six hundred and sixty-six dollars annually. A sum greater than all our national and state taxation!

Men waste hundreds of acres of land on the theory that it is inexhaustible, whose entire wealth might not purchase the raw materials—the magnesia, lime, soda, potash, phosphorus, sulphur, carbon, nitrogen, etc.—necessary to make a single acre possessing primitive fertility. Thus the accumulated store of ages passes away in a single generation.

And this waste of soil is not the only thing wasted. For want of the knowledge and skill which the institutions aimed at can alone impart, Colonel Wilder, a gentleman of well-earned fame, estimates the annual loss of the single state of Massachusetts, in the one product of her cereal grains, at two million dollars. Another gentleman, in the same state, of great experience in the line of stock, diary, etc., reports the loss from the same ignorance and unskillfulness in these interests, at fifteen million dollars for that state alone. The loss of New York, upon her four hundred and forty-seven thousand and fourteen horses, (and Ohio, by the census of 1850, had more,) through the universal incompetency in the veterinary art, has been reckoned at not less than two millions of dollars. The horse, that "wonder of nature," so universally adored by man, for the slightest ailment, is handed over to the butchers of quackery, whose practice is more fatal than that ascribed even to Dr. Hornbook:

"Folk maun do something for their bread,
An' sae maun Death."

We are indebted to Europe for our civilized inhabitants, and for nearly all of our domestic animals, whatever the testimony of the rocks may be as to the pre-existence of the latter. The soil we have acquired by the displacement of the red man. The only thing we constantly dwell upon with complacency is, that we surpass the stock from which we sprang, and that we present our land better than we found it. But this is not beautiful unless true!

We bring forth new states by the litter, and when we want more, like our Norman ancestors, we commit "grand larceny," and annex them. This progress seems wonderful, but with it appears the bitter fact that these new states in half a century—a brief time in the history of states—become depleted and stationary. This early maturity is followed by sudden barrenness.

Concerted effort is necessary to educate and elevate whole nations. That effort is being made abroad with governmental aid in the lead. Here, in the "model Republic," where a free republican government is installed to guard the general welfare, no such effort is being made. Government has not yet followed the lead of the people, even afar off. We do not ask for constant and persistent outlay and guidance; but a recognizance for once, and in the most convenient mode, of the propriety of encouraging useful knowledge among farmers and mechanics, in order to enlarge our productive power, give intelligence to those who will esteem it a higher boon than land or titles, and relieve ourselves from the thraldom of a debt due to holders abroad, for the little agricultural science we now have, and which is quite unsafe to use, by reason of the great difference of soil and climate.

Many foreign states support a population vastly larger per square mile than we maintain, and hold their annual increase; but, by the system of husbandry generally pursued here, the land is held until robbed of its virtue, skimmed of its cream, and then the owner, selling his wasted field to some skinflint neighbor, flies to fresh fields with the foul purpose to repeat the same spoilation; and this annual exodus which prevails over all the older states, and even begins upon the first settlements of the new

states before their remoter borders have lost sight of the savage, painfully indicates that we have reached the maximum of population our land will support in the present state of our agricultural economy. Our skill must be further developed, or here is our limit. A fever-and-agueish progress, warmed by speculative excitements, and chilled by panics, may be kept up while our unpeopled domain is supposed to be inexhaustible, and while those who buy, buy to sell, and never otherwise intend "to hold or drive." But there is a barrier already visible, more impassable than the Rocky Mountains, the great sand plains stretching north and south, commencing near the ninety-eighth degree of west longitude, or about the center of Kansas, and running to the Rocky Mountains, so barren of soil, water, timber, and all vegetation, as to preclude the possibility of settlement by civilized inhabitants. Here the wave must be stayed; but shall we not prove unworthy of our patrimony if we run over the whole before we learn how to manage a part?

We are dilated with the notion that, as a nation, we may now claim rank with the oldest, the best, and the strongest. Our population is rapidly increasing, and brings annually increase demands for bread and clothing. If we can barely meet this demand while we have fresh soils to appropriate, we shall early reach the point of our decline and fall. The nation which tills the soil so as to leave it *worse* than they found it, is doomed to decay and degredation. Other nations lead us, not in the invention and handling of improved implements, but in nearly all the practical sciences which can be brought to aid the management and results of agricultural labor. We owe it to ourselves not to become a weak competitor in the most important field where we are to meet the world as rivals. It touches us in tenderest points, our national honor as well as our private pockets. While we ought to possess the granary of the world, it has but a brief time since breadstuffs rose almost to starvation point, and indicated the possibility that we might not forever escape the only test, that of famine, to which our institutions have not been subjected. Able to be independent, in a broader sense than any other people, having an area ninety-five times as large as England and seventeen times as large as Belgium, yet over one hundred millions of our *imports* of the last fiscal year were products mainly of the soil.

It was not until Rome, deluded with military conquests and luxurious living, had become largely indebted to her conquered provinces for her agricultural products, that the "populous north" poured forth that rude horde which obtained the mastery and accomplished the downfall of the Roman Empire.

Agriculture undoubtedly demands our first care; because its products, in the aggregate, are not only of greater value than those of any other branch of industry, but greater than all others together; and because it is merely conducive to the health of society, the health of trade and commerce, but essential to their very existence. But, while it is the most useful and earliest of arts, so sluggish have been its advances that we are yet experimenting upon problems which were moot-points with farmers two thousand years ago. Surely an interest so superior, and of such vital consequence, ought not to be left to lingering routine, but the aid of science should be invoked to accelerate its pace, until it can keep step with that of other industrial pursuits of mankind.

The agriculturists have been, within a few years, aroused to their own wants. Periodicals, from a higher point of dignity and influence, have fired their zeal. The eager crowds which throng to the annual fairs of our agricultural societies, from the *National* down to "all the stars of lesser magnitude," proclaim the universal hunger there is for a profounder information touching that which comes home to their business and bosoms. They know there are mysteries dearly concerning them, and they demand of learning and of science a solution. "Deformed, unfinished," experiments,

——"scarce half made up,
And that so lamely"—

will not do. Farmers will not be cheated longer by unsustained speculations. The

test of the field must follow and verify that of the laboratory. The half-bushel and the balance must prove the arithmetic. The result must support the theory. They want substance and not a shadow—bread and not a stone. They know well there is a vast force of agricultural labor hitherto misapplied, muscles that sow where they do not reap, and they demand light—demand to have their arms unpinioned! What has been an art merely to supply physical wants must become a science—though it wears

"hodden gray and a' that"—

doing the same service, but more abundantly, and also doing something to satisfy and elevate the *manhood* of the mass of the people. Let us have such colleges as may rightfully claim the authority of teachers to announce facts and fixed laws, and to scatter broadcast that knowledge which will prove useful in building up a great nation—great in its resources of wealth and power, but greatest of all in the aggregate of its intelligence and virtue.

We hope every farmer in the state will obtain a copy of Mr. Morrill's speech, and read it; and then if he is not satisfied that error, and a want of scientific knowledge in the great department of American agriculture, have produced evils that will require years of toil and investigation to counteract; or is not satisfied that the establishment of agricultural colleges and schools, for the more general dissemination of a scientific agricultural knowledge, is of paramount importance—not only to the present welfare of our people but the future of our nation—we pity in him, what we conceive to be a want of enlightened discernment and discrimination.—Æ.

CUTTING-IN GRAPE VINES.

BE cautious how you cut back the bearing shoots of your grape vines, with a view of increasing the size of the fruit. There is a mistake abroad upon this point, in the management of the vine; many believing that to shorten the shoots of the current year to a few joints beyond the point of fruit bearing, tends to increase the size of the grape and hasten its maturity. It is an error, no such effect is produced; but on the contrary, the very opposite, the fruit will not be as large or mature as well. Clipping the leaves around the fruit, and exposing it to the sun, gives it more color but does not tend to ripen it.

Those who practice the cutting-in process, recommend it to be done when the grapes have attained two-thirds their full growth, then to clip them to within three or four joints of the last bunch of grapes on the bearing shoot. But why not *close* to the last bunch? and why wait till they are two-thirds grown? Let us examine this practice a moment and see if it is based upon any thing like reason, or as we sometimes say, common sense; for we know, by oft repeated trials and careful observation, that it is not based upon experience.

It is necessary in order to make clear our argument, that we adopt and give the theory of Knight and others—men the most learned in the science of vegetable physiology the world ever produced—upon the circulation of sap in trees. It is a theory, plain and simple, and we believe as true as it is plain. The sap is first taken

up in the form of water, probably with more or less of salts, earths and minerals in solution, by the roots, and conveyed through the alburnum or soft part of the wood —commonly called the sap of the tree—and in its passage is fitted to furnish food for the growth of leaves and flowers, and is then, by the leaves which act as the lungs of the tree, elaborated and fitted for the production of new wood and fruit; it then descends between the alburnum and the bark, depositing a new layer upon both, and furnishing food to the fruit.

All cutting-in or shortening of the vine then, beyond the fruit, serves but to lessen the fruit food that you would like to increase. By destroying the leaves upon any part of the vine you deprive it of the power that nature gave it to add to its already formed wood and fruit. By cutting back the branch, you produce the same effect upon the vine, as a like process does upon the peach, pear, or other tree; you check the flow of sap in its passage up the alburnum, and having no leaves to enter for elaboration, is forced into and causes the immediate expansion of wood buds, that otherwise would have remained entirely dormant for the season.

Thus we see that the effect upon the fruit cannot but be detrimental in causing a cessation of the supply of properly prepared food; whilst wood, that we do not want, because coming too late to benefit the fruit, is forced into growth. We are not theorizing upon this subject at all; we have repeatedly, in order to convince not only ourself but friends, including the skeptical, taken two branches upon the same vine, in every respect as nearly alike as possible, allowing one to enjoy its lungs unbroken, whilst the other was clipped of a considerable portion; and in no one instance did the clipped branch equal the unclipped, either in the size or early maturity of its fruit. We therefore unhesitatingly say to the cultivator of the vine, be careful how you adopt the cutting-in system upon your grape vines, with a view of benefitting your fruit.

We shall renew the subject of the circulation of sap in trees, in next number.—Æ.

Economy in Horse Feed.—In a country where the feed of working animals is an item of so much consequence as with us, and where so great a diversity of opinion exists as to the most economical feed, the experience of those who for a series of years, and with thousands of animals, have made the subject one of careful experiment, may be of interest to many. On this subject we copy the following from the *Scientific American:*

The towing of boats on the Erie canal is done in part by horses that are taken along with the boats, and partly by towing companies who keep their horses at stations about twelve miles apart along the whole length of the canal. There are three of these towing companies, and they employ about 1400 horses. They have found, after great experience, that the most economical and best feed for their horses is a mixture composed of equal parts, by measure, of corn meal and mill feed, (bran or shorts weighing about twenty pounds to the bushel), mixed up with wet cut hay, and they accordingly feed this altogether.

STRAWBERRY CULTURE.

BUT few are aware of the extent to which the strawberry is cultivated in the immediate vicinity of San Francisco. From reliable information received from those engaged in its culture, we find that there are not less than one hundred and fifty acres of land devoted exclusively to the cultivation of this berry; and certainly in no other country does it yield so large returns as here, the peculiarity of our climate having the effect to keep several varieties in constant bearing for many months.

To visit Washington Market on the twenty-fifth of April, a stranger, not acquainted with our seasons or their products, would suppose that he had arrived just in time to see the finest possible display of strawberries that could be produced. A month later, and he not only finds the quantity dayly brought to market greatly increased, but the size of the berry and hight of its coloring, more than keeping pace with the increased quantity; and he begins to inquire as to the *duration* of the season for the ripening of this very popular fruit, and is surprised to learn that it extends from March to October. Not a day during that whole time, that strawberries grown by open culture, are not gracing the market stands of our city.

Not only is our climate remarkable for prolonging the season of fruiting, but the quality of the berry is unsurpassed. The almost total absence of rain for six months together, and consequent freeness of the fruit from any contamination by contact with the soil, permits it to attain a beautiful luster, and, in many varieties, a highness of coloring attainable in no country subject to summer rains.

The varieties most cultivated as field crops in the vicinity of San Francisco, are British Queen and Hovey's Seedling. The Queen is a berry of large size, exceedingly prolific, and continues in bearing for months. It is the favorite with strawberry growers, and of the one hundred and fifty-five acres in Oakland and Alameda alone, at least one hundred and thirty-five are of this variety, and of the remaining twenty acres fifteen are Hovey's Seedling.

Amateurs will pay twenty-five per cent. more for Hovey's Seedling than for British Queen, and large quantities of the former find ready sale; but it is not as constant or prolific a bearer, or as large, as the Queen; so that a majority of producers, as well as consumers, prefer the Queen, even though not quite so highly flavored. As showing how rapidly this fine variety has grown in favor, it is necessary only to state, that in the winter of 1852–3 Mr. Lee, of Oakland, (lost on the Central America), succeeded in growing two plants of the Queen, among many others received from the east, and from that small beginning, the many acres of this fine berry throughout the State have originated. Hovey's Seedling, introduced about the same time by Dr. Broaddus, stands second in point of general cultivation.

There are numerous other varieties of the strawberry on trial in the gardens of our experienced growers in Alameda, Oakland, and elsewhere; a few of which give promise of value, and possibly some two or more of the English varieties may be found

so well adapted to our climate as to nearly, or quite, equal the British Queen; though at present its equal is not recognized for productiveness and profit.

On the 5th of July, by invitation, we called on Mr. D. E. Hough, of Oakland, an amateur in the culture of new varieties, and had the pleasure of testing and comparing the relative merits of thirty out of thirty-five varieties now in the course of trial in his grounds. Among this large number, we selected the following as possessing superior excellence:—Captain Cook; this a beautiful red berry, of large size but of irregular outline, slightly acid, and very prolific. Fill-basket; this berry in the Atlantic States takes rank among other varieties, as does the British Queen in California, as the best for general cultivation, and, to our taste, it is fully equal to the Queen. Ajax; this is a large, regular, cone-shaped, glossy, scarlet berry, and very prolific. Prince of Wales, another fine variety, possessing several excellent points, among them are size, beauty and flavor, and should they prove to be abundant and constant bearers, will be worthy of an extended cultivation. Ruby; this is a long, conical berry, of peculiar beauty, color a bright scarlet, of excellent flavor, and no amateur's garden should be without them. Jenny Lind; this is also a scarlet, cone-shaped berry of great excellence, and is the variety that, after having taken the highest prizes at all the minor exhibitions at the east, finally took the gold medal at the Massachusetts Horticultural Society. Magnate; this variety is remarkable for peculiarity of form rather than flavor; it is more than a medium sized fruit, quite flat, with an exterior so rough and irregular as to attract attention whenever seen; it is a remarkable berry, and though quite desirable in a collection, to our taste it is too sour, but many prefer it to the more highly flavored varieties.

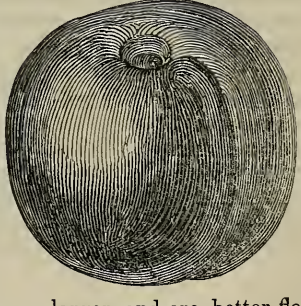
The average product of an acre of strawberries in this vicinity is probably about half a tun, though many acres greatly exceed this quantity. At twenty-five cents a pound, as an average price, we have two hundred and fifty dollars as the gross product per acre, or thirty-seven thousand five hundred dollars from the strawberry gardens of Oakland and Alameda alone, the present year. A very large proportion of the plants producing this crop are but one year old, and consequently not as productive as in the second and third year of their growth.

Before closing this article, we desire to speak of the merits of two other of the thirty-five varieties now under experiment by Mr. Hough, as we feel quite warranted in saying that should they prove prolific of fruit, can hardly fail to take a high rank among the very choicest varieties; these are, Peabody's Seedling, a fair sized fruit, and one larger variety, without a name—the label having been lost. We consider either of these varieties decidedly superior to Hovey's Seedling or British Queen; and, though but medium sized, cannot fail to become favorites with all who prefer a highly flavored fruit. But as a market berry, the most in demand and the easiest produced, the Queen is, at present, without a rival. Of the large number of new varieties, recently introduced from abroad and originated here, we may hope, at least, that a few may prove of superior excellence, in a climate like ours, so admirably adapted to the growth of the strawberry.—Æ.

EARLY PLUMS.

ONE of the finest varieties of the plum known to fruit growers, is the Columbia, or Columbian Gage; a fine specimen of which was presented us on the 12th of July, by Dr. H. Haile, of Alameda, a correct engraving of which is here given. It is a beautiful fruit, and answers perfectly the description given it by Downing: "Fruit of the largest size, six or seven inches in circumference, nearly globular, one half rather larger than the other. Skin brownish purple, dotted with numerous fawn-colored specks, and covered with much blue bloom, through which appears a reddish brown tint on the shaded side. Flesh orange, not very juicy, but when at full maturity, very rich, sugary, and excellent; separates freely from the stone, except a little on the edge. The stone is quite small and compressed. Ripe, last of August." Here we have the fact patent, and which is exemplified in every year's experience in California, that the same varieties of fruits ripen here, from five to seven weeks earlier than in the vicinity of New York or Boston. Dr. Haile, is a very successful grower of nearly all of the finest fruits of our latitude. Nowhere have we seen trees presenting a more thrifty appearance, or producing more abundantly.

The other variety of the plum, Lawrence Gage, was presented us by Messrs. White & Kelsey, of Oakland—beautiful specimens, perfectly ripe and luscious—on the 10th of July. These gentlemen are extensively engaged in the culture of fruits; but particularly of strawberries and raspberries.



Lawrence's Favorite or Lawrence Gage, and the Columbian Gage or Columbia, were both originated by Mr. L. U. Lawrence, of Hudson, N. Y., from the seed of the Green Gage. In this climate they excel in every respect their prototypes at the east; they grow larger, and are better flavored, and by many, who are considered amateurs of good fruits, are admired for their excellence.—Æ.

A Jolly Life.—Insects must lead a truly jovial life. What must it be to lodge in a lily! Imagine a palace of ivory or pearl, with pillars of silver and capitals of gold, all exhaling such a perfume as never arose from censer! Fancy again, the fun of tucking yourself up for the night in the folds of the rose, rocked to sleep by the gentle sighs of summer air, nothing to do when you awake but to wash yourself in a dew drop, and fall to and eat your bed-clothes!

THE NURSERY BUSINESS.

OF all the avocations in society, there is none more responsible than that of the Nurseryman. In the various kinds of business pursued by our fellow men there is more or less opportunity for deceit and fraud. In the nursery business there are peculiar facilities for deception. The purchaser depends entirely upon the representations of the nurseryman as it regards the various trees and plants which he obtains. If the Nurseryman is an honest and intelligent man and has managed his business with the strictest system, having his grounds so arranged as to have each variety of fruits and plants in its separate department, and has also given his personal attention to the grafting, budding, etc., of the different varieties, so there shall be no chance for mixture or confusion, then, we say, the purchaser may and will obtain the varieties of fruit trees, etc., he desires. But if the nurseryman is not honest and lets his business run to loose ends, depending upon the help he hires, the purchaser will be disappointed. And what disappointment can be greater than for one to purchase a large collection of fruit trees, prepare the ground and plant them with the greatest care, watch over and nurse them year after year, trim and train them into nicely formed trees, with expectations that they will repay him for all the care and anxiety bestowed upon them, and hoping in the evening of life to enjoy the fruits that have been cultivated and nourished by his own hands, and as he thinks he is about to enjoy them, finds he has been deceived. That the money paid for the trees has been squandered, and worse, that the use of the ground, the labor bestowed upon them, have been lost; that the affection which had been formed from his long intercourse with them must be turned into hate, and the trees in all their beauty must be cut down because they do not bear good fruit. Instead of the finer varieties of fruits which he bargained for, he finds he has only the poorest seedling trees. What must be the feelings of a man, we ask, to find that he has been so outrageously deceived by his nurseryman? His work must all be done over again. But the next trees we warrant will come from a man whose word can be relied upon. Now this is no fancy sketch. Cases like these we have heard of repeatedly. Some nurserymen are always prepared to fill any order one may make. If they have not the proper labels they can be very easily prepared. The "almighty dollar" is of more importance to them than their fair fame. Are we saying too much, then, when we repeat, great responsibility rests upon the nurseryman? That he should, by all means, be a man of the strictest integrity, whose word can be implicitly relied upon, and who should no more knowingly sell you a tree, not true to name, than he would filch from your pocket, and who would take every pains to have the strictest accuracy prevail in all his nursery operations, so as to prevent any error.—*Valley Farmer.*

FRUITS AND BIRDS.

IN every community there is a growing interest in fruits. They are beginning to be regarded as one of the essentials of a proper diet. They will soon hold an equal rank with bread and vegetables. And while there is a growing interest in fruits there is an increasing variety being introduced into our gardens, nurseries and orchards. This is well, for it increases the chances of a full supply, prolongs the season for fresh fruit and adds variety which is always pleasing and healthful.

There can be no doubt but health is greatly promoted by a free use of fruits with every meal. Indeed fruit should be a part of every meal. If meats should decrease and fruits increase it would be advantageous to health. We eat too much solid, too

much concentrated food. We overtax the digestive powers. We overwork the stomach. A generous supply of fruit with our food would greatly relieve the overburdened organism.

But we are forgetting the point we intended to present in this article. It is this, how shall we contend with and overcome the great enemies of fruit, we mean insects? There are various insects that always threaten the destruction of fruits and fruit trees. And they seem to be increasing. They already render very uncertain many kinds of fruit. How shall they be kept at bay? It is altogether probable that many answers should be given to this question as a part of the general answer. But we have one to which we wish to call particular attention just now. The natural enemy of insects is *birds*. Insects are the food of birds, provided by the great Hand that supplies the wants of every creature. They grow on every tree, shrub, plant, in every pool, swamp, soil. They swarm in the air, nestle in the flowers, revel in the dirt. Everywhere they come into bearing in teeming millions. Many of them attack the fruit for food or for nests for their larvæ. God has provided means to prevent their doing evil. These means are the birds. Naturally every grove, field, prairie, swamp, lake, hill and vale is alive with birds of various sizes and characteristics, adapted to the varieties of the insect world. They live chiefly upon insects. Hence before man destroys the birds, the trees and their fruits are never much injured by insects. God provides a balance between insects and the feathered world; but man in his cruelty and impiety destroys the balance, and the insects creep upon his fruit to pay him for it. It is only after civilization has destroyed the birds of a country that insects overrun it. And we seriously doubt whether all the ingenuity of man can supply the want of birds.

Our natural remedy for the fruit then is the birds. We should encourage them to grow and multiply in all our fields and orchards. We should never alarm or destroy them. We should hold them as the naturally commissioned sentinels of our fruit trees. We should regard them as natural ornaments and conservators of our orchards and gardens. We should feel that the birds of a country are its standing army, self-marshaled and trained to meet and overpower the invading armies of the insect world. The destruction of a bird should be considered a public loss. The intentional destruction of a bird should be held an outrage upon the divine order and human interest. All agriculturists, fruit growers, gardeners, philanthropists, all good people should discountenance the destruction of birds and encourage their multiplication by the very kindest treatment. The press should sharply censure every bird hunter. The pulpit should set forth this divine arrangement to hold in check the insect scourges, and pronounce it a sin to harm a bird. It should become the settled conviction of every community, that birds are public benefactors.—*Valley Farmer.*

CHICCORY CULTIVATION.—The *Scientific American* says, this plant (cichorium intybus) is called by many persons "German coffee," on account of the use to which it is so extensively applied in Germany. It is very similar to the succory often found growing wild on the slaty soils of New England, and it may be properly cultivated for home consumption, as a great quantity of it is now sold in New York and other places, all of which is imported from Europe. It is often mixed with the ground coffee sold in stores, but the Germans buy it separate and mix it with their coffee to suit themselves. When combined with coffee it has been called an *adulteration*, but this is not a correct application of the term, because it really does not impart inferior or injurious qualities to the coffee, but it is by many persons considered an improve-

ment. It at least imparts a superior taste to inferior coffee, and as it is cheaper and held to be as healthy, it should be purchased separately and mixed with coffee in quantities to suit the tastes of those who use it as a beverage. The proportions of the two used together are one of chiccory to three of coffee.

This plant is now cultivated very extensively in France, Germany, Holland, and England. It is sown and cultivated in rows, like the carrot, and the roots are taken up early in the autumn. Farmers who cultivate it on a large scale partially dry the roots and sell them to manufacturers, who roast, grind, and pack them up for sale. Those who cultivate little patches for their own family use, store the roots in their cellars, cover them with sand, take out a few as wanted, wash, cut them in slices, roast them like coffee, and then grind them.

THE COMPOSITION OF MILK AT VARIOUS TIMES OF THE DAY.—Professor Boedeker has analyzed the milk of a healthy cow at various times of the day, with the view of determining the changes in the relative amount of its constituents. He found the solids of the evening milk (13 per cent.) exceeding those of the mornings milk (10 per cent.), while the water contained in the fluid was diminished from 89 per cent. to 36 per cent. The fatty matters gradually increase as the day progresses. In the morning they amount to 2.17 per cent, at noon 2.63 per cent. and in the evening 5.42 per cent. This fact is important in a practical point of view: for while sixteen ounces of morning's milk will yield nearly half an ounce of butter, about double this quantity can be obtained from evening's milk. The casein is also increased in the evening's milk from 2.24 to 2.70 per cent; but the albumen is diminished from 0.44 per cent. to 0.31 per cent. Sugar is least abundant at midnight (4.19 per cent.) and most plenty at noon (4.72 per cent). The per centage of the salts undergoes almost no change at any time of the day.—*Edinburgh Medical Review.*

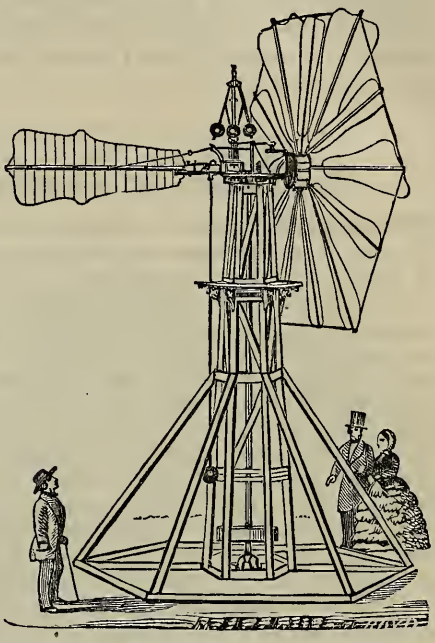
THE following beautiful gem we extract from the *Sierra Citizen:*

THE ODORLESS FLOWERS.—Among the hundred varieties of flowers that blossom on the Sierra Nevadas, few send out odor; no sweetness travels from their rocky birth-places and their rocky graves, but they are exquisite in form and color. Nature, when it designed and finished them, may, in communing over their completion, have whispered:

"Let us put no fragrance to this adornment; lest it be that our best creation in the floral world hath habitation in the perpetual solitudes."

There are no flowers in the gardens which embody more beauty than some of the wild ones that hang over the declivities, cling to the rocks and diversify the little groves. They are wonderful pictures upon the high walls of unfrequented rooms in Nature's glory-lined gallery; are delicate ornaments in the niches, under the arches and on the entablature; are fragile as bits of glass, and perishable as drops of dew; the winds dally with them, the sun touches them tenderly and the stars lend them specks of light; they bow and wave their odorless season through and die to live again next year. Often have we plucked the perfumeless flower and seen in it a type of features in human life. Many are the beautiful flowers that bloom in the range and duration of mankind which have no sweetness of soul, no spiritual fragrance that penetrates like incense at the altar, or passes like the aroma of spices and fruits.

JAMES B. JOHNSON'S IMPROVED PATENT WIND WHEEL.



WE have a two-fold pleasure in presenting to our readers, an engraving and description of Johnson's Improved Wind Wheel. It will always be to us a source of gratification and pride, to be able to say of all machines, implements, and appliances, that may come under our notice, as we can say of this :—It is a California invention; the handiwork of one whose interests are identified with progress, and whose efforts are made in the right direction.

A second reason is, it is one of those inventions that really possesses intrinsic merit and value beyond the mere fact that it is new or patented.

Wind wheels for the pumping of water, the propulsion of mills and machinery, have long been in use, in all ages and countries, where the mechanical genius of the people enabled them to comprehend the full effect of moving fluids upon inclined planes and surfaces, and as their availability is nearly co-extensive with the moving air of earth, so does their efficiency, cheapness and perfect adaptability to a great variety of purposes where mechanical power is needed, render them of vast benefit to mankind.

The only real check upon their greatly extended use, is often found in the irregularity of the propelling power—the wind. For ages almost have the plain wind wheels, with fixed sails, been in use, and notwithstanding the wear and tear incident to violent storm winds, they are still found in many localities working away, side by side, with that great and more recently discovered motor, steam; and still rendering a fair balance sheet at the end of the year's labor.

To improve upon the old wind wheel, by neutralizing the force of the tempest upon the full spread sail, was the aim of the inventor in the improvement here presented. How well he succeeded is shown in the unanimous commendations that have appeared wherever his improved self-regulating wind wheel—for it is all this—has been fairly put to the test.

Our limits will not permit to go into a minute description of the several parts that constitute the improvement patented; an inspection of the engraving is all that a mechanic's eye requires to make the whole thing perfectly intelligible. That it is an important and valuable improvement, we need no further proof than: that to the inventor was awarded the highest premium by the Mechanics' Institute at their fair

in San Francisco, in 1857. It is so admirably adapted to pumping water for purposes of irrigation, or the supply of mining sluices, the filling of reservoirs, or draining of marshes, in thousands of localities, we can hardly refrain from recommending its universal adoption, as a motive power, wherever it can be made to command a current of wind of sufficient force to warrant its erection. The inventor and manufacturer is a resident of San Francisco, and has established his manufactory on First street, near Minna.—Æ.

HYDRAULIC CEMENTS AND MORTARS.

THE wonderful powers of durance which some mortars possess is to be explained with ease; but before doing so, let us recollect, that the mortar and cement found in Herculaneum and Pompeii, now nearly two thousand years old, is as hard and compact as the volcanic rock in which it is found; and there are many specimens of cements in the museums of Europe, that, after having been under water for centuries, are as good, if not better, than when put down. Recollecting also the vast importance of good hydraulic cements in the construction of lighthouses, breakwaters and piers, and all submarine works, perhaps more attention may be given to the subject than otherwise would by non-interested readers. The hydraulic cements are such as *set* under water, and are not decomposed by its action like ordinary mortars. They are made either from natural or artificial mixtures of carbonate of lime with silica, or silicate of alumina or magnesia. The mineral *dolomite*, when calcined at a moderate heat, exhibits the property of hydraulic lime; and half-burnt lime (containing still a quantity of carbonic acid), will *set* under water. From a French engineer —M. Vicar—we learn that the hardening depends much on the amount of carbonic acid left in the lime; thus he informs us that a stone that had thirty per cent. of carbonic acid left in it after burning, hardened in fifteen minutes, while another, in which there was twenty-six per cent., hardened in seven minutes, and one containing twenty-three per cent., took nine days to become hard. Two varieties in Europe are known as Trass and Puzzolana; and there is an hydraulic mortar used in England known as "Roman cement," made by burning some nodules found in the tertiary formation.

Neither clay, (silicate of alumina), nor lime alone, will set under water; but if an intermediate mixture of clay and chalk be calcined at a moderate heat, and afterwards mixed with water, a hydrated silicate of alumini and lime is formed as a hard mass, and this is hydraulic cement. If the clay or limestone should contain a little alkali, it seems to aid the solidification. There is an excellent cement made near Paris from one part clay and four of chalk, which are intimately mixed with water, afterwards allowed to settle, and the deposit thus obtained is moulded into bricks, which are then dried and calcined at a gentle heat. This hydraulic lime, like the best from natural sources, is entirely dissolved by acids. All mortars, but especially hydraulic ones, are solidified quicker and better under the influences of pressure and high temperature.

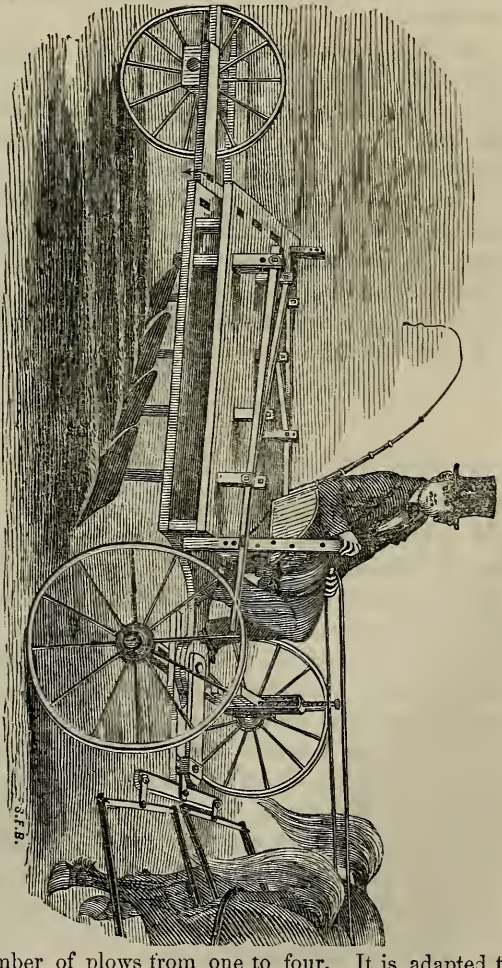
When an hydraulic cement is required, it is advisable to collect specimens of the minerals of the district in which work is to be carried on, and send them to some chemist for analysis. This will, in many instances, save much time and money, for we have known cases where Roman cements and other hydraulic cements, have been brought from a great distance to carry on a work, quite close to which there was plenty only waiting the trouble of burning.

The above, from the *Scientific American*, we hope may lead to the discovery of a

proper material for hydraulic cement within our own borders. It is singular that in a country where every description of lime, clay, marbles of great variety, and almost every species of mineral exist, that we should still import so heavy an article, and one too on which the freight alone, is more than the original cost at the place of manufacture.

SMITH'S PATENT GANG PLOW.

PLOWING constitutes the main preparative process of the husbandman in fitting his grounds for the proper cultivation of his crops. The process always has been, and always will be, a laborious one; or until steam shall have been successfully applied to the purpose, in such convenient form, as to be made available in all cases and circumstances. Any method, then, by which good plowing can be performed, at a considerable saving of time, animal power, and personal attendance, will be hailed by all largely engaged in grain culture, as an improvement deserving their first attention.



That such an invention has at last been perfected, securing in a great degree the improvements so much and long desired, if we can rely upon the statements of men who could have no possible motive for deception or misstatement in the matter, then can we safely assert that in Smith's patent single or gang plow, as represented by the accompanying engraving, do we find a combination that will prove of immense benefit to the agriculturists occupying the broad plains and bottom lands of the Pacific Coast. It has been tried here upon various soils and operates admirably. It is worked by two or four horses, or oxen, and is called a single or gang plow, for the reason that it can be used with any number of plows from one to four. It is adapted to

any kind of plowing in any kind of ground. When used for breaking up prairie or meadow ground, colters are attached in front of the plows; in subsoiling, the subsoil plows stand immediately behind the other; in turning in wheat, or other small grain, two or four small plows are used; in common breaking, from one to four are attached. It can be adjusted to turn up any depth of ground less than twenty inches. With four horses it can be made to break six to eight acres of common ground per day. The driver sits comfortable on top and can adjust and readjust the plows without moving his seat. This plow has been exhibited in competition with the modern improvements in plows, and has secured thus far a very flattering preference, and has been awarded two highest premiums. The plows may be removed, or changed from large to small plows with great facility. The hind wheel supports the back end of the machine and its frame, and is fastened to and permits the machine to make a very short turn.

This plow seems admirably adapted to a country where animal power and manual labor make so large an item of cost as with us. That there is a saving of both in the use of this plow, all who have given it a trial, readily and frankly admit. Any boy, with judgment to guide a pair of horses properly, can do as much work and do it better than two men with plows and two pairs of horses on the old plan.

It is a western invention, patented by T. S. Smith, of Troy, Madison Co., Ill., who has constituted J. M. Toy, sole agent for California, Oregon and Washington Territories. Thomas Ogg Shaw, of this city, has purchased the right of manufacture for a portion of California, and is now constructing them to order. Any information relative to the manufacture and sale of this machine, can be obtained by addressing J. M. Toy, San Francisco.

NATURAL HISTORY.

NOT only is California an anomally among the countries of the earth in the variety of her introduced agricultural and horticultural products, in the vastness of her many specimens of vegetation of indigenous growth, and in the beauty of her flora, but she is equally so in the extent and novelty of her subjects embraced in the natural history of her fauna, including the living and the dead.

Innumerable fossils of the animal kingdom, some, of species long since extinct, are found in numberless places, and at such great depths from the surface, as to possess them of more than ordinary interest.

It was never a matter of surprise, that the bones of the larger animals, even of now extinct species, should be found in the depths of reclaimed marshes, or around the miry salt-licks of any country; for it would be natural that such animals should occasionally mire down, and the deep soft slough become the grave, perhaps of the last of the race. But when we find the same or similar remains, deeply buried, as in California, hundreds of feet beneath mountains of earth and rocks, and in positions that make it clear that nothing but mighty convulsions of the earth's surface, or the overwhelmings of volcanic eruptions could have placed them there; or find the

remains of ocean shellfish, and even the bones of the whale lifted high upon the mountain's side, calling for new theories and reasonings to account for their position and remarkable preservation, it gives to the study of her natural history an interest and novelty exceeded by no other land.

We shall endeavor to present to the readers of the CULTURIST, in future numbers, such of the natural history of California, of the seas, rivers, coasts and islands, of the Pacific, as our own industry and the co-operation and contributions of those of our friends who are amateurs in its study, will enable us to give. Commencing, as we have in the following article, with the *little, rascally* mosquito—for there is no sense in his biting us, as, doubtless, millions live a happy life without ever tasting a drop of blood—there is a wide scope for *upward* progress, in our notice of the animal creation.—Æ.

CURIOSITIES OF NATURAL HISTORY.—No. 1.

BY JOHN CHITTENDEN, S. F. C.

CALIFORNIA MOSQUITO; slightly magnified.

THE MOSQUITO; *Culex Mosquita.*—This tribe of insects known in England by the name of Gnats; in France, Cousins; and here, Mosquitoes, has something very peculiar in its natural economy and instinct well deserving the attention of the lover of natural history. Its sting is one of the most singular objects under the microscope. The sucker which pierces the skin is enclosed in a flexible sheath which puckers up as the sucker enters the skin. The sucker has half a dozen lancets which inflict a rankling wound, made more irritable by an acrid liquor which is injected into it. A small drop of hartshorn or eau de Cologne, immediately after the bite, will often assuage the pain and allay the itching; the swelling too will subside, if bathed with the latter. Persons of light or florid complexion are most subject to the annoyance, from the circumstance of the cuticle of their flesh being more tender than that of others. Such persons are sure to be singled out as objects of peculiar favor of the fairer sex of the tribe, which some naturalists affirm engross the whole of the venom of the male. The animal itself is one of the most beautiful and graceful of all winged insects. Its proportions, when examined by a good microscope, are found to be admirably adapted for the enjoyment of life. Its wings are so constructed as to be moved with the least possible exertion, and are so strong that

when the body is crushed, the wings are often found not the least injured. The sagacity this little creature observes in protecting its young from harm, is one of the most wonderful facts in nature. Having selected a pool upon which the sun can shed all its vivifying influence, it next looks about on its surface for a little leaf or straw, or other minute substance on which it may rest while depositing its eggs. Now the eggs are some six times broader at one end than the other, and would consquently sink if dropped into the water, their gravity being heavier than the water. It then places its body along this floating substance, with the last ring of its tail uplifted; it then crosses its two hinder legs in the form of the letter X, level with the surface of the water at the lower angle. Now the inner opening of this figure is intended to form the platform of the structure; the inner angle of her crossed legs she next brings close to the raised part of her body or tail, and places on it one egg, covered with gelatine, or gluey substance. On either side of this egg she places another, all of which adhere closely together; these form a triangle to be the stern of her little egg-boat or raft. In this way the little creature adds egg after egg, confining all within the triangle thus formed by her legs. When it becomes too bulky to be thus confined, it is pushed from its mold, and the raft is made bigger and bigger, until its compactness and surface is sufficient to sustain it on the surface of the water. It is then launched out upon the deep and left to shift for itself. In a few days the little gnats break their shells at the lower end, and leave their ark at the sport of the tiny wave, floating about until the water rots the skin that once covered them.

Persons to whom these little insects are an annoyance, should avoid leaving open any stagnant water, especially in the sun. If the water is of consequence, they may be destroyed by a little salt sprinkled on its surface; or lime unslacked will have the same effect. Their eggs generally amount to three hundred each. The larvæ float head downward to receive their nutriment, some time before they separate themselves from the eggs, and receive air through the caudal tube of the egg. The common gnat (Culex pipiens) has the same instinct and economy in producing its young.

WHERE the CANARY BIRDS come from.—There is an association in Philadelphia, composed of about thirty Germans, who aim at improving the breed of canary bird's and last month they published their thirteenth annual report. From that it appears that the bird sales in Philadelphia are confined to Germans, and amount to $40,000 annually, and three-quarters of that sum is derived from the sale of canaries. The common or original canary is of the least value, and sells at about $2 apiece; the improved kinds bring from $8 to $10 apiece, and are from Central Europe. The great majority of these birds are obtained from Belgium, where they are bred in houses by the peasants, who raise them as a pastime. They are what are called "long" and "short" breeds. Birds of the long breed are procured from Brussels, Antwerp and Dietz, where they sometimes obtain extravagant prices. Their cost depends upon the color and shape, the pure golden yellow being the most esteemed. They are only used for the purpose of breeding and oftentimes sell for $30 a pair. The short breed is raised by the people of the Hartz mountains. Next to the Belgian, the French bird is most prized.—*Scientific American.*

Editor's Repository.

To the patrons of the California Culturist.—The undersigned having been, since January last, employed with the duties of Corresponding Secretary of the State Agricultural Society, finds the work of that position so much increased as to engross his entire time and employ all his energies. Previous to his entering upon those duties, the publication of the California Culturist was contemplated, but no arrangements were made until April last. He now finds devolving upon him more than any one man can do; and some of those duties, in a state of progress, which renders their transfer to other hands almost impossible. Believing that to do any business well a man needs concentrate his energies upon that one department, and being so connected with the Agricultural Society as to render separation at present incompatible with propriety, I have resigned my connection with the Culturist, and resolved, at great personal sacrifice to devote my entire time to the work of the Society. It is with sincere pleasure that I commend the Culturist and its present Editor W. Wadsworth, Esq. to the public.

Hoping often to meet you, and never be unwelcome, I remain, your ob't servant,

O. C. Wheeler.

In assuming the editorial responsibility of the Culturist, we are not unmindful of the many and arduous duties devolving upon us; but in our earliest boyhood we turned the green swath, and formed the windrow and the hay-cock; in after years, the plow, grain cradle and reaper were familiar things, and we have annually sown with our own hand the seed of the husbandman, broadcast over many acres; whilst, for the greater part of the last twenty years, we have been devoted to the practice of horticulture. We feel, therefore, very much at home in our new undertaking; and should our ability to express in words equal our practical experience in the various departments of agriculture, we hope, with the aid of many excellent contributors, to make the Culturist deserving a widely extended patronage and support. As our former signature of Associate editor (Æ), will be no longer required, it will be dispensed with in future numbers.

Mr. Wheeler's connection with the Culturist having ceased, all correspondence relating to the business, or editorial department, should be addressed to Wadsworth & Turrell, 129 Sansome street, San Francisco.

Among the few difficulties that have beset our enterprise since its incipiency, not the least has been the procuring of suitable embellishments for our work. It was our intention to have given in this number, a colored plate of beautiful flowers, as a frontispiece, and we had procured our originals; for it is not that we lack material for design, or artists to execute, in a highly creditable manner, any piece that might be desired in a work such as we intend the Culturist to be; but we were not aware—as we are not artists—of the length of time required to print in colors such a piece as we had designed; and we found, when ready to place it in the hands of our artists, hat it would be utterly impossible of accomplishment in time for this number, unless its publication was deferred some ten or twelve days beyond the proper time.

In the present highly excited state of the public mind, incident to the extraordinary exodus of so large a part of our population in pursuit of the golden phantom of the north, and in connection with its effects upon the stability of many enterprises, that but for its occurrence, even a distrust

of their ultimate success would have been gratuitous, and not wishing to present a motive for a doubt, as to our intentions to continue the publication of the CULTURIST in accordance with our prospectus, we have thought best to issue the July number as near the regular publication day as possible; giving in the place of a colored frontispiece of flowers, a finely executed engraving, exhibiting a group of California fruits, embracing varieties ripe on the fourth of July.

In doing this, we believe our pomologists and fruit growers will, in the main, be better pleased than with a flower piece, as it brings out to their notice several fine varieties of fruits, that if they have not already, can easily procure them on application at the proper sources.

To those who have friends at the east, to whom they would like to make known the propitiousness of our climate for the early maturity of varietics with which they are familiar, no further apology is necessary. As we become better acquainted with the operations of the lithographer and engraver, so will we be able to guard against unpleasant delay in the issue of the CULTURIST.

GROUP OF EARLY SUMMER FRUITS.—Could many of our Atlantic friends, lovers of fine fruits, be convinced that, on the fourth of July, we could present them with a basket of fully matured, ripe fruits, such as our frontispiece presents, and all grown in the open air, it would seem to us that it ought alone, to be a sufficient inducement for them to make a trip to California. We may be thought an enthusiast on the subject of fruit growing and fine fruits; call it what you will, it is something from which we derive a great deal of harmless pleasure, and knowing it to be harmless, we would recommed and urge its enjoyment everywhere and by everybody.

No. 1, in our engraving, is the Red Astrachan apple, of Downing, said to have been introduced into England from Sweden in 1816. Our engraving presents but the medium size, as very many specimens are grown here greatly exceeding it in size. It is a superior fruit, not only in coloring, but in every quality that constitutes a good apple. This, with Nos. 2 and 3, was presented us by our friend and highly successful fruit grower of Alameda, Dr. H. HAILE, whose fruit trees and fruits we have not yet seen rivaled, though no pretension is made to extended grounds in comparison with many fruit growers in the State.

No. 2 is the Early Strawberry apple, first introduced into California from Oregon, where it had been brought overland from Iowa, and where it was supposed to be a western apple, and generally known as the Red June. It is rather below medium size, very tender, with a subacid, agreeable flavor, and should be found in every garden.

No. 3 is the Early Harvest, known also as the Yellow Harvest, Prince's Harvest and Tart Bough; a well known and highly esteemed, early, and slightly sour apple; a favorite with our fruit dealers and commands a high price.

No. 4, Myers' Rareripe peach. Here we have a peach that will do to talk about. For if the earliest peach that the world—we mean California—knows, deserves to be noticed, then does this variety. We were unable to present it of the proper size, as many specimens have been produced much larger than the one we give. The great merits of this peach are its early maturity, size, excellence and beauty. It is a seedling, raised by A. H. MYERS, of the well known Pioneer Nurseries, of Alameda. When first introduced it naturally excited no little remark among the producers of new fruits, and particularly of the peach. Specimens were placed in the possession of the Academy of Natural Sciences of San Francisco, with a view of determining its true merits in comparison with other varieties heretofore deemed the earliest; and that Academy awarded to this peach the palm of *earliest* maturity, and its name, Myers' Rareripe. In some seasons it has matured as early as the twenty-fifth of June, but usually requires till about the first of July to bring it fairly out.

No. 5 is the Madeline Pear, the best early we have, but not the first in market. Ripens from the twentieth of June to tenth of July; would sell in large quantities if produced; it is a favorite.

No. 6, a Mexican or Spanish Pear, brought here from the southern coast, as early as fifteenth of June. It is an inferior pcar, dry and mealy as it reaches us, though considerable quantities are sold on account of its early maturity.

No. 7, Gooseberry. Of this fruit, California already produces a great variety of superior excellence. Indeed, the gooseberry seems to thrive uncommonly well in all parts of the State where introduced; and ripening through the entire of the months of June and July.

No. 8, the Moorpark Apricot, one of the oldest varieties cultivated, and yet one of the best.

No. 9, Golden Early. This is a highly esteemed variety of the Apricot, on account of its early ripening and other excellent qualities, but it is not as large as most other varieties. Ripens about the twenty-fifth of June. Of these two varieties of apricots, and the cherry currants, in our engraving, we received some very fine specimens of Mr. JOHN LEWELLING, of San Lorenzo. This gentleman has been universally successful in the growth of currants, fully equaling in quality and quantity any raised at the east.

The cherries are of that rare late variety, Buttner's Yellow, a beautiful fruit, entirely yellow both outside and in, sweet, pleasant flavor, and deserves a place in every garden for its excellence and unique color. These cherries, with numerous other varieties, all standing high upon eastern catalogues, are found in their season, in the very highest perfection at the very justly celebrated Shell Mound nurseries of R. W. WASHBURN, Esq., whose attentions, at various times, have put us in possession of specimens of cherries embracing more varieties than we had supposed were grown in the State. The Raspberry, Strawberry, and the Lawton Blackberry, make up the total of our list of fruits figured in our frontispiece as among those in our markets on the fourth of July. If to these we add the sweet or sugar pear, wild apricots and plums, sand cherries, watermelons, muskmelons and whortleberries, all of which were obtainable at that date, we think we can show to our eastern fruit growers, that in reality, but few countries equal California in the variety, early maturity and long continuance of her staple fruits.

THE STATE AGRICULTURAL FAIR.—On every hand we see indications of the near approach of the annual fair of the State Agricultural Society. The citizens of Marysville are early and active in their preparations for the accommodation of the hosts that will throng their city during its continuance. The main building erected for the purpose of the fair is a fine substantial structure, in the form of a Greek cross; the main portion on the ground is one hundred and forty feet by fifty feet, and the cross one hundred feet by forty feet, and occupying the center of Cortez Square. The walls of the building are of brick, eighteen feet high, to be covered with a substantial shingled roof; the central portion surmounted by an observatory. In a fine grove adjacent to the city, tents and stalls for the cattle show department will be provided, sufficient to meet the wants of all who may be in attendance with their stock. There will also be a sales' department for blooded sheep and other animals and for seed grains.

The corresponding secretary of the Society, O. C. Wheeler, Esq., now on a tour of examination throughout the State, having already traveled over seventeen hundred miles in the performance of his committee duties, reports that a fair, unsurpassed in interest by any that has ever preceded it in this State, is confidently predicted.

It is expected that the four celebrated Black Hawk horses, now in the State, will all be exhibited as roadsters. The stock grower, the farmer, the horticulturist, the mechanic and miner, over all the middle and northern portions of the State, are busily engaged fitting or preparing something for exhibition or display, on this, our State's great gala season.

CALIFORNIA STATE HORTICULTURAL SOCIETY.—The incipient organization of this Society took place at San José, on the tenth of October, 1856, when a constitution was adopted, officers elected, and other business transacted necessary to the commencement of its operations. In April, of 1857, the first annual meeting was held, in the city of San Francisco. At this meeting the whole plan of operations was reviewed, revised and enlarged; the board of officers re-elected for the ensuing year, and steps taken to institute a series of monthly exhibitions. But owing to unforeseen obstacles there was no exhibiton held until the seventh of September, when the Society held its annual fair, in the same building, and in connection with the Mechanics' Institute of San Francisco.

Of this fair we need not speak to those who visited it. The encomiums of the press at the time, give a better idea of its reception than anything we could at present say. From the Annual Report, to which we referred in our last, we gather the following facts: [were not gathered.—Æ.]

From the above statements it will be seen, that this first effort of this Society was a success in the highest and noblest sense of the term; surely, sufficient to encourage its friends to renewed and unremitting efforts to promote its objects—viz: the development of the horticultural resources of the state. The large quantity, the extensive variety, and the superior quality of the fruits on exhibition, excited in many minds a laudable spirit of emulation, while it inspired all with a wish, if not a determination, to possess themselves of the sources of so much luxury. To this fair is attributable, in no small degree, the fact, that was before that regarded as an overdone business, in preparing nursery stock for the winter market of 1857-8, proved to be inadequate to the demands. Many of our largest nurserymen were entirely unable to fill many of their orders; and the season closed—a season, too, of unprecedented financial pressure—with a less proportion of saleable nursery stock on hand, than has before been the case for several years.

To that fair is also attributable, to a good degree, the increased desire and taste for the cultivation of flowers, which has given our prominent florists better prices at some of their public sales than they have ever before been able to obtain. The fruits of this spirit are already found throughout the vast regions of the northern agricultural and mining portions of the state. Far up in the mountains, hundreds of miles from where they were propagated, we, in our recent travels, met flowers, natural as life, from the prominent florists in and about San Francisco, San José, Sacramento, Marysville and Stockton. And an interesting matter it was to find the peculiar processes of cultivation living in the plant, to such a degree that we had little difficulty in recognizing them at once as having come form their various individual cultivators. For instance a rose from Sontag or Prevost, would almost speak French to you; while the evergreen, both native and foreign, both fruiting and flowering, from O'Donnell's, would be absolutely tinged with the hue, and rich with the brogue of the "green isle"; and the acassia, the dahlia, and the carnation from Walker's, exhibited the full freshness of his own rotund countenance; and the camelia from Smith's, was at every point redolent of the yankee shrewdness and observant quietude of its propagator. These names are not mentioned because there are not many others equally prominent, but simply as those which happen to strike the mind at the moment of writing.

It should be stated before leaving the subject of that fair and its influences, that it was gotten up, arranged, and actually opened to the public in the short space of about two weeks.

Encouraged by the result of the first effort, the Board made provisional arrangements, during the latter part of last winter, for the holding of the next fair as it did the last, with the Mechanics' Institute. At the annual meeting, in April last, the arrangements were completed, and all necessary steps taken to carry them out, for the next fair to be held in the pavillion of the Mechanics' Institute, in San Francisco, commencing on the first of September and to continue at least fifteen days. Notwithstanding the peculiar pressure of the times, there is much interest manifested and many preparations making for this occasion. It is really to be hoped that every horticulturist in the state will so far interest himself as to carry, or if impossible for him to go, send specimens of what he raises, with statements of how he does it. In this way we may have a fair which shall be an honor to the whole state, and a real benefit to every participant in it. Let every department pertaining to horticulture be fully represented, and there will go forth from the next fair an influence that will awaken a spirit of improvement along the thousand vallies, dales and glens of our vast interior, never equaled before. Elsewhere will be found the list of officers and the circular of the society, to which we refer for particulars. Any further information sought, either through the columns of the CULTURIST, or of any one of the officers personally, will be readily given.—O. C. W.

Smooth-Skinned Stone Fruits.—This family embraces the cherry, plum, apricot and nectarine. In California, these fruits will doubtless ever hold a prominent place in the fruit-growers' estimation. We say in California, because it is well known that throughout a large part of the Atlantic States, and many portions of Europe, some of these fruits, particularly the apricot and nectarine, are rendered an extremely uncertain crop, on account of that wide-spread pest, the curculio, or as some term it, the plum weevil. Here, we are entirely exempt from its ravages, and the apricot, in all its varieties, is found as sure a crop as the peach; and as its season follows the cherry, and preceeds that of the peach, except a few of the very earliest varieties of the latter, it serves to form a continuous succession of early summer fruits, desirable alike to the fruit grower, as well as consumer.

Among the varieties of apricots already introduced, and bearing freely with us, we find some admirable specimens upon our table, from the grounds of D. L. Perkins, of Alameda. They are the Golden-early, Moorpark and Breda. Mr. Perkins' trees, notwithstanding the late spring frosts and hail storm, owing to the protection afforded by a high board fence, have fruited some beautiful specimens, and withal a very fair crop; whilst of the early golden, a variety that in most hands is an habitually shy bearer, under his treatment—the mode of which is described by himself on another page of this number—proves alike fruitful with other varieties.

The apricot is so easily cultivated, and so very fine as a dessert fruit, we are surprised that it should have received so little attention from our best pomologists.

In De Bow's *Review*, N. F. Cabell has an article on the history of the early cultivation of Indian corn, in Virginia. From this we learn several facts which cannot fail to interest. As early as 1609, two Indians were taken prisoner by Capt. Smith. The supplies of grain from England having run very low, and famine staring them in the face, these two savages taught their masters how to plant and cultivate the native corn of the country. The singular fact is here developed that the method of planting, hoeing, hilling, etc., which we as a people have practiced for two hundred years, was learned from these two captive savages. The Indians also taught the whites to select their seed from stalks which bore more than one ear. They also taught the whites to plant corn on the ground from which they had just cut their wheat, and thus obtain a good crop of green corn.

Agriculturists of Alameda County.—A meeting of the citizens of Alameda County, favorable to the formation of an Agricultural Society, will be held at the hall of the Estudillo House, San Leandro, on Saturday, July 24th, at one o'clock, P. M. We are glad to see a movement of this kind. Every county in the State should organize its own Agricultural Society; as nothing tends more directly to advance the interests of an agricultural community, than an interchange of views and comparison of products of the field, orchard and garden. A spirit of commendable rivalry and competition is engendered that never fails to bring out to the best advantage the capability of soils and superior modes of culture. We hope a society, as contemplated, will be organized in Alameda County.

The Hesperian.—Just as we were about to commit the Culturist, to the wave of public opinion, in taking a cursory survey of the ocean—of literary publications—before us, we descried, at no great distance ahead, a beautiful, clipper-built craft, that, on hailing, proved to be the Hesperian of and from San Francisco, bound world-wide, and *man*ned by *women*, running with a fair breeze, and full freighted with gems of literature. May her cargo never be less, for she is a safe craft, as she runs only by Daylight.

The Honeysuckle.—The different kinds of climbing plants possess a charm peculiar to themselves. What a graceful drapery for the cottage? How they wreath themselves about, hanging down in graceful festoons of fragrant flowers and variegated foliage! No garden can be complete without some of these beautiful ornaments, and none among them all excel the honeysuckle.

The plainest dwelling is beautified by its simple trellis, covered by the choice varieties of this favorite climber. They fill the air with the richest fragrance, and their perpetual bloom affords a continual feast to the eye. We hope to see them more extensively cultivated, and in order to aid our lady readers in selecting the best varieties, we will refer to a few of the best kinds.

Monthly Fragrant (*Lonicera belgica*).—This is by far the best of this beautiful class of plants. In this city it commences blooming about the first of April, and flowers perpetually until January. It is a rapid grower, and soon covers a large space upon the trellis. The flowers are white, turning to a cream color, and the leaves are of a rich green. But it is in the fragrance of the flower that it excels. It possesses a rich, delicate perfume, which all the art of man cannot imitate or equal. A single plant, when fully grown, will scent a large garden. In the evening, and during the night, it sends off the perfume most freely. We cannot commend this charming climber too highly, and every person with a house and the smallest patch of ground, should provide themselves with a plant.

Chinese Twining (*Lonicera flexuosa*).—This is similar to the former, though its fragrance is not quite so rich. It has very dark, half evergreen leaves, with a profusion of delicate white and fawn-colored blossoms, free from insects, and in continuous bloom from March to January. It is a rapid climber, and needs a large space on the trellis.

Monthly Scarlet Trumpet (*sempervisens*).—One of the most brilliant of flowers, with its long, bright scarlet, trumpet-shaped, masses of bloom, and its dark, evergreen foliage. It has no fragrance, but its deep coral-red flowers, when grown and allowed to intermix with the delicate straw color of the yellow variety, affords a display which can hardly be equaled.

There are numerous other varieties of these beautiful climbers, but none equal those we have named. The Wild California honeysuckle is a rapid grower, and when cultivated in the garden, blooms during the greater part of the summer, but it has no fragrance; still, when other kinds cannot be procured it can be made highly ornamental.

Sacramento, July 6, 1858. E. B. C.

Early Golden Apricot.—*Editors Culturist.*—I find in the June number of your valuable work, the following inquiry:

"Can you inform your readers, and me in particular, whether that celebrated variety of apricot, the Golden Early, fruits well in this climate; and if not, why? Yuba."

In answer to the inquiry of your correspondent, I would say, that I have four varieties of apricots growing in my nursery, the Early Violet, the Moorpark, the Breda, and the Early Golden—all four years old trees. They are located on the west side of a board fence, seven feet high. At this time, my Early Goldens, from the top of the fence downward, are full of clusters of fruit, and doing well. The reason that I have no fruit above the fence is, doubtless, owing to the severe frost and hail storm this spring while the trees were in blossom. The reason I assign for my Early Golden bearing this season is this: last season I gave them a severe pruning, cutting them down very close; it is a kind of fruit tree that throws out large quantities of wood, hence I came to the conclusion of cutting them in, and see what the result would be. As this is the first year they have borne since they have been set out, I am of the opinion that the cutting-in has had the desired effect. I intend to pursue the same course next season with all of my other trees. Perhaps the protection that the fence gives them may have a tendency to help their fruiting.

I cannot let this opportunity pass without saying a word in regard to the Culturist. It is a work that has long been needed in this state, and from what I have read of it, I think it comes right home upon the various subjects upon which it treats. To the Agriculturist, it speaks a good word; to the Horticulturist, it breathes the right spirit; and last, though not least, the Mechanic is not forgotten. May your labors be crowned with success.

Alameda, June 23, 1858. D. L. Perkins."

Facts v. Theory.—Our native grasses upon the broad belt of the foot-hills of the Sierras, grow more luxuriantly beneath the shade of wide-spreading oaks, than upon the unshaded ground around them.

Circular of California State Horticultural Society.

The California State Horticultural Society, having completed their arrangements for holding their second annual fair in connection with the Mechanics' Institute of San Francisco, to commence on Wednesday, the first of September next, and to continue at least fifteen days, cordially invites the co-operation of all horticulturists. The fair, held in September last, placed the question of ability beyond doubt—a fair, a good fair, a perfectly successful fair has been held. That a second fair surpassing the first can and will be held in September next cannot be doubted. The only real question now is, who will enjoy its benefits.

The membership fee is placed at a sum so small as to make it no objection, and the door of invitation is opened wide. Every person who can raise a flower, a plant, a shrub, a tree, or any article of fruit, or other horticultural product is cordially invited to partake of the benefits of this great annual festival.

The fair will be conducted under the same general rules and regulations as the Mechanics' Institute.

The committees of award, or judges, will be selected with special reference to their ability to judge correctly and award impartially—it being the great object of the society to encourage skill, industry and improvement, and not a name or reputation.

No exhibitor's name will be attached to his articles until after the awards are made up by the judges, which will be completed on the ——— day of the exhibition. The morning of each day until nine o'clock, previous to making the awards, will be exclusively devoted to examinations by the judges, during which time all visitors and all exhibitors—except such as are invited in by the judges, for purposes of explanation—will be excluded.

The society will provide every facility in their power for the safety and preservation of all articles on exhibition, and will be happy to receive contributions and display them, with the names of contributors, at any time during the fair, but no exhibitor will be entitled to a premium unless his articles are on exhibition before eight o'clock of the —— day of the fair.

The Society will also be happy to receive and exhibit contributions from persons who may not be able to be present. Any such articles forwarded by the California Steam Navigation Co., the Pacific Mail Steamship Co., or other transportation companies, labeled "For the Industrial Fair," and directed to the "care of W. Wadsworth, Mechanics' Institute, San Francisco," will receive all due attention; and any instructions accompanying the same will be carefully regarded.

For general "rules and regulations," we refer to the code published by the Institute, in the California Culturist.

F. W. MACONDRAY, *President.*

O. C. Wheeler, *Secretary.*

Value of Opium.—Robert Pell, Esq., Pres. of the American Institute Farmers' Club, stated at a late meeting, that in the British East Indies, one hundred thousand acres of land are put to the production of opium; that the tax on this production amounts to five millions of dollars; commercial value, thirty-two millions of dollars; paid by China the last fifty years, four hundred millions of dollars. These amounts are large, but when the extent of the evil is considered, one would think, the British Government must reflect, in its sober moments, that it does not pay.

The Rabbit Trade in Belgium.—It is almost incredible to what a degree of importance this branch of trade has attained in Flanders within the last six or seven years. There are fifty thousand skinned carcases of these animals exported weekly to England—more than two and a half millions annually—where they find a ready market as articles of food, while it is difficult to sell them in Flanders at twenty-five cents apiece. The preparation and coloring of the skins gives employment in Ghent alone, to more than two thousand workmen.

Preserving Fruits.

From various sources we have compiled the following valuable receipts and directions for preserving frults, believing they will be acceptable, at least to some of our lady readers:

To Preserve Fruits without Sugar or Vinegar.—At a meeting of the Horticultural Society, Mr. Lovejoy, butler to J. Thorne, Esq., of Maybey House, South Lambeth, obtained a medal for preserving damsons, greengage plums, gooseberries, rhubarb, cherries, black and red currants, raspberries, and mulberries—all without sugar or vinegar. The specimens exhibited were as plump and transparent as when first gathered. They were preserved as follows: Pick the fruit from the stalks; put them into the bottles. Put one drachm of alum in four gallons of boiling water; let it stand till it is cold; then fill the bottles with this liquid, bung them tight, put them into a copper of cold water and heat to 176 degrees; and then tie them over with bladder and seal them.

Preserving Fruit by Hermetically Sealing.—Mrs. Bateman gives the following directions in the *Ohio Cultivator:* First, select good fresh fruits or vegetables; stale and fermented articles can never be preserved. Vegetables decomposing quickly, such as green corn, green peas, asparagus, should be preserved within six hours after being picked, particularly in hot weather. Berries always within twenty-four hours. Peaches, quinces, pears, apples, should be peeled, and the seeds removed before preserving. Vegetables should be partially cooked first—such as corn, peas, and tomatoes should be boiled a half hour; asparagus a quarter hour. To the vegetables, add a half pint of the water they are cooked in, to the quart. Fill the can with ripe fruit, adding, if desired, a little sugar—simply enough to render the fruit palatable, and set in a vessel of water (warm or cold.) Let the water boil, and continue boiling until the fruit is well heated through—say for half an hour. Direction has been given to simply let the water boil, but such direction is defective, as at this time the fruit in the center of the vessel will be scarcely warmed. Should the vessel be then sealed, fermentation will take place. The heat must thoroughly penetrate the contents of the vessel. As soon as the fruit is sufficiently heated, seal the can, and the work is done. Another way is to make a syrup of two pounds of sugar for every six pounds of fruit, using half a pint of water for every pound of sugar. Skim the syrup as soon as it boils, and then put in your fruit, and let it boil ten minutes. Fill the cans, and seal up hot. Some make a syrup of half a pound of sugar to every pound of fruit—and some use only a quarter of a pound of sugar to a pound of fruit—while some use no sugar at all. To keep peaches, pare and cut them up. If thrown into cold water, they will retain their firmness and color. Heat them in the cans as above, or boil them ten miuntes in a syrup. In this way, raspberries, strawberries, cherries, plums, peaches, etc.. etc., may be kept for any length of time, in the same condition that they were sealed up, with their flavor unchanged. For small fruit, it is best to make a syrup without water, and boil the fruit in it for only a few minutes. Tomatoes should be boiled and the skins taken off, and then placed in a kettle and brought to a boil, and kept so while filling the cans.

Peaches.—It was found that peaches could readily be kept with very little injury to their flavor. Those preserved by the process described below were certainly better, both in appearance and flavor, than any found in the market for sale, as these had evidently been heated a great deal more than was necessary: Take the peaches, either just ripe or fully ripe—this does not matter. Pare them, and if you desire to preserve them whole, throw them into cold water, as they are pared, to prevent them from losing color. When everything is ready, place them in the can, adding merely as much sugar to each layer as is sufficient to render them palatable. Set the can in a vessel containing hot water, and allow it to remain in boiling water until the fruit becomes heated through. This will require, if a quart can be used, from twenty minutes to half an hour. The temperature required is about 160 degrees F. But as few housekeepers have or use a bath thermometer, a very little experience will enable them to know the proper temperature without the use of this instrument. It is not possible to heat the contents of the can in this way above a temperature of 180 degrees, unles the cover is fastened down, which is not necessary, but it is evident that it is desirable to subject them to as little heat as possible. When heated sufficiently, seal at once, by heating the cover, and pressing at once firmly into place, and allowing a weight sufficient to keep down the cover to remain upon it until the cement hardens. The proper temperature of the lid is easily and conveniently ascertained by putting a piece of rosin about the size of a small pea, on the cover, when it is put upon the stove; as soon as the rosin melts, the cover is ready to be put in place. This precaution is necessary, as the solder, with which the parts of the lid are joined together, easily melts. It is not necessary to use sugar in this process, but, as it assists in the preservation of the fruits, they can be sealed at a lower temperature than if it is not used. As sugar is used to render the fruits palatable, there can be no objection to using it when preparing the fruit for family use, as it will, in any case, be necessary, and there is no reason why the sugar should not be used before the can is sealed, as afterwards.

STRAWBERRY JAM, OR MARMALADE.—Pick ripe strawberries free from every hull; put three quarters of a pound of sugar for every pound of fruit; crush them together to a smooth mass; then put them in a preserving-kettle over a gentle fire; stir it with a wooden or silver spoon until it is jelly-like and thick; let it do slowly for some time, them try some on a plate; if when cold, it is like jelly, it is enough. Put it in small jars or tumblers, and secure as directed. Currant-juice, with a pound of sugar to a pint, to four or five pounds of strawberries, and the required quantity of sugar, makes the jam very nice. Half a pound of sugar for each pound of fruit will make very fine jam, or marmalade, which is the same, cooked until it is very thick, and reduced: take care that it does not burn.

PEACHES.—Another way: Three and a half pounds of sugar to one gallon of water; make a syrup, and let it get cold; fill the can with fruit, and pour in the cold syrup; set the can in water, and let it come to a boil; boil briskly for three minutes, and then seal.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending June 30th, 1858; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury 41 feet above the sea at San Francisco.

BY THOS. M. LOGAN, M. D.

JUNE, 1858.	7h. A. M.	2h. P. M.	9h. P. M.	MONTH.
Barometer, Maxima	30.005	29.962	30.000	30.001 inch.
" Minima	29.759	29.717	29.749	29.717 "
" Mean	29.877	29.858	29.851	29.862 "
Thermometer, Maxima	72.00	86.00	79.00	86.00 deg.
" Minima	61.00	68.00	61.00	61.00 "
" Mean	65.23	74 87	68.20	69.43 "
Force of Vapor, Maxima	.443	.577	.550	.577 inch.
" " Minima	.230	.247	.340	.230 "
" " Mean	.380	.438	.421	.413 "
Relative Humidity, Maxima	82.00	69.00	77.00	82.00 deg.
" " Minima	38.00	22.00	38.00	22.00 "
" " Mean	62.70	53.23	62.77	59.57 "
Number of Clear Days	17	19	16	17 1/3 days.
Number of Cloudy and Foggy Days	13	11	14	12 2/3 "
Number of Rainy Days	.....	.....	.....	2 "
Quantity of Clouds	1.5	1.3	1.2	1.3
Quantity of Rain and Fog	.....	.....	.....	0.098 inch.
1st Days.—2d, Force of N. Wind	1 2.0	1 2.0	0 0.0	2/3 1.3
" " N. E. Wind	1 2.0	0 0.0	0 0.0	1/3 0.7
" " E. Wind	1 1.0	0 0.0	0 0.0	1/3 0.3
" " S. E. Wind	8 2.3	2 4 5	5 2.2	5 3 0
" " S. Wind	14 2.6	7 2.7	10 2.4	10 1/3 2.6
" " S. W. Wind	1 2.0	11 2.6	10 2.7	7 1/3 2.4
" " W. Wind	0 0.0	4 2.2	2 1.0	2 1.1
" " N. W. Wind	4 2.5	5 2.8	3 1.3	4 2.3

Thermometrograph.

	DEG.		DEG.
Highest Reading by day on the 30th	92.00	Mean of all Highest Readings by day	78.07
Lowest Reading by night on the 29th	52.00	Mean of all Lowest Readings by night	57.37
Range of Temperature during Month	40.00	Mean daily range of Temperature during month	20.70

REMARKS.—The observations are made three times a day, conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and also put separately to show the number of these days on which rain falls during the month. The force of the wind is estimated and registered in figures from 0 calm, to 10 a hurricane.

SAN FRANCISCO WHOLESALE PRICE CURRENT.

JULY 22, 1858.

Staple Agricultural Products.

Barley,	per cwt	$1 00
Buckwheat,	"	2 25
Corn,	"	5 00
Corn Meal, Cal. h'd		8 00 @ 9 00
Corn Meal, E'n	"	8 50 @ 9 00
Flour,	"	11 00@12 50
Oats, cwt		2 00
Potatoes, sack		1 25
Potatoes, sweet, pound,		05
Onions,	pound	1¾
Turnips,	"	01
Hay, ton		15 00@17 00

Wool, Hides and Tallow.

Wool, extra fine, pound	25
Wool, American, "	12½
Wool, California, "	08
Hides, dry, each	2 75
Tallow, rough, pound	04½
Tallow, tried, "	09

RETAIL PRICES CURRENT.

Products of the Dairy, Lard, etc.

Butter, California, pound	00 50 @ 00 62
Butter, Eastern, "	00 25 @ 00 37
Cheese, California, "	00 25 @ 00 37
Cheese, East'rn, "	00 20 @ 00 37
Lard, California, "	—— @ 00 30
Eggs, dozen	00 60 @ 00 75
Honey, California, pound	00 75 @ 1 25

Fruits.

Apples, pound	00 25 @ 00 75
Apples, Pine, each	00 75 @ 1 00
Bananas, each	00 06 @ 00 12
Bananas, per bunch	2 00 @ 5 00
Cherries, pound	00 50 @ 1 00
Cranberries, gallon	—— @ 1 50
Peaches, pound	00 25 @ 00 50
Limes, dozen	—— @ 00 25
Oranges, dozen	00 75 @ 1 00
Raspberrics, pound	—— @ 00 37
Strawberries, "	00 25 @ 00 37
Watermelons,	00 25 @ 00 50

Garden Vegetables.

Beans, pound	—— @ 00 06
Beans, Green, pound	10
Beets, pound	04
Cabbage, head	12
Cauliflower, head	12
Carrots, pound	04
Cucumbers, each	05
Garlics, pound	25
Green Corn, dozen	50
Green Peas, pound	06
Onions, "	05
Parsnips, "	03
Potatoes, "	02
Potatoes, new, "	04
Potatoes, sweet, pound	08
Radishes, dozen	38
Rhubarb, pound	10
Salsify, dozen	1 50
Tomatoes, ripe, pound	08

Meats.

Bacon, California, pound	00 28 @ 00 37
Beef, best pieces	—— @ 00 25
Beef, corned, pound	—— @ 00 12
Hams, California, pound	—— @ 00 37
Hams, Eastern, pound	—— @ 00 30
Lamb	00 20 @ 00 25
Mutton, pound	00 20 @ 00 25
Pork, fresh, pound	00 20 @ 00 25
Venison	00 00 @ 00 25

Game and Poultry.

Hares, each	1 00 @ 1 25
Rabbits, tame, each	00 75 @ 1 25
Rabbits, wild, dozen	—— @ 3 00
Squirrels, each	—— @ 00 38
Chickens, each	00 75 @ 1 25
Ducks, each	1 25 @ 1 50
Snipe, dozen	—— @ 3 00
Turkeys, pound	00 45 @ 00 50

Fish.

Clams, hundred	75
Codfish, fresh, pound	18
Crabs, dozen	75
Flounders, pound	25
Halibut	31
Oysters, Shell, hundred	1 50
Perch, pound	15
Pike "	12
Rock, "	12
Smelts, "	10
Shrimps "	10
Salmon' frcsh	25
Trout, fresh mountain, pound	1 00

In our Prices Current we have given the ruling prices on the 22d of July. There are fruits of several varieties in market not enumerated in the list, and it is not convenient for us to include them. Another month and a more complete list than ever before furnished, may be expected. It is our intention to make this feature of our publication an attractive one to those of our readers who are producers, as well as the consumers, of articles enumerated. As a record of ruling prices at the time specified, it will be of interest in years to come, when fruits shall have become far more abuudant than now and prices materialy lessened.

Western Prices—Wm. T. Abbott. Esq, of Fort Wayne. Ind., in a letter to the Farmington Chronicle, speaks of the seasons there. as being very cold, wet, and backward. "Our winter wheat crop," he writes, "is very fine better than ever known before; and if nothing befalls it, Indiana will raise an immense crop this harvest. Wheat is selling now, 60 cents for Red and 70 cents for white; oats, 20 cents; corn from 30 to 40; potatoes 10 cents to nothing, they are so plenty there is no sale; eggs 6 cents; butter, 10; beans 60 to 75; flour $3 to $4, and a prospect of its being still lower when wheat gets down to 50 cents, as it undoubtedly will if the present crop turns out as well as it now promises. Business is very dull in the west, and money scarce; owing in part to the unwillingness of farmers to submit to the great decline in the prices of wheat and corn."

VIEW OF THE PAVILION ERECTED FOR THE CALIFORNIA STATE AGRICULTURAL SOCIETY'S FAIR OF 1858, AT [illegible].

THE CALIFORNIA CULTURIST.

AUGUST, 1858.

STATE AGRICULTURAL FAIR.

ON the opposite page we give an engraving of the new Pavilion on Cortez Square, in the City of Marysville, erected by the city and citizens for the purposes of the Annual Fair of the California State Agricultural Society for 1858. A most laudable public spirit has been exhibited by the citizens of Marysville, in the furtherance of every plan that could be devised to give to the approaching Fair a celebrity that will do honor to the skill and taste of those having the immediate supervision of arrangements. The Pavilion intended for the exhibition and display of manufactured articles, and agricultural products other than live stock, is admirably calculated to serve the purposes intended. Large and commodious, well lighted and ventilated, and having a good shingled roof, it will be cooler and more comfortable than such buildings usually are with cloth roofs, under nearly a vertical sun.

Its substantial walls of brick and its position, are both indicative of permanency; and bespeak an energy and forethought on the part of its projectors, that may well be imitated by citizens of other cities, that to secure an annual exhibition of their respective County Agricultural Societies, should not be backward in providing for their accommodation. It was with this view that the citizens of Marysville resolved to give to their Pavilion the character of permanency which it posesses.

The form of the Pavilion is that of a cross, the main portion one hundred and forty feet in length by fifty feet in width, and the cross portion one hundred feet in length by forty feet in width; the walls of the structure are eighteen feet in height, which gives to the central interior portion a very agreeable elevation. As shown in the engraving, the central portion is surmounted by an observatory, at once a conspicuous and crowning feature of the structure. In a beautiful grove on the banks of the Yuba, a half mile from the Pavilion, is the show ground for stock. It is well chosen, for whilst it is impossible to exhibit stock to advantage within the limits of city walls, it is always desirable to secure such show grounds, as near to the place of general exhibition as possible.

Every preparation that can be devised to secure to visitors accommodation and

comfort during the continuance of the Fair is being made, and strangers can rely upon finding ample provisions for their convenience, both indoors and out; the entire of the streets of the city in the vicinity of the Pavilion, will be kept thoroughly sprinkled, as well as the whole distance to the place of stock exhibit. This feature alone will secure a much larger attendance from among those who visit such Fairs merely for pastime and amusement than could otherwise have been hoped for, notorious as is Marysville for weather, slightly warmed up, in the middle of her summer days.

The locality of the Fair this year, secures to it a larger display of live stock than has ever before been exhibited at any Fair in the State; more stock having already been entered than at any previous exhibition. The display of vegetable products, will undoubtedly be larger than ever before produced; whilst of articles the handiwork of our ladies and mechanics, there will be an exhibition highly creditable to our State, judging from the articles already entered, some received, and a very large number yet in preparation. Altogether there is every reason to believe that the Fair, to commence on the 23d instant, and to continue to the 28th, will far surpass any previous one of the Society.

For Rules governing the State Agricultural Society's Fair for 1858, see Addenda to 1st, 2d and 3d numbers of the CULTURIST.

GOLD, WINES AND WOOL.

CALIFORNIA has already reached the position of a State, exporting its steady annual surplus of Gold, Wine and Wool. We export our gold, mostly in payment for those commodities which gold will procure, at a cheaper rate than we can manufacture them. This being true, we can hardly look upon the export of gold as many do, as so much lost to the country. Those who send it away, do it because they can do better, make more money than by keeping it here, just as with any other commodity.

We export wine, not because we actually make at present more than we might ourselves consume, but because it is ordered from abroad, at prices that make it pay better than to keep it here. We also export wool, and in quantities quite creditable to us as a wool growing State; and we export our wool, because we can do better with the money it brings in San Francisco market, than to attempt to manufacture it ourselves. And until the prices for labor shall have very much declined, this will continue to make ours, a wool exporting State.

The relative proportion of these exports, in point of value at present, is largely in favor of the gold; but every year will produce a change, slow and steady at first, but sure and certain, till our wine and wool will be among the main of our staple and state enriching exports.

There is no branch of our husbandry engaging the attention of our herdsmen at the present time, or that promises better for the future than the raising of sheep. Large numbers are annually required for the shambles, more even that can at present

be spared from our own flocks; most of such as pass to the butcher are supplied from northern Mexico, and not a few are annually driven over the plains from the western States, at a large profit on their cost. From the latter, are principally made up the flocks of breeders, that here and there throughout the State, at no distant day, will have expanded into herds, that would do no discredit to older States than ours. Already we have flocks varying in numbers from five hundred to five thousand choice ewes, kept purposely for breeding, and which money could hardly buy, so highly are they valued. And rightly are they prized, for the proprietor sees in his flock of one hundred or one thousand good ewes, a property that will annually net him one hundred per cent. This in any other country than California would be deemed a valuable property, a satisfactory investment.

It is not unusual for one hundred ewes, in California, to present their annual increase of one hundred and ten, twenty, and even as high as one hundred and thirty lambs. This more than doubles the flock in numbers, whilst the wool more than pays all the expenses of care and keeping for the year. The great item in favor of the California sheep raiser, over that of the eastern, is found in the little comparative cost of feeding, summer and winter. No hay is necessarily prepared for the winter, and the mildness of the climate renders it unnecessary to provide costly shelter for the protection of either the animals or their food. Nature supplies them both to the fullest extent; all man has to do is to avail himself of her prodigality.

There is not a doubt but that the climate of California will prove highly favorable to the growth of the finer grades of wool, and as the size of the animal of all breeds yet introduced is actually increased, either from the influence of food or climate, there seems nothing in the way of making wool, one of the great and permanent exports of our State. All who have given their attention to sheep husbandry, admit it to be among the best paying of all their attempts at animal raising. The only real drawback to its successful prosecution, in a few localities, is the danger and loss by destructive wild animals; but as settlers increase these pests are destroyed or driven back, so that but little loss need be apprehended from that source.

We are pleased to learn from reliable authority that an increased attention is given to sheep raising in many parts of the State.

USE OF BURNED LIME AS AN APPLICATION TO THE SOIL.

THE application of burned lime to the soil is of high antiquity, and its utility is such as has been recognized in almost every country in which agriculture has obtained much eminence; and certainly it has been more largely and extensively used as a fertilizer from a very remote period than any other mineral substance that has ever been made available in practical husbandry. Cato describes with much minuteness the best means of preparing it; and Pliney attests the use of slacked lime by the Roman cultivators as a dressing for the soil in which fruit trees were grown. It was also applied by the Arabs with equal success in Spain. Hence it may be inferred that what has been good in ages past is good at the present time.

When lime is applied to soil, it is believed by some that it acts in two ways—one, as a *stimulant* that promotes vegetation by causing the soil with which it is mixed to

exert itself; and the other, in promoting the growth of trees and plants by enriching the land as *a manure*, and adding to the quantity of vegetable food. By others it is looked upon in a *chemical* and *medicinal* point of view, acting as an alterative, a corrector, a dissolver, or a decomposer—a disengager of certain parts of the animal, vegetable and mineral substances contained in the soil, and as a retainer and combiner with others, but not as a substance, like dung or decayed organic matter, fit for the immediate use and nourishment of plants, except in small proportions. It also produces a mechanical alteration in the soil, which is simply and easily uuderstood, and it is the cause of a series of chemical changes that are really obscure, and are as yet susceptible of only partial explanation. In the finely divided state of quick lime, or slaked lime, or of soft and crumbling chalk, it stiffens very loose soils and opens the stiffer clays; while in the form of limestone gravel or of shell-sand, it may be employed either for opening a clayey soil or giving body and firmness to boggy land. Thus it proves very useful in tenacious, heavy, clayey soils, while it may be dispensed with in light ones, scarcely, if at all, effecting them.

The purposes served by lime as a chemical constituent of the soil are at least of four distinct kinds, namely: First, it supplies a kind of inorganic food which appears to be necessary to the healthy growth of all cultivated plants. Secondly, it neutralizes acid substances, which are naturally formed in the soil, and decomposes or renders harmless other noxious compounds, that are not unfrequently within reach of the roots of plants. Thirdly, it changes the inert vegetable matter in the soil so as gradually to render it useful to vegetation. Fourthly, it causes, facilitates, or enables other useful compounds, both organic and inorganic, to be produced in the soil, or so promotes the decomposition of existing compounds as to prepare them more speedily for entering into the circulation of plants.

Burned or quicklime is of an *alkaline* or *basic* nature, like potash and soda. Bodies of this kind form the chemical opposites to those of an acid nature; that is, they deprive them of their sour taste and their acid properties and actions in general, when they combine with them, while on their side they give up their basic properties. For instance, from the most corrosive hydrochloric acid, and the most caustic soap-boiler's lye arises a compound which no longer tastes sharp or caustic, but only mildly saline, namely, common table salt. Their mutual resignation and delivering up of their characteristic properties, which occurs in all cases where an alkaline base meets with an acid, is called *neutralization*, and a new product arising from the two is termed a *salt*.

A good soil, in a state of readiness for culture, must not possess any acid properties. All the cultivated plants grow less freely and less vigorously in soils containing acids, than in such as are weakly basic, or even neutral, and their growth becomes inferior in proportion as the quantity of acid in the soil increases. The production of acids takes place in every soil; for the humus, which originates both from the remains of plants and refuse remaining in the ground, and from stable manure, is an acid nature; the soil, however, usually contains in its mineral constituents so many basis, (lime, magnesia, potash and soda), while the nitrogen of the stable dung produces another, (ammonia), that these suffice to neutralize humus. Combined with bases, the humus undergoes a far more rapid and extensive decomposition into food for vegetation; that is, into soluble substances applicable to the growth of plants, while the acid humus, whether produced by want of moisture, or by a superabundance of peaty substances, undergoes further decay, but slowly and with difficulty.

Lime is not merely a *base*, but a *very strong base*, and can therefore even extract from the weaker bases occurring in the soil the acids with which they are already combined. Hence it acts with advantage in those cases where weaker bases are such as become soluble by combination with acids, and are in this condition capable of interfering with the growth of plants. Of this kind especially are the bases which originate from the ferruginous particles present in all soils covered with water, such

as are situated in low lands excluded from the access of atmospheric air by a tenacious covering. Humic and carbonic acids produced in such places render the particles of prot-oxyd of iron soluble, and these again cause the soil to become sterile or less fertile, just like the water which we see in ferruginous springs flowing from deposites of lignite or peat. On this account, fresh, black mud from ponds or lakes always acts injuriously upon fields and meadows the first year; hence the dead subsoil, when mixed at once with the surface soil, so often causes a diminution of fertility for one or more years. In like manner, in a soil which contains much pyrites, the oxygenation or weathering of the ground may readily produce so much soluble salt of iron (green vitriol, or sulphate of iron), as to disturb the growth of plants. In all these cases, lime is an excellent means of rendering the iron insoluble, and, at the same time of giving it a tendency to absorb oxygen from the air more rapidly and abundantly, whereby the black prot-oxyd of iron is changed into brown prot-oxyd (iron rust), which no longer acts injuriously upon vegetation.

Caustic or quicklime, as its name indicates, attacks the skin of the hand and dissolves it in washing, in the same way as potash or soda lye, and has a similar action upon other animal or vegetable substances, as many farmers, perhaps, have noticed on the sacks in which they have kept lime, which soon became rotten and soft. When lime is mixed with the soil, it acts in this *decomposing* and *dissolving* manner upon the roots, leaves, straw, and other parts of vegetables, as also upon organic constituents of the soil, which are already partially converted into humus. It hastens the decomposition of those substances which are often very slow and disinclined to fermentation in heavy soils, not freely admitting atmospheric air to a greater activity; that is, to a more rapid fermentation, putrefaction and decay, whereby they are decomposed into carbonic acid and ammonia, which are then absorbed by the roots of the living plants as the most important of all their food. The action which lime exerts in this way clearly agrees in appearance with that produced by direct fertilizers, such as stable manure, guano, etc. But there is a great difference between the two. The lime does not work with its own material, but at the expense of other matter, namely, at that of the land or of its strength, while the direct manures act with their own power. It is, therefore, self-evident that the latter enrich the soil, while lime renders it poorer. The universal effects of this *independent, unmixed* liming or marling of land, which has been established by practice in Europe, as well as in many parts of this country, is obvious, not only by the well known German saying, "Rich father, poor children," but also by the still more precisely expressed maxim,

"Much lime and no manure
Make both farm and farmer poor."

Besides, on heavy, inactive soils, lime may be expected to produce good effects by its decomposing and dissolving power in all cases where the soil is rich in organic remains, especially when the air has not had free access to it; consequently on new ground, reclaimed from forest, broken-up meadows, and pasture land, reclaimed peat-bogs, salt-marshes, and low-lying lands after they have been well drained. But even burned lime frequently does not develop its effects until the second or third year.

Quicklime can also act as a *decomposer* and *solvent* of mineral substances. It causes, for instance, an unlocking of the mineral constituents of the soil, the products of which, (silica, potash, etc.) can then be consumed as food by the plants growing upon it. The experience that liming pre-eminently favors the formation of haulm, and gives the straw of the cereals great stiffness, is explained by this in the most simple manner: It is not the lime which produces this, but the mineral substances rendered soluble, and therefore assimilable by the lime above all the silica. The results of these experiments at the same time confirm the correctness of the opinion that the farmer need not pay any attention to silica, in manuring, since it exists

almost everywhere in sufficient quantity in the soil but that he need only take care that there shall not be a deficiency of *solvents*, and of the conditions which favor its solution. Thus, lime is a powerful means of assisting the oxygenation or weathering, of stony and earthy constituents of the soil; it, therefore, forms an aid to those bodies, and forces such as air, water, carbonic acid, (humus,) heat, etc., which carry on this process of decomposition everywhere in acting independently of human interference. In a heavy soil, this naturnl weathering can, of course, only proceed slowly, because the tenacity obstructs the access of air and the production of carbonic acid from humus. When, therefore, experience says that lime proves far more favorable in heavy than in light soils, it might certainly be deduced from the preceding statement, that its chemical action, now under consideration, may claim an essential share in the beneficial effects in the first case.

Lime forms a necessary constituent of all plants; if not present in sufficient quantity in the soil, the growth of vegetation is poor; therefore lime may act favorably in certain cases by supplying this deficiency. By far the majority of soils contain lime abundantly sufficient for the requirements of the nutrition and the development of plants; and, if manuring be performed regularly and properly, there can still be a want of such kind, since stable manure, alone, conveys into the soil more lime than is removed from it, even in very abundant crops; cultivated soils rather grow continually richer in lime, and plants, which consume very much lime in their development, especially if grown in frequent succession in the same field, will naturally lead much sooner to an exhaustion of the lime of the soil, than those plants which take up lime moderately.

Carbonate of lime is far less *coherent* in texture, and is of looser nature than clay or loam, so that it has the power of improving tenacious soils mechanically by rendering them less tough and solid; and hence, more porus and open. Quicklime changes into carbonate of lime by degrees in the soil, and will then consequently act in the same way. When mixed with sand, on the contrary, it renders this more coherent and close.

Lime also imparts to mixtures of earths, as is shown by saltpetre beds, the power of converting nitrogen, of petrefying and decaying vegetable and animal substances into nitric acid, which enters into combination with the lime to form nitrate of lime. According to some experiments made in England, lime is supposed to increase the power of earths to absorb ammonia from the atmosphere, and to contribute indirectly by the decomposition of ammoniacal salts in the soil, to a fixation of ammonia by the clay and silica. Quicklime absorbs carbonic acid gas from the atmosphere and from the soil, passing in the operation into the mild condition of carbonate of lime. Possibly, this also may afford assistence to the growth of plants.

Lastly, it has been observed that the development of plants proceeds somewhat more rapidly in soils manured with lime, so that they run more quickly through the period of germination to maturity than on unlimed land. Such an action upon the duration of vegetation would be a recommendation of lime for agriculture in northern, elevated and exposed districts.—*Patent Office Report*, 1856.

Hollow Horn.—The practice of our vicinity is to give the animal better keeping, and a few doses of Ohio Kercuma in whisky. This may be given to suit the size of the animal, and the usual dose is one fourth of an ounce of Kercuma to half a pint of whisky. B. *Harpersville, N. Y.*

Staggers in Cattle.—Give a tea-spoonful of pulverized camphor twice a day. It will cure in every case, if attended to in time. H., *Connersville, Ia.*

ON THE CIRCULATION OF SAP IN TREES.

IN our July number, in order to make good our argument against the plan now too generally in vogue, of cutting back grapevines in order to increase the size of the fruit and hasten its maturity, we alluded to the theory of Knight and others, upon the circulation of sap in trees, and promised a renewal of the subject.

It is often much easier to advance a theory, than to prove its truth; so that unless we can prove by tangible evidence of some kind, or give a good reason for asserting, that the sap of a tree is first conveyed upwards from the roots, only through the alburnum—or sap, as it is called—to the swelling buds and leaves, to be by them elaborated and fitted for the production of new wood and fruit, in its passage downward between the alburnum and the bark: we say, if we cannot produce some evidence of this, it would be just as easy to adopt an opposite theory and then clamor for its truth; but we will try and support our theory; and we will take the sugar maple tree to elucidate it; because from the nature of its sap, and its abundant flow, it makes a good subject.

The sap is first taken up by the little mouths or feeders, developed by the microscope, all along the more fibrous portions of the roots, and conveyed—possibly by capillary attraction—along the pores of the roots, and enters the trunk and limbs of the tree by the alburnum alone; for although what is usually called the heart of the timber, that which is inside or surrounded by the alburnum, be filled with moisture, it is not the life sustaining sap, in a strict sense of the term, nor is it necessary for the growth of the tree; for we have all seen trees that have entirely lost this heart portion, and yet for hundreds of years maintain a healthy outward appearance. The large, old, hollow sycamores of the western states are instances of this; nothing but the merest shell of alburnum and bark remains to them; and yet apparently healthy and annually increasing in size.

That the sap ascends in the alburnum, would seem hardly to need further proof; but if required, all know that to bore into maple and many other trees, that we have occular demonstration of the fact, for the sap readily flows. That it flows upward is clearly shown by boring two holes close together, one directly above the other, where the grain of the timber is straight, and it will be found the lower one produces all the sap. The fact that the alburnum of trees effects a change, or gives character to the the rising sap, is also proven in this, that the sap of the maple increases in sweetness as it rises, so that at fifteen feet elevation, it is twenty per cent. sweeter than if drawn from the trunk or an uncovered root at or near the surface of the ground. Not only is the sap then, conveyed upward by the alburnum, but it is also fitted to be food for leaves. Buds once expanded and leaves produced, they become the lungs or laboratory by which the constantly arriving sap from below is fitted by a direct respiratory process, and sent back on its wood producing errand between the bark and the wood of last year; and in this way each year adds its own ring or cycle of new wood.

That it is the wood producing sap that thus returns, is clearly shown in the fact, that a wound through the bark always heals most rapidly from the top and sides,

whilst the bottom of the wound scarcely heals at all until closed up by the healing process from above. That this return sap is of a different nature from the rising sap, is clearly proven by its taste, being acrid and bitter in comparison. Sugar made from the maple sap obtained from cutting diagonal open gashes into the alburnum, and thus giving the downward sap a chance to mingle with that obtained from the alburnum, is always more or less bitter, and more highly colored.

That this returning sap, is both the wood producing and fruit sustaining sap we will endeavor to prove by a single argument, whilst it also adds another proof that we are right in our theory as regards the circulation. Most fruit growers are familiar with the process of annular—not annual—ringing or barking the limbs of fruit trees and the immediate effects produced; but as all our readers may not be, we will describe it. Any large limb or portion of a tree is selected, and on the first flow of sap in the spring, or as soon as the bark will peel, a knife is passed round the limb in two places, from one fourth to a half inch apart, cutting quite down to the wood, and this ring of bark is entirely removed and the wood scraped clean of every portion of the bark; even the liber or soft inner bark must be removed.

Now it is evident, if our theory be correct, that though the ascending sap in the alburnum, meets with no obstruction in its passage upwards, that the descending sap which is to form the new wood and perfect the fruit, does; for the disbarking has prevented any possibility of a descent of sap below the ring. The effect of this, if we are right in our theory, would be an accumulation of this sap in unusual quantities, above the ring; and this is just the effect produced. The limb increases rapidly in size, soon becomes much larger than below the ring, whilst the fruit is not only brought earlier to maturity, than on any other part of the tree not so treated, but it is also greatly increased in size; showing conclusively that in the return sap, we are to look for that nutriment which is directly to furnish food to both new wood and fruit.

If the ascending sap is suited to the production of fruit, before it passes to the leaves, all that would be necessary to force the fruit in any fruit tree, would be to clip off the limbs entirely beyond the last fruit, and as many would say, force the sap into the fruit; but this is not the effect; the experience of every day proves, that the effect is a momentary suspension of all growth, both of the fruit and limb, and the next is, an effort of nature to replace the leaves so unnaturally lost; and thus we see an immediate expansion of wood and leaf buds, from all the otherwise dormant buds of that season upon the branch, producing a profuse growth of latterals. But all the time required for this new growth, till it shall equal that which was removed by clipping, is lost in the growth of the fruit, having no leaves with which to properly elaborate its food; and it is upon this principle of circulation of sap in trees that we based our remarks in the July number, in reference to the injury done to grapes by cutting in the vines too early and too closely, beyond the fruit.

Mignonette Sauce.—Sauce is sold under this name in Paris, but it is only white pepper crushed into small graulations, and made into a sauce piquante. The French eat oysters with white wine and "Mignonette Sauce."

WHAT CAUSES THE PEACH LEAF CURL?

Editor Culturist:—Cooped up in the city of San Francisco, editing an agricultural magazine, with perhaps nothing but the floor and door of a seven by nine office, to remind you that timber has once grown somewhere, you may not be aware that the cultivators of that most popular and truly luscious fruit, the peach, have suffered largely the present season from the blight; a disease that seems to attack the leaf and extreme points of tender shoots only at a certain period of their growth; but at a time that proves almost totally destructive to the fruit of the season. I say, of the season, because it is not certain, that the same tree will be attacked or the same orchard suffer continuously from year to year.

Be the cause of the blight what it may, its effects are so serious as to lead me to to an investigation of the subject, with a view of discovering a preventive. There are some peculiarities in reference to the first appearance of the disease. It seems always to come suddenly; trees that are healthy one day will, in two or three days after, show the presence of the disease all over them; and yet it is often discriminating in its attacks, seeming to elect a tree here, and another there, and then again sparing the very tree you would have supposed, from its position, the most likely to have suffered. These facts make it difficult for me fully to account for its presence in all cases.

I am inclined however, to attribute it to some hereditary or constitutional debility, peculiar to old and long cultivated varieties, from the fact that my seedling trees almost entirely escaped the blight, the debility or disease being brought out by some peculiar state of the atmosphere at a time when the leaves are in just the proper state to favor its development. The disease itself is purely of a fungus character, and withal, contagious. A diseased leaf will communicate the disease or fungi to its neighboring leaf by contact, and with some smooth skinned fruits, as the nectarine, to the fruit itself. This makes it clear to my mind, that it is a species of vegetable parasite, induced by a certain state of the leaf juices, acted upon by change of temperature of a character necessary to bring it out; whilst a neighbor of mine, a peach grower of no mean pretensions, attributes the disease solely to the sting or poison conveyed to the leaf, by countless minute winged animaculæ; but in whatever it may have its origin, it well becomes the intelligent fruit growers of California to discover, what has yet not been done, an antidote or remedy. Will you, Mr. Editor, please favor me with your views as regards the cause of the disease. L. C.

Yolo, Aguust 9, 1858.

PEACH TREE BLIGHT.

I HAVE carefully read the first and second numbers of your truly valuable journal, the Culturist. I have found much to instruct, and not a little to amuse me in scanning its pages; but I see no one as yet offering to give battle, even in the way of an opinion, against that great annoyance to the peach grower, the leaf blight.

Nearly every tree in my orchard has been affected more or less, and yet a very few seem to have entirely escaped. The effect of the blight, has been to deprive me of what little fruit was left me by the late spring frosts.

Finding it a blight that affected my pocket as well as the tree, I set about, if possible to find out a cause for the evil. Unless circumstances had caused me to make a special note of the fact, that frost had nothing to do with it, I should have been inclined to lay the blame there; for it first made its appearance in my orchard, soon after the heavy frosts occurred. But when I found the disease attacking the leaf in localities where I was assured not a particle of frost appeared, I must say that I felt at a loss, hardly knowing which way to turn to look for a cause; besides, it appears in a large orchard to go just where it chooses, and nowhere else, sometimes in streaks, now leaving a tree, and then taking the next; or it will single out one, whilst all around it escape.

Not willing to give it up however, and knowing the important functions possessed by the roots of trees, as affecting their vitality and health, I turned my attention to the roots, and carefully and systematically did I examine every feature that seemed to present a peculiarity among the roots of more than twenty different trees. In some, I found a small grub or borer, that in many places had eaten the root quite off, as though cut by a gopher. I also found in numerous small cavities, that appeared as if purposely made to contain them, large numbers of minute eggs, doubtless of some insect that preys upon the root, and I observed that wherever the punctured root was small, smaller than a goose quill, that it was dead, or in a dying state below the puncture, and numerous small fibrous roots were springing out anew above the puncture.

In other instances I found numerous small red wire worms not larger than a pin, nor more than half an inch in length; these seemed also to be preying upon the the roots, or possibly upon the exhudation from them, that in all places where they were numerous, made its appearance in the form of a thin mucilage.

By a careful examination of numerous trees not affected by the curl, I found the roots invariably in a sound condition, and no insects of any description about them. And though I am not ready to say how the leaf becomes affected by the diseased roots yet I am of the opinion that the disease is, in some way, engendered in the root;, because in no instance that has come to my knowledge, has the least indication appeared that the disease has its origin above ground.

In regard to a preventive, I have not yet sufficiently studied the habits of the insect that to me appears to be the cause of the mischief, to give an opinion. Hoping this communication may be the means of eliciting the views of others, upon this important subject, I remain, Yours truly,

Ione Valley, August 1, 1858. IONE.

POTS in which seeds are planted for bedding out, etc., should be plunged in something to keep the outsides of the pots from getting too dry, and from being hot and cold alternately; the seeds thus require less water, and the healthier will be the plants.

THE PEACH LEAF CURL.

WHATEVER of theory or opinion men may have of the cause of the curl of the peach leaf, all are united on one point, that its effects are the almost entire destruction of the peach crop upon nearly all the trees on which it occurs; so that if a remedy or preventive can be applied successfully, it ought to be made known as immediately as possible, as the peach crop is rapidly becoming one of the most important in the State.

We have received several communications on the subject of the peach leaf curl; in some of these, theories are advanced to account for the disease; in others, simply a description of its effects upon the leaf and fruit; but all asking for a remedy or preventive. In the foregoing communications, we have given the opinions of two gentlemen upon the subject, both of whom are considerable growers of the peach, men of experience and observation; and though we cannot endorse the views advanced as regards the cause of the curl, we are disposed always to give place to argument on any subject that deeply interests the fruit grower or agriculturist.

We have made the subject of the curl of the peach leaf a study for years. We have examined it under every variety of circumstances of soil, climate, heat, cold, in fact in every phase we believe, in which it is possible for it to show itself, not only with a view of discovering the cause, but if possible a preventive.

As our correspondent "Ione" remarks, "it appears in a large orchard to go just where it chooses, and nowhere else, sometimes in streaks, now leaving a tree, and then taking the next; or it will single out one, whilst all around it escape." We can even go further than this, by asserting that we have known instances in which one half of a tree would have the curl, whilst the other half was entirely exempt; nor does exposure either to or from the direct rays of the sun, seem to govern its movements in the least.

The cause of the blight, is what we would like to discover; for until it is found, it is useless to attempt, or propose a remedy. We do not think it is necessarily the effect of frost upon the young leaves—though it may seem to produce it in some instances—because the curl frequently appears in localities where no frost occurred. That it is the work of a minute microscopic insect, stinging the leaf and poisoning the sap, and thereby producing a morbid growth, we do not believe; neither can we attribute it to the effect of the worm at the root, nor yet to fungi or minute vegetable parasites floating in the air and affixing themselves upon the leaf, and producing the effect we see, until the leaf, no longer able to sustain itself, drops as from direct disease.

We believe it to be no disease of the tree beyond the leaf itself. The peach tree is subject to diseases, and among the worst is the *yellows;* but the yellows as a disease is easily disseminated, and always is, when budding is done from a diseased tree to a healthy one. Not so with the curl; we have repeatedly tried the experiment by budding from a curl leaf tree to a healthy one, and by displacing portions of the bark of a healthy tree, and supplyiug its place with bark from a curl leaf tree; but in no

instance, or by any treatment possible could the curl leaf be disseminated or conveyed to one free from it. We therefore place the seat of the origin of the disease just where the disease appears, in the leaf itself, and nowhere else. Consequently we do not go beyond the leaf, or direct influences upon it, for the cause of the disease.

No exposure, no situation, no apparent outward condition of the tree, is necessary to induce the existence of the evil. It comes where it will, and when it will. This leaves us to believe that we should look to the effects of climate, or heat and cold upon the leaf organization. Leaves are the lungs of trees, (see article on circulation of sap in trees in this number), as such they are like those of animals, organs of delicate mechanism, and liable to disorganization, oftentimes from apparently trivial causes. Thus all sudden changes from heat to cold, would be quite likely to effect injuriously their delicate mechanism, made more sensitive by the artificial condition of their culture and growth; the use of stimulants or manures and high cultivation forcing a premature growth, and less hardy than if left to combat more with the obstacles of an uncultivated condition. These circumstances tend to make them highly sensitive to all extraordinary influences; and it is upon this belief alone, that we venture our opinion in reference to the cause of the evil.

We believe then, that the tree under the influence of cultivation, and perhaps a full exposure to the sun's rays, may put forth its leaves, not necessarily prematurely, but with a tender, delicate organism, unfitted to withstand uninjured the extremes of temperature to which it is subjected. A day or successive days of warm, mild weather, serves to advance the leaves, and bring them to the very condition most likely to be effected injuriously by cold. A cold night—though not necessarily freezing—comes on, perhaps a succession of them, following as many warm days; the leaves are suddenly chilled, their delicate organization feels its effects; in fact, the tree is attacked with a cold on its lungs, or it has the dispepsia, or perhaps the exact nature of the disease we do not fully understand; but its effect is this, that whilst the alburnum is constantly sending forward its full and undiminished supply of sap to the leaves, it is equally true, that they cease properly to elaborate that sap, and send it back for the production of new wood, or as food for the fruit.

The accumulation increases, and a morbid growth is the consequence, which finally results in disease and a dropping of the leaf and fruit; the latter however not from disease, but from a positive lack of food in consequence of the loss of the leaf. We would account for the appearance of the curl in different parts of the same orchard, or where two varieties of the peach are grown on the same tree, and one portion affected and the other not, upon the supposition that as with men, so with trees, some are found more sensitive, more disposed to colds, and more likely to be affected by climatic influences than others. If the peach is not affected by the curl some seasons, it is simply because that certain condition of growth favorable to its development, when acted upon by the influences of heat and cold, did not intervene between the setting of the leaf and its arrival at a stage of hardness and growth beyond being affected by the vicissitudes of climate.

We believe then, that the peach leaf curl is produced by cold or climatic influences; a disease, that so far as relates to general applicability, is without a remedy.

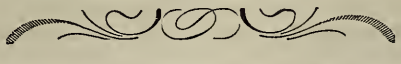
THE QUALITY OF OUR PEACHES.

THE Peach seems to be a general favorite with our fruit consumers. Its very general excellence and abundance places it in the first rank as a market fruit. The ease with which it is propagated from the seed, and the close resemblance in the quality of the fruit of seedlings, to that of the parent tree, and the difficulty of obtaining superior sorts true to their names, from too many nurserymen, even though much desired and paid for, has been the cause of rendering too many of our peach growers careless as regards the varieties they propagate. The consequence is, that while we find a few good peaches that will command large prices, we find quantities in our markets of third and fourth rate sorts, bringing corresponding prices.

It is just as easy to cultivate a peach tree of good variety as a poor one; this is supposing that you procure budded trees. Of course if you trust to seedlings, you may originate a few good sorts; but the majority of your fruit will be but ordinary. One hundred per cent. would be deemed a very great difference between two lots of potatoes, or corn, or barley, where all appeared in sound good condition, and so it would be; and yet it is not unusual or uncommon to see even a greater difference than this, between the finer and poorer qualities of peaches.

Any man to get along in these days of competition and strife, and make money a little faster than his compeers in any legitimate, honorable pursuit, must *excel* in that pursuit. To do this then, as a peach grower, we would say, let a man who is about to set out a new orchard, visit the San Francisco market every week during the peach season, and there, by occular demonstration and comparison, ascertain which is the best peach in the market for that week, where, and by whom grown; and though he finds several very good peaches, let him select that one only which is the best, and brings the most money. Let him continue to do this week after week till the season is ended, and he will have obtained more information of a truly reliable and valuable character to him, in his desire to establish an orchard of the best fruits, than can be in any other way obtained. Then insist that your nursery men furnish and warrant the varieties you order; and beyond the ability of any one nursery man to furnish just what you do order, don't be duped by anything he may say about his ability to furnish you with kinds quite equal, if not better than you order. You have started on the right plan to obtain the *best succession* of the *best fruits*, and let nothing swerve you from your purpose.

If you cannot find trees of the kinds you wish in the nursery, then have recourse to the tree actually producing the fruit you desire, and obtain buds therefrom; for the time has arrived in California already, that every honorable, high-minded cultivator of fruits is ready and willing to disseminate even his superior varieties. By following this plan, or the principle involved in it, an orchard of fruit trees might be reared, producing fruits unmatched in point of quality, and as for sterling worth to the proprietor, without its equal in the State.



THE BEZI APRICOT.

"*Armenica Vulgaris.*"—*Dec.*

Editor Culturist:—Being troubled for "stocks" for my smooth skin fruits, I went into the mountains to find what had always been described to me as Plums; but plums I could not find anywhere; instead, however, I found an abundance of wild apricots of a fine free growth, and all sizes—some fifteen feet high. These apricots I shall remove to my nursery next fall for stocks.

That this fruit tree should be found to be a natural production of our mountains, is not at all strange—for I find on examination, that it is found in a wild state in all the mountains of Asia—and as our trees and plants are mostly of Asiatic origin, we should have looked for this *Bezi* before. Thunburg describes it as abounding in Japan, and attaining the size of a large spreading tree. "The Chinese," says Grossin, "have many varieties, which they cultivate both for ornament and use." The mountains west of Pekin are described by the same author, as being covered with these trees. Professor Pallas states it to be "a native of almost the whole range of the Caucasus." It is also described as being a native of Armenia and Arabia.

Our cultivated varieties of this fine fruit are altogether too much neglected in this State. It is as easily grown and preserved in our fine climate as the peach tree. I have found that budding it on the peach induces too free a growth—hence a shy bearer. By putting our moorparks on the native Bezi, I feel confident of great success.

There is a great curiosity on this fine rancho in the grape line. A grape vine has been allowed to run freely into an isolated cottonwood, and large and fine bunches of grapes are hanging pendant from all parts of the tree to the hight of sixty feet. There are not less than three thousand bunches on the one vine.

Lassens, Tehama County, Cal. Wilder.

[From the Horticulturist.]

CULTURE OF THE PEAR—AN ENGLISHMAN'S VIEWS.

I WAS much interested in the discussion in the *Horticulturist* about Pear trees on the quince stock: how strange it is that bad cultivators place the blame on the stock, and not on their own mismanagement. I have now had more than twenty years' experience in the cultivation of pears on the quince, and am more than ever convinced that their culture as garden trees is the most agreeable and profitable of all fruit culture; due regard should, however, be paid to the sorts selected; for, to a certainty, there are some kinds that even in the most favorable soil will not do well. If I were a young man, I should desire no better speculation than forming a large pear tree garden on quince stocks in your country, to grow the finer kinds of pears for market; but it must be understood, it should be strictly a pear *garden*, not a grass orchard, or field full of rude weeds; for pear trees on the quince require good culture. If the soil is rich, manuring may be dispensed with; but in ordinary or poor soils, a surface dressing of manure should be given annually in October, round each

tree in a circle from three to four feet in diameter. The ground should not be dug, but kept clean with a horse hoe between the rows, and with a hand hoe round the trees. When the ground is dug or plowed, the surface roots are destroyed; but if only hoed, they soon form a network near the surface and feed on the manure, and the trees are benefitted by the roots being exposed to the influence of the sun and air.

I should form my pear garden thus: rows ten feet apart, from north-east to south-west, so that the sun during the heat of the day shines in the spaces between them; trees five feet apart in the rows; they may stand this distance in the rows from ten to twelve years; and then, if at all crowded, every alternate tree may be removed; but I am not sure that I should not let them remain longer, so as to form large hedges. My trees, five feet apart in the rows, have been planted twelve years, and it will be five or six years before they touch each other; they are pruned once a year, generally in August, and sometimes not until the fruit is gathered in October; they *must* be pruned once a year; my trees bear profusely, and I am not over nice as to the time of pruning. I have seen a pear hedge in France pruned once a year with common garden shears, and was surprised to find what a quantity of fruit the trees gave. I mention this to show that if pears on the quince have a good soil and climate, they are very productive, even under rough usage; but pruning in some shape seems absolutely necessary. The soil for a pear garden should be a friable sandy loam, resting on a wet bottom of clay or stiff loam; if rich, all the better; if poor, manure, I repeat, will be required. In this country, with our moist climate, I have known pears on the quince succeed well in loam resting on a dry stony bottom; but with your hot summers, unless manured heavily on the surface, they would perhaps suffer from drought. The sorts I would select for my pear garden for profit, *i. e.* for market purposes, would be:—1, Louise Bonne; 2, Beurre d'Amanlis; 3, Vicar of Winkfield; 4, Beurre Diel; 5, Duchesse d'Angouleme; 6, Easter Beurre, which in your climate must be valuable; for in the warm parts of France it is unequalled. The Vicar, which in moist seasons in this country is flat and indifferent, only requires a bright sun to bring out its qualities; for last summer, 1857, which was remarkably bright and warm, my row of one hundred trees, now ten years old, and pictures of health and vigor, gave me such pears as had never before been seen in Covent Garden market; they were large, clear and beautiful, and almost "best." I should also feel inclined to try Beurre Hardy as a market pear; in vigor the tree on the quince equals the vicar, and its fruit is large and excellent.

The cultivator of pears for market should confine himself to as few kinds as possible; and if in the course of a few years he finds any one or two that suit the soil and climate better than others, he should extend their culture as much as possible. I have found this the case with the Louise Bonne, (there is now no occasion to add "of Jersey," for the old sort is scarcely known), and so I at once planted two thousand trees: no act of my pomological career has given me more pleasure and profit.

I have not mentioned the preparation of the soil; for all your books on fruit tree culture go into that fully; but there can be no harm in saying that I have my fresh ground forked to twenty-two inches in depth; and I never turn the surface soil to the bottom, but keep the surface on the surface.

I am, dear sir, yours very truly, THOS. RIVERS.

AN EXAMPLE, AND A BIT OF ADVICE.

NO matter for the neighborhood of what city the following extract of a letter received this last Spring emanates; suffice it that it is genuine, and only a portion of a history of an enthusiastic gentleman, still young, with all the appliances for

happiness which education and wealth can command. It suggests an aspect of American life which it is pleasant to contemplate, and which is by no means rare in our country. He says :—"On the first of April there was not a tree, nor shrub, nor apparent preparation for either on my place; even you, I think, will agree that I have been busy to have planted in one month some three thousand five hundred trees, among which I may mention, as giving the most immediate effect, over two hundred evergreens, mostly of the Norway Fir, of remarkably fine development of form, branching luxuriantly to the very ground. These plants are large for moving, but but have abundant roots, and I superintended their transplanting from a neighboring nursery, exercising the utmost care in the preservation of the roots in a moist state, and in the preparation of the ground for their immediate planting.

"My business in the neighboring city prospered greatly, and heaven has blessed me far beyond my deservings. I now find myself kept pretty busy managing what I have earned. Taking the admonition of my father, who abandoned public life at an early day, I have never entered it, though solicited to do so, preferring the peace and independence of private life to the honors (?) and emoluments of office; I indulge no political aspirations, and keep aloof from politics. I love the country, and am actually *retiring* to it, though yet young, my thirtieth birth-day to be celebrated in the coming house-warming."

Our correspondent goes into further details of interest with regard to his intentions. He means to be fully *employed* in his retirement, and has sought to know what small fruits will be the least trouble and yet yield a fair return. Currants, by the acre, will yield a good profit, and they have the advantage over some others, that they hang, if required, a long time on the bush, and can thus be plucked when opportunity offers. Again, in case they do not meet a full sale, from any cause, they can be made into wine. Cranberries are another of the long-keeping, small fruits to which his attention may be turned, especially as he describes some of his land as suited to their culture. The sale of cranberries is not confined to a few weeks, but extends over the entire year—an advantage to be taken into account when deciding upon a kind for the principal crop.

Then we have known success to attend those who devoted their attention exclusively to one article, reminding us of Horace Walpole's story of the reply of a general to the inquiry, "Why, you must have a terrible time, always at work fighting?" "On the contrary," said the general, "we only fight four hours or so before dinner, and then we have all the rest of the day to ourselves!" By putting your acres mostly in asparagus, when near a city, very great returns are realized, and for most of the year it requires no cultivation whatever. The interval may be devoted to your fruits for home consumption, and to the ornamental around your dwelling; in other words, you can have the rest of the year to yourself. It may be that you do not choose to expend a very large part of your income in the purely ornamental, and if so, it will be very pleasant to think that all the money that comes out of the strong box for wages, &c. &c., went into it from the vegetable or fruit garden, be it asparagus, celery, (this requires more labor than the former), or any of the small fruits.

If of the latter you decline the currant, select the raspberry; or if you can get the proper number of pickers at the proper time, and have a ready market, the strawberry is often very remunerative. Everybody's strawberries in the neighborhood, however, come in at the same time, and that time is rather brief; prices sometimes take a sad tumble just as your own lovely fruit is most tempting. Then strawberries have to be more or less carried, to their injury, to the consumer, and delay is fatal. With blackberries (cultivated), the season is a little longer, but they also must be carefully gathered at the proper moment, and likewise rapidly delivered; the raspberry and cherry somewhat the same. All will not select the currant; its advantages it is well to remember, however, and to have at least a fair portion of your ground occupied with the best kinds.

Returning to vegetables—we know of several instances where a speciality is selected with profit. Rhubarb cultivated by horse power has paid extremely well, and the owner has had "the rest of the year to himself." In whatever is undertaken it is well to remember that success will depend on yourself. Get the best kind of what you intend to cultivate; see that it is adapted to your soil and climate, and, if possible, that it is always a *sure crop;* give it the right setting out, the proper exposure, shelter, (if it requires it), and the best manure. Economy in the latter will consist in not being *stingy.* This is your capital invested, from which you are to reap your *cent. per cent.*, provided you understand your business yourself, and do not leave too much to assistants who take little interest in any of your proceedings, except the hope of pay-day coming.

You may have, when Jacob is sick, some time or other, to drive the wagon loaded with berries to the steamboat wharf, or the railroad station; you must not be ashamed to do so, nor be too much enervated by leisure not to take a pleasure and pride in your success, no matter how much money you have risked in the bank or any other doubtful corporation. If you are not about to *attend to matters around you yourself*, it will be better to rent the land to somebody whose interest it will be to personally superintend every operation, and give yourself up to a small garden that you can look after from the library window; for we have never known the mere employment of hired labor to produce a fortune in small fruits and vegetables to the looker on, who passed the morning with the newspaper and the classics, and the afternoon with "clever fellows," over a dozen bottles of costly wines.—*Horticulturist.*

AGRICULTURAL PAPERS.

"On the propriety of farmers supporting none but purely agricultural papers, *as such;* and is their publication, monthly, often enough?"

A VERY sensible writer—we think—in that valuable eastern publication, the *Genessee Farmer*, says:

I am decidedly in favor of supporting only purely agricultural papers *as such.* I am desirous of having the editor of *my* agricultural paper devote his *whole* attention to the subject. Let us have fish or flesh—no hotchpot. If a literary paper is desired, then I should subscribe for one devoted to literature. So, an educational journal should contain articles pertaining to that cause from the title page to finis. The *good* agricultural paper will be *full* of matter for the peculiar benefit of the agriculturist. A paper devoted to agriculture, education and literature, is like the man who is *Jack at all trades.* Some of the departments will certainly be neglected, often all of them. Numerous instances could be mentioned to sustain the position. An editor is frequently supposed to be a universal genius—a kind of walking encyclopedia—a factotum, capable of doing everything, not only, but also of answering every inquiry.

All are aware that a person can devote a life time with profit in investigating the various departments of agriculture and horticulture. Should not the editor who assumes to instruct thousands upon that subject, make himself fully master of his subject? The school boy writes milk and water articles upon all and any subject, but he writes without thought, without experience, without originality, and without benefit to any one save himself. Would any one be so foolish as to expect a master piece of painting from the easil of an artist, who claimed to be equally expert with the brush, the chisel and the poet's pen? Would you expect to find the most skillful physician in the person who divides his attention between the use of the lancet, the preparation of the attorney's brief, and the study of divinity? The devout min-

ister is not likely to be the shrewd and successful lawyer, or skillful surgeon. Nor can we expect to find the editor, who has turned his attention to "teaching the young idea how to shoot," writing agricultural articles, or reviewing literary works, well qualified to enlighten the farmer upon the best rotation of crops, the proper soil for certain cereals, the kind of manure best adapted to some particular locality, the best method of draining, irrigating, etc., etc.

No argument is necessary to convince a reasonable mind that an editor can devote *all* of his time to the preparation of a first class agricultural journal—that he can do so to the advantage and profit of his subscribers. There are those who do so devote their time, and of course they make the better class of agricultural papers. Shall we as farmers support them? No one can doubt the propriety of giving our hearty support to papers so edited. For our agricultural reading, we should subscribe only for purely agricultural papers; for our political reading, all will peruse political papers; and for religious instruction let us take the purely religious paper. That is the principal: but each could contain a few brief news items, without injury.

Were I to read only *one* agricultural paper, I should want to have it published weekly; but purely agricultural papers are not yet well enough sustained to authorize a weekly publication thereof. But for myself I prefer four or five monthly agricultural papers, published in various parts of the country, to one weekly—the cost being about the same. Here, in Minnesota, the farmer reads the agricultural journal published in New York, in the New England States, in Ohio, in Wisconsin, in Illinois and in Minnesota, as soon as we have one. Most farmers *think* they cannot afford more than three or four dollars a year for all of them; consequently they must be published monthly, and not weekly. The person who gets all his agricultural reading from one monthly in this age, need not be astonished if he does fall behind his neighbors in agricultural knowledge. If my acquaintance should not subscribe for more than one I should certainly advise him to take the *Genesee Farmer*. E. HODGES.

[We, of course, say the CALIFORNIA CULTURIST.]

[From the Horticulturist.]

GRAPES RIPENING IN THE SHADE.

FOR several seasons the best Isabella Grapes we have had, ripened thoroughly in a situation where they received no ray of sun till after twelve o'clock. In consequence of this absence of light for half the day, the vine is usually two weeks later in assuming its leaves than its fellows in the neighborhood, and yet the berries were larger, blacker, and more uniformly good and free from mildew. In their native places our wild grapes ascend trees, and there perfect themselves in much shade. Why should they not do so in gardens? &c. We submitted the question to two experienced persons, and give their replies:

"J. JAY SMITH, ESQ.—*Dear Sir*—With regard to your inquiry concerning grapes ripening in the shade, I have always found that grapes ripen well, only when the foliage continues healthy and luxuriant until the fruit is ripe. It oftentimes occurs, when grapes are growing in a sheltered spot, but under the full influence of the sun, that the foliage is covered with thrip, and occasionally red spider. These soon work a dreadful havoc on the leaves. The leaves dry up, are blown off, and the grapes hanging on the vines are perfectly exposed, the leaves being all fallen off except a few growing points. This is a *very common* occurrence; and where it is so, the half of the berries will be green, never ripening. On the other hand, when the vine happens to be trained in a rather shady position, the leaves are seldom destroyed by insects; consequently the fruit has the full benefit of them, and ripens. I think, and I speak

from observation, that grapes will ripen better when the plants are fully exposed, *provided* the foliage is kept in healthy and vigorous action, and plenty of it. I never practice *close* summer pruning on native grapes. I shorten the shoot about six eyes above the bunch, and allow all the *lateral* branches to remain, and cut out the branches when too thick. There is no doubt that our wine growers in the West have not yet practised the proper system of growing the vines; they keep them too small; prune too much. They should be allowed to extend yearly, until one vine covered a large space, and inherited a *stem* or trunk where the sap would be more thoroughly elaborated. It has been frequently remarked that the best grapes are always found at the extreme points of shoots, no matter how long these shoots may be. I am of opinion that the native grape will never be improved by crossing with the foreign. Our native grapes are all more or less subject to mildew, and any tinge of foreign blood would only increase that tendency. We must endeavor by cross impregnation and cultivation to improve our native varieties, without any admixture of the foreign element. I would expect more from an improvement on the foreign, such as the B. Hamburg crossed with Isabella, so as to impart a *leetle* of the foxy flavor, to give character and taste to the incipient sweetness of the foreign sorts. No doubt they would be improved by it. I have often spoken against the common practice of training the foreign grape up rafters, as it allows the fruit to *hang clear* of the foliage. In a grapery which I am now building, it is intended to form perpendicular trellises, and keep the glass perfectly clear from foliage; the leaves shade and protect the fruit from the influences of the atmosphere. Those who have gathered strawberries know that the finest flavored and best colored fruit is always hid among the foliage; but the foliage must have all the light and air that can be obtained.

"I would not expect to grow grapes to their greatest perfection by planting vines in shaded spots; but I would expect to find the best grapes where there is the most foliage, just as you will find the largest potatoes where the haulm is strongest.

"This is somewhat rambling—not so exact as an essay—but you will gather my views from it, on the subject you mentioned.

"Very respectfully, WILLIAM SAUNDERS, *Germantown, Pa.*"

Mr. Samuel Miller, of Clamdale, writes thus:

"Some years ago, when the grape crop was a total failure in this whole region, I discovered a framework loaded with the most perfect Isabella and Catawbas I almost ever saw. At the sides of the poor arbor there was no fruit, but the level top was covered and densely shaded by a thick crop of leaves, while underneath, as if to hide from the sun, hung in splendid clusters the grapes above alluded to. Scarcely a ray of sunshine fell upon them the whole day, except when the wind parted the leaves. These grapes were highly colored, and very finely flavored. Shade usually ripens the sweetest currants, raspberries and grapes in their native state, but when there is deep trenching and high manuring it may be different.

"Respectfully, SAMUEL MILLER."

THE HOLLOW HORN.—Although I have always kept at least one cow, I never had to cure but one of the hollow horn. As soon as this disease was known, I said to myself, "thou art the man," as I knew it was caused by my own neglect. Whoever heard of the hollow horn afflicting animals that were warmly stabled in winter, and well fed with nutritious food. But the best cure for the disease, when prevention has been neglected, is to rub a little spirits of turpentine in the hollow between the horns, then a drench of linseed oil, and dayly scalded messes of Indian meal or oat meal, roots, etc., with early cut well cured hay. Boring the horns is a traditionary cruelty.

WHAT IS THE CAUSE OF THE FAILURE OF SO MANY TREES SENT OUT BY NURSERYMEN?

THE question here propounded is of such vital importance to a country like California, where so much is being done towards the planting out of extensive orchards, that we compile, from the columns of the *Genesse Farmer*, the opinions of several gentlemen who have given this subject their careful attention; and we believe the suggestions in their answers well worthy the attention of those about to engage in the planting out of orchards, from nursery trees.

That very many trees sold by the nurserymen throughout the country do fail, is a fact which is too evident to be denied. As the above question has been proposed to elicit individual opinion on the subject, we will state ours.

We would say, first that a great many trees sold are not fit to be transplanted. With a great many planters, a tall, smooth barked tree, that has made a strong growth, is preferred. Now to attain this object, nurserymen apply abundance of manure and plant close; the consequence is, the trees shoot up like magic, and being close together, have few small roots and few or no side branches.

Now when these trees are removed to the orchard, in the majority of cases they have no shelter, but are exposed to every storm that blows, and frequently with good care they are unable to bear the sudden change. How small, then, is their chance, when carelessly removed, with their roots broken and mangled, and after being exposed to the drying influences of the air, are crowded into small holes, with the earth carelessly thrown in about them, and then left to take care of themselves as best they can?

There are, no doubt, more trees lost by careless planting and negligent afterculture, than by all other causes put together. The fact is, arboriculture forms no part of the study of many who have to plant. It would save them a vast amount of disappointment and positive loss, if they could only be persuaded to inform themselves on the subject, by procuring a good work on pomology, or subscribing for a good agricultural paper, which have all a horticultural department, and which are to be had for a small outlay, and it is to be regretted that it is not oftener done. In how few cases does a man who is spending ten or perhaps fifty dollars upon trees, spend one tenth part of even the least of these sums on reliable information on the subject. But to return; when trees are carelessly planted into a poor soil and an improper situation, and left to fight against grass and weeds which are already in possession, it is impossible that they can thrive—in fact, it is a wonder that they exist. If the spring should happen to be favorable, they may leaf out, but when the weather becomes warm and dry, the moisture soon evaporates, the ground becomes hard, and the trees dry up, and even when they do survive, they are feeble and sickly, making but little growth; and if they are so fortunate as to escape the cattle, and begin to bear fruit, it is of inferior quality.

How many orchards are there to be seen with large gaps in the rows, fair samples of Farmer Slapdash's orchard; and it is no wonder that we hear it often said that fruit growing does not pay. If that is the method, it certainly will not; but if a man will get good trees and plant them well, and take good care of them, protecting them from cattle, and cultivate the gronnd about them, the result will be a different story altogether; in such cases fruit growing will pay and pay well. In fine, the great secret of success is GOOD CULTURE.—B.

THE question might be very readily answered by simply saying, "a want of proper

care;" but another question immediately arises, viz: "What is the want of proper care?"—and therein lies the whole matter.

The desire for choice fruits is very natural, and therefore very general. A., B., and C., in a certain township, are very successful fruit culturists; they have all the choice varieties in perfection. Their neighbors are stimulated by the example, and think that they may as well have good fruit as A., B., and C. Accordingly they order varieties of good reputation somewhere—it may be in Maine, or it may be in Kentucky—they do not stop to consider where. They ask not a question about the *adaptedness of certain varieties to certain soils and locations.* They seem to think that "a tree is a tree," and if placed in the ground—no matter how, and no matter when—it *must needs grow*, and bear an abundant harvest of fruit. They have never devoted a moment's time to acquiring information with regard to the wants, nature and habits of fruit trees. They cannot tell why the apple, pear, peach, plum, cherry, quince and grape will not flourish equally well on the same soil and with the same location. They do not know why a hole that will answer for a *post* will not serve equally well for a *tree.* They evidently think that the small fibrous roots, through which alone the tree can receive its nourishment from the soil, are an *unnecessary appendage*, and in transplanting, they allow them to be broken off, or matted together, or wound round the large roots, in just the condition they happen to find them. All this, and *more than this*, is true of at least one half of those who purchase fruit trees from nurserymen. And herein may be found the principal "cause of the failure of so many trees sent out by nurserymen."

But the nurserymen themselves are sometimes at fault. When their business presses, they hire raw hands, who, if not closely watched, take up trees very much as a farmer would *dig up a stump*, or as a dentist would *extract a tooth.* While visiting an extensive nursery in Rochester, we saw a deaf "son of Erin" ordered to take up a Norway spruce. He gathered the beautiful branches in his hands, and pulled as for very life, until the proprietor ordered him to stop. Nurserymen, as well as the "rest of mankind," should do no more than they can do well.

When we consider the very general ignorance of the wants and habits of fruit trees, the wonder is, not that so many die, but that so many live; and of the number that live, many might as well die, for they are poorly put out, and in such unsuitable soil, that they will never flourish.

"A book is a book, though there's nothing in it,"—so a tree may be a tree, though there's nothing on it; but from all such trees, we should pray to be delivered. *F.

1st. Many of the trees are grown on highly manured ground, and consequently forced into an unnaturally rapid growth. For which cause the wood is not sufficiently ripened to withstand the severe frosts of winter, even when not removed from the nursery; much less are they able to bear the additional shock of being removed, perhaps to a new (and more severe) climate, with most of their fibrous roots cut off with the spade by careless or incompetent hands.

2nd. The manner in which trees are prepared, or perhaps I ought to say not prepared, is doubtless one of the principal causes of so many failures. How often do we see farmers, and in fact all manner of planters, cutting off all the lower and better ripened branches of trees they are about to plant, thereby leaving the body of the tree unprotected against the sweeping winds of winter or the scorching rays of a summer's sun. Whereas, if the top and side branches had been properly shortened in, the rough winds of winter would have less purchase or force in them, and the sun less scorching effect in the summer. Many times, too, are the roots of the trees left just as they came from the nursery, bruised and torn, (necessarily, more or less,) to recover as best they may.

3rd. The improper preparation of the ground is, I apprehend, a serious cause of failure. How many trees are thrust into the ground with just enough of the soil

removed to crowd the roots into the hole dug out for the same, and then the whole amount of covering trod or pounded down until it bakes so hard that neither air nor water can reach its roots?

4th. The staking, too, should be attended to, that when the tender roots start anew, seeking to nourish the tree above them, they may not be broken off by the wind moving them to and fro.

5th. Very many trees are lost for the want of being properly mulched. Too many planters, alas! do not even know what to do when told that they should mulch their newly planted trees. [It is simply the mixing up with two or three inches of the surface soil, immediately around the tree, almost any variety of decomposed vegetable matter, as leaves, coarse manure, straw, and even saw dust is excellent for mulching. The object being to secure an open, porous surface, one that will retain moisture, and absorb the dews and rains without loss by evaporation.—Ed. Culturist.]

6th. Again, many trees are killed by the new and tender foliage being eaten off by the various insects and worms that infest them in the spring and early summer.

Roanoke, Huntington, Ind. H. S. H.

China Berries.—D., of Gates, N. Y., in the *Genessee Farmer*, wishes to know what "China berries" are. They are the fruit of the *Melia Azedarach*, or *Indian Lilac*—a tree of uncommon beauty, introduced into the Southern States from China, and hence the common name. It is now naturalized, and grows everywhere in the South. It is a popular shade tree for streets, and the wood makes most beautiful furniture—not inferior to *satin-wood*—and is of quick growth. The seeds are very hard, and are covered with a pulpy *pericarpum*. Every part of the tree—the leaves and seeds—are highly odorous, and possess anthelmintic properties. A decoction of the root is a favorite vermifuge, and in the hands of a good chemist, would likely supercede "Fahnestock" or the "Dead Shot," as a saleable article for this purpose. The berries will expel all worms and grubs from the soil, when applied as manure. The first use of them, as an expeller of the skipper-fly, while smoking bacon, was communicated to me by Col. A. P. Calhoun, President of the State Agricultural Society of South Carolina, and I published the receipt originally in the *South Carolinean* newspaper. The tree in the North, and in England, is a beautiful green house shrub. Here it attains a height of fifty feet in a few years. A tree here, ten years old, would produce as many bushels of fruit. A. G. Sumner, *Pomaria, S. C.*

Reaping and Mowing Machines.—*Appleton's New American Cyclopœdia* says:—"The reaper and mower have gained a firm footing, even within the last ten years; for though the first reaping machine known was used 1800 years ago, * * it is but a few years since the economy and practicability of using the machines was fully established. The number of machines made and sold in a single establishment in Chicago, to supply the demand in the Western States alone, exceeded four thousand in 1856, whilst innumerable other establishments exist in other parts of the country, doing almost as large a business as the one alluded to. Nearly two hundred different patents have been granted within the last eight years for reapers and mowers, and at a trial recently instituted and held at Syracuse, N. Y., nearly one hundred different patents were entered for competition."

OUR DAIRY BUSINESS.

TO go into the wholesale houses in San Francisco, at this season of the year, and see the piles, stacks, and lofts filled with the butter and cheese from California and Oregon dairies, one unacquainted with the demand, would really suppose that there was no longer any necessity for the importation of these articles; and yet years will elapse before California can produce her required quantity of dairy products.

There are so many of our population, including the mining, mechanical, mercantile and commercial classes, who are only consumers and not producers of agricultural products, that the utmost efforts of all the dairymen in California and Oregon will, for a long time, be inadequate to supply the demand. And even when the supply shall have become in the gross such as to no longer render importation necessary, there will still be an active demand, at highly remunerative prices, for butter and cheese of superior excellence.

There seems to be but few, judging from the samples in market, who really understand how to make good butter; whilst good cheese seems to be a still greater rarity. All know how to make butter, but few know how to make *good* butter. We say this after carefully examining numerous lots in the hands of our large dealers, from all parts of the state.

In some, but little apparent attention is given to cleanliness; in others, a want of neatness in the package, detracts from the value of an otherwise fair article; in another, a poor coarse article of salt is used; and yet another, in which the buttermilk instead of butter seems to be almost the predominant ingredient. These are all faults that the maker of good butter is careful to avoid, for it makes a very material difference in the footing of the receipts of a season's produce, whether the very highest prices for butter and cheese are obtained, or only the worth of a second or third rate article; the difference being equal to making the business one of large profit, or only a barely *paying* business.

That California possesses the elements necessary to the establishment of unequaled dairies, needs no argument to prove; her grasses are of the most nutricious character, the climate such as to render the wintering of stock of but little trouble or expense, whilst the demand for the product is steady and certain.

There are features connected with the business, in some localities in our State, that give it a charm and interest nowhere else equaled. To be fully understood upon this point, we give the experience and practice of one of our most successful dairymen, one who has had three years' experience in his peculiar mode of management, and as we can do it no better than to give it in his own words, we lay before our readers, *verbatim*, his account of—

BUTTER MAKING IN THE MOUNTAINS.

Editor Culturist:—Your note of July 25th, with first and second numbers of the Culturist, was duly received, notwithstanding we are so far removed from the lower world. You ask for my experience in butter making, among the Sierras, the peculiarities of my locality, and its adaptedness to the dairy business. I comply most

cheerfully, though I may not be able to express myself always as intelligibly as I would wish.

Well then, I am what may be called, perhaps, a nomadic dairyman, or a wanderer to the mountains during the summer season for pasturage for my stock; and yet not a wanderer in *search* of pasture, for I am always sure of finding it, and every year in the same place, and in the greatest abundance. My business is butter making; I make no cheese beyond the wants of my family; good butter pays the best, and is the easiest made and managed. I remain upon my Amador county ranch usually till about the 10th of June, sending my butter semi-weekly to Sacramento for a market. The season getting warm, requiring the transportation by night to market, to be kept in perfect order; the perceptible falling off in the quantity of milk from my cows, the effect of the drying up of grass and herbage, admonishes me that the time has arrived for my annual move to my mountain-locked meadow home. The big wagon is brought out, and loaded with all the paraphernalia of a housekeeping and butter making establishment. All the cows that are to compose our summer milk-giving herd, numbering from eighty to a hundred and twenty, are put in motion by the men; the wagon, with Mrs. L. and a thousand little "traps and fixens," follows on; and in four days we have made a distance of eighty-five miles into the mountains, and arrived at our own—by occupation only—beautiful meadow of grass and clover, of not less than eight hundred acres, away from any thoroughfare a distance of more than five miles, and where we expect to see no one for the entire summer that does not come to see us.

Our home and locality is, in reality, a paradise for a dairyman. By the middle of June the grasses are abundant, full knee high to the cows, and entirely free from weeds and rank herbage. A fine, cold, clear stream of water, in fact, two of them, course along the meadow its entire length, their union forming a considerable creek, the home waters of myriads of speckled trout. The meadow is so nearly mountain-locked, that less than half a mile of brush fence secures the entire stock, if they had any desire to stray. Our dairy house is of logs, a structure now of three years' standing, large and commodious for simply butter making. In the milk department, a small branch of the creek flows into a large, shallow tank, in which are set the milk pans; this serves to keep the milk at a temperature that prevents its souring before the cream rises. It is unnecessary to describe my process of butter making, as it differs in no wise from that of other dairymen. We do, however, intend to make *cleanliness*, in every department, a *sine qua non*.

I pack my butter in stone pots and jars, to remain here while we stay; or as we occasionally do, when opportunity offers, send a lot below packed down in snow; which is obtainable within a half mile of our dairy house. Butter made from the mountain clover, and packed as described, brings a higher price in the market during the following winter than the best fresh made butter of the lower country.

When the indications are clear, that the winter's snows are soon to close around us, if we much longer remain, we send below for sufficient team and wagon room to convey away our summer's product. A day or two, and our loads are ready; we strike tent, close up the dairy house, and, with our animals, once more descend to the milder clime of the lower country for the winter.

I might say much about the beauties of our mountain valley; its cool, invigorating, health-giving climate; the berries, the wild fruits, and game, that everywhere abound; but as you asked for nothing of this, I shall omit to speak of them in this connection. Hoping that I have succeeded in answering your inquiries in accordance with your wishes. I remain, your's truly,

L.

A BARNLESS COUNTRY.

IN any other country than California to talk of raising thousands of bushels of wheat, barley or oats, fitting and storing it ready for the market, by threshing, bagging and housing till opportunity of sale presents, and this without a barn or shelter for a single sack, would seem, at least to one unaccustomed to our climate, to be a most hazardous procedure, strange management for a prudent farmer to adopt. And yet, to a very great extent, our farmers are without barns.

We do not mean to say, that they have not their fine house barns, or stables for the covenience of their working animals, and for housing the necessary grain and feed for their use, and for the storing of their farming implements when not in use; but what we mean to say is, that so far from erecting anything like barns or barracks for the sheltering of the gathered grain crop, not one in ten of our grain growers gives it the least thought whatever. Nature, the great world itself, is all the barn he wants. It is convenient, because at hand everywhere; commodious, because there is plenty of room in it; cheap because it costs nothing; and suitable, because perfectly dry and answering all the purposes desired.

This one feature of our climate, the absence of rain from June till October, will ever render California peculiar as a grain growing country. The harvest commences after the last rains of the season have fallen, and it is continued from day to day and week to week, with no more regard to the probable state of the weather, than though every one had determined it couldn't rain anyhow, and therefore no use to give it a thought: and probably an exception of a single year will prove to be very rare. Harvesting continues from week to week till it actually becomes monotonous, for the bare want of a shower or something to give variety to the routine of farm labor; but no change comes till the harvesting is completed. All this time the entire crop, often of a thousand acres or more, lies as much spread and exposed to the weather, as simple sheaves of grain can be. Then commences the gathering, which is often not till the threshing machine is set and ready for operation. The grain threshed, it is then either left in a huge pyramidial pile upon a canvass floor, or sacked at once, and these piled up in squares or parallelograms, as large as many eastern barns, and without the slightest covering of any description, and in this condition to await the market or the convenience of the proprietor. And for months, often, do these sack stacks remain upon the grain fields, entirely unharmed by climate, and presenting a feature which can hardly be said to belong to any other grain growing country.

SHELTER FOR ORCHARDS.

THERE are very many localities, adjacent to the bay of San Francisco, where orchards might be successfully grown, could they have protection from the violent winds that break through the Coast Range and sweep with almost a desolating power, far into many of the interior valleys.

It is not an unusual thing to see, in many of our newly-set orchards, the standard and even half-standard trees, so inclined in the direction the prevailing wind blows, as to completely expose the whole body of the tree to the full power of the sun's rays unobstructed by a single leaf. The effect is oftentimes the death of the tree, within two years after planting out; but should it succeed in sustaining vitality longer than this, it will more than likely be at the expense of a deadened strip of bark the entire length of the body on the side most exposed to the sun; this can never occur without material injury to the tree. Aside, however, from the actual injury to the tree from the heat of the sun upon its unprotected trunk, the winds give to the tops of the trees a one-sided growth, by forcing the pliant limbs from their proper position, which should always be directly and evenly ballanced over the body of the tree.

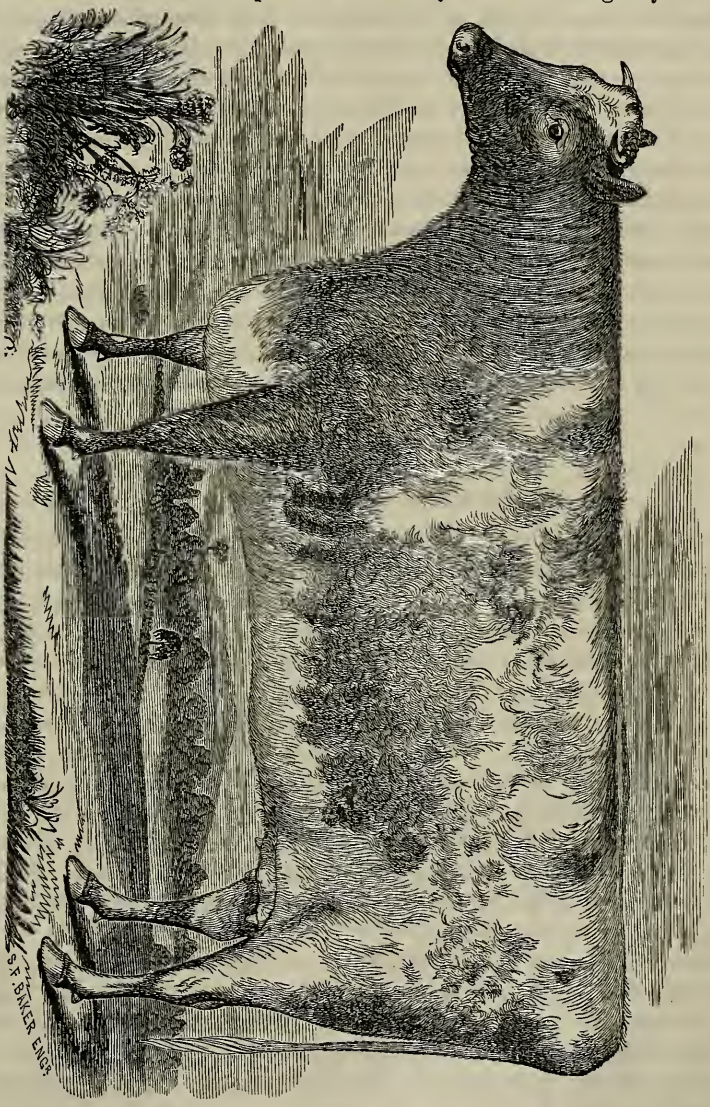
Upon much of the open prairie country of the western Atlantic States, the same evil from the same cause—strong periodical winds—is felt to that degree that it is considered quite as necessary to furnish a shelter for the orchard as for live stock. These shelters consist of belts of timber, or broad hedge rows, planted upon the windward side, and in close proximity to the orchard. The trees usually chosen for this purpose are those of rapid growth and such as attain to considerable size; the object being to provide as speedily as possible a wind and storm breaker, that shall be as hardy and as enduring as the orchard itself.

If then your orchard grounds are so situated as to be exposed to violent winds, and particularly if cold winds, such as break through the passes of the Coast Range from the ocean, during the greater part of summer, such hedge and timbered shelter should be started even before the orchard. By so doing and using trees of rapid growth, as the willow, silver-leafed poplar, and yellow locust, or indeed any tree of rapid growth that can be made to thrive in the locality desired, and let the planting be done with a prodigal hand, and attention given to its after culture and preservation, a shelter can be grown that will not only add greatly to the symmetry of your orchard trees, but greatly promote their fruitfulness.

THE TOMATO.—Dr. Bennet, a professor of some celebrity, considers it an invaluable article of diet, and ascribes to it very important medicinal properties. 1. That the tomato is one of the most powerful aperients of the Materia Medica, and that in all those affections of the liver and organs where calomel is indicated, it is probably the most effective and least harmful remedial agent known to the profession. 2. That a chemical extract will be obtained from it which will altogether supersede the use of calomel in the cure of disease. 3. That he has successfully treated diarrhœa with this article alone. 4. That when used as an article of diet, it is almost a sovereign remedy for dyspepsia and indigestion. 5. That people should make use of it, either raw, cooked, or in the form of catsup, with their daily food.

SHORT-HORNED DURHAM.

WE here present an engraving of a beautiful short-horned Durham cow. The engraving executed by Mr. S. F. Baker, of San Francisco, as a work of art, speaks for itself; the animal it represents is a beauty, and we would gladly have given



the owner's name, and the ranch that is graced by the presence of so fine an animal; but as she will be on exhibition at the State Fair at Marysville, the coming week—a competitress for premium—the proprietor very properly withholds her name, and his

own, that he may not be held obnoxious to the charge of endeavoring to forestall an opinion in favor of his animal, by bringing her forward to the notice of the public through the Culturist. It is an animal of which California, as well as its owner, may well be proud. Of pure blood, almost faultless as regards symmetry, and in size all that can be desired.

The peculiar characteristics of this breed are: large size, as compared with the Devon.—another fine English breed, but which with the Durhams can now be said to be perfectly Americanized—color spotted, or usually so, a light red mixed with white giving a variety of shades; head short, small and fine, with an intelligent, expressive eye; small, short, and rather drooping horns; a fine, clean neck, with but little dewlap; chest full and round, with a projecting brisket; straight upon the back, ribs well rounded and carried well back towards the hips; hips broad and level, with a full rump; tail good size at the setting, but tapering finely to a tuft of light, long hair nearly reaching the ground; thighs full and round, with a symmetrical taper to the hock; below the hock and the knee, the legs are fine, but muscular; feet small.

For the dairy and for easy fattening, the short-horn is not excelled. We shall give other engravings of our finest California stock in future numbers of the Culturist, that those who may be desirous of improving their breeds may know where to apply.

FEEDING HONEY BEES.

IT would seem to very many perhaps, that we had taken the wrong season of the year to talk about feeding honey bees; because in all countries where it is practised, or at least, so far as any written account of it has ever reached us, it is usually done to save the lives of the bees, through protracted seasons of cold weather, and where, from the weakness or lateness of the swarm, a sufficiency of stores was not laid up to carry them through the flowerless months of the year. But when we talk of feeding bees in California, it is because the plan is applicable to California, and for a perfectly legitimate object. We would not feed bees here for the purpose of keeping them alive merely, for this would hardly be necessary at any season of the year; but we would feed them just as the farmer feeds his other stock, and for the same purpose, to profit by the feeding. At the same time, there is a decided advantage in feeding bees over that of fattening animals for the market, because the benefits derived by fattening an animal, involves the loss of the animal's life; not so the feeding of bees, upon a like speculation.

All observant apiarians on the Atlantic side, will bear testimony to this fact, that north of latitude forty, bees accumulate but little honey beyond their immediate wants, between the twenty-fifth of June and the time of the general flowering of buckwheat, a period of three or more months; then occurs a short season of tolerable feeding, and the autumnal frosts closes up the season of honey gathering, until the following spring.

Having personally instituted a series of experiments upon feeding bees, during the seasons when no honey could be obtained from flowers, partly with a view of ascer-

taining the most proper food for them, in case of famine, but more particularly to solve the problem of feeding for profit, we made all manner of experiments, at all seasons of the year, and with a great variety of food; and without going into detail upon numberless experiments that resulted wholly profitless, we will give the facts as clearly established by our experiments, and afterwards acted upon with undeviating success, which go to prove that bees can be fed at all seasons of the year—when nature ceases to furnish them food—at a large profit to the feeder, so long as honey will command fifty cents per pound.

Without speaking of the numberless attempts to feed them upon cheap food, which were all failures, we give the following as the result of our experiments: That if bees be fed upon good pure loaf sugar dissolved in only water enough to render it liquid, so that they can eat it, or suck it up, that an ordinary hive will consume from one to two pounds of such mixture of sugar and water every day; but that the actual gain in weight, is only what the sugar weighs without the water; the latter being only a solvent, and not convertible into honey.

That the sugar is at once converted into the most pure and delicate honey possible for bees to make, with all the delicious flavor pertaining to the best honey; whilst for whiteness both of honey and comb, it far excels any made from the sweets of flowers. It becomes, then, simply a matter of cost and profit. Sugar by the tun, in a large apiary, can be converted into honey worth from seventy-five cents to one dollar a pound, whilst present prices continue. That by this process, bees can be kept at work to profit, at all seasons of the year, where the climate is not too cold for them to manufacture the comb, to hold the honey.

Any further information that may be desired in regard to mode of feeding or management, will be cheerfully imparted.

SOWING SMUTTY WHEAT.

THE intelligent grain grower should no more expect to raise grain of superior excellence from poor or diseased seed, than the stock grower, animals possessing fine points and perfect symmetry, from ill-favored and inferior stock. And yet there are many who think it just as well to cultivate potatoes from the smallest as from more perfect ones, and that even shrunken wheat or barley or other grains, so that they possess the germinating principle, are equal to good, plump seed.

There is an error in this, and it is one that has wrought a great deal of injury to the agricultural interests of every community where the opinion is tolerated. A belief that *like* has a stronger tendency to produce *like* than otherwise, in everything that springs from seed, should be a kind of polar star to the agriculturist; he should look to it for guidance constantly, and though, like the mariner's compass, there may be now and then strange and unaccountacle variations, yet in the main the truth of the theory cannot be controverted. One of the most important truths in agriculture, because affecting the great staple product of the country, wheat, is based upon this

theory, and it is that smut will produce smut, that it is just as easily propagated from year to year, as wheat from wheat.

And yet there many who can not, or will not, believe that sowing smutty wheat is any more likely to produce a smutty crop, than if pure seed had been sown; because, say they, the smutty grains never vegetate and therefore cannot produce a smutty offspring, or indeed any at all. We admit that full smut grains will not produce wheat, but what we do say and insist upon, is that it will produce smut. If you sow smut with your wheat you must expect to find it with your wheat, just as certainly as you would rye or peas, had you sown either of those amongst it.

Smut is but a vegetable, a plant, parasite, fungi or mistletoe, just as easily propagated as wheat, and thrives well in soil prepared for wheat, and is ready to attach itself to and destroy the wheat crop as it advances towards maturity. Smut not only appropriates the entire of the kernel, but attaches itself to the surface of the same, as well as the straw, without apparent injury to it; so that though seed may appear to be wholly sound, free from smut and vegetate freely, yet if examined by a microscope will have a surface more or less affected by smut.

To destroy the vitality of this vegetable fungi before sowing the wheat, becomes an important matter with the grain grower. Countless experiments have been instituted, and we can avail ourselves of the experience of others in this respect, at a much cheaper rate than to try them anew ourselves, inasmuch as an almost certain remedy or preventive has been discovered by those experiments. It is simple, not expensive and easily put in practice; has been long in use at the east, as well as in England, by all prudent wheat culturists in districts most subject to the annoyance.

It consists in soaking the seed wheat in a solution of blue vitriol in water, and afterward drying, by rolling or dusting it in air-slacked lime or dry ashes before sowing. This is a simple and most effectual remedy, and should be adopted by every one whose wheat crop is likely to suffer from this infection.

SOW NONE BUT THE BEST SEED.

THE intelligent cultivator of the soil will never use any other seed than the very best; he will never procure poor, inferior trees for his orchard, if good ones can be had at any price; nor will he buy an animal of any description, from the horse to the hog, as a breeder, that does not possess superiority in some degree over the common herd.

Great injury results from year to year to the staple crops of the country, from the use of inferior seed. A farmer, from causes that he could not foresee or prevent, finds his wheat crop in the main defective, or not quite perfect in the grain, and yet for marketing is nearly equal to the best. He is about to sow for his next year's crop, and a large quantity of seed is required. He knows of a neighboring farmer who has been entirely successful in growing a crop of perfect grain; but from motives of delicacy or pride, if nothing else, would no more think of paying his neighbor money for seed, for the very crop which he claims to be able to propagate as well as the

best, than he would for instructions as to the proper mode of holding the plow. He therefore prefers to use his own imperfect seed; and, though he does it with misgivings as to the result or effect upon his crop that is to follow, still he would not take the trouble to do that which his own judgment teaches him would be the better course.

If, therefore, the following crop should turn out defective in consequence of using poor seed, ought such a man to be surprised at the result? On the contrary, we believe it is just his due; just the result he might have expected from his parsimony and false pride. We repeat, that no intelligent cultivator of the soil will allow any motive to interfere to prevent his procuring at all times the most perfect seed that can be obtained, no matter at what trouble or cost. Greater benefits result from a careful attention to this principle, and its application, than the unthinking are willing to admit; but with those who have made it a matter of experiment, no argument can swerve them from a belief in the advantages of sowing none but the best seed.

THE CULTIVATION OF ONIONS.—Among the crops which may be grown by farmers convenient to city markets, we may name that of onions as one readily produced and generally saleable at remunerating prices. Perhaps a brief statement of the Connecticut method of growing onions may be of interest to a portion of your readers, who may be thus situated, and whose circumstances may lead them to devote a portion of land to the culture of this valuable esculent. Thus writes a correspondent of the *Genessee Farmer*.

The best *soil* for onions is a sandy loam of a dark color, though any loamy soil will produce them. A dark color can be given to sands or loams by a dressing of muck; and this, well decomposed, is often used successfully on this crop. All stones and sods should be removed, that the drill may do perfect work, and that the rows may be uninterrupted by any obstruction.

The best *manure* is thought to be that from the stables where the horses are fed freely with grain, well decomposed, so that it may be thoroughly mixed with the surface soil. Leached ashes are also of high value—more so than unleached. Any good compost manure may be used successfully, if enough is applied; but that pretty active and quickly operating, is the best.

To *prepare* the soil, manure freely and then plow thoroughly, and harrow until in very fine tilth. Onion growers do not generally plow very deep—usually six or seven inches; but the fact that better crops are obtained after carrots, shows that deepening the soil is useful. The preparation should be given as early in the Spring as the season will admit.

Those who *raise* their own *seed*, have found it to their interest to select the best shaped and most desirable onions for that purpose, and have thereby much improved the product. Plant early, and gather the seed as soon as ripe. Keep it in a dry, cool place, until wanted for use.

Different *varieties* have their seasons of popularity. The Silver Skin is much admired; the Red is thought best for shipment; the White Portuguese is milder flavored, but does not keep as well.

For *planting* an acre, from three to four pounds of seed are required. The seed is put in with a common drill machine, in rows about fourteen inches apart, and less than half an inch deep. If the seed is not first rate, it is better to double the quantity than to have them too thin. They should stand from an inch to an inch and a half in the rows. The seed may be tested by sprouting a small quantity in boiling water. If it is good, it will sprout in fifteen or twenty minutes.

Thorough *weeding* is of much importance with the onion crop. The plants are very small when young, and will not bear any rough treatment; so the fingers are the only machine which can be depended upon for the first weeding and thinning. Much labor may be saved by allowing no weeds to ripen on the land, and using manure free from their seeds. The onion hoe, an implement attached to wheels, is a very complete instrument for cleaning the ground between the rows of this or any other garden crop.

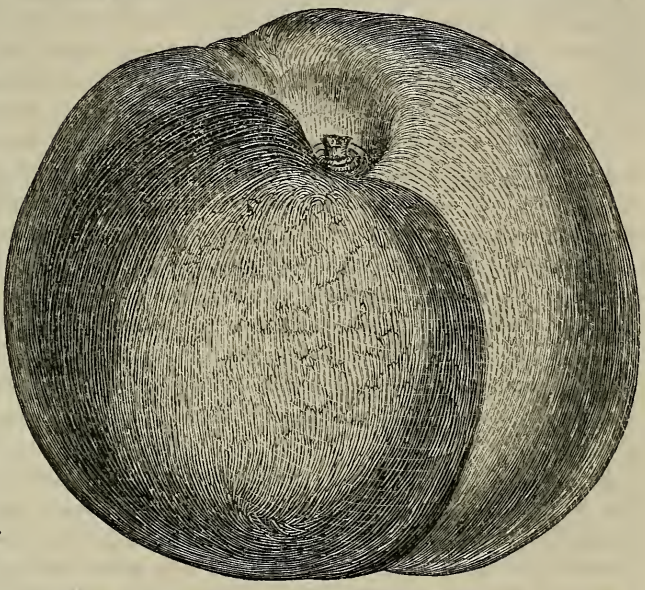
Their greatest *enemy* is the grub or cut worm. They work in the night, but their tracks are easily found by the rootlets and withering plants which mark it. The only remedy is capital punishment. Cleaning the ground in the fall will lessen their numbers—or plowing at the same time. Wet summers sometimes induce them to form scullions with thick stems instead of good bulbs. Breaking the stems by rolling an empty flour barrel over the ground, or other means is sometimes employed. An average crop is five hundred bushels per acre. R. N. Y.

Obtaining Gold by Amalgamation.—As persons are found in every community, who are disposed to live on the ignorance of others, by keeping the process of some useful discovery secret, for their own selfish purposes, it is well to state generally that there is no *secret* in the chemical operation of amalgamating gold. The elements of chemistry will convince any one, that an alteration of temperature always attends the combination of bodies; and, that the combination of quicksilver with any metal is wonderfully facilitated and vivified by increasing the temperature of the water in which the amalgamation is desired. The disposition of gold and silver to combine with mercury, is greater than the attraction of platinum and iron for that fluid. Chemical action is always promoted by previous solution, trituration, or other mechanical methods of division and intermixture. By increasing the temperature of water in which the mercury and other ingredients are placed, the various earths and salts are carried into solution. By triturating or grinding to an impalpable powder the material to be tested, all chemical operation is facilitated, from the fact that chemical attraction takes place only on very minute particles of bodies.

Let the quartz rock be ground to a very fine powder and placed in an arastra, supplied with hot water; then let the ordinary working proceed—suffering the temperature of the water to diminish, increase or change as convenience may choose it to do; then the result will in due time show that all the antagonistic principles to amalgation have passed away in solution, and all the gold and silver will be found at the bottom in the elective embrace of the mercury. Reduce the sulphurets to an impalpable powder—and the iron and sulphur will pass into solution in the hot water, while any gold that is extricated will be precipitated with the mercury. Any other process to save the gold, will ever prove an expensive humbug. There is no secret in this process. It is simple and true. Modified as common sense may dictate under circumstances, the process will in all future time, as it has in the past, prove most successful, and save the gold, if there is any to save.—*Union Dem.*

CRAWFORD'S EARLY PEACH.

THIS is one of the finest varieties of the peach in our market since the first of August, at which time they appeared in full perfection. The specimen of which our engraving is an exact copy as to outline, was grown this season by Mr. A. H. Myers, of Alameda, and certainly speaks well for the climate, or soil, or both, for peach culture, though considered not equal to that of the warmer inland valleys for this purpose.



This specimen which we found in the showcase of Graves & Williams, fruit dealers, Merchant st, measured nine and a half inches in circumference, and weighed a fraction less than half a pound. It is a variety that commands a high price in market, and should supersede many inferior varieties ripening at the same time. It has a cotemporary however in its time of ripening that, to our taste, is just a little superior; we allude to the variety known as George the Fourth, so extensively and successfully grown by A. P. Smith, Esq., of the Pomological Gardens, Sacramento, for his fruit depot, 70 Merchant st, San Francisco. George the Fourth, with Crawford's Early and Royal Kensington, are the peaches for the first and second weeks of August, as they ripen in our climate.

"He who forgets the fountain under which he drank, and the tree under whose shade he gamboled in the days of his youth, is a stranger to the sweetest impressions of the human heart."

To Destroy Weeds.—Some say that the quickest way of destroying "weeds" is to marry a widow. It is, no doubt, a most agreeable species of *husband*ry.

Raphael being one day asked how he had reached the point of perfection to which he had arrived, answered: "By neglecting nothing."

SAN JUSTO RANCH.

THIS well known ranch, which I have lately had the pleasure of visiting, is located in San Juan, Monterey Co., about five miles from the town. The proprietors, Messrs. Flint, Bixby & Co., are gentlemen of taste and ability, and have been very successful in the important branch of home industry—sheep husbandry. The Messrs. Flint are sons of the Hon. Wm. R. Flint, of North Anson, Maine, and are among the oldest settlers in California, having been in the country some nine years.

The flock of sheep with which they first commenced business, were driven across the plains by themselves, and some other parties of whom they purchased soon after their arrival, and are called here, the American sheep, in contradistinction to the native California, or Mexican breed. These sheep were collected principally in Illinois, Missouri, and Iowa. Among the lot were a proportion of fine blooded merino sheep, which they have taken particular care to breed separate, and also to improve upon, and they are now able to show a flock of merinos, of good size and quantity of wool. The principal aim has been to obtain sheep of a good sized carcass, and a heavy fleece of wool, points most essential in this country, and from my observations made, must say, they have succeeded remarkably well, considering the time they have been engaged in it.

The ranch embraces some forty-eight thousand acres, and possesses the most superior facilities for the breeding and improvement of sheep, the plains and hill-sides throughout the tract proving a most excellent range for the sheep and furnishing an inexhaustible supply of grazing, while the pure atmosphere and dry climate is most favorable, and prevents those diseases so fatal in the Atlantic States. The climate in the valley is rather cool for its latitude, yet changing but a few degrees, comparatively, during the year, the heat of the summer being neutralized—chemically speaking—by the sea breeze, which visits regularly each day during the summer months, and when it fails, leaves the weather extremely hot; thus having been accustomed to those cool breezes from the Pacific, the heat is felt more sensibly—like Capt. Perry while he was in high northern latitudes, when the thermometer was 15° below freezing, complained of the hot weather.

Always alive to improvement in their flock, they last year imported to this country fourteen French and Spanish merino sheep; five of the French are of the Tainter importation, and five were imported by Wm. Chamberlain, of Red Hook, Duchess Co., N. Y. Three are a cross of French and Spanish merinos, bred by Gage, N. Y.; also a pure blooded Spanish merino buck, (Don Pedro), bred by Nathan Cushing, of Woodstock, Vt. Don Pedro is a noble buck, weighing one hundred and sixty pounds, and has produced at one clipping twenty-two pounds of wool in its natural state. I noticed, also, a French merino buck (Grizly), who sheared as his second fleece, when two years old, thirty-two pounds, and he promises to exceed that this year by three pounds. From the above imported sheep they have now thirteen hundred lambs, very fine looking animals and showing unmistakably the cross of blood, of which I had ocular demonstration, being hansomely marked, which is certainly gratifying and

well rewards the owners for the trouble and cost of importation. I cast my eye over the flocks, and then examined a number separately, and must confess that a finer lot of crossed sheep I have not seen in California.

The merinos are, in themselves, a most valuable breed of sheep, their value consisting in the fineness and closeness of their wool, which exceeds in this respect any other breed in the world, as well as in the weight of the wool, which lies closer packed over the body and the yolk being abundant. This, in crossing with a short wooled sheep, increases not only the length and weight of the wool, but gives a finer fleece, as well as improvement in the quality of the carcass, which is always a benefit to the breeder. These have been the principal points aimed at by Messrs. Flint & Co., and, by careful and judicious crossings with the best imported sheep, they have full evidence, by their success, that the above doctrine is correct.

During my visit, I rode to Col. W. W. Hollister's ranch, some three miles from Mr. Flint's, and who is also associated in business, and where a portion of the finer flocks are kept; thus having them distributed evenly for grazing purposes, and also having an eye to this portion of the ranch. I received a very cordial welcome from the Col., who took pleasure in showing me over the farm. I here noticed some very finely marked sheep, crossed with the imported bucks previously mentioned. Col. H. is from the west, and one of our early settlers. He is a man of fine literary ability, possessing a collegiate education, and although devoted to his business still finds work for his mind, his table being covered with the best works of the day. After enjoying a social cup of tea, I reluctantly bade adieu, hoping ere long to renew a visit rendered peculiarly agreable by Col. H. and his sister, Mrs. Brown, to whose kindness and courtesy I owe many thanks.

There are now upon the ranch about seventeen thousand sheep, young and old; chiefly stock sheep with their last spring's lambs; they having sold within the past few months about twenty-five hundred. The sheep are put in flocks numbering from fifteen hundred to twenty-five hundred, for grazing, under the care of one shepherd with a dog. The former is a sufficient number for one flock for feeding on the hills, while the larger ones are easily managed in the bottom lands or level country. In this latitude sufficient food can be obtained throughout the year, thus no fodder is required to be laid in for the winter. The supply through the dry season is rendered certain when desirable, by leaving certain portions of the fields unpastured until the autumn, thus securing good and fresh foliage at all times. Each flock is coralled at night on different portions of the ranch, under the care of a shepherd, whose duty it is to look after his especial flock. In the morning, they are again driven to their different grazing localities. Sufficient water is provided, by means of wind power. There is in contemplation, however, an artesian well, from which they will be able to provide abundantly for their immense flocks, as well as for the various purposes of home use.

Their last spring's clip of wool averaged three pounds to the fleece, of clean unwashed wool of six months' growth. Last year they sheared all their sheep twice by way of an experiment, and were convinced that flocks of thickly wooled sheep will do better managed that way, and will produce enough more wool to pay the extra

expense of twice shearing. If sheared in September, the wool is of sufficient length to protect them in a California winter, and will not be a burden to them when filled with water, nor be so likely to become loaded with mud, if they are obliged to run over soft ground. Their crop of wool last year was over one hundred thousand pounds. The last spring's clip, most of which they have on hand, shows a marked improvement in the quality of fleece, with more yolk, the fleece more compact, and hence more weight. This is ascribed to the crossing with their imported stock, as well as the superiority of the climate, and the provision of the best and most succulent food the year round. On this point, I would here quote Youatt's testimony:—"Temperature and pasture have influence on the fineness of the fibre, and one which the farmer should never disregard, but he may in a great measure counteract this influence by careful management and selection in breeding." Another, formerly the principal head of one of our great manufacturing companies in Massachusetts, who for a number of years made vast purchases of fine wool in all parts of the United States, and from his practical acquaintance with the quality of wools, his opinion is highly regarded, also says:—"That the properties of wool are affected by herbage and soil, I have not a doubt, and, were it not invidious, I would name some sections where wool growers are greatly favored by nature. By judicious selections and crossings, I believe a breed may be reared which will give four pounds of exquisitely fine wool to the fleece." Owing to the mildnsss of our climate fleece can be obtained twice a year, which renders it quite a profitable business. Very heavy yields have been made from our sheep at a single clipping, which generally doubles in quantity over the average of eastern sheep. Our exports last year were over a million pounds, and we confidently expect double the amount the present year.

I have somewhat wandered from my original subject by the foregoing remarks, yet a subject so important I felt would not be out of place, and I trust will be acceptable to your readers. Great credit is due Messrs. Flint, Bixby & Co., for their valuable improvements in this branch, and they certainly can look with pride upon their flocks roaming by thousands over their famous ranch, for they are, without any question, the finest lot of sheep in the State. They have expended time and money in abundance to bring this branch to the prominent position it occupies, yet they will not stop here, but are progressing with rapid strides to a nearer approach to perfection. There is no branch of home industry at this time more important than the wool trade, and as the resources of our State become more and more developed, it must become a great staple article.

The above ranch is stocked only with sheep, no other stock being kept, except what is necessary for convenience and for family use. The climate in general is very favorable, and appears to be appreciated by sheep raisers, others of our prominent breeders having located in the county; and, if they continue to increase, Monterey County will soon be dropped from the list of "Cow Counties." There are now more sheep in Monterey County than any other in the State.

To those fond of recreation in the country, we would advise a trip to San Juan; where, if one has the blues, they will soon be restored by the grateful change of climate and scenery. The country is fine, and the atmosphere salubrious; and, more

than all, it is a pleasure to find a warm welcome from friends who meet you. My visit was prolonged by the kindness of Messrs. F. B. & Co., who afforded me every facility for observation. Horses were at my disposal for roaming over the ranch, which was a source of amusement I often indulged in, the cool mornings and evenings rendering the exercise exhilarating in the extreme. If I wanted change, guns were at my command, with which I would sally out in quest of the game which abounds in the neighborhood. I passed many pleasant evenings in social intercourse and conversation with Mr. Flint and his amiable lady, at whose house I was domiciled during my stay, and where I was made to feel at home. The family also comprised Dr. Flint and lady, and the Misses Flint and Bixby, sisters of the proprietors, who have lately arrived from the good old state of Maine to make their home in California; and it was, indeed a most social gathering, and made me almost willing to renounce my city home, and enjoy country life for a season where the hours had passed so very pleasantly.

It is with most grateful feelings, I speak of the many kind attentions and courtesies I received during my stay, which will be linked with the memories of the past, and happy thoughts will always hang around my heart, reminding me of my visit to San Juan, and the pleasant inmates of "San Justo Ranch."

J. Q. A. W.

To Young Men.—Whatever may be your choice of future occupation, whatever calling or profession you may select, there is certainly none more honorable than that of a farmer. The patriarch of the fields, as he sits beside his cottage door when his daily toil is over, feels an inward calm never known in the halls of pride. His labor yields him unpurchasable health and repose. I have observed with more grief than I can express, the visible tokens which appear in all directions of a growing disposition to avoid agricultural pursuits, and to rush into some of the over-crowded professions, because a corrupt and debasing fashion has thrown around them the tinsel of imaginary respectability. Hence the farmer, instead of preparing his child to follow in the paths of usefulness himself has trod, educates him for a sloth; labor is considered vulgar, to work is ungenteel, the jack-plane is less respectable than the lawyer's green bag, the handles of the plow less dignified than the yardstick. Unfortunate infatuation! How melancholy is this delusion, which, unless it is checked by a wholesome reform in public opinion, will cover our country with wreck and ruin! This state of things is striking at the very foundation of our national greatness; it is upon agriculture that we mainly depend for our continued prosperity, and dark and evil will be the day when it falls into disrepute. What other pursuit offers so sure a guarantee of an honest independence, a comfortable support for a dependent family? Where else can we look but to the productions of the soil for safety of investment, and for ample return? In commercial speculations all is chance and uncertainty, change and fluctuation, rise and fall. In the learned professions scarce one in ten makes enough to meet his incidental expenses. How, then, are we to account for this fatal misdirection of public opinion? The cultivators of the earth are the most valuable citizens. They are the most independent, the most virtuous, and they are tied to their country, and wedded to its liberty and interests, by the most lasting bonds.

Editor's Repository.

A Word about the Culturist.—Having reached the third month of our existence as an agricultural journal, with at least a very fair, if not highly flattering prospect for the future, we can be pardoned, perhaps, if we indulge in something like an exposition of the facts and reasons why we believe we have taken hold of one of the most promising of all the varied publications and periodicals of the day.

In a country so new to agriculture as is the Pacific Coast, from Washington Territory, on the north, to the Gulf of California, on the south—at least, *new* to a system that can produce a surplus of products—and with a variety of products no where equaled in the world besides, it is not surprising that the liveliest interest should be felt in its development. Every country, to be to the fullest extent prosperous, should produce its own agricultural supply, and an excess for export. So long as California imports a single agricultural product, so long a high scale of prices must rule; and while this continues an interest will be maintained for agriculture that will cause its continued extension. Our circulation in the main is among the agriculturists. A more reliable class—we mean men of permament homes and occupations—there is not in the State, and they are steadily increasing in numbers; and as every day spreads wider the knowledge of the existence of the Culturist as an agricultural journal devoted to the interests of that class of our citizens, so does our prospect brighten for the future.

Quite unlike most of the newspapers and periodicals of the day, as an agricultural journal, we have no competitor upon the Pacific side, and we expect none. This alone, if we produce a journal worthy of our locality and the times, will be likely to secure a liberal support, and we intend to merit it. There is no other country in the world, where so much interest is felt in the progress of agriculture as in California; and it arises from the fact that almost all our efforts at cultivation, are mere experiments, and therefore possess an interest not found in the pursuit of old theories and practices. This interest awakened, naturally creates a desire to be early informed as to the success or result of such experiments in the hands of others, and men naturally look, for their exposition, to such periodicals as are particularly devoted to such pursuits. The Culturist will ever be the medium of such expositions to the fullest extent, and can be relied upon for general accuracy. We hope, therefore, that agriculturists everywhere throughout the State, will aid us, not only by contributing the results of their experiments, but also in extending the circulation of our journal.

Napa County Agricultural Society.—We have received, doubtless from the Secretary of this society, a Circular addressed to the citizens of Napa county, embodying a resolution appointing a Committee to wait upon all who feel interested in the agricultural affairs of the county, soliciting their aid in carrying out the objects of the Society as set forth in an address by the President, J. W. Osborn, Esq.

The address of the President, which is part of the circular alluded to, is just one of those straight forward documents that we like to see emanate from the President of a County Agricultural Society, whilst taking its incipient steps towards permanency. It briefly sets forth the advantages already accruing, and likely to accrue from the formation of the Society, the difficulties attendant upon its maintenance, and then suggests a remedy that provides for every difficulty, and appeals to the citizens of that flourishing agricultural county, to come to the aid of the Board of Dirctors,

in carrying out the objects of their association. And unless we have greatly mistaken the spirit and enterprize of those addressed, the appeal cannot fail to bring out the hearty coöperation of the full strength of the county, in the laudable endeavor to place upon a reliable basis, the future operations of their Agricultural Society.

We have also received the Premium List of the Society for 1858, nearly as comprehensive and full as that of the State Agricultural Society; and we are only surprised at how they manage their finances to be enabled to award so many and valuable premiums.

The Second Annual Fair of the Society is to be held at Napa City on Wednesday, Thursday and Friday, the 22d, 23d and 24th of September; and from what we can learn from those who are the best able to judge, we feel confident in predicting a Fair that will prove highly creditable to the agriculturists of Napa county.

THE STATE AGRICULTURAL FAIR.—We refer our readers to the first page of this number for information relative to the preparation in progress for the holding of the annual Fair of the Society, this year, at Marysville. We hope there will be a very general attendance of the members of the Society, though the distance may be an inconvenience to many. The annual meeting of the Society for the choice of officers will be held at the close of the fair, and the question of the site or locality of the next State Fair determined. The proposition of permanently locating the same at some central and accessible place, upon or near the bay of San Francisco, will be a subject of discussion. It is important, therefore, we repeat, that there should be as full an attendance of the members as possible. In the next, or September number of the CULTURIST, our readers will find as full reports of proceedings, the action of committees and of the Society, as a constant attendance at the fair and careful observation will enable us to give.

Now, if you would attend the best agricultural fair ever yet held in the State; if you would see the finest stock, and the most ever brought together on the Pacific side; if you would go where you can see and procure the finest samples of seed grains for your fall sowing; if you would like to see good horsewoman, as well as horsemanship; if you would see a trial of the strength of teams, including horses, mules, and oxen, and the speed of horses; if you would see the most skillful wild horse riding; the best pigeon shooting; in short, if you would like to see a far greater number of attractions than were ever before brought out at any previous State Fair, go to Marysville next week.

SANTA CLARA AGRICULTURAL SOCIETY.—The "Agricultural, Horticultural and General Industrial Society of Santa Clara Valley," will hold its Second Annual Fair at San Jose, on Wednesday, Thursday and Friday, the 22d, 23d and 24th of September.

From the Premium List, which we have received, we find the Society makes its entire awards in cash; though persons to whom premiums are awarded, may receive the same in money, silver plate, or books at their option.

Another peculiar feature is, no second or third premiums are awarded for articles, with but a single exception. The article must be the BEST, or the holder gets nothing. We have known this same plan adopted in more than one instance, by County Societies; but never havo we known it to operate successfully for more than two years.

Farmers and manufactuters in that time, find who will be likely to take the premiums on stock, products of the dairy, or manufactured articles, and all but these neglect to bring forward their samples, having twice failed to produce the best. This causes a falling off in the quantity and quality of articles exhibited, as well as a great abatement of interest felt for honorable rivalry. But where second and third premiums are offered on most of the staple articles, producers say:—well, if I don't get the first premium, I may the second or third, so I will exhibit at any rate. This leads to an increased zeal, and competitors are multiplied; which never fails to give to fairs an annually increasing interest. The argument used in the support of the one premium plan is, that it is not true policy to offer a premium for the production of an inferior or second quality article; but when we consider that every exhibitor expects his article to be the best, and brings

it forward as such, it can hardly be said that he aimed at only a second rate article, because it proved to be such.

We believe, however, in every Society managing its own affairs in its own way, and therefore we do not make even a suggestion; we only say, that we have seen the same policy pursued before, but never successfully, or to the permanent benefit of the Society adopting it.

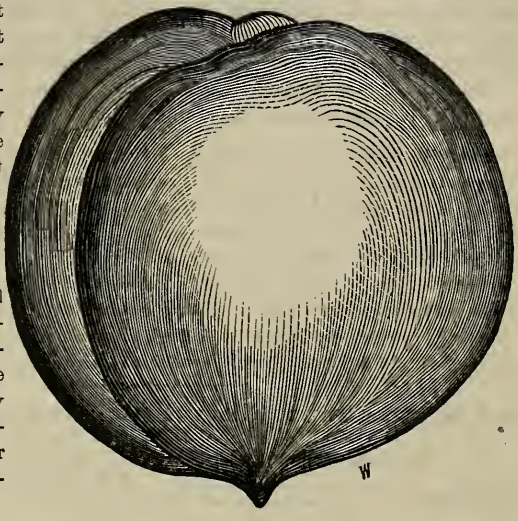
State Horticultural Society.—This society, which is as distinct from the State Agricultural, as either of the County agricultural societies, or the Mechanics' Institute, will hold its second annual Fair in the city of San Francisco, in connection with that of the Mechanics' Institute. The Fair will be opened on Wednesday, the first day of September, and continued for fifteen days or more. The Circular and List of Premiums of this society will be found in the addenda to this number of the Culturist. That an exhibition creditable to the society, will be the result of this second attempt to exhibit collectively, some of the beautiful and remarkable of the annual horticultural products of our clime and country, there is not a doubt; and in connection with that of the Mechanics' Institute, will form the point of attraction for the sight-seeing, the curious, and the scientific of our State, for weeks together.

Fruits of the Month.—We are almost at a loss to know where to begin or end in our enumeration of the delicious fruits that everywhere appear as the ripened products of the four weeks ending with the 15th of August. The more than half dozen varieties of the apricot have nearly disappeared, and we are just passing through and out of the season of plums. It would surprise our eastern fruit growers, to see the perfection to which the smooth-skinned stone fruits attain in California. The curculio is unknown here, so that there is no more difficulty in growing the apricot, plum and nectarine, than the woolliest peach that ever grew. We "find upon our table," almost daily, the products of the fruit grounds of many of our largest and most successful cultivators. We speak as we do in the following, not for the purpose of bringing the names of the producers and donors before the public, because they are everywhere well known as successful pomologists; but it is to show the fine varieties of fruits produced in the fullest perfection at this season of the year, and the localites producing them. A. P. Smith, of Sacramento, reminds us by a well rounded basket, that George the Fourth and Royal Kensington peaches are hard to beat. A. H. Myers, of Alameda, comes down upon us with a bevy of the most delicious plums, consisting of Imperial Gage, Large Purple Gage, and Lawrence Gage. W. N. Thompson, of Suscol, as a sample of his product, hands us a box of Crawford's Early peaches, weighing half a pound each, and actually blushing right out at their own beautiful perfection. And then the pears; no country in the world can beat California in pears. On the 10th of August, R. W. Washburn, of Shell Mound, passed in for our inspection—and our mode of inspecting fruit is by eating it—samples of the luscious Bartlett, Dearborn's Seedling, and the Tyson, all exoellent specimens of their respective varieties. Grapes, both white and purple, the former the delicious Moscatel, the product of open culture, are abundant; whilst figs from Lee's gardens, Oakland, were in market on the twenty-fourth of July. Thus might we go on, and enumerate the varieties of fine fruits now actually produced in their fullest perfection, till no room was left us to say a word about anything else.

The Premiums.—Just to call in at Tucker's, and see the beautiful silver goblets, spoons, cake and fruit knives, to be awarded by the State Agricultural Society as premiums, at their fair at Marysville next week, would, we think, be a sufficient incentive to call out a large list of competitors from the city of San Francisco alone. These articles are of Tucker's best workmanship, which means, unequalled. Then, there are the medals, of gold and silver, of three sizes. The design, by Nahl, is beautiful; on one side, in the back ground, is a range of mountains, and a single tall pine; the middle, farm lands and domestic animals; and in the foreground, a pedestal, with its front panel occupied by a sheaf of wheat, and surmounted by Ceres, the goddess of grains. On her right, a cornucopia has strewn around its profusion of fruits; in front lie the pick and pan, and on her left, the one great type of California's natural history, the grizly bear, stands out conspicu-

ous. On the reverse side, near the edge, encircled by a wreath of grapes and pomegranates, in bold lettering, is "Awarded by the California State Agricuitural Society to—" the middle blank to be filled in accordance with the award. They are certainly beautiful specimens of art and workmanship, and reflect credit upon the artists engaged, both in their design and manufacture.

HILL'S CLING.—This is a seedling peach, grown by N. McPherson Hill, of Sonoma; of medium size, but of surpassing beauty and excellence, and ripening the tenth of August. It greatest merit, however, next to its quality as a dessert fruit, is its fitness for transportation, it being an excellent keeper, and the firmness of its flesh permits its being handled to almost any extent, with but very little injury to it. This variety can be examined, and its qualities tested, at the fruit depot of Graves & Williams Merchant street.



That new varieties of the peach, as well as other fruits, will be originated under the influence of our genial soil and climate, equal if not greatly superior to many existing varieties we firmly believe; and it is to the enterprise of such men as have the opportunity and ability to experiment upon new varieties, that we confidently look for valuable accessions to our present catalogues of fine fruits.

Editor Culturist:—Learning of your willingness to communicate information respecting cultivation of fruit trees, etc., I would respectfully ask: Is there any means of defending fruit trees against attacks from the Borer, or worm which sometimes destroys the fruit trees? We have a number of trees of various kinds, many of which—transplanted this spring—have been very much injured by the Borer, and a few entirely destroyed. Lime was placed near the trees, on the surface of the dirt. Do you think lime in contact with the tree injurious? Any information you may give in respect thereto, will be very thankfully received. Your's, truly,

Jackson, Amador Co., Aug. 5. N. C. BRIGGS.

If the fruit trees of our correspondent are either apple, pear, or quince, and injured at or near the surface of the ground, then the pest is doubtless that well known grub, or larvæ, of the two striped *Saperda bivittata*. If the injury is among the small limbs, and mostly of the present year's growth, then from the larvæ of the three striped—or brown, black and white *Saperda*, and though the beetles differ in appearance, there is but little apparent difference in the larvæ or its habits, being about equally destructive. The two striped beetle lays its eggs upon the bark of the tree, at or near the surface of the ground, during the month of May; are soon hatched and almost immediately commence the work of boring into the tree, not always at the surface of the ground, but near it. There seems to be an instinct that prompts the two striped beetle to lay its eggs upon this part of the tree only, and if prevented from doing so, abandons the tree altogether.

An effectual preventive of attack therefore can be had, in simply wrapping the tree in early spring, with any kind of old cloth, cotton or woolen, and letting it extend from two to three inches under the surface of the ground to eight or ten inches above, in fact, putting a stocking on it, the upper end loosely tied around the tree, but sufficient to keep it in place. This is an infallible preventive, as the beetle will not lay its eggs upon the tree unless it sees its progeny has a fair show of getting at the soft bark at the surface of the ground. It is the practice of some to cover the cloth with coal tar, its strong smell being offensive to the whole insect tribe; or common tar

may be substituted with good effect; but neither must be permitted to touch the bark of the tree. Coal tar is a product of our gas factories.

The three striped Saperda, lays its eggs singly at the base of the leaf stalk of nearly all kinds of fruit trees; the larvæ hatching, it makes its way into the limb, penetrating first the bud and then following the center of the shoot. If found in two years' old wood, they can be destroyed by thrusting in a wire, but if in new wood the best remedy is direct amputation of the limb, as it seldom survives another year. There is no preventive that can be but partially successful, as it can only apply to the destruction of the beetle. The best mode of destroying them is, doubtless, the keeping of open mouthed glass bottles or jars among the trees, or suspended from the limbs, half filled with sugared water or honey. Large numbers are enticed in this way to destruction.

We do not believe the lime around our correspondent's trees will work either good or harm to the trees. It will not prevent the ravages of the insect.

CANARY SEED.—There are a great number of pet birds in California, and they consume annually thousands of pounds of Canary seed, that heretofore has always been an article of import, costing cash. A stop will be put to this. Stephen Abbott, Esq., of Fruit Vale, in San Antonio or Brooklyn township, has this season raised—the result of experiment—fiifteen hundred pounds of canary seed, of the finest quality. He sowed the seed the first of March, and his crop was ready for harvesting the tenth of July. In growth and appearance of head, it resembles herdsgrass, only the heads are twice as large, whilst the straw grows from four to six feet in hight. It is believed that by cutting before the seed is fully ripened, that an excellent hay can be made from it. Should it prove of value for this purpose, at least three tuns can be grown to the acre.

SAN FRANCISCO WHOLESALE PRICE CURRENT.

AUGUST 14, 1858.

Staple Agricultural Products.

Barley,	per cwt	$1 07
Buckwheat,	"	.....
Corn,	"	4 00
Corn Meal, Cal. h'd		8 00@9 00
Corn Meal, E'n	"	.....
Flour,	"	8 50@11 50
Oats, cwt		1 87
Potatoes, sack		1 25
Potatoes, sweet, pound		03
Onions,	pound	1⅜
Turnips,	"	01
Hay, ton		14 00@16 00

Wool, Hides and Tallow.

Wool, extra fine, pound	25
Wool, American, "	12½
Wool, California, "	08
Hides, dry, each	2 75
Tallow, rough, pound	04½
Tallow, tried, "	09

RETAIL PRICES CURRENT.

Products of the Dairy, Lard, etc.

Butter, California, pound	00	@62	00 75
Butter, Eastern, "	00 25	@	00 50
Cheese, California, "	00 25	@	00 37
Cheese, Eastern, "	00 20	@	00 37
Lard, California, "	——	@	00 25
Eggs, dozen	00 60	@	00 62
Honey, California, pound	00 75	@	1 00

Fruits.

Apples, pound	00 12	@	00 25
Apples, Pine, each	00 75	@	1 00
Bananas, each	00 06	@	00 12
Bananas, per hunch	2 00	@	5 00
Cranberries, gallon	——	@	1 50
Grapes, pound	00 20	@	0 25
Peaches, pound	00 10	@	00 25
Pears, pound	00 10	@	00 38
Limes, dozen	——	@	00 25
Oranges, dozen	00 75	@	1 00
Strawberries, "	00 25	@	00 37
Watermelons,	00 10	@	00 25

Garden Vegetables.

Beans, pound	——	@	00 06
Beans, Green, pound			06
Beets, pound			03
Cabbage, head			12
Cauliflower, head			12
Carrots, pound			03
Cucumbers, each			05
Garlics, pound			25
Green Corn, dozen			25
Green Peas, pound			06
Onions, "			05
Parsnips, "			03
Potatoes, "			02
Potatoes, new, "			02
Potatoes, sweet, pound			06
Radishes, dozen			05
Rhubarb, pound			08
Salsify, dozen			1 50
Tomatoes, ripe, pound			06

Meats.

Bacon, California, pound	00 28	@	00 37
Beef, best pieces	——	@	00 25
Beef, corned, pound	——	@	00 12
Hams, California, pound	——	@	00 37
Hams, Eastern, pound	——	@	00 30
Lamb	00 20	@	00 25
Mutton, pound	00 20	@	00 25
Pork, fresh, pound	00 20	@	00 25
Venison	00 00	@	00 25

Game and Poultry.

Hares, each	1 00	@	1 25
Rabbits, tame, each	00 75	@	1 25
Rabbits, wild, dozen	——	@	3 00
Squirrels, each	——	@	00 38
Chickens, each	00 75	@	1 25
Ducks, each	1 25	@	1 50
Snipe, dozen	——	@	3 00
Turkeys, pound	00 45	@	00 50

Fish.

Clams, hundred	75
Codfish, fresh, pound	18
Crabs, dozen	75
Flounders, pound	21
Halibut	35
Oysters, Shell, hundred	2 00
Perch, pound	15
Pike "	12
Rock, "	12
Smelts, "	10
Shrimps "	10
Salmon' fresh	12
Trout, fresh mountain, pound	1 00

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending July 31st, 1858; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury 41 feet above the sea at San Francisco. The observations are made three times a day coformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By Thos. M. Logan, M. D.

JULY, 1858.	7h. A. M.	2h. P. M.	9h. P. M.	Month.
Barometer, Maxima	30.014	30.005	29 988	30.014 inch.
" Minima	29.797	29.754	29.738	29.738 "
" Mean	29.897	29.873	29.857	29.876 "
Thermometer, Maxima	78.00	97.00	82.00	97.00 deg.
" Minima	59.00	67.00	61.00	59.00 "
" Mean	65.97	77 03	69.42	70.81 "
Force of Vapor, Maxima	.463	.550	.550	.550 inch.
" " Minima	.325	.309	.356	.309 "
" " Mean	.399	.457	.443	.433 "
Relative Humidity, Maxima	76.00	75.00	75.00	76.00 per ct.
" " Minima	46.00	19.00	46.00	19.00 "
" " Mean	64.58	52.35	63.23	60.05 "
Number of Clear Days	23	26	25	24⅔ days.
Number of Cloudy and Foggy Days	8	5	6	6⅓ "
Number of Rainy Days	.....	.....	.....	.....
Quantity of Clouds	0.6	0.4	0.2	0.4
Quantity of Rain and Fog	.....	.....	.....	.....
1st Days.—2d, Force of N. Wind	2 1.5	1 2.0	0 0.0	1 1.2
" " N. E. Wind	2 1.0	0 0.0	0 0.0	⅔ 0.3
" " E. Wind	1 2.0	0 0.0	0 0.0	⅓ 0.7
" " S. E. Wind	10 2.1	0 0.0	7 2.4	5⅔ 1 5
" " S. Wind	13 3.0	11 2.8	12 2.3	12 2.7
" " S. W. Wind	3 2.7	9 3.5	9 1.8	7 2.7
" " W. Wind	0 0.0	5 2.6	3 1.7	2⅔ 1.4
" " N. W. Wind	0 0.0	5 2.0	0 0.0	1⅔ 0.7

Thermometrograph.

	Deg.		Deg.
Highest Reading by day on the 11th	98.00	Mean of all Highest Readings by day	80.19
Lowest Reading by night on the 30th	53.00	Mean of all Lowest Readings by night	57 90
Range of Temperature during Month	45.00	Mean daily range of Temperature during month	22.29

Remarks.—Our observations for five preceding years, have established July as the hottest month. This year, however, has proved an exception—the mean temperature being 5° 12′ below the average. This reduction of temperature is to be attributed to the predominance of the trade winds chilled by the oceanic current from the polar regions, which, rushing in at the gap at San Francisco, reach Sacramento as apparently coming from the south. During the few days that northerly winds prevailed, some of the hottest weather was experienced. On the 11th, the thermometer rose, in a southern exposure, as high as 101½ degrees; while placed in a northern exposure, conformably with instructions from the Smithsonian Institution, it was at no time higher than as recorded above. During the same day, the range of temperature, or the difference between the minimum and maximum temperature, was as much as 30 degrees; and such was the dryness of the atmosphere, at the hottest time of the day, that the relative humidity amounted to only 19 per cent. of saturation.

CALIFORNIA HORTICULTURAL SOCIETY'S ANNUAL FAIR.

THE

SECOND ANNUAL EXHIBITION

OF THE

CALIFORNIA HORTICULTURAL SOCIETY,

UNDER THE DIRECTION OF ITS OFFICERS,

WILL BE OPENED IN THE CITY OF

San Francisco, On Wednesday, September 1st, 1858.

AND WILL CONTINUE OPEN AT LEAST FIFTEEN DAYS.

CIRCULAR.

The Second Annual Fair of the California Horticultural Society will be held in connection with that of the Mechanics' Institute, at their Pavilion on Montgomery Street, San Francisco, commencing on Wednesday, the 1st of September, and continuing fifteen days or more.

The First Annual Exhibition and Fair of this Society, held in connection with that of the Mechanics' Institute, last year, having in its success, more than equaled the highest expectations of its projectors, incites its present officers and members to renewed efforts in bringing out new products and varieties of fruits of such superior excellence, and in such greatly increased quantities, as shall render the approaching second annual Fair of the Society greatly superior to the first.

The object of the Society being to foster and encourage all departments of scientific and practical Horticulture, we invite the aid and ready coöperation of all who feel interested in the growth and perfection of tree, plant, fruit or flower, to help make the Fair alike creditable to the Society as well as to the industry, taste and skill of the horticulturists of California.

The acknowledged benefits that always accrue to communities, societies and individuals from public exhibitions of the product of their industry and skill, and the mutual good feeling and harmony engendered by these annual gatherings of our intelligent cultivators, should be a sufficient inducement, aside from the very liberal premiums offered, to call out the active coöperation of a largely extended list of members of the Society.

The very liberal policy pursued by the Mechanics' Institute towards this Society, by which the Horticultural and Mechanical progress of the State

shall each aid the other in producing an exhibition creditable to its originators, is duly appreciated.

That the united efforts of the two Societies will produce a highly attractive exhibition, one never before equaled in the State, hardly needs a guaranty.

The Fair will be conducted under the same *general* rules and regulations as the Mechanics' Institute.

Any person to be a member of the Society, must pay an initiation fee of five dollars, and be elected; which entitles him to free admission to all the exhibitions of the Society, and permits him to compete for premiums in any and all departments.

The committees of award, or judges, will be selected with special reference to their ability to judge correctly and award impartially.

No exhibitor's name will be attached to his articles until after the awards are made up by the judges, which shall be completed on SATURDAY, the fourth day of the exhibition. The morning of each day until nine o'clock, previous to making the awards, will be exclusively devoted to examinations by the judges, during which time all visitors and all exhibitors—except such as are invited in by the judges, for purposes of explanation—will be excluded.

The Society will provide every facility in their power for the safety and preservation of all articles on exhibition, and will be happy to receive contributions and display them, with the names of contributors, at any time during the fair, but no exhibitor will be entitled to a premium unless his articles are on exhibition before eight o'clock, on FRIDAY, the third day of the fair.

The Society will also be happy to receive and exhibit contributions from persons who may not be able to be present. Any such articles forwarded by the California Steam Navigation Co., the Pacific Mail Steamship Co., or other transportation companies, labeled "For Horticultural Fair," and directed to the "care of W. Wadsworth, Mechanics' Institute, San Francisco," will receive all due attention; and any instructions accompanying the same will be carefully regarded.

The products of neighboring Territories may be exhibited, under the same rules and regulations as those of our own State. For *general* rules and regulations we refer to the code published by the Institute, and for those governing the Horticultural Society, to *their* published rules and regulations.

OFICERS FOR 1858.—F. W. Macondray, *President;* Wm. Neely Thompson, J. W. Osborn, A. P. Smith, John Lewelling, T. J. White, E. S. Holden, G. H. Beach, Wm. Daniels, *Vice Presidents;* W. Wadsworth, *Secretary;* J. L. Sanford, *Treasurer;* B. S. Fox, N. Balmer, H. Gushee, *Directors.*

[See List of Premiums on following page.]

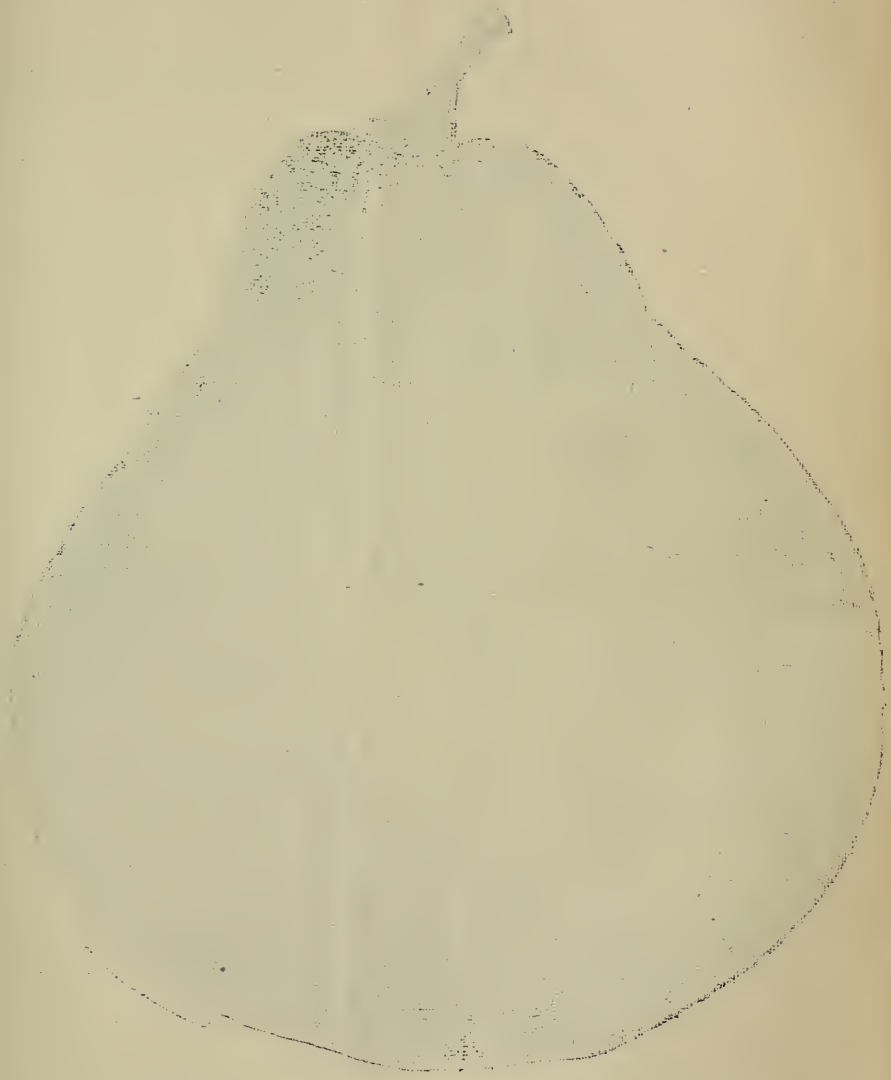
LIST OF PREMIUMS.

☞ Competitors for Premiums must be members of the Society.

☞ The Executive Committee prefer to award the regular Premiums in the form of SILVER PLATE—ranging in value from sixty dollars to five dollars. Special Premiums may be awarded in plate or cash, at the option of the Committee.

FRUITS—For the best display, embracing the largest collection of the best varieties.
Second best do.
Third best do.
APPLES.—Largest and best collection of best varieties.
Second best do.
Third best do.
Best specimens—Special Premium.
PEARS—Largest and best collection.
Second best do.
Third best do.
Best specimens—special premium.
PEACHES—Largest and best collection.
Second best do.
Third best do.
Best specimens—Special P'm
Best new variety of Native Seedling Peaches.
Second best do.
APRICOTS—Largest variety.
Second do.
NECTARINES—Largest and best collection.
Second best do.
PLUMS.—Largest and best collection.
Second best do.
Best specimens—Special P'm
FOREIGN GRAPES—Largest and best collection grown in open air.
Second best do.
Third best do.
Best specimens—Special P'm
FOREIGN GRAPES, grown under Glass, largest and best collection.
Second best do.
Best specimens—Special P'm.
CALIFORNIA GRAPES.—Best exhibit.
Second best do.
Best specimens—Special P'm
CHERRIES—Best collection, in bottles.
GOOSEBERRIES.—Best collection, in bottles.
QUINCES.—Best and largest collection.
STRAWBERRIES—Largest collection and best varieties.
STRAWBERRIES—Second best, etc. Best Specimens—Special Premium.
CALIFORNIA ORANGES—Best exhibit.
Second best do.
LIMES.—Best exhibit, California growth.
LEMONS.—Best exhbit, Californiia growth.
FIGS.—Best exhibit, California growth.
OLIVES.—Best exhibit, California growth.
POMEGRANATES.—Best exhibit, California growth.
DATES.—Best exhibit.
ALMONDS.—Best collection.
Second best do.
ENGLISH WALNUTS.—Best specimens, Califor'a growth.
Best specimens native.
MELONS.—Best collection and variety.
WATER MELONS, best specimens.
Second best do.
MUSK MELONS, best specimens.
Second best do.
DRIED FRUITS—Best specimens.
PRESERVED FRUITS—in cans or bottles.
Best Jellies.
Best Marmalade.
Best Pickles—
Best Catsup—
WINES FROM CALIFORNIA GRAPES.
Largest number and best varieties of Native Cal. Wine, made from the Grapes.*
Second best do.
Best specimen of Sparkling Wine.
Second best do.
Best specimen of White Wine.
Second best do.
Best Specimen Red Wine.
Second best do.
Best specimen Port Wine.
Second best do.
Best specimens other Wines—Special Prems., if worthy.
CURRANT WINE.—Best specimen.
BRANDY—Best qual. made from California grape.
Second best do.
OLIVE OIL.—Best specimen.
Second best do.
PLANTS AND FLOWERS.—Largest and rarest collection of Pot Plants.
Second best do.
Largest and rarest collection of Roses.
Second best do.
Best Floral Design.
Second best do.
Best Vase Bouquet.
Second best do.
Best Floral Wreath, 100 feet or more.
Second best do.
Best and rarest collection of Dahlias.
VEGETABLES.—Largest and best varieties of Garden Vegetables.
Second best do.
Best exhibit Cabbage.
Best exhibit Brocoli,
Best exhibit Egg-Plant,
Best exhibit Cauliflower,
Best exhibit and varieties Lettuce.
Best exhibit Rhubarb.
Best exhibit Celery.
Best exhibit Peanuts.
Best exhibit Hops.
Best exhibit Beans.
Best exhibit Peas.
Best exhibit Sugar Cane.
Best exhibit Squashes and Pumpkins, five or more.
Best exhibit Table and Sugar Beets.
Best exhibit Green Sweet Corn.
Best exhibit Indian Corn.
Best exhibit Broom Corn.
Best exhibit Potatoes, Irish.
Best exhibit Potatoes, Sweet.
Best exhibit Onions.
Best exhibit Turnips.
Best exhibit Tomatoes.
Best exhibit Salsify.

* Competitors for premiums on Wines, must certify under oath, if required, that the article exhibited by them was manufactured by them from the grape, and is pure.




S.F.BAKER DEL.ENGR.

THE CALIFORNIA CULTURIST.

SEPTEMBER, 1858.

THE AGRICULTURE OF THE PACIFIC COAST.

PREVIOUS to the acquisition of California by the United States, the principal exports of the coast were peltries; furs from the more northern districts, hides from the middle and southern. Agriculture, apart from stock-growing, was almost unknown; hardly sufficient of the cereals were produced to meet the direct wants of the few pioneers that from other lands had established themselves here.

In all newly occupied countries, Nature is the first great teacher, pointing out almost unerringly the pursuits likely to prove the most advantageous to the occupant. Thus we find that whilst the early possessors were few, and widely scattered, with broad plains of luxurious grasses intervening and around, with hardly enough of accessible forest to furnish material for fencing, that they very naturally turned their attention to pursuits that did not require the use of material so difficult of procurement.

The rearing of animals, therefore, would be the first to suggest itself to the consideration of the occupant of such a country; because attended with no other inconvenience than the mere attention necessary to their being kept within reasonable bounds, and those bounds imaginary, rather than real. As a natural result of adaptedness of food and climate to the easy rearing of domestic animals, we find record in the early history of the coast of vast herds of cattle and horses, occupying districts where now there are few or none; and yet as perfectly adapted to their successful rearing now as then, for the plow has never yet turned the sod, and for large districts landmarks are unknown.

If stock-growing then was the most natural and easy way of acquiring thrift and competency in this country of eternal summer, so is it now. All the changes that an immense immigration is producing upon the physical aspect and condition of the country, has not yet conduced to alter the one early feature—the more perfect adaptedness of large districts of California to the successful growing of live stock, than to any other species of husbandry. This fact is so apparent, and the yield of profits so certain and satisfactory, that many of our citizens, heretofore engaged in other pursuits, are now turning their attention to this subject, and pasture ranges,

whether in the valleys or among the mountains, are being sought out, claimed, or purchased at high rates.

That there are also immense districts of our coast equally well adapted to the production of grains, fruits and vegetables, the annually increasing export of some of the cereals beyond our own wants at home, and the infinite variety of luscious fruits, now everywhere attainable, fully attest. And yet we have hardly learned the beginning of that catalogue, that at no distant day will be added to our already vast nomenclature of agricultural productions.

The sugar cane, cotton, silk and hemp, all are successfully grown, and if ever labor be reduced in price, will be produced in such quality and quantity as soon to rank among our staple exports. Already the vine yields its ample returns; the fig tree is rapidly spreading its branches around the homes of the tillers of the soil, and really, there seems to be nothing, so far as our agriculture can help to produce it, to prevent the evening coast of our country from becoming the Eden of our continent.

THE LATE STATE FAIR.

IT is not our purpose to cumber the columns of the CULTURIST with a minute detail of the proceedings that characterised each succeeding day of the Fair; such a report is better adapted to the columns of a daily or weekly newspaper.

That the Fair was a triumph, in some respects exceeding in interest any previous one, is very generally admitted.

The opening address of the President was delivered in the Pavilion on the evening of Monday, the first day of the Fair.

The Opening Address.

Nearly one year since, fellow-citizens, many of us were assembled in a distant city to witness the pleasing demonstration of the varied and exhaustless resources of our cherished State.

With vastly increased numbers and products, we are here this evening to mark and rejoice in the cheering progress of the past year, and to encourage each other in the development of those abundant treasures, which, in our mountains and valleys, a benificent Providence has placed within our reach.

We are here, the agriculturist from his fresh gathered harvest, whose plenty places the staff of life within the reach of all; the horticulturist, with the delicious product of his orchard and garden; the stock-grower, with noble breeds of the horse, of cattle, sheep, and swine; the artisan, with rare specimens of genius and skill; the honest, worthy mechanic, from his bench; the delving miner, from the pursuits of the precious metal among the mountains and valleys; the merchant, too, and the man of commerce, have turned aside from traffic to mingle with this great gathering of the people, the happy representatives of our prosperous commonwealth.

As a resident of Marysville, permit me, ladies and gentlemen, you who have met from the East and the West, the North and the South, of our ample domain, to bid you welcome to our city, hoping that its honors and hospitalities may in some measure minister to the enjoyment of this occasion. The exhibition of the products of the soil, of mineral treasures, of the useful and elegant arts, with suitable rewards for superior skill and industry, unquestionably promote greatly the progress of civili-

zation and the comfort of society. The examination of the varied machinery designed to mitigate the drudgery of life, suggests ideas of improvement, inducing steps of progress toward a rare perfection.

It is not many years since numbers of us traveled over the first railroads in the the United States, which were the first in the world, whose advantages, and the improvement in which, has caused their adoption in all civilized countries.

It is little more than fifteen or twenty years since those great labor-savers to the farmer—reaping, mowing, and threshing machines—were introduced, and a much shorter time since their use has become general. Within a very recent date the sewing machine has been introduced, an improvement which, perhaps more than any other, is mitigating the stern toil of life, and lengthening the years of woman, the noblest of God's workmanship. In the Patent Office at Washington may be seen the old hand-printing press, from which slowly issued the immortal thoughts of the great Franklin. The wonderful improvements of the press at present, combined with the application of steam-power, enables the producing of thousands of printed sheets in a single hour. This remarkable progress, as already intimated, has been gradually promoted by comparison, experiment and suitable rewards.

Thus, also, in the improvement of the live stock of the country; of the horse, whose principal excellencies are strength, symmetry, fleetness, power of endurance and docility, all of which, by careful cultivation, are susceptible of progress. The same applies to cattle, sheep, and swine, whose desirable qualities are suitable proportions, fecundity, and, to a given amount of provender, the capacity to furnish the largest quantity of choice flesh.

By the cultivation and comparison of the cereal grains, of esculent plants, and the various edible fruits, great improvements in variety, quality, and yield can be accomplished, thereby greatly ministering to the happiness of mankind.

These desirable objects are unquestionably promoted by such exhibitions as this which brings us together. New ideas are evolved, new plans and systems of improvement projected, and new impulses given to the industrial arts and pursuits of life.

As you have passed around the stalls, stands and tables, exhibiting noble animals, of superior breed, vegetable growths of prodigious size and quantity, fruits of rare richness and flavor, glittering specimens of minerals and precious stones, from our own mines and quarries; beautiful creations of California genius and handicraft, you have doubtlesss felt emotions of increased attachment to the State of your adoption.

It is no longer to be questioned that California can produce the grape in variety and perfection equal to any country. The extensive manufacture of wine. which, for richness of quality and delicacy of aroma, will bear comparison with the choice brands of Europe, is already proving a source of vast revenue to its producers.

While the upper plain lands of our valleys, by proper cultivation, can be made to produce abundantly the small grains, such as wheat, rye, barley, and oats, the alluvial soils of the rivers yield extraordinary growths of corn, clover, esculent plants and sorghum, or Chinese sugar cane.

Successful experiments upon the growth of sorghum justify the gratifying expectation of those who have turned attention to the praiseworthy and remunerative branch of husbandry, the manufacture of sugar.

The attempt recently made for the cultivation of cotton, rice and tobacco, have demonstrated the adaptation of our climate and soil to the production of these great staples.

The almost universal attention now being paid to the cultivation of choice fruits is already being widely felt by the comparative plenty of the peach crop, and the speedy promise of other valuable varieties.

In California the scarcity of timber in the valleys requires not the work of a gen-

eration to clear the ground for smooth farming, while the exhaustless supplies of timber in the mountains meet every demand.

It so much of progress and prosperity have been accomplished under all the disadvantages of our pioneer condition, what may not be expected by judicious system and liberal policy?

While we are not here to discuss the principles of government, we *are* considering those very elements which are as the heart's blood of our commonwealth—the soul of its blessings, the source of its supply.

The intelligent application of labor to the primary and principal arts of life may not be too highly valued. A knowledge of the laws of nature, particularly relating to agriculture as a science, is worthy of your careful attention, and in order to the advancement of so desirable an object, I would respectfully suggest, as was done last year, the propriety of establishing upon a broad and liberal basis, an agricultural school or college, in which should be taught whatever relates to animals, vegetables, land, or labor; the study of the chemical relations of all substances which are concerned in agricultural production.

Such a school should be supplied with philosophical and chemical apparatus, with a herbarium, insects, minerals, the fruits, and cultivated plants of the country, as also a choice library. An institution of this character, liberally endowed, and rendered attractive by suitable location and proper improvements, under the instruction of competent professors, dignified and encouraged by the patronage of the leading men of the State, would prove one of the greatest blessings. A judicious appropriation of land and money for this purpose, by our Legislature, would in due time, produce a ten-fold return.

The mining interests of California constitute a chief source of her great wealth. It was the discovery of gold in almost fabulous quantities which caused the rush of emigration to these western shores, waked the wild solitudes with the echoes of civilization, and started with trembling amazement the untutored aboriginal, whose ancestors, for untold ages, had roamed over the mountains and valleys, ignorant of their immense treasures. Every year fresh discoveries are being made, and new and improved machinery applied.

The fisheries of our State, though occupying a subordinate place as a source of income, should not be overlooked. No kind of meat for consumption has been furnished at so reasonable rates, as the excellent salmon, and other fish of our waters. It is to be regretted that, in some parts of the State, the supply has fallen off.

The propriety of experimenting upon the breeding of fish, particularly in waters not used for mining purposes, is offered to your consideration.

The best means of destroying, or preventing, the ravages of those wild animals injurious to the fields and gardens, is not unworthy your notice.

The preservation of those birds, and other harmless creatures, which prey upon insects and vermin destructive to fruits and plants should not be forgotten.

The cultivation, in our valleys, of forest and ornamental trees, for shade, adornment, fuel, and other useful purposes, should be encouraged.

Landscape, gardening, and rural architecture are commended to the good taste of lovers of the beautiful.

The successful introduction of the honey bee is inaugurating a new era in the history of our young State, destined soon, like Palestine of old, to be a land flowing with milk and honey.

The great area of the State, containing near six times the number of square miles as that of Ohio, the thorough canvassing of which devolves great labor upon the officers of the State Agricultural Society, would suggest the propriety of selecting those whose time, capability, and interest, would meet the wants of the whole State, and the expectations of the Society. As the productions of different parts of the

State mature at different times, it may, perhaps, demand that the examinations of the Visiting Committee would be required for the space of six months each year.

As much of the labor falls upon the Corresponding and Recording Secretaries, particularly the former, we would respectfully suggest the propriety of fixing the salary of each.

Before concluding, it is but justice to those of the ladies who have honored our exhibition with specimens of the useful; the ornamental; the beautiful; to bear testimony to the moral worth of those, who, instead of languishing in the empty circles of fashion, or the gay throngs of excited folly, are lending their influence to promote the virtue and happiness of man. Such are not the mere toys, but the faithful companions of the stronger sex. Such are they who tear not down, but build up the fortunes of their husbands. Such as she, whose adaptedness to her true sphere, throws an irresistible charm around the home circle, and, by the law of kindness upon her lips, wins all hearts to the homage of her graces.

And now, gentlemen of the State Agricultural Society, and those whose interests are identified with its prosperity, permit me to congratulate you upon the evident success of this enterprise in our young State.

Despite all the disadvantages attendant upon the settlement of this country, the expense and hazard of emigration, the insecurity of titles, the unsettled state of society, disproportion of families, irregularity of morals, recklessness of life, prodigality of property; the squandering of thousands raised by honest toil for the support of our government, and adornment of the State—we have nobly and perseveringly surmounted appalling difficulties, until, upon the vantage ground of our present prosperity, we gratefully survey our unexampled success, and contemplate the bright future before us.

In the evening of the third day of the Fair, in the Pavilion, to thousands, was delivered, by Sam'l B. Bell,

The Annual Address.

Gentlemen of the State Agricultural Society: Were this the first time of the assembling of this Society, it would be a source of deep congratulation to you, its members and supporters, and still deeper to the entire State. How shall we express our happiness then, when we consider that this is the fifth anniversary of the Society in a State not yet nine years of age? This, too, when these shores were not sought to till the ground, but to lay it waste in scattering its soil in search of its golden sands. All were worshipping at the shrine of Plutus, and Ceres was not a Divinity in the land. Now, within five years, she has divided the empire with her rival; her bounteous horn of plenty, more ravishing, more inexhaustible than the gold-inclosing caves and beds of her rival, have won the love not only of you, her sons and daughters, but have commanded the homage of the dwellers of all lands. With the power of geometrical progression, the conquest grows by what it feeds on, until I behold upon your tables gold and its mother quartz taken from the shrine of Plutus; the handicraft of the artisan and the artist taken from their shrines and all brought as offerings to the altar and the throne of Ceres.

Five years ago! How well I remember the occasion. What efforts the few friends of the enterprise had to make to get together that commencement. What has now grown into this great exhibition was then first put into a small room in the city of San Francisco. To make some sort of a show, and to fill the vacant spaces in the room, fruits and productions were imported from our sister lands, and from the isles of the sea, and the artisan work was a conspicuously arrayed full dress of a Fejee Islander! the whole about a square foot, imported from the workwams of that enlightened race. The productions of our soil were few, but they were marvelous. Beets, whose length we measured by the yard; pumpkins, whose capacity we meas-

ured by the bushel, it might be proper to say by the barrel; single potatoes by the pound; cabbage, I have forgotten, but it seems to me by the English stone by the single head; single turnips, by the quarter of a hundred weight, and this to the end. Filled with what I saw, I wrote to a friend in the Atlantic States, stating some of the weights and the measures of our vegetable productions. At length his reply came back. Too courteous and well bred to give square expression to his incredulity, he remarked that he was sorry that our weights were so light and our measures so short in California. And in relation to certain berries that I had compared to hen's eggs, he sincerely pitied us that our eggs were so small, especially as he had heard they were very dear in our country. Those few specimen seedlings, all gathered within an upper room—and room to spare—have produced the teeming glorious harvest we see spread before us to-day, unparalleled, we sincerely believe, for variety, size and quality on the globe.

But that we may learn the appropriate lessons of the occasion, it becomes necessary for us to look at our thoughts and mental problems arranged into system; and our first position is—

POSITION I.—WITHOUT AGRICULTURE THERE IS NO ENLIGHTENMENT.

We might rather say without agricultural societies. For we must have the collision of intellects, or there is no thought. We must compare, or there is no ideas. No ideas awake but by comparison. We must inspect, collate, debate, emulate, compete, rival, carry off premiums. The very disputes, contentions, quarrels, if you will, inherent in the very nature of all such societies, are absolute essentials to progress. Peace is stagnation, and stagnation is death.

As we stand and live upon our great mother earth, so the whole fabric of enlightened life stands upon agriculture. Not alone because it feeds our bodies, but because of its moral and philosophical forces, as well as its physical. Egypt was the first cradle of Agriculture; it was, therefore, the first cradle of civilization. The Israelites —the chosen people—were no exception to the rule. They, in their early career, did not till the soil. They had to be taken down into Egypt to learn agriculture, or they would have been barbarians. The Greek and the Roman would have been barbarian had they not imported the agriculture, and the consequent civilization of Egypt and Judea.

Thine and mine—thy fee simple—my fee simple in a spot of ground—is omnipotent in producing enlightened life. The boundary fences—the exact acres, roods, yards, and feet—the precise line of my land and thy land—are the talisman that, first of all, converted wild and savage men into enlightened and mighty nations. Had we no other evidence that Rousseau and his so-called philosophy were a hallucination, this would be sufficient; that he denounced the man who first invented "*meum* and *teum*"—mine and thine. Had there been no such invention, Rousseau had never lived to moralize. Had he lived at all, he would have been less than our Diggers. The fee simple farm—its owner upon it cultivating it himself—it is—it is—it has no comparison! Any comparison would weaken it. Men are mere tribes—hordes; men are mere beasts without it. It is the mother of stability, with infinite progression. It is the mother of wealth—the mother of law and of order—the mother of manufactures, commerce, arts, and the fine arts. From this source spring the great emotions of the soul, patriotism—and those from whence come schools, social and political order, churches, science and religion—long life, strong life—abundance, population. Without it, the globe could never be populated, for the earth could only sustain here and there a drove of men. Pioneering tends to barbarism, because it tends to roving. Pioneering is almost buccaneering! We are pioneers—and yet see here, this early and devout attention to agriculture—this Society and its happy influences upon us—and we are the mildest mannered buccaneers of history. What had this State been without it? The present generation might

have survived in some sort of repute from the force of early education. But the generation to come would have been as the present Arab to the ancient Saracen—the present Mexican to the ancient Spanish cavalier. Without agriculture there is no wealth. Gold is not wealth; it is its convenient representative. Commerce produces no wealth—it simply exchanges it. Manufactures and the arts recombine it. Agriculture is the prolific mother of wealth. The rest simply handle it, when it is produced and delivered into their hand. The earth of itself originally spontaneously produces wherewith to keep the race of man from starving—only whilst he is making ready to till the soil. Without it, he soon exhausts nature and exhausts himself. He soon degenerates into a wild animal—living here and there in small squads—a little superior to other beasts of prey. The earth breeds savages. Agriculture brreds enlightened nations. It breeds houses and ships, temples and seminaries; it breeds the manufactory. Sculpture, painting and music are its offspring. It would be folly to speak of the existence, or beauty, or power of these things, without agriculture.

The pulpit, the professor's chair, the scientific laboratory, the tripod, the library, the ship, the trip-hammer, the loom and the anvil—all would go down without it—in one generation. It is by the superabundant produce and stability of agriculture that all these things exist. Nor gold, nor diamonds could replace them. The state of husbandry in any country is the test of its enlightenment. The thermometer of civilization rises and falls as drives the plow. "You must first send the plow," exclaimed a man in my hearing who had traveled all over christian missionary grounds in heathen lands. A barbarian nation needs but to be plowed up—deep, sub-soiled, continued, sowed, planted, and the inevitable harvest will be an enlightened empire. A practical working agricultural society will dig barbarism, and mental, and physical, and spiritual poverty out of a nation, as effectually as any grubbing machine "snakes out" the stubborn stump. The Jewish people were an agricultural society as well as a religious congregation. Moses, their great lawgiver, "learned in all the wisdom of the Egyptians," doubtless borrowed the idea originally from Egypt. The three great yearly religious feasts of the Jews had direct connection with agriculture. Three times a year they were commanded to assemble in one place.

1. At the Passover, which was the sowing time.

2. At the Feast of the Pentacost, when they came to present the first fruits of the earth upon the altar.

3. The Feast of Tabernacles, when they came to joy over the harvest home of the year, as we do this day. They compared the fruits of the earth, and emulated each other in their crops, as we do on this occasion.

Mark the most marvelous results; Egypt gave civilization, and Judea gave religion to the world! In modern times what have agricultural societies achieved? For there is little advancement in merely tilling the soil. It is essential that there be the development of mind connected with these societies—mental growth, as well as the growth of plants. The intellect must be plowed deeper than the furrows of the field, or the farmer is a mere serf of the soil—a superior kind of dray horse—a kind of clown, but without his supineness of wit or limb.

A few centuries ago, before a modern agricultural society was known, a learned writer describes the times in these words: "Rude were the manners then, the man and his wife ate off the same trencher, a few wooden handled knives, with blades of rugged iron, were a luxury for the great—candles were unknown. One, or at most, two mugs of coarse, brown earthenware formed all the drinking apparatus in a house. Rich gentlemen wore clothes of unlined leather. Ordinary persons scarcely ever touched flesh meat. In noble mansions a little corn seemed wealth."

This is history. Any one of our neighbors compelled now to live as the highest and wealthiest of mankind in those days—such a neighbor would excite our sympathies. We would consider him as good as starving—would carry in gifts to supply his wants—and start a subscription among our friends to feed and clothe him.

In the kingdom of England, not more than a century and a half ago—not quite two long life times—Macauley writes: "Wheat was then cultivated only on the strongest clay, and consumed only by those who were in easy circumstances. Many routes which now pass through an endless succession of orchards, then ran through nothing but fens, heath and swamp." In describing the country gentlemen of those days, he says: "He troubled himself little about decorating his abode, and if he attempted decoration seldom produsced anything but deformity. The litter of a farm-yard gathered under the windows of his bed-chamber, and the cabbages and goose-berry bushes grew close to his hall door. His wife and daughters were in tastes and acquirements below a housekeeper or a still-room maid of the present day." Thus testifies the great historian, writing of but a century and a half ago.

A few hundred years ago, as well as in ancient classic times, and all the wealth of a kingdom could not buy a loaf of bread, such as you will see on any California table—the fine flour could not be made. The table of our farmer is much more princely in its furnishing than was the table of a monarch then. We have now in common use several species of most delicious fruits then unknown. We raise several kinds of grain not then in use. The very word corn then applied to wheat; and barley is now applied to a grain undiscovered at that time. Man then lived upon a few vegetables, with flesh on extraordinary occasions; and, at their great feasts, the chief viands were flesh and wine. Their crops, as well as in the palmiest ancient times, rarely yielded over ten or twenty fold. Now, a hundred fold is a very small return. Then, as in the ancient world, they gathered the harvest by pulling off the heads, pulling up the stalk, or by the almost as slow process of reaping with the sickle. Compare those methods with the great reaper we now behold, that sweeps over acres in an hour, and leaves but the yellow stubble of the golden harvest on the fields of a farm in a day. Then, as forever before, the lowing ox slowly tramped out the grain, week after week; and the winds of heaven, and the fan in the hands of the laborer, slowly and imperfectly separated the kernel from the chaff and straw. Now, the mighty thresher, with tumultuous whirl, takes into its crashing teeth thousands of sheaves in a day, and scattering the emptied heads, and straw and the chaff, in rich streams, the separated golden grain runs out upon the ravished sight, all ready for the marts of trade, for food for man, and fowl, and beast, and for the hopper, and the upper and nether stone, swift driven by the vast wheel of the ponderous mill! From its mighty pouch comes out flour as white as the light, which makes the kneaded bread better than the fabled ambrosia of the Gods. Since then, the amount and varieties of nutritious and wholesome food have increased at least a thousand fold. This abundant and varied food, connected with the advance of science, has doubled the average duration of the life of man. And so far superior are we in all physical respects to our forefathers, some few generations ago, that it is well known that the armor of the great warriors of the middle ages, preserved in the tower of London, will not go on to the bodies or limbs of their superior descendants. And yet there are those among us who affect to sigh for the "good old times." When were those good old days? Never! never! There never were days in all the world as good as now. Yes now, and even here, with all the faults of the times. There never were days as good as these—for he who now turns the clod is no longer a "clodhopper"—he has become a responsible prince—a free American sovereign, tilling his own fee simple farm. And a richer array of the bounties of the earth was never before beheld than surround us at this great Fair. "Say not thou," says Solomon, "Say not thou what is the cause that the former days were better than these? for thou dost not inquire wisely concerning this." If this were true in the time of the sage of Israel, it is a hundred fold true to-day.

POSITION II.—THE FARMER IS KING.

"Cotton is king," says a Senator of these States. "Nay," repllies another Senator, "Gold is king." Nay, say we—we like a living sovereign—the Farmer is King!

A monarch is prepared for his throne by a careful education. But who is nurtured with such an education as the farmer? He is nursed in the strong embrace of prolific, many-handed Nature! Our mother Nature keeps the wisest school.

Great Nature—
Rude yet gentle!
Stern yet kindly!
Terrible yet loving!
Frugal yet bountiful!

The voice and the hand—the ferule and the prize of Deity! We almost believe that no man can be one of God's great men unless nurtured in the strong embrace of our great mother on the bosom of the earth. It was from farmers alone that the Almighty raised up those men of mighty arms and mightier faith to deliver the chosen people of old. The Gideons, the Baraks; the Samsons and the Jepthahs. In latter times, "the sword of the Lord and of Gideon," was wielded by a farmer, Oliver Cromwell; and the model man of all the world—the Father, and the boast of his country—and the pride of all human kind—Washington—was a farmer!

All men should, some time in their lives, live out in the midst of Nature, and till the soil. He who has been born and reared, and who lives in a city, debarred the privileges of communing with nature, is most unfortunate. He can never be a whole man. He lacks the stern, true, poetic teachings of this great school. Nothing can compensate for it. "An undevout astronomer is mad," exclaimed a wise man. An undevout farmer is a monster, we exclaim. What? can the husbandman receive his food direct from Heaven?—its rains, and dews and sunshine? its smile over him in the blue and spangled vault—sun and moon and star-lit? all around him in the wavy grass and grain—the many-tinted flowers; in the voices of the wind and the bending trees, underneath him, in the prolific, fresh-turned soil, and still be a monster, out of tune with outer and inner Nature?

His home is the earth,
With each varied scene;
He owneth its crags,
Its garments of green;
He knoweth the light,
With its wavy sheen,
On the twilight cloud,
On the brooklet stream.

He knoweth the tints
Of the chambered East;
As the "day-spring" comes
And shaketh the night
From the "ends of the earth,"
And the "corners thereof."

His carol can chord
With the lark at morn,
As the darkness flees—

He knoweth the notes
Of the sighing breeze.

Who lives so far from temptation? Who lives so nigh to his Creator? enwrapped all round about with his arms! fed from his dazzling, munificent hand! He sleeps between the leaves of God's pictured book—the Universe.

"He loved husbandry," is the encomium that inspiration pays to one of the best Kings of Israel, and who had one of the longest and most prosperous of reigns. "Uzziah, the King," says the sacred writer, "digged many wells, for he had much cattle; husbandmen also, and vine-dressers in the mountains and in Carmel, for he loved husbandry." If this could have been said of his successors, the Jews had not been pealed and scattered, as at this day, among the nations. As long as it can be

said of the sovereigns of these States, "they love husbandry," the Republic is safe. Small farms grow true patriots. The wealth of the Republic must be a *common* wealth. It is the nature of power to seek to increase itself. When monarchs increase in power, it is in bald words the growth of tyranny. Not so with the King Farmer. His tyranny is over barrenness. He smites, and lo! the sterile earth groans! but it is with abundance. He brings his enemies to the faggot and the stake. But they are the thorn, the thistle and the briar. He overruns and subdues the territories of his foes, but they are the swamp, the fen and the quagmire! He plows up the very foundations of the strongholds of his destroyers; but they were the deadly malaria, the stinging insect, and the fanged and poisonous reptile. The Earth is his slave, but it is the slavery of love; for it buds and blossoms before him, and its trees clap their hands of joy of him. He chains his servants to do his will; but they are the elements; they are the huge and willing ox, and majestic horse, impatient to do his bidding, and champing for the word that bids them go. When the Monarch Farmer raises himself on high and stretches his scepter abroad, cities spring up under its shadow. The sound of the spindle, the loom and the anvil, and the ponderous foundry and mill are heard. The hum of the industries of multitudes come up like the noise of many waters; white winged ships fly over the unstable main; men cast aside their hides and fig leaves, and are clothed in imperial garments; and women are arrayed in fabrics as fine as gossamer and many-tinted as the sunset cloud. Penury, Pestilence and Famine, he keeps bound in his prison-house. Labor stands in the door of his magazines, and in his stalwart hand he holds the scales of human life, and weighs out the supplies of Trade, and Art, and Armies; of School, and Church, and State; Food and Raiment; Abundance and Luxury. He deals out the progress of Human kind! The FARMER IS THE MONARCH OF MEN!

POSITION III.—NO MARKET, NO FARM, NO ENLIGHTENMENT.

If the farm be the body, the market is the head and the hands and the feet of civilization. The husbandman has gathered his abundant crop. He loads it into his wagon; he harnesses his horses; he mounts the seat; the reins are in his hand; he is ready to snap his whip. But there is no market; there is no place for him to go. Slowly he dismounts, and relapses back into barbarism. In two generations his descendants would be burrowing in wigwams. There must be the all-demanding market; and there the husbandman sells his abundance; and first of all, in return, he buys intelligence. His first trade is for knowledge—the newspaper—the book. Without them, farming is merely an invention to keep from starving to death! Without the influence of books, the country school, science, knowledge, in the farm-house, the husbandman is nothing more than a better fed and clothed and housed savage—beast.

I had rather far be a wild Indian at once, and rove uncontrolled amid Nature's own recesses, than such a thing—to turn my farm into a human piggery. Knowledge must advance like a conquering army among farmers; if it halts, it falters and is conquered. The whole fabric of human society rests upon them; they must be wise men, or the whole structure will tumble. Productive labor must be intelligent, or the democratic fabric of our Government goes down. No skill can save it. Intelligent productive labor is beyond all comparison the omnipotent power to found and support the State!

The market—it furnishes the husbandman with his very plow. THE PLOW! plain but all-potent instrument. Archimedes sighed for a fulcrum and a lever with which to move the solid globe. When the farmer puts his hand to the plow, he moves, if not the solid globe—he moves all the multitudes of men who dwell thereon. Were the whole earth plowed, there would be an end to want—an end to the want of the mind and the spirit, as well as the body, of every human being. The Millenium would no longer be a dream—the plow would have ushered it in!

Because there is a market in which he can sell, the husbandman can buy the skill of the cunning-handed architect, and lo! his symmetrical dwelling rises in the midst of sylvan beauties. Because there is a market, the farmer has brought the oat and the potato from Peru—the wheat and barley from Persia—the cotton from India—the sugar-cane from the tropic isles—corn from Mexico. The market in which the farmer sells has furnished him, in return, the horse from Arabia—the cow and the ox and the sheep from Assyria—the swine from China and the Pacific isles—the turkey from the wilds of the Mississippi—the peacock from Persia—the hen and her consort from the Garden of Eden itself, for they are the oldest companions of mankind.

In his orchard, too, he finds that his peach and pear and apple, his nectarine, plum and apricot, his cherry, currant, grape, fig, pomegranate and almond, each has been brought to him from the uttermost parts of the earth. The rose that lines the avenues to his dwelling—fit symbol of the beauty and touchless purity of his cherished daughter—has been marketed to his door from Asiatic lands. Were it not for the market, the farmer would find that his possessions on his own immediate land would have been but a small and lean assortment of inferior plants and fruits, and of a very few unprofitable and ill-starred animals. His reaper and thresher, and all his farming gear—he has them because he has a market. Let him enter his dwelling—not a log hut of his own raising, misshapen, comfortless, tasteless, unadorned and forlorn, but everywhere, wherever his eye rests, replete with architectural skill and beauty, feeding the eye with the tasteful view and filling the mind with delightful sensations—comfort and beauty and luxury combined; his library; the varied wardrobes of his family; the convenient and artistic furniture; the instruments of music; the velveted and richly patterned carpet upon which he treads; the clear glass in his window, through which he looks upon the outer scenes; the conveniences, comforts, and the luxuries of a world, brought within the walls of his dwelling—his farmhouse! heretofore, throughout all ages, but a hovel. Verily, he may say: Without me—my occupation—not one of all these would have existed; I have furnished the raw material for them all; I have a right to them.

True, above all men, the farmer has a right to them. But the market has furnished them; without it, he would never have dreamed of them. Without them, the farmer was a boor; with them, he is an enlightened prince. The market is as necessary as the farm to make enlightened life.

Town and country, market and farm. They are sometimes jealous of each other. Particularly is the country apt to be jealous of the town. But were there no town, the country would be a place simply to exist in—as the grizzly lives in his cave, or the gopher burrows in his hole. And were there no country filled with industrious husbandmen, the hum of the city would cease. The wail of the owl and the coyote would be heard instead, within its toppling walls, and the bat and the tarantula would dwell there.

POSITION IV.—THE FARMER AND FARMING OF CALIFORNIA HAVE NO EQUALS.

The *Edinburgh Review*, hoary with age and experience, the organ of great thoughts and great wonders these many years; that has given tone and, to a great extent, law to the mental European world, thus expresses its astonishment at the farming and vegetable wonders of California in these words: "At the State Agricultural Fair, held at Sacramento, 1855, were exhibited, among other prodigies, a beet weighing seventy-three pounds; a carrot weighing ten pounds, and three feet three inches in length; there were fifty in the same bed of equal size; a corn-stalk measuring twenty-one feet nine inches in length; an apple measuring fifteen and a half inches each way. But we cannot tell," adds this *Review*, with a sort of refrain owlish oracle; "But we cannot tell how much may be owing to that Cyclopean grandeur of description in which American fancy is apt to indulge."

Should the editor of the *Edinburgh Review* ever so far humble himself as look at

the words I have the honor of uttering in your hearing to-day, let him read these Cyclopean facts: Since 1855, in a California State Agricultural Fair, I have seen a beet that weighed one hundred and twenty-five pounds; a turnip that weighed upwards of thirty pounds; a corn-stalk twenty-five feet in hight; and pears that weighed four pounds each! Again, in another place, speaking of the now world-renowned mammoth trees, the *Review* states: "The Father of the Forest, a prostrate tree, measures fifty feet in diameter at the base; supposed hight, when standing, five hundred feet. This is a good deal higher than St. Paul's, if we are to believe the authority," adds the writer, with that proper spirit of doubt that is the very essence of, and so becomes a world-circulated review.

Although our mammoth groves of trees, and lately new and still larger ones have been discovered, are justly one of the proudest boasts of our State; yet it is a subject of still prouder boast, that on the slopes of the Sierras, where grow those mightiest monarch of the woods, in the midst of our gold fields, there grow peaches and plums, pears, pomegranates and nectarines, and melons and other fruits, that in size, and beauty and lusciousness, the equal of which the queen of England cannot command from all of her dominions, that stretch through every zone, and on which the sun never sets. These fruits, these productions are spread upon your tables to-day. Our climate—there is no Winter in it; our Winter is an everlasting Spring; our Summer is an everlasting Autumn, that yields the more by reaping. What an inheritance, new and warm without malaria; a virgin soil, prolific of all things but the ague and the pestilence.

Climate! climates rather! We have all the good, without an admixture of an evil climate of the globe. No epicure of air and temperature, and water and medicinal fountains, and food, but that he can, within a few miles of any given spot, gratify his most voluptuous whim in them all. Whether he may delight in the strong embrace of the breeze of the Pacific slope, and the golden gate; whether in the soft luxurious zephyrs of the valleys of the Sacramento, the San Joaquin, the Feather and the Yuba; of Santa Barbara, Los Angeles and San Diego; or whether in the pure and lucid ether of the Sierras, where no cloud or fog is seen in the transparent azure; where there is no decay; where flesh does not corrupt; where the beef, venison and mutton are preserved by the curing chemistry of the pellucid air. It is related of Charles the Second, that, when his courtiers were discussing his merits of various European climates, that he remarked that they had neglected to state the best quality of the English climate, which was that it permitted a man to be out of doors in it more days in the year than any other. Our climate invites a man out in it day and night almost throughout the entire year. It is bed chamber and drawing room to the most fastidious constitution.

In the Summery time, the market-place of classic Athens and the Forum of military Rome were filled with citizens, who "spent their time in nothing else but either to tell or hear some new thing." The Montgomery streets of California are filled by citizens Winter and Summer; and though of the money-making universal Yankee nation—they are seduced to let even money-making alone; and invited out by our more invigorating air, with a zest beyond the Athenian and the Roman, they tell and hear some new thing. But what is of more importance far, the Farmer and the Laborer can work from the beginning of the year and gather elastic vigor from his toil. Here labor does not bring stiffened limbs and rheumatic joints, premature wrinkles, old age and decay, as it assuredly does in other lands. Here the laborer grows the better and not the worse for wear. California is the Paradise of working men.

Here the winters do not eat up the summers. The summer is not a long struggle to provide food and raiment and fuel for the winter. One of the most hopeful of all the signs we behold in the State is that, whilst we behold with sorrow, in our sister States, the inhabitants fleeing from their inhospitable farms to pursue what they deem

more congenial employments of towns and cities, here, with a much greater far-sighted wisdom, the inhabitants turn their back upon city and town for the avocations of agriculture. The best interests of the State, and among the best men, are engaged with the soil. Not second rate men, either in education, information or manhood compose this Agricultural Society.

This Society has originated an intelligent zeal; has newly applied science; has skillfully directed labor, until in these few years, without any braggardism, you have beaten the world; and all this in a climate, in climates (for we have many), unknown heretofore to you all.

Whole farms have been made to yield two thousand three hundred bushels of potatoes to the acre; ninety bushels of barley; one hundred and ten bushels of corn; eighty bushels of wheat; and from fifty to a hundred thousand pounds of carrots, beets, turnips and onions, to the acre. The same land has been made to produce four crops of peas in a year, and strawberries to yield during seven months of the twelve. What an unparalleled impetus all this has given to all branches of industry naturally and directly growing out of it?

The honey bee, an utter stranger to these shores, has been imported across the continent, to disport among our flowers, whose name is legion, and now hundreds of hives treasure up their classic sweets.

The choicest refined sugar has been manufactured from our beets. The first sugar was made in just four months after the arrival of the seed of the beet. Pure white wines, rivaling the champagnes of France, are manufactured.

It is claimed that California invention has succeeded in producing the best reaper in any land. It owes its existence to the genius of an inhabitant of Santa Clara county. With two horses and two men it reaps twenty-five acres in a day; and though the grain be lodged and tangled, it picks it up, and does its work so thoroughly, that scarce a head is left ungathered. We had scarce gotten through the understanding of this machine, when on the same day we were introduced to perhaps a still more marvelous instrument, the invention of a gentleman of Alameda county. This mighty machine went into the field of the standing harvest, and as it swept along, it reaped and threshed, and cleaned and sacked, the golden grain. One sack in each minute of time! The whole world has as yet seen nothing like it!

We have the authority of well informed travelers to assure us that perhaps the best flour mill now standing on the earth is in this State, in the county of Santa Clara. It has been erected at a cost of half a million of dollars. It is finished with mahogany and rosewood, mounted with silver. Not an inappropriate adornment to the perfect works—the ponderous and best possible machinery within—that turns out upon the enraptured eyes the unsurpassed flour that give visions of ambrosial bread!

Two periodicals, devoted exclusively to husbandry, have been started into vigorous and beneficial life, and have made their way to public support and respect, in even this land of newspapers.

The gold trailing miner, the pounding quartz man, the manufacturer, the artist, the artisan and the naturalist, and those who contend in soul and body-stirring feats—like the ancient Olympians—all have come up to share your honors, to contest your prizes, and to divide your spoils.

The mental impetus given by this Association will soon bring about the means whereby the Sacramento, the San Joaquin, the American, the Feather and the Yuba rivers, will be turned from their courses to water these mighty plains like a garden of herbs; and the glories of the valleys of the Nile and the Mississippi, will pass away like a tale that is told.

BUT, LAST OF ALL.

We repose the utmost confidence in such Societies as these, that they will so apply science and skill as that, under a good Providence, they will master all the vicissitudes of the heavens and the earth, so that in the most barren seasons there will be com-

parative abundance. Famine is the ghastliest conqueror of the human race. But Science and Skill, the twin daughters of such a Society as this, can conquer famine itself. They can almost win a crop from the unwilling soil, though there be neither dew, nor rain, nor sunshine. Already they have almost delivered the world from the dread of want, that, heretofore, in all ages, in almost periodical returns, have swept off the human family. The famine in Ireland, in the Cape de Verde Islands, and other countries, are within our own recollection. History gives many most appalling accounts of the ravages of famine, with the pestilence that ever follows in its train. Perhaps the most notable of them all happened in the third century of the Christain era. In that dread period, for men to live on the dead bodies of their nearest relatives was common. Scarce an infant or a child was preserved through that time. They were devoured by their own mothers. The inhabitants of the earth separated from each other through fear. They lived apart and alone, hyena-like. There was no thought in all the world but how shall I keep from starving to death? The human heart was sapless. The human spirit became as that of a beast of prey. When men met, they glared upon each other, vampire-like—like ghouls of the grave—and skulked away, with eyes still fixed upon each other, through fear of being sprung upon and eaten for food. And after the famine came the pestilence that smote the skeletons that were left. It was the visit of "Death on the Pale Horse." And Hell followed with him. And there fell one-half of the human race.

Your Society, and such as yours, under a merciful Providence, will save mankind from these and from all kindred woes.

The exhibition of stock at the show-grounds was quite creditable, though not equalling our expectations, the number of animals falling below what we had been led to suppose would be the result of the efforts made to secure a large attendance. That there were many fine animals—horses, cattle and sheep—that would do credit to older States than ours, cannot be disputed, and their introduction will be found to tell in the increased excellence of many of our future herds. Of the performance of fast horses, rode by men, we must be excused from speaking, for we witnessed none; though several races were made, and on which a few thousand dollars doubtless changed hands, the result of the California State Agricultural Society's horse-race. The fast riding by ladies, we did witness, and as an able writer once said, so say we, that "the nearest approach to manliness allowable for a female to make in a land of civilization, retaining in every sense her womanly delicacy, is racing on horse-back."

There was a very good display of agricultural products. The great variety and unsurpassed excellence of the specimens was a matter of remark by many a stranger who for the first time was witness to a State Fair collection of California fruits and vegetables. The products of the field were fully represented; but not in quantity as we had expected. Of the cereals, there were some of the finest specimens of wheat, barley, and oats, ever exhibited in any country. Corn, of several varieties, both upon the stalk and in the picked and husked ear; with broom corn and hemp of astonishing growth. There was a very fair exhibit of potatoes, including most of the esteemed varieties, without an imperfection or blemish; the disease so destructive to this esculent in the Atlantic States, being wholly unknown in California; specimens of sweet potatoes hard for the world to beat. Chinese sugar cane, twelve feet in hight and highly saccharine, showing the adaptedness of our soil and climate to the

production, in the fullest perfection, of this highly valuable though recently introduced farm product. Sugar beets, the larger ones weighing from twenty to twenty-five pounds; not the coarse, insipid sugar beet of the Atlantic States, but the genuine French beet, that under our cloudless skies develop saccharine properties well worthy the attention of the sugar manufacturer. The usual exhibit on such occasions, of enormous pumpkins and squashes, was not wanting.

In the horticultural department there was a fine exhibit, and yet not equal to our expectations. This is to be accounted for in the difficulty attending the transportation of the finer fruits so great a distance from their locality of growth; it requires the Fair to be held at some more central point in our State, to bring out anything like a full display of our choicest fruits. To those accustomed to eastern fruits only, the specimens on exhibition would have been deemed exceedingly fine. There was a good display of peaches, many of them large, measuring from nine to eleven and a quarter inches in circumference. A fine exhibit of pears, of nearly all the finer sorts; the Bartlett, however, seemed to stand pre-eminent among its fellows. Apples of all the standard varieties, large and fine; and this, their fairness and freedom from every imperfection, is a charming feature in California fruits. We noticed from Los Angeles some splendid quinces; oranges and lemon citrons from San Gabriel. But the grapes were the charming feature of the pomological display; numerous in variety, abundant in quantity and truly luscious in quality, a single bunch from the Empire ranch, Yuba county, weighing five pounds, every grape perfect and entirely free from anything like mildew, mold or rust. It is doubtless the dryness of our climate that tends so much to the perfection of the grape in the open air, and with hardly any more care than is necessary in raising the peach.

There was a better display in the agricultural implement department, than we had expected; and prominent among them were those of California manufacture. Willard's Patent Seed Sower and Harrower, an excellent and perfect machine; Churchman's Washing Machine; A. Ellison's Buckeye Plow, Marysville manufacture, and a very superior implement, the best on exhibition; Ruggs' Patent Reaper and Mower, manufactured by J. N. & B. H. Hoag, Washington, Yolo co., this reaper is especially deserving the attention of farmers; J. N. Manny's Patent Combined Reaper and Mower, with T. Ogg Shaw's improvement; Smith's Patent Gang Plow, a capital invention and combination, and works admirably; T. Ogg Shaw's improved fanning mill; a self-acting cheese press; Patent Portable Digger and Cultivator; Cast steel right and left hand deep Chili Plows; Improved Subsoil Plow; Butter Worker and Churn; mining implements and castings of superior workmanship. Of eastern manufacture, but highly deserving the attention of agriculturists, was Seymour & Morgan's N. Y. hand-raking Reaper, John H. Voorhees, San Francisco, agent.

Of the rules and arrangements for conveniently conducting the Fair, they were certainly ample and admirable; but in more than one instance were rendered abortive, or conduced greatly to the inconvenience of both exhibitor and visitor, simply from a lack of adherence to the printed programme. A want of punctuality to time was a great annoyance, and appeared to pervade every department, producing much inconvenience to all. The great objects desired to be promoted by these State fairs,

seem to be, to a great extent, lost sight of; for whilst they should wholly, and only, tend to the advancement and improvement of agriculture and kindred sciences, there are not wanting those who seem to think the main effort of the managing committee should be to benefit the *locality* of the Fair, even though at the expense of visitors and exhibitors. For instance, at Marysville, we find the arrangements were such as to make it necessary to repair to the race course, nearly three miles from the city, over an intolerably dusty road, nearly every day of the Fair, or miss of seeing some of the exercises. This was wrong, as it would have been just as easy, and far better, to have all such exercises as required a race course for their exhibition, upon one day.

There was much to admire in the management of the Fair by the executive committee; here and there a little to condemn; but with the experience of the past, the management of each succeeding annual Fair, can be an improvement upon the last.

DEEP PLOWING.

Ed. Culturist:—I quote a few lines from your article on deep plowing, (page. 11, No. 1): "In growing of wheat and barley, farmers are every year reminded that the volunteer crops which receive no other attention than the harrowing in upon land just harvested, without any plowing, are often greatly superior to those upon adjoining lands, prepared by deep plowing and mellowing. And particularly is this the case in seasons of drouth."

Now, Mr. Editor, as I do rather "harp upon the old agricultural theory" of deep plowing, as being especially adapted to California;—believing it to be the best harp for emitting the music of coin,—and yet do not wish to propagate error and do harm, but just the reverse; you will please excuse me for making the enquiry, what do you intend for us to understand by the above quotation? It surely cannot be that you mean for us to throw away the plow, and depend upon volunteer crops; yet that is conclusion which the quotation leads me to, for, if experience has proved that volunteer crops are superior to those on similar lands well plowed, and sown early in the season so as to have the benefit of the first rains; or even that they are as good; then, indeed, we should waste no more time and money plowing for grain.

On first reading your article on "Deep Plowing," I thought that in your hurry you had made a mistake, and would correct it in the next number; or, if not, some able person would answer it; but neither event happening, you will please excuse this effort to awaken enquiry on the subject, and thus prevent inexperienced persons from being led astray by what I believe to be false doctrine. I have consulted my neighbors on the subject, and thus far find them to agree in saying that the deepest plowed land brings the best crops; and my own observation has fully confirmed me in the opinion that deep plowing is most profitable; and especially so, in the growing of all hoed crops, my experience in the raising which has so fully convinced me, that I never again expect to plant on land that has not been deeply plowed or subsoiled. Yet I do not doubt that you have seen v[illegible]nteer crops as good, and perhaps better, than crops on plowed land adjoining. B[illegible]id you see all the reasons why? Are you sure it

was all equally well drained? Then, was that on the plowed land sown as early, as to sprout and grow when the volunteer did? I think one of the great secrets of grain growing, is to have the seed sown early; and the way to do that is to summer-fallow, which I believe is of itself a benefit, though as many think they cannot afford to let the land lay idle during a summer, I propose for them to plow deep for a bean crop, then sow their grain early in the fall where the beans were grown.

Though I advocate deep plowing during the rainy season, I agree with you, that it is not right to continue turning the soil during summer, or after the dry season has commenced; then if your soil has been deeply loosened up after the last heavy rain, the hoe to keep down the weeds will be all the cultivation necessary. Now a word to those who may think they have not time to give their experience in writing. Suppose you saw a farmer trying to save his stack of grain from fire in the stubble, would you not cheerfully stop and spend half a day helping him? I trust you would, and therefore, will ask you to spend a few hours in giving your experience which may save, or earn to many a farmer more than a stack of grain. D.

OUR ANSWER.

If our correspondent will turn once more to our article on deep plowing, he will find, besides that portion he quotes, the following: "What of moisture the crop is to receive, after the spring rains have ceased, must be from below; and to plow or stir deeply the surface earth, is to dry it and force the plant to go still further down, and often below the more fertile soil in search of moisture." We think there can be no mistaking us in this, that the remark is only applicable to *growing crops*, and not to the *preparation* of ground for a crop; and as it cannot apply to wheat, barley or oats, as neither of them come under the head of plowed or hoed crops, we do not differ widely from D. upon this point, for he says: "I agree with you that it is not right to continue turning the soil during summer, or after the dry season has commenced." Then the only matter of difference, if any, is in regard to the *best preparation* of land for a wheat or barley crop.

We think it hardly fair to suppose that because we stated that volunteer crops were often better than those adjoining upon lands recently deeply plowed, that therefore we advocated no plowing at all as a preparation for a crop. D. must know that there is a wide difference in the condition of land that was well plowed and fitted six or eight months previously, and having produced a crop, is now in stubble and ready to be harrowed for a volunteer crop; we repeat, there is a wide difference between the texture of such lands and those that were never plowed at all.

We think it very necessary to fit land properly for the reception of seed. The only question then is, what is that proper condition? We hope to be excused for quoting the words of one of England's most experienced and successful wheat growers. He says: "I find after years of careful experiment and close observation, that wheat delights to grow upon a *firm bottom*;" and then adds, "plow deep, subsoil if you will, for all manner of crops; but for wheat or barley let it be done at least *six months previous* to seed time; but plow *shallow* for the seeding."

Now, is not this just about equivalent to the plan D. would suggest, of plowing deep for a bean crop in the spring or rainy season, and then upon the same land sow

his wheat crop, thus making it in all respects a volunteer crop, except that the grain is regularly sown instead of being scattered upon the land in the gathering of a crop, and then harrowed in. In one case the land is plowed for a bean crop, in the other for a wheat crop, both are produced, and then both alike ready for a volunteer crop on the seed being sown and harrowed in. We are as earnestly the advocates of deep plowing in the preparation of ground for all hoed crops, as is our correspondent. We would also plow deep for the early preparation of the soil for wheat, but not at the seeding time, as is too often practised. Experiment has shown that a strip of land through the middle of a stubble field, where a volunteer crop was to be grown, plowed deep in autumn, sown and harrowed in at the same time with the volunteer, did not equal in any respect the volunteer portion of the field. Therefore at the time of sowing wheat, we would rather plow shallow or six inches deep, than to plow ten inches in depth, these being our standards of shallow and deep plowing.

We are pleased at the spirit shown by our correspondent, and hope to hear from him often. We shall endeavor at times to so word our views upon the various subjects connected with agriculture as to call out the opinions of our readers, if they will take the trouble to express them; believing that much good may result from interchange of sentiment and opinion.

ALFALFA—CHILI CLOVER.

Editor Culturist:—I have heard a great deal said about the value and superiority of Chili Clover as summer feed for stock and for hay. I have had but poor success thus far with the grasses usually cultivated in the Atlantic States, except upon alluvial or bottom lands, or upland thoroughly irrigated. I wish to find some kind of grass that will grow upon good upland, and remain green through our long summer of great heat without rain. Will the Chili clover answer my purpose, and what are its growing, feeding, and hay making qualities? By giving me the information desired, or such information as you may be able to impart upon the subject, you will much oblige A Subscriber.

The Alfalfa is clearly a clover, not a grass. All clovers root differently from grasses, the latter with fibrous roots running near the surface, the clovers with surface roots and also sending down a deep tap-root that will reach to moisture—if the soil will admit of it—sufficient to maintain the plant in a green state, through the driest summer of an Atlantic clime. But in California it is different; our long protracted season of uninterrupted sunshine, without a shower to moisten the vegetation of our hills, is a little too much for the red and white clovers to endure, they generally succumb to the drouth months before the autumnal rains set in, unless occupying grounds naturally subirrigated or artificially upon the surface.

Not so with the alfalfa; and yet we would not be understood as saying that it can be grown satisfactorily upon all the driest hills or plains of our State; but so far as numerous experiments, upon a great variety of soils, tend to establish the fact of its entire adaptedness to the wants of our stock growers for green summer pasturage, the clearest evidence is not wanting.

A large number of farmers and stock growers in different parts of the State, attest

to its superiority over every other clover, or any of the artificial grasses yet introduced. The truthfulness of this remark, however, holds good only in reference to such localites as are not subject to severe frost. It seems to be a clover of more delicate tissue than the common red or white, and more susceptible to the influences of cold; in fact, an exotic clover perfectly adapted to a hot and dry climate. Its habit of rooting deeply serving to sustain it where all other clovers or grasses would perish. That it has this habit we have proof, in the fact that through a field, where in consequence of a break in a mining ditch a deep gully was cut, the roots of the alfalfa, of two years from the seed, could be distinctly traced a depth of twenty feet perpendicularly and almost filling both soil and subsoil with its masses of smaller horizontal rootlets.

It sends its roots deep into almost any soil that is not a stiff clay, supporting a permanent green pasture through the entire season; or it may be cut three times during the summer for hay. In proof we instance the fields of John Brophy, of Brophy's Ranch, six miles from Marysville, from which three cuttings have been obtained the present year, of two tuns to the acre of dry hay each cutting. The quality of the hay is unequaled, its close and vigorous growth when properly occupying the land, choking out all weeds and other less valuable vegetation.

It would be easy to enlarge upon the advantages likely to accrue to California from the introduction of the alfalfa; but we defer further comment until the season arrives for preparing the ground and sowing the seed for an alfalfa crop, when the subject will be renewed.

SORGHO, OR CHINESE SUGAR CANE.

THIS new saccharine plant, so widely disseminated within the last three years, so highly valued by many and condemned as worthless by not a few, at least in the Atlantic States, who have been experimenting with it, has had, during the past two years, a very fair trial in California, so far as relates to its growth; and from every section of the State, where the soil and climate would be expected to be favorable to the development of its saccharine properties, the most flattering reports have reached us of its apparent perfect adaptability to all the purposes, that in the most favored locality of its native soil and clime is accredited to it.

North and south, through all the lower valley country of the State, not subject to the coast winds, it attains a perfection equal to all that could have been hoped of it. As far north, for instance, as Tehama, Newell Hall, Esq., has grown the Sorgho in admirable perfection, and with a very simple arrangement for expressing and concentrating the juice, has manufactured a very good quality of syrup, fully equal to any of the molasses of commerce, and at a cost that renders it certain, that with proper machinery and mode of manufacture, it can be made a profitable enterprise for the agriculturists of California, favorably located for its production. The almost perpetual heat and sunshine of our summer tends to a concentration of its saccharine juices, to an extent that cannot be realized in any country subject to wet and cloud for half the term of daylight. It is this feature of our climate and the perfect adaptation of

soil to its growth, that renders the question of its successful propagation no longer problematical.

It is a plant highly useful beyond just merely its saccharine product. To give our readers an idea of its multiplied uses, we subjoin the following, from the notes of the Paris correspondent of the *Journal of Commerce*. He says:

The sorgho, or Chinese sugar cane, which has attracted so much attention, formed a prominent feature in the late annual agricultural exhibitions of France. This plant is extensively and successfully cultivated in the south of France and in Algeria; and as an evidence of the extent and variety of the application of its material, we may mention that at the late exhibition at Avignon, M. Prieur exhibited a group of samples illustrative of the metamorphoses to which he has subjected it. Nothing could be more curious than the succession of transformations there shown. In one corner could be seen the sorgho in stalk, such as it is when cut; a little further, were its fibres converted into thread, in skein; then a piece of linen woven with the thread; then a handsome cloak, bordered with furs, which M. Prieur designs for the Prince Imperial.

The most curious and complete array of the products of the sorgho, however, at the same exhibition, was that of Dr. Sicard, of Marseilles. With the pith he has manufactured excellent sugar, which will favorably compare with any other whatever. By grinding the seed he has obtained flour and fecula, of which he has made bread and chocolate, which the many tasters have found palatable. He extracts, moreover, from the plant, an abundance of alcohol of superior quality, and besides, a most agreeable wine, containing in large quantities all the tonic and other salutary elements of the juice of the grape. In addition, he makes paper out of it, of which he showed evidence in superior samples; by chemical agents he gets from it gamboge, ginseng, carbon; skeins of cotton, wool and thread dyed with sorgho in those delicate and varying shades which hitherto have been found only in the stuffs and articles coming directly from China. We should add that the new derivations (as we may style them) from the cane are complete, and can be delivered to trade and industry at determinate prices.

QUANTITY v. QUALITY.

IT has been surmised by many that the enormous growth of California products, and particularly fruits and vegetables, may be found to be at the expense of quality, and here and there we meet with one who really believes he does not find the high flavor in the fruits he consumes that he was wont to in the fruits of the Atlantic border. We are inclined to the belief that no better fruit than California produces can be found elsewhere on our habitable earth. That there are some sections of the State better adapted than others to the production of particular varieties in their fullest perfection, experiment has already proven, and the same can be said of localities in the Atlantic States; so that no one can hope to be so situated as to insure perfection in every one of the many varieties of fruits he may cultivate.

This being true, it may be difficult for him to form a correct judgment as to the true quality of some of his fruits, or what they would be under more favorable circumstances of exposure, air and climate. That our very climate in its preponderance of warmth over cold, is peculiarly favorable to the concentration of all the bet-

ter qualities of fruits that have the sacharine principle as a basis, all must admit, for nothing was ever better established at the East than the fact that the driest seasons produce the finest flavored and the best keeping fruits, though not as large as the fruits of wet seasons.

In California we combine all the requisites of the best fruit-producing country; a sufficiency of moisture, either naturally or by artificial irrigation, and all the warmth and even heat that fruits can bear; so that there seems no *good* reason why our fruits and vegetables should be supposed inferior, merely because they attain extraordinary size and beauty.

Most persons from youth to even old age, think, or seem to think, that there is no other place on earth that can quite compare with their childhood's home; and yet stern reason teaches them that there are many places else, that far excel the one they love, in all the attributes of perfection. So, too, may not the tastes of our earlier days for the fruits of our cherished homes be now overrated as applied to those we enjoy in maturer years? One proof we have of this. All, yes, *all!* who go from hence to eastern homes sigh for the fair and luscious fruits they have left behind.

That our cereals attain a perfection nowhere surpassed, was clearly established by specimens on exhibition at the late State Fair. Samples of wheat, from Brophy's ranch, near Marysville, were shown weighing sixty-five pounds to the bushel, from a field sown on the 15th of October, and harvested on the 6th of June. Spring wheat, weighing sixty-two pounds to the bushel, and oats forty-five pounds to the bushel, establish beyond controversy the perfection of our staple grains.

With this view, and proof before us, of the perfect adaptedness of our soil and climate to the perfection of agriculture and horticultural products, we can hardly admit that they are in any respect inferior to any the world can produce.

HONEY BEES.

AN interesting and noticeable feature at the late State Fair, consisted in the numerous swarms of honey bees on exhibition, some of them in hives so constructed that the working of the bees was subject to inspection; the royal cells, in which the queens are reared, as well as the cells of the drones, and both differing materially from those of the working bees, were all clearly presented to view, and in themselves objects of curiosity. The queen of the hive, too, as she moved around in the midst of her colony, by her peculiar form could be identified with certainty, and her movements and the deference paid her by all the other bees in the vicinity of her august person clearly observable.

Not only the bees, but the hives, on exhibition were objects of peculiar interest. Improvements upon improvements having been made, till now the division of colonies, and the consequent indefinite increase without the risk of losing by the usual swarming process, has been reduced to a system perfectly practicable.

The bee-hive of J. S. Harbison attracted much attention, as being an improvement upon the celebrated Longstroph hive, and admirably adapted to the purposes of

the amateur apiarian. One of these hives is now on exhibition at the Mechanics' Pavilion in this city, and is an object of curiosity as well as interest. Mr. Harbison has established his apiary upon the river, three miles below Sacramento, and is a very successful manager and propagator of the honey bee.

J. V. Hoag, of Washington, Yolo county, is another amateur manager of the bee, and has now thirty colonies of bees that he has produced from ten on hand last April, and all doing well, being vigorous and strong colonies, and collecting a large quantity of honey. From a single hive, Mr. Hoag has taken as surplus honey, since last April, seventy-three pounds; from another hive seventy-one pounds, and from others nearly as much—always leaving enough for the bees.

As with all others of the animal creation in California, so with bees; they are exceedingly prolific. From a new colony or swarm, hived on the first of May, a new and strong swarm was sent out on the 19th of June, and another on the 29th of the same month; all of which have their hives now nearly filled with honey. We visited Mr. Hoag's apiary on our return from the State Fair, purposely to satisfy ourself of his management and acquaintance with the habits of the honey bee.

Another hive, on exhibition at Marysville, was that made and exhibited by D. Herring, Oak Grove Garden, Marysville, and though claiming no patent for his invention, has undoubtedly produced a hive that for perfect simplicity and real usefulness, is without a rival, and without doubt will be extensively adopted; particularly by those who are as yet novices in bee management. We shall resume the subject of bees and their management when we have more space and time to allot to it.

FRUIT TREES.—WINDS.

Editor Culturist :—My fruit trees transplanted into a good soil last spring, have made an exceedingly thrifty growth, so much so that the prevailing strong winds of this locality, are swaying them from their proper position, and giving to the trees a one-sided growth. Now as I have no hope that the winds are to cease just to accommodate my trees, please tell me whether it would be advisable to cut back the longest limbs at this season of the year, that the winds may not take so strong a hold of them. K., *Georgiana, Sac. Co.*

If our correspondent's trees have completed their growth for the present year—as doubtless they have, but which can be ascertained by noticing the terminal buds of the limbs,—then we would cut back at least one third of the present season's growth. If you cut away more than this, the tendency will be to produce a new growth the present year; which is not advisable as it will not perfect its growth before checked by the rainy season. It is evident that a mistake has been made, in not cutting back the vigorous growth of wood at an earlier season. If this had been done, say about the middle of June, probably three or more limbs of shorter growth would have been produced, where there is but one long one now.

This tendency of nearly all our young fruit trees to make an extended instead of a compact growth, is a fault, and to correct it and give a proper symmetry to the tree,

it must be commenced with the first season of its growth, and continued perseveringly till it has attained the form desired. It is doubtless best for all whose trees are exposed to the regular strong wind currents that prevail in many localities in our State, to train low. To do this, and give breadth to the tree at bottom, nothing but early, repeated, and always judicious, cutting-in can accomplish.

THE SUGAR CANE.

I SHALL endeavor to treat of the sugar cane in various aspects as far as the means within my reach will permit. I will first examine its history, and incidentally its nativity or the countries in which it is indigenous.

2d. I will examine its botanical structure and classification.

3d. I will treat of its habits, its constitution and acclimation.

4th. I will examine its uses, products, and the processes of their manufacture.

The history of the sugar cane dates back to an early period. Some writers suppose it was known to the Jews at an early period of their history, and that the Hebrew word sometimes rendered calamus, and sometimes sweet cane, did, in fact, mean the sugar cane. It was first made known to the Greeks, according to Strabo, by the military expeditions of Alexander the Great, three hundred and twenty-five years before Christ. His fleet of two thousand ships sailed down the eastern branch of the Indus, and thence along the coast to the Persian Gulf, and up the Euphrates to Babylon. It was during this voyage that Nearchus, the commander of the fleet, found the sugar cane, cultivated by the inhabitants of the country, probably about the mouths of the Indus. Alexander himself did not make the voyage, but returned with a part of his army from the forks of the Indus to Babylon by land, so that we are indebted to the report of his voyage, made by Nearchus to the king, for the record of the discovery. It would seem that Alexander himself, who sailed down the Indus to its western mouth in N. L. 24°, did not meet with it there, or anywhere personally during his expeditions. This would seem to indicate that it was not indigenous in any of the countries traversed by him in person, although it is not conclusive. It may be that the cultivation only had not extended. It is spoken of by Varro, Dioscorides and Lucan as a large reed produced in Arabia and India, which yielded a kind of honey called saccharon. They describe it as a kind of salt, and as brittle when chewed, and dissolving in water. The art of crystalizing it must then have been known. These writers refer to the century immediately preceding the Christain era. Lucan says also that certain Asiastic nations in alliance with Pompey used the juice of the cane as a common drink.

Arrian, who wrote in the second century of our era, speaks of sugar by the name of sachar, as an article of commerce from India to the Red Sea in his time. Tertullian, in the same century, speaks of a species of honey procured from canes. It would appear from these that its use in both the forms of sugar and molasses, and perhaps some others, was then known to the Romans.

Some writers have supposed that the crusades brought the western nations of Europe acquainted with the sugar cane and its products, but I can find no allusion to it in the meagre chronicles of any of their writers. It is a remarkable proof of the decline and loss of knowledge, and of the cessation of intercourse between the inhabitants of different countries once connected by commercial relations, that the next notice we have of the sugar cane and its products is in the travels of Marco Polo, between the years 1270 and 1295. He speaks of sugar as an abundant product of the southern parts of China, or Mansi, as he terms it, and of Bangala, or Bengal in

modern nomenclature, from which the Tartar government of Kublia Khan derived a large revenue. Next, Varco de Garna, in 1497, found a considerable commerce in sugar carried on in the Kingdom of Calicret, then a small kingdom lying on the east coast of the Arabian Sea, between the modern Bombay and Cape Comorin, in about 12° N. L. It was found in Nubia by John Lioni in 1500, and a considerable commerce in sugar was then carried on in that country. It was abundant at Thebes, on the Nile, and in the northern parts of Africa at the same period.

Bruce found it in upper Egypt in 1768. In the countries discovered by Columbus, the sugar cane is shown to have been known in Hispaniola during Columbus' second voyage. It was undoubtedly indigenous in the West India Islands and on the north coast of South America, and in Southern Africa, where several varieties are now said to exist in a wild state. It was not probably indigenous in any country beyond 25° on each side of the equator, and only in low and warm situations within most of those limits.

2d. In its botanical classification it is a genus of the Digynia order, belonging to the Triandria class of plants; and in the natural method ranking under the fourth order Gramina. It has no calyx, but a long down, and the corolla is bivalved. The root is fibrous, and divided into many radicles. The stem or stalk is a jointed reed rising from six to fifteen feet. The joints vary in number, according to the variety, from ten to sixty. In some varieties the joints are naked, without leaves or blades, only showing a small germ or bud at each joint, in others a sheath arising from each encases the stalk half way to the next joint, when a leaf or blade, lanceolate and deeply serrated on the edges, resembling the blade of the common corn, springs out. The varieties whose joints are naked have a tuft of lanceolate, serrated leaves rising from the top of the main stalk, from the center of which a small arrow rises from three to five feet, bearing the reeds in the form of a panicle at its summit. The form of the seed vessel is, so far as I can learn, the same in all the varieties. When ripe, the stalk or stem is a fine straw color, approaching to yellow. Several stalks often, but not uniformly, rise from one root.

3d. Its habits vary with soil and climate, and exhibit unequivocal proof of its tropical nativity. In regions where frost is unknown, the root is perennial in its native state, with an annual stalk. Where cultivated in the same districts, annual cutting in three years so far exhausts the root that replanting becomes necessary. This is sometimes, but rarely, done with the seed. The usual method is to lay down the stalk. For this purpose a trench is dug with the plow or hoe, five or six inches deep, and fifteen inches wide at bottom by two and a half feet at top. Five or six joints from the tops of the stalks are then cut off and laid lengthwise in the bottom, and covered two inches deep with the earth taken out of the trench. When the plants have risen a few inches, the weeds are removed, and they are hilled up a little with a part of the earth taken from the trench, which is called a bank. This process is repeated until the bank is exhausted. They must be kept clean of weeds, and all lateral shoots should be removed which spring up after the cane begins to joint. The rows are three and a half or four feet apart. In some rich spots on the island of St. Christopher, an acre has produced eight thousand pounds of Muscovado sugar in a year. Two hogsheads of sixteen hundred pounds each, per acre, is about an average yield on that and other West India islands. As we recede from the tropics, the plant becomes less luxuriant, and its habits and constitution seem to undergo a change. In Louisiana, between 29° and 33° N. L., it becomes an annual plant, and the variety usually cultivated is liable to be so injured by frost, that the stalks can not be used for propagation. It is evident that it acclimates slowly. Some varieties are either naturally more hardy than others, or they have been earlier pushed beyond their native limits.

A variety distinguished as the Chinese sugar cane, to which the botanical name of sorghum saccharum has been given, has been introduced into the United States

through the Patent Office within the last three years. A botanical writer in England, in 1816, gave to the sugar cane the botanical name of saccharum officinarium, and stated that there was but one species. He described the cane of the West India Islands. Earlier botanists named it arundo saccharifera. Instead of a variety, it seems to me to be entitled to be classed as a distinct species. It is possible, however, that all the distinctive features may have been caused by the process of acclimation.

Mr. Wray, an intelligent traveler, in 1851 found no less than sixteen varieties of sugar-bearing cane in Caffraria, and easily made sugar from them. Mr. Wray names the plant the Imphee. Such confusions of names are very common amongst botanists, as might very reasonably be expected, where more than two hundred thousand varieties of the vegetable kingdom, all having more or less in common, are to be classified and arranged. Some of the varieties, no doubt different ones, are now cultivated more or less in England, France, Spain, Portugal, Italy, Germany, Belgium, Turkey, Mauritius, Australia, Ceylon, Africa, Eastern Asia, the West Indies, Mexico, Brazil, Canada and the United States.

The variety recently introduced into the United States under the various names of sorghum saccharum, sorgho sucre, and Chinese sugar cane, was introduced by the seed directly from France through the Patent Office, and indirectly from the north part of China, whence its name. It is supposed to be a different variety from any of the sixteen varieties found by Mr. Wray in the south of Africa.

If it has been, as stated, brought to France from the north of China, its cultivation has been extended since the time of Marco Polo, the close of the thirteenth century, from the southern to the northern parts of China, or through probably about twelve degrees of latitude. This will account for some of the reports respecting its properties and habitudes which have accompanied its introduction into this country. The temperature of N. E. China, in latitude 40°, is about equivalent to N. L. 45°, in the interior of the North American continent. As it is well known, therefore, that a proper ripeness of the cane is indispensable to the crystalization of the juices, it is no matter of surprise that the cultivators in that district of country should be unable to make sugar from it, although in the south of China and Bengal immense quantities of sugar were manufactured from it six hundred years since. We know also, in countries situated in the same great division of the earth, sugar was known aud in use more than two thousand years since, and we have no account of any more than one variety of the cane in Asia. It has been planted in various parts of the United States in 1855, '56 and '57, in only a few localities in 1855 and '56. In 1857 it has been planted to a greater or less extent in every State in the Union, and a very general interest has been excited respecting it. The season has been an unpropitious one; corn, grapes, and some other article of common cultivation not having matured by any means as usual.

Nevertheless, much has been gained. The habits and capabilities of the plant have been ascertained, and its success as an article of cultivation and manufacture rendered certain. The average temperature of the great Mississippi valley, from the foot of the Laurel Hill west at least to the border of Kansas and Nebraska, is as high, if not higher, in 40° N. L., as that of China in 35°. May we not then reasonably presume, from the experience of the past, that in ordinary seasons, with proper cultivation, it may be thoroughly ripened in the wide extent of country between the Alleghany Mountains and the elevated country approaching the Rocky Mountains, as far north as 41° N. L.? Many experiments have been made the present year to determine the amount and quality of its products, the uses to which the different parts of the plant may be applied, as well as the best mode of treating it during its growth, and the best mode of extracting and manufacturing the juice. It can not be expected that the experience of one year, that an unfavorable one, will have matured any definite system upon any of these important and interesting questions.

For example, some have pruned out all offshoots, and restricted the canes to five or six in a hill, planting the hills four feet each way. Others permit all offshoots to grow, increasing the canes to ten or twelve in a hill, in a strong soil. Some pull out the panicles as soon as they rise above the upper leaf; some cut them off when in bloom, and some suffer them to ripen; and no opportunity has yet been afforded of comparing results and ascertaining which has been most successful. Various and widely different estimates, ranging from one hundred to four hundred gallons per acre, have been made as to the quantity of syrup it would produce. A few samples of sugar have been produced. The machinery for expressing the juice has been hastily constructed and imperfect. Most of it has not extracted more than three fifths, and some not more than one half the juice, and this, with the difference in the growth of the crop and the various stages of ripeness and modes of treatment, will readily account for the different estimates of quantity as well as any discrepancies in quality. Some experiments seem to indicate that most of the extraneous elements to be separated from the juice are obtained from the hard shell of the canes and the sheaths of the leaves, the juice of the ripe pith being found to be nearly colorless, and to be pure water and sugar. The juice of the ripe cane has a specific gravity of 1.085. Extracted in the progress of the plant towards maturity, it increases in density from 1.025 to 1.050, 1.075 to 1.085 when fully ripe. The proportion of sugar increases in the same ration, and readily accounts for the fact that where one has made one gallon of syrup from ten gallons of juice, another has made a gallon of equal density from five gallons of juice. I need only remind your intelligent readers that the difference between the specific gravity of water and the juice of the sugar cane is caused by the presence in solution in the latter of sugar. The specific gravity of pure white sugar is 1.6065 according to some, and only 1.4045 according to other chemists.

The percentage of sugar, therefore, increases in the rates in which the cane approaches maturity. The proportion of sugar contained in the juice ranges from ten to sixteen per cent. In the process of manufacturing, various modes have been tried. Some add a very small quantity of quicklime to the juice when put over the fire. Some prefer and use chloride of lime. Some use nothing at that stage. All agree in heating the juice slowly to about 180°, and keeping it so for some time, from one to two hours, taking care that it does not boil. The object is to bring as much as possible of the extraneous and ferulent matter to the surface, whence it was removed by skimming. Lime is used to neutralize the excess of oxygen in the juice, which prevents the formation of sugar. Those who reject the use of lime, in place of it, when the juice is about two thirds evaporated, add a small portion of sweet milk or well beaten whites of eggs, which produce effects similar to the lime. Many experiments yet remain to be made before the proper mode of treatment shall be discovered and become generally established. Wherever the saccharine principles exist in sufficient quantities, there is no doubt that by proper processes they can be concentrated and crystalized. The processes adapted to the particular combinations are to be sought out and applied. That the skill, science and energy of this country will prove unable to accomplish it, is an imputation not for a moment to be tolerated. Sugar, syrup, or molasses and alcohol, will soon be produced from it in Ohio in abundance. No part of the plant is useless. The young stalks and blades are a rich and palatable food for stock of all kinds, and by cutting it above the lower joint in July two crops a year can be cut for fodder. The seed, of which it produces from twenty to fifty bushels per acre, is heavier and a more nutritious food for horses, cattle, sheep, poultry, and hogs than oats. The fable of their being poisonous to horses is simply absurd. Some imprudent man has no doubt foundered a horse to his death on it, as many a one before has done on wheat, rye, corn, and oats, without ever sagely inferring that those grains were poisonous.

From the stalks, after the juice was expressed, a fine, close, strong quality of paper has already been manufactured in sufficient quantity to afford a certain test.

SOUTH DOWN SHEEP.

THIS breed of sheep must become popular among California farmers, for it is well known that the quality of mutton is superior to any in the world, and when contrasted with other sheep, they possess all the advantage, even when fed on the same food, and will produce more mutton.

Low says: "It is to the effects of careful culture, under favorable circumstances, that the modern South Down owe the superiority which they have acquired over all the other short-wooled sheep of the midland and southern counties of England." They are naturally of a healthy constitution; patient of scanty herbage, and from the closenesss of their fleece, fitted to resist changes of temperature; possessing the faculty of becoming inured to new conditions of soil and temperature.

Youatt says their disposition to fatten enables them to be brought into market at twelve to fifteen months old, when they average eighty pounds each; at two years old they will weigh from one hundred to one hundred and twenty pounds each.

The wool of the South Down sheep, when washed, weighs about three pounds to the fleece, but in some highly fed flocks its weight is four pounds or more.

With their hardy constitutions, and being prolific, often producing twins, and contrasting the value of their wool, the South Downs are without any doubt the most valuable breed of sheep to propagate in California.

I send you with this a drawing of "Master Fordham," South Down ram, winner

of first prize of his class at the Monmouth county show at Freehold, N. J.; also, first prize of his age and class at the New Jersey State Fair, at New Brunswick, 1857. He was lately purchased from J. C. Taylor, Holendel, N. J., by J. W. Mowe for Messrs. Carroll & Stanwood, of Sacramento, who also imported at the same time

buck "Frank" and three ewes, at a cost of some $1,300 for all. The sheep were exhibited at the State Fair at Marysville, taking first premiums in their class, and were the finest sheep ever exhibited in California, attracting universal attention.

I enclose you a letter from a correspondent, which may prove interesting to your readers. MONTAIGNE.

Dear Sir:—As far as I have been able to learn, the South Down is the oldest pure breed of sheep in existence. They have been known in England as a distinct breed for at least ten centuries; and it is owing to this long fixed character that they always impress their peculiar marks very strongly upon any other breed with which may be crossed. They derive their name from the range of chalky hills on which they were found and for ages bred—called the South Downs. This range of hills "enter the county of Sussex on the west side, and are continued almost in a direct line as far as East Bourne, where they reach the sea. They may be considered as occupying a space of more than sixty miles in length, and about five or six in breadth, consisting of a succession of open downs, with very few inclosures." Yet although they were a superior sheep for ages, it is within one hundred years that they have been brought to that degree of perfection which they at present exhibit. Their strong advocate, and the first breeder that brought them to any degree of perfection, was Mr. Ellman. He says of them: "This breed was formerly of a small size, and far from possessing a good shape, being long and thin in the neck, high on the shoulders, low behind, high on the loin, down on the rump, the tail set on very low, perpendicular from the hip bones, sharp on the back; the ribs flat, not bowing; narrow in the forequarters, but good in the leg, although having big bone."

From the above quotation, I suppose Mr. Ellman described them as badly as he knew how, so that the great improvement he really made in the breed might be more apparent, and give him the more honor. But Arthur Young, who saw them in 1776, thus speaks of them: "Fine wool is certainly a very considerable object, provided it is gained on a well formed carcass; but if a fine coat is procured at the expense of a thin chine, low fore end and rising back-bone, the advantage is purchased too dearly. The faults most common in the South Down breed are these three: They are found very general, even in the best flocks, inasmuch as not more than one sheep in a hundred, perhaps in two hundred, is to be seen tolerable free from them." According then to Arthur Young, and Mr. Ellman, the South Down, less than one hundred years ago, was far from being handsome to the eye, or well developed in the valuable points, as we in this day see them, when procured from improved flocks; yet even now we often see South Downs that are not what they ought to be in many respects. Notwithstanding the faults, the Down was, even in 1776, one of the very best breeds in England, being hardy, and producing the best quality of meat. Arthur Young in after years, after examining Mr. Ellman's flocks, and seeing what persevering effort could accomplish, says: "Mr. Ellman's flock of sheep, I must observe in this place, is unquestionably the first in the country; the wool the finest, and the carcass the best proportioned; both these valuable properties are united in the flock of Glynde. He has raised the merit of the breed by his unremitting attention, and it now stands unrivaled." After the improvement of Mr. Ellman, the Downs began to spread over many counties of England; either the pure breed, or its crosses, became the rival of the Bakewell and its crosses, and now at the present day no one breed has as many advocates as the South Down.

Holendel, N. J. J. C. TAYLOR.

DRYING RASPBERRIES.—Spread the berries on earthen plates; place them in a hot oven until they are scalded; then turn them on drying boards, or hurdles, and dry in the sun.

AGRICULTURAL FAIRS—HORSE-RACING.

A GREAT deal of dissatisfaction has arisen among the members of our State Agricultural Society, in reference to that part of the exhibition which embraces horse-races and trials of speed. That the exciting scenes of the race-course drew out numbers that would not otherwise attend such agricultural fairs, may be true, and so would the exhibit of a bull fight, or the worrying to death of a bear by dogs, or the *flaying alive and tearing to pieces the timid hare by a pack of greyhounds;* but the question is not as to what will call out the largest attendance; but rather what exhibit will tend most to the advancement of agriculture and kindred sciences; and we hope, for the future success and credit of our State Agricultural Society, that all proceedings not strictly in conformity with the best regulated agricultural fairs the world has ever known, be ruled out.

We are not alone in our views, for as touching this point directly, we subjoin the following from the *American Agriculturist:*

We have found time to visit only a few of the State and county agricultural exhibitions, but these have been quite sufficient for the present year, and for all time to come, unless they are to be differently conducted hereafter. From the representations held out previously, and from the modified tone of the "announcements," we hoped our agricultural gatherings would this year be something more than regularly organized horse-races, with a few extras thrown in, such as cattle, horses, sheep, swine, grain, vegetables, implements, etc., just to give an agricultural coloring to the affair, and to draw out the exhibitors of such useless things, together with their families and—their "quarters." But we confess to disappointment. With a few honorable exceptions, so far as we have witnessed and heard from, the principal attractions of the so-called agricultural exhibitions this year have been the exciting scenes upon the circular track. We appeal to those who have been at most expense and trouble in getting out their farm and garden products on such occasions, to say whether they have not invariably found that their animals, grain, and fruit, etc., have not been almost entirely neglected, except by a few early or late straggling visitors, and simply because during the middle of each day, when nine-tenths of the people visit the grounds, their whole attention has been drawn off to "trials of speed." The principal expense and the best ground has been devoted to the track, the seats have all been arranged there, while the really important things exhibited have been literally crowded into the narrowest compass, in some out-of-the-way corner, tent or building.

We approve of the exhibition of horses; we fall behind none in our admiration of that useful animal; we believe speed to be one of the good qualities of horses designed for some kinds of employment; but how improvement in speed even is promoted by the race-course, as usually conducted, is rather more than we can understand.

We have no sympathy with the race-course in any shape; we cannot see anything admirable in the spectacle of two or more horses on a track whipped and goaded to the utmost, by human-monkey riders in jockey caps. If others enjoy such sport, let them seek an appropriate time and place. We claim that they have no right to introduce such sports, surreptitiously or otherwise, upon grounds set apart for the exhibition of the products of agricultural skill and industry. Not one farmer in ten thousand is a raiser of fast horses, and not one in five cares for them. Horses should be exhibited at agricultural fairs, and their speed and even "bottom" should be shown, but this should be done singly. They should be exhibited and ridden by

their proper owners (or those who raised them), dressed like human beings—not by the aforesaid human-monkeys in jockey caps.

We have hitherto urged farmers to turn out with their wives and children, and go up to these festivals; but unless there be, hereafter, some sure guarantee that their sons and their daughters are not to be initiated into the mysteries of the race-course, with a taste therefor stimulated and developed, we feel it to be our bounden duty from this time for us to do what we can to discourage all future attendance upon any such gatherings. We have not done with this subject.

Mr. Silver, of Philadelphia, writes thus on the same subject: "In the agricultural fairs of Pennsylvania, the race-course had so gained upon popular favor, that in 1857 it occupied the very center of the enclosure, and around it were rows of seats, as in a circus. Outside of all this were the cattle, and other legitimate objects, apparently thrust aside to give Young America a fair chance, by amusing the old farmer fogies at one side, and thus stifling interference. During some years before, farmers would hint something about the malappropriateness of the conjunction; but the large receipts were pointed at, and they were silenced. But at the last exhibition it was too evident that the thing exhibited was a horse-race; the paucity of legitimate objects was just calculated to give an agricultural coloring, or rather a mere cloak to it. Farmers lost interest in it as an agricultural fair, but they attended it as a horse-race.

"The result has proved that where two exhibitions are joined, the most entertaining will monopolize attention to the destruction of the other. Just as in the case of modern museums, which, by adding a theatrical performance, have become theaters in fact; and the natural curiosities moulder in dark cases and impregnated corners.

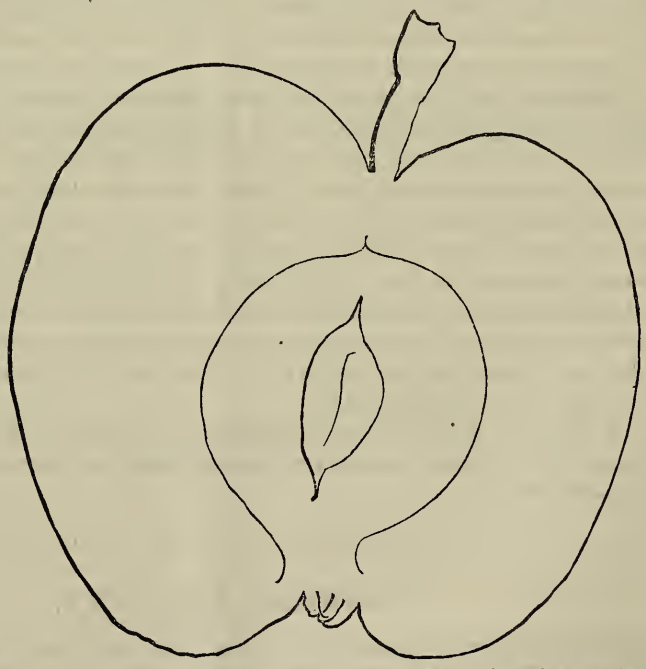
"It appears to me, however, that a race-course in a separate enclosure, at fair time, is not open to the same objection. Thousands who would not be attracted to the spot by the agricultural display, would not for the world miss the horse-race. Of these every one would, while there, take a view of the other, in the round, and thus add to the funds of the institution. Besides, there is in all men, however grave, a love of such excitement as the ring affords, and every one would feel better for the whole some relaxation it gives as a rest from the study of agricultural science. That their union, however, as one institution, and in one inclosure, must be abandoned, is the well expressed sentiment of the farmers of Pennsylvania."

The Black Currant.—Black currants require quite a different system of pruning from the other varieties; the great point to aim at is to get as much young wood as possible every year from the lower part of the tree. This is increased by thinning out the old wood from the bottom, and the finest fruit is obtained from the young wood. In striking the black currant you should select young shoots about ten or twelve inches long, insert them in the ground, with the buds on about six inches. The buds of the other sorts are rubbed off except about four, which are left on the portion out of ground. I have black kinds struck on the same system, but never lasted long; they died off, limb by limb, about the time they ought to make good trees. They like a moisture-holding soil; if planted on high ground they suffer much in hot summers. Red and white sorts like a lighter soil; they produce their fruit from spurs on the old wood. In pruning, cut a portion of the young wood back every year, and thin according to the growth of the tree.

SEEDLING FRUITS.

IN our July number we remarked that in a country where all the introduced fruits are grown of superior size and excellence, there seems no good reason why we may not originate our share of the world's varieties of choice fruits. Let the amateur experimentist but devote his attention to the subject in a manner likely from the experience of the past to produce the desired results, and we doubt not but that new varieties, equal to any the world ever saw, would be produced, and fully equal to his highest hopes. Already do we see our expectations and belief verified, for upon the tables of the Horticultural Society, pending the present fair, we find a larger number of new seedlings of really superior excellence, both peaches and apples, than we had even hoped from the first efforts of our fruit growers in this branch of the business; and certainly if ever experimentists had reason to be stimulated to increased exertions, they are those who delight in the production of new and valuable varieties of fruits.

From the grounds of H. C. Skinner, we find a variety of apples, which by the Horticultural Society of Santa Clara county, has been named Skinner's Seedling, in honor of its originator. A committee of the Cal. Horticultura Society, having examined its merits, pronounce it a superior apple worthy of extensive cultivation. We would describe it thus:—in size, medium to large; color, yellow with a faint blush, slightly russetted near the stem; the stem half to three quarters of an inch long, fleshy, deeply sunk in a ribbed cavity; calyx small, open, and set in a small ribbed, wavy basin; seeds brown, flat on one side, sharply pointed at one end, otherwise regular and even; flavor, a rich subacid; ripens first of September, hangs on the tree well, and is in good eating order for three months. It is not often that we can be induced to hazard an opinion in reference to the real quality of a new seedling upon first examination, but as regards Skinner's Seedling, we feel no hesitancy.



Conspicuous even when compared with the finer of the old varieties, was McCarver's Premium Seedling, exhibited by Dr. B. F. Headen, of Santa Clara. This fine variety originated in Oregon, a winter apple, of large size, an excellent keeper, fine rich sub-acid; tree, a vigorous grower, with dark, heavy foliage, wherever introduced and fruiting, has maintained its position as one of the best apples cultivated upon the Atlantic coast.

First among the seedling peaches on exhibition, are those from the gardens of P. L. Weimer, Coloma, El Dorado county; the largest peaches on exhibition, as well as among the very best in point of flavor, a cling-stone variety, and was awarded the first premium. Second to this, but only in point of size, was a seedling, raised by P. McPherson Hill, of Sonoma; also, a cling-stone, of medium size, but of exquisite flavor. This peach took the second premium, and for productiveness, fine size and quality, with adaptability to transportation, we know of none that we would prefer before it in its season.—Ripe, first September. Had it not have possessed a flavor so very fine, the large and splendid seedling exhibited by John Campbell, of Uniontown, El Dorado county, would have been entitled to the second premium. This seedling is about equal in size to Weimer's, but of the specimens on exhibition, we cannot say that they quite equalled them in flavor. Other specimens of the same variety, grown on other trees, with different exposure or culture, may fully equal the best exhibited.

Another seedling peach, grown by Col. C. M. Weber, Stockton, seems well worthy of cultivation, being far superior to a large number of varieties now extensively cultivated, meeting with ready sale, and will doubtless displace many of the old varieties.

In this connection we would also speak of two varieties of seedling peaches, originating in the grounds of John C. White, 47 Minnie street, San Francisco, of fair size and flavor, considering the unfavorableness of our city climate to the perfection of the peach. But the exhibit of pears by the same gentleman was one that would please the amateur in fruits. From a single tree, seven feet in hight, fifty-one pears, all of fine, large size, of the variety known as the Louisa Bon de Jersey, had been pulled and presented for exhibition. They made a most provokingly tempting display, and if more than forty-eight or fifty ever reach the owner again, why then it was because we were not 'round.

A single variety of a new seedling raspberry attracted our attention, from the gardens of D. E. Hough, Alameda; a beautiful bright-red berry, excellent flavor, and perpetual bearer.

CHERRY-CURRANT.

IT is not a distinct species of the genus *Ribes*—only a new variety of *Ribes Rubrum*, of which the red and white Dutch, and many others, are also varieties. It is, therefore, just as hardy as the common currant. The distinguished properties of the cherry-currant are: Strong, robust growth of the bush—the shoots being stouter, the leaves larger, and a darker green, than the common sort. The blossom of the cherry-currant is easily distinguished from the greenish yellow blossom of the red and white Dutch by its darker brownish color. But the greatest and most valuable

distinction of the cherry-currant consists in the uniformly great size of the berries. They measure from half an inch to five-eighths of an inch in diameter, all the berries of a bunch being generally of nearly one size, while the bunches of a common currant taper down to a very small berry at the end. Beside this, the berries are also distinguishable by their dark red color. Another and very striking feature of the cherry-currant consists in the manner the bunches are distributed over the branches. While with the common currant the fruit is rather thinly—at least by comparison—scattered over the branches, the cherry-currants hang in massive clusters, so tight that the stems of the fruit-strings can scarcely be seen. Branches of the bush of from one to three feet in length are often unbroken clusters of luscious fruit, which gives the bushes a charming rich appearance.

Many farmers and market-gardeners seem to think these good qualities can only be brought out by very high culture, such as the amateur gardener only can bestow on a few pet bushes. This is an error. I would say: Manure, plow and hoe them as you do your Indian corn, and you will have them in as great perfection as the nurseryman.

As the bushes grow very strong, they should be planted not less than 4x4 feet, or perhaps 4x5 feet apart, which will give 2,178 plants per acre. I prefer the latter method, and would plow only one way between them, allowing the branches to spread in the direction of the rows, so as to form something like a hedge. These rows should run north and south, to shield the bushes from the hottest mid-day sun. Shade to the fruit is indispensable to bring it to perfection; if too much exposed to the hot rays of the sun, the berries ripen prematurely before they attain their full size. Now, all the shade necessary to protect the fruit is furnished by the bush itself, if you do not disable it to do so by pruning and cutting away what was evidently intended for that purpose; and this brings me to the shape in which currant bushes should be pruned. I am aware that there exists a great difference of opinion among cultivators as to this point. Many believe that the tree shape is decidedly the best; others think the bush form, with several branches springing directly from the root, the better and most natural shape. I have tried both ways, but prefer the latter method greatly. The great advantage of the bush form, it seems to me, consists in the system of renewal which should be combined with it.

Suppose you plant your bushes with two prongs or branches. Plant them deep and allow the first year two shoots to grow up from under the ground. These shoots will at the same time send out their own roots and grow luxuriantly. If you allow, then, every year two more shoots to spring up from the root, you will, in the summer of the fourth year, have two branches each of five, four, three, two and one year's growth. Six of these branches, that is, the five, four and three year old ones, will be loaded with fruit, the two years' growth may have some berries, and those of this year's growth will only be straight shoots. The bushes will now be as large as they should be, and the two five-year old branches may be cut out as soon as the fruit is picked; and henceforth, by allowing still two new shoots to come up every year, and by cutting out the two oldest branches after the gathering of the fruit, the bushes may be kept young and bear fine fruit for many years more. Of course, this is only meant to elucidate the general principle. The practical cultivator will know how to modify the above rule for every individual bush.

In calculating the profits of a crop, great caution must be used, and casualties must not be forgotten. Although I have seen four-year old bushes that bore nine pounds of berries to each bush, I would not think it safe to put down the average yield of a full grown five-year old bush, trimmed as above, at more than six pounds. This would amount to 13,068 pounds to an acre. The price of common currants in the New-York market, generally very small, sour little things, varies from four to seven cents per pound at wholesale, which certainly justifies the anticipation of six

cents per pound for cherry-currants for many years to come, and this would make the value of the crop per acre equal to $784.

Half a day of plowing, and three days of hoeing, by one man, will clean and stir the ground of one acre most effectually; which, at ordinary wages of man and horse, will cost $3 50, which makes four plowings and hoeings cost $14. Picking 13,068 pounds, at one-third cent per pound, (about fifteen cents per bushel), will be $43. If we allow $27 for manure every year, the whole expenses per acre would sum up to $84, leaving $700 clear, of which only the cost of bringing them to market would have to be deducted.

RHUBARB—WHICH IS THE BEST?

TO the child of twenty years since, the word rhubarb was suggestive of anything rather than the most delicious pastry. And when late in the season, wanting the brisk-flavored, aromatic Spitzenberg or Newtown Pippin for a refreshing dietetic pie, which a dinner of roast beef always calls for—and these could not be had—the small, tough, stringy, footstalks of the old Turkey rhubard came to be used as a bad substitute. But the "change of the name" to "pie plant" did not work a "change in the thing," nor could the skill of the pastry cook so far obscure the flavor and odor peculiar to the root of that variety, with which the stalks are always in some degree flavored, that the idea of the apothecary's shop was not always too sensibly present at its use.

John Bull, perceiving the rudiments of great excellence in this candidate for the cuisine, and stimulated by his wants, resolved to attempt by cultivation and improvement to obliterate the forbidding feature of its character. Of the step taken in the progress of amelioration, and the names of varieties produced, no mention need at present be made until we come to the "Victoria," which was originated by Mr. Myatt, of Deptford. This fully realized the highest hopes entertained of its improvement; having no vestige of offensive odor, of gigantic size, and very productive. It was largely imported, and very highly valued; still it was covered with a thick skin, which was some trouble to remove, and was rather troublesomely acid, besides coming much later than some of the smaller varieties.

The next great improvement was in a variety originated by Mr. Charles Downing, at Newburg. It was named Downing's Colossal; and in addition to its great size, and much less degree of acidity, it had a fine, rich, aromatic flavor, in which it greatly surpassed all predecessors. This, too, has been surpassed by Mr. Myatt, in the "Linneas," whose excellence in every important characteristic has placed it for the last five years in rank far before any other variety, Mr. Downing himself, greatly preferring it to the Colossal, which is its nearest competitor, and to which it has a strong resemblance. Besides being the earliest of all, and most productive, as well as finest flavored, and least acid, it has a skin so thin that removing it is quite unnecessary, and its pulp when stewed has the uniform consistence of baked Rhode Island Greening, and it continues equally crisp and tender throughout summer and early autumn.

Although the cultivation of rhuharb for market is quite simple, it has some wants that must be complied with to secure a profitable crop. It delights in a rather retentive soil, but is so much earlier in a dry, light, or porous soil, that opinions would differ as to the most advantageous. The ground must be well manured, and if well worked with a plough, to the depth of eighteen inches, a very remunerative crop may be obtained, ranging at from two hundred to four hundred dollars per acre, in the latitude of New York. As earliness is important, a locality more southern would be advantageous.

To obtain the best results, more care and expense than just indicated are required. If the ground is deeply worked, (to the depth of three feet,) and well enriched, the quantity produced per acre is almost incredible—but at least three times as much as can be obtained by ploughing alone—with the further advantages of some days in earliness, as well as superiority of quality, in favor of trenched ground.

A plan which I adopted a few years since, may perhaps be advantageous under similar circumstances. I trenched a field of nearly an acre for pears. In such cases the ground needs cultivation, and should be occupied, until the trees require it all, by some crop that does not injure the trees, or exhaust the ground for their future use. I found the rhubarb a very pleasant and profitable occupant of the spare room, and not sensibly injurious to the pears. The cultivation may be done by the horse cultivator in early spring, but soon the leaves of the rhubarb will so cover the ground that a little pulling of weeds will be all that can be required.

For a few years past, supply and demand have both been rapidly increasing, and with about equal pace. The best methods of preparing it for the table, either for pies or sauce for meat, or as a stewed fruit for the tea table, like the tomato, requires some skill and judgment on the part of the housewife, for if its acidity is entirely overcome by simple refined sugar, it becomes too rich or concentrated for free and abundant use, which when well understood will be no more restricted throughout the entire year than that of the tomato; and when its preparation and use are as well understood, it will not be esteemed second to that *fruit* in usefulnes, nor be absent many days in the year from the table where it is *known*. I do not hazard much in putting forth the opinion, that as a tonic, dietetic aperient, it has no equal. On the great western prairie, and wherever acid fruits are not abundant, it will be invaluable.

The chief feature in the produce around London, tending towards market, is carts in inconceivable numbers, loaded with rhubarb, even there during the short season of the gooseberry, eclipsing that of its competitor, which there in its perfection has an excellence to us unknown.

Newburgh, N. Y. C. W. Grant.

Roses.—Roses vary much according to the character of the season. A rose which is indifferent this year, and which you feel inclined to discard, astonishes you next year by its beauty; while on the other hand, one that you have thought highly of proves to be worthless on further trial. Thus, last year I had Louise Odier poor and thin in the extreme, very little better than the Celine; my idea was at one time to discard it; however, I let it alone, and this year it has been very beautiful, full, and brilliant in color. Had I measured, on the other hand, my old friend Géant by his performances this year I should have pronounced him but a poor leader, for the intense heat completely took away all his brilliant color; and, again, I have grown for some two or three years Leon des Combats, but I never saw in it anything remarkable; whereas this year it has been especally beautiful. I do not think this is sufficiently borne in mind by amateurs; they do not wait to prove their flowers, and pronounce them worthless, when another season would perhaps make them alter their opinion. And then *there is the insatiable craving for varieties.*—Have you any *new* roses? is the first question put to a nurseryman; if he say no, you at once set him down as behindhand; if, on the other hand, he shows you some, how readily do you overlook many blemishes because they are new; you persuade yourself that they must be much better than the older varieties; you buy them, and after, when better and cooler judgment returns, you find that you have foolishly preferred a new to an old face—a fault not confined to rose growers.

MUTTON GROWING.

IN sheep husbandry "wool growing" is a favorite term, and certainly very appropriate, particularly in countries where the quality and quantity of the wool is first in importance; but in California, *mutton growing* can hardly be said to be second to that of wool. The high price that mutton commands in our markets—indeed all animal food—seems to render our heading quite as applicable and as deserving of consideration at the present time as wool growing; and though we would not recommend attention to size of carcass and quality for the purposes of mutton, regardless of the quality of the wool, yet we do believe that for years to come, or until our own manufactories can consume the wool of our flocks to some extent, that mutton growing, almost regardless of the wool, will continue to be a most lucrative branch of sheep husbandry. As showing the importance attached to this view of the subject, even at the East, where mutton finds a strong competiton in the various other descriptions of animal food, we append the following from the *American Farmers' Magazine:*

In conversing with sheep growers, we have often heard the remark, that the bodies are of little consequence, that it is the wool for which the sheep are kept; and the practice of many engaged in sheep culture would seem to confirm this view of the subject.

But is this a correct view? Grant that it may be a good policy, in a national aspect, that some should aim at the very finest quality of wool, thereby to give our wool manufacturers, if, by the way, we should ever have any, a high reputation relatively with those of other nations. If the best quality of wool can be obtained from the very small races of sheep, it may, for aught that we know, be wise that that branch of the great business of sheep culture should be attended to. But it must have a limit. We should be sorry to have the great mass of the sheep kept in this country, of the puny lilliputian races, even if the result should be that Prince Albert and his German cousins should send for their coats to this country, because they could not find as fine at home.

There is another branch of sheep culture more important. It is that of cultivating sheep, which give, if not the very finest wool, that which is the next-door neighbor to it; sheep that are large, hardy, producing a great crop of wool next to the best, and mutton that is worth carrying to market, weighing from twenty to forty pounds to the quarter, and giving mutton chops that a hungry man would not starve upon. This branch of the business would seem to us to promise better results than any other.

There is still another branch of the business, one which we do not believe should be overlooked, that of growing sheep mainly for the meat, regarding the wool as quite a secondary thing. We have long believed that, with the best meat-producing sheep, a tun of this kind of meat can be grown and fattened about as cheaply as of any other, and to the extent of the people's choice of it, as good as any other, as digestible, as health giving, and as strength giving. We have often for years put the question to practical farmers; Is it not so? Can you not grow a given amount of this meat as cheaply as any other? And never till recently have we obtained a satisfactory answer.

In conversing the other day with a New Jersey farmer of great experience in this kind of husbandry, we found one man who came to our views. His sheep are of the South Down breed. The wool is what would be called very good common wool, not

exactly long wool, nor such wool as a gentleman *of fine cloth* would wish his coat to be made from, but well adapted to most domestic uses. The quantity produced by each sheep is large. But we were struck with the correspondence of his views with ours. His remark was, that you may as well have sheep of a pretty fair quality of wool, and the more wool and the finer the better, provided you get large carcasses; that he grew sheep for the meat; that he could save himself if he threw away the wool, and that whatever that brought was profit. In reply to the question, whether that species of meat cannot be produced just about as cheaply as any other, provided you keep the best sheep for that purpose, throwing the wool out altogether, he answered promptly, "yes."

Now we do not know that his view of the subject is correct. We have hardly ever found a practical farmer to agree with him. But it has long seemed so to us; and with this view of the subject we consider it a matter of regret that sheep culture enters so little into our national industry; and we heartily wish we could see our pastures dotted over tenfold more, not only with the finest wooled sheep, and those whose wool is fine enough for any but the most fastidious, but with others, whose wool is nothing to brag of, but good enough for many useful purposes, kept as our friend, the Jersey farmer, said, mainly for the meat.

HOW TO RAISE SEEDLING PEARS.

WITH very many who have made the attempt to raise seedling pears, or even pear stalks, from the seed, a great deal of disappointment has occurred. The failure, in many instances, without doubt, is in consequence of the imperfect or poor seed, as the fact is well established that much of the seed of the pear that, upon inspection appears perfect, never germinates. But probably the more general cause of failure is in the imperfect mode adopted by gardeners of starting their seeds.

The pear seems peculiar in one respect, for whilst apple seeds will germinate at almost any depth, from a half an inch to six inches, if the ground be warm and moist; the pear will not, and probably fifty per cent. of all the pear seeds sown, are lost by being covered too deeply. To the amateur, as well as the nursery grower of pear stalks, we commend the following for its reliability, emanating from one whose long and successful experience entitles it to the highest consideration:

Planting pear pips for the purpose of raising new varieties is a very interesting employment. Some eight-inch pots should be kept at hand filled to within an inch of their rims with tolerably fine mold, and when a fine pear is eaten or one decays the pips should immediately be planted in the pots about half an inch deep. A piece of perforated zinc or woven wire should then be placed over the pot, to keep out the mice and birds, and allow the rain to enter. The pots may remain out of doors all the winter. In March or April the young plants will make their appearance, the wire cover may then be removed, and as soon as the young plants have made six leaves they may either be potted into single pots and planted out in a rich border in May, or at once transplanted from the seed pot to the border. They will, if the soil be rich, each make a shoot from one to two feet in length the following season; this will make a graft or grafts, which should be grafted on strong stocks on the branches of bearing trees, and in a few years fruit may be expected.

The raising of pears from seed may be made much more interesting if the sorts from which they are raised be known; for this purpose only one kind should be sown in a pot and its name placed with it. In a very few years they show their origin in

their leaves and shoots, and seem to go in races. I have at this moment a number of seedlings raised from Ne plus Meuris, they nearly all look alike, some of them have borne fruit exactly like their parent; one or two, however, much larger, but unfortunately they ripened in October, and were not remarkably good. I have also a batch of seedlings from Beurré d'Aremberg, these with one or two exceptions, are apparently of the same race; one of them bore some fine fruit the past season, exactly like the Beurré d'Aremberg, but they ripened on the tree the first week in September, and were of the most delicious flavor, so that if an early pear of the same flavor were wanted it would be an acquisition. Seedlings from Passe Colmar and Glout Morceau retain their family likeness in their habits very remarkably, and this will account for many of the new pears being so much like our older varieties; there are some eight or ten new pears of the Passe Colmar race, among our new sorts ripening at different periods, and nearly as many of the Glout Morceau tribe, among which Beurré Bachelier seems hardier than its parent; Victoria later, and so on. To me, a lover of pears, it is most interesting to watch the development of character in seedlings, and I beg earnestly to recommend the raising of them, in the manner I have directed, to those of your readers who have leisure—a garden, and are gardening lovers. Disappointment must be expected, for a fine looking seedling pear will often prove anything but fine in flavor. When young trees give their first fruit the best method is to ask your friends to the first tasting, and then if they prove very bad indeed it gives occasion for a hearty laugh. I once had a seedling raised from Hacon's Incomparable, which was as large as a Catillac pear, or say a moderate-sized garden turnip, and of a bright orange color. I watched it with intense interest, and when it ripened invited my neighbors to the tasting; in doing so I think we all burst into a roar, for it was a horrid compound, in which acid and bitter and sweet struggled hard for the ascendancy. I have had other laughable adventures with seedling pears, but hope, in gardening matters, never flags.—*T. Rivers.*

CALIFORNIA GARDEN SEEDS.

AN examination of the fine display of California garden seeds on exhibition, by D. L. Perkins, of Alameda, at the Pavilion of the Mechanics' Institute and Horticultural Society, ought to satisfy the most incredulous of the entire propriety of raising our own grain seeds. Nowhere, in any country, can more plump and well matured seed be found than among this collection.

The importance of sowing none but the *best seed* is every year gaining favor; but to practice it, is found to be, in many cases, not quite so easy.

A large quantity of seeds, not only of vegetables, but of fruit and forest trees, are annually imported from the Atlantic States, and great care is requisite in obtaining seeds that will germinate. In grass and clover seeds, failures are of frequent occurrence, and really impose upon the agriculturist in many instances, not only a real disappointment, but pecuniary loss. The sooner, then, that the fact is established of the entire practicability of raising our own garden, field, and other seeds, the sooner do we become independent of the Atlantic border in one more branch of productive industry.

Drying Blackberries.—Place them in a hot oven until they are thoroughly heated. Lay newspapers on your drying scaffold; spread the berries thinly on it, and dry thoroughly.

NATIVE WINES.

NOT least among the interesting features of the California Horticultural Society's Fair, now in progress, is the exhibit of California wines. Specimens of the genuine article, manufactured from the grape upon the very locality where the grapes are grown, admitting of hardly a possibility of a fictitious article, were produced from several grape growing localities as an evidence not only of the fitness of the grape for producing the finest kinds of wines, but also the skill of the manufacturer.

That there is a large quantity of fictitious wine made and sold in San Francisco as the pure Los Angeles or California wine, we are well satisfied from repeated tastings, and the effect of such tastings upon our circulatory system.

The pure native wine from the California grape is a mild, pleasant and agreeable beverage, with very little of the alcoholic or exciting principle in it, and it is this that distinguishes it from the imitation article. There are already several kinds, as well as qualities, of wine made from a single variety of the California grape, and when properly manufactured, are really of superior excellence, and as many of our largest grape growers are turning their attention to the introduction and cultivation of foreign varieties, the time is not distant when California will be as noted for its *variety* of fine wines as the quantity produced.

The grape is found to succeed so admirably in all localities along the Pacific coast, from the extreme northern boundary of our State to its most southern, except in a few isolated sections where the cold, ocean winds break through the coast mountains, and the fact that in some volcanic countries the finest wines in the world are produced, renders it next to certain that California, with her vast extent of volcanic debris in every stage of decay, from the finest mold of immeasurable depth to the coarser scoriæ that has hardly yet felt the corrodings of the elements, must certainly possess every element of soil that can be desired in the production of the finest wines. That our climate is entirely congenial to the absolute *perfection* of the grape has ever been acknowledged.

With every requisite for the cultivation of vineyards in the highest perfection, and the material for the manufacture of the finest wines, it seems like an imposition upon the real capabilities of the country that the base imitations of California wines from acids, sugar, water and alcohol should be palmed off, either upon our own people or the markets of the world, when the importance of establishing a character for our wines is so clearly essential to our reputation as a wine-producing people. If every purchaser of California wines would put the test, "Is the wine you sell me made wholly and excluisvely from the juice of the grape, without addition or alloy in any form?" it would soon put a stop to the vending of the spirituous and vile compounds.

THE circumference of the earth measures near twenty-five thousand miles. If begirt by an iron railway, a load of one tun could be drawn around it in six weeks by the amount of mechanical power which resides in one half of a tun of coals.

The Market Gardeners of London.—"The market gardeners of London," says a gardener of judgment, "are skillful, industrious men. Some time ago I was engaged for three or four months along side a market garden of twelve or fifteen acres in the neighborhood; things were exceedingly well done. In it there were small frames to the number of fifty or sixty lights, the greater part of which were full of young lettuces sown in November as thickly as mustard and cress. The lights were of course off in the day, and the young stuff looked green and beautiful. The greater part of the garden or land, which is light and workable at all times, had been turned up to the weather. About the first of March they put about half of the garden in long beds six feet wide, and about eighteen inches apart. These were sown with turnip-radish seed, a bushel to the acre, and finished well. Two lads with pistols and rattles, and voices strong enough, were employed running up and down the garden to keep the birds off. The men next nicely smoothed the other half of the ground with rakes, for the reception of the lettuces, the London or Brighton cos, which were planted a foot apart all ways. They were planted so beautifully and exactly that they seemed to be in straight rows from all points of view. The frames were then put on half sunk new beds of warm dung, and into them were planted cucumber plants, which thrived and bore well; a money-making crop. The radishes were ready about the first week in May, if I remember aright, and sold for 40*l.* an acre; twelve or thirteen women are employed in bunching them. The lettuces were soon ready; got a bit of bast about them a few hours before they were pulled, and sent to Covent Garden; brought 10*l.* an acre more than the radishes. Vegetable marrow succeeded the radishes, and French beans the lettuces, generally speaking. After these came a crop of cabbage, or what are called coleworts, for winter. There were small patches of other vegetables—here a bed of rhubarb, there a corner of cauliflower, and just against the gate a rood of ten-week stock, the double ones for cut flowers and the single ones for seed.

Agricultural Commerce of Ohio.—In 1855, the State sent thirty-two thousand head of cattle to New York city, and in 1857, fifty-thousand head, besides some fifteen thousand sent to Philadelphia, and many to Baltimore. At least seventy thousand head of cattle were sent to these three cities in 1857. The hog trade is far greater, and notwithstanding that the number of live and dressed hogs exported from the State has, in the past few years, increased rapidly, the numbers packed at Cincinnati have not declined. According to the Annual Report of the Commissioner of Statistics, just published, the aggregate value of farm produce is one hundred and thirty-two millions seven hundred thousand dollars, and the net profits fifty-seven millions three hundred thousand dollars. The price of wood for fuel varies from one dollar and sixty cents to two dollars and seventy-five cents per cord, and is highest in counties through which main lines of railway pass, on account of the vast quantities of wood consumed by the locomotives. These roads consume annually the product of twelve thousand acres of land. Farm labor is uniformly high, the average wages fifteen dollars per month and board. This is owing to the growth of towns and manufactures, which steadily causes the agricultural supply to diminish, so that large farmers are only able to secure their crops by the use of machinery. There are three thousand steam engines, equivalent to forty-thousand horse-power, two thousand two hundred grist mills, three thousand seven hundred sawmills, one hundred and seventy-five planing mills, and seventy oil mills. In 1857 there were made by the principal factories eight thousand agricultural machines.

Editor's Repository.

We have devoted the pages of this number of the Culturist, without limit or reserve, to the publication of the Opening Address of the State Agricultural Society's Fair, by the then President of the Society, J. C. Fall, Esq.; and the Annual Address by Hon. Samuel S. Bell; believing that every agriculturist in the State will be interested in their perusal. Once every year it may be expected that the Culturist will contain such addresses, and be devoted mainly to a record of the proceedings of the State Agricultural, California Horticultural, and other kindred societies. Of the State Agricultural Society's Fair we have already, in preceding pages, to some extent, expressed an opinion. That it possessed all the elements and material necessary to constitute it in every respect an exhibit of which the State may well be proud, requires no indorsement from us; and that its effects upon the progress of an improved agriculture will be felt in many parts of the State is equally certain. The place of holding the next annual Fair of the Society has been fixed at Sacramento; and if it be any object to call out a much finer display and larger exhibit, as well as a more numerous attendance of the agriculturists of the State than was had at Marysville, the place was well chosen; being of far easier access to all the middle portions of the State, than any other place, possessing the requisite accommodations for visitors and the public on such occasions, except San Francisco.

The California Horticultural Society's Fair, which, from the first of the month to the present—Sept. 15th—has been in progress in connection with the Fair of the Mechanics' Institute of San Francisco, is a decided improvement upon the Fair of 1857. A finer exhibit of flowers, fruits and vegetables than now is, or has been on exhibition at the Pavilion since the opening of the Fair, the world has never seen, we believe; and yet our fruit growers who contribute to make it what it is, in point of pomonal attraction, are sanguine that with longer experience in the culture of fruits in our peculiar climate or climates, and with trees of maturer growth, they can greatly excel in future years, even the present unrivaled display.

The Mechanics' Institute Annual Fair can now, after a two years' success, be ranked among the events of annual transpiration, and tending to the promotion of the arts and mechanical sciences, beyond any other individual or combined effort in the power of the people of our young State at present to make. The Annual Reports of the Mechanics' Institute and California Horticultural Society for 1858, will abound with interest, and should be obtained by every one who is desirous of preserving a record of our early mechanical and horticultural progress.

Second Growth.—If further evidence was wanting to prove the peculiar fitness of California soil and climate to vegetable growth, and the vitality of plants, when once they attain a position in the soil, we have it in the habit of wheat, barley and oats, of making a second growth; not from scattered seed springing up as a volunteer crop, for this can only happen with the occurrence of rain; but a new growth, direct from the crown of the roots and bottom of the old stubble. At the State Fair we saw specimens of wheat, barley and oats, in the new green straw, twenty inches in hight, that had grown from the roots from which the regular crop had been harvested, on the 10th of June. Not just a single stock or two from a root, but from ten to twenty, and many of them starting out from the old stubble a half an inch above the root or surface of the ground. The specimens on exhibition were from Brophy's ranch, near Marysville. The benefit of this second growth to the farmer is found in its furnishing at a season of the year, when much needed, a fine

green food for animals, that continues till the season of fall plowing, and then a green crop for plowing in. Wheat, barley and oats are not the only instances of this determination to second growth, among the field or garden crops of California. If the haulm of peas, of almost any variety, are removed immediately after the gathering of the first main crop of peas, a new growth from the old roots is almost certain, and often producing a crop but little, if any, inferior to the first.

THE TELEGRAPH CABLE.—By the arrival of the Sonora, the previous news of the successful laying of the trans-Atlantic telegraph cable was most happily confirmed. This great event of the age, in which the whole civilized world seemed to feel the deepest concern, by the indomitable energy and perseverance of those into whose care the management of the enterprise had been entrusted, has been brought to a successful consummation, and the two great nations of the earth, though separated by nearly three thousand miles of ocean, are yet in momentary connection and communication with each other. It is hardly possible to conjecture the immense advantages that will result from the bringing together of distant countries by telegraph communication; but of such results enough is believed to have set the world rejoicing at the success of this first great enterprise. From the morning to the evening shore of our country the glad news has been carried, and loud rejoicings have been heard wherever it has reached. May they encompass the earth.

SMYRNA FIGS.—Not only does the common purple fig, as exhibited at the Horticultural division of the Pavilion attest the perfect adaptation of this fine fruit to the soil and climate of California; but the exhibit of another variety of unsurpassed excellence, known as the true Smyrna fig, settles every question. A dish of this fine variety, entirely differing in form and color from the blue fig, being quite round, flattened between the stem and the opposite end, and color white, was early presented for exhibition by J. MORRILL, of Sacramento. The history of the introduction of this variety is not without interest. In the winter of 1852-3, during the great flood at Sacramento, a laborer in the employ of Mr. Morrill, taking a stroll to the bank of the river, discovered among the floodwood a package of young rooted plants, that, on being removed and planted out, proved to be several choice varieties of foreign grapes and one plant of the Smyrna fig. It was afterwards ascertained that Gen. SUTTER, of Hock Farm, had but just received an invoice of young fruit trees, which had not been removed from the landing before the flood swept them away. This variety of fig, besides being highly prolific, is a perpetual bearer during the summer, or from middle of June to November.

DRIED TOMATOES.—It may not be generally known, that ripe tomatoes can be almost as easily dried as apples, and thus be made available for stewing purposes at all seasons of the year. In any locality inland, away from the influence of the damp ocean winds, tomatoes that are not more than an inch in thickness, if cut through the middle flatwise, and each part spread with the cut side upward to the sun, upon hurdles or any fixture by which the air can have free access to the lower side as well as top, can be dried in our climate of heat and sunshine, with the least possible trouble, and in the most perfect manner in a very few days. If no better arrangement can be secured, simply clean, straight straw a few inches thick laid upon the ground answers a very good purpose as the drying bed, and large quantities of tomatoes are in preparation by this process the present season, by parties who successfully experimented upon this plan in the summer and autumn of last year. Those fond of tomatoes, who can eat them if stewed with the skins on, will find the dried article but little, if any, inferior to the best undried.

ADDRESSES.—The opening address of the Mechanics' Institute Fair, was delivered at Musical Hall, on Wednesday evening, September 1st, by J. A. BANKS, to a crowded and appreciative audience. It was a plain, unvarnished, yet highly creditable production. The annual address of the California Horticultural Society, was delivered at the Pavilion on the evening of Wednesday, the 8th, by Hon. WILSON FLINT. It was replete with good, practical, common sense views of the condition of our horticulture, its improvement, and the means to be employed to advance the interest of the tillers of the garden and the field; and we regret that a want of room in our columns this month, prevents us from laying it before our readers.

We have not succeeded to our liking in getting up for our frontispiece a colored plate from a wood engraving. We may make one more trial in that way, and then if not successful in producing a fine picture, will resort to such other mode as our artist may suggest to accomplish our object. In the one we present, we had intended to give a fine picture of the pear known as the Colmar d' Aremberg, a specimen raised by Mr. Jonas Wilder, of Coloma, El Dorado county. This pear weighed twenty-five ounces, and measured fourteen inches in circumference; the largest pear we believe in the state the present year.

Among the attractions of the State Fair, we noticed some fine specimens of writing and drawing, in chalk, water color, pencil and pen. The former elicited much admiration, as did the latter great commendation. We question whether a greater array of young talent is seen in any state of the Union, and it plainly manifests itself to all visitors, that in judicious teachers' hands, any amount of excellence, if the budding genius be well tutored, may with almost a certainty be obtained. Need we say that if such teachers as the principal and his competent assistants be long established here, that they will send forth laborers capable of undertaking any scientific or artistic work, which an increasing civilization may demand, without having recourse to any of the long established nurseries of the arts. One of the pictures, interior of a cathedral, is entitled to a prize, as we learn by the papers. The names of these little men of the fine arts, we understand were Leander Ransom, C. C. Slade, W. Mighel, who sent seven specimens, Fred. Eaton, Samuel Inge, Joseph King, Platon Vallejo, Colin Campbell, Fred. Holderness, Eli Martinez, Max Koster, John Middleton, Henry Hertzer, all more or less deserving honorable mention. The rest, also, whose modesty we suppose would not allow them to append their names, were generally deserving of praise. We see that they are now on exhibition at the San Francisco Mechanics' Pavilion, which will afford visitors, who were absent from the State Fair, an opportunity of confirming our opinion of their merits. All these above named young gentlemen are students of San Francisco College.

California Horticultural Society and Fruit Growers' Convention.

A meeting of the California Horticultural Society was held at the rooms of the Mechanics' Institute on Monday, the 6th of September, at 10 o'clock A. M.; J. W. Osborn, of Napa, Vice President, in the chair; A. H. Myers, of Alameda, Secretary *pro tem.*

The officers of the Santa Clara Horticultural Society introduced Mr. J. S. Silver, delegate from the State Agricultural Society of Pennsylvania, who was invited to take part in the proceedings.

The chairman stated the objects of the meeting to be the discussion of all the varieties of fruit that experience had shown as adapted to California culture. Also, the climatic effect in different localities, as well as the most desirable methods of culture. As the immediate discussion would be on fruits, the convention recommended to place an older Pomologist in the chair. On motion of Mr. Daniels, of San Jose, Mr. Osborn was selected chairman of the convention, which then proceeded to discuss the comparative value of peaches, as per memoranda laid before the convention by a committee appointed for the purpose. In the course of discussion, it was shown that though all peaches appeared to be desirable and do well in the warm valleys of the San Joaquin and Sacramento, may still not do as well in other localities.

Messrs. J. L. Sanford and M. Ryan submitted their report on soft stone fruits, which was considered, with the following results:

The following varieties of peaches were declared of superior excellence, and recommended for general culture: 1. Crawford's Early. 2. Yellow Rareripe. 3. Bergen's Yellow. 4. Mixon Free. 5. Early York. 6. Mixon Cling. 7. Stump the World. [Two varieties under this name cultivated in this State, one white, the other yellow flesh, both highly recommended.] 8. Crawford's Late. 9. President. 10. Evard's Late Free. 11. Fox's Seedling. 12. Smock's Free. 13. Heath Cling. 14. Druid Hill. 15. Grosse Mignonne. 16. Late Admirable. 17. Red Rareripe. 18. Morris White.

The following varieties were recommended as worthy of further trial: 1. Early Tillotson. 2. Early Newington. 3. Harkie's Seedling. 4. Pool's Late Yellow. 5. Lemon Cling. 6. Lagrange. 7. Royale DeMontreil. 8. Stitzen's Seedling. 9. Monstrous Paire. 10. Malta.

The following varieties were only recommended to amateur culturists: 1. George the Fourth. 2. White Rareripe. Meeting adjourned.

EVENING SESSION—7½ O'CLOCK.

Mr. J. W. Osborn in the chair; W. Wadsworth, Secretary of the society, present.

Messrs. Lewelling and Fox, Committee on Apples and Pears, submitted a report on apples.

The following varieties of apples were, on due discussion, declared superior, and recommended for general cultivation:

1. Caroline Red June. 2. Early Harvest. 3. Early Strawberry. 4. American Summer Pearmain. 5. Jonathan. 6. Gravenstine. 7. Rambo. 8. Smith's Cider. 9. Warner. 10. Yellow Bellflower. 11. William's Favorite. 12. Fall Wine. 13. Porter. 14. Waxen. 15. American Golden Russett. 16. White Bellflower. 17. Esopus Spitzenberg. 18. Newtown Spitzenberg. 19. Yellow Newtown Pippin. 20. White Winter Pearmain. 21. Western Gennetting. 22. Pound Pippin. 23. Gloria Mundi. 24. Roxburry Russett. 25. Summer Queen. 26. Sweet Bough.

Apples recommended for further trial have succeeded well as far as tried:

1. Red Astrachan. 2. Garretson's Early. 3. Quarrenden. 4. Baldwin. 5. Northern Spy. 6. Red Cannon Pearmain. 7. Mother. 8. Swaar. 9. Westfield Seek-no-further. 10. Summer Hagloe. 11. Summer Queen. 12. Fall Beauty. 13. Fall Harney. 14. Talman Sweet. 15. Green Newtown Pippin. 16. R. I. Greening. 17. English Russett. 18. Wine Sap. 19. Talpa Houking.

An apple grown at San Jose, called "Skinner's Seedling," was pronounced excellent, and recommended for further culture. Meeting adjourned.

SECOND DAY.

AFTERNOON SESSION.

J. W. Osborne, Vice President, in the chair. A. H. Myers, Secretary *pro tem.*

Messrs. Fox, Fountain and Lewelling made report on pears, which was discussed, with the following result:

For general cultivation—Fallom, Madaline, Bloodgood, Dearborn's Seedling, Bartlett, Louise Bon de Gersey, Duchess de Angoulime, Doyenne, Boonsock, Seckle, Beurré Diel, Flemish Beauty, Surparse Virgalieu, White Doyenne, Beurré Bosc, Winter Nelis, Glout Morceau, Easter Buerré, Maria Louisa, Beurre Rance, Beurre de Aremberg, Ponna, Dunmore, Chaumontel, Vicar of Winkfield.

For further trial—Tyson, Baron de Aremburg, Beurre de Anjou, Fondante de Automne, Urbaniste, Doyeune Sieulle, Ananas, Mariane, Howel, Henkel, Beurre Langulier, Lawrence, Winter Butter, Saint Germaine, Inconnue Van Mons, Beurre Clairgon, Knight's Monarch, Leon le Clerc, De Leval.

Strawberries recommended for general cultivation—Longworth's Prolific, British Queen.

Recommended for further trial—Burr's New Pine, Ruby, Victoria, Magnate, Captain Cook, Fillbasket, Monroe Scarlet, Peabody's Seedling, Jenny Lind.

Raspberries—Fastolff. Red Antwerp, Yellow Antwerp, Knevet's Giant, Franconia.

Blackberries—Lawton Blackberry, Dorchester.

Gooseberries—Houghton's Seedling, White Smith, Roaring Lion, Crown Bob, Golden Seal, Favorite, Round Green, Achilles.

Plums for general cultivation—Smith's Orleans, Bradshaw, Jefferson, Washington, Imperial Gage, Blue Damson, Coe's Golden Drop, Yellow Magnum Bonum, German Prince, Columbia, White Magnum Bonum, Lombard, Prince's Yellow Gage, Green Gage, Early Golden Drop, Lawrence's Favorite.

For further trial—Prince Claude Violet, Boston Imperatrice, Duane's Purple, Schenectady Catharine, McLaughlin, Drap de Or, Cruger's Scarlet.

Figs for general cultivation—California Purple, Brown Turkey, White Marseilles, St. Michaels.

For further trial—White Ischia.

Grapes—Black Hamburg. Wilmot's Black Hamburg, Catawba, California Mission, Black Cluster, Violet Chasselas, McReady, Early White, Jocelyn or St. Albans, Victoria Hamburg, Chasselas Fontainebleau, White Frontignan, White Muscat, of Alexandria; Canon Hall Muscat (for some localities).

Further trial—Isabella, Zinthindal, North California, Diana, Early Black July, Grosse Rose of Peru, Rose Chasselas.

Currants for general cultivation—Cherry, Red Dutch (true) Victoria.

Further trial—Gondonin Red, White Grape, Fertile de Pallieu, Champagne Red, Black English.

Apricots for general cultivation—Early Golden, Moorpark, Hemskirke.

Further trial—Royal, Peach, Turkey.

Nectarines for general cultivation—Downton, Elruge, New White, Early Violet.

Further trial—Stanwick.

Discussion on fruits being closed, convention adjourned to 7½ P. M., at which time the subject of climatic effect, and culture in different localities was taken up.

EVENING SESSION.

The convention had full representation from all districts but the San Joaquin and upper Sacramento, the discussion spirited and at length, particularly so when some of the old, time-honored favorites were proved to be poor emigrants. Some of these were found subject to rot; others

were obstinately shy bearers, in some localities—from this cause, and the great range of climate in our fruit-growing regions, the lists were all somewhat extended—a modification of which may be made whenever experience shall have been sufficient to warrant safe recommendations for particular localities.

California Horticultural Society's List of Awards for 1858.

THE award of premiums on the regular list of the Horticultural Society, was made at the Pavilion, Sept. 10th. The Vice President stated it should be the endeavor that all should have justice done them in the closing report, but the press of meritorious articles was so great, it was impossible to do so in the present reading. Mr. Wadsworth, the Secretary, then made the following report:

Fruits—For the best display, embracing the largest collection of the best varieties, F. W. Macondray, San Francisco. Second best; J. W. Osborn, Oak Knoll, Napa. Third best; A. Delmas, San Jose.

Apples—Largest and best collection of best varieties, J. W. Osborn, Napa. Second best, Daniel Gibb, San Francisco. Third best, L. B. Lathrop, Santa Clara. Best specimens—special premium—summer apples, John Lewelling, San Lorenzo. Autumn apples, Dr. H. Haile, Alameda. Winter apples, J. W. Osborn, Napa.

Pears—Largest and best collection, J. W. Osborn, Napa. Second best, A. Delmas, San Jose. Third best, John Lewelling, San Lorenzo. Best specimens—special premium—L. A. Gould, San Jose.

Peaches—Largest and best collection, Daniel Gibb, Napa. Second best, J. W. Osborn, Napa. Third best, A. P. Smith, Sacramento. Best specimens—special premium—Sisters of Notre Dame, San Jose. Best new variety of Native Seedling Peaches, P. L. Weimer, Coloma. Second best, W. McPherson Hill, Sonoma.

Nectarines—Largest and best collection, John Lewelling, San Lorenzo. Second best, White & Kelsey, Oakland.

Plums—Largest and best collection, Dr. H. Haile, Alameda. Second best, E. W. Case, Santa Clara. Best specimens—special premium—M. Schollenberger, San Jose.

Foreign Grapes—Largest and best collection grown in open air, A. Delmas, San Jose. Second best, C. M. Weber, Stockton. Third best, J. W. Osborn, Napa. Best specimens—special premium—A. Delmas, San Jose. Grown under glass, largest and best collection, F. W. Macondray, San Francisco; best specimens—special premium—F. W. Macondray, San Francisco.

California Grapes—Best exhibit, C. M. Weber, stockton. Second best, W. M. Lent, Santa Clara. Best specimens—special premium—C. M. Weber, Stockton.

Cherries—Best collection, in bottles, S. Thompson, Suscol.

Quinces—Best and largest collection, J. Morrill, Sacramento.

Strawberries—Largest collection, and best varieties, D. E. Hough, Oakland. Second best, R. W. Washburn, Shell Mound. Best specimens—special premium—A. Crochet, San Francisco.

Raspberries—Best collection, D. E. Hough, Oakland. Second best, A. H. Myers, Alameda.

California Oranges—Best exhibit, James O'Donnell, San Francisco. Second best, J. A. Hobart, Lee's Garden.

Figs—Best exhibit, California growth, C. M. Weber, Stockton.

Pomegranates—Best exhibit, California growth, M. G. Vallejo, Sonoma.

Almonds—Best collection, J. Lewelling, San Lorenzo. Second best, R. W. Washburn, Shell Mound.

Preserved Fruits, in cans or bottles—Largest and best collection, A. P. Smith, Sacramento. Second best, S. Thompson, Suscol.

Dried Fruits—Best, Dr. Haile, Alameda; recommended for premium.

Brandy Peaches—C. Peebles.

Raspberry and Strawberry Jams—Mrs. S. Loring, San Francisco.

Preserved California Nutmegs—William Lent, San Francisco.

Currant Jelly—John Lewelling, San Lorenzo.

Superior Strawberry Cordial—C. Peebles.

Honey—Best specimen, B. S. Fox & Co., San Jose. Second best, C. Rumrill, San Francisco.

Garden Vegetables—The largest and best collection, D. L. Perkins, of Alameda.

Cauliflowers—Best exhibit, D. L. Perkins, Alameda.

Beets—Best exhibit, two varieties, J. R. Robb, of Alameda.

Hops—Best exhibit, Dr. H. Haile, of Alameda. A fine exhibit on the vine, and one bag of excellent hops, A. Bushnell, of Green Valley.

Sugar Cane—Best exhibit, Daniel Gibb, of Suscol. Second best, R. W. Washburn, Shell Mound.

Squashes and Pumpkins—Best exhibit, L. B. Lathrop, San Jose. Second best, of squashes, six varieties, S. Thompson, of Suscol.

Japanese Pears—Joshua Childs, of Encinal.

Egyptian Pumpkins—Best exhibit, G. W. Fountain, of Oakland.

Squashes, Cantelopes, Cucumbers and Pie Melons—Fine collection, A. H. Myers, Alameda.
Sweet Corn—Best exhibit, D. L. Perkins, of Alameda.
Green Indian Corn—Best exhibit, (in the stalk, sixteen feet high) Thomas Parker, San Joaquin.
Sweet Potatoes (Carolina)—Best exhibit, W. W. and J. B. Rumford, of Oakland.
Beans—Best exhibit, D. E. Hough, of Oakland.
Cabbages—Best exhibit, Cummings & Swan, San Francisco. Best collection, D. E. Hough, Oakland.
Irish Potatoes—Best exhibit, D. E. Hough, Oakland.
Cucumbers—Best exhibit, D. E. Hough, Oakland.
Tomatoes—Best exhibit, G. W. Fountain, Oakland. Second best, W. W. & J. B. Rumford, Oakland.
Chinese Yams (*diascoria botatis*)—Best exhibit, D. E. Hough, Oakland.
Pie Melon—Best exhibit, Dr. H. Haile, Alameda. Second best, S. Thompson, Suscol. Fine exhibit, L. A. Gould, Santa Clara.
Orange Water Melon—Best exhibit, S. Thompson, Suscol. Second best, C. Appleton, Oakland.
Musk Melon—Best exhibit, G. W. Fountain, Oakland. Largest variety, C. Appleton, Oakland.
Pie Plant, seedling—Best sample, T. D. Woolsey, Oakland. Mammoth, best exhibit, Mr. Bailey, Brooklyn.
Celery—Best exhibit, Cummings & Swan, San Francisco.
Ruta Baga—Best sample, C. Parrott.
Egg Plant—Best exhibit, Cummings & Swan, San Francisco.
Garden Seeds—Best exhibit, D. L. Perkins, Alameda. Second best, D. E. Hough, Oakland.
Sun Flowers—Best exhibit, A. H. Myers, Alameda. Second, Annie and Charlie Tappan, Alameda.
Hemp—Samples of two acres, J. B. Manny, San Jose.
Broom Corn—Extra sample, C. W. & G. W. Armes.
Tobacco—Best exhibit, T. Ellsworth. Second best, by an inmate of the Insane Asylum, Stockton,
Wines, etc—Largest and best varieties, Kohler, Frohling & Bauck. Second best, Sainsevain & Bros.—Best Sparkling, Sainsevain Bros.; second best, none. Best White, vintage 1856, Sainsevain Bros; second best, vintage 1857, Kohler & Co. Best Red, M. G. Vallejo; second best, Kohler & Co. Best Port, Kohler & Co; second best, none. Best Angelica, Kohler & Co.; second best, Sainsevain Bros. Best Brandy, Kohler & Co.; second best, Sainsevain Bros. Currant Wine, S. Thompson.
Plants and Flowers—Largest and best collection of Pot Plants, W. C. Walker, Golden Gate Nursery, San Francisco. Second best, Reimer & O'Hara. California Nursery, San Francisco.
Roses—Largest and best collection, H. A. Sonntag, Mission Dolores. Second best, W. C. Walker, Golden Gate Nursery.
Best Floral Design—W. C. Walker, Golden Gate Nursery.
Best Vase Bouquet—Reimer & O'Hara. Second best, W. C. Walker, Golden Gate Nursery.
Best Floral Wreath—L. Prevost, San Jose.

Special Meeting of the California Horticultural Society.

San Francisco, September 8, 1858.

J. W. Osborn, of Oak Knoll, in the chair; A. H. Myers, of Alameda, Secretary *pro tem.* The object of the meeting, as stated by the chairman, was to consider any and all matters pertaining to the welfare of the society.

The Treasurer reported that at the annual meeting last April the number of members was 46, and at present 100.

After full and free discussion, the following recommendations were made to the Executive Committee:

That the Executive Committee, in their arrangements for the coming year, see that a more liberal supply of room be provided.

That in case of any connection with other societies, our society has liberal terms in control, and financially.

That conventional rooms be provided adjacent to the Horticultural exhibition.

That arrangements, so far as can be made, be entered into by which pecuniary loss will not be inflicted on members by their fruit being kept on exhibition so long as to become spoiled.

That if, on the winding up of the present season's business of the society, the society is found to be financially capable, that rooms be provided where members can meet—can send samples of fruit for exhibition or nomenclature—through the season of soft fruits and flowers.

That the Secretary be requested to obtain information as to the best management of these exhibitions in the Atlantic cities, so that report and definite arrangement may be made at the April meeting, if not before made by the Executive Committee.

Also, that the executive take into consideration the propriety of having additional copies of the report of the present industrial exhibition, embodying also the bye-laws of the society and proceedings of Fruit Growers' Convention.

Unanimously adopted, and meeting adjourned to call.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending Aug. 31st, 1858; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

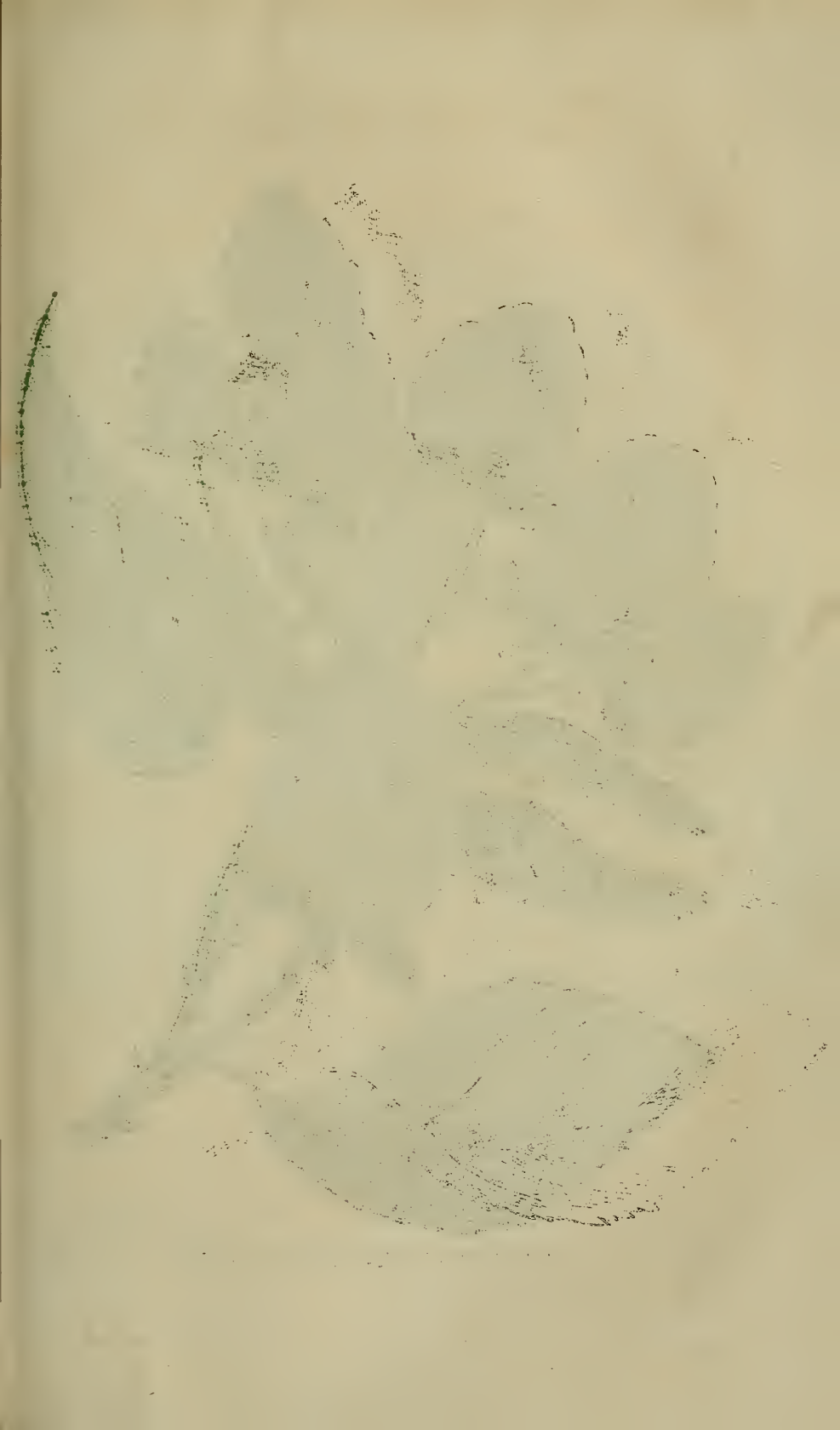
By Thos. M. Logan, M. D.

AUGUST, 1858.	7h. A. M.	2h. P. M.	9h. P. M.	Month.
Barometer, Maxima	30.095	30.040	30.072	30.095 inch.
" Minima	29.794	29.750	29.750	29.750 "
" Mean	29.928	29.886	29.883	29.899 "
Thermometer, Maxima	71.00	85.00	76.00	85.00 deg.
" Minima	61.00	69.00	64.00	61.00 "
" Mean	65.55	76 29	69.87	70.57 "
Force of Vapor, Maxima	.543	.626	.554	.626 inch.
" " Minima	.338	.329	.313	.313 "
" " Mean	.423	.491	.454	.456 "
Relative Humidity, Maxima	79.00	75.00	73.00	79.00 per ct.
" " Minima	60.00	33.00	39.00	33.00 "
" " Mean	68.39	55.29	63.74	62.81 "
Number of Clear Days	13	18	19	16 1/8 days.
Number of Cloudy and Foggy Days	18	13	12	12 3/8 "
Number of Rainy Days	.....	.....	.....	4
Quantity of Clouds	1.4	1.4	1.0	1.3
Quantity of Rain and Fog	.....	.....	.....	Sprinkle.
1st Days.—2d, Force of N. Wind	1 1.0	2 2.0	0 0.0	1 1.0
" " N. E. Wind	3 2.0	0 0.0	1 1.0	1 1/8 1.0
" " E. Wind	3 1.7	0 0.0	2 1.0	1 3/8 0.9
" " S. E. Wind	9 1.8	0 0.0	9 1.8	6 1.2
" " S. Wind	11 2.1	10 2.1	8 2.0	9 3/8 2.1
" " S. W. Wind	3 2.3	10 2.1	6 1.9	6 1/8 2.1
" " W. Wind	1 3.0	5 1.8	5 2.0	3 3/8 2.3
" " N. W. Wind	0 0.0	4 2.3	0 0.0	1 1/8 0.8

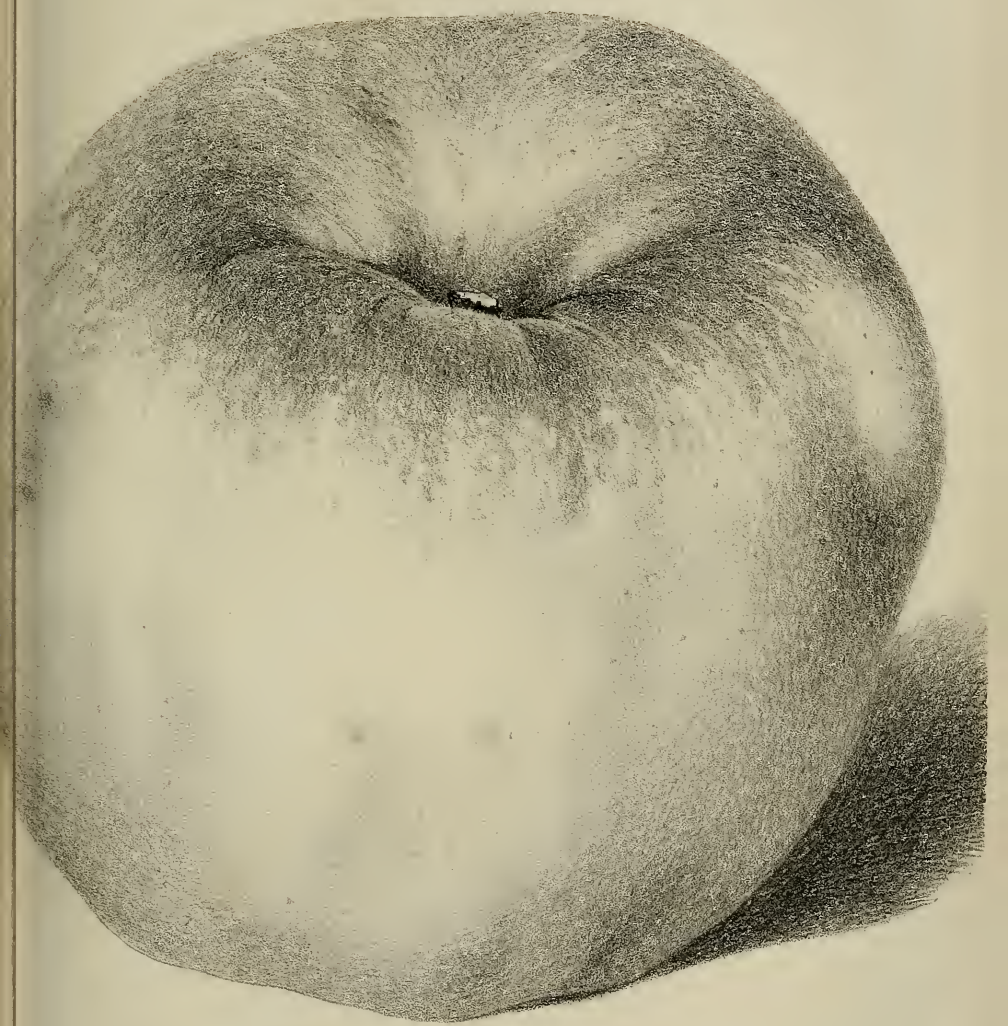
Thermometrograph.

	Deg.		Deg.
Highest Reading by day on the 11th	90.00	Mean of all Highest Readings by day	80.06
Lowest Reading by night on the 30th	55.00	Mean of all Lowest Readings by night	59.09
Range of Temperature during Month	35.00	Mean daily range of Temperature during month	20.97

Remarks.—The decline of temperature, noted the preceding month, has continued to prevail the present, proving the coolest August for six years. Owing to the increase of relative moisture in the atmosphere, the sultriness has been made more apparent, particularly towards evening; and on four different days saturation was manifested by sprinkles of rain, attended with more or less disturbance of the electrical equilibrium. Diffuse lightning was witnessed during several nights in the direction of the Sierra Nevada range. These phenomena, taken in connection with the fact of the coolness of the earth, as revealed by the difference between the temperature of well and river water, lead to the inference of the early setting in of the rainy season.



THE LAWTON BLACKBERRY.—Page 207.



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KUCHEL & DRESEL, LITH.

GLORIA MUNDI.

THE CALIFORNIA CULTURIST.

OCTOBER, 1858.

SIGNS OF PROGRESS.

TO those who carefully note the new, useful and multiplied discoveries of science, applicable to all the great interests that more immediately effect the destinies of mankind, it cannot but seem apparent that now, in this era of the march of the nineteenth century, the world is witness to what may well be termed the very vortex of progressional improvement; and almost intuitively the mind is startled at the contemplation of where it will end. Progress, Improvement and Effort have become the watchwords of the scientific throughout the world, and, as might have been expected, results, greater than the world has ever witnessed before, have followed in rapid succession.

The great and moving events of the present, are the demonstrations in honor of the achievements of science, the power of mind over matter. The successful laying of the Atlantic telegraph cable has just been celebrated by the people of our State, with more of true heartfelt joyousness and satisfaction than ever characterized any previous demonstration. But it is not alone in the higher reaches of science that progress is at work. She is found everywhere; the workshop and manufactory, the mine, the laboratory, the field and the garden, all attest her presence and her power for usefulness in the varied improvements seen on every hand, and all for the bettering of the condition of our race. Thus agriculture comes in for her share, and for a full month we see the agriculturist, horticulturist, and mechanic holding carnival time.

First, the State fair, from the twenty-third to the twenty-eighth of August, at Marysville, occupied not only the attention of the farmers of a very large district of our State, but numbers who are not agriculturists, but whose tastes and pursuits led them to participate in its advantages.

Next, and closely following upon the State fair, came that of the California Horticultural Society in connection with that of the Mechanics' Institute, the two keeping up a continuous display that attracted its thousands from both city and country, from the first day of September to the twenty-third, inclusive. In the horticultural department, the exhibit of fine fruits greatly surpassed the exhibition of last year, and pro-

gress, the right way, was evidenced in every feature, and our pomologists withdrew with zeal renewed for an increased effort at still further progress.

On the twenty-second, twenty-third and twenty-fourth of September, the Santa Clara county Agricultural Society held their fair at San Jose, which, with the preceding, more than made a full round month of high jubilee to the agriculturists and mechanics of our State. That the annual holding of these fairs are a mark, a sign of progress, effecting great improvement in the agriculture and horticulture of the Pacific Coast, needs no confirmation beyond the evidences every year increasingly exhibited. California is peculiarly the field for progress; new to the world in her climate, in her seasons and her productions, a vast field is opened not only for the exercise of new principles in the practice of agriculture, but the application of science to all the arts of civilization. Improvement is demanded by the exigencies of the times, and the signs are not wanting in proof that California has the genius, the will, the ability and determination to act well her part in the grand drama of Progress.

CROPPING WITHOUT IMPOVERISHING.

IN nearly every Atlantic journal devoted to the interests of agriculture, we find long dissertations upon the subject of the deterioration of soils produced by long and constant cultivation; and the argument of many who would account for such deterioration, seems based upon the simple supposition that shallow plowing and constant cropping has alone produced the unwelcome results. No greater mistake than this can well be imagined. If shallow plowing has the effect to lessen the annual yield from a field devoted to any particular crop, which we will not dispute, it might be inferred that we believed that had the same field been plowed deeply, there would not have occurred the same deterioation. We believe no such thing; because experience has shown that though deep plowing serves almost invariably to increase the product per acre over the shallow plowed land, it is equally at the expense of the fertility of the soil so treated; the only difference is, the one, by a half crop and shallow plowing is exhausted to half the depth that the other field is by a system of deeper tillage. Thus, without some renovating process besides simply deep plowing, though larger crops may be procured for the time being, it is at the expense of a deeper exhaustion of the soil.

It is certainly idle then to harp upon the favorite theory of many, that shallow plowing and constant cropping has alone produced the sterility too often met with in the older sections of the Union. It is an injudicious cultivation apart from either shallow or deep plowing that produces barrenness. No soil, however deeply plowed, can forever maintain its pristine fertility under constant cropping, without a return in some measure of the elements that the crop produced extracts therefrom.

Upon this important point in good husbandry, too little attention is paid. Shallow plowing and constant cropping, without manuring, has very aptly been termed the "skinning process;" but deep plowing under like circumstances takes not only the "skin," but the very tallow from the soil.

California has a virgin soil of great fertility, and yet not so fertile that it may not be speedily exhausted by injudicious cropping. There are causes here, too, that are operating to produce more speedily than at the east an impoverishment of our cultivated lands; they are in the high value of all green crops of grasses and clovers for the purposes of feed, either green or in hay, and little or no attention paid to the procuring of manure in any form to make good the loss.

Barnyard manure is here almost unknown, for, comparatively, we have no barns or yard manure; and even the straw from our grain fields, not actually sold off the farm, is in too many instances a total loss, so far as its value as a manure to the farm is concerned. Even now we might profit by the experience of the past, by what we have seen and practised in the older States, and by a generous return of vegetable growth in some form to the soil, in return for the grain—which in fact is really all we ought to take from it without such return—save our lands from that process of deteriation, that has rendered so many districts of older countries almost unfit or unremunerative for cultivation.

It is an axiom with many culturists, that the growing crop, be it what it may, exhausts the soil in the process of growth of properties peculiar to itself, and that therefore, an annual recurrence of the same crop upon the same field is attended with a corresponding loss of those properties necessary to the fullest development of such crop. If this be true, and it is difficult of refutation, what more appropriate application for the purposes of manure could be made than, after gathering the seed or grain, to return the entire haulm or straw as food for a succeeding crop. This is no theory alone, without evidence the most satisfactory in proof. We have seen land greatly enriched by the plowing in of both green and dry crops as a manure. Every body has seen it, or heard of it; the plan is as old as agriculture itself, and is the very process by which the worn out lands of New England are being renovated and brought back to their original productiveness.

Why then may not the agriculturists of California, with lands that never yet have felt the impoverishing process, profit by the experience and practice of the past, and by a judicious system of culture, and a return to the soil of an equivalent equal to that taken from it, continue our now unequalled soils unimpoverished to our successors.

CALIFORNIA A WINE COUNTRY.

THAT California is soon to rank among the most favored of the wine producing countries of the earth, is an axiom requiring no prophetic tongue to proclaim, or lapse of time to substantiate. Ours is a favored clime for the production of the grape in its fullest perfection, for more depends upon climate than soil; we have proof of this in the long array of facts that have been deduced from the multiplied attempts to introduce grape culture for the purposes of wine making in nearly every State of the Atlantic border. All experience proves that it is not so much the want of proper soil as climate, to render a country a good wine producing one. In the Atlantic States there is too much of humidity, too many cold, damp and cloudy days

during the summer months, to insure the grape exemption from mold, mildew and rot, the great remediless evils of the vineyard.

More than thirty years ago, in the then little town of Vevay, on the Ohio river, settled almost entirely by Swiss, foreign grapes were introduced of varieties the most approved for wine making, and for a time something like success attended the efforts of that little colony in the production of wines; but too soon it was found that the foreign varieties, though making a sufficient growth of wood, were so prone to mildew in the fruit, from the dampness of the climate, that even the persevering, patient Swiss reluctantly abandoned the project of a greatly extended culture. The effect, however, of this first attempt and partial success, was never entirely lost to that section of the country; for, in subsequent years by the substitution of native varieties better adapted to the climate, though not possessing the merit of the foreign varieties for the finer wines, yet produced at the first a very fair article, at length a better, until now the pure native wines of Ohio are among the most marketable of the world. And yet in the culture of the grape, even of native varieties, they have to contend against all the hazards and vicissitudes incident to seasons of protracted humidity, often at the very time when the swelling and closely packed clusters need all the sun and dryness of the most favored grape clime.

If then our Atlantic grape growers can contend with their adverse climate successfully, producing wines that will compete with the world's best, what may not we do with a climate that knows no humidity or cold capable of the least injury to the growth even of the finest foreign varieties. In making this assertion we allude, of course, only to those great sections of our State entirely protected by the Coast Range of mountains from the more direct ocean winds. The largest and heaviest clusters are as perfect and as free from any defect, the result of undue moisture, as though grown under glass; and from the earliest attempts at wine making to the present, success has invariably attended the efforts of the experienced wine maker from California grapes.

The extension, and very rapid extension, then of wine making, until it shall become a staple product and as much a part of the regular production and consumption of our people as wheat, corn, or potatoes, is rendered certain, requiring the mere matter of time for its fullest consummation. What the effect will be upon us as a people, morally, socially or physically, we are not ready to divine. France, as a wine producing country, presents in her peasantry and yeomanry the most temperate people among civilized nations, but they have always been so. What the effect will be upon a people whose tastes have been long vitiated by the use of stronger alcoholic drinks than wines pure from the grape, time only can determine. We believe, however, that no greater evil certainly, but rather a lesser, will result from the general production and use of native wines as a beverage, over the many vile alcoholic drinks now in use by the masses of our countrymen.

As this is a subject full of interest to the philanthropist and every well wisher of his country, we give place to the following, believing that at least it may awaken an interest in, and perhaps lead to a discussion of a subject that may ultimately tend to the pecuniary interests, if not to the future happiness of our people.

THE FRUIT OF THE VINE:

Its Uses as a Medicine and Dangers as a Beverage.

BY DAVID CHRISTY.

REMARKS ON ANIMAL PHYSIOLOGY.

The primary conditions of the maintenance of animal life, are a constant supply of articles of food and of oxygen in the shape of atmospheric air. As soon as an animal is released from its dependence upon the parent for sustenance, and begins to receive food into its stomach, the process of digestion and the formation of chyme and chyle begins and the independent production of blood is commenced. As long as an animal lives, its blood is in a state of constant motion and of constant change; giving off its elements of nutrition as it courses through the system, wherever they are demanded to form, to complete, or to sustain, the various tissues of the body. The process has been thus described: "Light red blood streams out from the heart, through the arteries, into all parts of the body, from which it returns, darker colored, through the veins, back again to the heart. But before the latter blood recommences its circulation, it is impelled through the lungs, in which it comes in immediate contact with the inhaled air, and by means of which it experiences a most remarkable change. When in contact with the air, the dark venous blood is converted again into light red arterial blood, and thereby the air loses a part of its free oxygen and receives in return carbonic acid and vapor; the exhaled air is accordingly poor in oxygen, but rich in carbonic acid and vapor."

This subject demands some further investigation, to enable us to comprehend the the effects of alcohol upon the human body.* In the natural and healthy condition of the system, the food supplies the necessary carbon for the support of animal heat; but when food is withheld, the fat of the body is consumed, its carbon being converted into carbonic acid, and its hydrogen into water. Hence results the emaciation attending long abstinence or starvation. The fat of animals, therefore, may be compared to the storehouses of fuel which are laid up for winter, when an increased amount of heat is needed, and daily supplies of firewood can not be obtained. In the process of starvation, however, it is not only the fat which disappears, but also, by degrees, all such of the solids as are capable of being dissolved by the oxygen. For, in the absence of the elements of respiration, which unlike those of nutrition, are also supplied by the food, the oxygen, after consuming the fat in the system, combines with other solid parts of the body and consumes them also. Toward the end the particles of the brain begin to undergo the process of oxydation, and delirium, mania, and death close the scene.

From the foregoing it appears, that if the supply of food be cut off from a healthy man, or if disease destroys his digestion, no additional blood can be formed, and his life must pay the forfeit. Let us look at a few of the facts. The whole weight of blood in a healthy man is estimated at twenty-four pounds, of which eighty per cent. is water. From the known composition of the blood, it would only require sixty-four thousand one hundred and two grains of oxygen to convert the carbon and hydrogen of these twenty-four pounds into carbonic acid and water and remove them from the system. An adult man absorbs into his system thirty-two and a half ounces of oxygen daily; it would, therefore, require only four days and five hours for the decomposition of the twenty-four pounds of blood, and for the speedy death of the man, unless new blood were produced by the supply of food, or some element of respiration taken

* The term *alcohol* is used to represent all the common liquors in use which embrace alcohol.

into the stomach to relieve the solid parts of the body from the action of oxygen, and prevent their entire decomposition.

WINE AS A MEDICINE—ALCOHOL—ITS IMPORTANCE IN SICKNESS—ITS DISUSE IMPRACTICABLE.

We may now proceed to consider the uses of wine as a medicine; and, in the discussion, reference will only be made to the sick or the invalid. Men in health, if wise, do not take medicine. In cases of sickness, where the digestion is impaired or destroyed, the elements of respiration can not be supplied to the blood, in the ordinary mode, as the digestive organs are powerless. They must reach the fountain of life by some means independent of digestion. And here it is that the physician finds alcohol his last and best resort. Its composition is carbon 52.17, hydrogen 13.31, oxygen 34.52—100 parts. It has no nitrogen, and is purely an element of respiration; and not only so, but it acts independent of the powers of digestion, and enters the circulation by absorption. In this consists its great excellence. Being indigestible, it has not to await the tardy action of the stomach, but reaches the blood, as it were, by a single thrill, reviving the drooping energies of the patient almost as speedily as the electric shock traverses the system. The alcohol being introduced into the circulation, it affords the oxygen the means of combination, and prevents its action upon the solids of the body. It thus retards the wasting of the tissues, keeps up the animal heat, and affords time for the processes of nature and the action of medicine to overcome disease; whereas, if the system be left unprotected from the action of oxygen, the metamorphosis of the tissues proceeds with rapidity, and the patient is soon reduced so as to be beyond the power of the physician to save. These are the uses of wines, or any kind of pure spirits, as medicines. If, however, impure brandies and wines are administered, in extreme debility, they must have a pernicious effect, like improper medicines, and may turn the scale deathwards; when, if pure articles are used, the opposite results may be attained.

WINE AS A BEVERAGE—TENDENCY OF ALCOHOL TO DISTURB HEALTHY ACTION.

From what has been said in relation to the action of alcohol as a medicine, it may be easily divined that it must exert a powerful influence upon the human constitution when used as a beverage. This point should be considered with care; and, in its discussion, it must be noted, that our remarks are to be applied only to persons in good health, and not to the sick or the invalid.

In all our common articles of food, the elements of nutrition and respiration, as already intimated, are so nicely balanced in their proportions, that, for the diet of a healthy man, there is no necessity for adding an extra quantity either to the one class or the other; or, in other words, the supply of nutrition and of animal heat is so admirably equalized, in the composition of common food, that any material derangement of the proportions which it affords, is attended with a corresponding derangement of the vital functions. It is obvious, therefore, that if we add a portion of alcohol to the food taken into the stomach, the elements of respiration are increased and the animal heat augmented in a proportionate degree. No part of the alcohol can go to form the tissues of the body, or to renovate and sustain them, as it is destitute of nitrogen, and not an element of nutrition. It can only serve as an element of respiration, to be burned in the lungs of a man, and to add to the amount of his animal heat. The result is, that as the quantity of alcohol is increased from habit, an unnatural exhilaration is produced, leading to an overtasking of the muscular and nervous systems, and to premature decay in the manhood of the victim. To use a familiar phrase, he has "lived too fast." Let us gain a clearer view of this point by contrast. We know that an insufficient supply of food, tends to produce paleness of the cheek, because both the animal heat and the nutrition are less than is demanded to keep up the healthful condition of the system. On the other hand, where age has not indurated the skin, an abundance of food keeps up the vital powers, and the face,

possessing the ruddy color of health, bears testimony to a well-stored stomach. But when alcohol is added, in such a case, in excess, the nice balance between nutrition and respiration is destroyed, the healthful action of the animal functions is impaired, the ruddy glow of health disappears from the cheek, the deep red of the furnace heated by flame overcasts the countenance, and the habits of the inebriate stand revealed. Now, if pure alcohol will do all this upon a healthy constitution—and none dare gainsay its truth—how much more fatal, and how much more speedy, must be the production of the crisis, in the drinker's career, where deleterious compounds are used in its stead?

WINE AND BEER LESS DANGEROUS—TEMPERANCE IN WINE COUNTRIES.

But while alcohol is exclusively an element of respiration, and all its modifications of brandy, rum, gin and whisky, possess only this property, beer and wine, not being the product of distillation, retain a portion of the elements of nutrition, belonging to the substances of which they are manufactured, and have been considered as less pernicious, on this account, than distilled spirits. There is some truth in this view; but the less injurious effects of beer and wine are not attributable, we think, so much to the nutrition they include, as to the limited degree of concentration in the alcohol they contain. Baron Liebig asserts, that a person who drinks eight or ten quarts, daily, of the best Bavarian beer, obtains from it, in a whole year, exactly the quantity of nutrition which is contained in a five pound loaf of bread or three pounds of flesh. Wines will not exceed beer in their nutritive constituents, and, can not, therefore, be considered as having more than a mere shade of nutritive qualities. The mildness of their action upon the system must be due, then, to the small per cent. of alcohol which they contain, as compared with distilled spirits, and to the modifying influences, perhaps, which are exerted by their nutritive properties.

Let us see how much alcohol is consumed by wine drinkers, and then we can form a better judgment as to the effects of wine as a beverage. The cheaper kinds of pure wines, used by the common people of Europe, have no more than seven or eight per cent. of alcohol, while some of the more costly varieties contain nearly double that amount. In using the eight per cent. wine, at the rate of half a pint per day, a man takes into his system, in one hundred days, exactly two quarts of alcohol, and in a year seven and three-tenths quarts. This is barely a gill of alcohol in six and a quarter days, or a pint in twenty-five days. Allow double this amount, or a pint of wine a day, and the man who drinks it consumes but a gill of alcohol in three and one-eighth days, or a pint in twelve and a half days.

It will now be readily understood why less intemperance prevails in wine-producing countries, than in those where distilled spirits are largely manufactured. The pure wines have not sufficient alcohol, in the quantity which men generally can afford to drink, to produce any very injurious effects. This result, however, may not be due so much to the small amount of alcohol which the wine contains, as to another very obvious cause. Starch is the principal element of respiration in the food of men well to live; but the coarse bread of the peasantry is deficient in starch, and the wine used at their meals may only make up the deficiency in the elements of respiration, and, consequently, no bad effects result from its use. But among the higher classes, where the food is richer in starch, and the stronger wines are used, and in greater quantities, the alcohol consumed must make more impression upon the constitution, and intemperance prevail chiefly in these circles.

OXYGEN—ITS METAMORPHOSIS OF THE TISSUES—THIS PROMOTIVE OF HEALTH.

To understand more fully the effects of wine as a beverage, reference must again be had to the agency of oxygen in decomposing the solids of the body. It has been explained how this occurs in sickness or starvation. In such cases the waste of the fleshy parts of the body is disastrous, because they can not be renewed, on account of the absence of the elements of nutrition in the blood. But the oxygen is no less ef-

fective in its action upon persons in health, though the results are not so obvious as in sickness, for the reason that the parts removed are constantly reproduced from the daily use of food. This wasting process, as already stated, is called the metamorphosis of the tissues, and is essential to the maintenance of a sound condition of the bodies of healthy men. By it the tissues are metamorphosed into carbonic acid and water, which, passing off by the skin and lungs, makes way for the constant renewal of the tissues by the elements of nutrition supplied by the blood. It is by this means that a perpetual waste and reproduction of all parts of the body is carried on, and that man's strength is renewed, day by day, as long as the equilibrium is kept up between the elements of respiration and nutrition. But when alcohol is taken into the stomach, in excess, it is diffused throughout the system, along with the blood, and the oxygen has to dispose of it by converting it into carbonic acid and water. The metamorphosis of the tissues is thus interfered with, by the presence of the alcohol, and it ceases to proceed in a healthy manner. The effects of the alcohol upon the system, of course, must be proportioned to the quantity used. A small amount taken daily, by a healthy person, may not seem, at once, to produce any very decided results; yet the natural tendency, even of small quantities, such as is contained in wine, is to disturb the healthy action of the system, produce a morbid derangement of the appetite, increase the desire for indulgence, augment the quantity consumed, impair the intellectual faculties, and demoralize the man. These are the dangers of the use of wines, or any other liquors, when drank as beverages by persons in health.

THE IMPORTANT POINT IN THIS QUESTION—CLOSING REMARKS.

And here, now, we can make a point to which special attention is invited. Alcohol, in whatever quantities or forms it may be used, acts as the antagonist of the operations of nature. This is the law of its action upon living beings. No one who studies the whole question closely, will venture to pronounce this a random assertion. Take the case of the man when diseased, in the special manner demanding alcohol; the operations of nature are then perverted, the laws of health are impaired, and the tendencies toward the dissolution of the body are accelerated: alcohol arrests the action of these perverted laws of the system, and affords time to the physician, or to nature, to recover the lost ground, and restore the healthy functions of the constitution. Take the man when in perfect health, and the unperverted operations of nature tend to perpetuate the vigorous condition of the body; alcohol disturbs the equilibrium between respiration and nutrition, retards the metamorphosis of the tissues, induces morbid action in the system, produces torpidity of the liver, the bloating of the countenance, and a hundred other ills, which tell, with unerring certainty, that the health of the system has been overthrown.

A remark or two, and we have done. The phrase—the use of wine in excess—has been employed. Wine, or other alcoholic drinks, can only be used consistently with the laws of health, when it is necessary to guard against the effects of a partial or total cessation of digestion, or in the deprivation of sufficient nutritious food. Beyond this is unnecessary and must be considered as in excess. Healthy men, who can afford an abundance of nutritious food, have no need of wine or other beverages containing alcohol, and must suffer injury from their use; because they receive into the system an excess of the elements of respiration, which, if prolonged, must impair health.

Intemperance is more prevalent, and its effects exhibited more prominently in the United States than in the wine countries of Europe; for the reason that, with us, nutritious food is more abundant than with them, and all our beverages, the native wines excepted, contain a much greater proportion of alcohol than is embraced in their wines.

It does not appear to be the plan of Divine Providence to bestow his blessings upon men, otherwise than that they may be abused to the injury of the recipients. God does not choose to extirpate moral evil from the earth, but leaves men free to resist

the influences of vice or to yield to its allurements. Many of the things that are essential to personal enjoyment or social welfare, when lawfully used, become the occasions of the greatest evils, personally and socially, when perverted from their original design. Herein it is that men are left in the enjoyment of their free agency, while, at the same time, they are held morally accountable for their acts. In perfect consistency with these principles, Paul could exhort Timothy to drink no longer water, but to use a little wine for his stomach's sake and his often infirmities; while, but a short time previous, he had declared to the Corinthians, that no drunkard shall inherit the kingdom of God.

THE GRAPE.

THE rich, the luscious grape, with its rich and flowing juices; who does not admire the grape, with its deep green foliage, its climbing tendrils, and its tender high-flavored fruit! From the earliest date it has been the favorite fruit of man; it has been the prolific theme of song and poesy, the solace of the poor and one of the luxuries of the rich. See that humble cottage, with its little walk enclosed with a vine-covered trellis; the rich clusters of white, green, purple and black fruit hanging from the trailing branches. Born and reared as most of us have been, in the cold and uncongenial climate of the northern States, where none but a few inferior varieties are able to perfect their fruit in the open garden, we know but little of the superior kinds produced in foreign lands.

But here in California, with a climate in which it luxuriates, where even the most tender varieties perfect their fruit in the open air, where the smallest tendril retains its vitality in the coldest winters, with a soil which pushes forth the vine with most astonishing luxuriance, we are able to select from the very best of the numerous varieties cultivated in foreign countries, and can eat their fruit in full perfection. We need no costly vine houses, with expensive heating apparatus, to enjoy the finest fruit the world can produce. On uplands, on lowlands, on the hillsides and in the valleys, the grape produces its fruit in perfection. The poor as well as the rich revel in fruit, that wealth alone can purchase in the Atlantic States.

We have often been amused in reading eastern agricultural papers, to see what efforts are made to counteract the effects of an unfavorable climate, and to produce a hardy grape fit to put upon the table. Their zeal is commendable, but how much better for our eastern friends to direct their labors to opening a railroad communication with this Italy on the Pacific. Why, in a few years we could deluge them with cheap products of the vine, reared in a sunny clime with hardly a show of labor. Or how much better, let them come here and enjoy the rich fruits of California under their own vine and fig tree.

Yet, notwithstanding the great natural advantages we enjoy, there are few to improve these bounties of the great Giver of all good. Go into most of our gardens, and we find very few of these rich foreign varieties in cultivation. Yet, every man, with even the smallest patch of ground can plant a few vines, and in a few years have enough and an abundance of the very best of fruit. Perhaps one reason is, that but few are acquainted with the merits of the better sorts. If so, we will give a descrip-

tion of some of the very best, and thus aid in a selection. The California Mission grape, though a very excellent fruit and worthy of cultivation, is still far inferior to some choice foreign varieties which can be raised with as much ease.

The White Muscat of Alexandria is a greenish white grape of the largest size, juicy and rich, with a fine flesh like a plum, and a fine aromatic flavor. The vine grows with the rankest luxuriance; the clusters as well as the fruit are very large. We consider it the very best grape in cultivation, and every person with a garden should plant it freely. It is an excellent raisin grape. A variety called the *Cannon Hall Muscat* has larger berries, and the fruit sets better than the other. Either kind, however, is worthy of cultivation.

The Black Hamburgh is a most excellent black grape, indeed, the very best. The clusters are large and thickly set, and the berries are covered with a fine bloom. The fruit is sweet and very high flavored. The vine grows very luxuriant, and produces abundantly. No garden should be without it.

The Royal Muscadine is another choice variety. The vine does not grow as luxuriantly as the other varieties, but it bears abundantly of the richest clusters of small green or amber-colored grapes. The fruit is very sweet, tender and juicy, and in France is considered the best table grape in use. It occupies but little space, but is one of the most productive varieties known. The clusters are small, but very compact. It ripens here about the twentieth of August, rather earlier than the other varieties.

The Flame Colored Tokay is another superior grape. The bunches are large and well set with fruit, which is large and of a rich bright red color. The fruit is firm-fleshed and very finely flavored. The vine is quite luxuriant and produces abundant crops. This is the grape from which Tokay wine is made, considered the finest wine in use. It is also an excellent raisin grape.

These are only a few of the best of valuable foreign varieties. We have selected them, because we have tested them fully and know their quality in our soil and climate. Other varieties we may notice at some future time, but those who wish to select a few of the very best kinds to plant in their gardens, will not be disappointed if they procure these. Let everybody plant grape vines, and soon we will able to supply, not only the immense demands of our own population, but we can spare some for our less favored friends at the east. E. B. C.; *Sacramento.*

ADAPTATION OF SOILS.

Editor Culturist:—I am but a novice in horticulture, and would gladly avail myself of the opinions, and the result of the practices, of those who have had more experience in the culture of fruit trees. Upon that portion of my farm devoted to orchard, the ground gradually descends from an elevation of fifteen feet above the waters of the Bay till it reaches the level of the tide wave. The high value attached to land in this vicinity has induced me to encroach upon old Neptune's dominions, in the cultivation of my grounds to vegetables and fruits to the utmost limit likely to be attended with the slightest prospect of success. It is an easy matter to fix the line

of demarkation at which the ordinary garden vegetables will or will not succeed in their approach to wet grounds; but with fruit trees, as the apple or pear, it is not so easy. My rows of bearing trees are so set that each variety of apple and pear, takes its chance at both high and low ground; in this way it is easy to distinguish the effect of wet upon the different varieties of fruits; and the result or effect of such excess of moisture as pervades the low grounds is clearly apparent; for whilst the rows of some varieties show little or no injury from an apparent excess of moisture, others dwindle or remain stationary in their growth at the first approach of undue moisture from below.

I believe this will be the experience of all pomologists whose grounds are situated like mine, and cultivated to trees. I propose, therefore, in a future communication—if the present should prove acceptable*—to point out some of the varieties that will, and will not succeed upon low grounds subject to an excess of moisiure from below and in which, owing to tide water and the general porosity of the soil, under draining is impracticable.

But there is one matter connected with this subject that has not a little excited my curiosity; it is based upon the theory so strenuously advocated by many that the graft is controlled to a great extent by the stock upon which it is set. Thus the pear is dwarfed by being set upon the quince, and the apple by like working upon Paradise stocks. Many, too, are strongly of opinion that the stock has an influence upon the quality of the fruit, which in some varieties I am inclined to admit is true; but that the scion is entirely at the control of the stock is not true. On the contrary, we see the scion or graft in many instances entirely controlling the stock, at least so far as regards the stock being fitted or unfitted for its own healthful growth. Thus we see two varieties of pears, both upon the same variety of quince stock, and yet the one will flourish finely upon lands so wet that the other perishes. The same is true in regard to apples, for there is not one chance in a hundred, that of a dozen seedling trees used as stocks, any two are of the same variety; and yet, in their growth or power to produce well the kinds grafted upon them, in unpropitious localities, seem entire at the control of the variety they are made to produce.

This is a subject that I would like to see enlarged upon in the Culturist, by others more capable than I am of handling it, believing that much benefit would result to the orchardist from a more perfect understanding of the effects of the graft upon the stock and *vice versa*, as well as the better adaptation of varieties to certain localities.

Pomo.

* We should be pleased to hear from our correspondent monthly, upon this or any other subject.

Evergreens.—If pruning or shearing is requisite the present is the most suitable time. By no means trim an evergreen to a naked stem as you would a deciduous tree. The knife should only be used to remove dead branches, and to clip the ends occasionally to form a pyramidial or cone-shaped head.

THE CULTIVATION AND LOVE OF FLOWERS.

WERE it not that our Golden Gate climate, moistened by the ocean breeze, gives us flowers, beautiful flowers in wonderful perfection and freshness during the entire year, it might have been deemed out of season to have made at this time the selection we have in the following extract from the speech of the Rev. H. W. Beecher, before the Massachusetts Horticultural Society, at its twenty-ninth exhibition, September, 1857. But as the season preparatory to the culture of flowers for the coming year is at hand, we can find no more appropriate season for its introduction to our readers.

The speaker remarked, he found himself embarrassed, not by the poverty, but by the richness of the subject. So many things presented themselves, that he hardly knew which to choose; but on the whole he had come to the conclusion that he would speak of the flowers, rather than the fruit; not that he desired to assert the superiority of either to the other, for he liked them both and thought that either of them was inferior to both of them together.

He deemed that man a thoroughly worldly man, who thinks the time spent on flowers is wasted. There were those who thought if a flower helped a man's tongue or pocket, or the coarser part of his nature, it was good for something. But tell such a man that a flower was good for thought, or to elevate the imagination, and made for man's better nature, and he would not appreciate it. If there was such a man here, or any who stood in the way of horticultural pursuits on the part of their families, he would advise them to go home and repent, not in dust and ashes, yet at least in good garden soil.

We were inclined to judge of things by the effect they had upon us, as if we should think the God who made the mountains greater than he who made the flowers. But he—Mr. B.—thought there were more evidences of loving thought and care in flowers than in anything else—even than in the birds. Nowhere did he respect the Divine hand so much as where it had manifested itself in the creation of flowers, which alone were a complete proof of the natural goodness and wisdom and taste of the Divine nature. He liked to ride through the open fields, and see what God most approved of; and he thought that the Divine Being had approved of the dandelion, for it was scattered all over the continent with its starry blossoms, its ducats, its golden spots. There were everywhere enough of them. Many and many a plant which went by the name of weed, he had put in his list of flowers, because he judged, from its frequency, in what high estimation it was held by the Maker. And the many hundred of thousands of kinds of flowers strewn over the world showed him that God had a lingering love for flowers—that he never grew tired of creating them; and from the man that told him he should not love and study the flowers, he would turn away, as from an evil counsellor. The very disposition of flowers in the natural world was to him an emanation from God, scattered here and there as they were in such rich profusion, and in all positions and situations, for only man ranged them in rectilinear rows. He could talk till morning of the revelations of God's nature which flowers made to him, but time forbade it, and he would pass to another phase of the pleasant subject.

He had been thinking since he had come here, of relieving the formality of religious worship by the introduction of natural objects, and he believed he might suggest, when he returned home, how much better it would be if his pulpit should be adorned every Sabbath morning with flowers. Christ drew his lessons from the beauties of nature, and preached in a natural temple. Some of the pleasantest recollections of

the speaker's childhood were of the brass flowers which adorned a portion of the church, where, in his childhood, he went to hear his father expound the Bible; and it was always a relief to him, after passing up the square wooden walls of the pew aisles to see his favorite flower in its place. He had begged the old brass flower when the old country church was torn down, and he still preserved it as a precious memento.

The Divine mind had always employed fruits and flowers as the means of instructing and blessing men. Did we ever reflect that the rose was first placed in the garden of Eden, that the garden of Joseph of Arimathea held the grave of the Savior —that garden had been the scene of many sacred events. Even in the adornments of the temple of David, fruits and flowers bore a conspicuous part. When a man was in the highest and purest state of mind, then he was most susceptible to the influence of flowers. No man that had ever passed through the period of youthful love but did remember how naturally he also wished for flowers, and saw in them the fittest medium of expressing gentle thoughts. So, when love was not quenched, but the object of it was, and we were called to lay the loved ones in the grave, we wished for flowers. Never did he find poverty so bitter, as when he was called upon to attend a funeral among those who were too poor to provide flowers for the dead, and he always thought it as much his duty in going to such a scene to carry flowers as to carry his Bible. He never was so overwhelmed as on one occasion, when called to officiate at the funeral of a young maiden of sixteen, whose parents and friends, in the extremity of their grief, did not think of the details of the burial preparations. When he saw the fair young creature lying in her coffin, he involuntarily went out of the house, and seeking a neighboring florist, brought back with him to the place of mourning, orange blossoms, and all the white blossoms of whatever plant he could secure hastily. Before he could cross the room with them, the mother embraced him in a transport of feeling, so that he could hardly get to the coffin to lay them on the dead. The parents had felt there was something wanting, but till that moment they had not known what it was. Who would dare lay the desecrating finger on the rose the bride had worn, or recklessly injure the flower that had been taken as a memento from the bosom of the dead. It needed not to be said how much art was beholden to flowers; it had gone to them for form and color, and the fairest ideas the artist had of color, were attained from the study of their many hues. The man who studied them thoroughly, had a better idea of the theory of artistic development, and a better practical hold upon its details.

Flowers had added a great deal to thought and philosophy. He believed he could trace their effects in some of the most abstruse writings, and he did not think he could find a more beautiful instance of this than in that of the old Puritan writer, Jonathan Edwards. Metaphysicians and philosophers were indeed indebted to flowers.

Flowers should have a part in the furnishing of every house, particularly where there are children. In respect to the cultivation of flowers, it was a wise and good disposition of a man's wealth, to send to every corner of the world to gather plants. It was making no unwise disposition of the wealth God has given us, to use it in cultivating flowers. He would not say, we ought not to give the poor assistance, but at the same time we ought not to neglect flowers, but should teach the poor there are higher relishes for them than those of common appetite, and the man who owns a garden and would not let people come into it, was a hunks!

Country people could always have flowers enough, without being indebted to any one. They could always find them on the trees and shrubs; they could always obtain beautiful wild flowers, and if they were not quite so rare and fine as the garden flowers, yet God had thrown open the gates of his free kindness so that no man was so poor —except he was so very poor as to live in a city—that he could not get flowers, and as many as he pleased.

There was a literature of fruit, but time forbade him to enter upon its discussion. Fruit needed no eulogy from him; having a double tongue, it could speak for itself.

LIFE OF A FARMER—HEALTHFUL, PLEASANT, PROFITABLE AND HONORABLE.

THAT the life of a farmer is *healthful*, has frequently been shown by tables of comparative longevity, and one of these for Massachusetts shows that their lives exceed the general average by twelve years, and go nearly nineteen years above that of the common laborer, and eighteen above the average at death of those engaged in mechanical pursuits. There seems to exist a sanitive influence in the varied employments of the agriculturist—in its fresh and suggestive surroundings. So the young man to whom a long life seems desirable, may choose the occupation of a farmer with the greatest likelihood of seeing in their fullness the allotted years of man. For whenever and wherever such statistics have been gathered, they bring facts to confirm the healthfulness and longevity of the tillers of the soil.

That the life of a farmer is *pleasant*, seems, at least, the opinion of the great mass outside the employment, if their professions are to be believed. A city writer, speaking upon the subject, remarks: "The man in active business in other departments, pictures for himself in his retirement a rural home—a little farm well tilled—and on that he hopes to end his days. Ambitious men, who have drunk deeply of fame, are at a stand when the tide of their affairs are at a turn, whether to make new and earnest efforts to struggle upward, or to buy a farm and in the peaceful labors it requires to enjoy a tranquil close of life." Merchants, lawyers, and physicians, we may add, when most rapidly accumulating fortunes, often stop to consider whether a competence and a snug farm are not more desirable than wealth, amid the turmoils and cares of the city, and the vicissitudes of fortune to which its dwellers are exposed. Rural life and employment have the elements of the beautiful and the agreeable, or they would not possess so many charms to the occupants of all other departments of human enterprise and industry.

Why then do so many young men, turning from agriculture as unworthy their attention, seek other employments, or crowd the mercantile or professional ranks? There may be various reasons for this. Some may desire a more speedy return for their labor, and think it found in daily or weekly wages, not considering the uncertainty of constant employment, or comparing their actual profits with those of the working farmer. Others may be led away by the attractive and fashionable appearence of acquaintances who have found employment in the city; or by the hope of rivalling the one out of twenty who succeeds in making a fortune as a merchant, forgetting, meanwhile, the confinement and drudgery of the every-day life of their gentlemanly friend, and the nineteen failures which have taken place while the latter has suddenly risen to wealth and notoriety. A larger class are impressed with the idea that in cities exist greater facilities for finding a comfortable living without much active labor; and this thought has charms for the indolent which they can not resist. How bitterly they will be disappointed, miserable multitudes, who are waiting with Mr. Micawber for "something to turn up," can sorrowfully relate.

That young man who has been liberally educated must study a profession—that in law, medicine, or theology, alone, can be found use for his learning—is an idea too prevalent even now. It will be a better day for all when it is discovered that the highest honors of the college do not unfit a man for the practical duties of agriculture—that it is not burying one's knowledge to graduate from the university to the farm. Some of our most successful agriculturists have reached farming through the law, finance, politics, literature, or merchandise; going by way of the professions to their present field of labor. When such men take the direct route, as they are beginning to do, farming will rank not only as healthful and pleasant, but as profitable and honorable in the esteem of men. Increase in position will give increase in knowledge and refinement, and make the life of a farmer always and everywhere, what it should be—the truest and manliest of all life on earth.—*Cincinnatus.*

THE NEW ROCHELLE, OR LAWTON BLACKBERRY.

THIS fine variety of the blackberry, so recently introduced as to be found only in the possession of a few amateur culturists, is well deserving all the enconiums it has received. It not only withstands cold but drouth, better than the highbush or the common native variety; its hardy habit, fitting it peculiarly for field culture, and as well for the mountain valleys subject to winter's frosts as to the lower valleys. It flourishes upon any soil where corn or potatoes can be successfully grown, and its yield is enormous with proper cultivation. The quality of the berry is unequaled, and upon moist land continues in bearing longer than ony other variety known. The ordinary distance at which they are usually set for field culture at the east, is eight feet between rows, and four or five feet apart in the rows. If set twelve feet apart each way, and the bushes allowed to extend in every direction, they will completely cover the whole ground and produce immense crops; but the usual mode for convenience of culture and gathering the crop, is to train them loosely to stakes or trellises, by which they are kept in rows or hedge shape, admitting a more easy passage among them. Almost any method by which the long canes loaded with fruit can be kept from falling to the ground, will secure a certain crop. The great fault with nearly all who first attempt their culture, is the too close planting, crowding so much foliage upon little space as greatly to injure their development. A method of culture adopted by some is to confine them between four or five stakes set around in a circle of two or three feet diameter, and keeping all the bushes within by wire or osier twigs. This is a very neat way in gardens where space is an object; but they do not produce as much fruit by this mode as when the bearing canes are trained obliquely or nearly horizontal. This latter mode also allows the young wood to grow up in straight handsome canes from the stool or crown of the root, producing finer shoots for next year's bearing. In the spring these upright canes should be bent outward and fastened to stakes at the proper angle, and cut back and shortened at least one third their length. If the wish is to increase the stock of bushes, the yonng canes, instead of being kept upright are allowed to bend over, their tops touching the ground; thereby making layers of them, which consists in burying an inch or two under ground a portion of the cane a few inches from the end, and allowing the end to be above ground; they immediately take root forming new and strong plants. Late in autumn, or in early spring, the main stock of the cane is detached and made to take the proper position for bearing fruit, whilst the young plant is removed to its new quarters.

It is not only excellent as a table fruit, but a most useful and valuable sirup is made from it highly efficacious in cases of diarrhœa and dysentery, particularly in children. There is yet another quality attached to this fruit, but whlch is common to other varieties, an excellent wine can be manufactured from it; but in California where the grape is so superior for this purpose, and the demand for the blackberry almost unsupplied and brings high prices, considerable time may elapse before its conversion into wine will be common. However, that those who may like to include

this among their varieties of home manufactured wines, may possess the requisite receipts for its making, we give the following as the best proportions of the ingredients used, remarking that the same receipt is equally applicable to the making of the finest quality of wine from red or white currants, and most other acid fruits: To each gallon of juice, well strained, add two gallons of water; and to each gallon of the mixture, add three pounds of sugar. Give it a cool place in keg or cask, not quite full; allow it vent till properly worked and then bung tight. Ready for use in six months.

Of the Lawton blackberry, H. C. Vail, in the *Working Farmer*, says: "The claims of this fruit may be summed up in few words. It is easily propagated and hardy. It does not require heavy manuring. It is durable; some hills are now over ten years old, and still vigorous. It enriches land with organic matter, and if the trimmings be burned and the ashes restored with slight dressings of other manures—say a litle bone dust, or super-phosphate and ashes—the soil will grow better daily. It is an enormous producer, giving the finest fruit for about six weeks in succession, and bearing carriage without harm. Its fruit furnishes juice for a fine wine of undisputed purity, requiring no spirits added to it; also an excellent medicinal sirup. Those living distant from market may make it profitable as a wine maker."

In addition to the foregoing, we give the practice of C. P. Bissell, Esq., of Rochester, N. Y.,—a successful cultivator of the Lawton blackberry—as communicated to the *Rural New Yorker*. He allows three new canes to grow to each hill, covers the ground with a mold of three inches of old hay or straw to keep down the weeds, checks the growth of the three canes the last of July at five or six feet in hight, giving the whole vigor of the plant to the perfection of the fruit, and forming stronger and more perfect side branches for the next season's crop. Cut out the bearing wood as soon as it has completed bearing, and adds: If any one has failed with this great blackberry, where the plants have been known to be genuine and in high condition when received, we should be glad to hear from them, with particulars.

ADORNING AND BEAUTIFYING FARMERS' HOMES.

WE find, among the prize essays recently published in the *Genesee Farmer*, that from among seventeen in number upon the subject above named, the committee to whom the essays were submitted, report that: "Between nine of the seventeen our choice was some time quite evenly ballanced, and was finally decided by the brevity of the essay from E. B." We most heartily commend it to the attention of the farmers of California:

"Should Farmers adorn and beautify their Homes and Farms before they become wealthy? and if so, how may it be done in the easiest manner?"

Every farmer who owns the land upon which he resides—every man who owns a house and garden, should strive to make it as beautiful as possible. It can not be expected that the man of small means can procure the expensive adornments of the rich; his house may be small and plain, but he can beautify and adorn it, nevertheless. I say he can make his home beautiful and attractive, even if he is poor, and I

will state the reason why I think he should endeavor to make his home beautiful, and adorn it as much as possible.

When I think of the many reasons why farmers should adorn their homes, I almost wonder that every farmer should not see the necessity of having a pleasant, attractive home. The moral influence of an attractive and beautiful home is great, both upon old and young. It tends to make them love the pure and beautiful, wherever it may be found. Nothing will banish vicious thoughts and feelings from the mind, sooner than to be surrounded by what is attractive and lovely. I have never known but few instances where victims of crime had been favored with pleasant homes, either in childhood or manhood: every thing rough and unattractive makes the man the same. But few persons ever leave a pleasant home, for the tavern or dram-shop. Notice when you will, the first signs of reform in bad men are usually the adorning of their homes. Nothing shows the refinement of the farmer more than the adorning of his home; it shows his good taste, and that he is desirous of making all around pleasant and comfortable. Beautiful and attractive homes tend to increase all the good qualities of the occupants, and remove the bad. Beauty and loveliness in nature tend to all that is noble in thought and deed, and make mankind better, both as concerns their own happiness and that of others.

Having shown why farmers should adorn their homes, I will tell how to do it the easiest. If your house is poor and plain, it makes no difference; if you can not afford to build a new one, adorn the surroundings of the old one. In odd spells build a neat yard,—it will cost almost nothing; set out some pretty trees in front and surround the house with them if possible. Fill the yard with flowers; they will cost nothing but the trouble of getting, unless rare varieties are procured, and your wife and children will see to the cultivation—never fear for that. Build a wood-house, if you have not one already. Don't deface your door-yard with wood piles, old rails, cart wheels, and other rubbish; remove the hog-pen from its conspicuous position near the roadside to the rear of the house, and build a neat frame structure instead of sticks and slabs—'t will pay for itself in a few years. Have good neat fences, they look and are much better. Remove all sticks, stones and stumps from the fields. Build good barns and sheds, if not already built; they will pay for themselves and look better than the unsightly objects on many a farm. Don't allow loose boards on your buildings; they are very unsightly. Have good yards around your farm buildings. They add greatly to the beauty of the premises. And above all, have the best books of the day, where yourself and family can gain instruction in their leisure hours, and take at least one good agricultural paper. Strive to make your home, farm, and family, a pattern one,—and in no way can it be done so effectually and easily, as by adorning it externally as well as internally. E. B.

MORE ABOUT DWARF PEARS.

As the season is approaching the most favorable for the transplanting of all deciduous trees, fruit, shade and ornamental, and as doubts are entertained by some in regard to the propriety of occupying their grounds with dwarf or standard trees, however convenient, beautiful or productive the former may be during the early stages of their growth, we give place to the communication of an esteemed correspondent, who, though his experience has not been under the cloudless skies of a California clime, may nevertheless be of value to many in determining as to whether they will venture upon the dwarf system.

Our correspondent's remarks in relation to the form of trees produced by proper

training, are peculiarly applicable to our climate, where the sun's rays are but a perpetual torrent of light and heat for months together. It appears to us there is no longer a reason to doubt the perfect feasibility and profit of dwarf pear culture, and its peculiar adaptation, not only to city suburban situations, but even small inclosures in the very midst of brick walls.

LETTER OF CORRESPONDENT.

Editor Culturist:—In the first number of the *California Culturist* I notice my article on dwarf pears, taken from the *Horticulturist.* I have had the experience of a long New England winter and an unpropitious New England spring with my trees since that article was written, and the results of each succeeding season and year confirms me in the opinion that those who denounce this system of culture entirely, either have no experience in the matter, or that they have failed from causes under their control, and which never ought to have existed. There may, to be sure, be natural causes, such as peculiarities of soil and climate, or locality which regulates climate, to operate against them. But here, in our cold New England, such causes do not exist to any great extent. Our soils vary extensively, and in many instances need a thorough working over to fit them for any fruit trees, or indeed for any ordinary crop. With us, here in the home land of many of the settlers of the fertile land of gold and the onyx stone, success is the result of persevering labor and careful watchfulness. And here, if we may judge from the past, we are inclined to think that dwarf pear culture, where proper care is given, will prove as successful in contributing to the comforts and luxuries of the table as any other culture whatever. Of course, then, we believe that where failures in this system of fruit growing have arisen, they have been in consequence of neglect in cultivation, such as a proper selection of trees, due preparation of soil, and transplanting, and in the after case, a thing too often lost sight of in all tree culture. However, we may be disappointed yet; our thrifty dwarf pear trees of five or seven years' growth, and which now look as hardy as so many young oaks, which are in fact all we could wish them to be, may, by and by, be a total failure; and so our apple orchards may all be smitten down, a tree-plague may run through our groves and over our mountains and smite our beautiful forests with death, yet we do not anticipate such an event. With our experience thus far, we might as well do it as to suppose our dwarf pears, with proper attention, will not succeed.

What success will attend it in California we cannot promise, our knowledge of the country is too imperfect for a conjecture; its general geological features have not been spread before us. How those mild breezes that come up from the calm Pacific salute the system we have never realized. Our knowledge of the country is all derived from travellers; it is, no doubt, correct, for all give the same glowing accounts of the fertility of soil and sweetness of climate. We have no doubt but it is the country for fruit growers, and can see no reason why dwarf pear culture will not succeed; hence, we offer a few suggestions, gathered from experience and observation, respecting their management.

First. In selecting trees. Get those budded as near the ground as possible. This will enable you more readily to cover all the quince or stock, in transplanting; a mat-

ter of much importance from the fact, that if a section of the quince is left above ground, your tree will not have the firmness it will possess if it is all covered; the portion of quince you cover will throw out new roots, thereby increasing their quantity, until the quince becomes all root.

Second. Let the branches grow low, if very near the ground no injury will arise, but great benefits may result by their keeping the earth and the body of the tree shaded from the scorching influences of the sun. A uniform temperature and proper amount of moisture is a great consideration in the growth and hardihood of any tree, and in this tree culture, it is better to shorten in all the branches to cut them off, unless they become so thick as to interfere with each other, when close pruning becomes necessary. Trees managed in this way, are less liable to injury from winds, than when a naked trunk is left, and long branches and a high top are thrown into the air to catch its bitterest force. Look at the fir, the hemlock, and the pine, growing according to the promptings of nature, with low branches extending far from the base, and rising in tapering cone-like form to a single bud at the summit. How firm and inflexible they meet the most frowning blast! No tempests disturb them. Do they not tell us how to form the heads of our fruit trees so as to give them the greatest strength and capacity of endurance?

We have never watered or mulched our trees, carefully stirring the earth in the dryest weather supersedes, in our climate, the necessity of either. In autumn we put well rotted manures—a compost, with decayed vegetable body for its base, is best—around the trunk, and in early spring remove it all so far as the greatest benefit of the feeders require, and carefully fork or spade the land. We have spoken of this as successful in the old heavy lands of the east; there may be localities where it will be benefical in the land of the vine and the fig tree.

There can be no doubt but California is destined to become a great fruit growing State, and we can see no reason why the culture of dwarf trees for pears cannot be a successful business. The produce of a single tree may not be as great as that of a standard, but when we consider how many more trees can be planted on an acre, we can scarcely doubt but in the aggregate the produce of a given quantity of land will be greater in dwarfs than standards. Yet this species of culture is still new in this country; like all new things it should be cautiously and carefully tried before positive conlusions are formed. It may, from causes not yet seen, fail, however earnest its present prospect of success. WILLIAM BACON, *Richmond, Mass.*

SWEET (CAROLINA) POTATOES.

FROM the first attempt to raise the sweet potato—or a vegetable that was called by that name—in California, the most entire success has attended every effort where proper care was taken to give it a suitable soil and proper culture. The most favorable localities thus far have been the higher alluviums of the lower river valleys; the Sacramento and San Joaquin bottoms furnish large tracts of the very

finest lands in the world for the cultivation of this esculent and the quantity produced to the acre is enormous.

It would seem, however, that there is not that demand for the article now produced sufficient to warrant a greatly extended cultivation. In a country like ours, with the largest non-agricultural poducing class of any State in the Union, it seems surprising that the demand for the sweet potato, so much a favorite with all classes at the east should be in so little demand here. We have heard as a reason for this, the assertion that it was more owing to the quality of the article produced than any other cause. That the sweet potato, so called, of California is but an inferior variety we are well aware, in fact, a mere yam; as different from the true Carolina sweet potato as a soft pine knot is from the genuine article as raised at the east. That what are called sweet potatoes with us, are often the most miserably soft, watery, insipid vegetable that man ever ought to eat, or else, at a later season, a tough, dry and tasteless article, we have long known; but never were we convinced of the wide difference between it and the real sweet potato, till comparing the two as presented at the late horticultural fair in this city.

Specimens of the real Carolina potato were on exhibition, so far superior to any thing we have ever before tasted in this State, as to warrant us in asserting our belief that they must, and will, entirely supersede the yam species heretofore cultivated among us as the sweet potato. The first premium of the society was awarded to Messrs. W. W. & J. B. Rumford, of Oakland, for their specimens on exhibition; and a careful test of their quality satisfied the committee of their decided superiority over the commonly cultivated article.

Upon the subject of this newly introduced variety and the success attending their culture, we annex the following communication of the Messrs. Rumford to the committee of the horticultural society on vegetables:

To the Committe of the Horticultural Society on Vegetables:

Gentlemen: At your request, we submit the following as our experience in the culture of the Carolina potatoes, two lots of which are before you. One lot was dug this season, and are but partly grown; the other lot was dug in November, 1857, and consequently have been out of the ground ten months.

In the spring of 1856, we received from New Jersey several pounds of what is known as the "Carolina Sweet Potato." From this lot we only succeeded in growing two small tubers. From these we dug in the autumn about seven pounds of potatoes, which we kept until the next spring, by packing in chaff. About the first of March, 1857, we placed the entire lot in a hot-bed, with about twelve pounds received from the east. All the latter rotted, while those raised here furnished enough sprouts to plant about one-tenth of an acre. This ground produced about twelve hundred pounds. They were piled in a heap upon the ground, and covered with earth for one week, and then placed in a loft, about a foot deep. In this situation, without further care, they kept sound until the spring of 1858, when, during March, they were put in a hot-bed; the slips were removed to the field in May. We have now growing about twelve acres, looking better than they did last year, and we are confident they will produce one hundred sacks to the acre.

ANNUAL ADDRESS:

By the Hon. Wilson Flint, before the California Horticultural Society.

IN absence of the President, F. W. Macondray, the meeting was called to order by J. W. Osborn, Vice President. The officers of kindred societies were requested to come on to the stand, where were found the officers of the Mechanics' Institute; Mr. Ely, delegate from the Ohio Agricultural Society; Mr. Silver, delegate from the Pennsylvania Horticultural Society; and Mr. Sweezy, delegate from the California State Agricultural Society.

Mr. Osborn then stated that the Society was formed two years ago, by some fifteen gentlemen interested in California progress, and now numbered nearly one hundred members. The previous year's exhibition had been gotten up at a short week's notice, while the present, though the result of a year's organization, was, from the unfavorable season, not a fair sample of California fruits or orchards. Large fruit bearing districts were not represented; and he would have no one, especially strangers, think they had seen all that California soil and climate was capable of producing; but at some future exhibition, when the season is more propitious, California orchardists, and her young orchards, would be fairly represented, in increased beauty and size of product. He would now introduce to the audience his fellow-member, the Hon. Wilson Flint, to deliver the annual address. Mr. Flint came forward, and spoke as follows;

MR. PRESIDENT, MEMBERS OF THE CALIFORNIA HORTICULTURAL SOCIETY, AND LADIES AND GENTLEMEN: If eloquence alone was required to commemorate with fitting record the multifarious and wonderful productions of the garden, which you exhibit at your second Annual Fair, then the eloquence adequate to sufficiently express the amazement which all feel upon this occasion, as we view the teeming abundance of Pomona's ambrosial gifts, must be found, not in the poor language which I am privileged to address to you, but in

> "Whatever earth, all bearing mother, yields
> In India, East or West, or middle shore,
> In Pontus or the Punic coast, or where
> Alcinous reigned, fruits of all kinds, in coat,
> Rough or smooth rind, or bearded husk, or shell."

Or,

> "On the humid flowers, that breathed
> Their morning incense, when all things, that breathe
> From the earth's great altar, send up silent praise."

That manifestation of surprise should be manifest from a large number of those who visit your exhibition, is natural, because to this day the great majority of our citizens regard our State only as a temporary place of sojourn, and seldom take the trouble to inform themselves correctly about our horticulture. Indeed, the bleak and barren prospect surrounding this metropolis, is apt to unfavorably impress the stranger with our facilities for pomological eminence, and as he makes a hurried visit to our grain districts, he marks a general absence of gardens and orchards, and it is only when visiting our markets or fair, that he becomes convinced that our horticulture is keeping pace with all other industrial pursuits.

That horticulture in California has many difficulties to encounter is evident from the fact that our soil is of recent secondary formation, and is generally deficient in those rich leaf molds which can only be produced by the rotation of forest trees. To supply this deficiency is the first thought of the scientific horticulturist, and I may remark

that this constitutes the material difference between agriculture and horticulture, for be it remembered there is a wide difference between the two pursuits. Agriculture is that kind of husbandry which looks mainly to the largest breadth of acres under subjection, erroneously calculating that the more acres are planted, the greater will be the *pro rata* of profits on the investments made. A system of false economy, which wholly denies, or grudgingly appropriates a meagre and worthless corner to the kitchen garden and orchard. A system of impoverishment and exhaustion, which, by the succession of crops, garnered and sent to distant markets for consumption, returns none of the atoms drawn from the land, but meets the demands of the famishing soil with a cheaper and more superficial cultivation. This is what has impoverished the James' River lands of Virginia, the Genesee country of New York, the prairies of Michigan, the "openings" of Mississippi, and the plains of California; for it is a startling truth that the yield per acre of the cereals, all over the once rich valleys of our State, is so much on the decrease that with the immense increase annually of breadth of land put into grain, still the amount produced is not much greater in the aggregate. In some of the localities I have mentioned, agriculture has been abandoned on account of the exhausted condition of the soil, and young forests have taken possession of the discarded premises, and are yearly teaching heedless men the rudiments of horticulture, by annual deposits of leaf mold, which, in nature's good time, will restore its primitive richness.

Horticulture, on the other hand, is that application of labor which calls in the aid of science, and applies chemical tests in analyzing the soil, so that superfluity may be checked or deficiency supplied. Laborious, tedious, and oftentimes expensive, this mode of preparation and cultivation can only be applied to a limited quantity of land, compared to the large grain farms, yet, when a comparison is made between the two systems of labor for the supply of human food, it will be found that in every case the garden and orchard are the most profitable. If an estimate be made of the cost of the daily food consumed in large cities, it will be found that the orchard and vegetable garden contribute fully equally with the harvest field, while the amount of land covered by the latter is as fifty to one of the former.

The science of horticulture grew out of the necessities of dense population, and attained high perfection ages since, not only among the civilized nations of Europe, but in Egypt, Palestine, India and the Chinese Empire. We learn from the few gleams of light thrown upon the industrial pursuits of the people by the historian, that great labor was devoted and enriching cultivation given to the lands in the neighborhood of cities, as in those remote ages transportation from a distance was tedious and expensive. Not only have the achievements of horticultural science been transmitted to us on the rude parchments of the dead languages, but when we explore this vast continent, we are enabled to trace with accuracy the moldering outlines of gigantic aqueducts, which once conveyed broad rivers from mountain glens to verdant plains, watering from their artificial sources the parched earth, that it might bring forth seed time and harvest for the myriads of human kind once peopling the great plains of our Colorado—all now except those speechless monuments, with their illegible inscriptions, passed into dim oblivion.

Indeed, horticulture was the first occupation of man, as appears recorded in the first pages of Sacred History, where Adam and Eve,

> "On to their morning's rural work they haste,
> Among sweet dew and flowers; where any row
> Of fruit trees over woody, reach too far
> Their pampered boughs, and needed hands to check
> Fruitless embraces; or they let the vine
> To wed the elm; she, spoused, about him twines
> Her marriageable arms, and with him brings
> Her dower, the adopted clusters, to adorn
> His barren leaves."

Thus man, created a little lower than the angels, was made lord of the earth, and placed in charge of Paradise, that garden planted by the hand of Deity, and given instinct of knowledge to train its walks with symmetry in keeping with the order established by the Great Architect; Celestial labor, which called them forth from flowery couches at early morn, to breathe its dewy fragrance, or with enraptured eye trace the outlines of mountains, hills, valleys, lakes, rivers, fountains, rills and sparkling jets, as Aurora, from the gray east, dispels night's shadows, and spreads over all effulgent light, giving the mortal vision an ideal of the grandeur when God said, let there be light,

"And forthwith light
Sprung from the deep; and from her native east,
Sphered in a radiant cloud,
Sojourned the while."

The pleasures enjoyed by our first parents while tending the Garden of Eden, have been the prolific themes of historians and poets; they have given divine inspiration to the theologian, and lent an air of msterious charm to the mythology of ancient nations, and it is only after their expulsion from those happy realms that we are brought to view

"A field
Part arable and tilth, whereon were sheaves
New reap'd; the other part sheep walks and folds.
Thither anon
A sweaty reaper from his tillage brought
First fruits, the green ear and the yellow sheaf."

Plainly we are told in Sacred History that Adam and Eve were expelled from the horticultural beauties of Eden, because of their disobedience of the rules imposed for their moral and social government, and for this were they sent out upon the bleak earth to become farmers and till the soil, and by the sweat of the brow, to eat their bread all the days of their life.

I am often reminded of this warning found in Sacred History when I see at this day persons disposing of their little homestead gardens, whose luscious fruits have cost the good portion of a lifetime to mature, seemingly having no regrets as they assume the more laborious duties of farming, or encumber themselves with the anxieties and mutations of the metropolis.

The remembrance of the beauties of Eden clung fast to the minds of Adam and Eve, and were handed down from generation to generation, tradition preserving undimmed the glories and splendors of the primeval period, creating in each successive age a more refined and cultivated taste, which led to a desire for gardens and rural retreats, which, so far as human skill could fashion, might to some extent imitate, free from profane emulation, that unapproachable paradise planted and watered by the hand of the Creator.

It is to horticulture that every country is mainly indebted for its permanent prosperity, and as an illustration of this, look at some of the best valleys in our State, where a land tenantry system of occupation prevails. There the population being nomadic, coming and going with the close of the harvest, having no permanent interest in the soil, a skimming cultivation is adopted, orchards are not planted, hedges made, houses built fit for women and children to live in, nor does the transient citizen feel that identity of interest in the social and political welfare of the country, which it should be his pride and ambition to foster.

Fellow citizens:—It is with heartfelt emotions that I congratulate you upon the successful establishment of a State Horticultural Society, and however feeble my efforts to do justice to the great occasion you now celebrate, I shall ever regard it as one of the proudest actions of my life, to have the honor of having presented to you your first annual address.

The labors which your society will have to perform in the brilliant future, which

opens to our hands new and untried fields, by the development of the Pacific coast, are of a multifarious nature and gigantic magnitude. You enter upon an exploration where much of the experience which you obtained in other countries, and other climes is found of little avail. The total absence of the frozen rest of winter, and the humid rains of winter, give you a climate widely different from that of the Atlantic States and Europe, consequently you have to struggle against the obstinate prejudices of a life-time, and cast away as worse than useless, the theories and practices by which you obtained success in other lands. You have here to launch out upon an ocean of experiment; charts, books and old landmarks are of little avail here, where there are really but two seasons, spring and autumn.

It is hoped that the labors to which you will more immediately direct your attention, will be the production of a written code of theories and applications resulting from studious investigations, which, by your authoitative recommendation, may enable the novice to steer clear of the empricism and error which so widely prevail in California. Gathered as our people are, from all the peoples of the earth, it would be strange if customs and habits as diversified, were not intermingled in the association.

Thus a greater range of material offers for your investigations, and I trust that the crucible in which you will refine the incongruous mass may discard as unworthy preservation, speculative ideas of doubtful utility. This is the age of telegraphic directness, and it should be the purpose of all to winnow out superfluity, and adapt to the purposes of life, time and labor-saving ideas and implements. To facilitate the interchange of knowledge, and eradicate the clanishness which is apt to follow the emigrant from his native to adopted home, to crush out the features of character of races most yielding and organize into a new and powerful angloism, is the vocation of common schools, scientific discussions, and Industrial Fairs, and I rejoice to find that among the exhibitors to your exhibition may be found people of almost all nativities; and no better evidence can be given of the good you are accomplishing towards the comfort and pleasure of life, and the dignity and amelioration of labor, than in the gratification and interest manifested by the throngs of people who so genorously give countenance and material support to the display which you have prepared for their edification. In the progress of your society you will have many difficulties to overcome and prejudices to encounter on the part of the selfish and obtuse, who will ridicule your association because there may be among the members enthusiasts. Enthusiasts, forsooth! I pity the ignoramus who cannot see that no great individual success was ever achieved, either in the glory of arms, or in the *belles lettres*, or attainments of science, unless some successful competitor was an enthusiast. Enthusiast! I claim to be one myself, and next to my love of God, and to my wife and children, comes adoration of flowers and fruits, and forests and mountains.

What a fortaste is it of the blissful hereafter, to go forth in the early morning, when the dew drops sparkle on every leaflet, like myriads of diamonds, and take part in the heaven worship of the countless flowers, and herbs, and trees, that look upward towards starry worlds, and join the carol of the feathered tribes, our heart beating with emotions as glad and joyous as theirs, thanking God for all these blessings which bring health, strength and happiness.

Enthusiast! That is just the material wanted to make your Society useful, and you should all feel that kind of enthusiasm for the calling to which you have devoted yourself, which will economise every moment of your precious lifetime, that your labor will not be lost, so that you may bequeath to posterity, if nothing more, the legacy of good example.

Individual objections are sometimes urged against Fairs, because they bring together so large a number of people that the public are subjected to the rapacity of hotel keepers, and the kindred extortionists, hovering around such assemblages. This, to a mortifying extent, is true, when applied to the small villages where the great Fairs are sometimes by necessity held; yet it does not prove, as some assert, that all

Fairs are got up expressly for the benefit of landlords and public carriers; and I trust that hereafter the private hospitality so generously extended in a neighboring city, during the recent State Agricultural Fair, will teach innkeepers that Industrial Fairs are for a far higher purpose than to alone contribute to their extortionate demands.

Your labor, as a Society, or as individuals, necessarily extend over a great variety of soils and climate, consequently, your attention will become directed to the habits of almost every fruit and plant indigenous to the endless summer of the tropics, as well as through every graduation of climate, even up to the ice-bound north. All of the mild and warmer regions of your State have, to a limited extent, been made tributary to the husbandman, but there is an elevated plateau of land running along the foot of the high and bald Sierra Nevadas, which, for extent of territory and similarity of climate, may be compared to the New England States. This country is yet a primeval forest, interspersed with extensive meadows and covered with deep snows through the winter seasons. To this region you should direct early attention to the planting of apple orchards, as it is a matter of uncertainty as to whether we shall be able in our mild districts to grow apples, possessing qualities fitting them for shipment to the many markets opening to us, all over the Pacific world, for this desirable fruit.

The subject of Climatics is one of the most important to which you can direct your attention, as it is only after a great outlay of money and an irreparable loss of time, that we find our vineyards and peach orchards, which have been planted within sweep of the fogs and winds of the Pacific Ocean, are, in a measure, total failures. Had this knowledge been imparted years since to our pioneers in horticulture, so that they would have planted the apple, pear and plum instead, then the results of your exhibition, and the pecuniary success of exhibitors, would tell a far more satisfactory story. Again, when we leave the damp atmosphere and fogs of the coast, we go into a climate, which, throughout the summer, is one of endless sunshine. Now, what the effects of such a bright and warm atmosphere may be on the health and productiveness of orchards, should claim an important share of your attention, as even in these districts, large investments may continue to be made in those kinds of fruits which are not suited for so much warm sunshine. Connected with the subject of climatology, is the science ot pruning and dressing orchards and vineyards, so that art may supply the deficiencies, or check the excess of the light and heat, colds, or damps of nature.

It would greatly facilitate your efforts to arrive at correct conclusions, if your committees, on their examination of the fruits offered for exhibition, would note the locality, nature of the soil, and mode of dressing the trees and vines, adopted by each contributor. An elaborate report, which shall point out the causes of the sun scald, would do much to dispel the fatal error of high, open, straggling training, which so widely and injuriously prevails in this State: for be it remembered, that our object in this bright and dry climate should be to exclude the dry air and light from the interior of the tree, as the hot rays of the sun not only blister the fruit, but extract from it much of the rich vinious juices, its greatest recommendation to our approval.

It should be a source of pride to your society, that each contributor is enabled to annex to the labels on his fruit his name and locality, free of all suspicion, that your committees would be influenced in their awards, because a knowledge of the ownership might give a bias to their decisions, from personal considerations; and I trust this confidence in the impartiality of your committees may continue unabated, and the awards be given to merit alone; nor should your committee evince a timid fear lest they offend, by pointing out faults and deficiencies which are subjects of improvements and remedy hereafter. Fairs are intended to admonish us of what we have failed to accomplish, as well as testify to our achievements. All cannot expect to receive premiums; and it may be questioned if the almost indiscriminate distribution of tokens of your approbation does not have an injurious effect, as it may lead some

to expect marks of your favor to which their indifferent offerings do not entitle them. To many who bring their offerings to your tables for display, the commendations of the throngs of visitors is ample satisfaction, however much they may desire and regard your medals and diplomas. Much as your certificates are esteemed, I doubt if they confer the same benefits on the recipients as would the acquisition through you of standard books, treating upon the subject in which they have excelled. I have been led to this remark by looking over the list of prizes offered at the ensuing Annual Fair of the Napa County Agricultural Society, where many of the premiums consist in books, treating upon all subjects connected with the industrial pursuits. The value of these to the recipient can hardly be estimated. Books are the keys to thought, and engineers to all gigantic enterprises.

The subject of drying and preserving fruit so that they may have a supply throughout the year, independent of importations, and enable you to become large exporters, should command earnest attention, as the time is rapidly approaching when our population can consume only a moiety of the pomological abundance which already is smiling around us. For the productiveness, extent of variety, certainty of crops, and richness of flavor, no country can equal or compare with the foot-hills of our gold regions and the great valleys watered by the San Joaquin and Sacramento rivers, in the growth of peaches. Information as to the best mode and the cost of preserving this fruit should at once be widely disseminated in this State, so that our surplus crops might be turned to good account by shipment to the Atlantic and Pacific worlds. Of the plum, it may be said it bears prodigiously, whether found growing wild on our high mountains, almost in the region of eternal snow, down through every change of climate to the tropical climate of Los Angeles. The plum has no enemies in California such as the curculio, black knot and rot of the fruit on the trees near the time of maturity, which have become so disastrous to this fruit in Europe and Eastern America that its cultivation is rapidly becoming abandoned. Prunes are to be seen at your exhibition taken from the tree in their present condition, perfectly cured, which will compare favorably with the prunes of commerce.

The planting of plum orchards for the purpose of preserving its fruit for export opens a wide field for enterprise, owing to the almost total destruction of this fruit, of late years, by the causes enumerated.

Connected with the labors of your society there remains but one branch of horticulture to be treated, upon which, for the variety and magnitude of interests to grow out of it, is of most commanding importance, and destined at no distant time to surpass, in all of its ramifications, the magnitude of gold mining; I refer to wine growing. This subject, so fruitful of statistical facts and eloquent dissertation, I can only briefly glance at, as I fear I have already taxed your patience to an unbearable length on the matters to which I have already alluded.

Upon the subject of the vine our people are most deplorably ignorant, as most of them are from countries where the vintage is unknown. The grape flourishes all over California, except on the coast where the damp fogs and winds sweep inward with daily regularity. There they are struck with mildew and blight, but as you enter the sunny and warmed localites, you are at once struck by the change in the appearance of the vine, and the luscious clusters of grapes growing purple for the wine press give hopeful evidence that in this branch of industry California will have no competitor Vineyards are being planted in many sections of our State, with wonderful rapidity, and the production of grapes already far exceeds any adequate arrangements for turning its juices into those wines and brandies which are suitable for export, or command sale at home. Your immediate attention is required to impart information among the wine makers of Europe, that they may learn the superior advantages California offers for the investment of their capital, and the application of their experience among us in the remunerating enterprise. The grape has no enemies in California,

and during a cultivation of near a century at some of the old Mission vineyards has never failed to produce an abundant crop. Statements over the signatures of gentlemen at Los Angeles as to the annual value of the grape crop are, that for wine making purposes one thousand dollars per acre is a low estimate, and when it is known that a fair crop can be had three years after planting the cuttings, no one need be discouraged from engaging in the business on account of the time it takes to repay the investment made. There are within the State lands adapted to the cultivation of the vine of sufficient extent to employ millions of people, and this land can be had at a nominal price, as much of it is beyond the compass of Mexican and Spanish grants, being in the mining districts.

Fair and abundant as the grapes are which are produced in our valleys, it is to the hill sides in the mining districts that we shall eventually look for the best grapes. These lands are of a reddish color, composed of marls and calcareous remains intermixed with sulphurets and volcanic formations, all of which are highly favorable to the development of the grape, and what renders its cultivation a matter of little trouble is the fact that artificial water courses for the supply of miners are carried over every hill, so that irrigation is already provided for. It is a curious fact that were the gold mines to give out to-morrow, the various canals and ditches, which have cost so many millions to construct, would be of nearly equal value to irrigate vineyards, should the miners turn their attention to this branch of industry instead of gold digging. Estimating the number of actual miners at forty thousand, among which to divide the gold crop of sixty millions, it will be seen that this averages to each man fifteen hundred dollars as the result of his year's labor. Now, did each receive this sum as a *pro rata* for his toil, then there would be a showing of individual prosperity never before seen in the statistics of industrial life. But it is an undeniable fact that a large number of our gold miners barely make a subsistence, owing not because there are not inexhaustible claims where a moderate compensation can be returned, but because most all are looking for big strikes, which are rarely met with. Having shown what the forty thousand miners accomplish at gold digging, permit me to present what the same number of men would do at vine-dressing. One man will easly plant, tend, prune, and ship to the wine manufacturer five acres of grapes. Now, five acres of grapes at prices which undoubted authority has shown, will yield one thousand dollars to the acre, gives five thousand dollars as the result of the year's labor, making a sum total on forty thousand laborers of the astounding sum of two hundred millions annually!—dethroning your cotton and gold kings combined, and twining around the temples of laughter-loving Bacchus the imperial diadem.

If the thousands of men who have on a recent occasion made a stampede from California towards the North Pole had looked at the many enterprises, aside from gold digging, which may be entered with little capital, except that best and most reliable of all capital, willing labor, then those tales of individual suffering which reach us by every return steamer from those hyperborean regions would never have record except in the romance of a trapper's life.

Were the hundreds, yea thousands, who are friting away a lifetime in the hard endeavor to eke out a shabby-genteel existence in our cities, to cast about them and see what they can do instead of imploringly asking, "What can I do?" without ever going beyond the narrow precincts of their metropolitan immolation, then there would be less of the doleful cry of adversity and more of the cheering song of prosperity. What though you have been reared in the lap of luxury and cradled the pampered child of ease, fortune may have blessed you, the famished wolf may never have crouched at your door, boundless possession and fawning sycophants may surround you, yet without that contentment which alone is derived from useful employment, life to you is a burthen, and its realities a mockery; for fortune may be swept away by the devastating elements or the mutations of commercial routine. What though

you should wake as from a dream and find the gold you worshipped as a god become a myth, will you cry out in your despair, "what can I do?" Will you, when fortune and credit have become wrecked, hang, spectre-like about the rock on which you split, vainly endeavoring to conjure back the ghost of a departed shadow, or will you arouse yourself as one tossed in uneasy slumber, shake of the effeminacy of the past, and go forth to the mountains to perform honest labor, where "labor is honored and respected." Your hands may be soft and white, so that the pick and spade first plied with feeble stroke burns into the quivering sinews, the heraldry of labor in characters of blood, yet all these should be borne by a manly spirit rather than submit to the degradation of accepting menial employments, which alone offer in cities where friends disappear with fortune.

Fellow citizens:—When I look around upon this intelligent assemblage, I recognize many faces familiar to me in other days, when I had the pleasure of residing amongst you. Some of these faces, I regret to observe, wear a more anxious expression than of old, and it is possible you have had fall upon you the heavy hand of adversity, and are waiting almost hopelessly for something to turn up. If this is the case, permit me to make a few suggestions as to a manner by which you may in good time retrieve yourself. In the mining districts, there are large bodies of land suitable for vineyards, over which artificial canals bring a never failing supply of water; here, too, gold is found in varying richness. This land can be had merely for the trouble of occupying it. Now it is in the power of any one to reach these districts, and stake off a mining claim and go to work. You may not make but a dollar a day, but this will support you, and in a little time enable you to fence in a piece of land and commence planting a vineyard.

Keep on digging gold to meet your outlays until the vineyard comes into bearing. The seasons when your vineyard requires no attention will enable you to dig all the money you require. In this way, by five years of economy and industrious perseverance, you will have acquired a competence which a prince might envy, and made you a home, that

> "Though in Heaven the trees
> Of life ambrosial fruitage bear, and vines
> Yield nectar; though from off the boughs each morn
> We brush mellifluous dews, and find the ground
> Cover'd with pearly grain. Yet God hath here
> Varied his bounty so with new delights
> As may compare with Heaven."

The closing Address, in the absence of F. W. Macondray, President, was made by J. W. Osborn, Vice President, from the Napa District, on the evening of the twenty-third of September. He said:

Ladies and Gentlemen: Our exhibition will now close with the sale of the fruit, for the benefit of the Premium Fund, where contributors have not made other disposition of them. But before closing I am requested by our worthy President (who is too ill to be here this evening), and the Executive Committee of the Horticultural Society to thank you for your generous patronage. Citizens of San Francisco, we do most cordially and heartily thank you.

Our Society, one year since, was invited here as a guest, and in the feebleness of our early growth, gladly twined its tendrils round the pillars of your noble Institute. But, like the trees from which this fruit was plucked, precocious in its growth, the second year has borne this crop. We are now here as partners in this exhibition, and in the increase of attractiveness of the whole, we have fully paid back the nurture of last year. As experience has shown us that justice to the whole State cannot be done by a single exhibition at this time of the year, if horticultural success crowns our labors the coming season, we design to have two exhibitions—one in the early

summer, one in the fall. We trust the present exhibition has convinced you that the time is not distant when California will supply herself with *fresh* fruits, and need not import the *dried;* in fact, we think our dried fruits will be known e'er long in the world's market. In our endeavor to gratify you, we have surprised ourselves—for fruit growers exhibit to each other; and we return to our homes with renewed faith in California productiveness and in our own capability. Nor does this effect rest with ourselves alone; societies of other States have sent their delegates to this and the kindred fairs. The Keystone, the Buckeye State, and young Iowa have sent us their representative—men who from habit, education and experience are well qualified to judge of California attractions. Gentlemen, they are satisfied; they return not to make verbal report. We must bear the blame of their detention; captivated with our soil, climate and production, they remain, are with us, and of us.

And now, again thanking you for your support, we leave you for another year, bearing with us the consciousness, that the San Franciscans, our most generous consumers, have been no niggards in their praise or presence at this our second Annual Fair.

WHEAT: ITS VARIETIES AND CULTURE.

THE season is approaching in which the farmer will be busied in the preparation of his grounds for the great staple product, wheat. In many places, upon lands partially or entirely alluvial especially along the banks of our larger rivers, the preparation has already commenced, the moisture of such lands rendering their working practicable at all seasons of the year. These lands, however, do not embrace the larger portions of our wheat growing districts. Immense tracts of what is here known as adobe soil, of a nature so gluey and tenacious as to render their plowing impractible before the autumn rains shall have rendered them friable, are yet among the finest wheat lands of the State, when properly fitted for the reception of the seed.

It is not, however, entirely upon the fitting of the soil for a crop, that we depend for success. There are varieties of wheats, with characteristics of growth widely different, and yet but little attention has been given to ascertain the adaptation of the different varieties to soil and locality. It is to this neglect on the part of wheat growers, in not profiting by the experience of those who have made trial of the different varieties, that many failures can be attributed. For whilst one variety may prove productive and profitable for a particular locality, another kind may turn out to be wholly valueless, and the cause be attributable to the wrong source. Thus we see one field deeply plowed in the spring and sown with one variety of wheat after the first fall rains, yielding not half an ordinary crop, whilst an adjoining field on which a crop and a good crop has been harvested, the stubble just scratched over with an iron-toothed harrow after the same fall rain, producing an abundant volunteer crop, but the wheat proves to be of a different variety and better adapted to the soil and climate of that locality. It is well, therefore, to use a proper discrimination in the choice of the variety of wheat cultivated.

We have taken no little pains to ascertain the comparative merits of several varieties cultivated amongst us, and their adaptation to certain wheat growing districts.

In this number we refer to that fine agricultural country embraced by Sonoma

County, and in speaking of the adaptation of varieties, our remarks will be understood as applying to the majority of soils devoted to wheat culture; for where there is so wide a difference in the soils even of a single county, exceptions to all general rules or experience must be expected.

The California Club-head Wheat, is the same as the old Russian or Odessa; it is a bearded variety, and is much sown throughout California, and though generally productive has not yielded as well in Sonoma county of late as formerly. Wherever soil and climate are found well adapted to its growth it is an esteemed variety, being less liable to smut than any other grown.

Australian Wheat; this is a bald variety and a general favorite; is extensively grown and probably as certain to remunerate the planter as any variety that has come under our observation. It seems perfectly adapted to climate, yield good and of fine quality.

Sonora Wheat; this too is a bald variety, introduced but two years since. It is evidently improving by acclimation from year to year, and promises to be an acquisition to our list of best varieties; but really has not been on trial a sufficient length of time for us to give a decided opinion upon its product or flouring qualities.

Egyptian; bearded and many-headed; has been widely and rapidly disseminated; seems but little subject to disease, yields well, but is not a favorite with the millers.

Oregon White Wheat; this is a variety upon which the opinions of our best wheat growers are very much divided; in some localities it succeeds admirably, in others but poorly, and more time and experience will be required to establish satisfactorily its character.

Red Turkey; this variety, introduced through the medium of the Patent Office, gives promise of becoming a favorite; at present, however, not enough is known of it to establish for it a character for excellence over other of our best varieties. If field culture should present the yield that has attended the experiments of those who have given place to small quantites, with garden culture, it will doubtless prove a desirable variety; three gills having produced the past season a yield of twenty-two quarts of sound heavy grain.

It is of the utmost importance that great care should be exercised in procuring not only the best variety of seed wheat for the respective locality, but also that the seed be entirely exempt from smut. If even a suspicion is entertained that the seed is contaminated by this, the worst of the evils that beset the wheat grower, it should be washed in a solution of blue vitriol and water, which effectually destroys the vitality of the smut without injury to the grain. We have recently seen an article going the rounds of the press, the purport of which was, that smut was caused by using seed which had been threshed with machine; that it is the broken kernels that produce the smut. This, however, is no new supposition, the same opinion having been advanced and fully refuted by repeated experiment, not ten years ago, by the wheat growers of northern Ohio and Michigan. At that time the experiment was tried of breaking purposely entire bushels of wheat, and sowing the same upon marked sections of fields sown to wheat, and except that by the breaking process a considerable portion was so injured as not to vegtate at all, no other difference than what would

naturally arise from deficient seeding was in any instance observable. By deficient seeding, however, we would be understood to mean not only what would be caused by a lack of seed, but also from an inferior growth from some portion of that which did vegetate, as might well be expected; but that the crop produced was any more liable to be smutted in consequence of the seed being broken, was never substantiated by a single experiment.

The ordinary threshing machines of the present day, so far from being an injury to seed wheat—except the breaking of a few grains in every bushel—is actually a benefit in knocking to pieces great numbers of the smutty grains, and scouring the fungus from the surfaces of others, the more readily to be driven off by the fanning mill. There is not half the importance attached to the procuring of good clean seed that should be, and we would urge a greater attention to the subject than is given it by the majority of agriculturists.

THE CHUFA, OR EARTH ALMOND.

AMONG the many new and valuable plants and vegetables introduced through the medium of the Patent Office, perhaps there is no one that promises greater usefulness considering its humble growth, than the chufa, or little earth almond. Wherever introduced upon suitable soil, and a climate favorable to its growth, the yield is enormous, and as food for swine it is deemed by many superior to corn. Though we are not so sanguine as to believe that it will ever be found equal to either corn or peas for fattening hogs, there is hardly a doubt but that, in point of economy as a food for growing pigs and stock hogs, it is superior to any other food now known. They have but to be introduced into a proper soil and the first growth obtained, when the hogs are turned in as upon a pea field, the animals doing their own harvesting by rooting them from the soil, and yet they never harvest so close, but that they not only leave a sufficiency of seed for the next crop, but by rooting the ground over and over, put it in complete order for producing a succeeding crop.

Mr. D. E. Hough, of Oakland, exhibited specimens of the chufa, at the late fair of the California Horticultural Society, grown on his grounds the past season; and in vigor of growth and yield, promise to be as valuable as food for swine in our own State as they have already become in the more eastern. They seem to possess high nutritive qualities, and this merit, in connection with that of their easy cultivation and perennial character, cannot but render then a most valuable acquisition to many localities in our State, where the raising of swine is made a primary business with the husbandman.

As showing the merit it possesses, and estimation in which it is held by those who have given it a fair trial at the east, we subjoin the personal experience of the editor of the Alabama *Cotton Planter*. He says:

We have many inquiries as to the value of this crop; some express fears that the nuts can never be eradicated. We have not tested them long enough to know whether they can be or not; for our own part we hope they cannot. We know them to be the most valuable crop for fattening hogs that can be grown. We last year put a lot

of half-starved hogs upon an acre of them, and never saw pigs improve so fast. As the hogs rooted upon them the chickens forsook the home lot for the chufa patch, and fattened faster than we ever knew them on corn, and the flavor of their flesh was delicious. We took the hogs off in the early spring, and now find a splendid stand of chufa on the same ground. Many confound them with the grass nut; they belong to the same family, but in their growth they are not at all alike. The chufa forms its nut near the surface, generally not more than two inches below. When the stalk is pulled up before it has dried, nearly all the nuts come with it. Therefore, we think that it is easily rooted out if it is desirable to do so. We look upon it as the greatest acquisition introduced by the Patent Office.

INDIGENOUS SUGAR CANE.

IN getting to California we made the journey of the plains, *via* Platte River, the South Pass and Humboldt River. In coursing along the valley of the Humboldt, a distance of over three hundred miles, over almost interminable sand and sage plains, with little good grass for our animals, save here and there at long intervals a fine meadow upon some moistened alluvial of the stream, we at length reached that lower portion of the route known as the Big Meadows, twenty miles above the Lake, or Sink. Here are vast meadows of grass, the higher portion producing that which is fit for animals; the lower, a coarse sedge upon which no animal will feed unless it is absolutely necessary to keep life within. Along with this sedge, and sometimes in patches entirely apart from it, is seen a still coarser product, resembling broom-corn in its growth, though not so rank or thick in the stalk as broom-corn grows with us. It was noticed that whenever our animals strayed within reach of this product, they invariably commenced feeding greedily upon it, preferring it even to the finer grasses of the higher grounds. Here too, we found a small band of Pah Utahs cutting and bundling the same product—after stripping it of its leaves—and having loaded themselves to their utmost strength, started for a wooded ravine in the mountains full four miles distant to the east.

The product is simply a variety of sugar cane indigenous to that locality, and well known to the Indians of the interior, and from which they make with their own rude means a very fair article of sirup. John Kirk, Esq., United States Road Commissioner, in his survey of the route from Honey Lake to City Rocks near Salt Lake, also speaks of a variety of wild sugar cane, as growing upon the lower section of the Humboldt, upon which animals eagerly feed, and from which the Indians of the country manufacture a sirup. The same plant also grows in profusion upon the borders of the sinks of both the Carson and Walker's Rivers.

Now if this product, be it what it may, growing wild, will, by the use of the rudest of all rude appliances for its extraction—pounding in stone mortars—yield a juice so easily convertible into a sirup that the very lowest in the scale of human beings can effect it, may it not be a product that with proper cultivation would prove a valuable addition to our list of saccharine producing plants? As the plant flourishes in soils tule-producing and highly alkaline, are we not safe in believing that there are

vast tracts of land admirably adapted to its growth, and wholly unfit for any other as useful product, within the borders of our State? So well satisfied are we from repeated tastings of the cane, of its highly sacharine quality, and usefulness as a cultivated product, if only for purposes of stock feeding, around the borders of our tule and marsh lands, that we have made arrangements to secure its introduction, either by seeds or rooted plants, as early as human agency can well effect it.

HARVESTING POTATOES.

IT is a subject of frequent remark with the lovers of good potatoes, that of the many fine looking ones served upon the tables of our hotels and eating houses, but few are really fine flavored or fit for healthy consumption. To large numbers there is a bitterness and toughness not legitimately belonging to potatoes that are properly harvested and cared for, from the time they are dug, till they are boiled as food.

It may be deemed an eccentricity in us to suppose, that farmers who have raised potatoes all their lives, don't know yet how properly to harvest them. One thing is certain; if they do know, they don't practice it; and because they do not, our markets the year round present an inferior quality of potatoes on being cooked, that previous to being dug or harvested, were as fine in flavor as the best of any country.

It is often remarked that potatoes taken from the garden or field directly to the boilers, have a finer flavor than those that, upon being dug, remain in store a length of time before use. Very many attribute the poorer quality to the mere fact of long keeping after being taken from the earth; there is an error here. Potatoes ought to be as good after months of keeping above ground as when first dug, and may be by attention to a single fact; the action and effect of the sun and light upon the tuber. All are acquainted with the fact that if a potato while growing becomes uncovered of earth and exposed to light and the sun, it turns immediately green, almost as green as the stalk or leaves, and as bitter and tough as it is green, and wholly unfit for use. If then but a few days exposure totally spoils a potato, a single day of sunlight upon it will injure; and in this is the cause of so many of our potatoes being of inferior quality on reaching market; and particularly applicable is this remark to the bitter, insipid quality of those produced by some of the largest growers of the article.

They too often procure them dug by contract, allowing them to remain upon the surface of the ground for a day and even days before being sacked; this always injures them, and the practice should be at once discarded. In some varieties it has the effect to fill them with dark brown spots under the skin and near the surface, and if the sun stroke is continued for several days these spots will pervade the entire tuber, rendering it not only unpalatable but unwholesome as food. The sun should never shine upon a potato, any longer than just sufficient to dry the little earth that may adhere on being thrown out of the ground; and in our country of dry atmosphere and heat, it would be even better that the picker up of the potato should

follow close upon the digger. The improvement in the quality of the yield of entire crops would be at once discernable, and a real benefit conferred upon both producer and consumer.

THE MILK BUSINESS.

THE high ruling prices of dairy products in California and the cost of feeding the animals of those who supply our largest cities with milk, being matters of so much moment as affecting the net proceeds of a year's industry devoted to the business, we have made the following selection from the columns of the *Springfield* (Mass.) *Republican*, believing it will interest those engaged in the feeding of animals within pent-up inclosures, or where wide ranges of pasturage are not obtained.

"We have made an effort to learn some of the aggregates of this industry;—to compare the average quantity of milk per cow in each herd; and to learn the different methods of feeding; all points of curious interest and suggestive value. For this purpose circulars have been addressed to most of the milkmen of this city, of course with varying success. All have not answered, but enough have done so to give a nearer estimate than otherwise would be possible. There are from twelve to fourteen regular dealers in milk in this city. Not far from 2,000 quarts, or $100 worth, are sold daily through the year. The highest quantity sold, by any one milkman, in the best of the season, so far as known, is 400 quarts daily, and this man, in the average for the year, is put down at 250 quarts. Taking all the milkmen, the average is 166 2-3 quarts each daily. To raise this milk requires a herd of about 300 cows, which give, on an average, about seven quarts each. The highest quantity given by extraordinary cows ranges from 20 to 25 quarts. The force requisite to carry on this business, equals one man for every six cows, or an aggregate of 50 men, summer and winter. The best milkers, generally are crosses of Short-Horn with Ayrshire and Natives, but good milkers can be found of almost every breed.

"The feed that produces the most milk is yet a vexed question. In the opinions received, cotton seed meal, corn, rye and buckwheat ground together, and roots, with rowen hay, have equal prominence. The order of feeding cows varies with different individuals. Some feed roots the first thing in the morning, and others late at night. Some give hay the first thing, and others reserve it till noon. Each feeder gives his practice and reasons with equal freedom—a hopeful symptom in any debate. Our conclusion is, that the best order is as follows: Wet cut feed mixed with meal after each milking, with hay and roots between. Neither roots nor grain should be fed upon an empty stomach. In the first case, the milk is more likely to receive the odor of the roots. In the latter the appetite is greatly impaired for other food. No fact is more clearly established than that the flavor and quality of the milk and flesh depend in part upon the flavor and quality of the food. Various expedients have been resorted to to counteract bad flavors. The English heat their milk, and add saltpetre to it to prevent the taste of cabbages. The Virginians slice and salt ruta bagas, twelve hours before feeding, to escape that odor. In this region, regularity in feeding, as to quantity and time, by some is considered sufficient remedy for common turnips. Experience proves that corn and carrots make first quality beef, and corn and potatoes first quality pork. Cows that give milk require more food in proportion to their bulk than either oxen or horses; twenty-five to thirty pounds of dry hay daily is the usual consumption of farm animals. Of course, if roots or meal are added the consumption will be less."

BREEDING ANIMALS TO ORDER.

WE have often heard it remarked that there never yet has been a heifer calf butchered in California. That most heifer calves are kept for breeding, whilst the males go to the shambles, throughout the entire Pacific border, is to a great extent true, and will doubtless as a practise be continued for many years, or until the value of animals is much reduced, from present ruling prices. If it is desirable thus to save all the heifers, may it not be equally desirable to insure their production in preference to males? The stock grower has it in his power to raise, in four cases out of five, a heifer calf instead of a bull, if he desires it. The mode by which the object is effected, is not a secret, and we are willing to impart the information to any one who may address us upon the subject. We do not claim to be able to control nature where a male offspring is desired, though much can be done towards it; but in the case of the females of neat cattle, the plan is practicable to a certainty in almost every instance.

Closely allied to this subject, is that of breeding "in-and-in" and its effects upon the habits and qualities of animals so bred. Upon this subject we find an interesting article in the *Country Gentleman* which we believe will be read with interest.

"After some delay the subject of 'In-and-in breeding' is again resumed. Having already referred to Col. Jacques, and his experience on this subject with his 'Cream-pots,' it is deemed both entertaining and demonstrative to allude still further to the Colonel's experimenting on this subject.

"Being fond of fox-hunting in his early life, he procured for that purpose the best and strongest scented hounds he could obtain, and by breeding in-and-in he greatly improved this quality. No deterioration followed because he bred only from the best, holding that good qualities are not less transmissible than bad. He tried rabbits and was successful with them. He also demonstrated by actual experiments that he could breed rabbits to order; that is to say, with respect to color. The fecundity of this species soon enabled him to compass his desired results.

"He commenced the further testing of this principle with a pair of geese many years ago, and by 'breeding in-and-in,' has increased their average weight about four pounds per goose. With barn-yard fowls, he demonstrated the same results with regard to 'breeding to order,' as with the rabbits, as stated.

"Thus is the old Colonel, after the experience of a long life—he being now more than four-score,—fully confirmed in the opinion derived from much careful experience and observation, that 'breeding in-and-in,' that is to say, breeding from animals of the same parentage, is the best way of propagating improved stock of every domestic species and variety. He prefers this 'to breeding in line,' as it is called, that is to say, from animals of the same variety but of different parentage, the latter being deemed by many, however, the better way, and the only one they will employ.

"The Colonel relates an interesting conversation between himself and Prof. Agassiz, on this subject. The Professor having heard of the Colonel and his experience of 'in-and-in breeding,' visited him to converse with him on the subject. After hearing the Colonel relate the results of his experience with cattle, sheep, and fowls, the Professor remarked, that though this be true of the lower order of animals, it is not so of the human species. What and where do you find exceptions? says the Colonel. The Professor immediately referred to the royal families of England and

Europe. Here, deterioration is apparent to every observer. Yes, said the Colonel, but my word for it, if you will trace back a little, you will find some diseased, profligate kinds of nobles, thus clearly demonstrating the doctrine that bad blood—bad qualities are transmissible as well as good. Where did you get these notions? inquired the learned Professor. By observing Nature, responded the Colonel; I observed the oak, and other trees and plants, and contend that Nature propagated only from the best. So of buffaloes, wild horses, and throughout the zoological kingdom. The strongest males drive away the feebler at the time of breeding; hence the vigor and health of the offspring. I did not get these views from reading books, said the Colonel, as there was never a cent of money spent for my education. Well, said the Professor, on taking leave of the old patriarch, I will see you again on this matter.

"Thus is it demonstrated, that if man would observe and study the volume of nature more, and the noted observations of authors, as recorded in books less, they would become more learned and wiser. Traditions, whether written or coming down from former generations, really have an almost omnipotent power over the minds of men, shaping often, essentially, their views and theories concerning both nature and art. Use the books made by the best authors to aid you in the investigations of Nature's laws, but do not fail to observe for yourselves, and see whether these are correct translations."

SOIL AROUND FRUIT TREES.

IN the year 1854, the year of the great drouth here, I had some apple-trees standing in a piece of clover, and some in a part of the garden; those in the clover were worked around once or twice in the early part of the season, and those in the garden were cultivated all the summer. The trees that stood in the clover were so injured by drouth that I had to mulch them, and water them twice a week, and could hardly save them; while those that were kept clean, and the surface stirred through the season, grew luxuriantly, and appeared to be affected but little by the drouth. These trees had been planted several years. I had a few trees standing in the nursery, two years old from the graft, kept well cultivated through the summer; they grew seven feet high, and were the admiration of all who saw them. So much for keeping the land well plowed, and the surface continually stirred and kept light, during a drouth.—*A. G. Mullins, Chesher's Store, Ky.*

The above reads very well for Kentucky culture; but we do insist that in all our inland valleys, away from the damp, ocean winds, and where evening dews are almost unknown, and no rain falls, to continue to stir the surface soil around fruit trees is only to render it the drier, and cannot in any way benefit the tree except just so far as the hoeing or stirring may be necessary to keep down weeds.

In the extract above, a comparison is made between trees growing in clover and those around which nothing was permitted to grow; and the difference in their growth should have been attributed to the proper cause, and not to the cause assigned.

Fruit tree growers are well aware of the injurious effects of all growing plants or grasses in the immediate vicinity of their trees, and particularly does this apply to the clovers, that sending their long top roots deep into the earth, deprive the tree of all the moisture it might otherwise obtain within the compass of its roots. There

is something also in the reading of the extract that does not appear quite clear to us. It would seem that, "those in the clover were worked around once or twice," and yet, "had to mulch them and water them twice a week," and further, that, "these trees had been planted several years;" if so, but little good could have been expected from watering or mulching near the body of the tree, as the root feeders were far hence. It is too frequently the case that the inexperienced in the culture and management of fruit trees, trace or attribute the effects they see produced, to wrong causes.

To keep the ground stirred and mellow sufficient for the destruction of all weeds and grasses in the vicinity of growing fruit trees, is of the utmost importance in securing a vigorous growth, and the instance above referred to, is a truthful exemplification; but, to attribute the effect solely to a constant stirring of the soil of the one, and a neglect to do it in the other, is not a proper reason or way of accounting for the difference in their growth. It should have been attributed to the drain of the clover upon the fertility and moisture of the soil of the one over that of the other.

A SACRAMENTO GARDEN.

HAVING a garden pretty well filled with trees, Shrubs, Flowers, Vegetables &c., I thought it might be interesting to some of your readers to know the kind and description of the plants cultivated; and a list may aid some in selecting proper varieties to cultivate. The garden includes two city lots, which makes a tract 160 feet square, on which is a dwelling house, with the usual out buildings. On this I have growing 131 fruit trees, 108 grape vines, with several strawbery beds, and plats cultivated in vegetables, and flowers. The following is a tolerably accurate list:—

Pears; 10 Standard trees, 7 Bartlett, 1 White Doyenne, 1 Seckel, 1 Madeline, 59 Dwarf trees, to wit, 12 Duchess d'Angouleme, 10 Glout Morceau, 8 Beurre d' Aremberg, 8 White Doyenne, 6 Vicar of Winkfield, 2 Easter Beurre, 2 Fondante d'Automne, 2 Dearbon's Seedling, 1 each of Bartlett, Madeline, Lawrence, Seckel, Passe Colmar, Bloodgood, Summer France Real, Beurre d' Anjou, and Beurre Diel.

Apples.—4 Standards: Newtown Pippin, Northern Spy, Fall Pippin and Early Harvest. 3 Dwarfs: Early Strawberry, Lady and Early Joe.

Plums.—5 Standards: 3 Imperial Gage, 2 Coe's Golden Drop. 5 Dwarfs; Reine Claude de Bavay, or Green Gage of Bavay, Washington, Huling's Superb, Coe's Golden Drop, and German Prune.

16 Peaches.—4 George Fourth, 3 Crawford's Late, 2 Early York, 1 Crawford's Early, 1 Early Tillotson, 1 Grosse Mignonne, 1 Lemon Cling, 1 Early Rareripe, 1 Cole's Early Red, 1 Oldmixon.

3 Nectarines.—2 Boston, 1 Elruge and Stanwick.

1 Apricot.—Moorpark.

Cherries.—2 Standards: Black Tartarian. 3 Dwarfs: 1 Black Tartarian, 1 May Duke, 1 Napoleon Bigarreau.

Quinces.—8 Orange.

2 Figs.—1 Blue Ischia, 1 Brown Turkey.

3 Almonds.—2 Hard Shell, 1 Soft Shell. 2 English Walnuts, or Madeira Nuts, 2 Orange Trees. 1 Pomegranate. 2 Olive Trees.

108 Grape Vines.—44 Los Angeles, or California Mission, 38 Royal Muscadine, 8 Muscat of Alexandria, 3 Catawba, 2 Cannon Hall Muscat, 2 Black Hamburgh, and 1 each of eleven other varieties.

6 Cherry Currant. 6 Gooseberry; Houghton's Seedling.

Strawberries.—6 varieties: Burr's New Pine, Longworth's Prolific, British Queen, Black Prince, Hovey's Seedling, Chili.

Shade Trees.—2 Pride of India, 1 Catalpa cordifolia, 1 Laburnum.

Vegetables.—4 Pie Plants: Myatts Victoria, Asparagus, Hops, Horse Radish. 4 varieties Potatoes, Carolina Sweet Potatoes, Sweet Corn, Cucumbers, Beans, Peas, Peppers, Tobacco, Chufa, or Earth Almonds, Lettuce and Radishes.

200 Grape Cuttings, 200 Seedling Peaches, 25 Seedling Apricots, 10 Seedling Black Walnuts.

41 varieties of Roses and 4 of Honeysuckle.

[For want of room in our columns, we here omit the names of over one hundred and sixty rare and beautiful varieties of plants and flowers. Ed.]

A portion of the fruit trees were planted in January 1855, the greater part of which are in full bearing. The remainder of the fruit trees and grape vines were planted in the winter of 1856, and will be in bearing next season. The quantity of fruit produced has been enormous, considering the time the trees have been growing. The rapidity with which fruit trees come into bearing in this State, is very encouraging to the fruit growers, and should invite all who have even a limited amount of land, to set out trees, for it will take but a short time to reap the reward of their labors.

Sacramento, Sept. 1858. E. B. C.

IMPORTED SHEEP—WEIGHT OF FLEECE.

CALIFORNIANS in speaking of Pacific coast products, whether of plant, fruit or animal, are so often charged with exaggeration, that we are always glad to obtain reliable information, that amounts to positive proof of any assertion we may have made, that admits of a doubt in the minds of a single reader of the Culturist. We have remarked, that we believe no other country on earth is equal to California for quality and quantity per fleece, of the fine wooled breeds of sheep. In the following letter from L. B. Lathrop, Esq., San Jose, to Mr. J. Q. A. Warren, which we are kindly permitted to copy, we obtain just the kind of corroboration that pleases us.

"Though I sheared my sheep some time ago, this is the first convenient opportunity I have had for writing to you. Inclosed I send you a sample of each kind of my fine wool, each bearing its own label. Both samples are from Spanish ewes raised here from imported stock; one year and ten days old when sheared. I have

one buck and two ewes of the Spanish, and the same number of the French breed, all sheared between the 15th and 19th of March last. I will give you the weight of the fleeces of the last shearing, taken off between the 27th and 30th of September.

French Buck, twelve pounds; French Ewe, ten pounds; the other French Ewe, nine and a half pounds. Spanish Buck, eleven pounds three ounces; Spanish Ewe—raised a lamb—nine pounds ten ounces. The other Spanish Ewe, being a lamb one year and ten days old, second shearing, seven pounds eight ounces.

Thus you see it falls but little short of ten pounds per head for a semi-annual fleece; or, nearly at the rate of twenty pounds per head per annum, which cannot fail of making wool-growing a lucrative business. The fine wooled sheep grow as well and keep as fat as any in my flock, and on the same fare. I believe our climate admirably adapted to them."

INQUIRY ABOUT SCIONS AND GRAFTING.

EDITOR CULTURIST.—I have this year succeeded in raising a fine lot of seedling apple, pear and quince trees, which I wish to use as stocks for grafting upon. I wish to obtain scions of the best varieties of apples and pears. I am but a novice in fruit culture, and should be quite likely to make, upon my own judgment, a poor selection of varieties. I have therefore determined to be guided in my choice by the report of the late Fruit Growers' Convention in your city; but do not know where scions of the varieties recommended can be obtained, though young trees of the kinds enumerated are obtained of most of the nurserymen of the valleys. Can you tell me where I can obtain the scions in considerable quantities?

Will you also do me the favor of describing the best *mode of grafting* my young trees, and the proper time of doing it? How high above the root ought I to graft upon my quince stocks, to produce the best dwarfs? Yours,

E. L——D.

We will make the inquiry among our fruit growers in regard to scions, where they can be procured and in what quantity. Nearly all the apple and pear trees of California are yet young and small, and fruit-growers dislike to cut large quantities of scions from such trees, unless it be for their own use as nurserymen; however, we think they can be obtained. We will endeavor to give you all the information you may need, as to the best mode and time of grafting your trees, in our next number. Correspondence that does not reach us by the 10th of the month, can receive but a cursory notice in the Culturist, before the following month. E. L. will find his question relative to grafting upon quince stalks, answered in a communication upon dwarf pears, by Wm. Bacon, in this number.

From the experience already had with dwarf pear trees in California, there no longer remains a doubt, as to their perfect adaptation to our climate or as a source of profit to the cultivator. If E. L. has been successful in raising a fine lot of quince stocks, he can soon have an orchard of dwarf trees that will be almost invaluable.

Forcing the Grape.—We hope that those who attempted to force their grapes to early maturity by cutting back the vines to a few joints from the fruit, will be careful to make a note of its probable effect. We took the position in our July number, that such treatment is actually injurious, and tending to the very opposite of the effect desired to be produced. We still hold to the same opinion as then, and see no reason to change it. On the contrary we are sustained in our positition, by the experience of the oldest and most successful grape growers in the State; and the practice as pursued in a section where the longest experience has been had with the California Mission grape.

The *Los Angeles Star*, in alluding to our article in the July number upon the fallacy of cutting-in grape vines with a view of increasing their fruitfulness, as practiced by many, says:—"if practiced anywhere it is a very foolish proceeding. We need scarcely say, such a practice is altogether unknown here."

When we take a position that is new or not in accordance with the common practice of the grape growers in the neighborhood in which we happen to be located, and the fact we promulgate never before touched upon, not even by the *only agricultural paper* in the State, we like to see our position sustained by those who have had the largest experience and best opportunity to verify it.

The very inferiority of size and flavor, as well as lateness in time of ripening of many of the grapes in this vicinity, can be attributed, and very properly, to this mistaken mode of management; the improper cutting-in of the bearing shoots of the vine.

Flowers Note the Hours.—Flowers are the dials of the plain, the hill, the mountain and the glen. They tell the hour of day and night, by the opening or the closing of their petals or their corals. The *morning glory*, unwinding at the dawn of day; and then a flower for every hour, till the lazy *dissipation flower*, from its rock bound mossy couch, looks out upon the sun first at feverish noon-day. Again, a flower for every hour till the *four o'clock*, sleepy fellow, from his pillow never rises to his toilet, till bathing well his temples in the early evening dew. So too at night, the sheen of hourly opening flowers, could it be seen, would point the passing hour, till the *night blooming cereus* and its near of kin, usher in the gray of morn.

White Grapes from Black.—The Butte *Record* says Mr. Charles Schermer of Morris Ravine, three miles from Oroville, has a small vineyard, four years from the seed, grown on volcanic soil on the slope of the Table Mountain, that has produced a fine revenue this season. Surplus grapes from this vineyard have been converted into a very superior article of wine. An interesting fact connected with this vineyard is, that it has been grown from the seed taken from the Los Angeles black grape, and the product is a beautiful white grape—sweet and delicate. The wine from it is free from the acid and roughness so peculiar in California when new. We regard this an interesting and triumphant discovery to vine growers.

Editor's Repository.

We believe that our readers and patrons will find a pleasing and marked improvement in the present number of the Culturist, over that of the preceding month, particularly in the matter of its illustrations; but another feature quite as noticeable is presented in its change of proprietorship. The Culturist is now the property of Towne & Bacon, late Whitton, Towne & Co., Book and Newspaper Publishers, corner of Clay and Sansome Streets; the editorial department remaining in the same hands as before.

The change will have this effect upon its future;—undoubted responsibility and permanency; an improvement in its embellishments; increased facilities and means for rendering it an interesting and valuable monthly visitor; and a reduction in price at the commencement of its second year.

We are also safe in promising a more extended and varied correspondence, serving to render its pages more attractive and useful to the great industrial classes of our rapidly progressive State.

That in our every effort to make the Culturist all that its warmest friends and supporters could wish it, we pledge the untiring zeal of its Editor and Proprietors.

As incident to the change of ownership, all correspondence relating to business connected with the Culturist, should be addressed to Towne & Bacon, corner of Clay and Sansome Streets, San Francisco.

Introductory Illustration.—In this number we present as a frontispiece, a lithograph of a specimen of the Gloria Mundi apple on exhibition at the late Fair of the California Horticultural Society. This apple is also known in Atlantic orchards and nurseries as the Monstrous Pippin, and is one of the largest apples known. At the East, on account of its size, it is very liable to be blown from the tree before it is fully matured, and on this account it is not a general favorite there. There is one fact in regard to this variety that will not perhaps apply to all; it is, that in California the flavor is very much improved over its prototype at the East; so that instead of being remarkable there more for its great size than any other quality, it is here ranked among our best sorts, and takes its place in the list of varieties, declared by the Fruit Growers' Convention, as superior and worthy of general cultivation.

Here, as at the East, it is the largest of our apples, seldom from any cause dropping prematurely, of a fine subacid flavor, always fair and a splendid market fruit.

Placerville and Humboldt Overland Telegraph Company.—The great enterprise of the age, resulting in the connection of two distant countries by telegraph through an ocean of waters, makes it necessary now in speaking of the extension of such means of communication, to define whether they are submarine or overland; and to which we might also add, underland. Thus we see a company organized for the construction of a telegraph line overland, as well as underland, that is to connect Placerville with Salt Lake City, San Francisco with New York, Boston, London and Paris.

After all the attempts to prevail upon Congress to establish railroad and telegraph connection between the Pacific and Atlantic shores of our country, after all the talk and buncombe speeches of statesmen, it finally remained for a few enterprising citizens of Placerville, in El Dorado County, to take the initiative step in the grand scheme of connecting the West with the East, by a line of

over and underland telegraph. It is but a few weeks comparatively, since the company, known as the Placerville and Humboldt Telegraph Company, first had an existence; and already we see the wires lifted upon the mountains, as high above as they are sunk below the level of the ocean wave.

Sacramento, Placerville and the summit of the Sierra Nevada, are already telling to each other their lowland, foot-hill and highland tales, with wiry tongues; and ere this shall have reached the eye of many of our readers, the connection with Carson Valley will have been made complete; and in this completion, the great obstacle upon which has hung the only doubt of the successful construction of the line overland to the Eastern States, will have been successfully overcome.

The great valley country, or rather the country of great valleys, to the east of, and lying along the base of the Sierras, already connected by a first class turnpike and wagon road, of less than two days transit between Carson Valley and Placerville, is, by the new telegraph extension, placed in momentary connection. It is not however upon the immediate results that are to flow from *this* connection, that the company base their calculations of ultimate profit from their enterprise; for it stops not at Carson Valley. Its immediate extension to Salt Lake City only awaits the opening of another spring and the assistance of a few of our capitalists; who, were they as well acquainted with the perfect feasibility of the route for such a work as we are, would not hesitate for a moment in lending all the aid required to put the line through at the earliest practicable period.

We have been over the entire route; we know it to be perfectly feasible, and the successful accomplishment of the enterprise as certain as that it is conducted by skillful men. To find such men, it is unnecessary to go out of the present company, of which F. A. Bee, Esq., of Placerville, is the President. Men who with coil of wire in hand, can scale the summits of the Sierra Nevada, leaping her vast gorges and canons successfully, can, with equal certainty and success, trail the coated wire beneath the desert's sands, or hang it aloft upon posts that like a line of fixed sentinels across the great plains, will guard, uphold and transmit daily, hourly and momentarily, much of the mental freight of the nation.

Nor are the benefits to be derived from this connection, to be circumscribed by the demands arising from the wants of our own people. The world wants it. The whole great Pacific whaling fleet wants it: the entire national marine of all the governments of Europe in the Pacific Seas, will resort to San Francisco for momentary connection with their respective governments. This, and much more that we have neither time nor room to note, will insure it a largely paying investment, when once the connection between the East and West is made; and this can as well be had by the first of August next, as to be deferred longer.

It is a project in every respect practicable and certain of successful accomplishment from its very inception; and not like the Atlantic submarine, previous to its successful laying, admitting of grave and serious doubts. We have no purposes to serve in our advocacy of its immediate prosecution and completion beyond that of the general good. We hope that those who have money awaiting profitable investment, will carefully examine the subject in all its bearings; the results and advantages that will inevitably flow from the completion of the grand project, to our own State and its progress; and the prospect it presents of large dividends upon investments; for so long as we have any portion of our Navy upon the Pacific Seas, and a material part of our Army in the Salt Lake Country and along the frontier of our State, Oregon and Washington Territories, so long will government dispatches alone, more than cover all the current expenses of the line when once established. On! on, with the wires.

Overland Routes.—Hardly have the echoes of our rejoicings at the successful laying of the Atlantic telegraph cable ceased their reverberations, ere we are called upon, suddenly and quite unexpectedly, to awaken them anew in celebrating an event, the precursor of even greater ultimate benefits to California, than that of the laying of the cable. The one enterprise connects surely and permanently the East with the West of our continent, by Post Coaches and wagon roads, that have ever been, in all countries, the precursors of Railroads, and involving an expense not exceeding $600,000 annually to the government upon one route, and $300,000 upon another.

The other great enterprise connects distant countries by a tie that may be broken permanently asunder at any moment, involving an irreparable loss of more than a million of dollars.

The mere fact that regular stage lines are established and successfully maintained across the continent, will do more to insure an increased immigration of families to our State, than is generally anticipated by those unacquainted with the perils of the overland passage. If but a weekly mail service is maintained along either route, it will be a better protection to the immigrant with his family and his herds, than military stations at every one hundred miles of the routes without such mail service. More real security from Indian molestation will result from their constant familiarity with the mail wagon and stations along the route, the whole as an enterprise of non-abandonment, than can be found in all the harsh or offensive demonstrations that can be instituted; and it is to this matter of increased safety to the immigrant, who with his own team makes the journey of the plains, that we look for the more material benefits that are to accrue from the establishment of the overland post routes.

That mail facilities will be presented, by any one or all of the routes together, equal to the demand of California with the Eastern States alone, after a ten years' experience from date, no one at all acquainted with the country over which such transit is necessarily made, would hazzard a belief. Nor will the immigration by means of the mail coach conveyance, be a tithe even of that number that with their own private outfit and by the same routes, will annually reach us.

The enterprise, establishing post routes and coaches over the plains, will promote the safety and greatly augment the overland immigration to California; but not by its own ability to transport.—With all of our rejoicings at the late feat performed, it will be found that if only the same speed and time are maintained regularly in future, both mails and men must be light. A line of telegraph even as a private enterprise, can be made a paying one, a passenger and mail coach line never, except with the aid of large annual drafts upon the government treasury.

Time of Holding our State Fair.—"There is no pleasing everybody," is an old, trite saying, and as true as it is old, and as applicable to the desire to please all parties in reference to the time of holding our annual State Agricultural Fair as it can be to anything else.

The strawberry and cherry grower, would prefer to have it in May or June. The pomologist, who devotes his acres to peaches, melons and summer apples, July and August. The grain grower, is just as ready to attend to a State Fair the week after his crops are all harvested, as at an earlier or later period; whilst the grower of Autumn pears and apples says, "Give us the Fair in September."

But there is yet another important class to please, the grape or vineyard culturist, and he says, September or October. The sheep and cattle grower, who has to drive his stock long distances over the dusty roads of summer, to reach the fair grounds, would prefer to have the time set for the last of May, during that short period of comparative leisure immediately preceding the grain harvest. Thus it appears that there is no time when the Fair can be held and please everybody.

In addition to this, the different localities throughout the State present climates so varied that even the same varieties of grains and fruits have their different seasons of ripening, and often varying a full month; we instance peaches ripening in and near Marysville, two weeks earlier than among the foot-hills of the mountains, and at Sacramento ten or fifteen days earlier than in Oakland or Alameda, upon the Bay of San Francisco.

The sparcity of fruits, with the exception of peaches, at the late State Fair, held between the 23d and 28th of August, is not justly attributable to any lack of the finer Autumn and Winter fruits, in that section of the State; but rather to the fact that the early day set for the fair, precluded the possibility of bringing out the later varieties of fruits at more than two-thirds their full size or maturity. Fruit growers will not present their fruits in this condition, and we are assured that to this cause mainly, is chargeable the lack of that display of Autumn and Winter orchard fruits, so perceptible at the late fair.

We believe that four weeks later or about the third week in September, would be the best sea-

son in the whole year for the fair; for though the greater part of the earlier and soft fruits will have past their prime; the more reliable and valuable of the pear and apple families, will be in their best or rapidly approaching their best state, as regards size, flavor and maturity. The grain harvest will then have fully passed, with the exception perhaps of corn and buckwheat; threshing may be in progress, but not more than for weeks previous or after; fall plowing not yet commenced, and the Fair offering the very finest opportunity for procuring the best seed grains the State can produce.

California Horticultural Society.—The annual Fair of this Society recently held in this city, in point of pomonal attraction was an improvement upon that of last year, notwithstanding the unfavorable condition of many of the fruits on exhibition, the effect in part of a season to say the least, not as propitious as has been the average for the last six years. Still the display, as generally acknowledged by the public and the Press, was a highly attractive feature of the combined exhibition of the Horticultural and Mechanics' Institute, and reflects the highest credit upon the skill of our horticulturists, whilst it speaks volumns in favor of our soil and climate for the production of all the finer fruits.

The Society has determined hereafter to hold semi-annual fairs, the better to present to the admirers of fine fruits, the succession of varieties that from March to November are produced in their fullest perfection in our land of genial warmth and sunshine. The time of holding the annual meeting of the Society for the choice of officers and the transaction of regular business, is in April; the Society will then determine the time of holding the first and second fairs of the season. It is also proposed to make arrangements for a semi-monthly exhibit, by connoiseurs and growers of fruits, plants and flowers, of their finest specimens and productions; that whilst it serves the purpose of a more extended disseminaton of the choicest of earth's products, it may also tend to the improvement and progress of horticultural science.

The State Fair in its Migratory Character.—The decisive negative of the committee appointed, when the State Fair was held at Stockton, to report on the permanent location of the State Agricultural Fair, and the unanimous vote at Marysville on the question, of continuing its migratory character for the next eight years, points conclusively to the fact, that all parties really interested in the agricultural progress of the State, desire it to itinerate around the great agricultural centre, until each locality in turn has the benefit of its presence.

The whole question now is, how will this result be best arrived at in the present uncertainty; the whole time and interest of the annual meeting is centered in the one question of where shall the next fair be held? The questions of control and finance are so constantly made secondary, that nothing but the wonderful vitality of a young community and the practical habits of our people, have kept our State Agricultural Society from being a failure in every object of its formation.—We opine the easiest way of remedying this difficulty, and of giving every agricultural district, in turn, the benefit of its presence, of having a choice of officers among the leading agriculturists throughout the State, instead of a local board as is now the custom, will be to district the State, a certain number of counties to form a district; a commission among them to settle upon satisfactory locations;—each district can then prepare their grounds and buildings at leisure, can hold therein their county or district fairs, and look forward with a surety to the great State Fair being held among them, with ample time of preparation for its advent. This is a farmers' institution, and the men who have crossed the plains or have toiled to build up the farms of this State, will out with their cans, kettles, wagons and families, and surround the fair ground with the bone and sinew of the land. Some such organization will bring forth the farmers in their strength, and the visitors to the fairs will in the mass, be those for whose benefit these periodical fairs were designed.

County Fairs.—Harvest labors are now completely over, and in the six weeks interval which now ensues before the planting season will commence, our farmers have ample time to organize county societies, to have a stock exhibition and settle all the necessary preliminaries towards having in the

coming season an organization so complete as to ensure a first class fair in every district,—a social and instructive entertainment to the young, a financial and agricultural benefit to the old. San Jose, Napa and Alameda are already organized. Which county comes next?

Santa Clara County Agricultural Society.—The Fair of this society that took place on the 22d, 23d, and 24th of September, was an exhibition in every respect highly creditable to the agriculturists of that fine stock, grain and fruit growing county.

During the progress of the Fair, a trial was had of agricultural implements, some of them entirely new to the farmers of this State. Not being present at the trial, but desirous of benefiting the tiller of the soil by any information in our power to disseminate, we avail ourselves of the *Daily Alta's* special correspondent's account of their operation.

"Several highly improved and newly invented agricultural implements having been entered for premium, and a trial of the same being necessary to a judicious award, it was agreed that they should be tried on Friday morning, in the grounds of B. S. Fox & Co., a little distance beyond the north limit of the city.

The piece of ground selected was a stubble field, from which there had been taken a volunteer crop the present season, and which had been neither plowed or harrowed in two years. The soil is what would be termed medium adobe—entirely dry and hard.

Shaw's patent, deep tiller gang plow was arranged to commence the work. The plow is so constructed that each of the three shares can be raised or lowered at pleasure, by a lever attached to the upper end of the standard, which passes through a *bed* resembling the bottom, or bed of a suspended four-wheeled dray; this bed, however, is sustained by three wheels—two in front like a common cart, and one behind which runs in the furrow. It is drawn by four horses, the two "off" ones in the furrow in the ordinary way, the driver occupying a seat over the front plow. This implement had not been tested, and though it had already received the commendation of the several Fairs where it had recently been exhibited, nearly all who examined it were apprehensive that it would, on a trial, in some measure disappoint the proprietor. But when it started, and showed three even, smooth, well turned furrows, and continued, under very favorable circumstances, to turn with perfect evenness till nearly the whole "land" was completed, a call was made to "let us see it *finish up* the land," which, when done with a neatness exceeding all ordinary efforts with the common plow, drew from the large crowd of witnesses a universal exclamation of satisfaction. To say that it did well is not enough. It not only converted to its favor the most hesitant, but actually exceeded the expectations of its most sanguine friends. It can be called nothing short of a decided success.

Following this, upon the same ground, came Willard's patent combined seed-sower and harrow, manufactured and exhibited by Dr. H. Hewitt, of San Francisco.

This machine is also drawn by four horses, and managed by a driver seated above the axle. It runs upon two large cast iron wheels, to which are attached several cog wheels, which, as the machine moves, turn a cylinder from which the seed is scattered through graded openings, and also a cast iron cylindrical harrow, which is dragged upon the ground behind, and is made to revolve in an opposite direction from that of the wheels, thus imparting great force to the tearing and pulverizing tendencies of the common harrow. On the first trial, this machine was not fully successful on account of starting through a strong growth of weeds and vines, which clogged the harrow. But when tried upon the stubble and upon plowed ground, its success was complete. The clods and lumps were completely pulverized, and the whole surface of the ground left smooth and even, and in the best possible condition for the vegetation of the seeds, and to foster their early growth. The machine is somewhat complicated, and with a few symplifying alterations will undoubtedly become a favorite with all our extensive grain growers.

Next, and upon the ground already plowed, sowed and harrowed, the patent cast iron section roller, invented and manufactured by T. Ogg Shaw, of San Francisco, was tried with a success as complete as that which crowned the trial of his gang plow, leaving the ground in a condition actually beyond improvement.

Upon similar ground, adjoining the above, Mr. Shaw's right hand and left hand and sub-soil steel deep tiller plows were tried, to the entire satisfaction of all present.

As evidence of the entire success of the above gang plow, it should be stated that it was immediately purchased by a member of the Committee, who, before its trial, had less faith in it, perhaps, than any other member."

Addresses.—The annual address before the California Agricultural Society, by Hon. Wilson Flint, and the closing remarks of the Vice President, J. W. Osborne, Esq., at the Pavilion on the last evening of the Fair, can be found in this number. The Mechanics' Institute closing address was delivered at Musical Hall, by Rev. A. H. Myers, of Alameda.

Home Manufactures.—It is, or ought to be a source of pride to our citizens to be able to say that our own State's manufactures, equal the best. We shall never feel that true independence that should characterize a people claiming the origin we do, till we are able to make at least our own wagons and farming implements. A farmer who needs a plow, horse-rake or reaper, should no more think of sending East for it, than he would for the house he occupies; and yet even houses have been imported in considerable numbers; but that day is past, and so in a great measure has the importation of farming implements been superseded by those of home manufacture; and it is pleasing to our pride to be able to say, that not only are our agricultural products fully equal in quality to those of other lands, but our home-made agricultural implements also.

There is at least one extensive manufactory in our midst, that is turning off specimens of workmanship,—farming implements, reapers, rakes, plows, gang-plows, threshing machines, fanning mills, in fact every description of wood and iron work that can be required upon the best conducted agricultural establishment of the Pacific coast, or any other coast, that in point of workmanship and durability, are actually superior in our climate, to the best imported article. We allude to the manufactory of Thos. Ogg Shaw, in this City,—San Francisco.

There is a reason why the implements manufactured by Mr. Shaw are superior, beyond that of the mere skill of the maker, in every article in which wood forms a component part. We mean by this, that in the Atlantic States, or in any country subject to a constant humidity so much greater than ours, wood-work cannot be, or as yet has not been put together, that can stand the test of the drying process incident to the months of sunshine and heat of our inland plains and valleys.

Threshing machines, and the wood-work of all farming implements to be the best fitted for durability, should be made here, and farmers would find it much to their account to act upon this suggestion, apart from the motive which should govern every one in adding to the wealth and independence of the State, by encouraging home manufactures.

The Hesperian.—Semi-monthly, unobtrusively and truly welcome, comes that neatly printed and very ably conducted octavo, *The Hesperian*. Did we know it only as a charming literary waif, we might perhaps in our general distrust of woman to take upon herself the task of conducting creditably such a journal as we find the Hesperian to be, have been inclined to the belief, that the Editress must necessarily belong, or was closely allied to the "strong minded" of her sex. But the Hesperian to us, is no waif; we know its proprietress, and from an acquaintance of years, know her to be in every proper sphere of the domestic circle, even more than you find her in the columns of her journal. If she is the soul of the Hesperian, she is the light and life of her home; and knowing that with all her care for her literary gem, she has even more for the happiness of those around her, makes the Hesperian to us, always doubly welcome.

Acknowledgments.—We have received during the past month, the *Genesee Farmer* for July and August; the *Working Farmer* for August and September; *American Farmers' Magazine* for August; the *Horticulturist* for August; the *Cincinnatus* for July and August; also a pamphlet entitled, "The Agricultural College of the State of Michigan;" and from an unknown source, "The Journal of the New York State Agricultural Society," for August 1858.

From Wm. R. Prince & Co., Flushing, Long Island, their descriptive catalogue of Fruit and Ornamental Trees and Shrubs, Vines, Creepers, &c.; Prince's select catalogue of Bulbous Flowers; Prince's descriptive catalogue of select varieties of Strawberries, and wholesale catalogue of superior bulbous Roots, Dahlias, &c.; Prince's select catalogue of Roses, Carnations, Chrysanthemums, Phlox, Iris, Double Sweet Williams and other herbaceous flowering plants; and their wholesale catalogue for Nurseries and Dealers only.

From Munn & Co., New York, the *Scientific American*, also "Circular of information concerning the procuration of Patents, and the methods of bringing inventions before the public."

California Culturist.—The September number of this excellent magazine has come to hand, and is filled with interesting reading matter. There are frequent inquiries made in this region where this and that kind of plant, tree, seed, &c., can be had. Why don't the advertising pages of the *Culturist* tell? A spirit of cultivation is rife in these mountains which should be encouraged. Let it be known through some good medium where the useful and ornamental in the vegetable kingdom can be obtained, time of planting and mode of treatment, and Nevada will contribute liberally for a reward. Let somebody tell us where the California Walnut tree, and the Osage Orange can be obtained, to begin with.—*Nevada Journal.*

We have received within the past month no less than three letters of inquiry, from persons who are residents of mountain counties, and all wishing to know where they can obtain dwarf pear trees, apricot, plum and cherry trees, and one is desirous of procuring several hundred of the genuine Los Angeles grape, one year old from the cuttings.

In the present number of the Culturist several advertisements appear, from which the finest selections of fruits adapted to every variety of soil, climate and locality can be procured, and the utmost reliance placed upon obtaining varieties true to the name and kinds ordered. There are other nurseries where fruit trees can be obtained in considerable variety, but we are not sufficiently posted as to their locality to direct the inquirer. We presume every nursery-man in the State intends to advertise in the Culturist.

Quartz Miners' Convention.—During the past month, this body met in this City—San Francisco. A committee of one from each quartz mining district represented was elected, whose duty it is to correspond with the journal to be established by the association, giving such information as shall tend to the interests of the Association and Quartz Miners generally. The following were elected as such committee:

William Waltman, Calaveras; Geo. N. Shaw, Mariposa; J. Flournoy Johnson, Butte; Horatio H. Watson, Placer; Dr. J. W. Steel, El Dorado; Almiran B. Paul, Nevada; Col. Hagan, Sacramento; A. Heywood, Amador; William G. Heslep, Tuolumne; H. F. Wood, Sierra; Thomas G. Maltby, Tulare; Mr. Swasey, Shasta; James B. Peck, Stanislaus; John Roane, Fresno; John C. Fall, Yuba.

It was resolved that the committees in the counties be requested to organize associations in their respective counties, with reference to the general prosperity of the quartz mining interest, and that delegates to the annual convention be elected by such organizations.

It was resolved that the association elect for the ensuing year, two standing committees of three members each, one as a committee on metallurgical chemistry, and the other a committee on machinery; the following were chosen:

Metallurgical Chemical Committee.—Dr. Hawson, Charles Usnay, R. G. Kilberly.

Committee on Machinery.—William Watt, Nevada; Col. Ross, Tuolumne; A. W. Von Schimdt, Tulare.

A resolution was introduced, providing for the election, in each township or district, of a jury of five honest and competent men, who should be final arbiters in all cases of difficulty that may arise between quartz miners, within the sphere of their peculiar business. After considerable discussion, this resolution was voted down.

It was resolved that the *Miners' Journal* be published semi-monthly, in San Francisco.

Mr. Von Schmidt moved, in effect, that the Convention of the quartz miners of California offer a suitable reward to the invention of the best method of amalgamating quartz, gold and sulphurets, and to have said exhibition of amalgamators take place in this city, at the next annual Industrial Fair of the Mechanics' Institute, and that a committee be appointed to pronounce on the merits of such machines then and there exhibited, and that $1,000 be the amount of reward; laid on the table.

The following officers were elected: President—Samuel Purdy; Vice President—H. P. Russ; Secretary—W. B. Ewer; Treasurer—R. P. Sinton.

Horse Racing at Fairs.—We have received a number of communications upon the subject of horse racing at our State Agricultural Fairs. We have determined to lay them aside until another year shall bring a new board of officers to the management of the Society's affairs, including the arrangement and publication of a premium list; then, if we have reason to believe that the money appropriated by the State for the improvement of its agriculture, is to be offered and paid to men and women who will run their horses the fastest, we shall find room for the publication of the articles already received, and our own views of the subject.

That Beautiful Quince.—We have this moment received, Oct. 15th, the largest and most beautiful quince we ever saw. It was raised by Mr. John Churchman, of Green Valley, Bodega, Sonoma County. Latitudinal circumference, fourteen and one half inches; longitudinal circumference fifteen and one half inches, and weight, one and a half pounds. In some future number we may present a lithograph of this splendid production.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending September 30th, 1858; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By Thos. M. Logan, M. D.

SEPTEMBER, 1858.	7h. A. M.	2h. P. M.	9h. P. M.	Month.
Barometer, Maxima	30.129	30.076	30.072	30.129 inches.
" Minima	29.755	29.695	29.635	29.635 "
" Mean	29.947	29.890	29.888	29.908 "
Thermometer, Maxima	70.00	87.00	75.00	87.00 deg.
" Minima	55.00	69.00	62.00	55.00 "
" Mean	62.20	76.10	68.40	68.90 "
Force of Vapor, Maxima	.462	.568	.516	.568 inches.
" " Minima	.255	.247	.343	.247 "
" " Mean	.368	.402	.438	.401 "
Relative Humidity, Maxima	74.00	70.00	73.00	74.00 per ct.
" " Minima	53.00	22.00	51.00	22.00 "
" " Mean	66.80	46.17	64.07	59.01 "
Number of Clear Days	18	19	22	19 2-3 days.
Number of Cloudy and Foggy Days	12	11	8	10 1-3 "
Number of Rainy Days				1 "
Quantity of Clouds	1.0	0.8	0.9	0.9
Quantity of Rain and Fog				Sprinkle.
1st Days.—2d, Force of N. Wind	4 2.0	10 2.1	1 0.0	5 1.4
" " N. E. Wind	1 1.0	1 2.0	0 0.0	2-3 1.0
" " E. Wind	2 2.0	0 0.0	0 0.0	2-3 0.7
" " S. E. Wind	14 2.0	2 2.0	6 1.7	7 1-3 1.9
" " S. Wind	6 2.2	4 3.0	7 2.3	5 2-3 2.5
" " S. W. Wind	1 3.	4 3.0	9 1.3	4 2-3 2.4
" " W. Wind	0 0.0	5 2.2	4 1.2	3 1.1
" " N. W. Wind	2 2.0	4 2.3	3 0.7	3 1.7

Thermometrograph.

	Deg.		Deg.
Highest Reading by day on the 15th	92 00	Mean of all Highest Readings by day	78.90
Lowest Reading by night on the 27th	50.00	Mean of all lowest readings by night	56.53
Range of Temperature during month	42.00	Mean daily range of Temperature during mo.	22.37

Remarks.—None of the atmospheric disturbances usually attendant upon the Autumnal Equinox have been experienced during the month. As seen above, the oscillations of the Barometric column have been very limited. The serenity of the sky has been seldom disturbed by clouds, and on several occasions a calm, sultry condition of the atmosphere obtained, especially towards nightfall. In many parts of the State, the heat was unusually intense towards the last of the month.—As yet only a slight sprinkle has occurred in this locality, to herald the approaching rainy season; but accounts have recently reached us of rain in all directions of the surrounding country.

VICAR OF WINKFIELD.

THE CALIFORNIA CULTURIST.

NOVEMBER, 1858.

ADAPTATION OF FRUITS TO LOCALITIES.

THE proper adaptation of fruits and vegetables to localities the most congenial to their perfect development and maturity, is here a subject of the first importance to the pomologist and horticulturist. The geographical extent of our State from north to south is so great, and our climate so diversified from the effects of the ocean winds in some localities, and extreme altitude in others, that no other State of the Union can ever attain to the production of that infinite variety of the vegetable kingdom that pertains to California.

Our southern inland valleys, are truly tropical, producing the orange, lemon, fig, pomegranate and the olive; the more central or middle valleys, half tropical, or with all the summer heat of the extreme south, but liable to occasional light frosts during the autumn and winter months; whilst upon the extreme north, we have the New England winter with all its fitful antics of cloud, rain, snow and sunshine commingled, and yet a summer of great heat. But it is not alone our latitudinal extent that gives us our wonderful variety of climates with all their diversified and apparently anomalous productions. Altitude above the sea level, plays its freaks upon the vegetation in so remarkable a manner, as to set at naught all our preconceived notions that latitude, north or south, must govern us in our choice of localities for the successful propagation of the particular products we may have resolved to engage in.

The first attempts at fruit growing, we mean of the more generally cultivated fruits of the temperate zones, were made in the lower valleys, along the Sacramento and San Joaquin rivers and their tributaries, and around the Bay of San Francisco. This was but an attempt to make the fruits of a temperate clime find a congenial home in one almost tropical. The effect has been most surprising, inasmuch as that the apple, pear and quince, are seen growing in the same grounds with the fig and all the finer grapes and fruits of the south of France, and in perfection that challenges competition. But this success has not been without its peculiar effects upon the fruits so cultivated. Thus we see that owing to the early warmth of spring, the

summer fruits, embracing not only the strawberry and cherry, but the plum, apricot, pear, apple and peach, in some of their varieties, all ripen before the first of July. The autumn fruits of the east are our summer, and the finest keeping winter apples of other countries than California, such as the Newtown Pippin, Baldwin and Roxbury Russet are found ripening, and of delicious flavor even now, the first of November; and by the first of January, but few of the winter apples of other climes grown in California, will be seen in our markets.

Such with us is the effect of climate upon the hardy fruits subjected to low valley culture; and for a time it appeared that though we might grow nearly all of the best varieties in perfection, their early maturity seemed likely to annihilate our every prospect of becoming producers of winter fruits, so much in demand for home consumption as well as export. Within the last three years a greater attention has been given to the introduction and cultivation of fruits in our mountain counties, under every aspect that altitude and exposure could possibly present; and the result has been not only to establish the fact that fruit of almost every description can be produced, not only fully equal to that of the lower valleys, but of some varieties greatly superior.

But this is not the only interesting feature of mountain culture. It has been already most fully demonstrated, that altitude with proper exposure will secure to the fruit grower all the requisites necessary to the production of the finest apples and pears for winter keeping. Thus, whilst one orchardist is growing the Russet, the Baldwin and the Pippin for autumn use, another, whose home is an elevated mountain valley or plateau, is producing the same varieties for January, February and March, and the two not eighty miles apart. It would seem that nature has all along pointed to this; but it had not been sufficiently noticed to become a guide to effort in the right direction.

The wild strawberry is found ripening even in the vicinity of San Francisco, under the cool ocean breeze, in the months of April and May; the same varieties ripening in Strawberry valley and other valleys in the vicinity of Lake Bigler upon the Sierra Nevada, from the first to the middle of August. Wild plums and apricots, ripening upon the mountain plateaus where they are indigenous, if brought to the tropical warmth of the valleys below are found to have their fruiting season hastened nearly six weeks.

In these results and the result of experiments already had with our introduced fruits, we think we are safe in presuming that our mountain districts are yet to furnish the markets of San Francisco and the Pacific with much of the staple fruits of the country, and particularly the late and late keeping varieties.

In regard to localities of which enough is already known to place their perfect adaptation to certain varieties beyond the necessity of further experiment, we would instance the Contra Costa side of the Bay of San Francisco, including Alameda and Oakland as among the very best in the State for the growing of strawberries, blackberries, plums and pears, and to some extent, apples. Not that there are no other fruits that will succeed in those localities, but that the cultivation of such as we have

named, can be entered upon by any intelligent culturist with a certainty of success; which is not the case with grapes, figs, peaches and the more delicate fruits, except in localities sheltered from the ocean winds; but even here the same varieties of summer fruits, are at least a week later in ripening than in the vicinity of Sacramento.

At San José, with proper irrigation, almost all fruits succeed to admiration; but maturing too early for late keeping winter fruits.

At Napa and vicinity, the peach, apple, pear, quince and grape, with most of the finer fruits, are produced in many localities without the trouble of irrigation, and of superior excellence; but still the great desideratum, a locality where a late keeping winter apple can be produced, does not yet appear. If we can judge of apples and pears, from the effect produced upon the peach by mountain culture, where frosts and even light snows are of frequent occurrence through the winter, then may we hope to be able to direct the orchardist who would devote his attention to the culture of the hardy and *valuable* varieties, because possessing the quality of late keeping. We would recommend the valleys and plateaus of the mountains, at an elevation but little less than that which now furnishes the indigenous chestnut, cherry, gooseberry, whortleberry, plum and apricot. Specimens of the peach sent us from El Dorado county, at an elevation of over two thousand feet above the sea level, have been grown the past summer and autumn, that for every good quality that a peach can possess, in connection with that of late maturity, have never been surpassed, if equalled, in the State. We received the specimens from the producer late in October, showed them around among the fruit dealers of the city, and all pronounced them unequalled.

So far as pear and apple trees have been introduced into the mountains and showed their fruit, they seems to possess the very quality—late keeping—so much desired to render them valuable over the early maturing fruits of the lower valleys. Then would it not be prudent for him who would be a successful California pomologist, to look well to the locality he may select for his operations; for upon the same line of latitude due east and west across the State, can he make his choice between localities, the products of which range from tropical to frigid, and all with their seasons of early and late maturing.

VINEYARDS ON HILL-SIDES.

TO the intelligent grape grower, it has been a source of no little amusement recently, to notice the earnestness with which the cultivation of the grape on the hill-sides of California is urged, by one who claims to have originated the idea, and is of course entitled to the credit of the discovery; and extracts from antiquated records have been brought out from the mold and dust of long neglected rubbish, in proof that heretofore the same views have been entertained. And what do these extracts prove? Simply this;—that though the plan was strongly recommended, no one adopted it; and we would like to hear of a single vineyard in California located upon a hill-side from choice over more level lands.

That there are numerous gardens in which the vine is seen flourishing upon hill-

sides is doubtless true, and that they would do equally well upon the same ground were it nearer level, is just as true. We are aware that in most foreign wine countries, where rains are frequent throughout the year, many fine vineyards are cultivated upon hill-sides; but often attended with an expense of preparation and after culture from their very locality, beyond all doubt greater than the prudent wine culturist in California could hope or wish to adopt.

Who thinks at this early day of the grape culture with us, of selecting a hill-side that he may "beautifully decorate it with walks, terraces and vineyards, like the vine-clad hills of France," unless it be one who is anxious to see how easily and rapidly he can expend a fortune? When we see a hill-side in California, fertile in its soil, and sufficiently moist for the successful propagation of a vineyard; when we see a single instance of successful vineyard culture upon a California hill-side, without extensive and costly artificial irrigation, then, and not till then will we be found advocating a system of grape culture, that can show no successfnl antecedent throughout the whole wide range of the Pacific coast.

Were we to take a lesson from nature in reference to the most congenial locality for the grape, we should be taught that the lowlands, the very banks of our rivers, and along the narrow alluvials of our mountain streams, were the most fitting places for their successful growth. Prudence, therefore, would seem to point out, that experiment upon a small scale only should be made in the culture of the vine upon any other lands than those naturally moist enough, or easily made so by a cheap system of irrigation.

A recent writer of romance in this State says:—"The grape delights in a dry temperature;" but says nothing as to whether the *dry* temperature should be above or below, the freezing point; but so far as his own experience in the culture of the grape carries him, his remark has doubtless just enough of ambiguity, to render it suited to his purpose. Even among the mountains of our State, where the vine flourishes luxuriantly, bearing the finest clusters, every grape grower thus far, seeks out the little spots that nature has deigned to leave more level than the rest, and made more moist than the surrounding hill-sides; and we would caution those about to engage in grape culture extensively, under our almost cloudless summer skies, with little or no rain for months in succession, against too largely extended experiments in vine culture on California hill-sides, without a cheap and abundant irrigation.

THE EGG CROP OF THE UNITED STATES.—The Buffalo *Express* calculates that there are 103,600,000 laying hens in the Union, of which 50,000,000 or nearly one-half, lay an egg a day throughout the year. This would produce an annual crop of 18,250,000,000 eggs, worth, at eight cents a dozen, $121,666,666 64, or more than twice the value of the gold taken annually from the California mines; and the egg crop, as the Louisville *Journal* says, is worth more than the crops of cotton, tobacco, rice and hemp. Hens are a wonderful institution. It is not too great a figure of speech, to say that they lay golden eggs.

GRAFTING SEEDLINGS.

IN answer to E. L., in the October number, as to the best mode and time of grafting his seedling apple, pear and quince stocks for his own orchard, we propose to give our own experience rather than be guided by the practice of others; knowing that by our mode,—but which we do not claim as original—the most perfect success is sure to attend its skillful performance. In the science of Horticulture, which embraces the different modes of grafting, there is, as in many other pursuits, a great deal of mystery thrown around its practice by those who would arrogate to themselves superior knowledge of the business. There is no mystery about it; any one who can whittle a stick and possesses the judgment of a boy of ten years, can graft successfully after a few moments practice. It is not so much the manner of handling the knife as the preparation, condition and management of both scions and stocks, previous to and after the operation.

The nurseryman whose object is mainly to increase, to the greatest extent, the number of his trees, pursues a very different practice in grafting from him, who, with an abundance of stocks for his own orchard merely, is desirous of growing the finest and largest trees in the shortest time. Thus the former in preparing his seedlings for grafting, not only makes the stock which has appeared above ground serviceable for a graft, but portions of the roots also in sections of from four to six inches in length; so that a single seedling often furnishes to the nurseryman, stocks that on receiving their grafts, finally produce from five to ten distinct trees.

This mode works well where the object is numbers, rather than strong healthy trees the first year from the graft. We would not cut up the root thus if we had a sufficient number of stocks; but would devote every stock with its entire root to the vigorous production of a single tree, and if the ground is in condition for setting the tree in the place where it is to remain, would set it there at once instead of the nursery, for a year or two, for reasons that we give in detail under the head of *planting out fruit trees*, in this number. In this we differ from the ordinary practice.

It must be borne in mind that we are not recommending this mode to the nurseryman, but to E. L. and others who may wish to grow trees for their own orchards. Good seedling stocks are those that in one season have attained to one-fourth of an inch and more in diameter at the ground. Scions can be cut at any time after the fall of the leaf, in autumn or winter, and previous to the swelling of the buds in spring; and grafting can be performed at any time within the same period. If only a few thousand are required, it would be better to defer the operation till just pre-

vious to the swelling of the buds upon the stock. The usual practice in preparing for grafting is to remove the seedlings from the rows before the setting in of winter, packing them away in boxes of mould or moist earth, away from frost, till you find a convenient time for working them. This practice, in a country where the ground never freezes, is not only unnecessary but really injurious.

The earth is the natural element for the roots of plants, as water is for fish, and though in the removal of fish from one aquarium or lake to another, they may be kept alive in air for a time, no one will suppose they are benefitted by it. So it is, or ought to be, an axiom with all horticulturists, that in the removal of any tree for transplanting into other grounds, the least time that its roots remain out of the ground the better. Therefore we recommend taking up the seedlings no faster than they are needed or enough for a day's work at a time. Grafts or scions that are cut early and are to be kept for weeks before use, should be set in the shade with their butts an inch or two in moist earth, or they can be buried altogether till wanted.

When ready for grafting, lift your stocks, shaking off the dirt, and take them to a convenient place. Now with a sharp knife—for none other should ever be used about a tree—cut off the ends of all the roots that have been stripped of their bark or broken by drawing from the earth, above the point of mutilation. Now cut off the top at a point where the stock presents a smooth even surface of bark for an inch or more in length, and with a clean smooth scarf, cut from one side of the stock to the other; then at one-third the length of the scarf from the top or end, insert your knife, passing it downward nearly with the grain of the wood another one-third of the length of the scarf; now prepare your scion with from three to five buds and scarf the lower or butt end in the same manner as directed for the stock, and bring the two together, the two tongues interlapping, being careful that the liber or inner bark of stock and scion come in contact upon one side at least, though it is not important that it should upon both. The scarf and tongue portion is now to be closely bound by strips of waxed cloth, and the seedling with its graft is ready for setting either in the orchard or nursery row. The same directions apply equally to grafting pear or quince seedlings.

A very good grafting wax is made of the following ingredients and proportions; one pound of beeswax, one pound of rosin and two pounds of tallow melted together. Strips of calico three fourths of an inch wide are wound into balls two or three inches in diameter. In winding these balls, the end of each strip should be placed under the end of the strip last wound on, or it will be difficult to find the ends in unwinding. Soak the balls in the hot composition till air bubbles no longer rise from them when pressed, then take them out and squeeze them quite thoroughly between two pieces of board. In grafting a large number of trees, it is always best to have one to handle the knife and another to apply the waxed cloth; it makes much neater and better work. As soon after grafting as convenient, and before allowing the roots to become dry, they should be "heeled-in," or at once set in their final position.

PLANTING OUT FRUIT TREES.

BUT for the inconvenience of properly taking care of trees during the first and second year of their growth from the seed, we would always, in California, plant out a tree, be it fruit, shade or ornamental, by planting the seed where the tree is to stand. Nature always takes this course, and who ever thought of seeing a forest tree, even in this land of sunshine and heat, suffer from even a six month's absence of rain? It is only the pampered nursery tree, with its roots mutilated and changed to an unnatural position and growth by transplanting, that suffers from protracted drouth, even in California.

In most countries where rains are frequent throughout the year, it has been with many orchardists a uniform practice in transplanting trees from the nursery row to the orchard ground, to remove from every young tree its tap root, and allow only its more horizontal ones to remain to give nourishment and vigor to the tree. The reason given for this was based upon the supposition that as the tap root penetrated at once, entirely below the more fertile soil, into what is generally termed "cold sour earth,"—but this is a great mistake—it could be of no possible benefit to the growing tree.

But let us look to the probable good that results to the tree that has never had this tap root broken or disturbed. We can bring examples to the mind of many a farmer, hailing from the old New England States. There, he will remember seeing in the old hedgerow, upon hill-sides and permanent pasture grounds, isolated trees, that springing from seeds casually scattered by birds or domestic animals, have taken root and despite all the croppings of cattle and sheep from year to year finally shot up beyond their reach and become the bearing fruit tree, though generally producing an inferior variety of fruit; still remaining the same vigorous, healthy trees that they were in his childhood; outlasting whole orchards of cultivated trees. Trees springing from seeds and never suffering removal, have invariably the taproot; we believe nature would never have shown this tendency to produce this main root, without some benefit attaching to it; we believe it the very provision above all others, to sustain the tree through seasons of protracted drouth, by penetrating deep into the earth, that if there is moisture, to find it. That this root draws from the earth anything deleterious to the health of the tree because it penetrates a cold or uncongenial soil, is rebutted by the fact that such trees are the longest lived of any.

With this evidence of the real utility of the tap root to all trees, and the still greater to such as have to contend with a California climate, we would urge, whenever practicable, the planting of the seed in the place where it is wished to have the tree grow. In many instances where young trees are obtainable and not the seed, the utmost care should be taken, in displanting them for removal, in saving uninjured as much of the tap root as possible; and in transplanting to see that the root has its natural downward direction in its new position. By attention to these hints, a more vigorous growth will be obtained, a more hardy and healthy tree, capable of withstanding the drouth of this or any other country.

CULTIVATION OF CHUFA OR EARTH ALMOND.

WE have received a communication from a valued Eastern correspondent, upon the merits and culture of this newly introduced tuber; and though not intended for publication, we take the liberty of appropriating so much thereof as we believe will interest those who are desirous of experimenting with this new acquisition to our best swine feeding products. The almost universal acknowledgment of its excellent feeding and fattening qualities, and general productiveness in all soils adapted to potato culture, or indeed in soils so poor that a fair crop of potatoes could not be expected, has given to the chufa a celebrity never before obtained by any newly introduced vegetable in so short a time.

So wonderfully prolific is it upon soils even of medium quality, no one need hesitate to attempt its cultivation who desires to grow at the least possible expense, the largest quantity of an excellent feed for swine and poultry. Here are the remarks of our correspondent:

"Having cultivated the Earth Almond for three seasons with a view to the fattening of hogs at a cheaper rate than upon corn, the result of my experience is this: I believe that many a farmer who now owns land so poor that he can neither raise corn or peas equal to a fair average crop of the country, if he would plant but an acre with chufa, would realize more of a truly fattening product for his herd of hogs, than he could possibly obtain from two acres of any other product at the same cost.

My second year's crop on the same ground was more than double that of the first, and the last season's crop quite equal to both of the preceding, and this without any re-sowing of seed or cultivation of the land beyond what was given it by the noses of the hogs in rooting out the tubers. I am confident also that land is actually enriched by their growth and mode of harvesting if performed by swine, and they kept upon the land night and day; the decomposition of the tops and the manure from the hogs more than making good the loss to the soil, by the mere consumption of the tubers. The fear with many is, that in growing them upon an already fertile soil, they may prove difficult of eradication when once established. I have no fears of this; I find that to turn them in deep with the plow, at a season of the year when the bulk of the tubers have attained to half their growth, will destroy the greater part of them; another shallow plowing or severe harrowing two or three weeks afterward, will effectually subdue the remainder.

I would plant them at first in drills, two feet apart; this enables the cultivator to be run between the drills till the chufa gets a start, after which it will take care of itself; I would give the tubers a distance of five or six inches in the drill; but if the soil be rich, eight inches will answer, and plant at the proper season for planting Indian corn; this of course applies to our country of frosts and snows. In California as in the Southern States, it doubtless might be planted at almost any season and vegetate successfully."

"The taste of the chufa is hardly inferior to the best chestnut, which it much re-

sembles. Poultry are quite as fond of it as hogs, but cannot as well do their own harvesting; but turn the hogs upon the chufa patch and a most remarkable attachment of the hen to the hog's nose, is immediately observable, and being quick of foot, and keen in their perception of the delicious, soon retire with their crops filled almost to a surfeit. As a cheap and nutritious food for swine and poultry, the chufa has not its equal."

THE EGG AND POULTRY TRADE.

IN no other country occupied by men claiming to possess sufficient knowledge to feed poultry, raise hens from chickens and chickens from eggs, do these commodities bear the continued exorbitant prices that they do in California. Now, that in the nineteenth century, when science is making such rapid strides that we can almost clothe and feed comfortably a dozen men for a year, just by throwing them into a proper machine with a small flock of sheep and a few bushels of potatoes, it is strange, absolutely preposterous that we should be compelled to pay twelve and a-half cents a piece for cooked hens' eggs, or go without them; yet such is the fact, and we see but little hope that they will be any less in price in our markets for years to come.

The fact that fortunes might yet be made in California from the production and sale of hens' eggs alone, is as certain as that the business can be skillfully managed and upon a proper scale. There is nothing in the climate of California adverse to the rearing of poultry if the proper care be taken to provide them with necessary and suitable subsistence and protection.

The great difficulty generally attendant upon rearing and keeping large numbers, is that of providing them with suitable food. The hen, and indeed all of our domestic fowls, are to a considerable extent, carniverous in their choice of food. The turkey and hen will eat any animal of the insect tribe that they can lay their bills upon; the goose and the duck devour all manner of land and water snails and insects that their fleetness permits them to overtake; thus it is evident that where large numbers of fowls are congregated together within limited inclosures, they must necessarily be deprived of a large portion of their insect food. To supply this want, becomes one of the first requisites to success in the rearing of poultry in large numbers.

It is not our purpose, however, in this article, to go into detail upon the best food for, or mode of rearing poultry; but to present facts in relation thereto, not only to the farmers of our State, but to many others who are complaining that they have "nothing to do, and no means to do it with," showing that a man who can control the destinies of one hundred hens, within a suitable inclosure, can soon be as independent of the rest of mankind, as mankind are of him; as well as being on the high road to prosperity.

We really hope there are those who will just sit down and figure the costs and probable profits of a hennery, allowing a fair margin for losses and drawbacks, with

the price of eggs at one-half their present market value, and then tell us if there can be another enterprise named, that with the same amount of capital, gives promise of any thing like an equal per cent. upon the investment. In aid of those who may wish for something like reliable data upon which to base their calculations of profit and loss by poultry raising and the sale of eggs, from results attending a well conducted establishment in a country where eggs are worth but one cent a piece, we subjoin an account of M. de Sora's hennery, which we find in the columns of the *Working Farmer*, and which we are sure will be read with interest.

If newspaper accounts be true, M. de Sora, of France, has attained a degree of celebrity of quite an interesting character. It is a fact equally true, that while the better class of horse flesh is attracting the attention of epicureans in France, the less valuable specimens of the equine race, such as worn out horses from old age, hard labor or disease, have the elements of their organisms finding their way to the tables of the French people in rather an indirect manner. M. de Sora gathers from the stables of Paris and its suburbs, all such horses as referred to above, that can be purchased at moderate prices, and has them slaughtered, more especially because of their flesh, for the purpose of supplying the demands of an extensive poultry establishment, which is said to be the source of a large income to its proprietors—not less than $175,000 per annum. The principal profit of the establishment arises from the production of eggs. All such parts of the slaughtered horses as are not used for food, such as the blood, skins, bones, hoofs, shanks, &c., are disposed of at remunerative prices. The skins go to the tanner, the blood is used for various purposes in the arts, the bones are manufactured into ivory black, and in the form of bone-dust and super-phosphate of lime sold for agricultural purposes. The shanks, hoofs, etc., go to the glue maker and Prussian blue manufacturer. The very marrow of these old horses' bones assumes the form of lip salve, and innumerable perfumed preparations for the lubrication and decoration of the well cared for curls and tresses of the ladies of France. The following extracts will be read with interest.

The flesh is carefully dissected off the frame of course, and being cut into suitable proportions it is run through a series of revolving knives, the apparatus being similar to a sausage machine on an immense scale, and is delivered in the shape of a homogeneous mass of mince meat, slightly seasoned, into casks, which are instantly headed up and conveyed, per railroad, to the egg plantation of M. de Sora.

The consumption of horses for this purpose, by M. de Sora, has been at the average rate of twenty-two per day for the last twelve months; and so perfectly economical and extensive are all his arrangements, that he is enabled to make a profit on the cost of the animals by the sale of the extraneous substances enumerated above—thus furnishing to himself the mince meat for less than nothing, delivered at his hennery.

It has been ascertained that a slight addition of salt and ground pepper to the mass is beneficial to the fowls, yet M. de Sora does not depend on these condiments alone to prevent putrifaction, but has his store rooms so contrived as to be kept at a temperature just removed from the freezing point through all the months of the year, so that the mince meat never becomes sour or offensive; the fowls eat it with avidity, they are ever in good condition, and they lay an egg almost daily, in all weathers and in all seasons.

The sheds, offices and other buildings are built around a quadrangle, enclosing about 20 acres, the general feeding ground. This latter is sub-divided by fences of open paling, so that only a limited number of fowls are allowed to herd together, and these are ranged in different apartments according to their age, no bird being allowed to exceed the duration of four years of life. At the end of the fourth year

they are placed in the fattening coops for about three weeks, fed entirely on crushed grain, and sent alive to Paris.

As one item alone in this immense business it may be mentioned that in the months of September, October and November last, M. de Sora sent nearly 1000 dozens of capons to the metropolis.

He never allows a hen to set. The breeding rooms are warmed by steam, and the heat is kept up with remarkable uniformity to that evolved by the female fowl during the process of incubation, which is known to mark higher on the thermometer than at any other period. A series of shelves one above the other, form the nests, while blankets are spread over the eggs, to exclude any accidental light. The hatched chicks are removed to the nursery each morning and fresh eggs laid in to supply the place of empty shells. A constant succession of chickens is thus insured, and moreover the feathers are always free from vermin. Indeed, a lousy fowl is unknown upon the premises.

M. de Sora permits the males and females to mingle freely at all seasons, and after a fair trial of all the various breeds, has cleared his establishment of every shanghai, cochin china, or other outlandish fowl, breeding only from old-fashioned barn-yard chanticlers and the feminines of the same species. He contends that the extra size of body and eggs pertaining to these foreign breeds can only be produced and sustained by extra food, while for capon raising the flesh is neither so delicate or juicy as that of the native breed.

The manure produced in this French establishment is no small item, and since it forms the very best fertilizer for many descriptions of plants, it is eagerly sought for at high prices by market gardeners in the vicinity. The proprietor estimates the yield this year at about 100 cords. He employs nearly 100 persons in different departments, three-fourths of whom, however, are females. The sale of eggs during the past winter has averaged about 40,000 dozen per week, at the rate of six dozen for four francs, bringing the actual sales up to $5,000 in round numbers for every seven days, or $250,000 per annum. The expenses of M. de Sora's hennery, including wages, interest, and a fair margin for repairs, etc., are in the neighborhood of $75,000, leaving a balance in his favor of $175,000 per year, almost as remunerative as Col. Fremont's Mariposa claim.

DO WE WANT THE RACE HORSE?

PREVIOUS to the introduction of railroads and locomotives, and at a later period the electric telegraph, the fast horse was the readiest mode by which important intelligence could be communicated overland. At that time, therefore, there really existed a good reason for the rearing of fast horses; but do we now need the race horse? We believe fast horses to be desirable for a variety of purposes even now; but how fast should they be to inure most to the benefits of civilization? Should they be of the true race horse breed, to benefit to the highest degree, either those who raise them or those who use them?

Quite a change of sentiment upon this subject is observable in the tone of nearly every agricultural journal both in Europe and America, and many doubts are expressed in reference to their real utility as a distinct breed. That they are of any general service to the agriculture of a country may well be doubted, for there is no

operation in the whole routine of farm labor that requires the speed of the race horse except it be the running down of wild cattle, in itself a mere concomitant of semi-civilization, and which if really necessary can be performed by the common mustang of our plains quite as well as by the high bred racer of eastern blood.

To our mind there seems to be something at the present day in the term "fast," as applicable to a portion of the animal creation, rather equivocal in its signification, and perhaps this has had its tendency in giving to many a bias unfavorable to their further propagation in whatever class or species of animals they may be found to exist. A writer in the *Southern Farmer* comments upon the breeding and qualities of the race horse thus:—

I am opposed to aristocracies, unless we constitute a moral aristocracy or an intellectual aristocracy. To these I yield admiration and reverence.

But there is a "blooded aristocracy," without worth, without intelligence. Besides, there is a wealthy aristocracy, valuable only on account of its usefulness.

Among beasts, there is no greater aristocrat than the race horse; he is no producer, he lives on the fat of the land, on the labor of others. The winds of heaven are not allowed to visit him too roughly, and he is unquestionably lord over all the brute creation. I am a great admirer of the horse for his beauty, his excellencies, his usefulness, his sportiveness—nay, I would say give me the

> "Horse, which in frantic fit,
> Throws the foam from curb and bit;"

but yet I do not desire the race horse, and why? He is not suited for work, his belly is too small, his legs are too long, and he is rather deficient in size. He is not suited to the saddle. I have seen but very few good saddle horses that were genuine race horses. Their stride is generally too long in the gallop, and as a general thing, but few of them pace. For light draught and harness, perhaps they are better adapted; and yet they are inferior in my estimation to the northern trotter. For more than thirty years I have rode or driven horses daily, and very few men have owned more horses, or driven more miles. Now, whilst I admit that good horses may occasionally be found of various forms, yet I have uniformly found the following to be the best characteristics of a good horse. His muscles should be well developed on the thigh; the breast prominent; the nose projecting, the lower the better; the shoulders deep and thrown well back; the abdomen round and large; the legs clean, bones flat and large. A horse with small bones is very liable to spavin, splint and wind galls. His rump should be round, and the juncture between the hinder extremities and the body should be neither too close or too open. The rump should be a little drooped, that is a little higher before than behind. There are some excellent horses rather low before; they are frequently strong and suited to draft, but not travelers. A horse with a full mane and tail indicates a strong constitution. A good horse will stand well; if he be unexceptionable, he will stand on all four feet, if allowed to remain some time alone, without resting either. If he be a good mover, he will carry one foot immediately after another. Such a horse is apt to be a good traveler; if he be not over fast he will endure a long time. Some horses, with a powerful effort, throw their feet far beyond their bodies. Such horses may be fast, but are apt to tire. Give me the horse that keeps his feet well under him, moves his body but little, holds his head up, and raises his feet sufficiently high not to stumble. Now I have not so frequently found the characteristics of a good horse to exist in the race horse as to exist in the northern trotter; and instead of believing that our horses are improved by raising from race horses, I think our horses would be

better for the plow, for the gear and the saddle, by raising from horses of shorter legs, larger bodies, and more compact in form than the race stock. The latter is better adapted to the turf, but not so well adapted to ordinary purposes. We need a horse of power, of endurance, of good performance, and not a horse remarkable only for swiftness. Many horses are active, sportive and easily kept, and yet unmixed with the race horse. I have seen some very superior and excellent Canadians. The Morgan horse and northern trotter are worthy of all praise. Some of the most inferior geldings I have ever owned were said to be of the race stock. Their fine, slick and glossy hair, long legs, lank and gaunt abdomen, seemed to indicate their descent from a race of *illustrious ancestors—aristocratic sires.* These views, I know, are in opposition to the current opinion of the day, but facts are stubborn realities that cannot be easily controverted; and my opinion is based upon my own observation and experience—an experience based upon daily use for more than thirty years. And when I desire to purchase a horse, to recommend him as of the race stock is rather an objection to me. I am fully satisfied in my mind that the race stock has been the source of injury to the horses of Virginia, for such horses as we need for work, for the saddle or for harness. Some people read and take for granted; others weigh and consider. Some adopt opinions that their fathers entertained; others think for themselves, and form opinions accordingly.

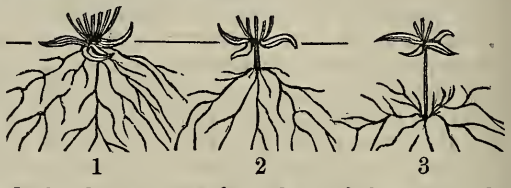
VALUE OF THE ROLLER IN WHEAT CULTURE.

Editor Culturist:—I noticed in your last number a well written and well timed article upon wheat, its varieties and culture. If it will not be intruding too much upon your columns I would like to give the result of some carefully conducted experiments of my own, upon the growth of wheat, the use of the roller in its culture, the depth at which it should be covered, and my reasons for recommending the practice I do, as peculiarly adapted to the soil and climate of California. Not that I believe that wheat should receive peculiar culture here on account of any peculiarity of the soil, except just so far as that quality is the effect of climate.

In my experiments I have given particular attention to the formation and extension of the roots of wheat, with a view of determining the best mode of preparing the ground for the seed in our peculiar climate. My experiments have been conducted with three varieties of wheat, known as the Sonora, Australian and the Oregon white, and it is remarkable how closely they resemble each other in the formation and growth of their roots under the same circumstances of soil and culture. I will first speak of my experiments to determine the proper depth for covering wheat; but even this depends much upon whether the ground is rolled after seeding or not. If the soil is sufficiently moist for the seed to germinate, my experiments lead me to believe a shallow covering to be better than deep, in case the roller is used after seeding. If the roller is not used it may be desirable to cover deeper, but only for the purpose of securing sufficient moisture for its germination.

In the July number of the CULTURIST, I was not a little startled at first, by the position you assumed, that "it is easy to make soil so light, that even its power of capillary attraction is destroyed, and so loose, that roots even cannot penetrate it."

But I now, from my own experience, believe you are correct. I also see in the September number of the *Genesee Farmer*, page 270, that:—"It is easy to get land too light and loose for wheat." [Is not this a reason why our volunteer crops, are sometimes better than those upon lands recently and deeply plowed?—Ed. Culturist.] I will now show by diagram, rudely sketched, the effect of deep and shallow covering upon the roots and stalks of wheat, the ground being deeply plowed and rolled in each case after seeding and sufficiently moist, that the seed could germinate at one inch from the surface, the land all plowed eight inches deep.

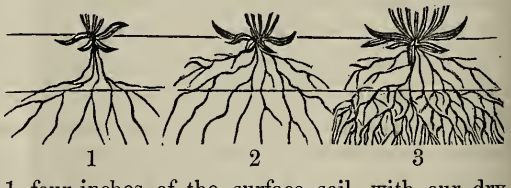


No. 1 is the crown of a plant with its roots, of a grain of wheat covered one inch deep. In this it will be noticed that the crown or stool of the plant from which the stalks spring is in close connection with the roots, and is without doubt the most perfect plant of the three, the number of stalks being more than from No. 2, and double the number from No. 3. The direction of the roots also, better adapted to secure the greatest good from the soil.

No. 2, shows wheat sown four inches deep. Here it will be observed is a peculiarity in the growth unfavorable to a perfect development. From the point of germination it is necessary to reach the surface before stooling-out, and the result is a less number of stalks than on No. 1, and I find them to be always weaker; the roots too, take the very position we might expect them to from the locality of their starting point, and occupy but little of the upper half of the whole eight inch furrow-slice.

No. 3, is still deeper, or six inches from the surface, and shows in a still more remarkable degree the ill effects of too deep a covering; besides, at this depth, large numbers of the seed never vegetate or reach the surface; whilst a portion of the roots are forced to take an unnatural position.

I will now give the results of my experiments upon deep and shallow plowing at the time of sowing, and the reason why I hold the roller to be almost indispensable to the wheat grower. In conducting the following experiments, in all three cases, the land was first plowed late in April or first of May, eight inches deep. The diagram will show the difference in growth of stalks and roots.



Nos. 1 and 2 land were plowed again same depth as before, eight inches, and sown in November, seed one inch deep. No. 1 was not rolled after seeding, No. 2 was; in all other respects both treated alike. By not rolling No. 1, four inches of the surface soil, with our dry climate, was left too loose to be much occupied with roots, nor did the main portion of the seed vegetate as early by four days as did Nos. 2 and 3.

No. 2, in consequence of being rolled, rooted more perfectly nearer the surface than did No. 1, and produced a better crop.

No. 3 at time of sowing was plowed but four inches deep, half the depth of the others, Nos. 1 and 2, and half the depth of the spring plowing, and like No. 2 well rolled. Here we find the roots taking the same and best possible direction as in No. 2, until at a depth of four inches they strike the undisturbed portion of the spring furrow-slice; this from its compactness induces, instead of a few coarse roots as in Nos. 1 and 2, an infinite number of small fibrous roots, that penetrating every capillary pore of the soil, calls to the aid of the plant, more of its nutriment than could possibly be derived from any other form or condition of its roots. It is a property of most vegetable manures, that when buried deeply by the plow, their chief constituents rise towards the surface, rather than sink deeper. If, therefore, any green crop or manure be turned under at the spring plowing, I deem it infinitely better that it should remain at the bottom of the autumn furrow slice, than to bring it upon the surface when plowing for seeding.

By the foregoing experiments, I am perfectly satisfied of the following *facts*, as I term them. That a great deal of wheat sown is covered too deeply; that in consequence, some of it never vegetates, but rots in the ground; that if it does vegetate, it produces a weakly plant. That land sown to wheat should always be rolled, [with one of T. Ogg Shaw's best.—Ed. Cul.] immediately after the seed is covered; that "it is easy to make land too light and loose for wheat;" and finally, "that wheat delights to root upon a firm bottom." Yuba.

BONES—THEIR COMMERCIAL VALUE.

Mr. GREEN, one of the many engaged in the business of calcining bones in New York, gives the following information as to the use and value of bones. Mr. Green's boiling calcining establishment is situated on the Jersey side of the Hudson, sixteen miles up, nearly opposite Yonkers. To collect the bones from the *chiffonniers* he employs in this city eight men, eight horses, and four carts. A laborer invariably goes with each driver. The largest collections are made in the elev enth, seventeenth, eighteenth, nineteenth, twentieth and twenty-first wards. They commence their rounds as early as 7 A. M., and by 1 P. M. the collections are deposited in the vessel that is to convey them from the city. The law requires all the carts engaged in this business to be boxed or covered with canvas. The price paid for bones varies according to quality. Thigh bones of bullocks rank first, as they are the only bones in an ox that are fit for turners' use; they are mostly manufactured into handles for tooth brushes, the natural curve of the bone giving the desired shape to that indispensable article of the toilet. They are worth from ten to twelve cents each. The jaw bones rank next, and are worth eighteen dollars a thousand. The "short" bones, as they are termed, such as leave the family table, are worth from forty to fifty cents a basket. To give some idea of the amount of money paid for bones, when we consider the number engaged in the business of bone-boiling, exclusive of the Barren Island business, we will state that Mr. G. pays for bones in this city alone an average of $100 a day. The fore leg and hoof are usually bought by manufacturers of glue, Peter Cooper being the heaviest purchaser of this description of offal; and when they are done with, they are sold to the bone dealers at two cents a pound.

The hoofs are disposed of at the rate of $40 a ton, and are afterwards made into *horn* buttons and Prussian blue. Horse hoofs and sheep hoofs and horns are sold at $15 a ton.

On the arrival of the bones at the factory, the thigh and jaw bones are sawn so as to admit of the removal of the marrow. They are then thrown into a vast cauldron, and boiled until all the marrow and fatty substances attached to them are thoroughly extracted. The fat is then skimmed off and placed in coolers, and the bones are deposited in heaps for assortment. The thigh bones are placed in one heap for the turners; the jaws and other bones suitable for buttons are placed in a second pile; the bones suitable for "bone black" come No. 3, and the remainder are ground up for phosphates and manures.

"Bone black" is used by sugar-refiners, and is worth from 2 1-2 to 3 1-2 cents a pound. To judge of the amount used in this city alone of this article, in the eleven immense sugar refineries in operation here, it is only necessary to state that "Stuart's" and the "Grocer's" refineries pay annually in the neighborhood of the city $40,000 a year, each, for "bone black."

Of classes Nos. 2 and 3 we are furnished with no reliable data. No. 2 is used in the manufacture of phosphates. No. 3 is made into manure, and sold at prices ranging from thirty-eight to fifty-five cents a bushel, according to quality, but generally averaging about fifty cents, delivered at the factory.

Of the amount of soap-fat produced from bone-boiling, we can only say that our informant showed by his books that the sale of soap-fat from his factory from June 1856, to June 1857, amounted to $19,000. Of this amount $14,000 was paid by one house, and we were assured that this was but a moiety of the amount the house annually purchased.—*Hunt's Merchants' Magazine.*

THE PROGRESS OF MINING—GUNPOWDER vs. WATER.

THE following interesting article upon mining we clip from the *San Francisco Daily Times:*—

The gradual improvements which experience is introducing into the art of mining, is every year simplifying the operation and increasing the facilities for producing gold. To say nothing of the inventions which occasionally appear through the press for the saving of waste gold from the various kinds of machinery, there has been a steady progress in the art of mining itself. From the willow basket, through the different grades of rocker, long-tom, and ground sluicing, to hydraulic mining, by which one man with a hose can perform the labor of ten by other disintegrating apparatus, the steps towards perfection have been gradual but steady. The hydraulic system has been in use, we believe, about five years. By its action, hundreds of tons of earth are washed down and the gold separated from the mass by the simple action of the water directed upon a high bank of earth from a hose held in the hands of one man. It was supposed that this was the *ne plus ultra* of labor saving; but from the *San Juan Press* we learn that several mining companies are trying a new experiment of blasting down the banks of auriferous earth with gunpowder. The result of a trial lately made in the vicinity of San Juan, Nevada county, is thus given:

"They ran a straight drift into the bank for twenty feet, then another, at a right angle to it, for seven feet, and then another for a like distance in the same direction as the long drift. Into this last apartment six kegs of powder, making one hundred and fifty pounds, were put, and solidly packed with earth. The explosion of these cracked the bank for a distance of thirty feet back, and threw down into the open

claim some ten or fifteen feet, crumbling it up thoroughly. A second blast, which was conducted in the same manner, threw down considerably more earth, and left the bank cracked about thirty feet further back. These two blasts, which cost about sixty-five dollars each, have afforded the company an abundant supply of dirt since, keeping their sluices running full constantly, whereas, under the usual system of piping, they were nearly empty for three-fourths of the time."

In Sierra county experiments are also to be made with gunpowder. The *Sierra Citizen* states that arrangements are being made near Downieville for blasting a bank of earth by burying deeply, fifteen or twenty kegs of powder properly tamped and secured.

"When we consider," says the *Press*, "that water costs the company alluded to, forty-five dollars per day, the loss resulting from piping against a hard cement bank three-fourths of the time, in order to obtain dirt for the other fourth, can easily be estimated. The great advantage of the blasting process, then, is simply this, that it enables the miner to be washing a full run of dirt, without intermission, and with the same quantity of water which he formerly employed to wash a much smaller amount. Of course this system of blasting is most advantageous where the banks are the hardest. But there is no question of its great value to every hydraulic miner."

THE PASCOE GOLD MINE.

THE following interesting report on the Pascoe gold mine, Cherokee county, Georgia, by Charles Upham Shepard, we find in the August number of that excellent journal, *The Mining and Statistic Magazine:*

"The Pascoe mine is somewhat centrally situated in one of the most remarkable gold formations, any where known within the United States. Its length is three hundred miles, with an average breadth of less than three miles. It commences in Macon county, North Carolina, and runs south-westerly in an almost straight course, through the Georgia counties of Rabun, Habersham, Lumpkin, Dawson, Forsyth, Cherokee, Cass, Polk, Paulding and Carroll; and thence across those of Cherokee, Kendall and Tallapoosa, in Alabama. As it traverses two counties bearing the name of Cherokee, it may not be deemed inappropriate to designate the whole formation, as the Cherokee gold belt. In passing northward from Alabama, it pursues an average direction of North, 50 deg. East; and maintains through a part of its course, at a distance of about fifty miles, an almost exact parallelism with the most south-eastern mountain range of the Blue Ridge. The geological components of the belt, beginning on its northern side, are mica-slate (with occasional veins and beds of granite) and gneiss;—the central portion of the belt consisting of hornblendic and mica-slate, often interlarded by a series of thin quartz beds or veins, from six to twelve in number, varying in thickness from two to ten feet; and placed apart, at distances from seven to thirty yards; while its southern side is formed of gneiss and talcose slate. The dip is between 70 deg. and 80 deg. to the south-east.

The gold mostly belongs to the interlaminated quartz veins. These, therefore, deserve a more special description. The quartz is stratified or laminated, in conformity with the lamination of the inclosing rocks. It accordingly separates into the tabular or flat-shaped masses, varying in thickness from one or two inches, to that of six or eight: and these again may often, with little difficulty, be subdivided into thinner fragments. The flat surfaces of these masses often exhibit scales of a light-colored mica, mingled with occasional crystals of pyrites (iron-pyrites;) especially

where the vein has not been subject to the influence of the weather. In the latter case, the pyrites and the mica are more or less decomposed, into a mixture of clay and hydrated peroxide of iron. In addition to this slaty structure of the quartz, there is a less distinct jointing also, oblique to more perfect cleavage, whereby the rock splits up into rhombic prisms (sometimes highly perfect.) Still a third seaming of the quartz is often traceable, in a direction, across both the others, so as to lead in some localities (as near the Bell mine) to fragments, having the figure of an oblique rhombic prism, though the average tendency of fracturing the veinstone, is to separate it rather easily, to flattened, oblong blocks and fragments, quite similar (though generally less regular) to those obtained from breaking up the hornblende-slate, to which formation, it is structurally very analogous. The quartz where uninfluenced by weathering, is white, tinged with red or gray. It is fine granular, highly vitreous in lustre, translucent; and breaks easily, with a somewhat splintery fracture.

The quartz veins are supposed to be auriferous nearly throughout the entire belt, but with very variable degrees of richness; and under some diversity of conditions. Like all true metallic veins, whether longer or shorter, it exhibits the phenomenon of lodes, or portions of alternate richness and poverty, the latter of course prevailing most extensively, and to a vastly greater extent than in ordinary metallic veins, whose length is very restricted compared with that of the Cherokee gold belt. The metallic concentrations in the latter are rarely nearer together, than from three to five miles; in many instances, they are more remote.

Though gold occurs at places in this formation, inclosed directly in the quartz, it is nevertheless true, that its chief repository is the pyrites, which are diffused through the rock. Its connection with pyrites is not yet fully elucidated. To a moderate extent, it would appear, that it is simply diffused through the mineral in little laminæ and grains; but for the most part, it is at least probable, that the gold is chemically united with sulphur, and that the resulting sulphide is farther combined with the pyrites, or bisulphide of iron. This inference is founded on the fact, that the richest auriferous pyrites, in an undecomposed state, refuses to yield its gold to mercury, though presented under the most favorable conditions for amalgamation. The sulphides of most of the metals are moreover well known to be capable of similar intercombinations. On this view of the relaxation of the gold to the pyrites, we can readily comprehend, why the decomposed ore, whether the decomposition is accomplished naturally or artificially, so readily gives up its gold to the mercury.

This auriferous pyrites presents some physical properties which distinguish it from the common, or non-auriferous ore. It is less prone to assume regular crystalline forms, being generally massive, or only imperfectly crystalline. Rarely a few faces of the cube or the octahedron may be recognized; but these are not common. It is much more brittle than common pyrites; and has a peculiar, greenish yellow tint. It is also more prone to decomposition than most varieties of the species; and when this change has taken place naturally in the veins, the crystals often assume the condition of compact brown iron-ore (limonite). These pseudomorphous crystals, where found loose upon the surface of the veins, are everywhere in the gold region held to be good tokens of the existence of a rich mine.

The pyrites not only occurs upon the joints of the quartz rock, but is diffused through its entire substance. Sometimes its proportion rises to one quarter part of the veins; and rarely, it constitutes large wedges and ovoidal masses, in a state of almost absolute purity. Some of these are a foot or more in thickness.

It is from the decomposition of such masses in some of the mines, that those rich bunches of ore called *pockets* are observed. They are frequently mere shells of impure limonite, containing finely divided gold, diffused through an ochrey powder.

There is no foundation whatever for the opinion that the quartz veins grow poorer

in gold with their depth, at least in the usual repositories, where it is associated with pyrites. The contrary would rather seem to be the fact, although it is undoubtedly true, that as the shafts and galleries penetrate deeper, and enter regions beyond the decomposing influence of the atmosphere, the gold becomes more and more inaccessible to the old methods employed for obtaining it. The precious metal is nevertheless present in its full proportion. This is true so far as exploration has gone, not only in the Cherokee belt, but in other regions contiguous to it, as in the Columbian belt above Augusta, and in the famous gold-hill mine of North Carolina, in the former of which the workings are down 150 feet, and in the latter 550. Indeed, there is an impression among gold miners, that the pyritous contents of the lodes continue to augment as they descend; and it is presumable that the gold will keep pace with the increase of pyrites.

The number of species belonging to the exterior members of the Cherokee belt is not considerable. We have crystallized garnet, staurotide and more rarely kyanite in the mica slate, spodumene in the coarse granite, and ilmenite and rutile in their quartz seams, both in the mica and hornblende-slate. The two last-mentioned species may be noted as very frequent throughout the outlines of the gold veins. They are so frequent, indeed, as to have led to the opinion, that beyond any metallic minerals, they sustain some peculiar connection with the gold itself. Wherever loose crystals of them occur abundantly in the soil, the impression is general that a good mine of gold is not far off. One or the other of them is certainly frequent, adjoining the Franklin or Pascoe mine, near the Sixes at Canton, and in the mica slate, to the north of the Allatoona gold mine.

The theoretical geologist, after inspecting this formation, can scarcely satisfy himself as to the origin of the gold, farther, perhaps, than to conjecture that it was forced up from below in close connection with the quartz and the pyrites. These he is compelled to consider, in some manner, as the parent minerals of the precious metal. They are each and all distinct and separate from the inclosing slates—gold not being traceable beyond a few inches from the veins, and in that case, confined to thin, flucancy coatings of the schists where in contact with the quartz. Whether the ilmenite and the rutile, in the contiguous strata, originated contemporaneously, and in a similar manner with the gold and the auriferous pyrites, can only be conjectured.

DESCRIPTION OF THE MINE.

The Pascoe mine was originally opened by Jabez Holcombe. Mr. Pascoe commenced operations here in 1840, and worked steadily during four years. After a suspension of operations for three years, the working was renewed, and continued until the death of the proprietor, in 1852. The total produce of the mine up to this period has besn estimated at fifty thousand dollars.

The veins worked or developed are six in number, having the following names, beginning with the most north-westerly and proceeding to the south-east, viz.: I, the McDonald; II, the North State; III, the Franklin or big vein; IV, the Abernethy; V, the Creek; VI, the South Cluster.

The following statement may serve to render apparent the extent of the explorations. A tunnel 60 feet in depth has been driven 124 feet south-west from shaft No. 3 on the McDonald vein, leaving 100 feet before reaching the boundary line that divides the Pascoe and the Franklin mines. Stopping ground, 35 feet in depth (sufficient for five tunnels) is left untouched above this excavation. In the opposite direction, the vein passes under the river, and has fully a quarter of a mile of extension before leaving the company's territory.

The main adit on the Franklin vein has been carried 300 feet to the south-west from the old shaft, No. 2. Sixty feet of backs (five to six feet wide) are here left

standing for a length of 200 feet before reaching the Franklin boundary. At the south-western terminus of the present working, the vein has bulged out to a thickness of 40 feet; or rather, it has split into two veins, inclosing what seems to be a large lenticular mass of orey rock, 15 feet in thickness, having the regular vein 12 feet thick on either side. How far this enlargement is prolonged downward is of course unknown.

A cross-cut, at a depth of 60 feet, has been made between the McDonald and the Franklin veins. The drifting has been carried pretty nearly to the river, on the Franklin veins. A cross-cut at 60 feet has also been made from the new shaft, 140 feet south-east, across the Abernethy vein (30 feet from the surface,) and extending a little distance beyond this point. It is intended ultimately to drive this tunnel across the entire series of the veins and strata, with a view to a complete exploration of the company's property.

The ore of the north slate is regarded as medium in quality, but is less rich than that of the Franklin and McDonald, to which veins nearly all the labor has thus far been directed. The Franklin vein, in its greatest depth and contiguous to the river, is said to have been very rich in auriferous pyrites, where nearly solid masses of this rich ore were noticed several feet in thickness. Concerning the Abernethy, the Creek and South Cluster veins, little is yet known, though the last mentioned is of recent discovery, and is regarded as very promising for gold.

It is rare for the gold in either of these veins to show itself, either in the quartz or the pyrites; perhaps never, in the latter, in its unaltered state: but where it has suffered conversion into limonite (hydrated peroxide iron) the gold is sometimes visible in little points and scales. The gold of the Franklin and Pascoe mines is of the variety known to miners as fine gold, i. e., it is exceedingly comminuted, so as rarely to be visible to the naked eye. Its purity is extraordinary, being worth at the mint from 101 to 103 cents the pennyweight. Both these considerations, invisibility in the rock, and freedom from alloy, are recommendations of a very high order in a gold mine—protecting the owners in the one case from the depredations of the dishonest, and in the other, greatly augmenting the returns of the mine by its superior intrinsic value. It is, for example, believed that the peculations carried on among workmen and others, in some of the nugget and coarse gold mines, reduce the profits from one-quarter to one-third, while the value of gold from different mines is well known to vary, from 60 to 100 cents the pennyweight; and in no other instance, I believe, rises so high as in that of the Franklin and Pascoe mines.

The produce of the surface ore, together with the more or less decomposed backs of the veins, has varied from 10 to 50 cents to the bushel, no allowance being made for the pyritiferous sands or tailings, which until recently have been treated as refuse. They are now preserved, and concentrated by the buddling process, from about one part in fifty of the pyrites, to one in six or eight, when they are subjected to a process, to be described farther on, which results in their affording the splendid return of from two to four dollars per bushel of the concentrations. But while the surface still contains a vast accumulation of accessible weathered ore, whose value is undoubtedly very great, it is the inexhaustible supply of rich, undecomposed, auriferous pyrites in the veins that constitutes the great wealth of the Pascoe mine. The average yield of the pure pyrites of this mine, as determined by Mr. Kent of the United States mint, is $231 per ton, while that of the pyrites and vein-stones in various and average states of intermixture, as ascertained in numerous samples, taken indiscriminately from the weathered ores and the upper portions of the quartz veins, give from $20 to $80 in the ton.

From the best means of judging within my reach, it would appear that the unaltered quartz veinstone of the McDonald and Franklin veins gives, on an average,

one of pyrites to thirty or thirty-five of quartz: the pyrites uniformly containing gold to the value of $231 per ton, while the quartz still contains traces of pyrites and gold, though undiscernible to the eye. The presence of this metallic matter is inferred, both from its superior gravity to pure quartz, as seen in the buddling process, and in its rusted appearance after calcination.

About fifty persons are employed in and around the mine, at a monthly expense of nearly $900. The machinery consists of a double engine of 65 horse power, which drives 12 stamps, 3 pumps, 2 arastras, a pulverizing mill and Kent's separator; the whole put up at an expense of $18,000. There is an extensive set of buddling tables (under cover,) a large roasting furnace, a blacksmith shop, a retail store connected with the mine, and 12 houses for miners. Two whim-shafts, well arranged for raising ore, with several working horses and yokes of oxen, complete the equipment of the mine.

The battery of stamps beats 400 bushels of average ore, each twenty-four hours. The arastras grind 200 bushels of soft surface ore in the same time. The mercury boxes, with their appendage of baize cloth tables, obtain from the produce of the stamps from two to three hundred dollars per week; the arastras give from the 200 bushels of surface ore, ten dollars per day. The two arrangements together daily afford from 200 to 300 bushels of pyritic sand or tailings, having from two to three per cent. of pyrites, which, after passing three or four times over the washing tables, are concentrated up to five or six per cent. of the auriferous pyrites. The furnace which I have constructed on the premises, desulphurizes and peroxidates 24 bushels of these concentrations in 24 hours, which on being passed through Kent's separator, yield upwards of three dollars to the bushel.

The furnace of desulphuration and peroxidation (for which a caveat has been filed in the secret archives of the Patent Office,) is a construction of masonry, 10 feet long by 6 1-2 feet high and 6 1-4 wide, with a stack for flues 14 feet high at one end. The upper portion of the furnace is reverberatory, but a bottom heat is also supplied from an arched oven below, the effect of which is to maintain nearly a red heat on the central portion of the floor of the upper compartment, where the preparation of the ore is conducted. About six bushels are introduced at a charge, through a hopper, on the flat top of the furnace. It is spread over the floor of the furnace at a depth of four or five inches; and when red-hot, is manipulated by iron instruments, thrust through a side door, contiguous to the fire-bridge of the furnace, for the space of about three hours, when the process is complete, and it is withdrawn to give place to another charge.

It is estimated that the supply of tailings (pyritous sand) derived from the daily rate of working, is adequate to keep the furnace and separator in constant activity,—it being assumed that the concentration by buddling is carried no higher than at present. Experience must decide whether it would be economical to wash them to a greater strength. The furnace is undoubtedly competent to operate a sand, one-half composed of pyrites; but whether it would not be attended with some loss of gold in the quartz grains thereby washed away, and in addition, compensate for the loss of labor in the buddling process, are questions yet to be decided. My own impression is in favor of an increased concentration, as the works possess every facility of water for carrying on the operation.

The Australian Gold Exports for the present year have, according to the *Melbourne Herald*, fallen off to the extent of 36,633 oz., as compared with corresponding period of last year; and as much as 194,748 oz., as compared with the first fourteen weeks of 1856. Chief cause assigned, want of capital to work the auriferous deposits.

DISTRIBUTION OF GOLD.

SIR R. I. Murchison, in a paper read to the Royal Institution, "On the Distribution of Gold in the crust and on the surface of the earth," has successfully dwelt upon Russia and Siberia as exhibiting, on the grandest scale, proofs of the truth of his axiom, that gold ore never occurred in any notable quantity, except under certain conditions, which (employing a useful term suggested by Mr. Babbage) Sir R. calls "constants." Throughout Russia in Europe, the crust of the earth being unbroken, and no igneous rocks having protruded, the strata are little solidified, and are everywhere devoid of metallic ores; but in the Ural Mountains the same old deposits, Silurian, Devonian, and carboniferous, being penetrated by eruptive matter, are metamorphosed, crystallized, veined, and in a highly metalliferous state, particularly on their eastern flank, where eruptive rocks most abound, including syenitic granite, porphyry, greenstone, serpentine, &c. It was next shown, that *gold occurs in quantity only in the upper part of veinstones;* and that when the latter are worked downwards, they become gradually much less auriferous, in which respect they differ essentially from argentiferous and all other metalliferous veins. This more or less superficial development of gold, the peculiar qualities of the metal itself, and of the hard quartz veins in which it is chiefly distributed, explain why the greater portion of gold is and must be found in those loose materials of gravel, shingle and sand, which cover the surface of the earth, and have resulted from *the grinding down of the tops of former mountains.* Besides positive proofs derived from shafts sunk into the solid rock, the diminution of gold in the deeper parts of the veinstones was also inferred from the fact, that all the great lumps or "petites" of the metal have alone been found in loose gravel or sand, and never in the solid rock. A drawing of the enormous specimen, weighing 96 lbs. troy, now in the museum at St. Petersburgh, was exhibited. This huge mass was found loose in the bottom of a gravel pit lying on the surface of the rock. This auriferous gravel is in no way to be confounded with detritus formed by present atmospheric action, but is the result of ancient powerful abrasion of the surface of the rocks, particularly when mammoths and other great extinct animals were destroyed. This view was familiarly illustrated by stating that, if instead of being composed of chalk and flints, the Hertfordshire and Surrey hills had been crystalline, palæozoic, and eruptive rocks, the gravel of Hampstead and Hyde Park would be the gold-finding ground of the metropolis, whilst the Thames and its mud would only be auriferous where the river derived small portions of gold from its ancient banks. The vast preponderance of gold detritus in the northern hemisphere, and the large proportion of it in Siberia, leads to the surmise that with the persistence of the same rocks into Russian America the same results might be expected to follow; but as in Asia and in other countries, in special and limited tracts only. In stating that the same geological conditions prevailed in the Rocky Mountains, and other parallels throughout North and South America, Sir Roderick explained how closely the Sierra Nevada of California agreed in mineral structure with the auriferous rocks of Siberia, and how, as far as the new El Dorado had been laid open, the auriferous detritus on the upper affluents of the Sacramento had proved richer than any similarly constituted tract; but he especially cautioned his auditors against the popular delusion, that all the surrounding region throughout several degrees of latitude and longitude was likely to prove equally productive.

A striking illustration of the law, that gold veins prove less and less auriferous downward, is seen in the mine of Guadalupey Calno, at Mexico, where veinstones, at first productive in gold, gradually became poorer, and in the deep shafts were exclusively argentiferous. Such, indeed, had been the loss attending deep gold-mining, that it had passed into a proverb with the Spaniards. On the other hand, the aurif-

erous gravel and sand of the Brazils and Chile have long afforded good and profitable results. In alluding to our colonies, Sir Roderick adverted to his own opinion, as publicly expressed some years ago, that, considering the nature of the rocks composing the framework of Australia, as described by Count Strzelecki, gold would be found to prevail in certain portions of that great continent. Such has proved to be the case, and Sir Roderick has received specimens of the metal in quartz rock, from the Blue Mountain, north of Sydney. In the ridges north of Adelaide, where so much fine copper has been worked out, gold also has recently been pretty plentifully discovered in the detritus and gravel, over upwards of 300 square miles, particularly by Mr. John Phillips, an enterprising Cornish miner.

The statistical portion of this vast subject was incidentally touched upon. It was stated as a very general rule in mining, that the richer a vein is, the less is it likely that the ore will be diffused throughout a large mass of rock; and this was assigned as another reason for the inference, that in California, as in other parts of America, the great per centage of gold will be confined to a few spots only. Russia had of late years exceeded three millions and a half sterling per annum, which was more than the half of the whole produce of the world. As even this great Siberian increase, which came so suddenly upon us a few years ago, has produced no sensible change in the relative value of gold; so it was inferred that the extra production of a peculiarly rich spot or two of gold *surface-stuff* in North America, valuable as it now really is, was not at all likely to interfere with standards of value fixed after the experience of so many ages; for the shower of gold found at particular spots upon the surface must all be exhausted in a given and probably no distant time; whilst silver mines in the solid rock would seem to have scarcely any known limits to their productive capacity when the superior science of man becomes fully applied to them.

In conclusion, Sir Roderick repeated that it is essentially from the broken materials of the tops of the older and crystalline rocks of both the Old and New World that *all great quantities of gold* have been derived; and he specially adverted to the vast difficulties which man would have to encounter in the extraction and separation of the precious metal, if it had not been providentially spread out for his use in great heaps, resulting from powerful attrition under water in former ages.

Specimens of gold ore from various parts of the world were exhibited, including many from California, among which was a fine lump with quartz rock, acquired by the Right Hon. Edward Ellice about thirty years ago. The illustrative specimens furnished for the occasion by Mr. Tendant were also commented on.

In the preceding interesting article "On the Distribution of Gold," by Sir Roderick I. Murchison, the statement appears, that "*gold occurs in quantity only in the upper part of the veinstones*, &c.," and then adds, "Besides positive proofs derived from shafts sunk into the solid rock, the diminution of gold in the deeper part of the veinstones was also inferred from the fact, that all the great lumps or 'petites' of the metal have alone been found in loose gravel or sand, and never in the solid rock." This assertion, we think, we have every reason to consider as unjustifiable, and rather premature in its nature, particularly when applied to the gold-mining regions of this country, as some of the largest masses of the pure metal have repeatedly been discovered in the quartz veins of North Carolina and its neighboring States.

Prof. Eights, in his articles on the geology, &c., of that State, published in the preceding numbers of this journal, appears to consider, what seemingly denotes the gradual disappearance of the gold in the descent of a vein, as only apparent, and deceptive in the highest degree; and likewise gives us a full, and, we should think, sensible explanation of the supposed phenomenon as it occurs. (April No., p. 272.) And it also will be seen by the following extract, that Professors Rogers and Johnson would confirm most of the statements brought forth in his illustrations.

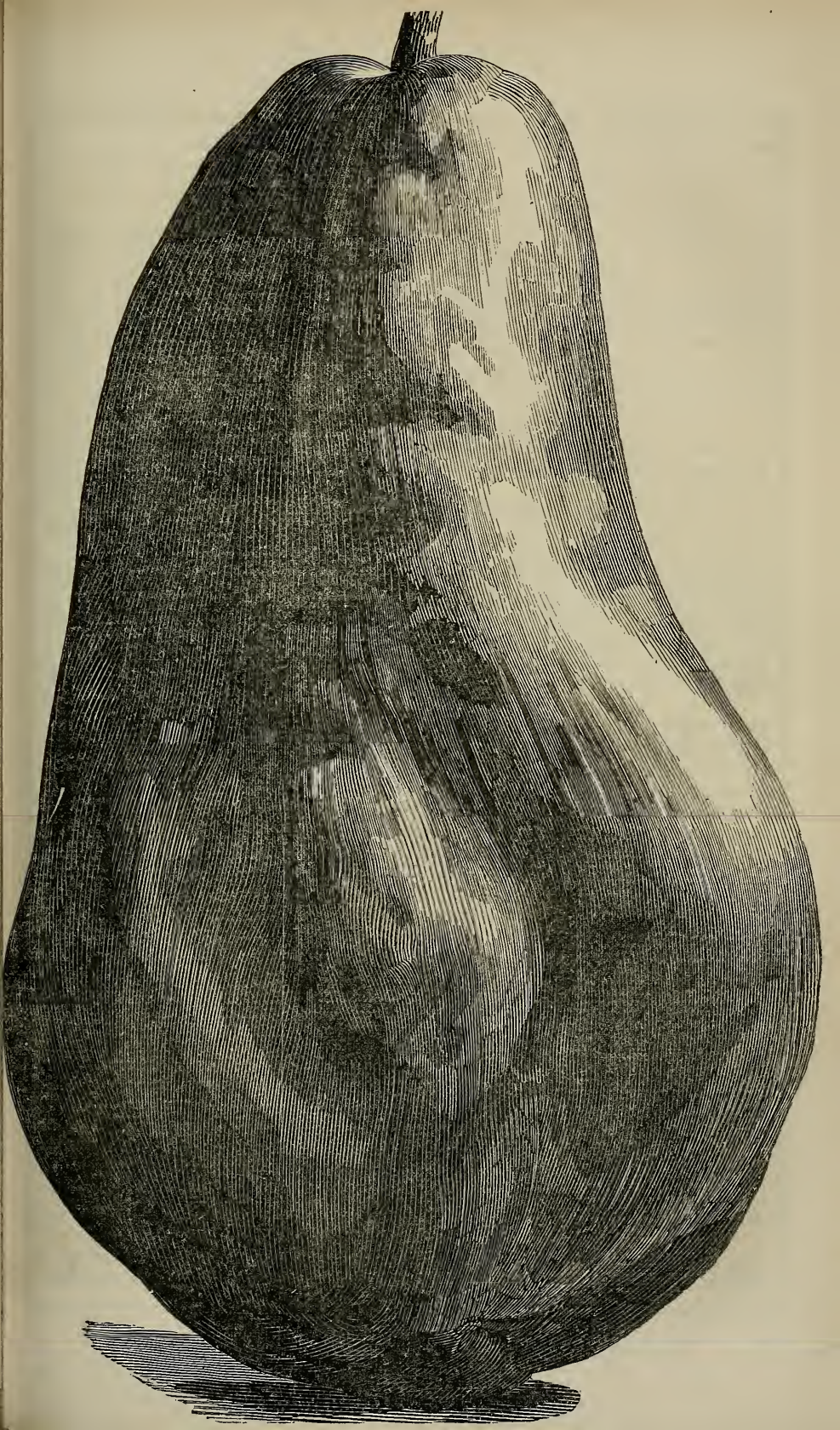
At the late meeting of the American Association for the Advancement of Science, the following statement, made by Professors Rogers and Johnson, has its value from its practical importance. They took occasion to call attention to the fact, that the anticipations excited by the discovery of gold on the surface are seldom fully realized. At the surface, meteoric influences have, in most cases, been at work, and have effected such a decomposition and segregation that there the gold is easily obtained; but as we proceed lower down, beyond the influence of the air, we find the gold so closely connected with other minerals, that its separation is a very difficult process, only effected after much expense and labor. In explanation of these views, it was stated that at Gold Hill the toll at the mill for grinding is, for surface ore, 20 cents, for that obtained lower down, 30 cents the bushel. It is found, however, that if, after the ore has once been operated on, and all the gold possible extracted, it is exposed for a few months to atmospheric influences, you can obtain as much gold from a bushel of ore as at first.

As so little has been written, and so few facts developed, in any of our scientific publications on the diminishment of gold in the descent of a vein, we shall consider ourselves extremely well pleased to have the opinion of some of our practical and and experienced geologists on the subject.—E. of the *M. and S. Magazine.*

THE POUND PEAR.

WE present upon the opposite page an engraving of a specimen of the Pound Pear or Winter Bell, the product of the garden of Mr. Beard, San Jose. This though called the pound pear, very frequently weighs two pounds and over; the specimen here figured, weighed two and three quarter pounds and was one of five, all nearly as large upon a three year old tree. This pear is not a dessert fruit, and unless baked or preserved is valuless for eating; but its large size, uniform productiveness and fairness, being almost free from imperfection in growth, and its excellent qualities as a fruit for preserving late in the season, keeping in good condition often as late as March with us, and till May at the East, render it decidedly one of the most marketable pears grown. Color yellowish green, sometimes with a light russet cheek inclining to red, with russet dots over its whole surface. Stem two inches or more in length, and which we had not room for upon our page. Calyx set in a shallow basin, fruit pyriform, swelling towards the crown, gradually narrowing towards, and terminating abruptly at the stem. The tree producing this quality is one of the most hardy and free from disease of any cultivated; grows with strong upright shoots, bark dark colored. We are indebted to Messrs. Hutchings & Rosenfield, proprietors of the California Magazine, for the loan of the engraving.

GOV. WISE ON HORSE RACING.—Gov. Wise of Virginia, regretfully declined to attend the great Horse Show at Springfield. In his letter he says:—"It has been said that nothing else than horse-racing will improve and keep up the breed of fine blooded stock. I am not willing to believe any such thing. Improved agriculture and the wealth it produces will in my opinion, do far more for the horse than ever the turf did. Race-tracks, with a fashion for the sport of racing among the leading proprietors of a people, will impoverish them and dwindle the horse to a pony."



AMERICAN POMOLOGICAL SOCIETY.

THE following abstract of the proceedings of this Society, we derive from the *Genesee Farmer and American Farmers' Magazine*, for October:

The Seventh Biennial Meeting of the American Pomological Society was held in New York, September 14, 15, 16, and 17. There was a large attendance from the Eastern States, from Pennsylvania and New York; but the Western States were poorly represented.

The exhibition of fruit was good, but there was but one collection from the West, that of Mr. LYON, of Plymouth, Michigan.

The following officers were elected for the ensuing two years:

President—HON. M. P. WILDER, Boston, Mass.; *Vice Presidents*—One from each State and Territory; *Secretary*—T. W. FIELD, Brooklyn, N. Y.; *Treasurer*—THOMAS P. JAMES, Philadelphia, Pa.

The following extracts from the President's address give a pretty good idea of this Society:

"GENTLEMEN: I rise to announce the opening of the seventh session of our National Association, and to perform a service which its Constitution devolves upon your presiding officer. Ten years have completed their course since the organization of the American Pomological Society, in this commercial emporium. Some who were active in its formation, have fulfilled their earthly mission and now rest from their labors. Downing and others have passed away; but their names are still fragrant in our memories; and their works still live. May they live forever to enlighten and bless their fellow-men.

"The representative arts of ancient Egypt contain delineations of delicious fruits, afterward cultivated in the hanging gardens of Nineveh, the interval lands of Babylon, in the vales and on the mountains round about Jerusalem. In Greece, Homer sung of the cultivation of fruit trees; Xenophon, Cato and Virgil mention, among other varieties of fruit, the pear; and Pliny, in enumerating the fruits cultivated at Rome, mentions twenty-two sorts of the apple, eight kinds of the cherry, more than thirty kinds of pears, a large number of plums and grapes, to which the soil of Italy was then and is still specially adapted. He also speaks of several other kinds of fruits, and of the perfection which the art has attained in his period; but it is a significant comment on that perfection when he adds that it was then a long time since the production of any new variety.

"Since the organization of this society in 1848, its example has been followed by the establishment of the British Pomological Society, in London; Société Pomologié de Belge, in Brussels; and of other similar organizations, located at almost every point of our Union — all working in harmony for the attainment of the most reliable and important results. These aggregating the experience of the wisest and best cultivators, creating a taste for this useful and divinely-appointed art, proving what varieties are suited to each particular locality, and what to general cultivation. These, through the influence of the Horticultural and Agricultural press, are introducting fruit culture from the Canadas to Mexico, and from the Atlantic to the Pacific, bringing its numberless enjoyments within the means of the most humble cottager, and multiplying the luxuries which crown the tables of the opulent. The large, luxurious and abundant fruits in the State of California, in the Territories of Oregon and Washington, already rival, and in many instances surpass those of our older States, indeed, of the countries of Europe.

"The transactions of our last session have been published generally by the periodical press of the United States. They were also translated and published in some

of the languages of Europe; and your catalogue has already become a standard in American Pomology. This it should be your object, at each biennial session, to revise, perfect and promulgate, as the best means of preventing those numerous impositions and frauds which, we regret to say, have been practiced upon our fellow-citizens by adventurous speculators or ignorant and unscrupulous vendors, who sometimes use recommendations, hastily and injudiciously given, or surreptitiously obtained, greatly to the injury of the purchaser and fruit-grower, to the dealer and the nurseryman, and to the cause of pomology."

The usual discussions in relation to varieties of fruit occupied most of the time. The following varieties were added to the list for general cultivation:

Apples.—Autumn Bough, Broadwell, Carolina June, Coggswell, Fallawater or Falwalder, Jonathan, Monmouth Pippin, Smith's Cider, and Wagener.

Pears.—Brandywine, Beurré Clairgeau, Beurré Giffard, Beurré Superfin, Cabot, Doyenné d'Alençon, Kingsessing, Onondaga, Osband's Summer, and St. Michael Archangel.

Pears on the Quince Stock.—Belle Epine Dumas, Buffum, Beurré Superfin, and Doyenné d'Alençon.

Grapes.—Delaware and Concord.

Raspberries.—Brincklé's Orange.

Strawberries.—Hooker, Longworth's Prolific, and Wilson's Albany.

Currants.—Cherry and Versailles.

The following were added to the list of new varieties which promise well:

Apples.—Buckingham, Prior's Red, White Winter Pearmain, and Willis Sweeting.

Pears.—Bergen, Beurré gris d'Hiver Nouveau, Henkel, Hull, Merriam, Pinneo, and Sterling.

Peaches.—Carpenter's White and China Cling.

Grapes.—Hartford Prolific, Herbemont, Logan, and Union Village.

One of the evening sessions was spent in an informal discussion of the cultivation of the pear. The question was asked, whether any member present had ever known an instance where dwarf pears, of the right kind, on proper soil, had proved a failure when properly cultivated. H. E. Hooker asked whether it was intended to include failures from diseases. The President replied, in substance, that such cases were excluded under the head of proper kinds,—in other words, if a tree is attacked by disease, it is not a proper variety for cultivation. No other remarks were made, and it was taken for granted that no person present knew a single case of failure, and so recorded in the Society's Transactions. This seemed to us rather a summary way of disposing of the question.

In regard to mulching, it was the opionion of several successful cultivators present, that, except perhaps the first year after planting, it was not advisable to mulch pear trees, as the mulch harbored mice and other vermin.

Our space forbids further allusion to this meeting the present month. We have room only for a few extracts from the able and eloquent address of President Wilder. We give those portions which are of immediate interest to cultivators. The main question considered was one which has already elicited much discussion—"*Can pears be grown for the market at a profit?*"

After alluding to the discussion in the public journals, he proceeded to say:—

"It is obvious that a similar question may be raised in regard to any other branch of terraculture. Where one cultivator succeeds, another fails. Why? Not because Providence does not fulfill the Divine promise, 'that seed time and harvest shall not fail,' but because in instances of failure the conditions of success are not complied with. Perhaps there was a want of intelligence, or judicious cultivation, or of that

vigilance which takes hold of an enterprise with a determination to surmount all obstacles, and to 'hold on.'"

"The cultivator should not wait idly for nature to work out what God intended him to perform. He should learn to work in harmony with nature. He should plant trees with a proper regard to soil, sorts, and the arts of judicious cultivation, and should never leave them, as is often the case, to a fatal predestination, believing they were foreordained to take care of themselves. He should not be discouraged by a single failure, but should persevere.

"We do not deny that vicissitudes attend the cultivation of fruit trees, as well as forest trees, and other vegetable products. How often a severe winter proves injurious to the peaches of the north, to the oranges of the south. Within the knowledge of many present, our hardiest varieties of the apple, as well as the pear, have been injured by sudden revulsions of climate."

"Without detracting from the merit of any American pomologist, it is our firm persuasion that the failures which have occurred in pear growing, whether on the quince or its own stock, are attributable to improper soil and varieties, to injudicious treatment, or to neglect of cultivation."

"Some varieties are constitutionally delicate and feeble; and, of course, more subject than others to climatic influences. They may be of exquisite flavor, but are not well adapted to general cultivation. These would only be grown by amateurs in favorable positions. Others are robust, vigorous, hardy, as the oak, resisting the extremes of cold and heat, of tempest and storm, retaining their luxuriant and persistent foliage to the end of the season."

"Another cause of failure in the growth of the pear tree, has been a competition for increasing the number of varieties, rather than a satisfaction with a few of known worth and excellence. Within the last twenty-five years, this passion has led to large importations of trees from foreign countries, of the characteristics and habits of which we have not had sufficient knowledge. During this period, many of those on our list for *general cultivation* have been obtained; but to secure these, and satisfy ourselves of their excellence, we have been obliged to grow a multitude of kinds, which have proved inferior and worthless."

"The diseases of the pear, like those of most other fruits, result from definable causes. For many of these, we have already acquired sufficient knowledge to apply the appropriate remedies; and it is to be hoped, with the progress of science, we shall ere long be able to prevent even the blight — that fearful destroyer of this tree in some localities.

"Much has been said against the longevity of the pear tree; particularly when grafted on the quince. In reference to the latter point, I need only re-affirm the sentiments contained in my last address, and subsequently corroborated by the most distinguished cultivators. One of these remarks, 'My best trees are on the quince stock, and our profits in fruit raising are from the same source.'"

"The attempts to write down the pear upon the quince stock, are examples among a thousand others in the literature of gardening, to assail some of the soundest principles of physiological science and practical art."

"Of the longevity of the pear upon its own stock, there can be no doubt. In favorable circumstances, the pear outlives most other fruit bearing trees. Witness the old pear trees on the bleak and rock-bound coast of Puritan New England; on the site of the old Dutch Colony; at the mouth and along the banks of the Hudson; in the territory of the ancient French Colony about Detroit, and in other places too numerous to be named."

Profit of Pear Culture.—"But the immediate question under consideration is, 'Can pears be grown at a profit?' We advocate the affirmative, premising that

the conditions of success to which we have already referred must be complied with. This question has been satisfactorily answered by pomologists, some of whom I am happy to recognize in this assembly, yet the responsive facts and arguments deserve to be embodied and published under the sanction of this National Assembly. To a record of these as collated from various authors, so far as they are confirmed by personal observation and experience, I now invite your attention:

"The Fruit Growers' Society of Western New York, furnishes the following instances from that section of the State:

"Three White Doyenne Pear trees, owned by Mr. Phinney, of Canandaigua, one of them small, produce annually fifty to sixty dollars worth of fine fruit.

"A tree of the same variety, owned by Judge Howell, of same place, seventy years of age, has not failed a good crop for forty years, averaging, for the last twenty years, twenty bushels annually, and sold on the tree at sixty dollars per year.

"Three large trees owned by Judge Taylor, of same kind, yielded in 1845, eleven barrels, and sold for one hundred and thirty-seven dollars.

"A young orchard, owned by Mr. Chapin, of four hundred trees, eight years from planting, which produced, in 1853, fifteen barrels, selling in New York for four hundred and fifty dollars, and, in 1854, fifty barrels, yielding him one thousand dollars.

"Similar results have been realized in the State of Massachusetts.

"William Bacon, of Roxbury, has about one acre devoted to the pear. The oldest trees were planted eighteen years since, but more than half within a few years. From two trees, the Dix and Beurré Diel, he has realized more than one hundred dollars a year, and for the whole crop, over one thousand dollars a year.

"John Gordon, of Brighton, has three and one-fourth acres in his pear orchard. There are twelve hundred trees, planted in various years, more than one-half of which since 1854. The amount receivrd for his crop from that date to the present, has been from five to six hundred dollars a year, but he remarks, 'If I had confined myself to a judicious selection of varieties, it would now bring me two thousand dollars per year.'

"Wm. R. Austin, of Dorchester, has an orchard of between five and six hundred pear trees, mostly on the quince root. These trees are about twelve years of age. One hundred are Louise Bonne de Jerseys. They are very healthy, and only eight of the whole number have died since the orchard was commenced. No account of the crops were kept until the year 1851, but Mr. Austin's sales for the next six years amounted to three thousand four hundred and eight dollars.

"The Messrs. Hovey, of Cambridge, have a very large collection of bearing trees. From two rows, two hundred and ten trees, grafted on quince, the crop has amounted, some years, to twenty-five barrels.

"John Henshaw, of Cambridge, planted about an acre, principally on the quince. On the fifth year thereafter, he gathered one hundred and twenty bushels of pears, seventy bushels of which he sold at five to six dollars per bushel.

"A Buffum pear tree at Worcester, belonging to Mr. Marle, yields annually from thirty to forty dollars worth of pears. Mr. Pond, of the same city, planted in 1850, three hundred and fifty Bartlett pear trees, one year old from the bud. In 1857, he sold from these trees, fifty bushels of pears, at five dollars per bushel, or two hundred and fifty dollars for the crop.

"Such facts are conclusive, and ought to rectify the false theories which have been advanced on this subject. But it may be objected, that these are instances of success devolved by accidental adaptations of kinds, of soil or climate; that such results are counter facts sufficient to sustain the opinion that pears cannot be made a reliable and profitable crop.

"While I distinctly recognize here as in every other branch of terraculture, what

are called occasional revulsions of nature, resulting from sudden alternations of temperature and other causes, yet I desire publicly to record as the result of long observation and experience, that I have never known an instance of failure, which on examination was not attributable to an improper selection of varieties, or to injudicious cultivation. In harmony with this judgment it is believed to be the sentiment of the best pomologists in this country. Therefore I am constrained to regard success as the general law of cultivation in this, as in every other department of this science; as truly with the pear as with the apple.

"What if we have instanced but a few cases, and named but a few varieties? They illustrate our argument. If the Bartlett in Massachusetts, the Buffum in Rhode Island, and sorts equally successful in other States, have not failed of an annual crop from twenty-five to fifty years, surely the product of the pear is not only as reliable as any other crop, but even more so. To these and other approved sorts which we now possess, we are constantly making additions by hybridization and other arts. What if at this time there are but a limited number of such varieties; enterprise and experience are rapidly multiplying them, and it is the particular province of this Society to dispense them through our land.

"What if pomology, as a science, is comparatively of recent date; what if our knowledge of vegetable physiology generally is very limited? What if the various sorts of fruit trees do require different systems of pruning and cultivation, facts now generally conceded by experienced men? The laws which govern such treatment, and which, with the ordinary exceptions, insure a crop, are as certain as any other scientific principles. Our mission is to investigate these laws, to settle the characteristics of each variety; to ascertain what soil is best adapted for supplying its appropriate food; to learn how and when it should be pruned, and to discover the best method of cultivation."

CULTURE AND VALUE OF ALFALFA.

THE Alfalfa or Chile clover is rapidly gaining favor with the California stock grower, as a valuable grazing plant. Farmers, unless they read and read a great deal, are usually slow to adopt any thing that looks like innovation upon their mode of cultivating the ordinary farm products, or the introduction of new ones, however well they may appear adapted to soil, climate or usefulness as an auxiliary or staple crop; but in California, where the want of summer herbage sufficient for stock is often severely felt, men seem more inclined to lend an ear to the discussion of the merits of any product likely to supply them with the great desideratum.

We have already, in a previous number, borne testimony to the value of alfalfa for grazing and haying purposes, and shall continue to give such hints from time to time, upon its value, mode of grazing and harvesting, as shall appear to us likely to interest our farmer readers. In the meantime we copy an excellent article upon the subject from the San Andreas *Independent:*

It is particularly desirable that our California farmers should turn their wits to the cultivation of grasses more reliable as summer and fall pasturage for cattle than the wild growth of the plains and mountains. When the seasons chance to be very favorable to the wild growth, stock does well enough; but if there is a lack of the late rains in the spring, and early ones in the fall, the flocks and herds languish and die, from San Diego to the Clear Lake settlements. This drouth has been the standing

complaint of stock-raisers since the year 1853; and we may now regard it as a fixed fact that the winters and falls of '49 and '53 were not the *rule* but the exception to our climate. Generally the first substantial rains fall in the month of December, and the dry season sets in in the month of May. Now, as long as there were but a few wild native herds roaming over the wild plains, or nipping the luxuriant pastures that here and there, in favored spots, show perpetual verdure in the valleys, there was no necessity for artificial resorts to maintain the stock of the country. That day, however, is past. Cattle are no longer bred for the profits accruing from hides and horns. We must husband our stock, and search out our best means to promote a rapid increase. The vast numbers that everywhere on the plains are grazed and bred, keep the old pasture grounds in a constant state of sterility. The mountains — for cattle and horses — are but a little better, from August to December. A friend from the San Joaquin valley informs us that many of his stock-raising neighbors, despairing, this summer, of having the requisite amount of wild grasses in their ranges to sustain their numerous herds, drove them over into the region of country north of the Sacramento river, and along the eastern slope of the Coast Range. They were disappointed. The grazing was only seemingly good, and resulted in a permanent injury to their stock. The perpetual fogs which envelope that section during the fall and late in the summer months, rot the grass and leave no substance in it for nourishment. He says most of those who experimented in this way have returned to the San Joaquin with their cattle decimated and damaged. He informed us that last year he procured enough alfalfa seed to sow five acres of his land — land that is subject to the most extreme drouth — and that it yielded him a larger quantity of hay to the acre than anything else he could have sown; that his cattle are extremely fond of it; and that it preserves their flesh and yields two crops in a season. He is now preparing to sow down some twenty acres or more, and from the success of his experiments, many of his neighbors have determined to cultivate it.

The alfalfa is indigenous to a warm, dry climate — we believe a native of Chile or Peru, where it never rains. Its roots penetrate to an immense depth in the earth, searching instinctively for that moisture which is necessary to preserve its verdure. A root of this plant was exhibited, not long since, which measured *sixteen feet*, and ran into the earth perpendicularly. There are few spots either in the San Joaquin, Calaveras, Mokelumne, or Sacramento valleys, where such a species of grass would not succeed well, for, at the depth of four or five feet, in any sandy formation, moisture is invariably obtained in our valleys. As to the mountains, a few experiments would perhaps show it equally well adapted to successful culture there. The ranches there are, for the most part, situated in small valleys or on bottoms composed of alluvium, or pure sand, which retain perpetual moisture two feet below the surface. On the hills it would, perhaps, never succeed very generally. Experiments, however, may be tried by bottom-land farmers next February and March.

It has been already extensively tried upon bottom-lands or alluviums, along our rivers, and succeeds admirably; as many as three heavy crops to the season have been obtained from the same field. We instance the success of Mr. John Brophy, of Brophy's Ranch, near Marysville. Specimens of his culture, both of the green and dried plant, were on exhibition at the late State Fair, and elicited a great deal of interest and attention from stock growers. The alfalfa is undoubtedly an acquisition of great value to California, and farmers would do well to give it a trial. The seed should be sown in winter or early spring, as you would sow clover seed.— Ed. Cul.

EFFECTS OF ELECTRICITY UPON VEGETATION.

Editor Culturist:—For many months, extending even to years, have I noticed what I believe to be electrical currents pervading most objects in an upright position connected with the earth, including vegetation, from the tallest forest tree, down to the upright blade of grass. I am no electrician, and therefore cannot give even a reason for the strange phenomena I have often witnessed. I only know the effects produced, without being able to give a solution, or point to the cause unless it be electrical.

I have noticed that most climbing vines, that cling by winding around some object in their ascent, have a much stronger preference for some supporters than others; thus with the bean, if two poles, the one dry and the other newly cut or green, be both placed in the same hill, the beans will always prefer the green pole, ascending it faster and clinging more closely to it than to the dry one; but coil a small wire around the dry pole from the bottom to the top, and the beans will leave the green pole and take to the dry one.

It is difficult for me to account for this preference upon any other principle than that there are electrical currents of stronger or lesser force traversing the poles in one or both directions, that have their influence upon the ascending vine. If you or any of the readers of the *Culturist*, have ever witnessed this preference of running vines to a particular kind of supporter, and can account for it upon any other principle than the power of electrical currents, I should be pleased to see their views upon the subject expressed in the pages of the *Culturist*.

ELECTRIC.

SACRAMENTO, Nov. 6.

That electricity pervades nearly every substance in nature to a greater or less degree, hardly needs an attempt at confirmation, and that it is disposed to, or can be made to operate in currents of greater or less intensity along natural as well as artificial conductors, is clearly demonstrable; but how far this current may effect the growth of plants and trees, may not as yet be, and probably is not fully understood. That fruit upon a tree can be hastened to maturity by applying a galvanic current to the limb, has been long known, and we have eaten of fruit thus hastened, two weeks before the remaining fruit upon the same tree ripened by the natural process; but how far, by the regular operations of natural currents, fruits are effected in their seasons of ripening, remains to be proven.

We have always believed that electricity was playing an important part in the production of the anomalous vegetable growth and productions of California. Electrical phenomena are always observable, and if not generated by, are ever prevalent in those sections of the earth's surface most exposed to the influences of a strong unobstructed solar light. It has frequently been observed by those whose pursuits led them carefully to note the habit of growth of fruit trees and flowers under a California sun, the apparent natural tendency of everything to lift skyward, or run upward, far more than attaches to the same variety of product grown at the East. We have

always believed this to be the effect of our powerful solar light, coupled with a direct electrical agency.

Were we to judge of the amount of electricity surrounding us by the meager show presented in our thunder storms, we might almost conclude that we were in a country void of it altogether, for hardly during a twelve month are we once greeted with the music of thunder. Still the air is highly charged with electricity, but as there are no clouds, no battery can be formed either to transmit it in quantity to the earth in the form of lightning, or bear it away to more distant portions of the earth's surface. As a consequence, an excess of the fluid generated from whatever cause, in our atmosphere, is transmitted to, and taken in by whatever is presented airward, the best conductors absorbing most, the poorer, less; but all, every thing that presents a point upward to the atmosphere imbibes its due proportion, depending upon its conducting power and position.

We believe, therefore, that electrical currents are formed, that acting upon the organism of plants, stimulate them to unusual and even what would be termed an unnatural growth, in any country not provided with an unusual share of the earth's electricity. We may be asked for proof of an electrical current in vegetable growth; we may not be able to prove it; but we will give instances and peculiarities of growth, that we find difficult to ascribe to any other agency. Thus in conversing with an intelligent cultivator of the hop a few days since, on asking him what poles were best for hops to run upon, he answered "green ones of any kind of wood"; but that he had found they preferred green willow to redwood, "because *more electrical.*" He further stated that, if after hops had made a fair beginning towards an ascent upon a dry pole, a green willow was stuck down near it or within two feet, the hops would at once cease their ascent of the dry pole and reach off towards the green one, and on reaching it ascend it. This we attribute to no intelligence on the part of the plant, other than it is affected by an electrical current passing along the green pole superior to that of the dry, because a better conductor.

He further stated that he was actually troubled with this disposition of the hop to be affected by strongly electrical weeds, which was an inducement to good cultivation; that a species of wild flax, though growing only about two feet high, if it starts up near a hop vine that has already made considerable advance up a dry pole, the hop will actually unwind to some extent, come down, and reaching to the flax plant, run up to its top, though not attaining the height it had before it left the dry pole. Now if it is not an electrical current that thus controls the hop, or affects it, what is it? And may not these currents have an effect, and perhaps deleterious, upon other plants or trees surrounded by weeds, beyond the mere fact of exhaustion of the fertility and moisture of the soil by the growth of the weeds? We would be pleased to hear further from "Electric," upon the subject he has introduced.

THERE is a chestnut indigenous to California, sweet and delicious, growing on low bushes upon the middle plateaus of the Sierras.

HOP GROWING IN CALIFORNIA.

THERE is a great deal of lager, ale and porter manufactured in California, and will be until superseded by native wines. In the manufacture of the former, there is, or ought to be used a large quantity of hops. Strychnine will impart to malt liquors the bitter principle; but it is not considered a healthy substitute by those who judge of its effects in half grain doses upon the smaller animals. California produces the finest barley in the world, and in immense quantities beyond the wants of the brewer; but hops are not yet thus produced, and large quantities are annually imported to supply the demand.

If the soil and climate of our State are favorable to the production of the hop, it is one of those products that should receive early attention, because the demand will be continuous, and the price per pound for good hops is so much above that of the imported article, that there can be no doubt in reference to its being a highly remunerative crop, for no climate — apart from its effects upon the soil — can possibly be better for the harvesting of any crop that can be produced than is the climate of the greater part of California. But there is no necessity for speculating upon suppositions in reference to the growth of the hop here, its quality or the price it brings in our markets. The experiment has been tried and specimens of the product were on exhibition at the California Horticultural Society's late Fair, that exceeded in quality any we ever saw before, and were awarded the Society's highest premium.

In proof of their quality and consequent value, we instance a small lot of two hundred pounds grown from young roots set out last March, the grower, Mr. A. Bushnell, of Green valley, Bodega; for this lot Mr. B. obtained one dollar a pound, and could have taken the same price for a larger quantity. Here is something quite equal to tea growing, without any of the uncertainties as regards successful propagation, and bringing more by the pound than a great deal of the tea imported.

Mr. Bushnell's experiment with the crop is an entire success; he has now three acres only, but will enlarge his hop grounds from year to year; and who would not, with hops at one dollar a pound? and the consumption annually increasing. We have obtained a few facts from Mr. B. from personal interview, in reference to what his experience would suggest touching the proper cultivation of the hop in our soil and climate. Good corn land will grow hops; he plants in rows eight feet apart, and the same distance in the rows; puts two poles to each hill inclining them outward so that the hops may not run together and become entangled; plants his new grounds with roots from old hills in March, but thinks it might be done earlier with advantage. Has used poles of all lengths between twelve and twenty-five feet, and finds his hops go to the top of them; but that a sixteen feet pole is the best height to begin with, as the hop produces better than on a higher one; likes to have the vines reach the end of the pole and then hang off, as they fruit better; uses redwood poles; cultivates the ground as he would for corn by keeping down the weeds.

The hop ripens about the first of September; crop is gathered by cutting of the vines at bottom and lifting the poles out of the ground. The drying and curing re-

quires close, constant attention, but is not hard labor; yield per acre one tun or more, at one dollar a pound is $2,000; at fifty cents a pound $1,000; nearly or quite equal to tea, coffee or wine growing per acre. Now put the hops down to the very low figure of twenty-five cents a pound, and the income foots $500 per acre; thus a farmer with ten acres of hops will be very likely to be estimating his probable profits at about $300 per acre — if he does most of his own work — or $3,000 per annum. Even this would be deemed a fair income from ten acres of farm lands in any other country than California.

JOHN JOHNSTON'S WHEAT CROP—SALT AS A MANURE.—Probably there is no farmer in Western New York who has his land in a higher state of cultivation than John Johnston, of Seneca county. He has thoroughly underdrained every part of his farm. He grows great crops of clover, and feeds it out in his barn-yards to sheep and cattle. Though he has raised some years as much as 3,000 bushels of corn, he has never sold a bushel off the farm. He has for many years purchased large quantities of oil-cake, which, together with the corn, clover, straw, etc., are fed to cattle and sheep, thus making a large quantity of rich manure. The result is that he has always had good crops of wheat, and has made himself rich by farming. True, he has suffered somewhat from the midge, but nothing in comparison to his neighbors. Two years ago, one field of 25 acres produced 841 1-2 bushels of good *Soules* wheat, or over 33 1-2 bushels per acre. The same field is in wheat (*Soules*) again the present season, and we had the pleasure of examining it the second week in July.

To grow wheat every other year, is running the land pretty hard, and the crop on a portion of the field the present season indicates that the unaided soil will not bear such heavy cropping. Eleven acres were sown without any manure, and fourteen acres were dressed with one barrel of salt (280 lbs.) per acre. Otherwise, the conditions were precisely the same,—the same previous crops and tillage, the same seed, and sown at the same time. The line of demarkation between the salted and unsalted portions is very distinct throughout the whole length of the field. On the eleven acres without salt, the crop is an unusually good one for this season; there is perhaps straw enough for 30 bushels per acre, but it is considerably affected by the midge, and will not yield probably more than 20 bushels per acre. On the fourteen acres where salt was sown, the straw is heavier, stiffer, and brighter, and the heads larger. It is, too, some *four or five days earlier*, and is nearly free from midge. It ripened too soon for them. The insects attacked it, and we found a few of the larvœ under the chaff on the *outside of the grain*, but they have done very little damage. We agree with Mr. Johnston in estimating the yield at full 30 bushels per acre,—probably it will be as great as it was on the same land two years ago, or nearly *thirty-four bushels per acre.*

Mr. Johnston has used salt occasionally on his wheat for twenty years, and always found it to promote the growth and *early maturity* of the crop;—he thinks the salted wheat is four or five days earlier. He sows the salt at the time of seeding. This year he intends to sow 400 lbs. per acre. He thinks it would be better to sow it on the fallows in the early part of summer;—the more intimately it can be mixed with the soil, the better.

This fact in regard to the beneficial effect of salt, is an exceedingly interesting one, both in a particular and scientific point of view. Salt contains two elements which enter into the composition of all our cultivated plants; but we think its action, in

this instance, at least, is not to be ascribed to its supplying these elements; they are seldom deficient in soils. If we adopt Prof. Way's hypothesis in regard to the form in which wheat and other cerealia take up the silicia required to stiffen their straw,—viz: as a double silicate of alumina and ammonia—we have at once an explanation of the fact; for this double silicate is much more soluble in water containing salt than in pure rain water. In other words, a dressing of salt would be equivalent to a dressing of ammonia, which is known to have such a beneficial effect on wheat, not only promoting its growth, but increasing its early maturity.—*Genesee Farmer.*

THE VINE IN AUSTRALIA.

SIR:—Many enquiries regarding the cultivation of the vine in this part of the country, the Gawler Plains, having been made to me lately, I deem it the simplest way of giving an answer to all by using your valuable paper. I therefore request you to publish the following lines:

As your readers are doubtless acquainted with the views propounded by Dr. Kelly in the highly interesting letters of that gentleman recently published by you, I beg leave to say that I had much pleasure in reading them, inasmuch as I found my own ideas, obtained through long experience, confirmed by the Doctor, who I believe to be, to judge from his letters, a keen observer on vine-growing. I am not acquainted with the exact locality of Dr. Kelly's vineyard, but I am confident that circumstances there and here cannot differ much; for what he says of his neighborhood is applicable to ours also; and I have come exactly to the same conclusions with the Doctor. I have had eight years' experience here, and am now cultivating 92 varieties of red and white vines, and of these only the following are profitable for the manufacture of good wines. Of red, the Mataro, (so named after a town in Spain,) the Black Portugal and Grenache are decidedly the best. The first is not only an excellent bearer, but is also possessed of several other good qualities, viz:—it succeeds on all our different soils, is not liable to be destroyed by frost, as it begins to thrive very late in spring, when the dangerous time is gone by; it braves the hot winds better than any other sort; it yields an excellent wine, as is sufficiently proved by the fact that it has received the first prize at the Adelaide Show three times running. Black Portugal and Grenache are both also very productive, and turn out well in the cellar, although they are not quite so hardy as the Mataro in bearing frost and hot winds. These three sorts, then, I strongly recommend for our plains; but I strenuously caution against Scyras, which seems to be a favorite with our friends at and near Tanunda and Angeston. It might be good there, where climate and soil are different from ours, but is not suitable at all for here. It can neither stand the frost nor the heat, and I have never been able as yet to obtain anything like a good crop off of it.

Of white vines I can only recommend four sorts, viz., Madeira, Verdeilho, Tokay and the six kinds of Frontignac. Madeira, like the Mataro, is an excellent bearer, if the following conditions are fulfilled. It should be planted on humid soils, and so that it should be somewhat sheltered against hot winds. Slopes, as becoming too dry for it, should be avoided. Verdeilho delights in the same situation, is not so productive, but the quality of its juice fully recompenses for its deficiency in quantity. The samples recently forwarded to you by me, and referred to in one of your leaders, show what an excellent wine is to be obtained by mixing Madeira and Verdeilho. The Tokay (wrongly styled so here, for the world-known Tokay of Hungary is obtained from the white Frontignac grape, the same of which "Muscat de Lunel" is

made of in France,) is also very much adapted for the plains, and it yields an excellent wine. It is known in the neighborhood of Tanunda. The different kinds of Frontignac do very well with us, but they should not be exposed too much to the hot winds. Riesling should not be planted in the plains. I quite concur with you that we plain growers ought to make it a rule to confine ourselves to vines of warm climates, such as are grown in Spain, Portugal, &c.

It is with the greatest pleasure that I avail myself of this opportunity to inform you and the public that I have been so fortunate as to procure a valuable collection of monster table grapes, hitherto unknown, not only here, but also in the vineyards of Germany. I furnish a few historical facts connected with these rarities, which will, I believe, be read with interest by many. Frederick the Great, of Prussia, was very fond of grapes, and, after having completed the celebrated elysium of Sans Souci, he resolved to procure for that beautiful garden, among other things, the best vines for table grapes that were to be had. He consequently sent a scientific gardener for two years to the southern countries of Europe, to Spain, Portugal, Italy and Greece; and so the ancestors of the said collection of vines now in my possession were brought to Sans Souci. There they were reared under glass. A good crop is obtained from them in very favorable seasons only, but what they yield is of almost indescribable beauty and delicacy. At Sans Souci the grapes keep fresh for six months after the harvest, so that the King of Prussia has a supply of grapes almost throughout the whole winter. It is supposed that one of these vines, either the large Assyrian or the Saint Lorenz, is identical with that of which the grapes were brought to the Jews in the Desert by Joshua and Caleb, in proof of the fertility of the promised land, Canaan. Aristotle, the great philosopher, and tutor of Alexander the Great, of Macedonia, who employed a great many scientific men to collect natural products of all the then known countries for him, is said to have introduced that remarkable vine into Greece, whence it was brought to Sans Souci. The gardeners in charge of all these rare vines have strict orders not to sell any of the plants; and as there the wood becomes hardly mature for cuttings, it is very difficult to get any of them. That, nothwithstanding these difficulties, I have been so lucky to get them out here, is owing to the circumstance that I have been in connection with the Sans Souci garden myself for six years, and that one of the King's gardeners there is my intimate friend. I received cuttings of 27 varieties, of which, although they were five months on the way, 15 are alive, and seemingly doing well, so that I have reason to entertain the hope that our climate is favorable to their growth. Fortunately the most superior sorts of the collection are among those growing; and I shall be perfectly satisfied if a few years hence, I am able to satisfy the taste of my South Australian friends with the delicious fruits of these fifteen varieties.

I am unable to say whether these vines are also suitable for the cellar or not, as a trial has never been made at Sans Souci in this respect; but I should think, after the beautiful aromatic flavor they contain, they must make a good wine. I trust, however, that after a few years I shall be able to determine this question.

I am in possession of a catalogue containing a description and exact measurement of the bunches and berries of the vines in question. But not to intrude too much on the space of your valuable paper, allow me to give your readers some idea of the size of these monster grapes. I mention the measure of a few only:

Saint Lorenz—Bunch, 16 to 18 inches long, 8 inches broad; berry, 1½ in. long, 1 inch broad. This is the finest table grape as yet known.

Large Assyrian—Bunch, 18 in. long; berry, 1 in. long, 1 in. broad.

Large Yellow Boromeo—Bunch, 18 in. long; berry, ¾ in. long.

Blue Bordelais—Bunch, 16 to 17 in. long; berry, 1 in. long, ¾ in. broad.

With long oval Berries:—Red Raisin, from Seville—Bunch, 14 to 16 inches long, 10 in. broad; berry, 1½ in. long, ¼ in. broad.

Cibebe, from Seville—Bunch, 14 in. long, 4 in. broad; berry, ¾ in. long, 1-2 in. broad.

Red Spanish Raisin—Bunch, 16 to 17 in. long; berry, 1¾ in. long, ¾ in. broad.

I am, Sir, &c.,

Richard Schomburgk.

Buchsfelde, June 29th, 1858. *Adelaide (Australian) Observer.*

We have appended the address of Mr. Schomburgk in full, hoping that some of our connoisseurs in grapes and grape culture, may take the proper steps to procure direct from Australia, specimens of these rare products. Slips or rooted plants might doubtless be obtained on proper application.

TO MAKE FARMING PROFITABLE.

In order to make farming pay, the science of farming must be understood. To those who profess to cultivate the soil, and find it unremunerative, I think their want of success might be attributed, generally, to their ignorance and want of system in their general management.

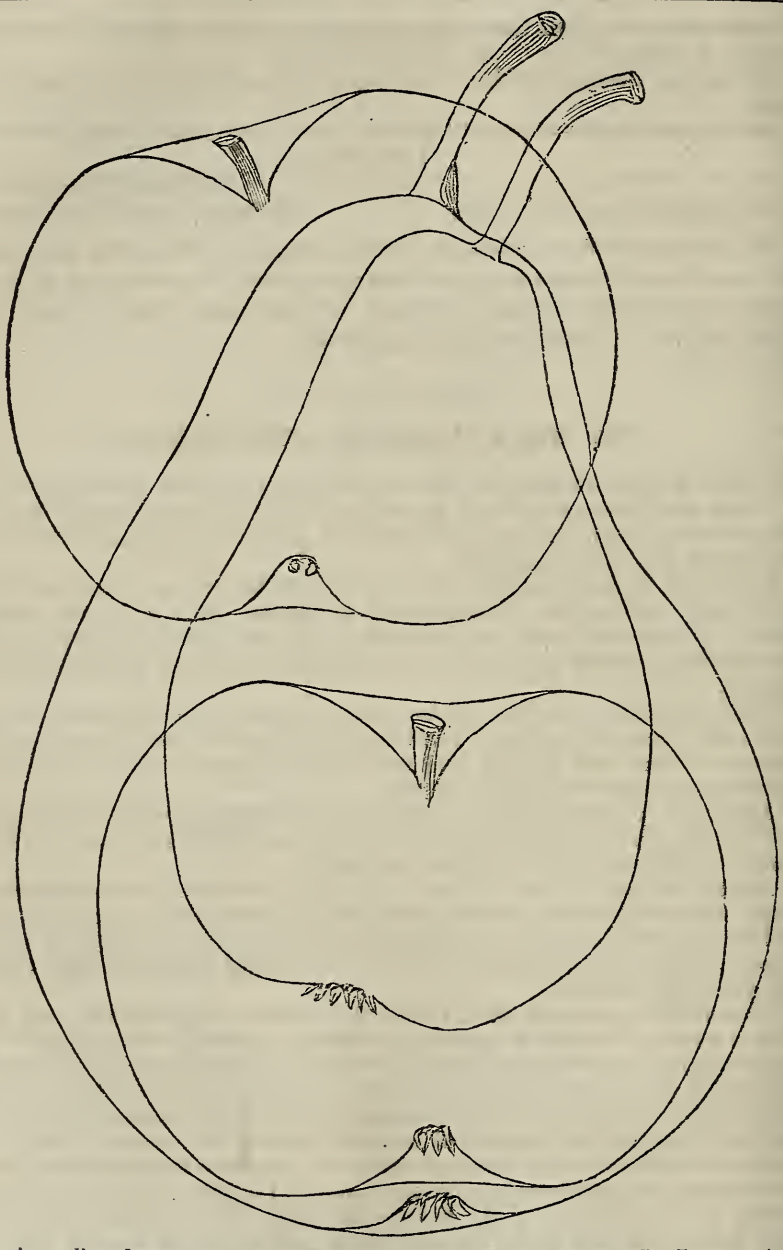
Remember, farmers, your pursuit is a noble one; but to make it noble and elevated, requires the exercise of mind as well as muscle. It is a vocation requiring intellect of a superior order; and whoever would attain that intellectual greatness requisite for a scientific and systematic agriculturist, must read, study, and reduce to practice.

Take, for instance, the man who has risen to eminence in his profession, and who makes that profession pay, and he will tell you that ease and idleness have been strangers to him—that years of hard study and deep research have earned him his high reputation and his well filled coffers.

Again, look at the successful merchant, and where does the secret of his prosperity lie? In his perfect knowledge of his business, his marked attention to it, his systematic management, and his prudent forethought.

Another comparison might be found in the skillful mechanic, who commands high wages and steady employment because of his superiority as a workman. He, too, will tell you that the pecuniary advantage arising from the knowledge he now possesses is ample compensation for all the sacrifices he had to make during his four or five years apprenticeship.

From these comparisons, then, I think the inference may be drawn that knowledge is necessary in order to conduct any business profitable and honorable. Is it surprising, then, that "farming won't pay" while the majority of our farmers think it madness to devote an hour to study the nature of the soil they profess to till, and would consider it folly unpardonable to subscribe for an agricultural paper, because, say they, the ideas and suggestions contained therein are theoretical only, and to make them practical would bring ruin upon us? To those farmers whose ideas are so contracted, whose reasoning powers are so rusted, I would say, cultivate your minds, as well as your fields; you will find worldly wisdom in it; and in order to make your farms a source of profit, you must aim to understand your vocation and to conduct it systematically. Go at it energetically and perseveringly, and you will profit by it. Farmers! arouse from your lethargy; make the effort: success and prosperity will be your reward.—I. R. in *Genesee Farmer.*



Exterior outline of pear, the Vicar of Winkfield, raised by John Lewelling, San Lorenzo; interior outline of pear, the same variety and size as given in Downing's Fruits and Fruit Trees of America. Upper outline of apples, the Red Cannon Pearmain; the lower, the Frazier apple, two varieties introduced by Mr. Lewelling, valuable for their late keeping qualities.

Editor's Repository.

No startling occurrence of importance or worthy of particular mention at our hands having transpired since our last issue, we shall be content with giving a brief outline of such events as have occurred affecting the agriculture and home industry of our State. Rains, glorious rains have fallen from San Diego to Oregon, and the husbandman is everywhere busy with his plow.

Shonld timely rains succeed to fill the interval between the October and the winter rains, a more propitious season for sowing a large breadth of lands to wheat could hardly have been hoped for. On all sides we hear accounts of the excellent condition of the gronnd for the plow, and a large force is detailed for improving the time so opportunely presented of effecting an extensive seeding in admirable condition.

The crops for the year have come in, fully equal to the average of years past, and we hardly hear a complaint or murmur from any sonrce. The pomologist has been gladdened by renewed assurances, in the beautiful and wonderful productions of the year, that entire reliance can be reposed in the soil and climate of California for a continuous annual profusion of the choicest fruits the earth can yield.

A return to a great extent of the Frazer river exodus, with accessions to our population from direct immigration from the Atlantic, border have given a healthy impetus to trade, quite equal to the expectations of all. The miner, the mechanic and artisan are all busy, and fair prices for labor are still maintained.

In the department of mining, improvements are being continually introduced, lessening the dangers and increasing the facilities and profits ; gunpowder is now playing an important part in the disintegration of immense bodies of auriferous earth and fitting it at comparatively trifling cost for the action of water, at a very great saving of expense. New processes and machinery for the rendition of gold from quartz and sulphurets are of almost every day's invention, and some of them of undonbted utility and value. In fact California, in all her great industrial departments, bears the indelible mark of progress; and we see it too, we think, in the matter and improved appearance of the California Culturist for November.

Our Frontispiece.—In this number we present a beantiful lithograph of a splendid pear and two fine apples. Our artists, Kuchel & Dresel, surpassed as lithographers by no others in the State, have given us true delineations of the original specimens, and so far superior to anything heretofore presented to the public in any California periodical, that we look with confidence for the approval of our patrons.

The pear is of that highly esteemed variety known as the Vicar of Winkfield, not Wakefield ; and to satisfy the incredulous we give its history in brief.

Downing says, "This large and productive pear was discovered not long since, as a natural seedling in the woods of Clion, France, by a French *curate,* whence it obtained in France, the familiar names of *Le Cure,* or *Monsieur le Cure.* A short time after it became known at Paris, it was imported into England by the Rev. Mr. Rham, of Winkfield, Berkshire, and cultivated and disseminated from thence, becoming known in the neighborhood of London as the Vicar of Winkfield." The specimen of which we present a lithograph was raised by Mr. John Lewelling, of San Lorenzo; form and size exactly as delineated, and weighed twenty-three and one-fourth ounces avoir-

dupois. It is one of the finest and most valuable pears cultivated; ripening, in the vicinity of San Lorenzo, from the middle of November to the middle of December.

The apples numbered 1 and 2, are both new to our catalogues; No. 2 has been for years a favorite in the Western States, where it was known as the Frazier apple. Its merits are late keeping, with excellent flavor and fair size; and it is an acquisition to our list of comparatively few really late keeping apples.

No. 1 is known as the Red Cannon Pearmain, by which name it was introduced—by Mr. Lewelling—from Iowa. This is an excellent keeping apple, for which quality it was highly esteemed at the East, and maintains the same characteristic here to a remarkable degree. It is also one of the finest flavored apples grown, and is doubtless worthy of extended cultivation.

Thanksgiving.—Governor Weller has appointed the 25th of the present month as a day of Thanksgiving to our Heavenly Father, for the blessings he has bestowed upon us as a people during the past year. It always seems peculiarly appropriate that the agriculturist, whose fully stored garners are welling with the bounties of his peculiar providence, should feel at heart a true gratitude to the giver. May the day appointed, then, be even religiously observed, as one of holy, happy feasting and thanksgiving.

National Pomological Convention.—In our columns will be found a condensed report of the Pomological Convention recently held in New York, Marshal P. Wilder, President. It contains valuable information in reference to the profitable cultivation of the pear for market purposes, and the success attending its culture as a dwarf upon the quince stock, as well as other matter of interest to the pomologists of our State.

California Nurserymen's Convention.—On the 9th inst., in San Francisco, a large number of the principal nurserymen in the State assembled in convention for the purpose of adopting such regulations in regard to the prices of nursery stock and the sale of trees, as shall be likely to promote the best interests of both seller and purchaser. For years a base imposition has been practiced upon large numbers of purchasers of fruit trees by non-professional nurserymen, men who go about the country, picking up a small refuse stock here and another there, and after labeling their trees to suit the supposed demand for certain varieties, load them into wagons and then for weeks trundle them over the country, replenishing from time to time as chance may offer opportunity. It should be understood by those in want of good fruit trees that no reliance whatever can be placed upon trees thus hawked about, either as regards their chance of living, or varieties secured.

The regular legitimate nurseryman has no object in disposing of his trees in this way, and seldom practices it. The nurserymen whose names are appended to the circular in our advertising columns, propose to do away with or prevent as far as possible this species of imposition, by offering their trees for sale at their nursery grounds only, displanting and packing no faster than ordered, in this way securing to the purchaser trees in the very best possible condition. In procuring from responsible nurserymen direct, reliance can be placed upon varieties true to their name and kind, a matter of the highest importance to the purchaser.

There is also a decided advantage in purchasing trees from California nurseries, as they are better acclimated, of more thrifty growth, and far more likely to grow when planted out than imported trees, and actually cost the purchaser less money. Nearly one half of the imported trees die, and such as do live lose nearly a year's growth from the injurious effects of so distant a transportation. We believe the object of the nurserymen's convention a laudable one, and believe it will meet the approval of the agriculturists, orchardists and tree planters throughout the State.

E. L—d.—In October number, will find by reference to the California nurserymen's advertisement in our columns, that scions *are* procurable of most, if not all the regular nurserymen in the State, at fair prices.

Our Advertising Pages.—To our mountain as well as valley friends, who have recently made inquiry by letter and otherwise as to where they may obtain the varieties of fruits recommended by the late pomological convention of this State, for general cultivation, as well as for the garden of the amateur, we can with pleasure recommend you to our advertising pages for almost every variety of fruit trees cultivated in our climate.

Mr. John Lewelling of San Lorenzo, whose beautiful Vicar of Winkfield pear forms the subject of our frontispiece, is extensively engaged in cultivating trees for sale, and his splendid catalogue advertised in our pages, sets forth the numerous varieties obtainable at a single nursery, better than any description we can give. Mr. Lewelling is one of our most successful fruit growers as well as nurserymen, and grafts his seedlings from his own bearing trees.

We would also direct attention to the advertisement of Mr. A. P. Smith, of Smith's Pomological garden and nursery, Sacramento, for an extensive variety of fruit and ornamental trees and shrubs, of superior excellence and growth.

The nursery stock of Mr. L. A. Gould, of Santa Clara, is hardly excelled by any other in the State in quality and variety; his advertisement speaks for itself in our columns.

Shell Mound Nurseries, R. W. Washburn, proprietor, as in years past, maintain a reputation excelled by none. The vigor and health of the trees constituting not only the nursery stock, but the bearing trees of these grounds, are a sufficient evidence of their superior value to the purchaser.

We would call the particular attention of those in want of large numbers of trees of thrifty growth for orchard and garden culture, to the unsurpassed stock of trees advertised upon our fourth page of cover, by Mr. B. S. Fox of San Jose. Mr. Fox is a scientific propagator and cultivator of fruit trees, vines, ornamental trees and shrubs, and varieties purchased of him can be relied upon.

The Pioneer Nursery, Alameda, still maintains its high integrity for trees true to the kinds offered, of superior health and vigor, grown without irrigation and heavily rooted. Proprietor, Mr. A. H. Myers.

Strawberries and Raspberries: these luscious fruits are grown in unequalled variety, by Mr. D. E. Hough of Oakland, who advertises his plants in this number of the Culturist. He has probably the largest number of the finest varieties of any grower in the State.

Grape vines, cuttings and fruit trees of all the finer varieties cultivated, can be procured as per advertisement in our pages, of A. Haraszthy, Sonoma.

Indigenous Apple.—We have received by the hand of Mr. S. Dows, from A. Bushnell, Esq., of Green Valley, Bodega, Sonoma county, a half dozen or more seedling native apple trees. In their growth they resemble the native crab apple of the Western States, but with even more of a dwarfish habit. As stocks on which to graft the cultivated varieties for the purpose of dwarfing, they may be found equal to the paradise stock; but their diminutive growth even in the most favorable localities where naturally produced, seems to indicate them of doubtful value as stocks for standard trees of more vigorous growth. We were not aware until receiving the above, that a truly indigenous apple tree was to be found in California.

The High Bush or Dorchester Blackberry.—Whilst the admirers of the Lawton Blackberry are profuse in their praises of its fine qualities, including its size, flavor and productiveness, it may not be amiss to bear in mind that with all its excellent qualities, it may yet meet with a formidable competitor for California culture, in the high bush variety. It is well known that though the British Queen strawberry proves thus far the very best with us for general market culture, it is far from attaining the same high rank in the Atlantic States. It is not true that every variety of fruits that stand best upon eastern catalogues will prove the same superior sorts when introduced to our anomalous climates. Thus, the Lawton Blackberry, though in every respect equalling the anticipations of those who make it a favorite, when grown side by side with the High Bush variety, has in more than one instance to our knowledge been compelled to yield the palm. So that in our love for the Lawton, it may not be well wholly to overlook the real merit which the High Bush is known to

possess in our climate. We can name an individual so sanguine of its superior merits that he is using every effort possible to extend his nursery of High Bush, planted almost to the exclusion of the Lawton. We make this remark only with a view that connoisseurs may congratnlate themselves in the prospect of an acquisition to our list of highly valuable fruits.

Fruit in New York as seen by a San Franciscan.—The following is an extract of a letter from a San Franciscan, now in New York, dated October 4th. "The fruit in this city is decidedly inferior in every respect to that exhibited last year in the Fair at San Francisco. The exhibition at the Fair of the American Institute in the Crystal Palace, (since burnt,) may be presumed to be the best to be found here; but it is really laughable to notice how small the pears and apples are, and the grapes are not a beginning to our own in California. The finest here would be considered inferior in San Francisco; and besides, it is a positive fact, that they are much dearer than our own. The peaches are decidedly mean, and don't begin to be as good as many I have seen in our city fruit stores."

Acknowledgments.—In our October number, we inadvertently omitted to give the proper credit to Mrs. J. E. Benton, for the beautiful pastil painting from which we were permited to copy in lithograph, the Gloria Mundi apple. Mrs. Benton excels in this description of painting.

Just previous to our going to press with the October number of the Culturist we were in receipt of a box of peaches from Mr. E. Smith, of El Dorado county. They were the product of a seedling tree, and their peculiar merits—for they have many—consist in their large size, weighing very near a pound each, excellent flavor, unsurpassed beauty and firmness of flesh, but most of all, as rendering them highly valuable over ordinary varieties, their late maturity. An orchard of five hundred trees of this varicty would be a fortune.

In addition to the one beautiful quince received from Mr. John Churchman, of Green Valley, Bodega, by the hand of Mr. Elliott, we have since received a number more from the same source, all, so far superior to anything in the quince line ever seen by us before, that we have been to the expense of a lithograph of one of the finest specimens, which will appear in our January number.

To Dr. H. Haile, of Alameda, we are indebted for superb specimens of the Vicar of Winkfield pear and other choice varieties of fruits in their season. Dr. Haile is decidedly a connoisseur of fine fruits and an amateur culturist.

For one who is all the time talking about agricultural products and fine fruits, and yet not the possessor of an acre of land on which to grow either, which is just our case, it would be ungrateful in us, were we to omit to make mention of the many *delicious* favors received at the hands of our friends. Thus, are we inclined to note in addition to the foregoing, the truly splendid specimens of the Onondaga or Swan's Orange pear, received from R. W. Washburn Esq., so beautiful and fine in every quality constituting a valuable pear, that a lithograph of one of the specimens will embellish the December number of the Culturist. Mr. Washburn is the proprietor of the celebrated Shell Mound Nurseries and gardens, Alameda county.

It will be remembered that the Rumford Bros., of Oakland, obtained at the late fair of the California Horticultural Society, the first premium for sweet (Carolina) potatoes, the genuine article. We have received a box of the "identical," and pronounce them superb.

Officers of the State Agricultural Society for the coming Year.—President—C. I. Hutchinson, Sacramento; Vice Presidents—E. B. Crocker, Sacramento; J. W. Osborne, Napa; A. R. Painter, Sutter; J. M. Hinkam, Nevada; A. H. Myers, Alameda; J. C. Davis, Yolo; D. J Staples, San Joaquin; John Center, San Francisco; J. H. Howard, San Mateo; J. R. Crandall, Plumas; William Blackman, Santa Clara; T. J. White, Los Angeles; John McConahue, Siskiyou. Recording Secretary—A. G. Richardson, Sacramento. Corresponding Secretary—O. C. Wheeler, Sacramento. Treasurer—A. Redington, Sacramento.

Under the old arrangement, there were seven officers; now seventeen—one to each Judicial District.

White vs. Black Grapes.—*Editor Culturist*:—In your Number for October, I notice you have taken from the *Butte Record* the article headed "White Grapes from Black." Now, sir, if Father Warren had done that and given a column of the "Farmer" as an editorial and grand flourish, I should not have been at all surprised,—but to think that the beautiful and neatly conducted *Culturist* could be induced to copy so foolish a thing into its columns, takes me all aback. I am a vine-dresser by profession, and follow the business year by year, and can take any Mission vine in the State, old or young, and make it produce white grapes instead of the natural color; this is owing to the manner of summer dressing and irrigation. In 1856 Gen. Sutter's Grapes were to be seen in the market at Marysville selling as white grapes. That year the General was short handed, and his vines were badly handled, hence white or rather uncolored grapes. So with other vineyards that I could name. Next year the "Morris ravine" vineyard will likely produce grapes of the natural color. Yours truly,

Lassens, Nov. 8, '58. Wilder.

P. S.—Who has got seedling apple and pear stocks for sale?

Our Apology.—Sometimes in making up "forms," a few lines are wanted to make out an even page; and under our instructions to fill such space always, in case of our absence, with something horticultural, the nine lines alluded to crept in. Will that do, Mr. Wilder?

Planting Strawberries.—We are inquired of by private note, whether the autumn or spring time is the most suitable for forming strawberry beds, and the proper distance of setting the plants. On inquiry of several successful growers of the berry for marketing, we find the general opinion to be, that as early in autumn as the ground can be put in good condition, the better it is for the plant if a paying crop is expected the following spring and summer. Plants set as late as February or even March, will produce some berries the first year, but to insure a fair crop the sooner they are set after the first fall rains, the better.

As regards the distance at which they should be set, much depends upon the variety and mode to be adopted in their cultivation. If field culture is adopted, the rows should be from two and a half to three feet apart, sufficient to admit the passage of the cultivator between them, and from six inches to a foot apart in the row, depending much upon their habit of growth. It is important that all weeds be kept down, a fine cultivation given them till the bearing season is at hand, being careful never to work them when the ground is saturated with moisture, unless it possess a light loamy character.

Plants of all the most desirable varieties, can be procured of persons whose advertisements appear in our columns.

Ringing Grape Vines.—This mode of producing increased size and early maturity in grapes, seems to have been recently rung upon by a cotemporary, though out of all season, merely as a pretext for sounding a kind of second-fiddle note to our article on ringing the limbs of fruit trees, in the Culturist, page 104; but we wonder he does not refer to some back numbers of "the only agricultural paper in the State," to show that he has at least once thought of the method before, *a la* "vineyards on hill sides."

Fruits of the Month.—November 13th we notice as prominent among the fruits of our market, the finest Los Angeles grapes that have appeared the present season, larger and of more perfect growth, and in better condition and flavor than any we have before seen at this season of the year. Our fruit stands are well supplied with nearly all the best varieties of winter apples known, and nearly all in excellent eating order now. Several varieties of Pears, as the Vicar of Winkfield, Onondaga or Swan's Orange, and for cooking purposes the Pound Pear; these seem the varieties most abundant. Quinces can be procured, but they are not plentiful. Fresh oranges, limes, and bananas from the southern coast, with English walnuts—Madeira—from Los Angeles in quantity. Melons of several varieties are still abundant, and strawberries of large growth just plucked from the vines, can be seen in the show-windows on Washington street, north of the Plaza.

Transplanting Time.—Different views have been entertained in regard to the best season for transplanting fruit trees, and doubtless much depends upon the condition of the tree, but more upon the soil and climate. In a climate where the ground freezes to a considerable depth in winter, both autumn and spring planting has its advocates; many believing that the spring time is best because vegetation is just bursting into life, and trees set at that time almost always live; but they do not always make the best growth the succeeding summer. In a country of frosts or freezing ground, if autumn is chosen for transplanting, it should always be done early, as soon after the fall of the leaf as possible. The difference is this; if transplanted early, although the top makes apparently no growth, the roots do grow; and if a tree thus early set, is by accident or design torn from its position a month or six weeks after setting, numerous small fibrous roots will be observable two or more inches in length springing out from the ends of all the roots cut or shortened at the time of transplanting. This is evidently a gain over the tree transplanted in the following spring; and such trees uniformly make a much stronger growth.

If the transplanting is delayed till late in autumn, no such growth is made, in consequence of the chilled or frozen ground; such a tree then must suffer more from the drying and freezing process sustained only by its recently mutilated roots, than though the transplanting had been deferred till spring. So in all elevated districts where the climate approaches to that of the Northern States, *early* fall, or spring planting should be adopted.

In all the lower valleys of California, however, where the ground is seldom stiffened by frost, the case becomes quite different; trees set at any time after the fall of the leaf, will soon begin to make new roots, and their formation to some extent is continued during the entire winter; for it is hardly probable that whilst grass and grains are springing into life all around, that the roots of plants and trees are dormant. So that instead of choosing between autumn and spring planting for the greater part of California, the object should be to transplant as soon after the fall of the autumn leaf, as is possible to get the ground in proper condition of tilth and moisture. And yet our warm winter climate and its effects upon our soil, present this anomaly, that plants and trees *can be* safely transplanted at *any time* during the winter; still, our opinion is, that the earlier the better. And certainly if trees are to be obtained of nurserymen, where the first to come, are the first served, and with a choice of trees, it is an object worthy of consideration, to secure and tarnsplant trees as early as practicable.

A Labor Saving Bustle.—An extract from Mr. Steel's "Residence in Switzerland," is conclusive that even Yankee ingenuity can be beaten by Swiss milking girls. "In order to ease the labor of milking cows, the maids sit on little low stools, which they carry about with them already strapped to their persons, producing an effect more characteristic than poetical."

Down.

Getting up.

Up.

As milking stools have sometimes one leg, sometimes three, had we known positively which kind the Swiss girls wear, we should doubtless have given a much larger and far more elaborate engraving.

A wag at our elbow wishes to know if they take them off o' nights?

Perhaps our readers are not aware that the Swiss milk on the left side of the cow.

We have received, too late for insertion this month, a well written article upon the "History and Mystery of Summer Fallow," which will appear in the December number.

Oregon apples of large size, beautiful, and of delicious flavor, are just now reaching us in large quantities.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending October 31st, 1858; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By Thos. M. Logan, M. D.

OCTOBER, 1858.	7h. A. M.	2h. P. M.	9h. P. M.	Month.
Barometer, Maxima	30.314	30.241	30.251	30.314 inches.
" Minima	29.748	29.684	29.624	29.624 "
" Mean	30.016	29.976	29.986	29.993 "
Thermometer, Maxima	70.00	79 .00	69.00	79.00 deg.
" Minima	43.00	58.00	51.00	43.00 "
" Mean	54.16	65.26	59.13	59.51 "
Force of Vapor, Maxima	.438	.551	.462	.551 inches.
" " Minima	.151	.138	.173	.138 "
" " Mean	.286	.354	.344	.328 "
Relative Humidity, Maxima	86.00	88.00	87.00	88.00 per ct.
" " Minima	52.00	26 .00	46.00	26.00 "
" " Mean	67.35	58.48	69.71	65.18 "
Number of Clear Days	9	7	15	10 1-3 days.
Number of Cloudy and Foggy Days	22	24	16	20 2-3 "
Number of Rainy Days	.....	.....	.. ....	4 "
Quantity of Clouds	3.7	3.2	2.5	3.1
Quantity of Rain and Fog	.....	.....	. .....	3.010 inch.
1st Days and 2d, Force of N. Wind	8 1.6	11 2.2	6 1.4	8 1-3 1.4
" " N. E. Wind	0 0.0	3 2.0	1 1.0	1 1-3 1.0
" " E. Wind	2 1.0	0 0.0	0 0.3	2-3 0.3
" " S. E. Wind	7 1.9	1 3.0	3 2.6	3 2-3 2.6
" " S. Wind	4 2.5	4 3.0	7 2.6	5 2.6
" " S. W. Wind	2 2.5	3 2.7	2 2.1	2 1-3 2.1
" " W. Wind	0 0.0	4 3.0	3 1.8	2 1-3 1.8
" " N. W. Wind	8 1.8	5 2.2	9 1.7	7 1-3 1.7

Thermometrograph.

	Deg.		Deg.
Highest Reading by day on the 13th	80 00	Mean of all Highest Readings by day	66.20
Lowest Reading by night on the 19th	38.00	Mean of all lowest readings by night	48.52
Range of Temperature during month	42.00	Mean daily range of Temperature during mo.	17.68

Remarks.—In accordance with the conclusions deduced from our series of observations, and expressed in the remarks for August last, the rainy season actually set in earlier even than we anticipated. In fact, never has there fallen, during the last six years, since we have been keeping a Meteorological Register, so great an amount of rain as is above recorded, for the month of October—exceeding the average by 2.197 inches. From all accounts this early rain appears to have been very general throughout the whole State, and has had the effect of clothing our plains with the verdure of apparent spring.

Besides this exceptional feature of the month, there has occurred another phenomenon, in the Aurora Borealis on the 27th, of rare interest. This is only the second time it has been witnessed at Sacramento. When first observed it was in the form of a diffused rosy light, in a due northern direction, above an irregularly defined arch of about 20 deg. radii from the horizon. From this luminous arc the light spread upward from about 20 to 30 degrees, frequently changing in depth of tone, and darting forth palpitating rays or columns of divers colors. Though evanescent, this formed the most beautiful and remarkable portion of the phenomenon, which lasted in all about fifteen to twenty minutes. The sky was perfectly clear at the time, but a dense fog, the first of the season, supervened before morning.

NURSERYMEN'S CIRCULAR AND PRICE LIST

For 1858-1859.

The Nurserymen of California, who are engaged principally in growing Fruit Trees and fruit-bearing Vines, announce to the public, that in view of the gross frauds and impositions heretofore practiced upon the people by the sale of spurious Trees and Vines, which have been hawked about the State by peddlers and irresponsible vendors, (which deception cannot be discovered, perhaps, for years,) whereby purchasers have lost, not only the original cost of the plants, but the value of the labor bestowed upon, and of the land occupied by them, and have found all their anticipations of choice fruit grievously disappointed, when the spurious trees commenced bearing;

They have assembled in convention to devise means for the remedy of so great an evil, and have resolved to adopt such a *reduced scale of prices*, as will enable all purchasers hereafter to obtain directly from long established and well known Nurseries, *genuine and reliable* Trees and Vines, at a *less cost* than they have heretofore been induced to pay for those of unknown and worthless character.

It is confidently believed, also, that the schedule of prices hereto appended, is *lower* than any trees of equal age, size, vigor, health and fruit-bearing qualities, can be imported, from the Atlantic States or elsewhere. It is our intention, also, to make *annually, hereafter*, such reductions in the prices of trees, as our increased facilities for propagation, and the diminishing cost of labor will enable us to do. We now have the means fully to supply the *Home Market*, and we are determined to put such prices upon our trees, that no purchaser can *afford* to buy elsewhere than at the regular Nurseries.

All purchasers are invited to visit or send their orders *direct to the Nurseries*, by Express or Mail, when the trees will be taken fresh from the ground, and packed in the best possible manner, for transportation to any distance required.

SCHEDULE OF PRICES.

Prices of Trees of the same age vary according to size, quality and symmetry.

FRUIT TREES.	EACH.
Apple Trees, 1 year	30c to 50c
do 2 years, 5 to 8 feet	62½ to 1.00
do ex. size and quality	Extra prices
Pear Trees, 1 year	75 to 1.00
do 2 years	1.00 to 2.00
do extra size	Extra prices
Plum Trees, 1 year	50 to 1.00
do 2 years	1.00 to 2.00
do extra size	Extra prices
Cherry Trees, 1 year	75 to 1.00
do 2 years	1.00 to 2.00
do extra	Extra prices
Peach Trees, 1 year	37½ to 1.00
do 2 years	1.00 to 1.50
do extra	Extra prices
Apricot Trees, 1 year	75 to 1.00
do 2 years	1.00 to 2.00
do extra	Extra prices
Nectarine Trees, 1 year	75 to 1.00
do 2 years	1.00 to 2.00
Almond Trees, Seedlings, 1 year	50 to 1.00
do Grafted, 1 year	1.00 to 2.00
Fig Trees, California, 1 year	1.00 to 1.50
do Foreign, 1 year	2.00 to 3.00
Quince Trees, 1 year	75 to 1.00
do 2 years	1.00 to 1.50

FRUIT TREES.	EACH.
Pomegranate Trees, 1 year	75 to 1.00
English Walnut Trees, 1 year	50 to 1.00
do do 2 years	1.00 to 1.50

SCIONS.	
Apple and Peach—	
per 1,000 Grafts	$10.00
per 100 do	1.50
Selected Varieties, per doz	75
Pear, Plum and Cherry—	
per 1,000 Grafts	20.00
per 100 do	3.00
Selected Varieties, per doz	1.50

SMALL FRUITS.	
Grapes, California, 1 year, per 100	10.00
do Foreign, 1 year, each	50 to 1.00
Currants, as per variety	25 to 1.00
Gooseberries, English	50
do Houghton's Seedling	25
Blackberries, Lawton	75c each—$50 per 100
do High bush	75c each—$50 per 100
Raspberries, Choice Varieties, 25c each—$2 pr. doz	$12.50 per 100
Strawberries	2.00 to 5 00 per 100
do a few Extra Sorts	1.50 per doz.

The above Schedule of Prices has been adopted by the undersigned.

A. P. Smith,	Pomological Garden,	Sacramento.
J. Aram & Co.,	Rail Road Nursery,	San Jose.
J. Lewelling,	San Lorenzo Garden and Nursery,	San Lorenzo.
L. A. Gould,	Santa Clara Nursery,	Santa Clara.
China Smith	Pacific Nursery and Fruit Garden,	San Jose.
B. S. Fox & Co.,	Valley Nursery,	San Jose.
R W. Washburn,	Shell Mound Nursery,	San Francisco.
G. H. Beach,	New England Nursery,	Marysville.
A. Lewelling & Co.,	Fruit Vale Nursery,	San Antonio.

ONONDAGA.

THE CALIFORNIA CULTURIST.

DECEMBER, 1858.

THE HISTORY AND MYSTERY OF SUMMER FALLOW.

BY M. WALTHALL, JR.

Editor Culturist:—Having seen some opinions expressed in your journal, opposing the general utility and advantage of summer-fallowing, I propose to give you my views of its history, and the *manifold advantages* which would result from its general adoption, in this peculiar climate and soil.

The word fallow seems to have originated with the Romans, and is said to be derived from the root of fail, fall, which was probably suggested from the fading vegetation and tawny-colored foilage of the fall. Their word was *novale.*

Although the *system* is spoken of by the early Roman writers, it doubtless was known in the Holy Land prior to its adoption in Italy; for we find it commanded of Jehovah, in the laws of Moses to the Isralites: "Six years shalt thou sow thy land, and shalt gather in the fruits thereof; but the seventh year, thou shalt let it *rest* and lie still." It is also commanded through the prophet Jeremiah (iv: 3) of the men of Judah and Jerusalem: "Break up (*anew*, Douay,) your fallow ground and sow not among thorns." And further, in Hos. x: 12, 13, the reader will find an idea something like this: a change from the unprofitable mode of plowing and rearing weeds to that of fallowing, is likened unto a change from wickedness to righteousness.

It is said that this practice was adopted in China, Egypt, Phœnicia and Greece, but I have not had time nor books to hunt up the authorities.

But from the accounts I have seen of the Roman farmers, they appear to have adopted this system as an important part of their husbandry at a very early period.

We find it recommended by Virgil in several places in the Georgics. Mr. Trapp has translated Lib. i: 71, thus:

> "Alternate too, thou shalt permit to rest
> The late shorn fallows, and the *idle* mold
> To harden."

And again:

"That tilth at last rewards the greedy hind,
And answers all his hopes, which twice has felt
The sun and twice the frost: by this *manure*
Harvests immense shall burst his crowded barns."

In Columella, ii: 12, 3, and xi: 2; in Palladius, iv: 2, and ii: 10; in Varro R. R., i: 42, 2; and in Aggenus Ubricus, among agricultural writers, and in Cato, R. R. De Re, rust. 27; Ovid A. A., 2, 351, and Pliny 18, 19, 49, § 176, N. H., among the orators, poets and historians. Summer-fallowing was used in Spain many centuries ago; for in reading old Spanish writers, one often meets the sentence, *Descansar las tierras*, relating to fields lying in fallow.

On the conquest of England by the Romans this ancient practice was introduced there, and has since advanced with civilization, into continental Europe and America.

The country around Naples, which has been cultivated for thousands of years, is far-famed as fruitful corn-land. This land has never had any artificial manuring, except to allow it to rest and graze cattle two years out of three; during which time a new portion of the alkalies is set free or rendered soluble. It is said that a variety of summer-fallow has been known and practiced in Scotland from time immemorial; but the worked fallow of the Romans as introduced into England, was not used there until about the beginning of the eighteenth century; and in less than seventy-five years, it had become an established usage with all the best Scottish husbandmen. But when land-rent became high there, and in the north of England, it was matter of serious inquiry, among the renters, whether it might not be abandoned. Such radical war was made by so many enthusiastic agriculturists, that they gained for themselves the distinction of a "sect," and the name of anti-fallowists. All their ardor, however, did not supersede the fallow of olden time. However a *quasi* substitute has been adopted, in late years, in the form of *green-fallow*, which in connection with light soils, might form the subject of another paper.

Thomson, in his *Autumn*, (l. 407), very pleasantly alludes to,

The fallow-ground laid open to the sun,
Concoctive; and the nodding sandy bank,
Hung o'er the mazes of the mountain brook.

The beneficial effects of the fallow on the lands and crops of the Northern and Eastern States of our Union, are so well known, that it would be useless to add to the examples taken from the other side of the ocean; where, all must admit, the principles and practices of agriculture have been most highly developed. The theories and advantages of fallowing are so numerous, that only a few can be noticed here.

Some intelligent farmers are wholly opposed to the system; and some others consider it of no more benefit, than the clearing of the weeds—plants out of their places—so that the crop may receive the full strength and energy of the soil.

Even Davy opposes it, and describes it as an ancient practice, much employed; in which the soil is submitted to processes purely mechanical.

Marshall says: "Be it known unto all men, the main purport of fallowing, is to destroy weeds."

Prof. Rennie says, light seems to be the principal agent in benefiting lands during the process of fallowing. The light decomposes the dark excrementitious matter.

Rham says, it is to leave it to the exposure of the atmosphere.

Sinclair treats it as too multitudinous in its modes of action, to be reducible to any summary definition, though he says it mellows and cleans the ground, and is beneficial generally.

The *Country Gentleman* says it is to clean, to deepen, and to mellow.

Liebig, who may be considered as the highest authority, in his department of knowledge, says: "The fallow time is that period of culture, during which the land is exposed to a progressive disintegration, by means of the influence of the atmosphere, for the purpose of rendering a certain quantity of alkalies capable of being appropriated by plants.

"Now it is evident that the careful tilling of fallow-land, must increase and accelerate this disintegration. For the purposes of agriculture it is quite indifferent whether the land is covered with weeds, or a plant which does not abstract the potash enclosed in it." It is not a sufficient argument against any system, in agriculture or politics, to say that it originated on the Ganges, in Rome, or in England, or that it is an antiquated practice, happening to have been in use before some of the modern doctors of science were born.

Summer fallow has been tried of old and fully established to be a paying system, and it yet remains for the first man to *prove* its uselessness, on account of antiquity, or anything else.

All the authorities at my hand agree that if there is any difference between the fallowing of clay and light soils, that the summer fallow should be used on the former, and the green fallow on the latter.

The communication of Mr. Heidrick to the learned Scotch Board of Agriculture states that strong clay requires a more frequent repetition of summer fallowing, than soils which are dry and friable.

In Europe the plowing of fallow is commenced in the fall. But if we adopt that mode here, we shall be compelled to plow again in the spring to kill the weeds, and leave the soil in a more *roughened* and *loosened* condition, *which is the great secret of a successful fallow.* A second plowing will pay, especially for a wheat crop, which is the most exhausting of the cereals raised on this coast.

On this subject some people theorize after this fashion: "It injures land to be plowed and *baked* in the hot sun of our long summers." Let us hear a good authority on this point; Dr. Kane's Elements of Chemistry, p. 1115: "There are few specimens of clay soils, especially if they contain iron, which do not give out ammonia when heated; and the absorption occurs with greater power, when the clays have been strongly dried. Hence the increased fertility often given to a soil by *burning* the surface to the depth of a few inches." So much for the theories: now for some of the evidences of its practical advocates.

The Quart. Jour. of Ag., vol. ii, says that "no man can maintain the fertility of his farm for any length of time, and exclude bare fallowing from the rotation." And again: "Here summer fallowing seems to be a *sine qua non* of British and Irish husbandry."

The *Country Gentleman*, a practical and well informed paper, vol. xii: p. 106, says: "But there is no question, that many soils acquire fertility by aeration — by the exposure of the soil to the action of light, air and moisture." Every farmer who has tried it in the East, tries it to his permanent advantage here.

In my neighborhood, (which is a clay soil,) summer fallowing has been tried for several years, and no man has ever abandoned it. I have never seen it fail to produce from forty to one hundred, and occasionally two and three hundred per cent. better crops, than by the old method; for I call the fallow a *new* method on this coast. Allow me to give you a practical example, as a specimen of the real results of this philosophic and workmanlike manner of farming. A neighbor of mine, Mr. Abram Prather, commenced plowing a piece, some thirty acres, for summer fallow, in the spring of 1857. The ground became too dry to finish it, when he had plowed a rod or so wide; and he left it, and last winter he finished it, and sowed the *whole piece* in barley, at the same time and in the same manner. Now, this is a very fair test, and if fallow had any positive advantage, this experiment would be very apt to develop it. Well, the sequel will show you, when I tell you that *the fallow strip turned out more than one hundred per cent. better than the other!* I plowed an acre several years ago as fallow, in the side of my field, and it has since been indiscriminately plowed with the other land, not fallow, but it has *every* year since betrayed a positive benefit on account of such treatment. Those who are disposed to examine the subject further are referred to the Art. Fallow in the Rural Cyclopedia.

In conclusion I will sum up the following practical advantages which fallowing has in this country:

First. It neutralizes the alkalies where they are in excess, by the absorption of carbonic acid.

Second. It absorbs ammonia more readily.

Third. It renders soluble and suitable for plant food fresh portions of the alkalies in all cases.

Fourth. It renders the land mellow by the combination of these causes.

Fifth. We are enabled to get in a crop much earlier than by any other way.

Sixth. We get the benefit of all the rain.

Seventh. The wheat gets well rooted before the frosts of mid-winter and the freshets of December and February.

Eighth. We are able by a late spring plowing, be it the first or second, to kill all vegetation, and leave the land clean for the crop.

Ninth. All those gases which enter the leaves of any plant, by their entire absence, result to the benefit of the land, and are thereby retained for the next crop.

Tenth. Squirrels and other vermin will more readily take any poisoned bait, because of the absence of herbs or grass seeds.

Eleventh and Finally. We are able to cultivate more land *in the proper manner* with less labor and more profit; and our virgin soil, as it was a few years ago, will retain its fertility *ad infinitum.*

CULTIVATION OF RICE.

THERE are thousands of acres bordering upon the tule and marshy lands of California, admirably adapted to the cultivation of rice; adapted, because possessing the necessary evenness of surface, abundantly fertile, and commanding the requisite overflow of water for the fullest perfection of the product. There are portions of the Tulare country, the upper San Joaquin, that might be converted into rice fields, to be relied upon for at least two perfect crops in a season.

The chief requisite of successful culture seems to be, that the land be so situated that by the use of proper embankments, water may be kept upon the crop at a proper height during its growth, and by means of sluices drawn off at the proper time. But without attempting to give the least information from our own knowledge relative to the culture of a product, with which we are not familiar, we do, with much satisfaction, present our readers with what appears to us to be a very sensible article upon the subject, from a correspondent, "H." of the *Pacific* (Honolulu) *Commercial Advertiser*, in the hope that some one may be induced to introduce rice culture along the marshy grounds and fertile alluviums of our rivers.

As many inquiries regarding the culture of rice have lately been directed to me, I would request you to give the following general answer a place in your valuable paper, and I shall most cheerfully impart all the information which I am able to give on the subject.

The process of cultivation is so very simple and the labor necessary, after the rice land is once established, is so extremely little, that one person is capable of growing an almost indefinite quantity of rice. Of the rice there are several varieties in regard to size and color; but, I believe, on the whole, there is but little actual difference either in their respective yield or value, if either variety is well cultivated, and cultivated on ground or in a situation fitted for rice culture. Climate, running water and clean cultivation produces the best rice. The seed imported by the Royal Hawaiian Agricultural Society is of small grain, but the kernel is of a clear color and the flour extremely white, and I have not the least doubt that it would prove an excellent marketable article. The "long grain rice" is of late years more esteemed in the United States, and commands generally a higher price than the old fashioned white rice; but as the grain is only longer and not broader, it happens often that the small grain rice yields so much more per acre as to make up the difference in price; and, in my humble opinion, I believe this rice is very well suited for this climate.

The process of preparing the ground is the same as preparing kalo patches. It is not necessary to have the rice land of any large extent; but contrary, the rice land should be of no larger extent as to admit of being of perfect level, so that the water, which is necessary to support the rice, is of perfectly even depth over the whole surface of the land. This I believe to be one of the most essential points in the cultivation of rice, and I therefore consider the size of the present kalo patches well fitted

for rice culture, because the natives in the cultivation of their kalo always had an eye to having their ground of a perfect level.

The preparation of the soil for rice is also the same as that of kalo. The ground is cleared of all weeds, either by plowing and harrowing by those who possess plows and teams, or it may be done as well with the *oo*, as it is done at present for planting kalo. When clean, the soil is stirred up until it becomes a thick mud, something of the consistency of *poi*. In this mud sow your rice broad-cast as you would sow wheat, I should say about sixty pounds per acre; let the water on just enough to cover the ground, and the sun will impart warmth sufficient to the water and the mud to sprout the grain in a few days. When the grain is swelled ready to sprout, say in three or four days, draw off the water. Soon the young shoots will appear above the ground. Let them shoot up to a height of six or seven inches, and then let the water on again, but never so much as to cover the plant, because that would kill it. As the rice advances in growth, increase the water in height. When the rice begins to bloom it is well if the water can be so high as to immerse half the stem.

Those old kalo patches are generally very troublesome in aquatic weeds. Should such become too strong and plentiful, they should either be pulled out by hand, if this can be done, or the water may be drawn off and the rice land laid dry for a few days, to admit of hoeing; but this should always be done before the rice is in "tight barrel" that is, before the stem shoots out in which the ear is wrapped. Should some weeds run up with the rice during the first crop, those can be totally exterminated before the second crop is sown, because the rice ripens earlier than the weeds run to seed.

The whole labor attendant on the culture of rice consists therefore in preparing the mud clean from weeds, sowing the seed, letting the water on for three or four days, then drawing off the water until the plants are six or seven inches high, and after that keep on the water constantly till the grain begins to turn yellow, when the land is laid dry for harvesting. Rice ripens in a little over three months.

It would answer, perhaps, (but this must be found out by experiments) to sow the first crop in the beginning of February. This would bring on the bloom time about the end of April or beginning of May, and past the equinoctial storms and gales — wind in bloom time being, I believe, the only danger to which rice is exposed in this country. Harvest the first and sow the second crop about the middle of May, this would bring on the second harvest during the latter end of August and in advance of the September gales, and then plant the ground either in white beans, which would ripen in the end of October or beginning of November, or in sweet potatoes, which would be fit to dry before the close of the season. In this manner one and the same ground would produce three crops in the course of the year, and add to the advantages of a judicious rotation, also the following: the aquatic weeds which might have introduced themselves during the cultivation of the rice would be exterminated by the cultivation of dry crops, and the weeds springing up during dry cultivation would again die under the inundation. It is very likely that either one or the other rice crop may not succeed in a first rate manner; but even if so, the loss of actual labor is but very little, the loss of the water not to be counted and the risk of losing from fifty to sixty pounds of seed per acre is but trifling, in comparison with the probable gain of from three to four thousand pounds.

Although I run in danger of burthening you with a rather lengthy epistle, I think it nevertheless necessary to add a few explanatory remarks.

Rice is cultivated by sowing the seed broad-cast or planting out. I have tried both ways, but I prefer the first for many good reasons, although the latter method produces a thriftier stock, more roots and larger ears. It is also not a general practice to draw the water from the plant till it is six or seven inches high, but I prefer

doing so, because the young stem, acquiring, from the exposure to the air and sun more strength and firmness, is not apt to bend under its own weight; an advantage not to be overlooked in a country where storms or at least heavy winds are plentiful.

In regard to sowing I would also mention that the dry seed is apt to float on the surface of the little puddles of water, but a string tied to each end of a common board and the board drawn over the soft mud will press on the seed sufficiently. Rice may be sown on the water, but then the seed must be soaked a few days previous to sowing, when it will sink immediately. Either mode of sowing I leave to your choice, although I myself prefer to sow the dry grain, because it spreads more evenly than the wet.

As regards the threshing out of the grain, this is a very simple process. Take any large dry goods box, put into it in a slanting direction from the top to the bottom of the opposite side a sort of ladder, made out of thin sticks, and nailed about four or five inches apart; tie a mat around the three sides of the box as high above the box as it will stand, take a hand full of the rice straw and strike the ears three times on the ladder, and the grain will fill into the box by a process of as clean threshing as any machine can do. One hand can in this way thresh faster than two hands can cut, and the advantage of this mode is, that the box can be moved to the field when the harvesting is going on. In regard to the process of hulling the rice I would mention that this can be done by rubbing the grain between two boards, by the old fashioned Mississippi wooden mortar and pestle and an old negro woman alongside, or by a hand-mill, or perhaps the best way would be the flour mill, if the quantity raised were large.

In regard to the straw and chaff, I would say to the cultivator of rice, "don't forget to return to the ground what you don't want, but what the ground may eventually need. Strew the first on the ground and burn it, and strew the latter on the ground and stir it." Although it is said that rice is not an exhausting crop, and although it stands to reason that the ever running water holds in solution the necessary food for the growing plant, it is nevertheless but wise to return to the soil the large amount of silica, which the stem requires. I believe that rice is the most profitable and the *most sure* crop on these islands, as the water effectually defends it from cut-worm and caterpillar; it is not liable to rust and smut, and I believe cattle won't invade a rice field as long as grass is at hand; at least neither oxen, cows nor horses ever troubled my patch, although feeding around it night and day.

While I thus answer the many inquiries made in regard to rice culture, as much as lies in my humble power, I beg your pardon, Mr. Editor, for this rather lengthy article, and only will add the fervent wish that another year may have either expunged the article of rice from the list of imports in the custom house statistics or, better still, have it transferred from the page of imports to that of exports.

California Minerals.—The late exhibitions of the State Fair at Marysville, and of the Mechanics' Fair at San Francisco, must convince the most skeptical of the immense resources of California, in the matter of minerals and mineral substances. Leaving out of the question the value of the more precious metals and minerals, our State contains the richest deposits in the world of sulphur, asphaltum, carbonate of soda, borax, obsidian, or native glass, alum, copperas, black lead; and it is said that saltpetre can be made in abundance, for all military and commercial purposes, from the soil near Gilroy's, in Santa Clara county, in which neighborhood there are also said to be soda lakes, used by the native Californians for making soap, which used to be exported from the country before the American Flag was raised. The borax

found in Napa county cannot be surpassed for excellence by any other. It is found in inexhaustible quantities, and it is a matter of surprise to us that it is not worked up in the rough state and exported to Europe and the Atlantic States. The borax trade of Tuscany and India is worth over $5,000,000.

Asphaltum is found abundantly in Santa Barbara county, where it is already enriching several persons, as well as others in San Francisco engaged in making streets and roofing houses. Sulphur is found, also, in Santa Barbara, abundantly, of good quality, and quite convenient for shipping. Inexhaustible beds of it are found near the Napa borax lake, in the neighborhood of which is the deposit of obsidian, which will no doubt soon come into play for making glass, as it is readily fused, and with a little admixture of glass makers' materials, will make excellent black glass. The sulphur trade of Italy is worth more than $10,000,000; and yet, for all our State has such an abundance of it, no effort is made by our speculators to start the valuable trade.

In the southern part of the Tulare lake country, carbonate of soda and other minerals are found in great abundance. Alum and copperas are found in Calaveras, Tuolumne and Santa Clara, and could be made in any quantities. During the last six months, considerable amounts of quicksilver have been made from the rich deposits of cinnabar ore, at the New Idria mines, in the southwest corner of Merced county. There is no doubt that Stockton is the best shipping point for this new mine. And besides the above, how many other valuable minerals there are in our State, which only await the movements of a more numerous population and more enterprising capitalists; and more than all this, the construction of the Pacific Railroad and the Overland Telegraph.—*Stockton Republican.*

JENKINS' CHEMICO-MECHANICAL MINING APPARATUS.

MR. J. Jenkins, of the Empire Mill, has been for a long time engaged in experimentation with a view to produce some means by which so large a proportion of the gold, which is now lost from imperfection in machinery, may be saved.

He has repeatedly sent on parcels of the sulphate of iron to reliable persons in New York, with instructions to have them thoroughly analyzed, regardless of expense, to ascertain the proportion of gold they might contain. No return has as yet been made that would cause a less yield than $700 to the tun of sulphurets. The loss of free gold, susceptible of amalgamation with mercury, is regarded by Mr. Jenkins to be more than one-third.

He has caused to be erected a separate room, in connection with the mill, to contain his amalgamating and separating machinery, which will be run by a belt from a convenient shaft.

The machinery involves these two great ideas, in connection with the subject of extracting the gold from the pulverized debris from the stampers, viz: First, to amalgamate the free gold, and second, to save the auriferous sulphurets.

Mr. Jenkins' apparatus will consist of four tables, of such conformation and regularity of motion, as to throw back the auriferous pyrites by reactive agency, and to amalgamate the free gold, by means of copper plates coated with mercury.

Here then is the scheme; a mechanical action, by which the sulphurets are saved, and a chemical action by which the free gold is amalgamated.

Mr. Jenkins hopes his apparatus will accomplish the ends in view, yet he has only the confidence of a philosopher and rational experimenter.

In a few weeks he will have all his machinery completed and under way, and

we think, with much reason too, that we may be able to record the success of the experiment.

Mr. Jenkins has been a most untiring experimenter, and he certainly deserves some positive gratification; and such persons do, it is encouraging to know, sooner or later receive it. He by no means claims entire originality for the main principles involved in the machinery above mentioned, but he has so much elaborated, changed, and added to them, that we have, on our own responsibility, captioned this article.—*Nevada National.*

ADDRESS OF RALPH WALDO EMERSON.

THE Annual Agricultural Fair in Middlesex County, Mass., took place at Concord. The noticeable event of a day was the delivery of the following address bp Mr. Ralph Waldo Emerson at the dinner. We offer no apology for the space it occupies in our columns:

MR. PRESIDENT, LADIES AND GENTLEMEN:—I suppose there is no anniversary that meets from all parties a more entire good will, than this rural festival. Town and country, trades and manufactures, church and laymen, sailor and soldier, men and women, all have an equal good will, because an equal stake in the prosperity of the farmer. It is well with all when it is well with him. He has no enemy. All are loud in his praise. Every wise State has favored him, and the best men have held him the highest. Cato said, when it was said that such or such a man was a good husbandman, it was looked upon as the very highest compliment. Of all the rewards given by the Romans to great public benefactors, the most valued and the rarest bestowed was the crown of grass, given only by the acclamation of the army for the preservation of the whole army, by the faith of one man. Since the dependence, not of the whole army, but of the whole State rests on the tiller of the ground who grows the grass, the crown should be more rightfully awarded to the farmer. Let us then look at the condition of the farmer, or the man with the hoe, at his greater and lesser means, and his share in the great future which opens before the people of this country.

The glory of the farmer is that it is his to construct and to create. Let others borrow and imitate, travel and exchange, and make fortunes by speed and dexterity in selling something which they never made; but the whole rests at last upon his primitive activity. He stands close to nature; obtains from the earth bread; the food which was not he has caused to be. And this necessity and duty gives the farm its dignity. All men feel this to be their natural employment. The first farmer was the first man, and all nobility rests on the possession and use of land. Men do not like hard work very well; but every man has an exceptional respect for tillage, and a feeling that this is the original calling of his race; that he himself is only excused from it by some circumstances which may direct it for a time to other hands. If he had not some small skill which recommends him to the farmer, some product which the farmer will give him corn for, he must himself return to his due place among the planters of corn. The profession has its ancient charm of standing close to God, —He who gives. Then I think the piety, the tranquility, the innocence of the countryman, his independence, and all the pleasing arts belonging to him, the care of the beast, of poultry, of sheep, of fruits, of trees, and its reaction on the workman, in giving him a strength and plain dignity, like the face and manners of nature, all men are sensible of. All of us keep the farm in reserve as an asylum where to hide our

poverty and our solitude, if we do not succeed in society. Who knows how many remorseful glances are turned thus away from the competitions of the shop and counting-room, from the mortifying cunning of the courts and the senates. After the man has been degraded so that he has no longer the vigor to attempt active labor on the soil; yet when he has been poisoned by town life and drugged by cooks, and every meal is a force pump to exhaust by stimulants the poor remainder of his strength, he resolves: "Well, my children, whom I have injured, shall go back to the land, to be recruited and cured by that which should have been my nursery and shall now be their hospital."

The farmer is a person of remarkable conditions. His office is precise and important, and it is of no use to try to paint him in rose-color. You must take him just as he stands. Nothing is arbitrary or sentimental in his condition, and therefore one respects rather the elements of his office than himself. He bends to the order of the seasons and the weather and the soils, as the sails of the ship bend to the wind. He makes his gains little by little and by hard labor. He is a slow person, being regulated by time and nature, and not by city watches. He takes the best of the seasons, of the plants, and of chemistry. Nature never hurries, and atom by atom, little by little, accomplishes her work. The lesson one learns in fishing, yachting, hunting, or in planting, is the knowledge of nature; patience with the delays of wind and sun, delays of the seasons, excess of water and drouth; patience with the slowness of our feet and with the littleness of our strength, with the largeness of sea and land. The farmer, or the man with the hoe, times himself to nature and acquires that immense patience which belongs to her. Slow, narrow man—he has to wait for his food to grow. His rule is that the earth shall feed him and find him, and in each he must be a grateful spender. His spending must be a farmer's spending and not a merchant's.

But though a farmer may be pinched on one side, he has advantages on the other. He is permanent; he clings to his land as the rocks do. Here in this town farms remain in the same families now for seven or eight generations, and the settlers of 1635 have their names still in town; and the same general fact holds good in all the surrounding towns in the county. This hard work will always be done by one kind of men; not by scheming speculators, not by professors, nor by readers of Tennyson, but by men of strength and endurance.

The farmer has a great life, and a great appetite and health, and means for his end. He has broad land in which to place his home. He has wood to burn great fires. He has plenty of plain food. His milk at least is not watered. He has sleep; better and more of it than men in cities. But the farmer has grand trusts confided to him in the great household of nature. The farmer stands at the door of every family and weighs to each their life. It is for him to say whether men shall marry or not. Early marriages and the number of births are indissolubly connected with abundance, or as Burke said—"Man breeds at the mouth." The farmer is the board of quarantine. He has not only the life but the health of others in his keeping. He is the capital of health as his farm is the capital of wealth. And it is from him and his influence that the worth and power, moral and intellectual, of the cities comes. The city is always recruited from the country. The men in the cities who are the centers of energy, the driving wheels in trade or politics, or arts, or letters; the women of beauty and genius, are the children or grandchildren of farmers, and are spending the energies which their hard, silent life accumulated in frosty furrow, in poverty, in darkness, and in necessity, in the summer's heat and winter's cold. Then he has a universal factory. He who digs and builds a well and makes a stone fountain; he who plants a grove of trees by the roadside, who plants an orchard and builds a durable house, or even puts a stone seat by the wayside, makes the land

lovely and desirable, and makes a fortune which he cannot carry with him, but which is useful to his country and mankind long afterward. The man that works at home moves society throughout the world. If it be true that, not by the fiat of political parties, but upon external laws of political economy, slaves are driven out of Missouri, out of Texas, out of the Middle States, out of Kentucky, then the true abolitionist is the farmer of Massachusetts, who, heedless of laws and constitutions, stands all day in his field investing his labor in the land and making a product with which no forced labor can in the long run contend. The rich man, we say, can speak the truth. It is the boast that was ever claimed for wealth, that it could speak the truth, could afford honesty, could afford independence of opinion and action, and that is the theory of nobility. But understand this: It is only the rich man in the true sense who can do this—the man who keeps his outgo within his income.

The boys who watch the spindles in the English factories, to see that no thread breaks or gets entangled, are called "minders." And in this great factory of our Copernican globe, shifting its slides of constellations, tides and times, bringing now the day of planting, now the day of watering, now the day of reaping, now the day of curing and storing, the farmer is the "minder." His machine is of colossal proportions; the diameter of the water wheel, the arms of the lever, the power of the battery, are out of all proportion; and it takes him long to understand its abilities and its working. This pump never sucks. These screws are never loose. This machine is never out of order. The piston and wheels and tires never wear out, but are self-repairing. Let me show you then what are his aids.

Who are the farmer's servants? Not the Irish, God help him. No; but chemistry; the pure air; the water-brook; the lightning cloud; the winds that have blown in the interminable succession of years before he was born; the sun which has for ages soaked the land with light and heat, melted the earth, decomposed the rocks and covered them with forests, and accumulated the stagnum which makes the heat of the meadow. The students of all nations have in past years been dedicating their education to universal science, and they have reformed our school-books, and our terminology. The four-quarters of the globe are no longer Europe, Asia, Africa and America, but carbon, oxygen, hydrogen and nitrogen. The four seasons of the year are now gravitation, light, heat and electricity. Science has been showing how nature works in regard to the support of marine animals by marine plants. So nature works on the land—on a plan of all for each and each for all. You cannot detach any portion of its forces and retain a perfect nature. The flame of fire that comes out of the cubic foot of wood or coal is exactly the same in amount as the light and heat which was taken in from the sunshine, in the form of leaves and roots, and now is given out after a hundred thousand years. Thus lie in the farm inexhaustible magazines. The eternal rocks have held their oxygen and lime undiminished and entire as they were. No particle of oxygen can run away or wear out, but has the same energy as on the first morning. The great rocks seem to say, "Patient waiters are no losers." We have not lost so much as a spasm of the power we received.

The earth works for man. It is a machine which yields new service to every application of intellect. Every plant is a manufactory of soil. In the stem of the plant development begins. The tree can draw on the whole air, or the whole earth, or the rolling main. The tree is all suction pipe, imbibing from the ground by its roots, from the air by its twigs, with all its might. The atmosphere is an immense distillery, drinking in the oxygen and the carbon from plants, and absorbing the essence of every solid on the globe. It is the receptacle from which all things spring, and into which all return. The invisible air takes form and solid mass. Our senses are sceptics, and only believe the impressions of the moment. They do not believe

what is demonstrated to them—that these vast mountain chains are made of gases and rolling wind. They do not believe, what is true, that one-half the rocks which compose the great globe, every solid substance, the soils we cultivate, are made up of animals, and plants, and invisible oxygen. Nature is as subtle as she is strong. Her processes of decomposition and reconstruction might be followed out in higher grades of existence, rank into rank, to sentient beings. They burn with internal fire which wastes while it works. The great agencies work in man as in all.

There is no porter like gravitation, who will bring down any weight which you cannot carry, and if he wants aid he knows where to find his fellow-laborers. Water works in masses, and sets his irresistible shoulder to your mills and your shops, or transports vast boulders of rock a thousand miles. But its far greater power lies in its capacity to enter the smallest holes and pores. By its agency the vegetable world exists, carrying in solution the elements needful to every plant. Water! that daily miracle—a substance as explosive as gunpowder—the electric force contained in a drop of water being equal in amount to that which is discharged from a thunder-cloud. I quote from the exact Farraday.

While the farmer has these grand fellow-laborers to assist him, and these majestic tools to work with, it must be owned that he is not quite competent to their direction. His servants are sometimes too strong for him. His tools are too sharp. But this inequality finds its remedy in practice. Experience gradually teaches him, and he is thoughtful. The farmer hates innovation; he hates the hoe till he tries it, preferring to scratch with a stick; he will walk till he has tried the railway car; but the oldest fogy among us, now that the Atlantic cable is laid, would hardly set out to dispatch a letter across the ocean by swimming with it in his mouth. While such great energies are working for the farmer, he is also to recollect the great power that is in small things. It is very little that is required. Its internal force consists in a few simple arrangements. Look, for instance, at all the powers of a chestnut rail. Look at that prairie, hundreds of miles off; not a stick or a stone upon it, except at rare intervals. Well, the farmer manages to put up a rail fence, and at once seeds sprout and crops rise. It was only the browse and fire that kept them down. Plant a fruit tree by the roadside and it will not produce, although it receives many hints from projected stones and sticks, that fruit is desired to come down, and though fruit has gone crude into the bowels of small boys. But put a fence around it, the boys will let it alone and you will have fruit so large and luscious as to seem almost inviting you to take its picture before being sent to the horticultural fair.

Nature drops a pine cone in Mariposa, and it grows three or four centuries, producing trees thirty feet in circumference. How was it done? They did not grow on a ridge, but in a basin, where they found a deep and dry soil, and where they could protect themselves from the sun by growing in groves, and from the winds by the mountain shelter. The planter who saw them remembered his orchard at home, where every year a destroying wind made his pears and peaches look as bleak as suffering virtue, not better than abolitionists; while the fat Democrats, that had got their tap-roots into the national treasury, grew stout and hearty. So he went home and built a high wall on the exposed side of his orchard, and after that his peaches grew to the size of melons, and his vines ran out of all control.

I have heard a man say that he could have a whole farm in a box a rod square. He would take his roots into his library and feed them with food they like. If they have a fancy for dead dog he would let them have it, being sure that the fruits would never reveal the secrets of their table. Such men we need to bring out a greater degree of cultivation of our soil, which is capable of as great an increased productiveness as that which England has achieved. Concord is one of the oldest towns in the country—far on now in its third century. The selectmen have once in five

years perambulated its bounds, and yet in this year a very large quantity of land has been discovered and added to the agricultural land, and without a murmur of complaint. By drainage we have gone to the sub-soil, and we have a Concord under Concord, a Middlesex under Middlesex, and a basement story of Massachusetts more valuable than all the superstructure. Tiles are political economists. They are so many young Americans announcing a better era, and a day of fat things. There has been a nightmare brought up in England, under the indigestion of the late suppers of overgrown lords, that while the population increases in a geometrical ratio, the crops increase only in an arithmetical ratio. The theory is that the best land is cultivated first. This is not so, for the poorest land is the first cultivated, and the last lands are the best lands. It needs science to cultivate the best lands in the best manner. Every day a new plan, a new theory; and this political economy is in the hands of these teachers. It is true, however, that population increases in the ratio of mortality, and the crops will increase in a like ratio.

I congratulate the farmer of Massachusetts on his advantages. I congratulate him that he is set down in a good place, where the soil and climate is so good. We plant more than in any northern or southern latitude. We are here on the northern boundary of the tropics, on the southern boundary of the arctic regions. We can raise almost all crops; and if we lack the orange and palm, we have the apple and peach and pear. In Illinois, it is often said, although it is more the voice of their scorn than of their pity, that they reckon it a singular leading of Divine Providence that Massachusetts was settled before the prairie was known, else unproductive soils would never have been settled. But the Massachusetts farmer may console himself that if he has not as rich a soil, he has the advantage of a market at his own door, the manufactory in the same town. I congratulate you, then, on this advantage of your position. Next, I congratulate you on the new territory which you have discovered, and not annexed, but sub-nexed to Middlesex and to Massachusetts. And then I congratulate you at being born at a happy time, when the sharp stick must go out with the arrow; when the steam-engine is in full use, and new plants and new culture are daily brought forward. I congratulate you on the fact that the year that has just witnessed successful employment in the mill-room and on the plains and prairies, has also witnessed the laying of the Atlantic cable. The cable is laid, and the courage of man is confirmed. The cable is a smiting hand. All that used to look like vagary and castle-building is to be solid sense henceforth. Who shall ever dare to say impossible again. Henceforth, if a thing is really desirable, it is in that degree really practicable, and the farm you have dreams of—go instantly and begin to make it. I congratulate you, lastly, on the new political economy which takes off the crape and lets in the sunlight on us, and which teaches that what is good for one human body is good and useful for us all.

LANGUAGE OF INSECTS.—I have frequently observed two ants, meeting on their path across a gravel walk, one going from and the other returning to the nest. They will stop, touch each others antennæ, and appear to hold a conversation; and I could almost fancy that one was communicating to the other the best place for foraging. This Dr. Franklin thought they had the power of doing, from the following circumstances: Upon discovering a number of ants regaling themselves with some treacle in one of his cupboards, he put them to the rout, and then suspended the pot of treacle by a string from the ceiling. He imagined he had put the whole army to flight,

but was surprised to see a single ant quit the pot, climb up the string, cross the ceiling, and regain its nest. In less than half an hour several of his companions sallied forth, traversed the ceiling, and reached the depository, which they constantly revisited until the whole of its contents were consumed.—*Jesse's Gleanings in Natural History.*

The bee hunter, who having taken from a flower the first bee and after regaling it upon the honey in his box, has permitted it to return to its home in the wood or cavity in the rocks, is sure that on its return, from one to three of its comrades will be in company. There must be a language either of signs or sounds.

HORSE FAIRS, NOT AGRICULTURAL.

THE *Boston Journal* says: The *Transcript* has devoted much space of late to the proceedings of the Horse Show at Springfield. The reasons for this are numerous. In the first place, we were confident, from previous knowledge of the citizens of Springfield, that the exhibition of horses there would be as complete and excellent as the most comprehensive arrangements, carried out with ardor and energy, could secure. The result has been anticipated. There never has been a more superb collection of horses in any part of the country than was to be seen at the show of the past week. These animals have comprised every variety of native stock, with occasional admixtures of foreign blood — horses for draught or for speed, and uniting both these qualities. The names of the most famous specimens of the equine race present have already been given in our columns.

No person, even if entirely free from the prevalent type of horseomania, could have visited the fair without finding something to enjoy. What more admirable product of nature can there be, than an exquisitely molded horse, with symmetrical body, compact limbs, flashing eye, and flowing mane, giving to the beholder an idea of a combined beauty and strength such as is exhibited by no other creature. In an animal of this character there is an elevated instinct which raises him far above the common brute. Observe him when in motion. How proudly he carries his head! With what dainty step he traverses the ground! and how he exerts himself to do his master's bidding, seeming to feel as much pride at every victory achieved as his owner. These are scenes which cannot but exhilerate the most sluggish temperament.

The growing belief in the necessity of improving the breed of horses is revealed by the constantly increasing attendance at displays for the purpose. This encouragement is not confined to professional horsemen merely. All classes of people begin now to feel an interest in the subject. It certainiy is a question of vast magnitude, involving property consideration, which will not admit of trifling. The value of the horses in the country at the present time exceeds that of all the railroads in the land.

At the Springfield Fair, the "best citizens" were present; they encouraged it by their advice and means. Neither were the ladies wanting. During the pleasant days they maintained their seats at the show grounds with a pertinacity, proving that a beautiful woman can admire a beautiful horse, at least. By thus acting, they displayed good sense and judgment. The "fairer sex" are interested more than they know in the improvement of horses. Anything that tends to turn the attention of the indoor, busy, utilitarian American to outdoor sports should receive the approbation of the ladies. After awhile, perhaps a public opinion would be formed that will consider horse-back riding by females as one of the necessary habits of the times,

and not an anomalous occurrence, to excite depreciatory remark or scurrilous jest. There is no finer spectacle, than an intelligent woman upon a spirited horse, which she guides with perfect ease; as it affords an illustration of the mind over physical strength.

Another wholesome feature of horse-shows is, that they serve to promote the growth of good fellowship between different sections of the country. A large assemblage of splendid horses is now sure to bring together large collections of people from all quarters of the union. Vermont is an extensive horse-raising State. A true South Carolinian never feels better than when the possessor of a noble steed. He is certain to be wherever these are on exhibition, either to inspect or purchase. The intercourse which naturally occurs removes prejudices, allays sectional jealousies, and causes parties, living at extremes of the confederacy, to see how foolish it is to hate where every consideration should lead to a different feelling. Even Mr. Yeadon, of the Charleston *Courier*, by his visit to Springfield, will learn that Massachusetts men now entertain the same generous sentiments as their ancestors did at the revolutionary period.

It cannot be doubted that the effect of the exhibitions of which we speak is to stimulate to the production of a better species of the noblest of the domestic animals. As a final result it will be determined what particular breed is best for speed, and which is preferable where strength and endurance are required. It seems now to be the general opinion that for all uses the Messenger stock cannot be excelled. The horses raised in Vermont are noted for swiftness, yet are diminutive in stature; the New York animal is larger, lasts longer, and for practical purposes bears the palm. Yet the Long Island horse is far from slow, and at recent shows has proved no mean competitor in respect to fleetness.

We are glad to perceive the interest in the subject which has been evinced of late by the clerical classes of the community. English clergymen do not conceal their love for the turf, and why should American? "A merciful man is merciful to his beast," and no better opportunity for studying human nature is anywhere afforded than at horse exhibitions. Besides, of all grades of professionals, the clergyman most needs the excitements and stimulants connected with trials of speed between fast horses. These encourage a lively action of the whole nervous system, send the blood coursing through the veins, and quicken the movement of the intellect to a degree beneficial not only to the occupant of the pulpit but to hundreds of parishioners, who had previously to listen for numberless Sabbaths to tedious discourses.

Now that this influence is thrown into the scale, we know of no objections to horse fairs of the most comprehensive description. They serve to augment the worth of a valuable class of property; they have a tendency to increase the good feeling which should exist throughout the entire union; they will eventually establish the best methods of raising horses and of the government of them; and as the grand result of the whole, it will appear that the United States, all things considered, stands second to no other country in the excellence of its specimens of the equine family.

We are very glad to be able to state, that the experiment made by the Hon. B. D. Wilson, in the manufacture of syrup and sugar from the Chinese sugar cane, has been entirely successful. The mill operates admirably, and the produce of the cane is abundant beyond anything ever experienced, considered either in respect to its yield as cane, or as fodder for cattle and other animals, or for seed, of which fowl eat with avidity. In all respects, it is well adapted for culture in this country, and we have no doubt it will come into general favor.—*Los Angeles Star.*

PRUNING THE VINE.

THE proper pruning of the grape vine is a subject upon which a great diversity of opinion has ever existed; and yet there are certain general features or rules pertaining to the art of vine dressing, that are to a great extent common to every system. We have heretofore abstained from any approach towards the recommending of any system of pruning, for any such recommendation would have been premature, because out of season.

Pruning the vine is a very different process from cutting-in, or shortening the fruit laden shoots; and yet there may be those who know or make no distinction between pruning the vine at a proper season in order to produce fruitfulness, and a recommendation to *be cautious how you cut back the bearing shoots of your grape vines, with a view of increasing the size of the fruit.* "A *prevention* of the elongation of a bearing shoot, and cutting it back, are two things;" and, yet there are those who, when they see a remark condemnatory of the practice of cutting back a shoot that has been allowed to grow to an unnecessary length, which practice is always "productive of evil results," confound the practice with something or anything that will answer their purposes for argument. Thus one writer "looks through the pages of the *Culturist* for a lesson on *grape-pruning*, and confesses astonishment at the position taken by its conductors upon the subject;" when, the fact is, until the present, not a line upon the subject, has ever appeared in the *Culturist.*

The proper season for pruning the vine, with a view of securing its fruitfulness, is now at hand; and pruning can be continued at convenience, till just previous to that season in early spring, when the vines on being cut, "bleed," or throw off their juices from the newly cut wood. Cutting-in, as injudiciously practiced by some, is usually performed "when the fruit is swelling;" with this process then we have, at this season of the year, nothing to do but record our protest against the practice, based upon our own personal experience for years, as well in the western States as in California; and this experience endorsed by the oldest vine culturists of this State, and in a section that produces the largest and best grapes that have ever yet appeared in the market of San Francisco.

All cultivators of the vine admit the necessity of an annual pruning. It is this that gives to the cultivated vine, a productiveness over the uncultivated "wild grape vines indigenous to our mountain gulches and ravines;" for it is a well known fact, that such wild vines, subjected to a proper winter pruning are rendered fruitful, and this without any after cutting-in or "shortening" of the fruit bearing branches, at the season of the swelling of the fruit. The proper mode then, of pruning the vine to secure fruitfulness, as well as a vigorous, healthy growth, is one of the first importance to the vine grower. Every day's experience is teaching the observant California grape culturist the utter fallacy and error of being unchangeably wedded to the old system of pruning, or of supposing that because entirely applicable to other countries, the same must necessarily be here. Men of but one idea, naturally hold

to the one already acquired, no matter how erroneous, rather than give place to an improved one.

When, therefore, we have a practice recommended as essential to the growth and productiveness of the vine in Europe, as equally befitting our climate, though in direct variance with our own experience, we shall always advance and propagate our own opinions, even at the risk of their being called "new."

First, then, we are entirely opposed to the system of close pruning, so rigidly adhered to, even in this country of heat and sunshine, by most of our culturists with a European experience. This class of culturists grow grapes here, and often very good grapes, but seldom equalling those grown under a less rigid system of pruning. In this view of the subject, the result of our own direct experience again, we are not alone; and it is gratifying to know that our opinions, however much they may differ from those who remain true to ancient usage, are nevertheless corroborated by those of far more extended experience than our own.

The Hon. A. G. Semmes, of Florida, an amateur culturist of foreign grapes, says: I train my vines on trellis from seven to eight feet high—of wire—but cannot follow the rigid system of pruning recommended in European culture, and practiced at the North. We have to so train our vines, that not a ray of sunshine ever touches the fruit; otherwise, the fruit loses much of its fine flavor, and is altogether robbed of its bloom, which, if it does not preserve its flavor, at least adds to its beauty." On another occasion he says: "The close pruning for out door culture, adopted in Europe, and the Eastern States particularly, will not answer for this climate. The reason is very obvious. On account of the heat and duration of our summers, a vine here under proper culture, will, in twelve months, grow as much as a vine in England will in four years." And we believe this remark as applicable to California as Florida.—After a vine has become established—say after the first fruit year—if healthy, it should be pruned back not exceeding one-half, and oftentimes not more than one-third, of that year's growth, unless it be the smaller lateral shoots. This will secure a sufficient foliage to protect the fruit from the rays of the sun; for unlike other fruit, it is all-important that the grape be *entirely shaded* at every stage of its growth and maturity; otherwise, if it escape the rot, it will be small, hard and insipid. The natural shade and protection of the fruit is the foliage, and the more luxuriant this is, the greater certainty of fruit of large size and rich flavor. After several years' experience with some five hundred vines, I have never known an instance in which these suggestions did not prove true, both in regard to the native and foreign varieties; especially the latter, on account of their thin skin and great delicacy."

J. Fiske Allen, in his late treatise on the culture of the grape, says: "It is the established opinion, in vineyard culture, that the best fruit is produced when the vine receives the most sun; not upon the fruit, but upon the foliage." This fact alone, would mark California as being one of the finest grape growing countries in the world, a suitable soil and proper culture alone remaining to demonstrate its truthfulness. Experiment has proven the former to be all that could be desired, leaving proper

culture the only matter upon which a doubt can rest; and this can only be resolved by years of practical experience.

We have introduced the foregoing, touching upon the culture of the grape in Florida, believing that the climate of that State is more nearly similar to ours, than that of any other section of the Atlantic States, if we except Texas.

In giving directions for the pruning of the vine, we shall be governed by the best authorities extant, coupled with our own experience; for when we know of a decided improvement upon old systems of rearing and pruning peculiarly adapted to the soil, climate and exuberant growth of the vine in California, we shall not hesitate to declare it, leaving it to the future to prove the perfect adaptability of the mode recommended.

The vine is easily propagated from seeds, layers, cuttings, eyes or buds. In raising from seed, all that is necessary to insure success, is to plant fresh seed in good soil, from half an inch to an inch from the surface in early spring; then, if there is sufficient warmth and moisture in the soil, seedlings with proper cultivation can be grown the first season, from two to three feet in length from the ground. No other training or pruning is required than to pinch off all lateral shoots, from the main stem, as fast as they may appear, from the ground upward a hight of six or eight inches: above this the vine should be left to grow at will in any form or direction, and without stake or other support; and for the reason that in the following autumn or winter the vine is to be cut back entirely, to within two or three buds of the ground. The second year's training of a vine from the seed, should be precisely like the first in every respect; a single shoot, with all laterals pinched off to a hight of four or five buds above the point of starting from the last year's wood; it is now two years old, and just equal to a vine with the ordinary growth of one year from the slip or layer. The after pruning and training, therefore, are the same.

In raising vines from slips, cuttings should be obtained of well ripened wood of the last season's growth, cut into lengths of five or six inches; the upper bud should be within half an inch of the end, and the slips set perpendicularly in well prepared ground, with the upper bud even with the surface. Some planters recommend setting the slips inclined from the perpendicular; we could never discover the slightest benefit resulting from it, except in the convenience of setting. It is usual in planting out large numbers of cuttings, to run a furrow along the ground prepared, with either plow or spade, throwing the dirt out from the line of setting all one way; then in placing the slips or cuttings along the perpendicular side of this furrow—for the cutting should never be forced into the ground endwise—they will retain their position better till the earth is returned, by being in an inclined position than perfectly upright: and this is the only advantage we could ever discover.

It is an error to suppose that there is any advantage in planting out cuttings at a greater depth than six or eight inches. They may grow if longer than this, but below that depth, few, if any roots are ever formed, and all the slip below that depth soon rots off, which can be no advantage to a healthy vine. There are some, also, so entirely inexperienced as to suppose that the lower buds of a cutting form roots.

Roots never grow from such buds; all the buds upon a grape cutting that do not grow towards the surface and produce top, never grow at all. The roots are formed from, or grow out of the cutting, above and below, and near to the joints or wood buds; so that to leave a cutting more than an inch in length below the lower joint, and that buried to a depth of more than six inches, is useless.

Train a single bud the first year to a single stalk, as already directed for the first and second year from the seed. Propagating by layering, consists in simply bending down the growing branches of the current year, confining them two or three inches in moist earth beneath the surface, and allowing the terminal bud to be above the surface. Such layers immediately strike root and the following spring can be separated from the parent vine.

In propagating from buds or eyes, there should be an inch of the branch both below and above the bud, and such section with its bud uppermost, planted from two to three inches below the surface in well prepared soil. Vines thus grown are more generally treated the same as though grown from seed, though some of them will produce a growth equal to cuttings of greater length, and should be treated accordingly. The only object in raising vines by this method, is the greater number that can be grown from a given quantity of vine shoots or cuttings.

We will now take the vine at two year's growth from the seed or bud, and one year from the ordinary cutting. In the following autumn or winter, cut all back to three well developed buds. From this time onward year by year, the pruning and triming will depend upon the *mode*—for there are many—to be adopted, and the fancy of the culturist; but as California bids fair to become largely grape producing, counting here acres of vineyards by thousands, we shall in the present article speak only of that mode which we believe best adapted to open, vineyard, field culture on the largest scale.

We would plant out the vines in rows six feet apart, and five feet apart in the rows. Almost every cultivator has an apparent reason for the distance at which he plants his vines, and hardly any two agree. Give each vine a stake six feet in hight above ground, of the most durable wood possible to be procured. With your vine pruned back to three eyes as before stated, train the upper shoot to the stake as it advances in growth, to a hight of two feet only; the nallow it to bend over and spread as it may; this checks its over exuberant growth, shades the fruit better, and is preferable to pinching off or cutting back; and should it set more than one bunch of grapes, pinch them off. The two lower buds we would allow to grow as they might, without training up at all, each with its single bunch only. No summer pruning, cutting or shortening would we give, except pinching off the laterals that might appear from the first five or six joints only. Upon this head, the summer shortening, checking or cutting in of the vine, we had thought of saying nothing at the present time; but good authorities are so thickly strewn upon our table, almost speaking themselves into notice, that we conclude to make a quotation or two now, not knowing when we may renew the subject. H. W. S. Cleveland, of Burlington, N. J., cultivates an extensive vineyard, "and is increasing it largely." He says: "Former-

ly, I used to be careful in my summer pruning, but after experiment, I was convinced that the vines are best let alone; that all the leaves are needed for ripening the fruit." Dr. Sidney Weller, of North Carolina, in an article originally written for De Bow's Commercial Review, also says: "The principle of allowing the vine to spread and range freely, during summer is, undoubtedly, correct." And J. Fiske Allen, as good authority as we have in the United States, says: "It is what I have recommended for many years." We might multiply authorities upon this point, but enough has been shown to prove, that however well the practice of shortening, checking the growth or cutting-in may apply to a European growth of the vine, practice, experiment and experience has proven it *not adapted* to American culture.

We will proceed to prune for the second bearing year, by shortening the upright shoot down to four, five or six buds, depending upon the strength of the vine; to those of weaker growth, of course a lesser number than to the stronger, and cut back the two lower shoots to two or three buds each, and then let the trimming for the summer be precisely the same as the previous year; and let the pruning of subsequent years be the same continued till the top of the stake is reached, or the vine has acquired the desired hight. You will then have a strong standard trunk, surrounded with fruit spurs and bearing wood from bottom to top, but for several years requiring the stake to sustain it in its upright position. We have already extended our article to a much greater length than we intended, but the importance of the subject seemed to call for all that we have writen, and much more might be said.

EIGHT YEARS, AND FIFTY ACRES IN CALIFORNIA.

THE world was incredulous for a time, at the reported gold discoveries in California. Equally incredulous were the large majority of those, who, as adventurers, had immigrated hither to take their chances at what might turn up, in reference to the capabilities of the soil and climate of California for the succesful growing of that large catalogue of vegetable productions so necessary to the convenience and sustenance of mankind. A few, however, with a foresight of the benefits that must accrue from an early production of the vegetables and fruits so imperatively required by a rapidly increasing population, turned their attention to their production.

Among the pioneers in this branch of industry, was A. P. Smith, of Sacramento, the present proprietor of the justly celebrated Pomological Garden and Nursery, two and a half miles from that city, upon the American river. In 1849, Mr. Smith made his location of grounds, obtaining title from Gen. Sutter, direct. The two following years his grounds were mainly devoted to the production of garden vegetables, it being impossible to procure the requisite stock of seeds or seedling trees for the commencement of the nursery, or for fruit growing, with the exception of some twenty or thirty fine peach trees, which were planted out in 1850, and which commenced bearing in 1853. The nursery proper was commenced in the spring of 1852, by planting out peach pits and seedling trees in dormant bud, obtained from the East.

In 1853, continued to extend his nursery stock. In the fall of this year the few peach trees set in 1850, produced abundantly, giving promise of the complete adaptation of soil and climate to the production of this fruit in its highest perfection.

In 1854, the fruit crop was largely increased, and as the fruit of this year and the one preceding, as well as the growing trees, gave evidence of a want of more water than was natural to the sandy loam constituting the soil of his grounds, works for artificial irrigation were erected this year, upon the banks of the river near at hand; various devices were employed in raising the water from the river, with indifferent success, until the adoption of steam power and the "Worthington pump," when the means for an abundant supply of water at moderate comparative cost were secured. The Worthington pump, which we have here introduced by name, is, beyond all doubt the simplest, cheapest and best pump for raising water by steam power, ever introduced; and is the same that, upon a larger scale, is to be put in use on arrival from New York, by the city of Sacramento water works.

The pump in use by Mr. Smith is a small one, yet capable of raising to a hight of forty feet, from thirty to forty thousand gallons of water an hour. The engine is estimated at ten horse power; requires one cord of wood for every twelve hours. The water is forced up into a tank or reservoir that will contain about eight thousand gallons. The hight of the tank gives about fifteen feet head upon the conducting pipes, laid under ground to all parts of the garden. These pipes are made of earthen ware or pottery and manufactured at Sacramento; the main pipes are eight inches in diameter, and to give them the proper strength for a fifteen feet pressure of water, are made three-fourths of an inch thick. There are eight hundred feet of main, and five thousand feet of branch pipe; the latter four inches in diameter. Hydrants are placed at convenient distances for attaching hose for showering and surface irrigation; and altogether this is one of the most complete arrangements for artificial irrigation we have ever seen.

In 1854, this garden suffered in common with others, from the grasshopper scourge. The trees set well with fruit, but it was nearly all destroyed, and the trees to some extent injured; and had it not been for the facilities of abundant irrigation they would have suffered much more severely. After the scourge had passed over, leaving but little verdure upon the trees, a flow of water was turned on, that with the heat of the season, caused an immediate reproduction of leaves and a setting of abundant fruit buds for a next year's crop; whilst many orchards not thus favored suffered far more severely, even to the loss of many trees, by losing their entire verdure in the heat of the summer.

From 1855 to the present, this garden has been a complete success; and is now a brilliant example of what perseverance, industry and skill can accomplish, in the space of a very few years. Nearly six acres of the fifty, are devoted to avenues and pleasure grounds, beautifully planted with ornamental trees, hedges and plants in almost infinite variety. The remainder being occupied entirely with orchard trees, and trees in the nursery row, presents in many parts not only a perfect forest of fruit trees, but those trees laden in their season with the richest profusion of luscious fruits

of almost every known variety, from the purely exotic, to that hardy and world renowned fruit, the apple.

Of trees actually in bearing the past summer, there are fifteen hundred peach trees, set eighteen by eighteen feet; standard pear trees nine hundred and fifty, 26x26 feet; dwarf pears, eight thousand and sixty-eight, 6 1-2x6 1-2 feet; two hundred and forty plum trees, 18x18 feet; two hundred and one apricot trees, 18x18 feet; three hundred and sixty-nine cherry trees, 18x18 feet; two hundred and sixty apple trees, 36x36 feet; one hundred and forty nectarines, 18x18 feet; of California Mission grape fifteen hundred, 6x8 feet; two thousand three hundred and eighteen foreign grapes, 6x8 feet; walnuts, almonds, figs, pomegranates, filberts and quince, one hundred and fifty, 18x18 feet; currants and gooseberries two hundred, 4x6 feet; strawberries four acres, and one acre of raspberries. The apple trees alternate in the same lines with the peach trees; so also do the dwarf pears with the standards; there are also three lines of the former, between every two lines of the latter. The bulk of the trees in the orchard is composed of such varieties as are best adapted for market and profit.

The gross amount of peaches sent to market this year was one hundred and fifty thousand pounds, which would be an average of one hundred pounds to each tree. In addition to its being a garden of fruits and fruit trees, it also comprises one of the first and largest nurseries in the State, where trees, shrubs, plants and vines of every conceivable variety are propagated for sale.

In his nurseries of forest and ornamental trees, are to be found twenty varieties of the elm, six of ash, with locust, linden, three thousand acacia, Norway, sugar and red maples, English maple, English sycamore, pride of India, abel tree, buckeye bay tree, three varieties of walnuts, the beautiful catalpa, and the laburnum, besides other novel trees. Nowhere have we seen so fine a growth and variety of evergreen plants and shrubs as in this garden. There is also a very large collection of our own beautiful conifers, which are here transplanted and grown with as much success as an apple or any other kind of tree. As evidence of this, there is a very large stock of many thousands of these beautiful trees, pines, firs and cedars, flourishing in unsurpassed luxuriance. Many have supposed it quite impossible to get these trees to live, in the dry soil of our lower valleys; but cultivated as they are in this establishment, there is no difficulty attending it. The young trees, from the time they make their appearance above ground till they are three years old, are never permitted to grow two years in succession in the same place, and this annual transplanting checks their native tendency to send into the earth only a few long tap roots, and instead, is obtained a mass of fibrous roots, easily transplanted without much injury, and insuring the growth of the tree.

The flower garden and green house departments are made to keep pace with the other improvements. It would occupy too much space were we to enumerate but half the rare, beautiful tropical and other exotic plants in the collection; but we can hardly pass without particular mention of the splendid collection of over fifteen thousand roses, in all the classes, and containing all the rare and first rate kinds in each class.

But that which more particularly attracted our attention in this department was the fine stock of more than two thousand strong and healthy flowering camellia plants, undoubtedly the largest lot in the State. These truly elegant flowers flourish finely in this valley, being perfectly at home out of doors the whole year under certain circumstances; such for instance, as planting them where during the heat of the summer they can obtain the shade of shrubbery or building, during the hottest part of the day. Neither is there any cold in that locality sufficient to injure them. We consider the camellia indispensable to the elegant flower garden, combining as it does so many of the elements of loveliness, in its rich evergreen foliage and superb flowers of richest colors. These plants are extensively propagated at this establishment to meet the constantly increasing demand for them, the more it becomes known that, with us, it is not absolutely a house plant.

The seed department of this establishment containing a general assortment of all the vegetables cultivated in the State, is very complete. The growing of pure seed for our own market, is an object to which the proprietor early turned his attention, and for the past few years, has continually raised tuns of the finest seeds, which have been sold in every part of the State, in Oregon and Washington territories and the Sandwich Islands; and the annually increasing demand for his seeds, is a flattering comment upon their value. In the foregoing we have given a truthful description of the beginning, progress and present condition of a farm or garden, call it what you will, of fifty acres in California; we have said nothing of the farm buildings, their admirable adaptation to the purposes designed, the elegant mansion of the proprietor, or the true hospitality of its inmates; all these are so patent to the thousands who annually visit these beautiful gardens and pleasure grounds, as to require no reiteration from us. But we can hardly refrain from giving, in addition to the foregoing description, one important fact, and one of peculiar interest to any one who, while admiring the success that industry has accomplished in the brief space of eight years, is equally desirous of knowing the *dollar results* from such an enterprise. To say nothing of the large amounts received from the sales of garden vegetables during the years from 1850 to 1855, including no small amount from the sales of fruits, the actual gross amount of sales from the garden, orchard and nursery, for the years 1856–57 and '58 has exceeded one hundred and fifty thousand dollars.

GRAFTING THE VINE.

IN many portions of California there are numerous indigenous grape vines of large size and luxuriant growth, that if grafted with the improved or introduced varieties, might be made to yield largely of luscious fruits, much sooner than could be otherwise obtained. The process of grafting the vine is simple, and easily performed. We append the different modes practised, believing that many may be induced to experiment upon the native stocks along our rivers, mountain gulches and ravines.

T. A. Knight, Esq., in a paper read to the Horticultural Society, in September,

1821, says: "I selected three cuttings of the black Hamburg grape, each having at its base one joint of two years' wood; these were inserted in, or rather fitted to, branches of nearly the same size, but of greater age, and all succeeded most perfectly."

Mr. J. D. Parks, says: "The best time for grafting is when the stock is far advanced in growth as the setting of the fruit; the stock should then be cut down, the scion having been kept in a dormant state. In grafting vines I have cut them off at the surface of the ground, and with a knife have split the stump in the middle and inserted the grafts cut in a wedge shape; they have always grown."

Mr. Cleveland says: "I took twelve Isabella vines of four years old; in taking them from the ground I took the greatest care to preserve my root. I then planted them outside the grape house, carried the stem to the inside, under ground, sawed it off two or three inches below the surface, split the stock, and inserted two scions in each, pressed the earth as tight as possible about them, and so left them. As soon as the eyes had pushed enough to be tied, I pulled out the scion which had the weakest growth and trained the other up under the rafters. They *all grew* that season to the top of the roof, fourteen feet, and were there stopped. In the fall I cut them down to five buds each. The following summer they bore, and ripened their fruit well, and have continued to bear more and more the two seasons since. I allowed one the past season, to bear twenty pounds, which was too much, and it was not well colored. The rest bore about twelve pounds each, and ripened it well."

Dr. Sidney Weller, of North Carolina, says: "It is the uniform result of long experience, that, if grafting is effected on stocks procured or dug up from the woods, success, with due painstaking, will surely follow, if done at any time from the complete fall of leaves in autumn, until late in spring or even summer, when the scion can be kept back from sprouting. But if the graft be on stocks not dug up, or stands where it is to remain, it must be done in the fall or early part of winter, to ensure success. No clay, or any other covering of the grafted part, is necessary in grafting grape vines even with the ground. All that is to be done, is to saw off your stock and put in your scion—with two or three buds thereon—wedge fashion, as in cleft-grafting fruit trees, and then draw earth around a few inches high, leaving one or two buds above ground; or where the stock is very large and inconvenient to split, I have made a gimblet hole and inserted the scion, spile fashion, and then drawn the earth around. Grafts often bear some fine clusters the first season of growth, and pretty considerably the second."

Mr. Amos Goodwin, Clark Co., Indiana, says: "Permit me to describe a method of grafting the grape upon old roots, that I have never seen in print. Cut the old root off, some two inches below the ground, by a horizontal cut; then choose a gimblet just the size of the scion to be inserted, and bore from one to three or four holes, according to the size of the root, and insert the scions, first removing the loose bark; the holes should be two or three inches in depth, and the scions should fit accurately. I have never known them fail to grow. The holes should be in the direction of the grain of the wood. I have never known this method fail, and I

have never succeeded with any other, though I have frequently tried both cleft and splice grafting."

Our own experience has satisfied us that there need hardly be an instance of failure by the plug method; we have tried it upon the native vines of our mountain ravines, grafting them with the Mission grape, and have invariably succeeded, the graft making a growth of fifteen and in a few instances, twenty feet, the first season, and some of them producing from one to three bunches of grapes. The holes should be bored with a smooth cutting bit, a little smaller than the graft, and as near the bark or outside of the stump as possible. Two inches is deep enough; the graft should have two or three buds if short jointed, if not short jointed one is sufficient; the end to be inserted should be fitted by removing the bark and enough of the scion to allow it to enter, but fitting as nicely as possible; the upper part of the fitted portion should be cut with a shoulder, that the bark of the lower portion of the part of the scion left out of the stump fit down fair upon it; and the nearer the bark of the scion comes to the bark of the stump the better, though a positive union is not necessary as in grafting fruit trees.

THIN SEEDING AND HOEING WHEAT.

WHEAT being our great agricultural staple, any mode of culture that will increase its yield per acre without too great an additional cost, may prove of the greatest advantage not only to the producer, but to the general wealth of the State We, therefore, give the result of an experiment, so far as it had progressed at the time of writing, by Chas. Brackett, of his hand-hoed wheat, and reported in the columns of the *Genesee Farmer*. Who in California will try an acre?

I have just been counting my hand-hoed wheat, and the results so astonish me that I hardly dare credit my own count. The roots average a trifle over thirty stalks each, and the least number of grains to the head is seventy-two. At this rate, allowing four seeds to the hill and the hills two feet apart, we get from an acre of cultivated wheat over one hundred bushels, and this from less than six pounds of seed to the acre. Ordinary wheat weighs 898,560 grains to the bushel, and at the above rate—giving one root to each square foot of surface—we get from the acre 104,089,600 grains of wheat, which amounts to a trifle less than one hundred and sixteen bushels. These figures look large, but I believe are correct. At any rate, the *facts* of the growth are correct. Who will try an acre, four grains to the hill, and the hills two feet apart each way, and cultivate thoroughly, and report next August in the *Genesee farmer?*

You will recollect last harvest I reported some prolific wheat. This that I now count from is of that root, and yields over two thousand, one hundred and sixty fold. I always *thought* old JETHRO TULL was right, and now I know he was right.

GARDENING FOR LADIES.—Make up your *beds* early in the morning; *sew* buttons on your husband's shirts; do not *rake* up any grievances; protect the young and tender *branches* of your family; *plant* a smile of good temper in your face, and carefully *root* out all angry feelings, and expect a good *crop* of happiness.

WITH OR WITHOUT IRRIGATION.

IN reference to the superior value of nursery trees raised with or without irrigation, there seems to be two opinions, and we find they are held by individuals just in accordance with the fact of this or that mode being the one adopted by the grower. In every instance that has yet come to our knowledge, the nurseryman who is so situated that his nursery requires no artificial irrigation, believes his trees preferable to such as have been grown with an artificial supply of water. And we find also the same men strenuous in the belief that fruit grown under the same circumstances is also superior. Whilst on the other hand, no argument can be brought to bear that will convince the grower by irrigation, that his trees or fruit are in any respect inferior to any other.

To leave the questien then to be settled by those in interest, would seem to be hopeless; to endeavor to do it ourselves would result perhaps in treading upon the toes of one party or the other. We propose therefore to discuss the matter on both sides, and then if those in want of trees cannot make up their minds as to which they will prefer, we shall conclude that it makes but little difference, and only recommend to plant trees at any rate.

The advocates of artificial irrigation say: that their trees root more profusely near the surface, that they have less of the long deep tap roots to contend with in transplanting; that their trees make a more vigorous and steady growth through the entire summer, because the growth can be completely controlled by the use or disuse of more or less water at any time. The first of the reasons given, would in any other country than California be deemed of the utmost importance, as nearly all orchardists save all the short fibrous roots, whilst they are equally certain of the advantage of cutting away all tap roots.

Trees grown by artificial irrigation make a steady continuous growth from spring to autumn, and consequently make larger trees in the same length of time, than are usually produced without irrigation. A similar effect is also produced upon the fruit; but whether at the expense of flavor and their longer keeping qualities, we have had no experience from which we can determine.

At the moment of writing this, we are in receipt of a seedling pear tree from San Jose nurseries, the growth of the past summer, in which we find, that whilst it has made a growth of but nine inches above ground, a single tap root has penetrated the earth twenty-eight inches, and was evidently cut off at this point at removal; how much further down it had penetrated the earth in search of that moisture that the artificially irrigated tree finds near the surface, was not determined; upon this almost perfectly straight root, not a fibrous root existed for the first ten inches from the surface of the ground downwards, then a very few were found, which increased in number on nearing the end of the root.

Now if this is a fair specimen of trees raised without artificial irrigation, then we say deliver us from such trees, except it be to grow upon the very soil or grounds where produced, or upon other grounds without sufficient moisture near the surface

for the support of roots. For such grounds they would be just the thing, as they would be sure to find moisture, if there was any below, and lateral roots would be produced, just in accordance with the condition of the soil as regards moisture, to secure them vitality. One thing is certain, that if such a tree planted in its place from the seed, was allowed to grow undisturbed by removal, it never could suffer greatly during any season of drouth.

We would greatly prefer, however, that all nursery trees were rooted near the surface, whether produced by natural or artificial irrigation; but to remove such trees to soils so dry in summer that every root within a foot from the surface would be dried up, would be destruction to the trees. Great care should be exercised in choosing ground for the growth of orchard and ornamental trees; for as in all other countries, so in California, there is a great deal of land wholly unsuited to their growth.

The advocates of trees grown without artificial irrigation, say: the trees from having no artificial excitant, are better developed, a better uniformity and proportion of root to top, and better matured wood. We believe all this depends entirely upon the nature of the soil; if without artificial irrigation, it is at all times just sufficiently moist for the production of a perfect growth, then all is well; but if at any season of summer it should lack a sufficiency of moisture, who will deny but that it would be better to supply that deficiency artificially, if it can be done.

Could lands be found just moist enough for nursery or orchard purposes at all seasons of the year, without artificial irrigation, surely they would be preferred; but this does not afford so much as a pretext for an argument against the cultivation of nurseries or orchards where artificial irrigation may be required. *Irrigation* in California is to be one of the fixed principles of its agriculture, because in very many localities it can no more be dispensed with than plowing. And as thousands of acres of orcharding, and thousands upon thousands of acres of vineyards will be cultivated, relying upon artificial irrigation for the requisite supply of moisture, we deem it utterly futile to endeavor either to write or talk it down.

And so of nursery trees grown with or without irrigation, we deem it of no possible consequence, so that they are well developed in root and top, with fully matured wood.

THE PEACH.

THE Peach stands unrivalled among all the fruits of the earth. Go where you may, in temperate or tropical clime; test all the most luscious fruits of either, and still the peach must be admitted to excel them all. When eating a dish of rich, ripe "strawberries and cream," we are very apt to think they cannot be excelled; so of the pine apple, the orange, and that celebrated fruit the mangosteen; they are certainly superior fruits; still, place before the connoiseur a ripe, melting Early York, or George 4th peach, and he must concede the palm to the latter. We may talk

about the "honied flavor" of the Seckel, but the tender and juicy "Rareripe" will soon stop our mouths. What is common is apt to be undervalued, and this may account in some measure for the praises bestowed upon fruits rare and difficult to obtain; but the peach is so common and so cheap, that its real merits are apt to be underrated. Although not much of a traveler ourselves, we have conversed with men of taste, who have eaten of the most celebrated tropical fruits when in perfection, and they agree that none of them equal the peach. But all peaches cannot claim this superiority. It is only a few of the choicest cultivated varieties that come up to this high standard of perfection. In planting trees, therefore, it is important to know which are the best kinds, for it is as easy to raise a fruit fit to set before a sovereign, as one not fit for the pigs. Among the choicest varieties, some are in perfection months before others, so that in selecting peach trees we should look to the period of ripening as well as the quality, and by a proper selection we can have this delicious fruit ripening regularly from June to November. We propose to describe a few of the best in the order of their ripening in this city.

Early Tillotson, ripens from June 25th to July 1st, and is the earliest *good* peach in cultivation. Flesh white, red around the stone. Skin a dark red on the sunny side, and thickly dotted with red on the other portions. Fruit of a medium size, rich and juicy. Though a free-stone, the flesh slightly adheres.

Early York, a free-stone, ripens from July 4th to 8th. Fruit large, remarkably tender, and full of rich, luscious juice, and one of the very best. Skin very thin, thickly dotted with pale red on the shady side, with a deep red in the sun; flesh white. For beauty of appearance, and rich flavor this variety is unsurpassed.

Cole's Early Red, a free-stone, ripens from July 10th to 15th. Fruit medium size, white flesh, skin of a beautiful red color, juice rich, melting and sprightly, nearly equal to the Early York, which it succeeds. Bears large crops.

Rareripe, a free-stone, ripens July 15th. Fruit large, white flesh, red at the stone, juicy, tender, and very high flavored. Skin white, covered with red dots, and deep red on the sunny side. Very productive.

George Fourth, a free-stone, ripens July 20th. Fruit medium size, flesh pale, tender, with a remarkably rich, high flavored juice. Skin pale white, with a red cheek on the sunny side. A moderate bearer. Considered one of the highest flavored peaches in cultivation.

Crawford's Early, a free-stone, ripens July 25th. This is a most excellent yellow fleshed peach, and is not surpassed by any other kind in size and beauty of appearance. One of the most popular market fruits. Fruit very large, skin yellow, with a brilliant red cheek, melting, sweet and juicy.

Oldmixon Free-stone, ripens Aug. 1st. Fruit very large, flesh white, red at the stone, melting, with a superior rich, sugary, sprightly flavor. Very productive, and one of the very best. Skin creamy white, red on the sunny side.

Crawford's Late, ripens Aug. 8th, and is a most magnificent fruit, unequalled among the yellow fleshed peaches. Fruit very large, flesh yellow and very red at

the stone, tender and juicy, with a rich vinous flavor. Skin bright orange, with a brilliant red cheek. A superior productive market fruit.

Oldmixon Cling-stone, ripens Aug. 15th, and is one of the finest flavored varieties in cultivation. Fruit large, flesh white, very juicy, with an uncommon rich, sprightly, luscious flavor. Skin yellowish white, with a bright red cheek. Very productive.

Late Admirable, a free-stone, ripens Aug. 20th. Fruit very large, flesh greenish white, red at the stone, tender and juicy, with a rich delicate flavor. Skin pale yellow, with a pale red cheek.

La Grange, white free-stone, ripens Aug. 25th. Fruit large, tender, juicy, sweet and with a delicious flavor. Skin greenish white, a little red on the sunny side. One of the very best of late peaches.

Heath Cling, ripens about September 15th, and continues ripening until late in Oct., being the latest variety in cultivation. Fruit very large, flesh greenish white, very tender, remarkably juicy, and of most luscious flavor, indeed unsurpassed in flavor. One of the very best.

We have thus given a list of choice varieties of this unsurpassed fruit, which will afford the cultivator a continuous supply from the last of June to the first of November, a range of peach season not surpassed in any temperate clime. There are many other varieties, equal to some of those here presented, and which might have been included, but our object has been to describe only the very best, without including those which ripen at the same time.

SACRAMENTO, Dec., 1858. E. B. C.

ERRORS OF CALIFORNIA FARMING.

THUS far a desire to possess large tracts of land has prevailed among our farmers, and the opinion has been dominant, that the more acres he had under cultivation, the greater would be the profits on the capital invested. This is a grave error to which the superficial cultivation and diminishing yield per acre bear ample testimony. Indeed some of the most productive grain districts that had been enriched with the droppings of herds for a half century, and produced when first subjected to American industry, fifty to seventy-five bushels of wheat to the acre, are now so impoverished, that twenty or thirty is their average, while it is frequently a total failure. This may be attributed somewhat to the long continued unsettled state of our land titles, and the wretched land tenantry system adopted on many of the Spanish grants, causing the litigant and tenant to adopt the skinning process; and as he has no permanent interest in the fee of the soil, it soon becomes exhausted under this depleting husbandry.

Again, the practice of burning the stubble and heaps of straws when the thresher has done its work, cannot be too highly reprobated; and feeding stock where the recent harvest has taken place, while something is returned to the land by the

droppings, thereby in a measure compensating for what they glean from the fields, may on the whole be considered as injurious, because they tramp down the soil, already too compact. That our arable lands do not possess the recuperative advantages which surround those of the Atlantic States and Europe is obvious, by the absence of forests, which there yearly send down on the autumn winds great stores of decaying leaves to enrich the valleys and plains. There also every mountain torrent rushes bravely from its wild wood haunts, darkly freighted with the germs of vegetable life; while in California, our hills are mostly bald and sere, and their watery treasures add no volume of nutritious specifics, because they are strongly impregnated with alkaline substances, of which the valleys already contain a superabundance. That there is a great deficiency of humus or vegetable mold in our soil is evident from the secondary and recent volcanic formations which everywhere meet the eye. To remedy this defect, should be the paramount object of every one who aspires to eminence in the art of husbandry.

Many ways have been adopted in Europe and the Atlantic States, to remedy this defect of nature, becoming more aggravated by the removal of minute atoms, in the shape of crops sent to market and not consumed on the land. There, where muck swamps are abundant; composts are cheaply made, but with us, where for reasons before stated, there is but little of the debris of vegetation to be had, a different course has to be adopted, though sufficient can be accomplished in this way by the aid of the stable, to preserve the kitchen garden and orchard; but for extensive field fertilization, we must depend upon summer fallowing and plowing under green crops.

If farmers would summer fallow one half of their fields every year, I have no doubt but the amount of bushels of grain produced, would equal if not exceed that now received from the overreaching process, while the quality would be improved and expenses greatly reduced; as on summer fallowed land the seeding can be done after harvest and at the first fall of rain, giving ample leisure for rolling down and plowing under the volunteer grain and weeds by midwinter, and dressing off again the land under process of summer fallowing before harvest time, so that the soil will be light, friable, and clean for any kind of a crop by the return of seeding time. Some of the advantages of this mode are, that it gives steady employment to farm hands, it adds vegetable matter to the land and renders more mellow the soil, so that the early showers are at once absorbed for the germination of seed, and insuring an early growth, thereby avoiding the danger of spring drouths, and above all affording an opportunity for the rotation of crops.

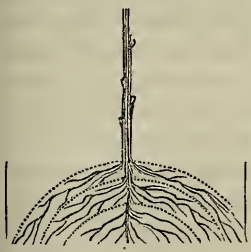
Sacramento, Dec., 1858. W. F.

Late Blackberries.—We have in our office, says the *Humboldt Times* of Nov. 20th, some wild Blackberries which are just beginning to ripen; being the second growth for this season. In the dense redwood forest south and east of our town, where the under growth is heavy, Blackberries grow the year round.

TRANSPLANTING FRUIT TREES.

IN the November number of the CULTURIST, under the head of "Transplanting Time," we gave our views as to the proper time of transplanting fruit trees in California; but said nothing of the mode of doing it, supposing that all who design to grow orchards, would be likely to be familiar with the process.

But as there is always one right, and several wrong ways of doing almost anything, so it is with transplanting trees; and finding that some are practicing a wrong mode, we give our views of what we believe to be the right. We say nothing of the preparation of the ground, other than if it is not good and fertile, it should be made so before you attempt to grow a tree in it; but once in good condition, the holes should be made large, several inches in diameter beyond the outermost ends of the roots of the tree to be planted out. Then place the tree in position, so that when firmly set it may stand no deeper than when in the nursery row. Give the roots the direction they had before removal, or an outward and downward direction. Fill in with fine fertile earth or compost, till a portion of the lower roots are covered; work the dirt in among the roots by hand, and bring to the surface that portion of the roots above the lower dotted line as seen in the accompanying illustration. Now fill in again and bring all the roots above the middle dotted line once more to the surface, being the upper strata or tier of roots. Again cover as before; during the process the earth should present the form of a mound after each filling. This practice more equally distributes the roots through the earth used in filling, than any other mode can do. After the roots are all placed in position and properly covered, fill up the cavity still remaining unfilled at the extremity of the roots, and press all down with the foot. The tree should not be shaken by lifting upwards and allowing it to drop back to its place, as this has a tendency to kink the small fibrous roots, for if once drawn upwards in the soil they have not the stiffness to re-enter when the tree settles to its place again.



A tree thus properly set, in good soil, will be sure to live if there is moisture sufficient to sustain it. If it has a tap or "pump-root," it should be encouraged rather than destroyed, as the longest lived trees in all climes and all countries grow this "pump-root," as if purposely to secure them against the vicissitudes of drouth. And certainly a drier country for fruit trees can hardly be found than California. If any one supposes from any thing we have said heretofore upon the utility of the tap root, that we would encourage the growth of no other, we regret his lack of ready comprehension of our views, for we have advocated nothing of the kind.

With one breath we hear, that alfalfa is of all others the crop for our dry soils, because its roots penetrate deep into the earth, even twenty feet in some instances, thereby securing it against the most severe drouth, and producing a strong, vigorous growth; but with the next breath comes the declaration, that it is best with *fruit trees*, to prevent their roots striking deep into the soil.

From another source, we are informed of a grape vine that has been planted out in soil or earth taken from the bottom of a mining shaft sixty feet deep, that it grows luxuriously and produces abundantly; showing to our mind, that there is something in the soil of many portions of California, even at the depth of sixty feet, that would not be detrimental to the vine or tree whose roots might penetrate to that depth.

After a tree has been planted out in the place where it is to remain, we should let its roots take their own course and direction; and if they are allowed to make their way where they will, unimpeded by any obstacle, they will grow downward at any rate; and we believe that in a California soil and climate, it is just where they should go. And more than this, we believe there is not an orchard tree in California, of four years standing, that has not thrown its roots as many *feet*, perpendicularly into the earth, unless the subsoil be impenetrable or so wet as not to require it. Planting fruit trees however, "with tap roots four or five feet long," we have never recommended, because such trees are never furnished by our nurserymen, their usual practice being to cut off such tap-roots within a foot from the surface of the ground; such tap-roots we should allow to remain upon the trees, for it is no deeper than the hole should be for an orchard tree, and not as deep by another foot, as the rich, fertile soil or compost should be, in which the tree is to grow. We have said in a previous number of the CULTURIST, that, "But for the inconvenience of properly taking care of trees during the first and second year of their growth from the seed, we would always in California plant out a tree, be it fruit, shade or ornamental, by planting the seed where the tree is to stand." But if any one can see in this an *unqualified* recommendation to ,'plant seeds where they should grow, to make an *orchard*," he can see what is not conveyed by the remark. And yet, planting the seeds of trees, in the places where they are to remain, is the theory of nature, practiced by Deity; good authority certainly, and ancient enough for the most fastidious sticklers for "old theories and doctrines."

FRUIT GROWING.

WE advance it as an axiom, a self-evident proposition, that in California, fruit growing will always be a profitable business, and worthy the attention of the agriculturist. In the Atlantic States, where for the last twenty-five years, particular artention has been given to the production of the choicest fruits, the demand is now better than at any previous time. Good fruits are always saleable in all countries and the demand increasing; and as it is just as easy to raise a good variety as poor, our orchardists and fruit growers should give the subject of the quality of their fruits, the first attention.

We have a larger non-agricultural producing class, than any other State in the Union for the number of its population, and always will have; this fact alone gives to the fruit grower an assurance of an excellent market at home. The demand for commercial purposes is largely on the increase, and to which hardly a limit can be assigned,

when the new Nevada Territory on the east, and the Arizona country on the south, shall be fully thrown open to the industry and enterprise of our countrymen. The annual accession to our population from direct immigration, will for many years be in advance of our means of supplying them with winter fruits; so that no effort we may make for years, can seriously affect or lower the now truly exorbitant prices asked and readily obtained for fine fruit.

A cause operating much against the rapid extension of fruit growing with us, is found in the fact, that large numbers who are farmers and stock growers of no mean pretensions are yet not fruit growers; not that they are disinclined to the growing of fruits, but that there are hundreds without experience in the pomological department of agriculture; and such men are slow in taking hold of a new branch they little understand; and of the few who do, nearly all limit their efforts to the planting of a *few* trees of *many* varieties, in order to secure them a succession of fruits during the season, and more for their own consumption than for sale.

Such efforts, though admirable as far as they go—and it is a good deal when we can say that every farmer in California raises his own fruit—can never be effectual in supplying the market demand. This is why the planting of orchards of superior fruits, and particularly of the hardy and late keeping varieties of apples, is a matter that may well claim the serious attention of those in possession of lands suitable for their cultivation.

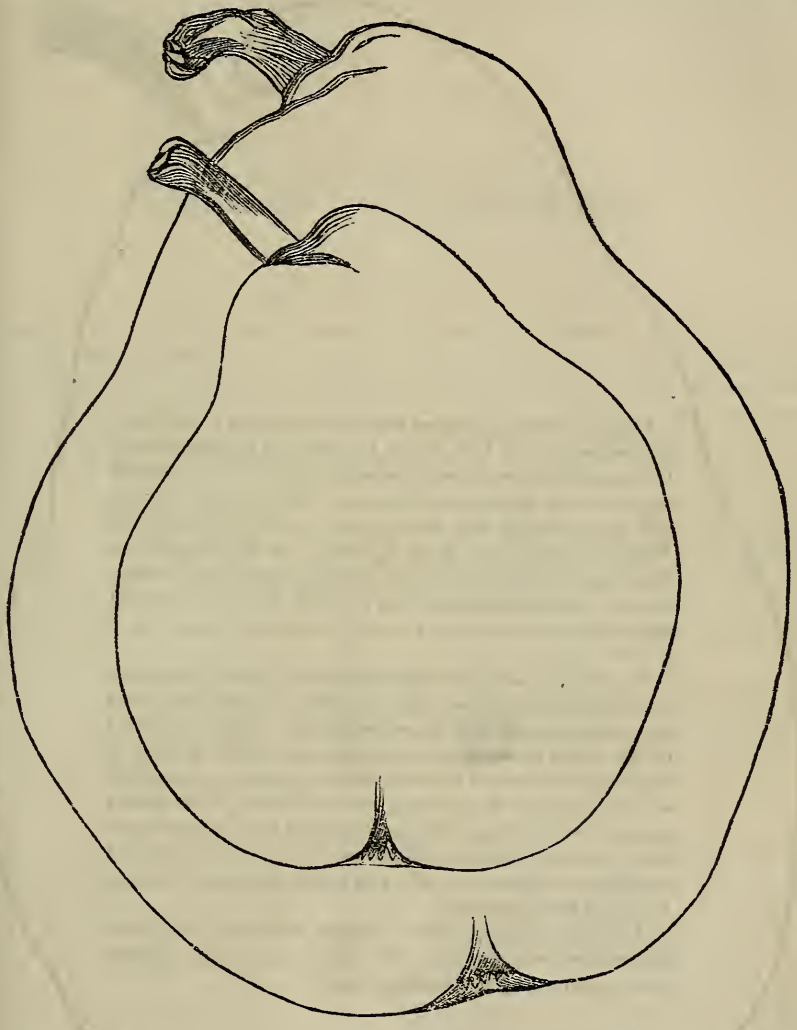
A GARDEN NOVELTY.

THE Egyptian pea is an instance of vegetable resurrection, or at least resuscitation. It is a fragment of the old life of Egypt, a true type of the luxurious fertility of the classic country of the Nile, and unquestionably the most truly historical of any esculent we possess. The circumstances that led to the discovery of this companion of mummies and inhabitants of pyramids are in themselves as interesting as the plant itself is distinct from every known member of its useful family. During the explorations of Egypt by Sir Gardiner Wilkinson, a vase was found in a mummy pit, the age of which was computed at about three thousand years. This vase, hermetically sealed, was presented to the British Museum. Mr. Pettigrew, the librarian to the late Duke of Sussex, proceeded to open the vase to ascertain its contents, and in so doing unfortunately broke it in pieces. The interior contained a mass of dust and a few grains of wheat and vetches, and on examining further a few peas were found, entirely shriveled, of a resin color, and as hard as a stone. It was known that mummy wheat had been resuscitated after an interment of five thousand years; and it was determined that the first peas ever found in a mummy vase should be subjected to the experiment of revival. Mr. Pettigrew accordingly distributed among his learned friends these desicated peas, reserving three for himself as mere curiosities. Those who had tried to grow the peas failed, and no more was thought about them till the remaining three were given to Mr. Grimstone, of Highgate. Mr. Grimstone tried his hand at them; subjected them to heat and moisture, and after thirty days, one miserable plant appeared above ground. By patient care and ingenious culture this plant was brought to produce nineteen pods, which ripened and were planted the next year; and this was the foundation of the stock just beginning to be known as the Egyptian pea.

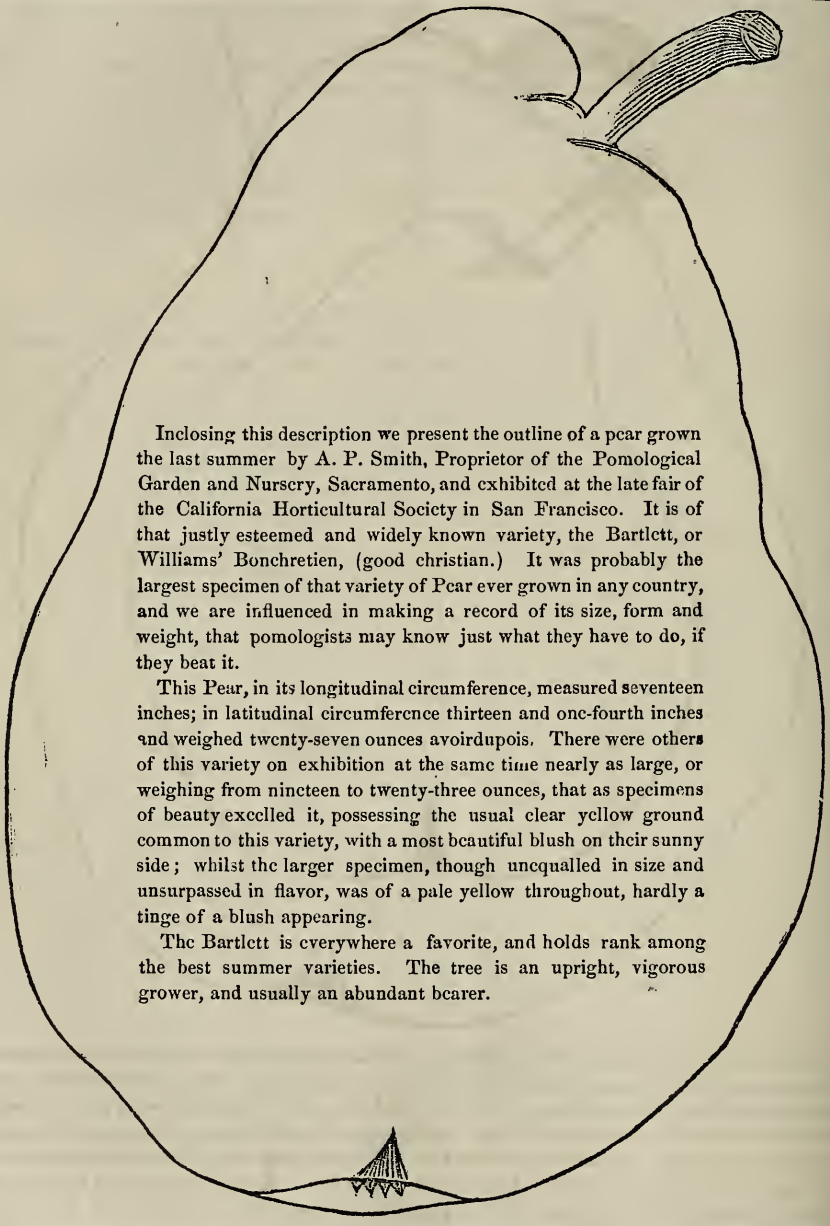
Botanists were as much delighted as antiquarians at the success of the experiment, for it gave them a new variety of greatest value and most distinct character. Its blossom is unlike every other pea; it more nearly resembles a bell than the wings of a butterfly, and is veined with green lines on a white ground. The blossoms break at every joint in clusters of two, four and eight, and are succeeded by pods that protruded crookedly through them, each pod containing from five to ten peas, which, when cooked, are deliciously flavored: in fact, there is no pea to equal it; so that dusty Egypt has conferred upon us, through these few shriveled seeds, a palatial benefit.—*National Magazine.*

COMFORT OF A SMALL HOUSE.—We confess to a liking for small houses and small women. Touching the former, we will here give seven good, and as we think, sufficient reasons, for our preference. In the first place, they imply small, cozy rooms. Not cramped, but mensurable. So small that the light and heat are reflected and radiated from all parts. Family comfort cannot thrive in a hall or a field. I imagine that the boy who did not feel sufficiently acquainted with his father to ask him for a new cap, lived in a "palatial residence." I doubt not, for the same reason, people living among mountains are more sociable than those who live on plains. Affection, like a smile, dies unless it is reflected. Secondly, we like small houses because they look paid for, and a small house paid for holds more happiness and real friends than a large one unpaid. Anything unpaid is uncomfortable. To an honest man, debts are demons, and an indebted house a haunted house, full of creeping horrors and disquietudes as that described by Hood. Thirdly, we like small houses, because they look sympathizing. They are like people not overdressed, more ready to make acquaintance. A big house is like a big man—unaccostable. Stately porticos and lordly halls are like the titles D. D., LL. D., etc.,—imposing, distant, and inclined to be repellent. In the fourth place, we like a small house, because it excites no envy. It matters not how elegantly it is furnished, how tastefully surrounded and adorned by shrubbery and flowers, its observers are its admirers and friends. It does not fall under the "evil eye," and no man who has a soul would wish even his house—his home—the abode of his wife and children—to be an object of envy. Everybody can say, and is encouraged to say, "I can build such a house"—which words are equivalent to a blessing. Fifthly, we like a small house, because it must always remain the people's house. The industrious mechanic can earn such a house. The diligent laborer can own, by patient industry, such a house. The widow can live in such a house; and what a rich, rational comfort it is to live in such accommodations as of necessity must be the dwelling-places of nine-tenths of the race! Sixthly, we like small houses, because in such most of us begin life. It is with small houses that the affections of young couples, the first care and joys of married life, are mostly associated. Most of us begin "in a small way." In the last place, we prefer the small house, because it is not so far removed from our last narrow home. Only a few steps down, and our weary feet are there; but from the large palace to the narrow grave, the change is too abrupt. I've grown sober over these orders of architecture, and will stop.—*Ohio Farmer.*

THE COAL MINES ON RUSSIAN RIVER.—It appears that the recently discovered coal mines, about one and a half miles from Cloverdale, Russian River, are being vigorously prospected. C. G. Patterson has a party of twenty-two men engaged at the mine in sinking shafts and running tunnels at various places.



The above exterior outline is of the Onondaga or Swan's Orange Pear; one of the finest autumn Pears grown in California, and worthy of an extended cultivation. Our mode of obtaining the true outline of fruit, is by dividing it in halves; then laying one of the halves upon paper and with pencil tracing a line close to its outer edge. In this manner there can be no mistaking the true size and shape of the fruit. And having obtained the true size, we see no objection to giving it publicity, although to contrast it with similar fruits grown at the east—as we have done in this instance—as figured in pomological works, may look like presenting an invidious comparison; it is not for that purpose, but only to show how completely the same variety of fruit, in all climates and countries, maintains its characteristic form irrespective of size. The pear of which the above is an outline, was raised by R. W. Washburn, Esq., at his Shell Mound Nurseries, Alameda. See description of frontispiece.



Inclosing this description we present the outline of a pear grown the last summer by A. P. Smith, Proprietor of the Pomological Garden and Nursery, Sacramento, and exhibited at the late fair of the California Horticultural Society in San Francisco. It is of that justly esteemed and widely known variety, the Bartlett, or Williams' Bonchretien, (good christian.) It was probably the largest specimen of that variety of Pear ever grown in any country, and we are influenced in making a record of its size, form and weight, that pomologists may know just what they have to do, if they beat it.

This Pear, in its longitudinal circumference, measured seventeen inches; in latitudinal circumference thirteen and one-fourth inches and weighed twenty-seven ounces avoirdupois. There were others of this variety on exhibition at the same time nearly as large, or weighing from nineteen to twenty-three ounces, that as specimens of beauty excelled it, possessing the usual clear yellow ground common to this variety, with a most beautiful blush on their sunny side; whilst the larger specimen, though unequalled in size and unsurpassed in flavor, was of a pale yellow throughout, hardly a tinge of a blush appearing.

The Bartlett is everywhere a favorite, and holds rank among the best summer varieties. The tree is an upright, vigorous grower, and usually an abundant bearer.

VINEYARDS IN SONOMA COUNTY.—The Santa Rosa *Democrat* claims for Sonoma county the front rank among the wine growing districts on the Pacific. It is estimated that there are 27,000 bearing vines in the county, and 128,000 young vines.

Editor's Repository.

Between pen in one hand, and an Oregon apple in the other, or writing and eating, we are just now pretty evenly dividing the time; for though we like writing, we *love* apples. We say an Oregon apple, because in the first place California does not as yet produce a moiety of the apples or fruits of any description, that at largely paying prices would be consumed in her markets if procurable; so that our eating an Oregon apple now, is only because we can get no other; and it will be years, many years before the California markets for fine fruits, can be fully supplied from any source.

If we were eating said Oregon apple in February or March, there would then be another reason for so doing; it would be because Oregon apples do, and California apples do not, generally keep till that time. It is to be hoped however, that the experiments now making in the raising of fruits among the foothills and valleys of the mountains, may show that there are localities admirably adapted to the production of fruits possessing the quality of late keeping. And should our mountain friends succeed in their production, their fruits will come into market free from all competition from the growers of like varieties, in the furnace heated valleys below.

It certainly is an object then, worthy the attention of those who may be situated among the mountains, at elevations that give them a Middle or Northern States' climate, through the winter months, to ascertain by experiment how far the unequalled and unsupplied winter demand for apples can be provided for. An orchard of a thousand bearing trees, of late keeping winter apples, would be to an otherwise poor man a princely fortune.

"Swan's Orange, *Onondaga*.—Very large, long-obovate, smooth, golden yellow, russet specks, tinged with light red in the sun; stem an inch long, stout, curved, set obliquely in a slight cavity; calyx small, close, in a small basin; flesh white, fine, melting, very juicy rich sub-acid, aromatic flavor; ripens Oct. and into November. Tree hardy, vigorous, and a great bearer. As it combines many excellencies it is regarded as one of the best. Origin, farm of Mr. Curtis, Farmington, Conn., whence a graft was carried to Onondaga, N. Y., there propagated, and lately disseminated."

Elliott, in American Fruit Growers' Guide, says of this fruit: "Large, ovate, obovate; *color*, pale greenish yellow, becoming golden yellow at maturity, many gray, russet dots, and occasionally a dull blush in sun; *stem*, one to one and a half inch long, inserted without depression, bent, with lip of fruit folded unevenly around it; *calyx*, rather small, closed; *basin*, shallow, abrupt, and marked with patches of cinnamon russet; *core*, compact; *seeds*, small; *flesh*, white, juicy, buttery. Season, October and November. Thus far it succeeds equally well on the quince or pear root, and as a profitable market variety deserves extensive culture. Tree viorous, with strong upright olive colored shoots."

Received.—Numbers 4, 5, and 6 of the Journal of the New York State Agricultural Society for 1858. From J. Q. A. Warren, agent in San Francisco, the first number of the Gardner's Monthly, published at Philadelphia. We have placed this monthly upon our list of exchanges; for in every essential that constitutes a valuable journal for the Gardener and Horticulturist, it seems to abound.

NURSERY TREES.—A distinction has been pointed out to us by an exhibition of specimens, between trees grown upon the same grounds, or immediately adjacent, in which a part were grown without irrigation and a part with. There was this difference, however; those grown under the influence of irrigation had made a continuous growth from spring to fall, and were larger trees in consequence. Those without irrigation had made a splendid spring and early summer growth, but during the months of August and September there was invariably a suspension of growth, and probably from a lack of sufficient moisture; but the early October rains have caused a *second growth* of new wood, which had not ceased to grow till suddenly checked by the recent severe frosts, which not only killed the leaves, but three or four inches of the young wood. In this instance the irrigated trees are to be preferred, for though they had ceased growing previously to October, the rain did not start them anew. We believe the reason why trees not irrigated are more disposed to make this second growth to be, that after their first or spring growth they take a season of rest, as it were, simply maturing their wood; that after two or three months rest, they are then more likely to be started into growth by a suddenly renewed moisture with continued heat, than though the growth had been continued in the first instance, through the summer months.

HILL SIDE VINEYARDS.—We have received a communication from "E. S.," El Dorado, on the subject of vineyards on hill sides, and inviting us to visit—using our correspondent's own words—"these mountains, where you may see more than one." We were for five years a resident of El Dorado county, and during that time neither heard of, or saw a vineyard in the county located upon a hill side without natural or artificial irrigation. That vines may be planted out and grown in the vicinity of springs issuing from the hill-sides, where the grounds are kept sufficiently moist, we have not a doubt; but that vineyards upon hill-sides in California are anywhere a success, except where the lands are naturally moist enough, or made so by irrigation, we must be permitted to entertain a doubt. Therefore, as in a previous number, we would caution those about to engage in grape culture extensively, under our almost cloudless summer skies, with little or no rain for months in succession, against too largely extended experiments in vine culture on California hill-sides, without a cheap and abundant irrigation.

PEARS ON QUINCE STOCKS.—In transplanting the pear, grafted upon quince root, a few, recommend setting the tree so deep in its new position that a portion of the pear stock above the point of union may be below the surface; that if so planted out the pear will strike root, becoming a more perfect and larger tree than when grown entirely on the quince root.

Such is usually the effect upon trees so set; but in doing it, the main object sought in grafting upon quince seems lost sight of. Grafting the pear upon the quince is for the very purpose of dwarfing, and not the growing of large trees. If the object is to obtain a standard tree, the pear should never be grafted upon quince, but upon its own root. There are some varieties of pears that are greatly improved in quality, by being grown upon quince root. To allow such to strike their own pear roots above the quince, would defeat the object sought.

Pear on quince stock, on being transplanted should be so set as to permit the entire of the quince stock to strike root up to the very point of union with the pear, as it adds much to the strength of the roots in supporting the tree against winds.

TO THE PATRONS OF THE CULTURIST.—On the receipt of remittances, we will attend to the purchase of any description of tree, plant or shrub, from the best nurseries in this State; or to the purchase of field, garden or flower seeds, or agricultural implements obtainable in this city, (San Francisco,) and forward the same, *free of any charge for such service.* Our knowledge of the sources from whence are obtainable the finest trees, the best seeds and agricultural implements, enables us to make our selections in a manner that cannot fail to please; whilst the patronage extended to the CULTURIST, enables us to attend to any commands of our friends without additional compensation. Catalogues and prices of trees will be sent gratis, on application by mail or otherwise.

We Differ in Opinion.—We have a cotemporary who, because we honestly differ with him in opinion, seems ready to annihilate us. What can be done? On looking over the old files of his paper, we find him advocating the use of imported field and garden seeds, as though he believed them better than seeds of California growth. We don't believe a word of it; on the contrary, we believe just as good seeds and often better, are grown in California, and far more likely to vegetate when planted. He advocates the rearing of peach trees for firewood; we do not. He would advise the farmers to rush their wheat into market immediately after harvesting; we would not. He would recommend hill-sides for vineyards in California; we would not, without artificial or natural irrigation. He would lay a stratum of some *impenetrable* matter, to prevent the roots of trees from "running down;" we would not, but would make the soil rich, sufficiently mellow, and as deep as possible, consistent with a reasonable expense, and let the roots go to the bottom of it. He may believe in all the old theories and doctrines relating to agriculture, as being in all respects applicable to a California soil and climate; we do not, where we find as the result of experience that *new doctrines* are nearer right. As an instance; most of our propagators on first attempt in a California climate and soil, planted in accordance with old doctrines and practices, in early spring; but now, according to our *very consistent* cotemporary, "a better knowledge of both soil and season is attained, and the cultivator of the soil has much of his early seed in the ground in the months of December and January; in fact, the planting season we may say, is *all the year round.*" This is just in accordance with our position maintained in the Culturist from the beginning; that in a country so new in all its general characteristics of soil, climate and productions, as is the Pacific coast, there must of necessity be much variation from what has been regarded as the established theories and fixed laws of agriculture in other portions of the globe; and we are glad to see our cotemporary, however reluctantly, coming round to our position of new doctrines, theory and practices. And though we may for a considerable time yet, differ upon some points, we can see no good reason why a mere difference of opinion should originate a rush of ill blood in the circulatory system of our military cotemporary.

Our Frontispiece.—On this we present a lithograph by Kuchel & Dresel of the Onondaga Pear; in some catalogues it is named Swan's Orange. The specimen of which our picture is faithful in size and outline, was raised by R. W. Washburn, Esq., proprietor of the Shell Mound Nursery, Alameda county. In longitudinal circumference it measured thirteen and three-fourths inches, latitudinal circumference, twelve and one-fourth inches, and weighed twenty ounces avoirdupois. A large proportion, however, of this variety of pears, in the climate of Alameda, attain to nearly an equal size and weight. In Cole's American Fruit Book, we find the following in relation to its merits, where it is best known.

Christmas.—New Year.—Again, and near at hand, are the happy days so rife with merry makings throughout Christendom. If ever, over the mind of our maturer years there steals a wish that we might be young again, it is when the thrill of the merry ringing laugh of childhood, echoing from heart to heart, brings back in memory the pleasures of our early Christmas days. Days when the heart had learned no guile, and the great world and life, all yet before us, and all one brilliant expectation.

May the approaching holidays be to the young of the present, all that like days were to us when we were young; and to our patrons and friends of middle age, and to you, who have long since ceased to speak of your years as in the beginning of their numbering—to all, kin, friends and foes, we wish a *merry* Christmas and *happy* New Year.

Raisins.—On a recent visit to the gardens of A. P. Smith, Sacramento, we were shown some fine specimens of home manufactured raisins, from the true Muscat grape. In flavor excellent, and with our admirable summer sun for their drying, we are surprised that more extended efforts are not made for their manufacture.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending November 30th, 1858; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By Thos. M. Logan, M. D.

NOVEMBER, 1858.	7h. A. M.	2h. P. M.	9h. P. M.	Month.
Barometer, Maxima	30.253	30.187	30.265	30.265 inches.
" Minima	29.887	29.854	29.893	29.854 "
" Mean	30.092	30.054	30.068	30.071 "
Thermometer, Maxima	56.00	66.00	59.00	66.00 deg.
" Minima	39.00	51.00	46.00	39.00 "
" Mean	48.50	60.17	54.03	54.23 "
Force of Vapor, Maxima	.405	.410	.407	.410 inches.
" " Minima	.147	.164	.170	.147 "
" " Mean	.271	.327	.321	.306 "
Relative Humidity, Maxima	94.00	87.00	88.00	94.00 per ct.
" " Minima	68.00	29.00	42.00	29.00 "
" " Mean	79.93	73.70	77.10	73.58 "
Number of Clear Days	11	11	18	13 1-3 days.
Number of Cloudy and Foggy Days	19	19	12	16 2-3 "
Number of Rainy Days	.....	.....	.. ....	3 "
Quantity of Clouds	3.2	2.6	1.3	2.4
Quantity of Rain and Fog	.....	.....	.....	0.147 inch.
1st Days and 2d, Force of N. Wind	11 1.5	17 2.2	7 0.7	11 2-3 1.5
" " N. E. Wind	2 1.5	1 2.0	5 2.2	2 2-3 1.6
" " E. Wind	4 1.3	4 2.0	4 0.8	4 1.4
" " S. E. Wind	6 2.3	4 2.0	7 1.3	5 2-3 1.9
" " S. Wind	1 1.0	1 2.0	0 0.0	2-3 1.0
" " S. W. Wind	0 0.0	1 2.0	2 1.5	1 1.2
" " W. Wind	1 2.0	0 0.0	0 0.0	1-3 0.7
" " N. W. Wind	5 2.6	2 2.0	5 1.6	4 2.1

Thermometrograph.

	Deg.		Deg.
Highest Reading by day on the 9th	69 00	Mean of all Highest Readings by day	61.50
Lowest Reading by night on the 29th	34.00	Mean of all lowest readings by night	43.73
Range of Temperature during month	35.00	Mean daily range of Temperature during mo.	17.77

Remarks.—The most noteworthy meteorological characteristic for the month consists in the fact that we are much in advance of our usual winter weather. The early rains, which, as remarked last month, fell in accordance with our predictions, were even earlier in season, as well as more in quantity, than we had any experimental reason for anticipating. So, also, with another peculiar phenomenon—the winter-fogs of the Sacramento valley—they have been as frequent and as dense as they usually are much later in the season. These, it will be remembered, proceed from far different causes from the summer-fogs of San Francisco, and are attributable to the warm air, borne from the tropics by the trade winds, according to the theory of Lieut. Maury, and becoming condensed as it descends to the surface. This generally occurs in January, the Summer of the Southern hemisphere, when the earth here is coldest. As also happens in January, the fogs have been generally dispersed in the early part of the day, leaving the sky clear, while the weather has remained all the time cool and biting. The Sacramento River also affords indications of cold weather, inasmuch as it has fallen 13° in temperature since last month, and has maintained steadily the low hight of only 3½ feet above zero—it being too cold in the mountains for the snow to melt rapidly. From all these facts the inference of an early Spring is clearly deducible, and our Farmers may profit from the observations.

The two earthquake shocks experienced at San Francisco on the 26th, at 12 h. 55 m. A. M., have been noticed in diverse parts of the State, from Monterey to Downieville. The duration of the first shock was ten seconds, and of the latter which is said to be the severest ever felt at San Francisco, eighteen seconds. As far as accounts have reached us, however, the effects were more sensibly experienced at San Jose than at any other point. The general direction was southeast and northwest; but the movement was so slight at Sacramento as to have been scarcely perceptible.

THE CALIFORNIA CULTURIST.

JANUARY, 1859.

THE TIMBER OF THE PACIFIC.

WE are not among those who believe that, because California possesses in an eminent degree very many of the elements and auxiliaries of national wealth, therefore she possesses them all. Though rich in her mines of gold and other minerals, rich in her broad mountain plateaus and elevated valleys as the grazing grounds of domestic herds, rich in every department of her agriculture, still richer in the yet unoccupied acres of plain and valley awaiting only improvement, rich in her vast forests of pines and redwoods; yet she is destitute of hard timber. We are fully aware that for the construction of any fabric requiring only the soft woods, California possesses timber in abundance, and of the first quality; but when we want a "heart of oak," sixty feet in length and straight, we must send to the Atlantic side for it, and be sure to order enough of hickory of which to make a helve for the ax that works it.

When we take into consideration the fact, that within the extreme limits of our State—of hundreds of miles from north to south, and two hundred or more from east to west,—not so much as fifty acres of oaks suitable for the keels of merchant ships can be found, or hard wood trees that can furnish what lumbermen would term long timber, may we not seriously inquire how this great want is to be supplied? Doubtless we have to some extent varieties of the oak and other timber that may answer some of the purposes of ship building; but even what we have is of so brash a consistency that in falling a hundred trees, one-half are so injured or broken up, as to be wholly unfit for the purposes designed.

To grow timber to meet the wants of the present or immediately succeeding generations is impossible, even if it could be grown of the strength, hardness and durability desired. Already upon the Atlantic border, the transportation of long timber has for years been an immense business, and for a distance of more than a thousand miles from the coast. The Erie canal from year to year is almost paved with timber rafts from Buffalo to Albany; and yet the demand is hardly met for a country

with a coast range producing the hard wood timbers from Maine to Florida. If our shores are to be to the Pacific, what the States east are to the Atlantic in their maritime interest, we must either build iron ships or import our hard wood timber. But exclusive of this interest, there is an immense demand and an annual importation of short hard wood timber, which is every year on the increase. This would hardly be, had we the timber that could be substituted; we neither lack the enterprise or the will to convert our native timbers into all the shapes necessary for the demands of commerce, either upon water or land; but whilst we manufacture almost every description of agricultural implement, including land transportation vehicles of nearly every description, we send to the Atlantic States for the timber to make them of. Ax, hammer and hoe handles are still imported and ever will be, until timber suited to the purposes of their making is grown here. Hickory, as a timber produced here, is unknown; whilst a single variety of the ash is so sparsely produced and of such inferior growth, as hardly to be named as a procurable timber of suitable size to supply a one-hundredth part of the absolutely required quantity.

It can be looked upon, then, as an irrefutable fact, that California with all her mighty levers of prosperity bearing her onward and upward by their irresistable impulses, is still deficient in one element, the possession of which would make her independent of the world.

AN ENGLISHMAN'S VIEWS ON THE TAP-ROOT.

Editor Culturist:—It would appear from recent numbers of the *Culturist*, and from an article or two in the Sacramento *Union*, and yet another in the *Alta California*, that something like a discussion was in progress in reference to the utility of the tap-root to the successful growing of fruit and fruit trees in our climate of six months almost uninterrupted sunshine. As a landscape gardener by profession, my business for years previous to emigrating to California, was the removal, at almost all seasons of the year, of fruit and forest trees of large size, often thirty and forty feet in hight, for shade or ornament, or both; and as well in Ireland and France, as in England, and upon many a gentleman's grounds I have superintended the formation of avenues, parks and pleasure grounds, by the transplanting of trees and the culture and growth of acres of oaks and other trees from seeds. With your permission then, I will give you my views on the tap-root question as those of an Englishman, direct from the land of Loudon and other renowned arbor culturists.

In transplanting large trees from forests or borders of forests—for they are generally more beautiful and perfect when standing quite alone or apart from a dense growth of trees—I always found that such trees as were the most beautiful and perfect, and growing where the hand of nature had planted them, invariably had the tap-root. I therefore conclude that the *beauty* of a tree is not injured by possessing it. Not that the illy-formed trees have not the tap-root also, but that the beautiful ones *have*. It was a standing rule never to transplant an unhealthy looking tree, and as those I did remove had the tap-root, I conclude that the *health* of a tree is not

injured by possessing it. I have repeatedly transplanted the walnut tree into grounds nearer the mansion than they had originally grown, on account of their being exceedingly prolific of nuts. I believe, therefore, that the fruit or *nut bearing* propensity of a walnut tree having a tap-root, is not injured by possessing it.

Trees in a dense forest seldom throw their tap-roots deep, because the ground is kept moist near the surface by the deeper shade and the natural mulching afforded by the accumulation of leaves. Trees standing apart from forests are seldom blown over by the most powerful winds; but let the same winds pass over a forest and numbers of trees will be overturned. I therefore know that the tap-root is a great *support* to the tree as against the violence of winds. I am also certain that trees of large size transplanted with perfect success otherwise, may yet suffer from extreme drouth in consequence only of the loss of their tap-root. I am perfectly familiar with one instance in France, in which a long avenue of trees were transplanted from open park grounds in the immediate vicinity; that in their removal the tap-root was almost necessarily destroyed; and after the trees had flourished for five years in their new position, with every appearance of having withstood their removal without the least injury, on the occurrence of an unusual drouth, suffered in their growth to that degree that for two years thereafter presented a sickly stunted appearance; whilst trees unremoved from their original positions and in the immediate vicinity showed no symptoms of a lack of moisture. I therefore believe that the tap-root is useful in saving the tree from the effects of severe *drouth*. So much upon its effects upon forest trees.

That a large number of our most highly esteemed varieties of apples originated from seedlings that mere chance had given locality in other positions than orchards or cultivated grounds, and which never suffered removal or injury of the tap-root, cannot be denied. I would instance in the United States, the Newtown Pippin, Peck's Pleasant and many others. So also of the pear; I would instance the Vicar of Winkfield, "a natural seedling in the woods of Clion, France." I believe, therefore, the tap-root is not inimical to the production of *good, new varieties* of fruits. In reference to the growth, health and longevity of fruit trees, after suffering removal and the loss of their tap-roots, I believe the same general effect will be perceivable as upon forest trees.

I have grown acres—yes *many* acres—of trees from seeds, both in England and on the Continent; but who in England or elsewhere ever thought it necessary, in order that the roots of trees should not penetrate the subsoil or the lowest strata of earth they could reach—I say who ever thought of recommending the taking up of such trees at one or two years old, purposely to destroy the tap-root, and then resetting them, and all to benefit the tree? Loudon, or any other tree grower that England or France, ever produced, has never recommended it. And the same I believe is true of fruit trees; when the soil and subsoil are alike favorable to the growth of either fruit, shade or ornamental tree, the tap-root or "main root," as your Webster terms it, is not only no injury, but a positive benefit, and particularly in seasons of protracted drouth. It is not that I believe tap-roots essentially necessary in all soils or

seasons to the successful growth of trees, either as regards their thrift or fruit bearing qualities; but that trees are never injured by possessing them; on the contrary, that in all dry countries like California or in seasons of drouth in any country they would be greatly beneficial.

I believe the tap-root to be essentially—as the writer in the *Alta* calls it—the "pumproot," or root that pumps up the water from far below, when required to sustain the vitality of the tree, and that a tree will no more pump or drink up more water than it wants than a horse would; that whilst it furnishes to the tree that essential element, water, the surface roots are performing their office of conveying to the tree other elements necessary to the full development of the perfect tree and its fruits. I think it an error that because a tree sends its roots deep into the earth, that it is all wrong with them and should be prevented if possible. I have observed in grape borders frequently, that the roots of the vine seemed to *know*, if I may use the term, just where the soil most congenial to their growth lay, and would often seem to go quite out of their way to find it, whilst rejecting nearer soils that were uncongenial; and I see no reason why this peculiarity in the roots of a tree or vine to elect such soils as are the best suited to its growth, should be confined exclusively to those roots that run near the surface. Hence I believe the tap-root penetrates perpendicularly for a good purpose and is no detriment to a tree that is in position where it is to remain.

But here another phase of the question is presented. Are nursery trees that are to be transplanted to the orchard, to be preferred because they have long tap-roots? I say emphatically, no; and for this reason, that a young nursery tree, a seedling, grafted or ungrafted, that has never suffered removal, if it has a strong tap-root has usually fewer surface roots than a tree that has been once or twice removed; because at every removal the tap-root, by many nurserymen, is mostly destroyed in taking up. If then you buy a nursery tree for transplanting that has the tap-root largely developed ,you get but few other roots; then if in taking up the tree you nearly or quite destroy the tap-root by cutting or breaking it off within six or eight inches of the surface of the ground, you get a tree with no roots at all, or very few.

Such a tree certainly is *not* to be preferred to one that having no tap-root has made a larger number of surface roots; because the latter is removed with but little loss of root, the former not without almost the total loss of all; and this is the reason why trees obtained from nurserymen with the tap-root broken and mutilated are not as likely to survive well the transplanting. But this is no argument against the utility of the tap-root to all trees once finally established in the soil where they are to remain; because experience and observation both have satisfied me that the larger number of orchard trees that make the best growth after transplanting, are those that the soonest form anew and send downward their tap-root or roots; for the effect of cutting off this root at the time of removal is to cause it to be replaced by *several*, instead of *one*. And there are those who say that this is just what they wish to secure by cutting off the main root on removal. To such I would only say that you are now coming over to my theory; that whereas I advocate the growing of *one* tap-

root in all trees in which nature would produce it, you are providing a plan for producing more than one. Then if my one root injures the health of the tree by penetrating a subsoil, cold, sour or otherwise bad, what is to be the effect upon the tree that by the shortening of its tap-root on removal, is made to send down more than one into the so-called uncongenial soil below?

The real utility of the tap-root, then, is a very different matter from that of its convenience in a tree to be transplanted; and because tap-rooted trees whilst young have but few other roots, and because the tap-roots are nearly destroyed in taking up the tree, I would certainly prefer those trees having no tap-roots, as otherwise I get no roots at all, or very few; but in resetting such trees, I would always make the soil rich and deep under the tree and induce if possible the growth of a perpendicular or tap-root; and particularly here, in our dry soils and yet drier summer climate. Yet I would never think of planting out the seeds for an orchard where it was to stand, because it would be exceedingly inconvenient to manage; and I have been looking over the pages of the *Culturist* to see where you have recommended it; but am unable to find it. Now, though I would never plant out an orchard of apples or pears from the seeds, yet as you say on page 247 of the *Culturist*, so say I, that "but for the *inconvenience* of properly taking care of trees during the first and second year of their growth from the seed, we would always in California, plant out a tree, be it fruit, shade or ornamental, by planting the seed where the tree is to stand."

I believe it is a mistake in supposing that because trees or plants do not root close to the surface, thereby they lose much of the nutriment that might otherwise be derived from the soil. The very best beets, parsnips, salsify and many other roots, are those that have but the one main or tap-root and often penetrating far below the worked soil, and are generally better in proportion as they grow free of all lateral roots in the enriched surface soil.

I see there are those also who believe that destroying the tap-root or preventing its growth, induces fruitfulness in the tree. Seedling trees ungrafted and unremoved from their first position, do not come into bearing as soon as most nursery trees that have been transplanted; but graft the seedling, and though left in its original position all other chances such as room, light and air being equal, and fruitfulness is immediately induced. It is equally true that in California, fruit trees are exceedingly precocious; they bear fruit when very young. It is also well known that root pruning has a tendency to increase fruitfulness; but no one would think of cutting off *all* the roots of a tree to secure the object; then why insist upon destroying the one tap-root directly beneath the body of the tree, just merely because it happens to run downward purposely to sustain the tree against the contingency of drouth, when there are so many horizontal roots much nearer the surface and more easily arrived at?

It is generally admitted and very properly, that the shortening of the roots of a tree has the same effect upon them as the shortening of the limbs or cutting them back, has upon the limbs, to multiply their number. Hence the argument that in the removal of a tree or its transplanting, all the roots should be shortened with the view

of inducing a more profuse growth of fibrous roots; but is this neccessary or proper? Do not nearly all of our nursery trees grow too fast? actually producing too much wood. Then why resort to any unnatural method to produce an excess?

Finally, I believe it best in all cases when a tree is to be transplanted, to remove it with as many of the roots uninjured as possible; and should the tree have none other than the tap-root I would much prefer that it be left on.

YUBA.

[If we cannot fully coincide with the views of our correspondent upon every principle enunciated in the foregoing, we can easily agree with him in his last very reasonable conclusion, that we would much prefer a tree with a tap-root, than with no root at all.—ED.]

CAN WE GROW SHADE TREES?

Editor Culturist:—I believe I have been unfortunate in the selection of grounds for my dwelling and farm buildings. I desire as much as any other man to surround my house with shade trees, to beautify it even to the extent of a reasonable expenditure for ornamental trees and shrubs. But sir, I am almost discouraged; I have made the attempt three different seasons by transplanting to my grounds some of the finest native trees that our soil produces, or that could be found along our river banks; but have not yet succeeded in growing a thrifty tree. I have several living that have been set for three years, but they don't grow beyond the production of a few sickly looking leaves from year to year, and even these they drop long before the autumn frosts touch them. And yet my land may be considered, and it is, good wheat land. Native trees with no care from the hand of man, are flourishing all around me, retaining their foliage till winter; but how they do it I can hardly conceive; for of all that I have attempted to transplant, they possessed the fewest roots that I ever saw trees have of their size, and all run straight down. Can you tell me of any introduced shade tree, that would be more likely to succeed in my grounds than those of native growth? or can you tell me how I can manage to make the latter a vigorous growing tree after transplanting?

With this inquiry I inclose five dollars for the *Culturist;* I have seen a copy only till quite recently, please send the back numbers from the commencement of the publication.

Inclosed also, find two dollars and fifty cents in postage stamps, for the renewal of Mr. G—— S——'s subscription for six months. Truly yours,

S. S. T.

We are quite sure S. S. T. will excuse us for the liberty we have taken in giving publicity to his letter of inquiry in relation to transplanting native trees, for shade or ornament. The admirable text it furnishes us upon the growing and transplanting of shade trees is our only apology.

There may be two or even more reasons why you do not succeed well in trans-

planting trees of native growth. The most common error of all persons in California in transplanting trees, is in the attempt to remove trees of too large a size. We see a fine tree growing thrifty in open grounds, but far removed from the position we would wish it to occupy. The tree we may conclude is rather large for removal, but we reason thus; if it lives, it will be at once an ornament; if it dies, it will be but the loss of a tree which has cost us nothing but the labor of removal. The attempt is made, the tree is found to have but very few roots and nearly all running "straight down," as you say. With such trees it is very difficult to save roots enough to secure their successful growth in their new position, from the almost utter impossibility of removing them without the destruction or great injury of the main, perpendicular root or roots.

The best way to counteract this evil is in the use of smaller trees, if you will use trees already grown; because they can be removed with less loss of root than larger trees; but to insure a certain growth and a perfect tree, one that will stand the heat and drying process of all seasons, you should plant the seed of the tree where the tree is to stand. You will then secure a tree with a tap-root, or "pump-root," and just as beautiful in growth as you say others are that nature has grown around you, and you will get a tree ten or fifteen feet in hight nearly or quite as soon as by transplanting trees already grown to half the same hights. It is the great error of most inexperienced persons, in the purchase or transplanting of trees, that with the care usually bestowed upon them, they take *too large trees.*

In reference to introduced trees, for shade or ornament; there are a number that have already been sufficiently tested to prove their perfect adaptability to the soil and climate of many portions of California. Among them are the different varieties of the acacia, or the yellow and honey locust, English walnut, elms of several varieties; there are four varieties of the ash; and suitable for some localities are the two or three varieties of the weeping trees, both willow and ash. But as there is hardly a locality in California in which it would be desirable to grow a tree as a shade for a dwelling house or grounds, that is not perfectly adapted to the growth of some of the varieties of nut or fruit bearing trees, we should recommend even for avenues and pleasure grounds a large proportion of such trees. There are so many of them truly beautiful in their growth, and so useful in their product, as to claim of right a strong hold upon the favor of the tree grower.

The indigenous walnut of the Sacramento river and a few localities of the mountains is a fine stately tree, grows rapidly and produces its fruit, which is excellent in quality while yet a young tree. The different varieties of English cherry trees are, in New England, among the most symmetrical and beautiful of their shade trees. In the vicinity of Detroit and the old French settlements of the Raisin and Detroit rivers, the largest and most beautiful of all their shade trees is the pear, which produces annually; and a significant fact as connected with the size, vigor and longevity of those trees is, that they are all seedlings, were never grafted, and occupy the very positions in which their seed was planted; and are now the largest, healthiest and most productive pear trees in the United States, if not of the whole continent. There

are some varieties of the apple that make a very handsome growth and should by no means be discarded from among the list of ornamental shade trees. But we would strongly urge upon all who are about to transplant fruit, shade or ornamental trees, to procure young trees and small, in preference to those of larger growth; they are more certain to live and in four cases out of five will in three years make larger and better trees.—Ed.]

HOW TO DESTROY GOPHERS.

OWING to several dry years and abundance of food, furnished by extensive cultivation of grain and root crops, the gophers, somewhat numerous when American farming was first introduced in California, have now become so destructive from their numbers as to seriously affect the crops in many sections of our State; and it is a matter of concern as to how they can be exterminated. In Alameda county, where they are probably more numerous than in any other section, it is estimated that this little animal destroyed near half a million dollars worth of produce of all kinds during the past season. Some remedy against their depredations, and that of an extensive character must be adopted soon, or the farmer may as well abandon the cultivation of his lands. Having formerly resided in a section of the State, and planted a nursery of fruit trees on a piece of land where there were a great many gophers, I set to work with a determination to exterminate them, which I succeeded in doing on about thirty acres in the space of two months; commencing in February, before the breeding season and when they travel a great deal in search of mates. My plan was to go over the entire field once or twice a day, taking a spade with me so as to open their holes where they had recently closed them. After opening the hole down to the main road—as all of the surface holes lead down to one main high-way—I carefully placed in this road some small pieces of beets or carrots, the latter of which they are very fond, or any other vegetable, in which I had carefully inserted with the point of a knife the smallest particle of strychnine; then I placed a lump of dirt over the hole, being careful not to obstruct the main road with anything but the poisoned pieces of vegetables. The surface hole being stopped so that the light is excluded from the main thoroughfare, the first gopher that comes along will pick up all of the pieces and carry them to their rendezvous where sometimes there is a colony of several gophers, old and young. All then eat of the poison, and I have dug out as many as seven dead ones from one nest. This mode can only be adopted in orchards or where the land is cultivated with such crops that you may dig among them without injury; but where grain is sown, narrow spaces may be left, say six feet wide every one hundred yards in which beets or alfalfa may be planted; now when the grain has been harvested, these belts of beets or grasses with their green tops will attract the gophers from the dry stubble; and having scented this favorite food a long distance off, they set to work resolutely driving their tunnels underground until they reach the verdant spot, where they may be caught with great rapidity with the gopher trap, invented and mauufactured by Aldrich, of Oakland. Any land that

will produce grain will grow beets or alfalfa, which will be of great value as feed for stock in the winter time when the grazing is scant.

SACRAMENTO, Jan., 1859. W. F.

[The use of strychnine for the destruction of gophers is not new, having been extensively adopted in many localities throughout the State. That it is effectual in destroying the gopher that will partake of it is true; the only difficulty seems to be to make them *all* eat it, for if only a few are spared they multiply so rapidly as almost to render abortive any attempt of the agriculturist for their general destruction. We give place to the foregoing, that if there is anything peculiar in the mode of administering the poison that possesses advantages over those now in practice, the farmer may avail himself of its benefits.—ED.]

CLIMBING AND PILLAR ROSES.

AMONG all the flowers of the garden none exceed in beauty and grace the various climbing roses, especially those everblooming kinds which continue in flower from March to December in our genial climate. What can be prettier than a cottage surrounded by its trellises, covered with a variety of richly scented, graceful trailing plants, roses, honey-suckles, passion flowers, wistarias, &c. But among them all the climbing pillar roses stand pre-eminent. The deep green leaves, richly scented flowers of varied and brilliant colors, and the long slender branches waving in the wind, afford a combination not equalled by any other plant. The labors of modern rose culturists have produced a great variety of most superb roses, many of them well adapted to the trellis and pillar, and we propose to enumerate a few of the best to aid your readers in making selections.

The Chromatella or *Cloth of gold*, is a most vigorous grower, and in good soil it will in a few years cover a moderately sized cottage. Flowers very large, light yellow, fragrant, blooms fully all summer.

Gloire de Rosamine has a brilliant, purplish, crimson, velvet flower, and is a profuse everbloomer. It commences blooming among the earlest flowers of the garden. Its growth is very rapid, and it soon covers a wide space on a trellis.

Gloire de Dijon, a pillar rose, bright yellow, very highly scented. This is a new rose and one of the most superb of all the varieties produced by modern cultivators. It is one of the very few roses that can be properly termed yellow.

Phillipant, a rapid and strong grower, with medium sized flowers, of a peach blossom color, borne in large clusters and keeps constantly in bloom. It is one of the very best of the Noisette roses.

Lamarque is a lemon colored rose becoming white. Flowers very large, growing in magnificent clusters. It rapidly covers a trellis with a mass of dense foliage, thickly set with flowers.

Souvenir de Anselm, bears a rich rose colored flower and blooms fully all summer. When carefully trained to a pillar it is one of the most showy of flowers.

SACRAMENTO, Dec., 1858. E. B. C.

NEW PLANTS.

FROM among the many new plants noticed in the last volumn of "*Hooker's Botanical Magazine,*" we select the following as being those likely to interest the amateur horticulturist and florist.

Adhatoda cydoniæfolia.—None of this genus is popular with gardeners, though of easy growth. This has very handsome white flowers, with large purple lip, and from the description, seems to flower freely. It is a strong-growing stove-plant, and flowers early in winter. Native of Brazil.

Ansellia Africana.—A tropical African species of Orchidœa, of gigantic growth, and very large panicles of flowers, of a green color, with dark purple and yellow blotches.

Ærides cylindricum.—A pretty East Indian orchidœ, with large white flowers.

Befaria Mathewsii.—Very nearly allied to Rhododendron. The leaves are about one inch long, and the flowers much larger, and in large trusses, of a sulphur yellow color. It is from the mountains of Peru, and, if found of easy culture, would be a valuable early-flowering green-house plant.

Begonia Griffithii.—An herbaceous species from Bhotan, with the prettiest of variegated leaves, which must make it a general favorite.

Begonia heracleifolia nigricans.—A variety of a well known and favorite species, with the green leaves blotched on the marging with a dark—almost black—tint, giving the plant a very ornamental apearance.

Begonia microptera.—One of the free growing species, growing obout a foot and a half high. Native of Borneo. It has large trusses of pinkish white flowers, and will, we think, make a desirable stove-plant. The leaves are long and narrow, and marked by conspicuous red veins.

Begonia Wagnerii.—Habit and appearance of B. Argyrostigma. The flowers are interesting from having the male ones white, and the female green. From Venezuela.

Calathea villosa Pardina.—A summer flowering stove-plant, something in the way of Maranta Zebrina. The flowers are yellow and showy, and the green leaves handsomely covered with dark spots.

Cirrhopetalum Medusæ.—An orchideæ from Singapore, more strange than beautiful. The flowers are cut into long narrow segments, which has suggested the name of "Medusa's Head Orchis."

Comparettia Falcata.—A very pretty Peruvian orchid, with small scarlet, coppery flowers, of much similar habit and appearance to an Oncidium.

Cypripedium hirsutissimum.—Habit of C. Insigne, with flowers of purple and green. The plant is very much like C. Insigne, and we suppose, like that species, easily grown.

Dendrobium heterocarpium; var. *Henchalli.*—This orchideœ is a native of Java. The lip is pure white, the base only suffused with yellow, and the middle lobe of the lip has two dark blood spots at the base.

Eucharis grandiflorum.—A winter flowering bulb, resembling a Pancratium, from New Grenada. The flowers are large, white and very fragrant.

Gardenia citriodora, from Natal, we might describe as a cape jasmine, thickly covered with clusters of very sweet lemon blossoms.

Hoya coronaria.—From Java. Flower not quite so large as H. Imperialis, but the color is rather more lively than that, with red spots in the centre of each.

Lobelia Texensis.—Something like, but not so handsome as the common Scarlet L Cardinalis of our swamps. It grows stronger and taller, but the segments of the petals are narrower. Native of Texas, and quite hardy.

Passiflora tinifolius.—A very handsome species of the Elata family, but with small laurus-tinus-like leaves. Native of French Guiana. It will, no doubt, do well in a warm green house, and make a fine open-air climber in summer.

Rhododendron album.—A very pretty small-growing species from Java. The plant in bloom, at a little distance, would remind one of a Kalmia latifolia. The flowers are yellowish white, and the plant will, we think, be popular for the green-house.

Rhododendron campylocarpum.—One of the Sikkim-Himalaya species. We flowered this in our own collection last year, but the flowers (neither yellow nor white) did not strike us as very interesting.

Scheeria lanata.—Handsome purple flowers, but scarcely dislinguishable from many of the common forms of gloxinias. Native of Mexico among the rocks.

Sonerila elegans.—All the Melastomacœ are popular and beautiful stove-plants, and this not less so than any of the others. The flowers are in *terminal* pink clusters. The leaves too, are handsome, being purple beneath. Native of the Neilgherry Mountains.

Stokesia cyanea.—A plant of our own country. Native of the Southern States, but little known in Europe. The blue flowers are equal in beauty to a China Aster. It is a hardy herbaceous plant.

Thunbergia laurifolia.—A stove climber, producing large leaves and large purple gloxinia like flowers. It is said to flower freely, which we have never found the other shrubby Thunbergias to do.—*Gardener's Monthly.*

STRAWBERRY MANAGEMENT.

"BY 'Z,' PITTSBURG, PA., IN THE GARDENER'S MONTHLY."

MY DEAR SIR:—I am glad to hear of the new enterprise that you are engaged in, and have no doubt that you will prove eminently successful. * * *

My chief pleasure this season has been in my strawberry beds, which have borne delightfully. There is yet one point on which I think much accurate information is wanted, and that is the adaptation of different kinds to certain soils. I notice the most contradictory accounts about the size and bearing qualities of many of the new candidates for popular favor. One person says the Peabody Strawberry in every way sustains the character given it; another pronounces it worthless. I cannot believe it is the intention of these different reports to deceive, and yet it is difficult to account for the difference of opinion. I think I can approach the solution of these discrepancies. There are evidently two sections of strawberries which will bear divisions by the foliage, namely, those which are very foliaceous and easily run into leaf; and those which have few leaves, and those short and stalky, and have at the same time a large, full crown as the plants come to maturity. Most of the English kinds seem to have this short, stalky growth, though not all; while our seedlings have (many of them) a great tendency to produce heavy, luxuriant foliage. Very little notice has been taken of the distinction by pomologists; but I think it important, as each kind would naturally want a different mode of treatment. We all know that whatever is favorable to the production of leaves, is in opposition to the fruit-producing principle of any plant. The leafy kinds should, therefore, in my estimation, be treated to a soil and manure which will not encourage a strong leaf growth. If these observations are correct, we shall find that one kind will produce abundant crops of fruit in a dry soil abounding only in mineral manures, and in a wet one, or possessing a good supply of nitrogenous substances, it will be entirely barren. And

the reverse holds true of the short-leaved varieties. That this has been the case the past season, I have had abundant evidence. We have had a very moist and favorable spring, and I have seen whole beds of some hermaphrodite kinds, in rich, low grounds, that have borne well in dry seasons, entirely fruitless this; while the same kinds, in drier places, have borne as formerly.

Some years ago, it was customary to mow off the leaves of strawberry-beds about September. Physiology stepped in and prounonced the whole practice erroneous, as it must of necessity weaken the plants; but a question arises in my mind whether, in some of the cases I have instanced, it is not advantageous to weaken the leaf-producing tendency, and whether, with a judicious selection of the varieties to be operated on, the practice may not have its uses. The principle might be carried further. Many cultivated plants that are considered by gardeners "shy bloomers," might be made to bloom freely by being denuded a time or two of their foliage. I saw a curious illustration of this the past season. A horse-chestnut that had its leaves stripped nearly all off last June by caterpillars, recently put out again full of flowers. And we all know how a pear tree, when it loses all its leaves early in the season from drouth or from the leaf-blight, will frequently bloom again in the fall.

Thus you see, my dear sir, though I do not consider myself sufficiently experienced to write for your paper, I could furnish topics for your more practiced pen; and I hope you may meet with better support in this matter than I feel able to give you.

VALUE OF SHADE-TREES.—Very few owners of real estate in country towns seem to have any idea even of the commercial value of shade-trees. One piece of ground, perhaps not very eligibly located, commands a high price, while another, in a far better position, is not wanted scarcely at any rate, especially by those who have the means to make a considerable investment, simply because there are no attractive shade-trees, nothing to make a house pleasant out doors. Suppose every inland town in the United States should appropriate the small sum of one hundred dollars annually, to be invested in this way, in beautifying and enriching the place, what a change ten or twenty years would produce! Take away the magnificent elms and other beautiful shade trees from New Haven, Norwich, and other New England towns, and you would reduce the value of real estate at once at least twenty-five per cent. We call attention now to the subject because shade-trees are now appreciated. Those, therefore, who realize how much pleasure they are denying themselves, will please remember at the proper time, in the fall or spring, to give the matter their prompt attention. Reader, man or woman, (we say woman, for we have recently seen three of the finest elms we ever beheld which were planted by a noble woman nearly one hundred years ago,) whosoever you are, we mean you.—*New York Independent.*

GRAPE CULTURE IN THE MOUNTAINS.—Numerous interior papers mention that the culture of the grape is rapidly being extended, and is highly productive in their various districts. It would appear as if Los Angeles is not hereafter to be the sole wine-producing region of the State; but will in a very few years, meet formidable rivals in every mining region in the mountains.—*Southern Vineyard.*

Just so, Mr. *Vineyard.* We have the soil, the climate and the energy in the mountains and foot-hills of Calaveras, Amador and Tuolumne, to raise as many and as good grapes as are produced in the three departments of Languedoc, Gascony and Provence; and the more we raise, the better for you and us. We shall never become exporters of wine, wool, or anything else, until we raise enough surplus to attract the argus eyes of commerce to our ports.—*San Andreas Independent.*

VINEYARDS OF CONTRA COSTA.

UPON the Alhambra creek, in the vicinity of Martinez, are a few well managed and very productive vineyards. We have recently visited them, and finding the mode of culture in some respects peculiar and of a character worthy the notice of vine growers, we give a description of their management. The first vineyard that came under our notice was that of Mr. M. R. Barber, about two miles from Martinez; here are about four thousand vines of the California or Mission grape, three years old from the slip, exceedingly productive the last summer and having produced a very fine yield the year before, or the second from the slip.

The land is river alluvium or "bottom land," requires no irrigation and is deep and rich. The peculiarities of cultivation are these: First, the vineyard is grown by planting out the slips where the vines are to remain; and secondly, the vines are trained without stakes or any support whatever. The experience of Mr. B. in raising vines from slips in his ground is this; that cuttings are best grown when set in the soil a depth of fifteen inches, with two buds above ground; and he thinks it will hardly pay to plant out vineyards of great extent by setting rooted plants one or two years old, and digging the necessary holes therefor of proper size, when they can be so much more easily, cheaply and better grown from the slips. He has tried both ways, and finds his vines at three years from the slip unremoved, more productive and of more vigorous growth than vines four years from the slip and suffering one removal at one year from the slip.

Here we have a practical experiment beautifully corroborating our "new doctrine," of planting out trees, by planting the seeds, slips or cuttings where they are to grow. Mr. B's experience in regard to success by this mode is, that with the ground properly prepared, four-fifths of all the slips will grow; and in a highly favorable season and with good culture seven-eights; and in proof of his belief that a cutting is preferable to a rooted plant, he renews such as do fail, by setting cuttings instead of year old plants. Mr. B. has set the most of his vines five to seven feet apart, but hereafter will set seven by seven feet.

The quince succeeds admirably in this locality; as an instance of precocious fruitfulness, Mr B. pointed out to us a tree or quince bush, that if cut off at the ground would not weigh over two and a half pounds, and we were assured it produced seven large quinces, and one of them weighing a pound and a half.

The next vineyard that came more immediately under our notice was that of Mr. John Strentzel, about a half a mile above Mr. Barber's. Soil similar in every respect. Mr. S. is a Polander perfectly conversant with the culture and management of the vine as practiced in many of the countries of Europe. He also discards the entire theory and practice of setting vines in vineyards a year or more old, preferring slips in all cases; nevertheless, he always keeps vines one or two years old in nursery rows to supply those who may choose to buy such plants, but never sets them in his own annually increasing acres of vineyard.

He prefers and uses cuttings thirty inches in length, with two buds only above

ground; he sets them inclined to that degree that the bottom of a thirty inch slip shall be two feet beneath the surface and knows that in his grounds the slips strike root their entire length from four inches beneath the surface to the bottom; so that the theory of many that long cuttings are rather detrimental than otherwise, seems not to hold good in this locality, as all who have here experimented with cuttings give preference to the long cutting; and if we can judge of its vitality from the growth made the first year from the cutting, it may well be considered an established rule of practice here. We found upon examination that a large majority of the slips set last spring, have made a growth of over four feet in length, and not a few of them bore grapes; and this upon land not irrigated, but upon river bottom.

Mr. S's vineyard contains ten thousand vines, seven thousand of which are in bearing. He plants eight feet by eight; considers six by six feet too close for this country; would do very well in a European soil and climate, but is satisfied a different practice is required here. He also, like Mr. Barber, abandons the use of all support for his vines after the second year from the slip. Experiment has proved to his entire satisfaction that the grapes are better the nearer they are grown to the surface of the ground, and by allowing the vines to spread over the surface, the ground is kept moist under its shade, and the fruit is also kept from the sun, an essential requisite to its fullest perfection; he therefore considers stakes or any artificial support to the vine not only of no benefit, but positively detrimental.

Mr. S. finds no difficulty in converting the California or Mission grape such as he raises, into very good raisins, and our own trial of bunch after bunch entirely satisfied us on that point; we know them to be excellent, and like other raisins, will keep any desired length of time. Both soil and climate of this valley seem perfectly adapted to the successful culture of the grape, but not to this alone; for here we find the finest fig trees we have ever seen, and that never fail to bear abundantly. Pomegranates succeed equally well, and as late as Christmas were in perfect eating condition and of exquisite flavor. Here too, the Portugal quince is grown, unexcelled in size, beauty or flavor. Mr. Strentzel is one of the amateur as well as practical fruit culturists of beautiful Alhambra valley, and being among the first who gave their attention to fruit growing in that locality, his experiments and the results are entitled to consideration.

GRAPES.—We acknowledge the receipt of five or six specimen clusters of as many different varieties of grapes, from Madame Cataia's garden, located three miles south of Mokelumne Hill, on the head of Chili Gulch. They embrace the "Isabella," "Fontainbleau," (second growth,) the "California," and other excellent varieties of foreign grapes, to us unknown. The vineyard from whence these were taken, contains about two or three acres, mostly of rich alluvial wash, well irrigated, and completely covered with all manner of fruits, flowers and vegetables, that can be grown in this climate. The cultivation of the vine, however, occupies the greatest space and attention; and to us, who have never had the pleasure of beholding this elegant branch of horticulture in the far-famed wine districts of Europe, this garden seems a little paradise indeed. They raised this year, over 7,000 pounds of grapes; next year, the vintner informs us, they will with ordinary luck, raise over 70,000 pounds. Of course, most of this will be pressed into wine.—*San Andreas Independent.*

CULTURE OF THE BLACKBERRY.

SO great is the demand for the Lawton and Highbush blackberries the present planting season, and so few have had experience in their culture, as indicated by the inquiries we receive on the subject; we give the experience of one who ought to be acquainted with best mode of culture, at least of the Lawton variety. It is from the pen of Wm. Lawton, in the Ohio *Cultivator*, and with such variation as climate might seem to suggest, will doubtless be in the main applicable to a California culture of this admirable berry.

"*Soil.*—Although singularly productive on any good farming land, for a permanent plantation, a rich, loamy and rather humid soil, well manured, is recommended.

Planting.—If put out in a dry season, throw into the place assigned to each plant about a gallon of water, and allow it to settle away; then regulate the earth for its reception, and put in the roots about three inches deep; a proper humidity of soil will thus be preserved for a long time. Watering upon the surface hardens the soil, impedes the healthful influence of the air and dew, and often proves fatal to the plant.

Distance.—Against a wall or garden fence, plant them five feet apart; or where they can be approached on either side to gather the fruit, only four; for field cultivation, allow at least ten feet between the rows (all of which space will be required the third summer,) for the convenience of gathering the fruit, when the plant has attained its full size and strength. Any gardener will know how to occupy the superfluous ground until required for the proper cultivation of the plant.

First Year.—In forking up or weeding the ground, be careful not to interfere with the growth of the new shoots, as they constitute the bearing wood for the following year, and if they are destroyed the plant is lost.

Second Year.—The plants will be firmly rooted but of medium size only. Before the buds put forth in the spring, reduce the length of the leading shoots about one-third and shorten also the laterals in the same way that they will produce a crop of good fruit, without further care, besides furnishing strong, vigorous canes for the ensuing year.

Third Year.—The plants will now be in full bearing and must be pruned and managed with due regard to their extraordinary size, productiveness and increase. All the old wood having decayed during the winter, should be removed early in the spring. After selecting three or four of the best new shoots in each hill for bearing, new plantations may be made with the other canes, or if not required for that purpose, they must be cut away close to the surface, and all the straggling roots between the rows eradicated.

Pruning the third year.—Many of the principal shoots will now be from six to twelve feet high, and they may be cut off just below the bend, or about one-third of their length, and in shortening the laterals the cultivator will have acquired a sufficient knowledge of the plant to exercise a proper judgment; indeed, the pruning and management may no doubt in some localities be varied to advantage; my practise is to shorten the laterals one-half.

Props.—If the cultivator shall desire to support the plants, a cheap and convenient way is to put out posts at the extremity of the rows and extend from them a single wire to be elevated about four feet and supported at proper intervals by stakes driven into the ground; to this the canes may be readily attached; but if properly pruned they require no support."

AGRICULTURAL READING.

THE farmer who would meet with success, and raise abundant crops on the sterile hills of New England, must acquaint himself, by reading, observation, and actual experiment, with such facts pertaining to his farming operations as will result to his peculiar advantage; such farmers only will succeed in obtaining aught remunerative for their labors. He who seeks not for improvement in the management of his farm, but is content to plod on in the old beaten track which his father and grandfather trod, calling to his aid no assistance from science, no lightening of his daily toil by the use of improved implements in husbandry, never seeking to enlighten or clear his mind by agricultural reading, must not expect, on our *worn-out* farms, flocks and herds sleek with fatness, store-houses filled with grain, or coffers overflowing with wealth; but on the contrary will find himself, by incessant labor and toil from early dawn to twilight eve, just able to bring round the year and make the two ends meet.

Every town presents its quota of this class of farmers, and it is as much the duty of the intelligent farmer to enlighten, instruct, improve, and aid this class of farmers as it is for the Christian missionary to teach the Gospel to the heathen. They are in darkness, their minds beclouded with traditions handed down from father to son from former generations, surrounded by prejudices, and strongly intrenched behind the citadel of self-will. The only application which has been brought to bear on this fortress of ignorance with telling effect is our agricultural journals. Thanks to the enterprise, intelligence and perseverance with which they have been conducted, their untiring labor are being rewarded by a continual decrease of this class of farmers, and it is with pleasure we record that each year "their number grows smaller and beautifully less," and we trust that the day is not far distant when an agricultural journal will find its way to the home of every farmer; when traditions which increase the labor but decrease the crops, when prejudices which blind the eye to improvement, will all be removed, and when that degree of intelligence will be reached by the farmer which will enable him to apply his energies to the best advantage, obtain ample remuneration for every day's toil, and cause prosperity and luxury to universally attend the labors of the husbandman.—*Exchange.*

MULCHING.—This term is so frequently used by horticulturists that it would seem to need no explanation; yet we question if there are not many who read the word without knowing its true import. *Mulch*, from the Hebrew (to dissolve,) Webster says, half-rotted straw. But we apply the term to anything that shades the ground around plants, whether it be straw, leaves, tan bark, rocks or planks. A plant removed in the summer should be mulched; It may sometimes be mulched with rocks or planks, to better advantage than with straw or leaves, as the rocks or plank will keep the ground around the plant moist longer than freshly applied leaves or straw. Cuttings of any plant will strike root and grow freely in summer months, if properly mulched with rocks, bricks or planks. The advantage of mulching with straw or leaves is, that the ground is not only shaded, but enriched by decaying vegetable matter. By judicious mulching, almost every vegetable, fruit or flower may be grown in perfection through our hottest, dryest summers. We had occasion, last month, to remove a new variety of strawberry; the plants were in bloom and fruit; we carefully mulched each plant, and have not lost one. The literal meaning of mulching is, to apply straw or leaves around among your plants. But plants may be mulched with anything that will shade the ground without taking nourishment from it.—*Soil of the South.*

Errors in Mulching.—We often observe, in riding through the country, that the benefits of mulching are becoming in some degree appreciated, and that many attempts have been made by this means to mitigate the effects of drought. Yet a great deal of it appears to be applied without any reflection, and is little better than no mulching at all. A small portion of litter is heaped up *close to the foot of the tree*, without one moment's reflection, or without any knowledge whereabouts the roots are that need the benefit. Now, it may be laid down as a rule, which is not far from correct, that the length of the roots which radiate on all sides from the base of the tree, is about equal to the hight of the tree itself—and not, as we often hear it stated, only to the length of the branches from the top. If, for example, a young fruit tree is ten feet high, then we may infer that the roots form a circle about twenty feet in diameter, the base of the tree constituting the center. Over this great surface the finer and more inconspicuous roots form a net-work of fibers; and to derive full benefit from manure, cultivation and mulching, a wide space must be operated upon. This, we are aware, is a larger allowance than is usually made; but our observations satisfy us that it is more nearly correct than the ordinary estimates. There is one exception, however, and this is furnished by newly transplanted trees, whose roots have been cut very short on all sides in removal from their original locality, and which have not grown and extended so as to fill the usual circle.—*Pacific Journal.*

CHARCOAL AS A MULCH.

BY D., IN THE GARDENER'S MONTHLY.

IN paying a visit to the vineries and nursery of Mr. Wm. Saunders, (the able and talented writer on horticultural affairs,) in Germantown, I was much interested in observing that he makes considerable use of pulverized charcoal as a mulch for his dwarf pears. Erom its non-conducting properties, which serve the two-fold purpose of excluding the heat of summer and the cold of winter, and its permeability, which allows of the free passage of rain to the roots, it appears to me to possess advantages over any other material used for this purpose. It can be easily procured for almost nothing from the vicinity of railroad depots. Pulverized coke from a gas works will probably answer the purpose almost as well. Yours,

D.

In many localities in California, one of the very best materials for mulching is found in the tailings of mining sluices, or any description of gravel so coarse as not to allow of the growth of any weeds, grass or plants whose seeds might be conveyed upon it. The ground should in the first place be made sufficiently rich for the growth of the tree; then cover it just deep enough to prevent the growth of all vegetation from it, except the tree, and you have one of the very best mulchings you can apply. —ED.

Pulu comes from the Sandwich Islands, is the product of a large species of fern, which grows to the hight of from four to eight feet, and the pulu is found around the germ of the leaf. It is of a light golden brown color, of the softest fiber, not clotting or becoming lumpy by any amount of pressure or heat, as in hair, wool or cotton. At first but little value was attached to pulu, although the natives of the Sandwich Islands have made use of the article from time immemorial. Sailors, however, of the whaling fleet have invariably recruited the interior of their bedding with this

fiber on returning to the Islands, finding nothing to surpass it in luxurious softness and entire freedom from insects. Another property of pulu, which is not generally known, is that it is an excellent absorbent, and is extensively used by the natives for the preservation of dead bodies. At this time it sells from fifteen to twenty cents per pound—thirty pounds being deemed amply sufficient for an ordinary bed or mattress. The wealthier classes in San Francisco and Paris are causing almost a scarcity of the article on the Islands—society in general there and elsewhere are beginning also more fully to appreciate the enjoyment of this occidental luxury, which is not to be wondered at, when it is known that the Empress Eugenie has long since discarded the eiderdown bed, on which reposed the youthful heir to the throne of France, for the comfort, softness and more luxurious attractions of pulu.—*Pacific Journal.*

ANNUAL AGRICULTURAL REVIEW.

IN a present review of the Agriculture of California, the first strong feature that presents itself, is the undoubted ample supply of all the cereals to meet the demands of home consumption. California, as a matter of necessity, for this year, and probably for the future, will no longer require to import her bread-stuffs. Her lands adapted to the production of grains and fruits, are only limited by her boundaries. Wheat, barley and oats, are the staple products of the grain field from San Diego to Siskiyou; nor is their profitable production confined to the lower plains and valleys: but along the foot-hills of our interior and coast-range mountains, and even high among the great ridges and upper plateaus of the Sierras, the growing of the certels is no longer an experiment, but a complete success. The yield of sound grain per acre upon new lands, has been fully equal to that of preceding years, and surpassed in quantity per acre, and quality, by that of no other country. And yet a feature is presented in the largely decreased and annually decreasing product per acre of the bulk of the lands devoted, as yet but a few years, to the production of grain, that should command the immediate and most earnest attention of our agriculturists. It is too soon to record the fact of a decided diminution in the yield of our grain fields, where soil and climate seem so admirably adapted to produce abundantly, and where so few of the great evils that beset the wheat crops of the Atlantic States prevail.

Rust and smut to some extent and in a few localities, have lessened the product of merchantable grain to the acre; but nothing like that almost total destruction of thousands of acres of wheat by rust, smut, the Hessian fly and the midge, now annually occurring in the northwestern States, do we have to contend with. In the single article of corn, California with the aid of Oregon, never has produced a supply equal to the home demand. There seems to be in California a far less extent of lands suited to its growth—in connection with climate—than in almost any other section of the Union in the same latitude; and it will doubtless be years before cornmeal will cease to be among our imports. But with this single exception, all the grains can be grown in California sufficient for home consumption and a large surplus for export.

The second main feature of our agriculture, immediately connected with the tillage of the soil, is the progress of our pomologists in the production of fine fruits. The invariable success crowning the efforts of those who at an early day turned their attention to vineyard culture, has been the incentive to an immensely increased effort in this department; nor has there been, from its first inception to the present, a single inauspicious season or occurrence that can mark the enterprise of vine-growing and

wine-making as even approaching the hazardous. The ordinary vicissitudes of climate, so likely to tell, at intervals, to the injury of almost all the fruits of temperate or torrid climes, seem to have no place in California as affecting the perfect growth and maturity of the grape; it is the surest crop that the soil can produce. As a consequent, its culture is largely on the increase and extending in every direction. No county in the State is without its vineyard, and an excellent feature it is, that every cultivator, wherever situated, among the mountains or in the valleys, thinks his own vines the most flourishing, and his own grapes unsurpassed by those of any other locality.

Los Angeles county is probably ahead of any other in the number of its growing vines and wine product, the vines being older, and therefore producing more abundantly. Both soil and climate seem unexceptionable to the production of the finest foreign varieties of grapes. The volcanic debris of the mountains, whether in its original position or washed into the alluviums of the valleys, seems alike adapted to their growth; whilst the hot, dry air of our summers is a guaranty against every ailment so often affecting the health of foreign vines and their fruits, on the Atlantic border and in Europe.

The immensely increased vintage of the present year, though apparently common to most vine countries, is in California only the consequent of an increased breadth of lands devoted to the vine, and now coming into bearing; and not to any remarkable yield of the season over that of previous years from other cause. We therefore claim, that in the success already attained, we have the sure guarantee that the product of the vine in grapes, raisins, wines and brandies, will soon be second to none other of our agricultural exports.

The production of the apple, pear, peach and all the smaller fruits, seems within the last year to have elicited a more than usual attention, and large numbers of trees have been planted out. The continued and very rapidly increasing demand for fine fruits, and the high prices they command, with a desire doubtless on the part of the cultivator to possess fruits of his own raising, and the invariable success attending every well conducted effort for their production, having doubtless been the main incentives to the greatly extended culture. And yet the nursery-men of the State, with a commendable forecast, seem to have provided amply for all the demands that may be made upon them for trees. The importation therefore of trees, except of the very rarest or newest varieties, is entirely superseded by the more thrifty and healthy trees of home growth.

The growing of fruit trees and the cultivation of orchard fruits will ever constitute an important feature of our State's agriculture.

Of the four important products—sugar, cotton, rice and tobacco—repeated experiments have demonstrated the perfect adaptation of large districts of the State to their successful growth; but whether to be cultivated profitably, while labor commands the price it now does, is a problem yet to be solved. That a fair return upon expenditure in the production of sugar or syrup from the Chinese sugar cane, seems likely to be realized judging from the results of the past season's efforts. In the horticultural department of our agriculture, California would, were it possible, excel herself. The exhibit of horticultural products at the several Fairs, State and county, during the past season, fully demonstrates the progress made in every department of gardening, and the successful growing in their fullest perfection of almost every variety of vegetable product, from the most common and useful esculent to the rarest and most beautiful of flowers.

The Dairy products of the State though largely on the increase from year to year, still fall far short of the actual demand for home consumption. A very large quantity of both butter and cheese is annually sent down from Oregon, and yet a very

considerable importation from the Eastern States is required to meet fully the demand. Efforts are continually making to add to the dairy stock; every heifer calf produced is raised; and yet the increase of our dairies is not in that ratio that promises an immediate ample supply of butter and cheese for our home market. There is however a new feature of the dairy business being developed, deserving of notice as promising much for the future increase of the annual product. It is the bringing into requisition the nutritious grasses of the higher valleys and plateaus of the Sierra Nevada, during that season of summer when almost the entire of the lower valleys and plains are but dried up pastures. These mountain valleys and plateaus are not only numerous, but many of them are of large area, amply supplied with water, and producing indigenous grasses and clovers of the finest qualities, and which are ever green but when covered by the snows of winter. There are many dairymen as well as stock growers, who now annually avail themselves of these free, mountain pastures, having established a truly nomadic dairy system, a system in its application, admitting of almost indefinite extension, as there is hardly any mode of estimating the quantity of summer pasture, afforded by that great belt of our State's area, between the lower foot-hills and the perpetual snow line of our mountains.

Although no country can surpass California in the growth of live stock of any description, either as regards their rapid increase, early developement or maturity, and though large accessions are annually made to the gross amount by natural increase and direct importation from the Western States and Northern Mexico, still the fact is undeniably patent, that live stock of every description are in demand. Large, eastern horses suitable for staging or heavy teaming, are worth at least one hundred per cent. more than at the East. California is now undeniably increasing rapidly in population, and the increase of large heavy horses and mules does not keep pace with it; and none other than heavy animals are fit for draft upon the mountain roads of the interior. So that for years yet, it will be a one hundred per cent. operation to bring large horses or mules from the States East, *via* the Plains.

And what is true of horses will apply with still greater force to the importation of cattle. California has a very large non-agricultural producing population, the greater part of whom are miners, lumbermen or mechanics, all hearty eaters; and as but little fresh pork comparatively is consumed, except by the Chinese portion of our population, immense annual drafts are made upon the herds of neat cattle for the requisite supply of butchers' meat. So that prices are steadily maintained, and to that degree that would fully warrant the still further introduction from abroad of large accessions to the present stock.

But if there is any one division of stock growing that bids fair to lead another in the pecuniary results of its prosecution, it may be looked for in the raising of sheep. Our long continued hot season of summer, has unmistakably produced with the laboring classes a change in their tastes for meats; the effect is the discarding of the oily or soft fatty meats for those of a firmer consistency; we are therefore fast becoming a beef and mutton eating people, the large annual increase of the consumption of mutton over that of pork being the best possible proof. The fact that sheep attain to nearly full size in a single year, is an argument in favor of their production, which is not lost sight of by the grower of meat for the shambles. Another peculiarity favorable to the raising of sheep, is the more than the one hundred per cent. increase, annually, from a given number of ewes; this fact in connection with that of the wool yield, it being nothing unusual to shear twice in the year, with the admirable adaptation of the climate and pasturage of California for their successful rearing, places sheep husbandry among the most important of our agricultural pursuits.

The culture of the honey bee, alike with every other description of like stock,

has been attended with the most flattering results, not only in the unbounded success of the bee in procuring honey for its own subsistence and a large surplus, but in the most remarkable degree, the natural increase of colonies when under judicious management. It is nothing unusual for a single hive of bees in California to send out from four to six new swarms in a single year, and whether early or late, our protracted season of warmth produces a succession of vegetable sweets, that ensures the entire success of the latest as well as the earliest swarms. But in addition to the natural increase, there is from year to year a considerable importation of new swarms from the Atlantic States and Mexico; sufficient experience having been attained to render their transportation from the States remunerative; whilst of a large number of swarms introduced from Mexico, but very few, if any, have succeeded. They seem actually to possess, to a great degree, the very indolence and improvidence of the inhabitants of that luxurious clime and country. But the culture in California of the true Anglo-Saxon bee, Americanized in the United States, can be recorded as a complete success.

Thus in every department of vegetable and animal life, we meet with the most abundant evidence of the perfect adaptation of the soil and climate of California to the prosecution of that important and reliable interest of all countries, a successful agriculture.—*Mercantile Gazette.*

ABOUT CHINA TEA.

AS nearly all our lady readers have more or less to do with China tea we think they will be interested in a brief description of the article. We say "China tea," because there are now several kinds of plants used for making the beverage called "tea." Not less than thirty different tea plants are habitually used, more or less, in different parts of the world. Paraguay, and some other portions of South America, produce a tea plant called *Mate*, which is very largely used in those countries and somewhat exported. Paraguay alone sends abroad some six million pounds annually. The Chinese tea is, however, the great staple throughout most of the world. The British, Dutch and Russians are the largest European tea-drinkers—the other nations drink a greater proportion of coffee and cocoa. In the United States the consumption of tea and coffee is more nearly equal, though the former preponderates. The people of Great Britain use nearly *sixty millions* of pounds annually. The total annual produce of the dried leaf in China alone is estimated at about two to two-and-a-half billion pounds (2,500,000,000 lbs.) And to this enormous amount must be added that grown in Japan, Java, Corea, and many other countries. The Dutch (Hollanders) get most of theirs from Java. It is estimated that Chinese tea is at present consumed by six hundred millions of people, or nearly half of the human race?

How the Tea Plant is Grown.—The plants are raised from seed, and when a year old are set out three to four feet apart. They are cropped down for a year or two to make them grow bushy. The gathering of the leaves is begun the third or fourth year, and continued for five or six years, when the bushes are removed and new plants set out. The leaves are gathered in April, May and June, but chiefly in May. The earliest young leaves give the highest flavored teas. The latest pickings are seldom sent abroad.

Green and Black Teas—Curing.—These, according to the recent reliable researches of M. Fortune, are produced from the same plant—their difference resulting wholly from the manner in which they are treated when drying. M. Fortune, in his reports to the French journals, says he saw the Chinese gather leaves from a

single plant, divide them into two portions, and make one into black and the other into green tea, both of which were precisely like the samples of these two varieties sold in our market.

To make the *green*, the leaves were roasted as soon as picked, rolled, and dried off quickly, the whole operation being simple and rapid.

To make the *black*, the leaves were spread out in the air for some time, and when wilted were tossed about until soft and flaccid, after which they were roasted a few minutes, then rolled and exposed to the air for a few hours while moist. They were finally dried slowly over charcoal fires. This process rendered them dark colored.

This may, perhaps, explain why *black* tea is less exciting to the nerves. All tea has more or less of a volatile oil, which in a condensed form produces giddiness, headache, and even paralysis. The slower drying of the black tea allows a greater portion of this oil to escape. In China, tea is seldom used until a year or more old, and time is given for the volatile ingredients to escape. New tea is strongly intoxicating. Green tea is also more frequently adulterated with Prussian blue, or indigo. One or the other of these is mixed with plaster of Paris (gypsum,) or white clay, to form a lighter blue powder, which is sprinkled over and worked with the leaves while drying, to give them a lively green color. As this is carried on extensively, the drinkers of green tea stand a fair chance of also imbibing more or less Prussian blue—though not enough, perhaps, to produce injury. Tea itself is poisonous enough without this addition. From the mode of drying, it is probable that if black tea were not taken stronger than the green, it would have less narcotic effect. But when tea is taken for a stimulus, as it almost always is, the weaker it is in narcotic oil, the more of it will be taken. Tea drinkers, like the toper, must have enough to "make the drunk come." So that, on the whole, green tea is cheaper, for a smaller quantity will droduce the *desired* effect.

Nourishment in Tea.—It was formerly supposed that the only nourishment in tea came from the added milk and sugar; but an examination of its chemical composition, and of its effects, shows that there is more or less direct nourishment from the tea itself, and that taken into the system, it diminishes the natural evacuations, and thus lessens the demand for new food. In this latter view, or on the supposition that it lessens the natural waste of the body, tea may be useful to aged persons. To get the full benefit, however, it is needful to abstain from its free use while yonnger. Every consideration, we think, indicates that children and young persons should not habitually drink tea, (or coffee, which is very like tea in its narcotic principle as we shall show when describing it particularly.)

The Chinese seldom make any additions to their tea. M. Fortune says that in all his journeying through the tea districts, he only once met with sugar and a tea spoon. They consider tea nourishing of itself, and that such is the case is shown by its chemical composition. The dried leaves contain one-fifth to one-fourth their weight of *gluten* which is the chief muscle-forming element of wheat flour.

Beans contain only one part in four, of this highly nutritious substance, so that for producing muscles, (lean flesh,) a pound of tea leaves is equal to a pound of beans. But it is to be remarked, that only a small portion of this gluten is dissolved out when tea is "drawn" in hot water. The better and more economical mode would be, to eat the leaves after the narcotic principles are extracted by steeping. This is done regularly in some countries, and the practice is to be recommended, where tea is largely used, especially by the poor. The tea infusion exhilarates, or intoxicates, and nourishes slightly, while the steeped leaves mainly nourish.

Before advising any one to adopt cooked tea leaves as an article of diet, we would add, that, calling tea 50 cents per pound, one pound of gluten from tea leaves costs $2, to $2,50; while from beans at $1,75 per bushel (60 lbs.,) a pound of gluten

costs 12 cents; and from flour at $7 per bbl. (196 lbs.,) a pound of glutton costs 30 to 35 cents. This calculation does not include the nutritious oil and starch, contained in flour and beans in very large proportions, but in very small amount in tea leaves.

Of the Preparation of Tea for the table it is not necessary to say anything. The process is too simple to require the application of scientific rules. Every one of our lady readers would say, mentally at least, "give me the good tea to start with, and I can get you up as good a cup of tea as anybody." We admit it, and will wait until we come to a description of the coffee plant and its preparation, before offering any further practical suggestions. We will add here, however, that if the object in drinking tea is to get as much exhilaration as possible, every precaution should be taken to prevent any of its oil from escaping with steam. Every one knows how weak and insipid tea is when made in an open vessel where the narcotic oil can escape. We once heard a person remark, with some truth, "that a quart of such tea would not keep her awake." But in behalf of the children we say, if you must let them have tea to drink, except as a medicine, by all means cook it a long time in a tin bason or other wide, shallow, open vessel, and then dilute it homeopathically.—*American Agriculturist.*

SALT, AND ITS USES TO GARDENERS.

IN another part of this paper, a correspondent speaks of common salt as a chief agent in his successful cultivation of the turnip. The employment of salt as a manure is so little understood, and at the same time the reports of those who have used it, in the majority of cases, speaks so favorably of its action, that it is well worth extensive and varied experiments by horticulturists. We think its chief power lies in its hydropical qualities; or, to speak more plainly, its capacity for imparting moisture to the soil, than to any inherent fertilizing property. Thus, whatever contains salt, will always be damp, and nothing is more important to the cultivator in many cases, than that his soil should retain at certain seasons, a uniform degree of moisture. We recommended a friend who was laying down a lawn last spring, on a naturally dry soil, to sow a portion of it with salt before putting in the seed, and the difference between it and that not so sown, in the green color of the former during the past dry season was very striking. Salt, in dry soils, has been for some years past, admitted to be a valuable means of increasing the fertility of an asparagus bed, which is doubtless principally owing to the moisture it is able to afford to the succulent stems of that plant. There is a wide field open for its application. Pears and quinces, gooseberries and currants, and some other fruits which dearly love to be in dry soil, yet near moisture; tender rooted plants, such as natives of New Holland and the Cape of Good Hope, which must have a regular supply of moisture at the roots to enable them to get through our dry summers, and yet will not bear constant artificial watering; succulent growers, as geraniums and calceolaria, bulbs, and many other kinds, would no doubt be vastly benefitted. In cases where a humid atmosphere is required, it might be a useful aid. Salt hay under a gooseberry bush has been known to make the atmosphere surrounding it so regularly moist, as to insure a perfect crop in cases otherwise rendered futile by mildew. Admitting air by side lights into cold vineries, by suddenly changing the hygrometric conditions of the atmosphere, is now so well known as being one of the chief causes of mildew in grapes, that side ventilation is abandoned by some of our best cultivators. By placing salt canvass over the apertures, the advantages of the air might be obtained, without its concomitant disadvantages. Experiments are wanted from gardeners. Agricultu-

rists are rather ahead of us in its application, though they seem still unacquainted with its mode of action. In another place we give an extract from the *Genesee Farmer*, which if not satisfactory, is at least suggestive.—*Gardener's Monthly.*

SMUT IN WHEAT.

THE different opinions held in reference to the true cause of smut in wheat and other grains, would seem to indicate an almost total misunderstanding of what smut really is. A recent writer in one of our city news journals has gone so far as to attribute it to a degeneration of the seed by careless and injurious selections, and still more careless culture, and draws a comparison between it and the potato disease, which he also attributes to improper management and the use of poor seed.

We must be permitted to differ with him, in opinion at least, and we give our reasons for so differing, because we believe a great injury may be sustained by some who may be inclined to attribute it solely to a choice of poorly matured seed, or a poorer system of culture. That in all cases it is best to use none but the very best seed, we believe none will dispute. But what constitutes the *best* seed? In the case of wheat it certainly is not always that which produces the largest grain or kernel, nor that which has had extra care given to its culture: because if smut is the evil to which it is exposed, it is quite as likely to possess the germs for infecting a succeeding crop, as wheat grown on volunteer lands, with no pains taken in its culture, or where the seed grain is small from an imperfect maturity.

Smut is but another name for a fungus, a plant, a mistletoe, that under the microscope presents the appearance of a moss; that fastens itself upon the stalk, and also appropriates the entire interior of nearly every grain upon which it takes a hold, and is therefore just as likely to appear in fields of grain under the most judicious culture, as the poorest. There are undoubtedly circumstances of soil and climate, that in different seasons, may prove more or less favorable to the production of smut, than others; but this fact applies equally to other mosses, fungi, or plants; and as it is reproduced from its own seeds or a division of its parts, as we cultivate the vine from cuttings, the main mode of prevention must lie in the destruction, by some means, of the vegetable principle of the plant adhering to the seed wheat sown; otherwise it has only to grow alike with the wheat, again to fasten upon and to be nourished by it.

A great number of experiments have been instituted, with a view of discovering some ingredient, that upon application might destroy the vitality of smut upon the seed to be sown, and thus prevent its perpetuity. Altogether the best application that has been discovered, and one which for years has been in use as an almost perfect preventive, is a solution of blue vitriol in water. The wheat is saturated by the solution for a few hours, when it is ready to be sown. We have alluded in former numbers to the almost universal adoption of this preventive of smut among the cereals, and we only mention it now in connection with our remarks upon the subject,

that whilst denying that smut is produced by a degeneration of the grain, and pointing out just what it is, we may not present the bane without the antidote.

An interesting series of experiments have been instituted the past season, by Mr. T. J. Jones, of La Fayette, Contra Costa County, relative to the reproduction of smut from smutty wheat; the liability of wheat, free from smut, to be affected while growing, by that which is smutty in its immediate vicinity, and the trial of broken grains of wheat, both as regards its power to vegetate, and liability to produce a smutty product over that of sound wheat. The result has been in the highest degree satisfactory; it has proven conclusively, that of the one-half of the wheat from a dozen smutty heads gathered purposely for the experiment, unprepared by soaking in any solution, the entire product was smutty; but that the other half, soaked in a solution of vitriol, though grown immediately alongside the other, was scarcely affected by smut at all, producing good sound grain. The results also show that broken grains of wheat, if they vegetate, are no more likely to produce a smutty product than sound grain.

Almost all the so called dieases of the different cereals can be traced, not to any deficiency in their own organic structure or growth, but to the effect upon their full development by the draft made upon them by the different varieties of parasites, as mildew, rust and smut, that prey upon their organisms.

TASTE IN FARMING.

THERE are two ways of doing a thing well, that is to say economically, not to mention more. One has no reference or regard whatever to how it will look, only utility and economy being studied. The other has reference to both of these, and the doer is also influenced by taste, always having reference to how it will look, and giving the preference ever to that way of doing a thing which shall most directly promote the beautiful in union with the useful; for they are not at war with each other, but were made to dwell together; and palsied be the arm that would willfully do aught to divorce them.

Taste displays itself in the selection of the site for bulding, the plan and style of architecture, planting trees, making fences, laying out grounds, the coloring of buildings, &c. Some in these things display taste; others seem to show an utter want of, or disragard for it, everything seeming to be done with reference only to the most short-sighted utility. Attention to matters of the kind mentioned, would soon produce a favorable change in all our rural regions. Much has been done already toward the bringing about of this desirable change. Farm-houses are now generally in a much more comfortable and comely condition than they were a quarter of a century ago. Then but few were painted; now what then was the rule has become the exception; but few now are unpainted; then but few carriages were seen; now they are common; then but here and there a pianoforte, organ or other parlor instrument was seen or heard; now they are quite common everywhere in New England; then carpets were few, now they are common. And so with regard to almost everything else essential to comfort and domestic happiness. What we should say then is,—let every farmer study to make his home as beautiful and attractive as his farm is useful and productive.—*O. Branch.*

SHALLOW PLOWING—CULTURE OF INDIAN CORN.

AT a late meeting of farmers of the Empire State, as reported in the *Country Gentleman* of October 14th, there is a singular uniformity of testimony in favor of *shallow plowing* for the growing of good crops of corn. One gentleman by the name of Brewer said he got better crops when he plowed only four inches deep, than when he plowed deeper. If this be true, then there is much labor lost in the ordinary mode of culture; for as far as I have observed, farmers generally think it best to stir the earth from six to nine inches deep, provided proper fertilizers are applied. This is a question of great practical importance on which I should like to know your opinions, Mr. Editor.—*P. in American Farmer's Magazine.*

The remarks of the Editor of the *American Farmer's Magazine* upon the above, show conclusively that under almost all circumstances he is decidedly in favor of deep plowing. There is however in almost all cases where deep plowing is recommended, a qualification attached, requiring that the ground be well manured. Thus P., says: "I have observed, farmers generally think it best to stir the earth from six to nine inches deep, provided proper fertilizers are applied."

In reference to corn culture, T. C. Peters, of Genesee county, said the best practice was to manure in the fall, plow late, say May 20th, not over four inches deep, which is better than eight inches. Such treatment, has given 50 to 60 bushels of shelled eight rowed corn per acre. G. Geddes pointed out the importance of discriminating between one soil and another, in deciding what depth to plow; some light and deep soils did not need deep plowing; others of a heavier character absolutely required it. E. Cornell, of Tompkins, gave thirty loads of barn manure to the acre, plowed as deeply as possible, and had eighty bushels of shelled corn per acre. Thus we see that in all cases where deep plowing is practiced for corn, heavy manuring is considered essential. But do our California farmers manure their land at the rate of thirty loads of barn yard manure to the acre? are there not thousands of acres of "light and deep soils" devoted to the cereals that do not need deep plowing?

It is not that we advocate a general system of shallow plowing as adapted to California, for we do not and never have; but the great feature of peculiarity in our climate, the almost total absence of rain for six months together, makes it requisite that we mark well the effect of deep and shallow plowing at different seasons of the year. Our own observation upon the effects of deep and full pulverization of the soil for any late spring-sowed crop is, that if so plowed after all the spring rains have fallen, it becomes too dry at too great a depth, to be favorable to the fullest development of the crop. Whereas, if the same soil had been deeply plowed in autumn or winter, and after receiving the rains of spring by which the lower portion of the furrow slice is made sufficiently compact for the growth of fibrous roots, and at the time of planting only plowed to the depth of four or five inches, sufficient to secure the germination of the seed, we believe a better growth would be secured than from land plowed deeply late in the spring.

It is just as necessary in our extremely dry climate and yet drier soils, that the earth be sufficiently compact for the growth of roots, as it is that it be sufficiently porous. If then in a climate where no rain or dew falls, the soil be frequently and deeply stirred, the effect is to render it drier. During the past summer, while on a visit to the Pomological gardens of A. P. Smith, of Sacramento, with a desire to obtain his experience on this point, we proceeded to a portion of his garden where late in the spring or early summer, a small portion of ground had been dug over deeply by the spade; immediately adjacent to this by kicking up the surface soil with the foot to a depth of two or three inches, moist soil was reached, which was compact and firm; but on stepping upon that which weeks before had been deeply dug, the foot settled in the dry ashy soil nearly the full depth of the digging.

This to us was satisfactory, that in many localities in our peculiar climate, late and deep spring plowing may even render soils too porous and dry for a summer crop. There are those who seem determined they will not discriminate between the objects sought to be secured by a summer culture or frequent stirring of the soil; as for instance between nursery rows. Now whilst we have always admitted the positive necessity of such culture if for the destruction of weeds, we as earnestly insist that for any other good the trees may derive by the operation of deep and frequent stirring we have never been able to discover it. The Editor of the *American Agriculturist* in November number, says in reference to shallow *vs.* deep plowing: "We have several communications on this topic, which are held in reserve, to be answered in an article discussing the subject in full. Many soils would, under certain circumstances, be injured by deep plowing; but of this hereafter."

THE VERBENA.

THIS beautiful little flower is one of the best bedding plants in cultivation. Its brilliant trusses of flowers of all varieties and shades of color continue in bloom during the spring, summer and fall, and it only ceases flowering during the short frosts of winter. It is easy of cultivation, and should be found in every garden; they grow well in any good garden soil; they look best when grown in beds four to six feet across. Take a single plant and set it out in the middle of the bed, and in one season it will cover it fully. The bed should have a full exposure to the sun and away from all shade, for this plant will not bloom freely except when in a bright sunshine. The stems as they trail upon the ground take root freely, so there is no difficulty in propagating them to any extent. The varieties of this flower are almost unlimited, but the cultivator only wants to select the different colors which suit his taste and he will have abundance of flowers. They may be found of almost all shades of color; white, blue, pink, scarlet, maroon and purple are among the best.

E. B. C

Sacramento, Nov. 1858.

CHINESE SUGAR CANE IN CONTRA COSTA.

IN our recent visit to the beautiful valleys of Contra Costa, in the vicinity of Monte Diablo, we found that several farmers and stock growers had been experimenting with the Chinese sugar cane, and not so much with the view of manufacturing sirup or sugar therefrom, as using it as food for stock; and again not as winter food, but for late summer and autumn feeding, when forage for stock in desirable quantities is with difficulty obtained.

Hon. Elam Brown, of La Fayette, gave us an interesting account of his success in the culture of the cane, and its value as feed for animals. And it is his opinion that no other known plant, at present cultivated or grown within the limits of California, can equal it. Animals not only feed upon it greedily, devouring the entire stock or cane as well as leaves, but it evidently possesses superior fattening qualities; whilst the quantity produced per acre is beyond all question greater than that from any other vegetable product grown with the same amount of labor and expense. So satisfactory have been the results of the first experiments, that another year will bring a largely increased production of this newly introduced feeding plant; for whether profitable or not as a saccharine plant to be converted into sirup, its valuable properties as animal food will secure it a permanent place among our list of valuable farm products.

The following corroborative testimony in relation to its value as food for stock, we copy from the December number of the *American Agriculturist*, believing it will interest the farmer and stock grower of California.

"We have said little of this crop recently, preferring to quietly wait awhile and let it prove itself. We have lost none of our first interest in this subject, though some of our jealous cotemporaries have amused *themselves* by attempting to depreciate or distort the motives which led us to scatter it over the country for experiment. But enough on this point. There have been some fears that the Chinese sugar cane is injurious to animals—even poisonous. We have constantly asserted to the contrary. Among a thousand proofs of this, we present the following communication to the Charleston Mercury, from A. G. Sumner, Esq., of Pomaria, S. C., who ought certainly to be good authority. He writes:

"'I have fed this plant to all kinds of stock, as fodder, for the past season, in every stage of its growth—green, dry, and cured. I have found it the best soiling plant I ever raised—horses, mules, sheep, swine, goats and cattle, rapidly fatten when fed on it. I fed two hundred and fifty bushels of the seed during last winter to sheep, goats and poultry, and I attach the relative value of oats to it as winter food for these animals. In April last I sowed twenty acres broadcast, intending it as a pasturage for calves and milch cows. On the first of July I turned the milch cows, sheep, goats, calves, swine and geese upon it, and have not lost a single animal. They have all improved rapidly, and although I have large numbers on the field, the herbage bids fair to keep ahead of all demands made on it. I made it a point to take my animals from good pastures, and fed them well *before* turning them in, allowing them plenty of salt. If a half-starved cow is turned on wheat, peas, or Indian corn, she is just as likely to die from over-eating these crops as she is from Chinese sugar cane. The disease which kills hungry cattle when over fed on (this or *any other*) green food is termed *Hoove*, the best cure for which is a drench of salt disolved in a

gallon of water. This will relieve an animal sometimes in a minute. Peas, of all green food, is the most dangerous, from the flatulent nature of the plant. I have frequently seen half a dozen cows die in a few hours after they were turned into a luxuriant pea field in the fall, and have as frequently seen others relieved by the above dose. A cow which, like the asses of Ephriam, had been feeding on the East wind during the winter, and grazed upon the roadsides and bushes, might be expected to die from joy after an overfeed of sugar cane. I have sowed broadcast at the rate of one and a-half bushels of sugar-cane seed to the acre, a meadow which I intend to convert into good nutritious hay for winter food. I think more cows will die for the want of this food in our State than from being over-fed on it. I do not think, with the proper precautions, it is in any way more dangerous than any other green food we are accustomed to feed, and would advise its extended use as a soiling and hay crop in the South.'"

PRECOCITY OF FRUIT TREES.

THE early fruitfulness of nearly every variety of tree cultivated in the garden or orchard in California, has already passed to a proverb. The peach in favorable localities, always producing fruit the second year, and the apple and pear not unfrequently on the third from the graft, in considerable abundance. But there is a mistake abroad among pomologists, in thus allowing their trees to produce large quantities of fruit, while yet but two or three years' growth from the seed or graft. It is so agreeable to obtain fruit from trees of our own setting, at as early a day as possible, that little or no attention is given to the effect of this extreme precociousness; nor have we seen in any publication in this State, a word of caution in regard to this propensity of fruit trees to early bearing, yet its effects are visible for evil in nearly every orchard and garden in the State.

It seems to be the grand point with many, to see how soon they can bring their trees to fruitfulness, from the day they set them in the orchard row, little thinking of the injury of a really permanent character that they are inflicting upon them; and there are not wanting those who strive by every means in their power, to recommend this or that process, such as the destruction of the tap-root, and a frequent removal and shortening of all the roots, purposely to effect the very precocity so injurious to the permanent longevity and fruitfulness of all trees. And of the numbers who have set out orchards, and now possess the finest trees as regards both their vigor and fruitfulnes, are those whose good sense taught them to permit their trees to produce but sparingly of fruit for the first four years.

Experience has taught, not only in other countries, but in California as well, that the best apple and pear trees at four years old, are those in which but little else than leaves and wood have been grown; for whilst a thrifty growth of limbs is produced from year to year, the grower has it in his power to shape the tree almost entirely to his wishes, which is not the case when the energies of the tree are expended to an improper degree in the production of fruit. A tree with a form best suited to withstand all the vicissitudes of our climate, is one in which the limbs are made to spread

broadly at the bottom, and gradually tapering to the top. Such a tree can never be grown when allowed to exhaust itself in the production of fruit during the first three years of its growth.

Instead, then, of endeavoring to induce fruitfulness in young trees, the very opposite should be practiced, and any mode that will be serviceable towards the production of wood, should be adopted, if form, thrift and longevity are worthy of consideration. When you have your tree well formed and of fair size, it is as with animals, soon enough for their fruitbearing.

OUR MANUFACTURES.

THE manufacturing enterprises of this State are steadily increasing in number and variety, and the time is not far distant when most articles of manufacture can be profitably produced by California labor and capital. An irregular and reckless system of importation has heretofore materially interfered with the profits of manufacturers; but the permanent establishment of manufacturing facilities, will soon remedy this difficulty.

Perhaps no branch of California industry is increasing more rapidly than that of foundries and machine shops. The works of the government at Mare Island, and the works of the Pacific Mail Steamship Company at Benicia, in their facilities for the manufacturing of almost every kind of heavy machinery, are but little inferior to any similar works in the Atlantic States. Besides the numerous machine shops in San Francisco—some of which are of sufficient capacity and power to enable their proprietors to construct the heaviest and most complicated kinds of machinery—there are in Sacramento, Stockton, and other interior cities and towns, many machine shops which are actively engaged in manufacturing and repairing steam engines and other machinery.

There are in the State 135 flouring mills, the aggregate capacity of which is upwards of 2,400,000 barrels per annum, and their assessed value is $1,500,000.

Of saw mills there are 385, the value of which is estimated at $2,000,000, and their capacity at about 500,000,000 feet annually. The lumber furnished by these mills from the exhaustless forests of the Coast Range, the Sierra Nevada and the Humboldt Bay region, not only supplies our own markets, but is rapidly becoming an article of export to the ports of the Pacific. Large quantities of lumber are required in mining operations. In the county of Tuolumne alone, the yearly consumption amounts to $800,000.

There are thirteen establishments for the refining and assaying of gold and silver, several of which are of an extensive character; and in the extracting of gold from quartz tailings, they add materially to the products of the precious metals. There is one gold and silver refinery capable of refining 20,000 ounces of gold per day. The machinery and mode of operation in this establishment are of the most thorough and systematic character. Sulphuric acid, which can be manufactured in abundance from the exhaustless sulphur deposits of our State, has been successfully used instead of nitric acid.

The chemical works near the Mission Dolores, have been, during the last three years, in successful operation. The annual value of their products is estimated at $100,000.

In San Francisco there are two extensive sugar refineries in successful operation,

the value of which is estimated at $160,000, and their capacity at 15,600,000 pounds of sugar, besides 300,000 gallons of syrup.

The manufacture of furniture is becoming a business of considerable importance. A large proportion of the best furniture used in this State is now manufactured here. One establishment alone, employs from thirty to fifty hands.

The manufacturing of agricultural implements has become a prominent branch of California industry. The principal manufactory of this kind is located in San Francisco. Its machinery is of the most approved description, and twenty-five men are constantly employed by its proprietors in making plows, reapers, threshers, &c., which are considered superior to similar machines from the East. Several valuable improvements in agricultural implements have been made by those employed in their manufacture in this State.

A paper mill has, during the past eighteen months, been in successful operation. Its cost is estimated at about $90,000, and with the present machinery, it is capable of furnishing 300 tons of paper per annum.

Our market is now abundantly supplied by California manufacturers with almost every variety of perfumery, which compares favorably with imported articles in the same line. A match factory has recently been completed, the capacity of which is believed to be sufficient to supply the demand in California. Among the most important branches of the home industry of California, is the manufacture of leather. There are in this State thirty tanneries, of an aggregate capacity suffiicient to supply the demand for leather in this market. In different parts of the State there are extensive broom manufactories, which are turning out brooms that, in material and workmanship, are much superior to the imported article. Their aggregate capacity is about 360,000 brooms per annum. The manufacturing of soap and candles has been carried on to a considerable extent in various parts of California. The aggregate capacity of the soap factories is about 3,500,000 pounds per annum. The soap manufactured in California is considered superior to that imported. There are two starch manufactories, at which a superior article of starch is produced, in large quantities. The number of distilleries in the State is five, of an aggregate valuation of $200,000. There are 86 breweries, which are valued at $200,000. The number of glue manufactories is four, of a capacity sufficient to supply the wants of the State. In San Francisco there are several extensive oil and camphene manufacturing establishments. They are capable of refining upwards of 600,000 gallons of camphene per annum, besides a large quantity of oil. The importation of stone ware from the East has been almost entirely stopped by the potteries, now in operation here.

The building of steamers and sailing vessels is carried on with considerable activity in San Francisco. The United States Government is now building a steamer at Mare Island, and a sloop-of-war is soon to be built at the same place. Timber suitable for the largest vessels is found in abundance in California and Oregon. The dry dock at Mare Island, which is of sufficient capacity to accommodate vessels of the largest class, has been made available to the merchant marine of the Pacific, at reasonable rates of dockage. The cost of constructing these works was $1,400,000.

The bridges constructed in different parts of this State are valued at about $725,000. Some of these are of California design, and highly creditable to the mechanical skill and ingenuity of the State. The number of ferries is about 140, of which three are operated by steam. The capital employed is $250,000.

The maccaroni and vermicelli manufactories, not only supply the home demand, but furnish considerable quantities of their products for exportation.

An extensive cordage and oakum manufactory has been in successful operation during the last eighteen months. The products of this establishment are regarded as superior to those from similar works in the Atlantic States, and its capacity is

nearly if not quite equal to the demands of this market. The material is now obtained from Manila; but recent experiments have shown conclusively that it can be raised profitably in California, and, before long, our own soil will produce all that may be required.

In nearly all the cities and towns there are extensive manufactories of sash, blinds and doors. There are in San Francisco two extensive steam barrel factories, in successful operation, the machinery of which is of California invention and manufacture, and highly creditable to its designers. In addition to these there is a large number of smaller establishments for the making of barrels, kegs, etc.

Wagons and carriages of the most substantial and ornamental character, are extensively manufactured in all parts of the State.

The stone and marble yards of San Francisco and Sacramento form a prominent feature in the home industry of California. The vast marble quarries of El Dorado, Calaveras and Suisun furnish an abundance of the best of material; but the facilities for sawing and transportation are inadequate.

An extensive tub and pail factory has recently been put in operation in San Francisco. Its capacity is 500 pails per day. The machinery embraces the most recent improvements. The forests of Washington Territory furnish an abundance of timber well adapted to the making of pails and tubs.

The manufacture of woollen goods, on a large scale, is soon to be commenced, in the vicinity of San Francisco. At present, wool forms a large item in the list of our exports, while woollen goods are among the heaviest items of import; and there can be no doubt that an establishment of this character will prove highly remunerative to those engaged in it, as well as highly beneficial to the State at large; for it gives employment to a large class of persons who are unable to endure the kind of labor required in mining and farming. It will also afford employment to boys, who, without such facilities for procuring employment, will grow up in idleness and vice.

The manufacture of piano fortes and other musical instruments, billiard tables, clothing, hats, boots and shoes, saddles and harness, trunks, tinware, candles, cigars, and indeed of all staple articles, is carried on to a much greater extent than is generally supposed, and with satisfactory results. The successive Annual Fairs of the Mechanics' Institute have served to show, in a most conclusive manner, the inventive powers and the skill of our mechanics. With the protection of the tariff which our geographical position has irrevocably fixed upon all articles imported from the workshops of Europe and the Atlantic States, and with a proper combination of capital and labor, almost every article of manufacture can be profitably produced within our own State.—*San Francisco Bulletin.*

SHALLOW vs. DEEP PLOWING.

Editor Culturist.—Having read with much pleasure the various numbers of your truly beautiful journal since its commencement, I hail with much pleasure a periodical adapted to the agriculture and horticulture of this portion of the Pacific coast. It is what we have long needed; a journal that will give us facts, theories and experiments adapted to our own wants; not "truths as old as the hills" whic hare adapted to other climes, but facts and experiments of the present day and applicable to our present local wants. Our climate is such that however experienced the agriculturist or horticulturist may have been in other parts of the world, he has not only much

but all to learn anew in pursuing his calling here; hence the necessity of correct and *practical* information upon those who hold themselves up as public advisers.

Having had some eight years experience, and much of it dearly bought in California farming, I can fully attest that your theory, and it is the first too, promulgated from the press in this State, is truly correct in reference to shallow plowing for all cereal crops. In corroboration of which I will mention some facts which came under my own observation the past season. Two farmers whose lands join and the soil of the same general character; the one carefully plowed his land twice and deep, thoroughly harrowed and rolled it; his neighbor, however merely skimed over his soil but once somewhat after the style of the old Californians and both sowed their fields with barley at about the same time—and now for the result. The former field grew and thrived surpassingly as long as the rains continued, whilst the other crop looked truly insignificant beside it. But the enlivening showers ceased, as they are wont to do in this peculiar climate, and the time came for maturing the grain, and truly a trying time it was for the deep plowed field, it looked pale and became withered; the shallow plowed was of a rich golden color; and the thrashing machine shelled out of the former but *fifteen* bushels of shrunken grain to the acre, whilst the later bagged over *fifty* bushels of good merchantable grain from his acres. It is true that the former got more *straw* than his competitor, but that you know is of but little value in this country where it is usually burned.

Another instance of one who was induced by the much harped on subject of subsoiling and deep ploughing on which so many changes have been rung by the *California Farmer*, attemped to subsoil his wheat land and after much trial succeeded in accomplishing but ten acres, and the balance was ploughed but ordinarily. It was all sowed at the same time and harrowed in alike, and the result of this experiment was on that portion which was subsoiled the straw grew very rank but produced no grain which would pay for harvesting, whilst that portion not subsoiled produced an ordinary crop. Many other instances could be cited of like character and results, but these are quite sufficient for the present. In my humble opinion such dogmas from such a source so persistently adhered to, are producing an incalculable injury to the grain growing interest of our State.

From the foregoing facts the following theory is deducible: That by deeply pulverizing the soil the roots of the cereal plants cannot reach the compact substratum of soil which retains moisture for its support; or in other words the capillary attraction is cut off by the non compactness of the soil, below the reach of their small fibrous roots. Our climate indicates a mode of culture which will supply plants with moisture from *beneath*, during the time of the crops, and deeply pulverizing cuts off the capillary attraction, so that the influence of the sun's rays cannot bring it up within reach of the roots of the cereal plant.

PLOW BOY.

SAN LORENZO, Jan., 1859.

THE VINE IN TAYLOR VALLEY.

It seems next to impossible to arrive at anything like a general rule or mode of culture of the vine, as applicable to all localities in this State, so widely do they differ both in soil and climate. Thus in raising vines from cuttings along the Alhambra valley, in Contra Costa county, the experience of years has proven that cuttings succeed the best and produce the most vigorous vines the nearer they reach a length of thirty inches, and a depth in the ground of two feet; and yet at a distance of not more than eight miles, in Taylor Valley, with but little difference if any in climate, an equal experience has shown that to set a cutting deeper than fifteen inches in the ground is useless, because below that depth they invariably rot off without striking root. Not that the roots do not penetrate a greater depth, for they do; but it is that at a depth greater than twelve or fifteen inches the soil is not sufficiently warm to induce the growth of roots from the cuttings, yet there seems but little difference in the quality of fruit grown; every valley in which the grape has been tried thus far, in Contra Costa county sufficiently inland to be protected from the influence of the ocean winds, seems admirably adapted to vineyard culture.

CULTIVATION OF THE PEANUT.—A correspondent of Yolo county, who has a practical experience in the cultivation of the peanut, submits to the readers of the *Union* the following considerations in connection with the raising of this product:

Many readers of your paper wish information as to the peanut. I will say, first, that it requires light, sandy soil, such as will best produce watermelons and sweet potatoes, and yet I am persuaded that the peanut can be raised on soil so dry that it will not produce either melons or potatoes. Too damp or irrigated land will not do, as the pea will (as many of us in California have done) overshoot itself. The time to plant is from the first to the tenth of April. The way to plant is to break your ground with a harrow, to level, then open your drills four feet apart and about one or one and one-half inches deep. The pea has to be broken, and two kernels dropped in the drill, twenty-four inches apart, and covered, as above stated, one to one and one-half inches deep. After they come up, the vine spreads out on the ground, much like the red clover. When six or eight inches long, they commence to blossom, when the soil between the rows is taken and the vine and blossoms are covered about one inch deep, leaving the ends clear. This is the first working. And again, when they have grown out again with plenty of blossoms, cover as before, until the first of August, which will make two or three workings. There is no use in covering after the first of August, as the pea will not mature.

Now for the gathering. I generally commence the first of October. Get all the ends of the vines in each hill in your hands, and pull them up gently, and you will bring nine-tenths of the peas; turn them over, with the peas to the sun, until sufficiently dry to gather—say six or eight days—when, of course, they will be gathered and sacked.

SMALL PENS FOR FATTENING PIGS.—From observations, extending over a dozen years or more, made in villages and in the rural districts, we have noticed that the fattest and best pork is made in the former, where one or two pigs are usually kept in a small pen.

Editor's Repository.

Were we to make note of all the interesting news, transpiring from month to month, ours, like many others, would be simply a news journal. It was never our intention to make it such, though we have repeatedly been urged to change its form to that of newspaper, and issue weekly. For a time, we shall continue on in our present form, and may never change it; but in whatever shape we do appear, our aim and object will be the same as now; to publish strictly an agricultural and horticultural journal.

We have had our faith in the future improved condition of the agriculture of our State, greatly increased of late. We have recently visited one of its finest agricultural districts, partly with a view of being present at the organization of a County Agricultural Society. The meeting to which we allude, took place on the first day of January, at La Fayette, in Contra Costa county. The right spirit prevails, not only there, but in many other portions of the State; inquiry, as to improved modes of culture, the adoption of improved agricultural implements, and the value of newly introduced products, is heard on every hand; and we are in receipt almost daily, of letters asking something about the farm, orchard or garden, which we are always pleased to receive, and will answer promptly as they come to hand.

This spirit of inquiry is significant of an increasing interest in every department, pertaining to our magazine; and our success in procuring a largely increased subscription, by a single week's personal effort, has entirely satisfied us that the *California Culturist* is properly appreciated; for it would be strange indeed, if we did not ourselves believe, that we were giving to our readers a creditable work.

With, therefore, a cheering prospect before us, we enter upon the new year, with renewed zeal and determination to spare no effort that shall contribute to the interest and usefulness of the *California Culturist*.

We shall visit from time to time, the principal agricultural districts of the State, calling upon our friends, and making as many new acquaintances as we can. In this way we shall gather up much of the experience of the most practiced and scientific farmers in the State, and once a month report the same, through the pages of the *Culturist*. The friends of agricultural improvement, whether practically engaged in it themselves or not, may, therefore, expect us around.

Our Frontispiece.—That we are in the land of the pomegranate, as well as the vine and the fig tree, was made clearly evident by the exhibition of beautiful and perfect specimens at our last horticultural fair. Gen. M. G. Vallejo, of Sonoma, sent forward the specimens from which our artists, Kuchel & Dresel, of this city, have given a truthful lithograph.

The pomegranate, when in perfection, is a most delicious fruit, truly beautiful in form and coloring, and highly ornamental in its growth as a bush or tree. It seems to flourish admirably in all the warmer valleys of our State. In the gardens of Mr. John Strentzel, of Alhambra valley, Contra Costa, it thrives and produces abundantly, and quantities of the delicious fruit remained in excellent condition as late as Christmas. If located in any of the warmer valleys of the State, cultivate the beautiful and delicious pomegranate.

PLANT EARLY.—One of the greatest errors, in our opinion, now prevalent among those who are intending to plant out fruit trees is, their delay in procuring from the different nursery stocks now advertised, the trees they intend to set the present season. A better choice of trees, can now be had, and in far better condition for setting, than to delay a single week. The ground is now in capital order for the reception of trees, and no time should be lost in securing from the choice varieties, the finest trees the nurseries afford. Buy directly from the nurseries, or from responsible agents. And remember to select such trees only as present the appearance of health and thrift. Don't buy a stunted tree at any price; see that such as you do buy, have strong, healthy roots, and never suffer them to dry, from the time they are displanted till they are again set in the soil. Delay no longer, unless you are in a country of snows and frosts.

OF WHOM TO BUY TREES.—Notwithstanding our advertising pages give evidence of the fact that an abundance of fruit trees are procurable at very reasonable rates, in very different and distant localities in the State, still the question is frequently asked us, "where can I buy good trees?" You can get good trees, true to their label, of John Lewelling, San Lorenzo, and of A. P. Smith, of Sacramento, or of the agent of these gentlemen, J. L. Sanford, at 112 and 114 Front street, San Francisco. Excellent trees can also be obtained of "Shell Mound Nursery" growth, on application at the Nursery in Alameda, or to R. W. Washburn, San Francisco. L. A. Gould, Santa Clara, and A. H. Myers, Alameda, have splendid stocks of trees; and B. S. Fox & Co., San Jose, or their agent, D. Nelson, 57 Washington street, can fit you out with anything you desire in the tree line. J. L. Sanford has a branch of his establishment at 95 D street, Marysville, in charge of Mr. George Laws.

Thus at convenient localities, yet quite remote from each other, the public can secure the finest trees the State produces.

OF WHOM TO BUY SEEDS.—This is a very easy matter to arrive at. You have only to call or send your orders to S. W. Moore, 110 California street, San Francisco, and you can be suited as to variety, quality or price.

THE HESPERIAN.—This ably conducted and neatly printed semi-monthly octavo, is about to change its form. Its next appearance will be early in March as a Monthly Magazine of forty-eight pages, and beautifully illustrated.

We have seen the design for the cover, executed by Nahl Brothers, and think we hazard nothing in declaring it elegant. We have also been favored with a glance at a few of the engravings intended to adorn its pages. Every feature gives promise of a highly meritorious publication.

CALIFORNIA REGISTER.—We have received from the publishers, the annual volume of the "State Register and Year Book of Facts, for 1859." To say the book contains much of interest to every reader in California, would be saying but little of its true merit; for certainly it contains a vast amount of reliable information, not to be found elsewhere collated.

The labor bestowed upon the work, its general accuracy and reliability, mark it as publication of the highest order of its kind; and from a careful perusal of its contents, we unhesitatingly recommend it to every one desirous of preserving, in a beautiful and convenient form, a record of the progress of the arts and sciences, the commerce, agriculture and manufactures, and the development of the general resources of the State.

ERROR CORRECTED.—In making up our form for the December number, a mistake occurred in our description of the Onondaga or Swan's Orange pear. That portion of the description on page 323, beginning with "SWAN'S ORANGE, *Onondaga*," should have followed that portion of the description on page 325.

Screw Picket Pin.—We have received, and doubtless from the patentee, a new and ingenious device denominated a "Screw Picket Pin." The purpose to which it is applied can be inferred from its name; the picketing of animals for grazing upon a certain district of ground depending upon the length of line between the animal and the picket. It is of cast-iron throughout, with the exception perhaps of two small plugs or pivots. The lower portion, or that which enters the ground, is a tapering screw and made to enter any soil by means of a moveable top, that by a very simple arrangement of parts can be used as a lever in forcing the screw into the ground.

The only possible objection we can see to its use by everybody who would picket out an animal, is its weight, if carried on horseback; and yet this may not be such as to be objectionable with many. If you ever want to picket an animal, get a screw picket pin. Oliver Hyde, Jr., Benicia, patentee.

To Correspondents. E. L.—We know of but one American treatise on the culture of the Cranberry. Send for Eastwood's "Cranberry Culture." It will cost you about fifty cents in New York or Boston.

G. S.—To make your hens lay in the winter, keep them dry and warm, and feed them in addition to their usual grain food; any description of fresh meat chopped fine and seasoned slightly with cayenne pepper; very salt meat is injurious to hens; it makes them feverish, thirsty and unhealthy. Give them all they will eat of any kind of vegetable, as cabbage, turnips or beets chopped fine, and always let them have access to pounded bones or any description of sea shells; and never keep a rooster more than two years old among them.

C. S. S.—We have made sausages; and the best proportions of seasoning ingredients to meet our taste are as follows: After mixing your lean and fat pork, chopped fine, in proportion as you like, to every forty pounds of meat, add one-half pound of fine salt and two ounces of saltpetre, and mix thoroughly. Now mix together five table spoonfulls of powdered sage, four of black pepper, and three of allspice. Mix the seasoning ingredients well together and add to the meat, and then thoroughly mix all together. Some use in addition, a small quantity of thyme as a seasoning ingredient.

G. G.—and others.—We know of no chufa or earth almonds for sale, except those raised by, and in the hands of, D. E. Hough, Oakland, or his agent in San Francisco, J. L. Sanford, 112 and 114 Front Street. Price, fifty cents per hundred.

T. B.—We can tell you how we used to make torpedo powder, or fulminating silver; but if you are only a lad—as you say you are—you had better entrust its making to some practical chemist, as it is an exceedingly dangerous ingredient for boys to handle, even in small quantities. However, here is the recipe for making it as practised in our school-boy days.

To one ounce of alcohol, and as much nitric acid, in a proper vessel, add one hundred grains of pulverized lunar caustic. (Nitrate of silver.) A gentle heat should be applied, to excite an action between them, much like boiling; when in a few moments a thick, white precipitate appears; cold water should then be added to check the action, then filter through druggists' filtering paper, and dry in the shade, and in parcels of a very small quantity. You had better let it alone, however, and *buy* what torpedos and pulling crackers you may wish to explode.

Observation the test.—"Do our readers wish to satisfy themselves on the tap-root question?"—says our military contemporary—"ride over to Shell Mound Nursery, and examine the splendid pear, cherry and plum trees growing there. Particular pains were taken to *cut off the tap-root;* the result was a bushel of fine bushy roots, that will make fruitful trees." The "Colonel," has slightly exaggerated the thing. In proof; after you have visited Shell Mound, just step across to Alameda, and in the beautiful and highly cultivated grounds of A. H. Myers, examine his unsurpassed stock of nursery trees, and see there examples of trees grown from the seed with tap-roots, and hear his opinion, relative to the planting of peach trees where they are to remain, in all cases where the ground is perfectly suited to their growth, and you will be satisfied, that at least there are two sides to the question.

Planting and Transplanting.—Do you remember the "Talk about Orcharding?"—[See O. *Cult.*, March 15, p. 92.] Recollect my saying—do not transplant when too old and too large, and finally, do not transplant at all when you can do better; which, by the by, ought to be the practise oftener than it is. Do you recollect the story of the pioneer apple tree at Defiance, which went the round of the papers, and did not miss its way into the *Cultivator?* Reckon you have not forgotten. Well, the secret of its success is this: It was, probably, planted there by a bird, in virgin soil, when the roots of that great tree were quite small; and the writer thinks that if the whole truth was known, it has not been tinkered about much since, except a moderate trimming occasionally.

[Thus day by day—"Colonel"—is the evidence thickening, in favor of planting out the seeds of trees, where the trees are to remain; it may be *our* "new doctrine"—as charged—but it is, nevertheless, true.—Ed.]

As a further demonstration of the correctness of this principle, I will add another experiment: Three years ago, we concluded that it was folly—if nothing worse—to be destitute of that delicious fruit, the grape, and not being without a farmer's book, it was seen by this that the best method of getting a start of grape vines, is by the employment of cuttings, and that cuttings are as well planted in the fall. The granulatings from which the roots spring, will form during the winter, and the cuttings starting early in the spring, will make good growth the first year. Thus instructed, a hole was dug in the garden, and an armful of cuttings—say a hundred—were deposited. In the spring many started finely, and then all were taken up except one; those taken up were transplanted elsewhere, many of which are good vines, yet poorly comparing with the one where it first formed roots, no one of the others being more than a third of its size. This difference is all attributable, in my opinion, to the plan. In this article, it is not my intention to boast of the greatness of this vine, as I am too ignorant of this business to know what would be a great vine; yet, for further satisfaction, will state that the undisturbed vine, of three summers' growth from a cutting, has six main vines starting near the ground, each one will measure nearly three inches in circumference, and the entire length of its vines would not be less than three hundred feet—I think more.—G. McWilliams, in the Ohio *Cultivator*.

Our Recent Adventure.—As many of our readers, doubtless ere this, have heard of our somewhat unpleasant meeting with highwaymen, in the vicinity of Hayward's Hotel, San Lorenzo, and as some of the accounts that have appeared in the newspapers are a little exaggerated, we give the following facts in relation to it. Our friends will excuse us in this instance for departing from our usual straightforward course, in reference to the exclusion from our pages of purely news matter. In this instance, too, we prefer to drop the plural and say I.

The evening of the 4th of January was dark before 7 o'clock. I had nearly reached Hayward's, when three men from the roadside suddenly took position, two directly in front and one behind me; I could not face them all. The two in front showed, one a knife, the other a pistol, and demanded my money; I declined giving it up, saying "no." With more of emphasis than before, they repeat- "*give your money.*" Again I declined, and immediately called out "*robbers, robbers.*" At this instant I felt myself choking, and being violently jerked backward by my neck, nearly falling, but not quite.

They now pulled me along, though still retaining my feet under me, to the fence near by, and in bad English—for they were all Mexicans—told me to mount or get over. I declined doing it, but being drawn down with my neck upon the upper panel of the fence, by two of them who had got over, was glad to get over myself as quickly and easily as possible. With two of them hold of the riata pulling me along, and one urging me from behind, half walking, half running, and holding on to the riata with one hand to relieve my neck from the sudden jerks, managed with the other to convey from a small purse in my pocket, to my mouth, two twenty dollar gold pieces, one five and one four dollar piece, and a single two bit piece in silver; this latter I mistook for a ten dollar piece. After proceeding nearly a quarter of a mile, we stopped upon a little low bottom on the bank of a creek, to some extent timbered. Here they again demanded my money, saying, "give your money, we kill you." I could not say much, nor say well what I attempted; so as plainly as I could I said

"no," when a sudden jerk from two of them upon the riata brought me upon my knees, and being strangled and feeling weak, I fell upon my right shoulder, and side of my face. The next of consciousness I felt, I was on my knees, with my wrists crossed and fast tied behind me. The riata had been loosened but not removed from my neck. They then told me to get up, and because I would not, two of them took hold and jerked me up. They then searched my pockets, as well as to see if I had a belt around me, pistol or knife: but they found neither; I had no weapon of any kind.

From my purse they took a ten dollar gold piece—which I had left by mistake—and two two-and-a-half dollar pieces, and from another pocket about two dollars in silver. With the aid of a lantern which one of them now produced already lighted, they counted the money, and then said to me, "give more money, we hang you." I declined once more, though I had made up my mind to give it all up just before being strung up. Two of them now drew upon the riata so suddenly, that with my hands tied behind me I stumbled and fell. At this moment the thought of stratagem occurred to me, and I told them as plainly as I could, that I had sent my money by Wells, Fargo & Co's Express from San Ramon to San Francisco. This they repeated in Spanish to themselves, and apparently muttering curses, they immediately took the riata from my neck, as I was then sitting on the ground, and after receiving a severe kick from one of them, all left me. They had hardly gone twenty steps, when I commenced calling for assistance. One of them hastily returned, and taking me by the hair, said, "you make noise, I shoot you: I go away a little, you make noise I shoot back." I thought it best to do just as he said, but as soon as I saw them fairly out of pistol shot, I rose, and with my hands still tied, ran as fast as I could towards Hayward's, and making as much noise as I well could. The result of the matter was, they robbed me of about seventeen dollars—ten dollars more than I meant to have them get; I saved forty-nine dollars and two bits; I received but one kick, no blows, and the only injury to my neck was the almost complete removal of the cuticle of the skin for nearly an inch in width, almost entirely around; and I now feel quite satisfied with getting off as well I did.

Prices of Lands.—Four thousand acres of excellent land, on the navigable waters of the Feather River, about ten miles west of Marysville, and nearly opposite the ranch and residence of Gen. Sutter; one thousand acres are well wooded. Price five dollars per acre.

Two thousand five hundred acres of land in Monterey County, about thirty-five miles east from the city of Monterey, and known as the Ranch of San Lorenzo. Price fifty cents per acre.

Two thousand acres of fine land in Solano County, about twelve miles from Benicia, and three miles from Wing's Landing, on Suisun Bay. Price three dollars per acre.

Four thousand three hundred acres of excellent land on San Joaquin River. Price seventy-five cents per acre.

From one hundred to one hundred and thirty-six acres of excellent land—two large perennial springs on the premises—situated about six miles from Petaluma city. Price eight dollars per acre.

The California Culturist.—This work, the back Nos. of which we lately received, will compare well with the best publications on agriculture, horticulture, mechanism and natural history, to which it is devoted, that are published in any of the older States. Evidence is before us that California is destined to be a great agricultural State, and in the matter of fruits, alone, is likely to be unrivaled. Hence, the *Culturist* is deserving of, and should receive a liberal patronage. It is edited by W. Wadsworth, Esq., Secretary of the California Horticultural Society, and published at $5 per year. Address Towne & Bacon, San Francisco, Cal.—*Cincinnatus, College Hill, O.*

Cotton.—We have been shown some beautiful samples of Cotton in the boll, from the ranch of C. P. Stevens, Esq., of the upper San Joaquin.

The specimens examined, are pronounced by competent judges, to be equal to the finest Sea Island. This is the third year of trial, and the most complete success has attended every experiment. Nothing but the high price of labor prevents the production and manufacture of this great staple product of the Southern States, within our own borders, more than equal to the entire consumption of cotton fabrics by California and the Pacific Coast Territories. If ever our Asiatic population become as numerous amongst us as many predict, it may be found profitable to employ them upon both cotton and rice fields, as in the management of the latter, many of them are perfectly familiar.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending December 31st, 1858; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By Thos. M. Logan, M. D.

DECEMBER, 1858.	7h. A. M.	2h. P. M.	9h. P. M.	Month.
Barometer, Maxima	30.358	30.324	30.365	30.365 inches.
" Minima	29.822	29.789	29.848	29.822 "
" Mean	30.121	30.099	30.113	30.111 "
Thermometer, Maxima	49.00	52.00	49.00	52.00 deg.
" Minima	29.00	42.00	36.00	29.00 "
" Mean	40.97	48.09	44.35	44.47 "
Force of Vapor, Maxima	.297	.335	.322	.335 inches.
" " Minima	.052	.051	.064	.951 "
" " Mean	.204	.236	.227	.222 "
Relative Humidity, Maxima	92.00	92.00	92.00	92.00 per ct.
" " Minima	33.00	19.00	25.00	19.00 "
" " Mean	77.35	70.06	77.51	74.98 "
Number of Clear Days	5	4	10	6 1-3 days.
Number of Cloudy and Foggy Days	26	27	21	24 2-3 "
Number of Rainy Days				11 "
Quantity of Clouds	7.0	6.4	4.5	5.9
Quantity of Rain and Fog				4.339 inch.
1st Days and 2d, Force of N. Wind	9 1.7	10 2.2	9 1.2	9 1-3 1.7
" " N. E. Wind	2 1.0	2 2.0	1 1.0	1 2-3 1.3
" " E. Wind	1 1.0	2 2.0	2 1.0	1 2-3 1.3
" " S. E. Wind	8 1.6	7 2.6	7 2.0	7 1-3 2.1
" " S. Wind	3 1.7	5 2.2	2 2.0	3 1-3 1.9
" " S. W. Wind	2 2.0	1 2.0	3 1.3	2 1.8
" " W. Wind	0 0.0	0 0.0	0 0.0	0 0.0
" " N. W. Wind	6 1.9	4 2.0	7 1.6	5 2-3 1.8

Thermometrograph.

	Deg.		Deg.
Highest Reading by day on the 1st	53 00	Mean of all Highest Readings by day	48.52
Lowest Reading by night on the 8th	23.00	Mean of all lowest readings by night	35.49
Range of Temperature during month	30.00	Mean daily range of Temperature during mo.	13.03

Remarks.—The statement made in November last, that we were much in advance of our usual winter weather, has been fully confirmed by the meteorological occurrences of the past month. The mean maximum temperature of December, has been found to be as much as seven degrees below the average, and the mean temperature, nearly two degrees minus. In fact the temperature of the month has proved to be 74 hundredths less than the average of our coldest weather, which is January. The quantity of rain, too, that has fallen, is considerably more than usual—being 3,340 inches, plus the average of the season, during the last six years. If the rain continues in the same proportion, for the balance of the season, the deficiency of late years will be made up, and this will prove of incalculable benefit to the agricultural and mining interests of the State.

PORTUGAL QUINCE.

THE CALIFORNIA CULTURIST.

FEBRUARY, 1859.

AGRICULTURAL INNOVATIONS.

WERE we never to practice anything new, or depart from the "line and precept" of our fathers, the great traveling world might now be jogging on upon land, in the old fogy stage coach, and upon water, in the blunt nosed merchantman. The farmer would be using the old wooden Dutch plow, and harvesting his wheat with the sickle. The domestic animals would not have been of the present improved breeds, nor would the vast varieties of grains and fruits, now everywhere gladdening nature around us, have been known to cultivation; or at best, but few of them would have been as we now find them, perfectly acclimated amongst us.

It is innovation that has produced the very changes that constitute the improvements of the age; for without innovation, there would be no changes. Strange then, it is, that there should exist, at this enlightened day, those who look upon old systems of agriculture as too sacred for innovations. That what our fathers knew of the cultivation of the field, the orchard and the garden, cannot be improved upon; or that an English agriculture for a land of clouds and humidity, should be as perfectly adapted to our climate of sunshine and aridity. And yet, we here and there meet with one, who to sustain his ancient dogmas, in relation to the growth and management of fruit trees and vines, is ever quoting the practices of those who, were *they* to have promulgated a system, based upon the requisites of our peculiar California climate, would have given us a system as totally unlike the one they now pursue, as our climate is different from theirs.

This fact is becoming every day better understood, and hardly an agricultural exchange reaches us from the Atlantic States, but it comes freighted with this species of intelligence. The *Country Gentleman* says: "The practice of copying English customs, has in this case, had an especially pernicious effect." Another journal says: "We have followed too closely the European modes of culture and training of the vine. The effect has been to keep back profitable vineyard culture in the United States, at least a quarter of a century." And yet another distinguished writer says:

"What we want is, a system of agriculture based upon the experience of American culturists, and not upon the experience of foreigners, in a foreign country; unless it can be shown their soil is our soil, their climate our climate, and the wages they pay to the laborer, this same in amount that we pay."

Here we have a text, that might well serve as a basis for extended remarks, beyond even our ability to find them a place on our pages; for not only do the soil and climate of a country have their influence; but there are other considerations than these, that have a bearing in determining the system of agriculture best adapted to all the circumstances of the occupant and worker of the soil; and particularly does this fact apply to California, where hired labor costs the farmer so dearly.

It would be but an easy matter to adopt a system of agriculture, so perfect in all its details, and so strictly in conformity with the best European systems, as to ruin pecuniarily, and hastily too, the one who might put it in practice here. We therefore avoid recommending practices, that however strictly they may conform to old systems, cannot but prove detrimental to the interest of those who adopt them here. We had rather be deemed an innovator, an introducer of "new doctrines," than pertinaciously adhere to old maxims and precepts in agriculture, merely because they are old. So that whilst we shall continue to give the practices of our Atlantic brethren of the plow and soil our approval, whenever in the main applicable to our conditions of circumstance and climate, we shall with equal pertinacity oppose all doctrines and practices that are not.

In our remarks upon the utility of tap-roots to all trees in exceedingly dry situations, we were led to make them, from observing the invariably healthy appearance of all trees that possessed them. And though to advocate their growth, in our soil and climate, was an innovation upon the cherished dogmas of not a few, yet we find that we were not only right, but that simultaneously with our own, others were making like discoveries of the truth of the adaptability of the innovation, and making a note of it too, as appears from numbers of our exchanges. And we would particularly commend, as directly pertaining to this subject, the article in the present number, under the head of "roots and their uses," to the special attention of all tree growers.

We ventured also, at an early day, to enter our protest against the practice of cutting-in grape vines, during the growth and ripening of the fruit. This too, was looked upon as an innovation upon ancient usage; but already we have shown, in previous numbers, that it is an opinion sustained by the most successful growers of the vine in the United States. What its effec's are in England, or any part of Europe we know not, and care less, if possible; for we are not endeavoring to promulgate a system for any other land than California, and its adjacent territories.

A most successful grape grower, Wm. Saunders Esq., in an article on "grapes and graperies," in a recent number of the *Working Farmer*, says:

"Procure plants not more than one year from the cutting, and prune them down to a couple of inches when planted. The treatment during the first season will consist in simply securing them to their supporting trellis. In winter prune down

according to vigor; if the canes have grown to ten or twelve feet, prune down to about half of that length. Most of all the buds will produce a fruiting shoot; allow not more than two bunches to each shoot. Tying up to the trellis is all that will be necessary until the period for winter pruning arrives. The great secret in growing is to preserve the foliage healthy and unimpaired until the crop is gathered.

Let the winter pruning be directed to the securance of young growths; the renewal system of pruning best encourages the growth of young strong shoots, which invariably produce the best fruit.

There is no danger of the plants overbearing, if pruned understandingly during winter, and *let alone most severely* during the period of growth. *Summer pinching and pruning weakens and retards growth, and diminishes the foliage necessary to ripen the fruit.*"

But this is directly in support of our innovation, our "new doctrine," as our cotemporary of pseudo military renown styles it. And yet, Mr. Saunders is not alone in his belief, on the Atlantic side; for we find as making part of a report of a committee, appointed by the Cincinnati Horticultural Society to investigate the causes and extent of the failure of the grape crop the last year, the following, as read at a meeting of the society, by Mr. Mullett:

"From observations made and information gathered, I should judge that the deficiency this year in Hamilton county alone, will fall little short of a half a million of dollars, and a large portion of this falls upon and is severely felt by those industrious Germans, who at an immense amount of toil have trenched their three, five or ten acres, and now suffer the failure of their expected reward.

Do not vine-dressers forget by their mode of pruning, that they are causing a disarrangement in the relative proportion that the roots and branches naturally have to each other, by the immense cutting and hewing of the vine annually, now miscalled pruning?

One vineyard that I visited, with a southern aspect, clay subsoil, no stone for ten or twelve feet, vines four feet each way, double trenched, produced not one-sixth of a crop. The first row of vines about six feet from the house, a year ago last spring he made into an arbor, to protect the house from the sun. He let the vines grow with as much wood as possible, to shade his window, and to his surprise he got a heavy crop of grapes—but the vineyard only about one-third. This year he has made an arbor three parts round his vineyard, and had a half a crop on the arbor, and one-sixth in the vineyard. He intends to take up two vines and leave one through his vineyard, and leave the one to supply the place and canes of three. He further remarks that short pruning forces too much sap in the wood from the excess of roots in comparison with the vine; that the canes do not ripen as well, especially on old vines, and are more liable to be injured by severe frosts, and that the bud is started too early in spring. Before he built his new house, he had a Catawba vine that matured over 350 bunches.

Another German who has between four and five acres, has nearly as many grapes on about three hundred feet of arbor and trellis and two vines on his house, as he has in the whole of the balance of his vineyard.

I visited a large portion of the White Oak settlement, and in that district the grape crop is a complete failure. One place I observed some vines had run up some cherry trees, and that they were loaded with grapes. Under pretense of getting a glass of wine, I went into his house. He said he was quite sold out; he had not over one-sixth of a crop last year—this year it was not worth gathering. He said he was about to plant trees and destroy his vineyard. I advised him to try another

mode of pruning, and pointed to those in the tree as an example. I remarked that there was too much root for the small quantity of wood left on the stakes. He said something to his son in German, and took me to the other side of his house, where he had ten or twelve vines loaded with fruit. In digging a drain for his cellar, he had cut off the roots of one side of the vines, and my remarks of too large a quantity of roots for the small quantity of vine, led him to see the effects of root pruning. He had cut off one-half of the vine and one-half of the roots, and thus he had preserved an equal balance of the vegetative powers of the vines. And thus he illustrated (although accidentally) the sure principle of vegetable physiology, and proved that a vast deal of labor is annually performed on the vine which cannot be called useful or valuable."

Thus it appears that something like an innovation upon past experience and former practices, in the culture of the grape, is very likely to be introduced, even among the best grape growers of our own country east of the rocky mountains; then why may not the same be possible here? We certainly have a brighter sun, and, therefore, need even more the beneficial effects of a full exuberant foliage, covering the grape during its growth and ripening, than could possibly be required in the Eastern States or Europe. We shall, therefore, even at the risk of being contemptuously called an "innovator," continue perseveringly to lay before our readers the latest improvements and innovations, upon antiquated implements and systems of agriculture.

ROOTS AND THEIR USES.

BY PROF. J. W. DARBY.

EVEN at the risk of being deemed a theorist, and charged with advancing and maintaining "new doctrines," we shall continue to advocate what our own experience has taught us to be true, whether it coincides with the views of our ancient military cotemporary of the *Farmer*, or not. In the November number of the *Culturist*, we assumed the position that in our particular climate, in which little or no rain falls for several months in summer, to secure the most perfect fruit, shade or ornamental trees, it would be better—if equally convenient—to plant out the seeds of trees in the places where they are to remain.

Our opinion was based, both upon observation and experience, and though considerably in advance of the "Colonel's" views, we find that we have supporters of our "new doctrine," even in lands favored with constantly recurring showers of rain. We would commend, therefore, the following, to the careful perusal of all who have taken the slightest interest in the discussion of the tap-root question, hoping that they will not dismiss the article, till they have read every line. Professor J. W. Darby, says:

"To learn the conditions of success in the pursuit of any object, is certainly a matter of prime importance; even if success might follow, nine times out of ten, without such intelligence. Merely empirical efforts, when many conditions are combined, add nothing to the general fund of knowledge, and can be of no permanent value.

To observe, with the utmost care and accuracy, every phenomenon presented in the growth of a plant, adds nothing to our comprehension of the *conditions* of its development. To plant a grain of wheat, or seed of cotton, and record the changes that follow through the periods of its germination and growth, teaches us nothing with regard to the real influences that have operated to produce these results. To describe the soil on which plants grow, and give every element that enters into its constitution, is of no value unless we know what elements are the active ones in the production of the desired vegetation. After all this painstaking, one may assert that the influence of the moon was the great exciting cause of all these recorded results. To add masses of fertilizers, and produce large growth, is of little value when the rationale of the action is left out of sight.

A point of the highest import is to determine a single isolated element of success, or point out one injurious or useless agent in our applications. If a plant is growing subject to three distinct agencies, and by the operation of all it will do tolerably well, yet the action of only one of them is the true and only cause of success, one, perhaps, being neutral, the other, we may suppose, positively injurious. To know these facts would certainly relieve the operator of much embarrassment, and make his calling a much more rational pursuit. One single step in this direction of elimination, though a short one, and made with the light of truth shining upon it, is worth a thousand long leaps in the dark, with guidance of complicated experiments, which are perfectly unintelligible to those who make them. *That* one step is a movement forward; the others may be in all directions, and when the thousandth one is taken we may be at the place of starting.

There are facts in vegetable physiology that should be of the highest practical interest, which influence most materially the results obtained, but for which, so far as we know, they have neither credit nor regard. Does the agriculturist, in the preparation of his ground, ever take into consideration the kind of roots the plants have which he is to cultivate? In his combination, separations or successions of plants for cultivation, is an imperfect element to guide his decisions and operations. Judging from books on these subjects, we should be led to believe that if there was any difference in the character of roots, it was entirely disregarded in practical applications. To see the almost identical directions given for the cultivation of rhubarb and asparagus, for example, is abundant proof of its disregard. Asparagus is a surface feeder, and wants room and not depth, and it will grow luxuriantly, as we have proved by experiment, on a shallow soil, if plentifully supplied with fertilizing matter and moisture. Rhubard, on the contrary, is a deep feeder, and to develop its proper growth, requires deep cultivation, and will not succeed without it. The active roots of the asparagus are, in the main, but a few inches below the surface; while the rhubarb will be found two feet, if the soil is fitted for it to penetrate so far.

Nature has made the roots of cultivated plants on two models or types, and to one or the other of these types they may all be referred. One of these is a main root, running perpendicularly downwards, and sending off new branches from the top to the lowest extremity, the central axis being always the predominant one through which the nourishment passes. The other type is a more or less complete subdivision of the root, immediately beneath the soil, there being no main axis penetrating downward. The first kind is represented by the branching of any tree from a main trunk; the latter like that of some shrubs that send up numerous stems with no main axis. The *first* of these seeks its nourishment deep down in the soil, the *latter* near the surface. The *first* draws its nourishment from immediately beneath itself, the *other* literally from a distance. The *first* is not much injured by removing the surface roots, the *latter* wholly depends on them, the upper always being the most vigorous. No matter how many varieties there may appear to be, nor how many different

names the botanist may give to these varieties in describing plants, yet all fall within one or the other of these classes, or approach more or less clearly these types. The deep feeders called *tap-rooted*, the surface feeders called *forciculated*. There is an evident design in these structures, relating most certainly to the conditions of growth and development of the plant.

The above are *facts*, and their application may be made useful in a thousand ways, a few of which we will point out.

If a tree is to be set in the neighborhood of a garden, or cultivated field, the tap-rooted variety should be selected. It will seek its nourishment below the roots of field and garden culture, or it may be made to do so by cutting off the surface roots within the reach of any other plant. The oak, elm, sweet gum, cedar and pine are of this class. The mulberry, china tree and ailanthus are surface feeders, or with forciculated roots, and will destroy all within their reach if they grow thriftily themselves, for in cutting of their roots, their growth is checked, unless the soil is very rich.

In planting trees to make the thickest shade, a mingling of the tap-rooted and forciculated will greatly contribute to this end. They may be planted much thicker than either could be alone, by planting them alternately. An oak and a mulberry could both occupy the same space that would be required for either by itself. The oak, getting its nourishment deep down in the subsoil, the mulberry feeding at the surface, so that they would not interfere with each other, each growing as though the other was not there. Trees with tap-roots are usually tall and make our best timber, while the forciculated are low, with bushy heads. The one is made to resist the storm, although most exposed; the latter keeps near the ground.

Trees with tap-roots are much more difficult to transplant than those of the other variety, and a different course should be pursued in the operation if we ensure success. To remove the oak or pine, a deep hole should be dug around the tree, and as near as possible the whole of the tap should be taken up, and the tree transplanted to a hole as deep and as large as the one from which it was taken. But in removing the mulberry, we only need to cut off the surface roots, at some distance from the stem, and remove the tree to a broad, shallow hole, and the whole is accomplished that is demanded by the nature of the roots. To transplant them with intelligence, we should know with what kind of roots we have to deal. The relation of leaves to roots determines the appropriate *time* for transplanting. Those plants that have active leaves, like all deciduous land plants, can only be transplanted during the season of rest, or before the leaves are expanded in spring, as the leaves exhaust all the sap at once when the roots are severed. On the other hand, those trees, like all the cone and fir tribes, can be moved when the plant is in activity, as it is then full of sap and immediately puts forth new roots—the leaves not exhausting the supply of sap.

In planting and making crops, these facts have important applications. Corn is most emphatically a surface feeder, and cotton is a deep feeder. The tendency of corn roots are upward, all new roots in the corn are above the old ones. Those roots that afford it nourishment, that ripen the corn, are the most superficial roots. The roots under the stalk, or first roots are dead. Cotton is the reverse. The newest roots are the deepest. They are developed downwards, if they meet with no physical obstruction. These facts teach us that in planting corn, the seed should be deposited at least as low as the ground surface of the soil or land, that the roots may spread out naturally. Cotton, on the other hand may, perhaps, be planted on ridges, or elevated beds, as its tendency is all downwards; it gets more depth by this arrangement. It teaches us the advantage of deep plowing—for cotton especially—although corn even will be benefited under ordinary circumstances by the same process, although it does not require it if it can be supplied with food and moisture without.

The fullest product may be obtained from corn when it is planted on an impervious slate, provided the other conditions are fulfilled. Cultivation should evidently be modified by these different tendencies of roots. It is evident that deep working in corn must be injurious, and it is equally evident that close plowing, after the plant is well grown, must do harm, by severing the new roots intended to perfect the grain. Neither of these things may be regarded in the cultivation of cotton. Deep and close plowing may be useful to cotton, if the first plowing before planting was much deeper. We may modify the development of roots by management, especially in corn. It is a principle in the vegetable kingdom that if you destroy one organ in any place, greater development will take place in the second organ in another. So if you cut off one root, more will issue in another place. Now, corn is readily affected by drought, because its roots are naturally superficial. To diminish this superficial tendency, these upper fibers may be removed by hoeing and plowing, and deeper fibers will be developed. If this is done while the plant is vigorous and in the earlier stage of its growth and continuously, the corn will seek its nourishment much deeper than is natural for it, and hence when drought comes, the source of supply is not so readily affected as when no such management has been practiced.

We are taught also the benefit of preserving the soil around the corn stalk and the uselessness of it in cotton. By hilling up the corn, we supply nourishment to the latest and newest formed roots, provided the soil is taken from beyond the sphere of the older roots. Corn also wants area; as its roots are all lateral; and hence suffers greatly by being too thick. The same is true of all kinds of grain.

In watering plants in our gardens, it should not be applied indiscriminately, regardless of the kind of roots we have to deal with. The water for vines, as strawberries, melons, cucumbers, should never be applied to the main stem, but a distance from it, for the mouths are there for drinking it in; but in the radish, beet, rhubarb, etc., it should be applied directly to the main root, that it may go down the roots to the mouths beneath.

Advantage may be taken of this distinction of roots in planting or sowing two kinds of vegetables together. This has long been practiced in regard to herds grass and clover, the former a surface feeder, and the latter a deep feeder. It would be interesting to know how this practice originated, whether from reason or empirical results. The fact has been known, probably for centuries, although we have never seen a reason for the beneficial results. It is well known that this practice yields a vastly increased product, and the reason, from the facts stated, is evident. The herds grass feeds as though there were no clover, and the clover feeds as if there were no grass.

In the cultivation of fruit trees, these principles are of high practical interest. The nurseryman understands that he can, in some measure, convert the tap-rooted fruit trees into the forciculated. He accomplishes by this result two objects. One, that his trees will live more certainly when sold; another, those trees that remain unsold, are kept in a dwarf condition for years and are fit for sale, which otherwise would become too large. He attains this end by cutting off the tap-root, by means of a sharp instrument thrust under the tree. The tree thus used lives, it is true, but its main root is gone and will never be reproduced. The tree that nature formed with a strong main root, that it might withstand the force of storms and bear unharmed its burden of fruit, is mutilated and deprived of its characteristic and essential organ, which by art is replaced by one in no wise fitted for its condition. Who has not experienced this evil resulting from such a practice, that has ever raised a fruit tree? They must be staked or propped up, or they soon stand obliquely or fall down under the weight of fruit. The same course should be pursued in transplanting a fruit tree as in transplanting an oak or pine. We should dig down below the

roots, and gather the main root and as many of its branches as possible, and then set it in a *deep* hole; broad, if you choose, but *deep* anyhow. This principle teaches us also, the earlier fruit trees are set in the places in which they are to grow, the better. If the ground were prepared, and the seed for the stocks were planted where the trees were to grow, and grafted or budded in their natural position, there would be no falling down or leaning trees, if cared for during the first year or two, and we should have fruit orchards for a generation. The practice now pursued, with a rich surface soil and only surface roots, the tree *out* of the ground, is pushed forward far beyond any means of support developed *under* ground. The two should correspond, and let nature have her own way and she will make them do so.

In the rotation of crops, in field or garden culture, regard should be had to the kind of roots that succeed each other. The tap-rooted should always succeed the forciculated after fresh manuring. Succeed onions by beets or turnips in the garden; Irish potatoes or beans by cabbages, parsnips, or carrots.

In the above remarks I do not know but I may have come in conflict with plantation practice in some particulars, but that the principles are correct, there is no doubt, as my experiments, on a small scale, have abundantly proved; and had space permitted, I should have been pleased to have recorded other experiments on this subject, especially in the growth of corn and cotton.

In all cases it is presumed that the soil is perfectly broken up, that the whole storehouse of materials is opened to the application of the plant; otherwise the conditions of successful cultivation, of any crop, are not complied with."—*Cotton Planter and Soil.*

FRUIT TREES ON CALIFORNIA HILL-SIDES.

Editor Culturist:—For five years I have followed the business of mining, in old Tuolumne county, and during that time, I have occupied the same log cabin that I built during the first three months of my sojourn in California. I have never been to Kern River, Fraser River or the Gila; but have just stuck close to the one place, that now seems like and really is, my home. In the autumn of fifty-three, I indulged in the eating of just one Oregon apple, for which I paid fifty cents. This apple had five sound seeds, which I saved, and in the spring of 1854, planted them in a cigar box of earth. Keeping the earth moist for ten or twelve days, they showed signs of vitality and growth. I then carried the box from my cabin, and after removing the bottom with my knife, set it in the ground, where I thought I would like to have a tree stand, if either of the seeds grew.

In less than a week afterwards, I was delighted with the appearance of three out of the five seeds, breaking up through the surface of the ground. After they had attained a hight of say three inches, and had made their first rough leaves, I transplanted two of the three to other positions, carefully preparing the ground. During the summer all three made about an equal growth, not far from eighteen inches in hight. and as large as a good sized clay pipe stem at the ground. In the spring of '55, I wrote to my friend, Jas. Chadwick, of San Francisco, to send me three scions of three of the best apples he could procure. I received them by mail, paying newspaper postage.

With these scions I grafted my three pet apple trees, about six inches from the ground; they all grew finely. In '56, two of the trees bore each nine fine, large apples, the other but four; but as they proved to be the Gloria Mundi, of monstrous size, they were fully enough for the tree. It is needless to say that since then, every year, they have not only grown finely, but produced abundantly, till I have ceased to count the annual product. The foregoing I have not penned because I think it marvelous; but merely as a kind of introductory to a matter upon which, and about which, I want your opinion.

So successful had been my little experiment down to the end of the first bearing year '56, that I determined to extend my efforts in the orchard line. I procured in the spring of '57, twenty fine looking, two year old apple trees from the grafts, and after carefully preparing my ground, set them out, also with care; but though my three old pets all did nobly that year, my new trees barely survived the season, and finally of them all, but four are now living, and but two of these can be called healthy trees.

Not willing to give up upon a first experiment, I tried again last spring with an excellent lot of three year old trees; but with no better success than before. Now, what I wish to know is, the reason, that with all the care I can possibly bestow, even to artificial watering—for the ground is a hill-side, and very dry during the summer months—I cannot succeed in growing one out of five transplanted trees? And why is it, that my three pets are the only realy flourishing trees in my grounds? By answering these queries *satisfactorily*, you will much oblige an admirer of the *Culturist*.

GEO. MASDON.

OUR ANSWER.—To our mind the case is a perfectly plain one, and one which can be answered "satisfactorily." Your "three pets" are from seeds, planted out where the trees now stand; or if two were not, they were transplanted so young that they suffered no loss of root whatever, of course equivalent to seedling trees, unremoved from their orignal locality of growth. Were you to dig up those trees, you would in all probability, find they have each a main or tap-root that has penetrated deep into the subsoil, in fact so deep as to secure at all seasons of the year a sufficiency of moisture to save the trees harmless from the effects of the protracted drought of our summers; whilst your transplanted trees have none but surface roots, and a heavy top to support before they can send sufficient new roots downward to the proper depth, and suffer for the want of sufficient moisture. It is plain, therefore, that the larger the trees you transplant to your "dry hill-side," the less the probability of their success.

The best advise we can give you is, to use very young and small trees, if you are determined to purchase those already grown and grafted; but having had such complete success with your "three pets," why not resort to the same successful mode and produce more of them? Upon the subject of large or small trees for successful transplanting, we find an excellent article in the *Country Gentleman*, and so nearly in accordance with our "new doctrine," that we copy it entire.

TRANSPLANTING SMALL TREES.

IT has been a very general, almost universal, desire among tree planters, to have large sized trees from the nursery. One person about to set out an orchard, wrote, "Send me *man* trees. I do not want puny little children—but large full grown specimens." Another said, "I want the largest trees you have—I don't care much what kind they are—but give me tall ones—if a rod high, all the better." "But," the nurseryman replied, "smaller ones will be better in five years than those." "I don't care, I want big ones; I may not live five years, and I want fruit *now*." Three or four years after, the same planter called again. Without waiting for an inquiry, the nurseryman immediately remarked, "Well, I have some fine large trees which I can furnish." "Don't want 'em! don't want 'em!" was the answer. "I've had enough of large trees—they have cost me ten times as much labor to set out as the small ones I took from necessity. They have not grown one inch—are just the same size I bought them, although I have doctored them and nursed them, and they have borne me only a few of half-grown, worthless fruit. The small trees have already outstripped them, and have begun to bear large, excellent specimens."

These experiments have now become so numerous, that a change in the opinion of planters has generally taken place, in relation to the size of trees. Where twelve feet were formerly demanded as a desirable hight, five or six feet are now quite as satisfactory, and some find still smaller ones to do better. At a meeting of the Fruit Growers' Society, of Western New York, held at Rochester a year ago, this subject was fully discussed, and none, who had ever tried the experiment with large and small trees side by side, could be found who preferred the former. Many instances were related, and in every case, without exception, (good culture being given,) the small trees soon outgrew the others, and were not only larger, but incomparably more vigorous and thrifty, Two-year apple trees and one-year peach trees were preferred by most of the best cultivators present, to any of larger dimensions. And in addition to these advantages, the smaller trees are almost sure to survive transplanting, with scarcely a loss of one in a thousand; while the extra large ones, the roots of which must be greatly mutilated in removal, die by scores. The labor of digging up the large trees, the cost of transportation on them, and the cost of resetting them, are all several times greater than the smaller ones. Where they are to be sent some distance by rail-road, the increased cost of conveyance, as well as in risk and in packing, is greater than a hasty observer can have any idea of. A tree, for example, which is twice the hight and diameter of another, is greater in weight in a cubic ratio. If a hundred of smaller weigh two hundred pounds, one hundred of the larger will weigh eight hundred pounds, or nearly half a ton—the cube of two being eight. A single season's growth will often make this difference in the nursery; but many years, after being checked by removal when large. There seems, indeed, to be every reason why trees should be removed small, and every thing against the practice of leaving the work till they attain large size. Sir Joshua Reynolds said if he were to paint a picture of folly, it would be by representing a boy climbing over a high wall with an open gate close at its side. Had he lived now, he might do it with equal effect, by representing a purchaser selecting large trees at a nursery, and rejecting the young thrifty ones.

There is only one instance in which the large trees can have any advantage, or can maintain it for two or three years; and this is where both large and small are treated with total neglect after setting out, so as barely to survive and not to grow at all. Both remaining stationary, the larger ones will of course maintain their superiority. But all good cultivators discard such treatment.

The practice of copying English customs, has in this case had an especially pre-

nicious effect. In Britain, the moist climate favors the removal of larger trees than can be safely transplanted here. The experiments of Sir Henry Stewart, in Scotland, in manufacturing a park of trees to order, thirty or forty feet high, and the publication of a work giving the details of his experiment, have done a great deal of harm. The park, after the first year or two, presented a very shabby, thriftless and stunted appearance; but even while this practice was at the hight of its popularity, that far-seeing and skillful culturist, J. C. Loudon, asserted that with five years' time and with deeply trenched land, he would agree to produce a finer effect with small trees, subjected to the best treatment, than any that could possibly be accomplished by the removal of large ones at the same time.—*Country Gentleman.*

EFFECTS OF LATE PRUNING.

IN our regular eight or ten days' peregrination monthly, to and through the principal agricultural districts of the State, we are constantly gathering and comparing the practice and experience of observing culturists in every department of agriculture. By so doing, and reporting the same through the pages of the *Culturist*, we are enabled to save very many engaged in horticutural pursuits the necessity of a routine of experiments to establish a principle, that some one else has as certainly done before them. This remark applies with force to a fact recently, and now fully established, relative to late pruning of the vine with a view of increasing its fruitfulness, in certain localities.

Almost all of our principal grape-growers have either finished or are now busily engaged in pruning their vines; but this remark will by no means apply to all. We recently visited the admirably managed grounds of Mr. Louis Bruguiere, two and a half miles from Oakland. Mr. B. is an amateur culturist of fruits; and being eminently successful in the culture of the grape, notwithstanding his exposure, to some extent, to the cold trade winds of summer, his views are entitled to consideration; because, as respects his peculiar locality, his present practice is based upon fairly conducted experiment.

Mr. B. is a Frenchman, accustomed to the management and growth of the vine in Europe, and came here with all his notions of early and short pruning as firmly fixed in his mind, as we now find it with many others, with a European experience. But another experience has taught him, that the European plan is not adapted to this country, or at least, to his particular locality in this country. Thus we find him adopting a long, instead of a short system of pruning, and instead of pruning early in the season, his vines are not pruned yet—15th Febuary—nor does he intend to prune, until just about the time of the starting of the buds.

This may seem a strange practice to many, and particularly to those who are wedded to old systems; but Mr. B's object is to raise grapes; and he does it from year to year, of excellent quality and without a failure; so that if he knows that by his mode it can be done—and certainly his success proves it—we should never stop to inquire whether his practice conforms with that of the ancients or not; but, if in a similar locality to his, we should doubt it at once. In remarking to him, that by

delaying the pruning to so late a season, the vines must bleed, we were told that no injury resulted from it, if they did; that the mode had its advantages, and he would point them out. Thus, where vines are pruned early and close—say back to two or three buds—and the vine is a very vigorous grower, the whole force of the root is brought to the development of too few buds or shoots. The consequence is, they are far more likely to be forced too early, which subjects them to the effects of late spring frosts, should they occur, and which are not uncommon in many localities.

One reason why vines, in certain localities, produce so little fruit is, Mr. B. thinks, their tendency to run too much to wood, and this tendency is augmented by close pruning, and lessened by permitting the whole top to remain unpruned as late as possible, receiving a larger share of the early ascending sap; whilst that part which is finally to remain, is not so early forced or forced as energetically, as when early pruned. And should the vines bleed when finally pruned, it is rather advantageous than otherwise; for to weaken the vital energy of a plant in its production of wood, is to increase its tendency to fruitfulness. And when he does prune, instead of cutting back to two or three buds, he leaves from six to a dozen, depending on the strength of the vine; and never cuts back or pinches in the ends of the bearing shoots in summer; and the best proof of the practicability of his mode is, he never fails of a large and fully matured crop.

There is also another Frenchman at San Antonio, whose garden we visited, but whose name we cannot now recall; who, without even the acquaintance of Mr. B., or ever having heard of his practice of late pruning, has, from his own experience, adopted a precisely similar practice, and based upon the same reasons; and whilst both of these gentlemen are ready to admit that for other localities, a different system may be preferable, it is the only proper one for their own; and that setting slips or cuttings in the places where they are to remain, is the best mode of planting out a vineyard.

CULTIVATION OF SMALL FRUITS.

HARDLY had the fact become known to the pioneer pomologists of the Pacific coast, that both soil and climate were admirably adapted to the production of such of the introduced fruits and berries, as were obtainable either from the seeds or slips, than efforts were made to extend the list of varieties, till it should cover all the known valuable ones upon our list of small fruits. In the immediate vicinity of San Francisco, owing, probably to the excellent market it afforded for every variety of fruit, the culture of the strawberry only attracted the attention of those possessed of suitable grounds; and as its culture was attended with complete success pecuniarily, it has rapidly extended, and with the varieties best adapted to our locality, has ever been a paying fruit. The acres devoted to the growing of the strawberry are increasing every year; and in the vicinity of the larger cities of the State, it will be one of the principal market fruits of the season.

Of the varieties cultivated, probably the British Queen is not excelled, as a profitable market berry. Hovey's seedling stands next, and by connoiseurs is deemed a more delicious berry. There are a great number of other fine varieties recently introduced, and growing in the gardens of Oakland and Alameda, several of which to our taste, are superior to the British Queen.

The success attending the culture of the strawberry very rapidly produced a desire to try other small fruits, and as the currant is so universally grown and esteemed in all the Northern States, attempts were made here, to grow it upon a scale that should meet any demand; but the attempt has thus far most signally failed, not only as regards the production of fruit, but the bush also. There seems to be something uncongenial to their growth in the climate, for it cannot be in the soil. We would not be understood as saying that currants are not, or that they cannot be successfully grown in some localities of our State, for they are; but as a fruit for the markets, they have not as yet been produced in any considerable quantities. The cherry—May's Victoria and the Red Dutch—are the varieties of the currant most highly esteemed by our gardeners.

The raspberry in its several varieties presents better claims upon public favor; highly prolific with proper cultivation, and a regular bearer in localities favorable to its development—and such localities are not difficult of procurement. The varieties most highly esteemed, are the Red Antwerp, and Knevett's Giant. The Fastolf, likewise in suitable localities is an excellent fruit, productive and profitable; though we doubt the superiority of the raspberry over the strawberry, as some have claimed, for profitable field culture; but as a delicious berry, giving variety to our summer fruits, it will always be deemed indispensable.

The gooseberry, in nearly every locality where tried, has fruited regularly and satisfactorily under a proper cultivation. The introduced varieties are numerous, and large quantities of the fruit find ready sale in the market, both in a green and ripe state. There is not a doubt but that this berry, in some of its varieties, can be cultivated with profit, in the vicinity of a market like San Francisco.

The blackberry, which until within the last few years was ranked among the wild berries of hedges and neglected grounds, bids fair to become one of our most productive and really excellent summer fruits. Of the introduced varieties, these are two that claim a pre-eminence over the indigenous variety, common to many localities in the State. Those are the high bush and the Lawton; both are decidedly superior to the wild sorts, and yet originated from their seeds, or from the seeds of their prototypes of the Atlantic States. The blackberry has thus far, proved itself at home in both the soil and climate of Oakland, Alameda and a few other localities, and will, undoubtedly prove a highly valuable acquisition to our catalogue of small fruits. Directions for the cultivation of the blackberry, will be found on page 341 of the *Culturist.*

The object in bringing the afore-mentioned fruits, to the notice of our readers at this time is two fold; we wish to assure you that much can yet be done, to render your homes more attractive, by possessing a few of the easily obtained, easily grown,

and yet truly luscious small fruits; and having resolved to possess them, to remind you that no time should be lost in obtaining them. The season is now far advanced for transplanting any description of plant or tree, in any of the warmer valleys; but still, it may yet be done successfully with proper care; but don't defer what you intend to do in this line, the present season, for a single day. Directions for the cultivation and management of the raspberry, will be found in the present number under its appropriate head.

CULTURE OF THE RASPBERRY.

WHERE new varieties of the raspberry are desired, recourse must be had to trees; but plantations are usually formed from offsets obtained from rooted plants, or a division of the stool of three or four year old plants. A deep, warm sandy loam, and yet moist, is the best. It should be made rich, and if mulching is practicable, it should be adopted; for nothing so injures the perfection of the berry as a lack of moisture at the root, at the exact time of ripening the fruit. Plant in hills four feet apart, and with suckers or offsets of two or three canes to the hill. Keep the ground entirely free from weeds, by a frequent light stirring of the surface. The raspberry is a surface feeder, and stirring the ground deeply during summer, destroys a vast number of the minute fibrous roots, which are the feeders of the plant. If transplanted with care, and proper attention given to them afterwards, they will produce a few berries the first year, and a full crop the second. The fruit is always produced upon new wood, from last year's canes; so that in autumn or winter, all the old wood or bearing canes should be cut out, leaving from four to eight new canes—the strongest and best—in each hill. Early in spring, these canes should be headed back to strong well matured wood. But little after care is required, except by keeping the ground moist, keeping down the weeds, and preserving the fruit from the depredation of birds.

A late crop of this fruit can be secured, by cutting back the canes in the spring quite low down, say within six or eight inches of the ground; the shoots that start from these stumps give the late crop. It is not a second crop from the same plant the same year; but the first crop greatly retarded in its time of ripening.

THE CATAWBA VINTAGE OF 1858.—The yield of vineyards in Hamilton County, Ohio, for 1858, is 14,000 gallons; Brown County, 17,010, and Clermont, 2,500—a total of 38,500 gallons in three counties. Mr. Fourmier, the director of Mr. Longworth's wine house, states that the wine of 1858 is of superior quality, being as good as the celebrated vintage of 1853, and the yield is considerably greater than that of 1857. The price per gallon ranges from $1 to $1.20, the latter being the current quotation. The entire crop is valued at $40,000. Mr. F. has purchased 25,000 gallons of the new wine. The vintage of Hermann, Missouri, this year, has been an average one, in spite of the poor prospects of the early part of the season. The German paper at Hermann states that the quantity of wine produced will reach 55,000 gallons, which is highly satisfactory, in view of the fact that last year's yield was enormous, and that vines seldom yield two consecutive heavy crops.

HORTICULTURE—PRESENT AND FUTURE.

THE above is the heading of the horticultural department of the Genesee *Farmer* for December, 1858, and under that head is discussed the condition of the horticulture of the Northern States, for the past year, its present and future prospects. And whilst we would draw no invidious comparison between our climate and our success, and theirs, still we can hardly refrain from a just and fair comparison; because it shows, if nothing else, the abundant reasons we have for believing that few lands are so blessed, in all the elements of agricultural and horticultural wealth as ours.

The editor commences by saying: "The past season, in many respects, has been a discouraging one to the fruit-grower. The *apple* crop has been a comparative failure; many farmers in this section, who have usually hundreds of bushels to sell, have not enough for their own use. The same is true of *peaches*. Few persons expected to get any *plums*—and were not disappointed. Even *cherries*, hitherto abundant, were scarce and poor. *Pears* were better than any other fruit, but still not an average crop. Insects and fungi were rampant, and the trees, weakened by the cold winters of 1854–5 and 1855–6, were more than usually exposed to their attacks. The summer and fall of 1856 was cold and wet, and the wood of trees was imperfectly ripened; consequently—though the following winter was comparatively mild—the trees sustained considerable injury. Then the warm weather, early in the spring, started the buds, and the severe cold that followed destroyed a good portion, and so weakened the trees that the fruit which set fell off prematurely."

How unlike the success of the California horticulturist. He has had everything for his encouragement; fairer or finer fruit never graced the tables of any exhibition than was seen at the several agricultural and horticultural fairs the past season. The apple was superb, the peach truly abundant and plums unequalled; for the curculio is not a troublesome visitor here, indeed, very many deny its existence west of the rocky mountains; so that our smooth skinned stone fruits are always fair. Our trees are never weakened by the cold of winter, the more readily to become the prey of "insects and fungi." For though we are in a few localities to some extent annoyed by one or two varieties of insects, their depredations can hardly be considered, as other than a slight impediment to successful fruit growing.

"Such a concatenation of adverse circumstances"—continues the writer—"will probably not occur again for some time; still, the fruit-grower will always have to contend against some or all of them. He is no worse off than the farmer. The midge, the Hessian fly and the rust, have blasted the hopes of the wheat-grower; thousands of acres of land, prepared for corn, could not be planted, on account of continued rain in spring; even oats, hitherto comparatively free from diseases, have, in many places, this year been entirely destroyed by rust.

"The fact is, all crops, all animals, all fruits, all vegetables, are exposed to diseases. We can obtain nothing that is desirable, without skillful and intelligent labor. We must study, think, act. We must not yield to difficulties. We were made to have

dominion; all things were put under our feet. Shall we succumb to an invisible fungus, or an insignificant insect?

"Such a season as the one we have just passed through, serves to render more apparent the benefits of improved cultivation. The most intelligent care, and the most skillful cultivation may not enable us to entirely escape the effects of a severe winter and the sudden changes of spring, or to guard effectually against the ravages of rust and insects; yet they certainly mitigate these evils.

"While we must give American farmers credit for setting out more fruit trees than those of any other nation, we are compelled to acknowledge that there is probably no country in the world where orchards are so shamefully neglected. There are few things better calculated to give a young man a taste for improved agriculture, than the study and practice of horticulture. There is more need of thought and patience, more scientific principles involved, in the practice of horticulture, than in the ordinary employments of the farm. Thorough culture is more profitable, and its advantages more apparent, in the orchard or garden, than in the field. Horticulture, though not as important in a material or national point of view, is, nevertheless a higher art than agriculture. We would advise every farmer, therefore, who wishes to make his son a better, more systematic, more thorough and more scientific farmer than himself, to early instil into his mind a love of horticulture. We regard it as one of the most pleasing indications of the future advancement of American agriculture—of the high position which the cultivators of the soil are destined to occupy in the republic—that the line of demarcation between agriculture and horticulture is yearly becoming less distinct. Intelligent farmers no longer confine their attention exclusively to the raising of cattle and grain. They find a well managed orchard or garden equally profitable, while it contributes greatly to the comfort and happiness of the family.

"The full benefit of this general attention to fruit culture, however, can only be obtained when it is skillfully and intelligently pursued. To plant a fruit tree, and leave it to take care of itself, can benefit no one—except he who does so, learns by repeated failures to bestow the necessary care and culture.

"The climate of a great portion of the American continent, is pre-eminently adapted for the raising of fruit. The orchardist has every thing to encourage him to anticipate great success. With judicious cultivation there are few failures, and these only serve to stimulate an intelligent horticulturist to renewed efforts.

"Horticulture is destined to take a high position in the United States and Canadas. Much has been accomplished in testing the different varieties of fruits, and in determining the best soil, location, climate and exposure. We need, however, more facts bearing on these points, and still more, some system for recording and comparing them."

The closing paragraph of the above, has a great deal of solid meaning in it, applicable to California as a portion of the United States. Horticulture is here to claim and maintain a prouder position, than can elsewhere be hoped for. Even here too at this early day, "much has been accomplished in testing the different varieties of

fruits, and in determining the best soil, location, climate and exposure." And yet, we have need of largely extended observation and experiment, growing out of the great diversity of climates to be found within the limits of a single degree of our latitude. Of the means of comparing and recording important facts connected with the progress of our horticulture, we believe there is no better medium than a thorough, practical, horticultural journal, in which a record of the progress of agricultural science in all its details comprises its main feature.

FAT PORK AS HUMAN FOOD.

A FAT hog is the very quintessence of scrofular and carbonic acid gas, and he who eats it must not expect thereby to build up a sound physical organism. While it contributes heat, not the twentieth part of it is nitrogen, the base of muscle. The *Scientific American* cordially endorses the above sentiment, as being sound practical truth, and says: "Fat pork was never designed for human food. It is material for breath, and nothing more. See Liebig and other organic chemists and physiologists. It makes no red meat or muscle. The prize fighter is not allowed to eat it. All that is not consumed by the lungs, remains to clog the body with fat."

To the Editors of the Courier, Zanesville:—The short article in yesterday's *Courier*, thus entitled, is calculated to mislead, and therefore I would offer the following remarks in reference to our great Ohio staple:

A fat hog is truly the quintessence of scrofula, for scrofa in Greek is *hog*, and the derivative scrofulous means *hoggish*. The disease scrofula, was so called when medical science was in its infancy, from its *supposed* resemblance to some diseases of the hog; and then the inference was easy, that eating the hog (scrofa) produced the hog-disease (scrofula.) It is well known, however, that our American Indians and the Hindoos, who never use pork, are liable to this disease; that in Europe it prevails *chiefly* among ill-fed poor, who hardly taste meat of any kind.

On the other hand, the Chinamen and our own pioneers, who hardly eat any other flesh, are remarkably healthy and exempt from scrofula—a disease we have much more reason to suspect as orignating long ago from the hereditary taint of an unmentionable disease, favored by irregular living and poor diet. In the South, from their sleek appearance and *exemption* from scrofula, you can at once distinguish the bacon fed negro. These examples may suffice on that head.

Fat pork is not in any sense carbonic *acid*, but hydro-carbon, a combination of hydrogen and carbon. It becomes carbonic acid and water by combining with oxygen in the act of being burned or digested, which is much the same thing—giving off during these processes large amounts of heat and light.

It is true that the *fat* of fat pork does not make blood or red flesh, though the lean which is always eaten alone *does*. It is as your article says truly, material for breath. Well that is a good deal. It is supposed that if the writer's breath had stopped five minutes before he took his pen, we should never have seen his article on fat pork. But it does more. All the fat that goes into the stomach and thence into the blood does not undergo slow burning in the lungs by the process of burning, but is deposited in the body as human fat. Now a certain amount of fat is so necessary for the proper play of all parts—muscles included—that without it, the body, like an ungreased engine, wears itself out by its own friction. In consumption, the waste of

fat is one alarming and most dangerous symptom, and the far famed cod-liver-oil acts perhaps chiefly by supplying the blood with fat.

I am satisfied by experience that fat pork—when the stomach will receive it—does just as well. Moreover, few of those delicate persons that have so great an aversion to pork or other fat, ever live to see forty years. They die young of consumption. Butter, sugar, starch, vegetable oils, act to some extent as animal fat, and in tropical climates are used as substitutes.

But go to the arctic regions and see the refined Dr. Kane and his men, devour raw walrus blubber with a gusto, as we would take a dish of ice cream, and you will conclude that "fat pork," particularly in our arctic winters, is not so bad an institution.

We would not live on fat pork *alone*—nor on sugar and starch—though we could on bread. Bread, the *staff of life*, contains the materials both for breathing and making blood and red flesh (muscle) in a supereminent degree, greater even than lean beef or any other single article of food; and this, or some substitute, such as beans, peas, potatoes, etc., is always eaten with fat pork, so that there is a sufficient supply of blood and flesh-making material. However, excess is bad, and the fat pork must not constitute the bulk of a meal.

Chemical analysis is a poor substitute for the observation of facts in the living body; nor can we even base very much on experiments made on Mr. Martin, the man with the hole in his stomach, by which food can be introduced and digestion observed; for that is not nature's way of getting it there, and a stomach with such an unnatural opening, is much like a leaky dinner pot with a hole in the bottom stuffed with a rag. Extended experience alone can settle such a question.

The Greeks and Romans esteemed pork as a luxury, and a most wholesome diet; their athlete and gladiators (prize-fighters) were fed on pork. Our own Saxon (Teutonic Scandinavian) ancestors esteemed it so highly that they, even in their heaven, provided a great hog with golden bristles, called Gulliborstli, of whose bacon the heroes of Welhalla dined every day, when at night the picked bones again united and became covered with a fresh supply of fat pork. In this estimate of the hog, the mass of mankind, not of the Shemite race, (Jews, Turks, Arabs, etc.,) who follow Moses' law, that had spiritual and representative meaning, have in all ages, agreed, and will agree, as long as man has canine teeth, and lives by *drawing his breath*. Whenever the *Scientific American* or Prof. Liebig will discover a new process of living, without breathing, we may be guided by their opinion; till then, I opine, "good *corn-fed* (and no other is good) pork" will rule the roast, of which themselves will not be slow to partake.

My remarks are, of course, only applicable to men, women and children with comparatively healthy stomachs, who have sufficient exercise, with pure air and pure water.

Yours, with respect,

JOHN G. F. HOLSTON. A. M., M. D.

TREE GROWING—ROOT PRUNING.

Editor Culturist:—In your January number, I read with pleasure "An Englishman's views on the tap-root." Being an ardent lover of fruits, and considering that abundance of this, by nature destined food for man, can only be obtained by promulgating true principles of their culture, as deducted from actual experience, I submit the following, as a synopsis of my investigations, in the latitude of Texas and California.

I have found that by removing or resetting fruit trees, that the shape of the branches of a tree coincide with that of the roots.

The roots will extend in any direction, from which they derive nourishment.

The dryer the soil, and the more permeable, the deeper the roots descend; hence, the necessity of deep tillage and its concomitants.

The descending roots are not only "pump-roots," but are essential in sustaining the tree in position, against violent winds.

The deeper the roots descend in the earth, the less the growth is affected by atmospheric changes.

The tap-root cannot exercise an injurious effect on the quality of the fruit, because, if the lower stratum of the earth is uncongenial to their growth, the roots will spread horizontally, or the trees will perish.

In transplanting trees, the fine fibrous roots are invariably destroyed by unavoidable exposure—the main roots sustaining the tree.

Trees bear transplanting better, the longer the roots and shorter the top; hence, "dormant buds," transplanted, make a finer growth than those of a year or older from the bud.

The practice of root pruning, to induce fruitfulness is erroneous; as it destroys the vital parts of the tree. Fruitfulness is induced by any device, by which the flow of sap is retarded in the branches, thereby increasing the length of time it is exposed to light, heat and electricity; the action of these agencies maturing the development of blossoms; hence "the true rationale of Liebig, that the roots absorb the greater part of their carbon from the air, and when the roots are deprived of access to the air, the trees will not produce either fruit or blossoms," is false.

Fruit trees are more precocious in southern climates, because the protracted growing season promotes the maturity of the sap; performing in one year, the work of two or more seasons of northern climates.

The suggestion to plant seeds for orchards when practicable, I have had under contemplation for at least 15 years; but reduced it to practice only two years ago, with a most pleasing effect. In March, 1857, I planted 1,700 sprouted peach seeds in my orchard, the distance between the rows, 15 by 7 1-2 feet, budded them the same season; without irrigation they made during the past season an average growth of five feet, according to kind; and this season, circumstances favoring, I enjoy the promise of abundant fruit. Root grafts of the apple, planted the same season where they are to remain—and which is equivalent to planting seeds—have grown admirably, and from apearance some of the pump-roots must be past finding out, as my well is over sixty feet deep; hence, it is best to plant the seed where the tree shall stand, whenever practicable from convenience.

J. STRENTZEL.

ALHAMBRA VALLEY, near Martinez, January 27, 1859.

TRANSPLANTING TREES.

Editor Culturist:—We have frequently noticed, in the advertisements of eastern nurserymen, in recommendation of their wares that, "the trees are well rooted, having been several times transplanted." What gain can result to a tree—whether forest or fruit—by frequent transplanting, we have never yet been able to discover. On the contrary, we fully believe that the earlier a tree is placed in its future permanant location, the more valuable it will be in all particulars. Indeed, if all trees could be raised from the seed in the soil where they are destined to remain, and the same amount of culture given for the first years, that nursery trees receive, they would grow faster, and make larger, healthier and longer lived trees.

We are fully aware that it is a generally adopted opinion, that the tap-root of fruit trees must be taken off, in order that it may throw out more branching roots, and that those may accommodate themselves better to the soil. The tap-root, they tell us, will run down into a cold, damp soil, and the tree become unhealthy.

Now we hold most conclusively, that the tap-root is an important part of a fruit tree's fixings, or it would never have been given it. In many soils, loose, porous ones, from which moisture quickly runs off in rainy weather, and where evaporation goes on rapidly in dry times, thereby producing surface drought, the value must be seen at once; for it is the instinct of a root to run in search of what will best support the plant. These tap-roots, then, will crowd themselves down in search of moisture. If an obstacle comes in their way, they will overcome it. If a rock, they will turn aside, until they are beyond its influence, and then will plow down again, until they reach the point where moisture never fails; and all along their downward course we see roots and fibres extending themselves from this main artery, in all directions, in search of food, thereby giving much wider range to its pasturage than when the root is found to run near the surface.

The farther these roots penetrate the earth, the firmer the tree stands, and the less liable it is to be blown over by winds in after years. Its chance for long life is also greater, and its size must thereby increase in proportion to its strength of foundation and range for food. Every observer must have noticed, that the size and durability of trees is controlled, more or less, by the depth of nutrative soil in which they grow. The largest pear tree we ever saw, stood in a hollow some sixteen feet across. The tree was self planted; of course the tap-root was not taken off; the soil under and around it was good, and what is more and better, it annually took enough wash from the highway to keep the soil in good condition. It produces a worthless pear, but had it been grafted at a proper age, with some of the choice varieties of the present day, it would have brought its owner a fine revenue, better than that of any three cows upon the place; and more, the tree could have been managed without any outlay after grafting, beyond gathering the fruit. We have seen apple trees under like circumstances, and producing abundant harvests. These successes in tree growing teach us lessons of practical utility.

In the first place, if we could have an orchard to our mind, we would never trans-

plant a tree; for in our view of the matter, one tree growing where its growth commenced, will be worth half a dozen of frequent removal, for the first half century, and beyond that period, it will survive two or three generations of oft removed trees, whose roots have been hacked and mutilated in each removal, until but a small basis of actual root remains, for a new foundation to start upon.

We are aware some extra labor would attend raising trees in this way. To plant the seeds where you wish to have the trees remain, for a whole orchard, and protect them in the field instead of in the nursery rows in the first years of their growth, will require some extra care; but from the time they attain size to transplant it is no more, if as much, to take care of them than of transplanted ones, while the balance of difference in value is increasing in their favor.

The argument has been given by many, that the tap-root must be taken off; as its tendency is downward, it will run into poor, cold soils, and by introducing unhealthy aliment would injure the health of the tree. We are all aware, that soils differ in depth as much as in quality. In some localities, there is hardly enough deep soil to be found to warrant raising trees. In such places the primitive forests were of stunted growth; small, thin trees, with roots running near the surface. Remove half of them and the remaining half will blow down the first heavy gale, through the cause that they had not much depth of earth for the roots to range in and strengthen the tree. In such soils, fruit trees might succeed for a while, but the top would eventually become so unproportionably large that, with the power of high winds acting upon them, they would be turned over.

"In the old States" most of the lands, in order to become *good* orchard lands, require subsoiling in order to give them a depth of soil sufficient to secure health and longevity to the trees; many sections need draining in order to remove stagnant, or dead water, which has found its way into the soil, and remains there to the annoyance of all healthful vegetation. It is about as safe to plant a fruit tree over a cold damp subsoil, as it would be to locate an inhabitant of the tropics on an iceberg in the expectation he would flourish there.

In conclusion, then; if we were to picture a *beau ideal* of an orchard, we would say, *never transplant the trees*, but take a suitable piece of land—if it is not suitable by nature, make it so as far as art can do it—and plant the seeds where the trees are to remain. Here we may add, that for planting trees as well as corn, we should prefer seed from the very best, even when the trees are to be grafted; for we are so superstitious as to believe the stalk has some influence over the health and thriftiness of the graft. Several seeds may be put in the hill; as the feeble ones show themselves the first season, they may be removed. In this way, one thrifty shoot at least, will be found in each hill; this we would bud or graft as early as possible, for the earlier the graft and stalk are united the better.

But if we would transplant our trees, we would never look for *extra sized ones*, decidedly preferring younger trees and a larger proportion of roots, to overgrown ones with the small roots nurseries usually send out. In transplanting, we certainly prefer a time when the ground is too dry rather than too wet; for, if the earth is thrown

light and dry around the roots, the rains will give it sufficient firmness, while, if the ground is wet, the very process of shoveling over gives it solidity and it becomes too compact.

WM. BACON,

RICHMOND, Mass., January 1, 1859.

[The highly flattering compliment to California, as a fruit growing country, conveyed in a note accompanying the above communication, as also a notice of the "Mountain Seedling" gooseberry, induces us to lay it before our readers; presuming upon the indulgence of our correspondent, for the leave we take.—ED.]

My Dear Sir:—The favor of which my articles have received from you, induces me to send another. I am, also very greatly obliged for numbers 1, 5 and 6, of the *Culturist*; 2, 3 and 4, I have never seen. From the specimens received, I am much interested in the very valuable work, which must accomplish much in the Golden State.

Yours, will of a certainty, be the fruit growing state of the nation. This your past success fully shows. Since reading your paper, I have often remarked, that if my age favored emigration, I should prefer your State to all others, for agricultural and horticultural purposes.

In your catalogue of fruits, I notice Houghton's seedling gooseberry. Have you the "Mountain seedling," originated at New Lebanon, five miles from me? It is far superior to the Houghton in all particulars. The bush grows large; berry large, growing in twos, thus:  and it never mildews. It is becoming very popular here.

I hope before the present session of Congress closes, decisive measures will be taken, for a speedy opening of a rail road from St. Louis to your city. When such a road is open, we may feel assured of more frequent interchanges between the Atlantic and Pacific border, highly beneficial to both. We have had seven weeks of winter, and five weeks of excellent sleighing along the Green Mountain range. Christmas morning, the mercury noted two degs. below 0. The coldest weather thus far.

Yours truly,

RICHMOND, Mass., January 1, 1859. WM. BACON.

CHICORY—CICHORIUM INTYBUS.

FROM THE COUNTRY GENTLEMAN.

THIS is a perennial plant of the easiest culture, and comes well on all soils, and is used for several purposes.

First: It makes a very valuable fodder, cows, oxen, and sheep being very fond of it; horses and mules also eat it—and it will produce from four to six tons per acre in one season. It can either be pastured, or mown and fed in the stable green, three or four times per year, and the plant will spring up again three or four times in a season. No other plant will bring such an amount of fodder for cows, except lucerne. It can be sown in the spring, or in August or September, either by itself or with clover, wheat, rye, oats or barley; in either case some five or six lbs. per

acre—it makes a good hay mixed with clover. 2d. The young shoots make a very good eating salad early in the spring; it is also a great ornament to the flowers. But 3d. The greatest use and most profit derived from Chicory, is to make coffee from the roots; for which purpose it should remain in the ground, three, four or five years, according to the amount desired: in the fourth or fifth year, the roots, which in color and appearance are much like a parsnip, will attain a very large size. I have some now growing four years old, the roots of which are about three feet long, and as thick as my wrist, and that in a very light sandy soil, and not manured; at such a rate, one acre would produce at least forty tons of roots, which, when taken up, should be cut in pieces by a cutting machine, and roasted in an oven, until they assume the color of roasted coffee, then ground fine in a mill or rollers, packed either in small paper parcels of from a half to one pound each, or in casks in bulk and sold wholesale. The present price is from three to five cents, wholesale, per pound, and retail, eight or ten cents.

By drying, the roots will loose five-eighths. Suppose now, that one acre at the end of three years, or even four years, should only produce thirty tons of fresh roots, or 60,000 pounds; by drying it will be reduced to eleven and a quarter tons, or 22,500 pounds, which at three cents only, would be $675; and if we take all expenses of seeds, labor, taking up, cutting up, drying, grinding and packing, at $150 per acre, which is too large an estimate, it would still leave $525 profit per acre, besides the forage crops, which are of great value to the grazier. The roots afford, besides, a good food to fatten swine on, and they are fond of them.

Chicory is now very extensively imported into all parts of the United States, from France, Belgium, Germany and Holland, and is extensively used here, particularly by our foreign population, the Dutch, French, &c., who mix the Chicory with their coffee, in the proportion of one-half. It has the same taste and aroma as coffee, and it imparts also a slight diuretic and pectoral quality to it, so that it is besides very wholesome. Some use it exclusively as coffee.

For seed and further particulars, I can be applied to, directing to me at the post office, Philadelphia, where I am very frequently.

F. A. Nauts.

IDENTITY AND DETERIORATION OF FRUIT.

OUT of courtesy to C. W. C., for the compliment he paid me on the score of "authority," in his article of 15th Sept., I ought, perhaps to give his theory a passing notice, which really, in my estimation, like all others that have their origin in the imagination and compel their inventors to forage for facts to support them, is not very valuable. Facts for the foundation of theory, is my doctrine. Now we have no facts before us to prove that there is any difference in the wood or bark of a sweet and sour apple tree, except in the amount of the annual deposit. We have no proof that the "constituent elements of primary particles of matter are not precisely alike, of the same variety" in wood, bark, foliage or fruit, in sweet and sour, the same materials differently combined, or combined in different proportions. Why, sweet and sour seedlings are the produce of the same parent tree. The same apple may produce as many varieties as it contains seeds. And to suppose the existence of incompatibilities or antagonisms, fatal or even detrimental to their uniting and coalescing, appears to me most inconsistent and absurd. The spongioles, or mouths, that absorb the molecules of matter from the earth and carry them up through the capillary vessels for the nutriment of the tree, are not sentient things, endowed with the power of discrimination, taking what is salutary, and rejecting what is noxious;

but they passively receive just what is fed them. And here lies the grand secret in regard to the growth and duration of fruit trees, as well as other plants. Select the proper fertilizers, apply them in suitable proportions and in a manner adapted to the requirements of the tree, and I will go bail for the health, longevity and productiveness of a sweet apple on a sour stock.

To say that the top of a sweet apple tree, in consequence of having been grafted on a sour stock, "is constantly required to throw off matter unnatural to its requirements which produces unhealthy action," etc., is begging the question; aye, worse: it is throwing the blame from the shoulders of the negligent husbandman on to the poor, sickly tree that is dying, and all for the want of a little care. "Dig about it and dung it," says the Great Teacher, before you "cut it down."

The parallelism of Mr. C. introduced into his article for the purpose of illustrating his hypothesis, is just as lame in the right limb of its humanity as in its left; and in order to get this member in a condition to amputate instead of introducing "unnatural aud indigestible matter into the human system," which, as he affirms, "produces unnatural action," etc, he should have taken two individuals of the same family with the differences that usually occur in children of the same parents, say of hair and skin; suppose one has red hair, the other black, one has a fair complexion, the other a darker tinge, and show that the aliment taken "into the system" for its nourishment which is quite adapted to the growth and development of a sandy head, is foreign and antagonistic to the nature and economy" of one that has dark hair, or show us the fatal consequences that would happen, either to Corncrackers or Buckeyes if they should happen to partake of the same kind of diet. Admit the theory of Mr. C., and the varieties of the Baldwin, Peck's Pleasant, and all others would be just as numerous and uncertain as so many seedlings. The truth is, instead of contrarieties, there are affinities in all the plants of the same variety, that make them coalesce, and harmonize in the appropriat on of the materials that constitute their growth and development. And one argument in favor of this concord between the seedling and engrafted top, is the fact that the root of a healthy one furnishes the top with all the materials for its perfect development, and for maintaining its "peculiar identity" in all its minutiæ as completely as if it stood on its own root.—E. J. Ferriss, in the *Ohio Cultivator*.

AGRICULTURE IN AMERICA.

THE following is an extract from Lord Napier's speech before the United States Agricultural Society, in Richmond:

"While recognizing all the importance of the land and the agriculture of the United States, to the social welfare of the British empire, I cannot deny myself the pleasure of expressing to you the interest which, as a mere virtuoso in rural matters, I have taken in the external aspect of American husbandry. In some respects the prospect is, indeed, often unsatisfactory to the English eye. In the new parts of the country, the primitive graces of the landscape are ruthlessly violated, while the artificial trimness to which we are accustomed has not begun. We mourn over the blackened and girdled giants of the forest, each of which would be the sylvan honor of an English homestead—our fastidious taste complains that the furrow is not straight, that the wheat is not clean, that the swamp is not drained, that the sward bristles with obnoxious stumps; then there is a general absence of root or green crops, and we discover a great deficiency of sheep. In the regions which have been longest under the plow, the vital forces of the soil seem to have been frequently over-

taxed; the more valuable cereals are abandoned, and here and there the wilderness resumes its sway. It requires but little reflection to show that these phenomena are the natural and transitory concomitants of the first epoch of tillage, which is hasty, pitiless and impoverishing. On the other hand, I remark that in many portions of the Union, there are extensive tracts which would be considered opulent and well-ordered in any European kingdom. In the absence of turnips, potatoes, and mangold wortzel, the English traveler is gratified by the spectacle of the Indian corn, tobacco, and the vine, and further South, by the cotton plant, the rice field and the cane, all magnificent and lucrative productions, unknown to British husbandry. There is also a greater abundance of fruit trees; the breed of horses equals that of the mother country, except, I think, for the purposes of heavy draught; and the various races of cattle, replenished by importations of the best blood of England, will be propagated without degeneracy, and will prove formidable rivals to the parent stock.

In a country where human labor is exorbitantly expensive, the greatest ingenuity is exerted in the improvement of tools and the invention of mechanical aids and substitutes; and in this respect the triumphs of American contrivance are not only profitable at home, but are recognized and adopted by foreign nations. Much, gentlemen, has been accomplished, and the future will furnish still higher results. If we regard the dissemination of intelligence, the diffusion of taste for rural pursuits, the increased application of capital, the scientific inspection of soils, the discriminating use of manures, the development of the home market, and the general establishment of competitive exhibitions, we may safely affirm that American agriculture has entered upon a period which will not only be reparative where the past was exhaustive, but which will gradually carry the land in every quarter to a high pitch of productiveness and beauty."

THE PLEASURES OF THE GLASS COMMENDABLE.—"If you walk in the garden or field, carry with you a pocket magnifying glass. The cost will be trifling, but as a source of pleasure and instruction it will be invaluable. You cannot apply it to a leaf or an insect, a vegetable or animal form of the minutest kind, but it will bring to you wonders of creative skill, of adaptation of means to ends, marvelous ingenuity and complications of wisdom, of which you had previously no knowledge or conception. Nay, you need not confine its use to living things; the fresh forming ice, the snow-flake, the broken crystal, the grain of sand, and the very dust of the earth, seen through such an aid to observation, will teem with lessons of wonder and delight.

In this matter we speak of that we have seen, and testify to that which we do know, and we earnestly commend the experiment, especially to our young readers. Adopt the rule that nothing is too common or too minute for closer observation than you have yet given it; for that rule is as positive and unvariable as that two and two make four. Commence at once, and when the spring opens you will find a new world opening to you, both animate and inanimate. The budding leaf, the opening petal, insects emerging from their wondrously formed habitations, everything upon which you can bring your pocket-glass to bear, and which you will take time to examine, will increase your knowledge, multiply your sources of intelligent recreation, and imbue your mind with larger and more exalted conceptions of His power

"Who makes the grass the hills adorn,
And clothes the smiling fields with corn."

SALT FOR THE QUINCE—THE VINE IN IONE VALLEY.

Editor Culturist:—I have somewhere read, that the quince is a native of the ocean's shores, and delights in a salty atmosphere. I have also noticed accounts of remarkably fine quinces grown upon our own *coast* the past season. From the above facts, the question has occurred to me, why, in localities away from the salty influence of the ocean, may not salt be used in some manner highly beneficial to the quince shrub? And if so, why not also to the dwarf pear on quince stalk?

One more question Mr. Ed. to you and the good readers of the excellent *Culturist.* Our valley has proved itself gloriously adapted to the *growth* of the grape vine, and perfection of its fruit. But one apparently serious difficulty has just presented itself. Our vines continue growing late in the season, and the first fall frost—often as severe as many that follow late in the season—finds the vines full of sap. The consequence is, in many cases, the whole of the new wood—of Los Angeles or native vines—is killed; and in not a few the old stalks, two and three years old, are killed to the surface. Is there any mode of management, or method of pruning, by which the difficulty may be overcome? How far the difficulty may extend to other parts of our State, where the grape culture gives promise of such vigorous and active future existence, I do not know; but the interest here already is of no small importance.

W. T. R.

Ione Valley.

We have cultivated the quince quite successfully in the Atlantic States, as a market fruit. We have tried it on almost every variety of soil; and though it will generally produce fair crops in most good soils, a rich and rather moist one is preferable. An opinion to some extent has gained credence, that it *always* succeeds best in wet, springy land, or along the borders of rivulets. Such positions are not essential to the growing of abundant crops; but naturally moist land, if rich and properly worked, can be relied upon for a steady and abundant yield of this fine fruit.

In and around Bodega, in this State, the quince, in soils that never lack moisture from beneath, and where the ocean breeze is frequently felt, is produced in the highest perfection. We have known salt recommended as an excellent top dressing around quince trees; we have tried it upon all soils, wet and dry. In wet soils, it seems to have but little effect; but in dry or gravelly, its beneficial effects were clearly apparent, which we attributed to the increased moisture the presence of the salt produced in arid soils, rather than its fertilizing qualities in any other respect. Salt is, however, a direct fertilizer when applied to the growth of cereal crops, and may be a powerful agent in promoting the growth and fruitfulness of the quince, as bone dust is of the pear. The object of grafting the pear on the quince is to secure a dwarfish habit, and the quince root is, we believe, always sufficiently vigorous for such dwarfs; however, if a very strong and rapid growth was desired, doubtless salt, as a top dressing, would be beneficial.

If we were to attribute the superiority of our quinces grown upon, or near theocean's

shore, to atmospheric influence alone, we should be in fault; because in the immediate vicinity of San Francisco, where the ocean winds have their fullest sweep, we do not raise specimens that can compare with those of localities a little further inland.

When Americans first became acquainted with the California, or Mission grape, its decided superiority over the native grapes of the Atlantic States, and the comparative ease with which it could be procured for propagation, and the fact that very good wine could be made from it, induced nearly all of our early grape growers to propagate largely from this variety. This grape grown in the open air, was found quite equal and indeed superior to many of the European varieties raised at the East, under glass with artificial heat. This led many to suppose that it must necessarily be either a greatly superior fruit to the European varieties, or had become so perfectly acclimated, as to be adapted to open field culture.

Every year's experience, however, is proving that there is a mistake here, and on more points than one. In the first place the Mission grape, is but a foreign variety and not American—though called the California grape. Secondly, experience has already taught us that very many other foreign varieties succeed equally well, are even more hardy, and will make better wine. The fact that the Mission grape is less hardy than almost any of the European varieties, is the experience of grape growers in numerous localities throughout the State, during the last two years; and the vineyard culturist would do well not to confine himself so entirely to this variety as many have done.

The best mode of treatment of the Mission grape, to secure it against early autumn or winter frosts, is that which will best promote the early and full maturity of the new wood; and one of the best of the few practices in aid of this object, is to permit the vines to make all the growth they will, after the fruit has set. The further the juices of the vine have to go to reach the terminal buds, or newly forming shoots, and consequently, the further their return, the better elaborated and fitted such juices are, for forming matured wood. The further you can get the soft and immature portions of the growing shoot, from that which you wish to be fully ripened, the better.

Another plan is to adopt a system of winter pruning, quite at variance with the one generally adopted by European culturists. Instead of the close, short, spur system, leave three or four times the amount of bearing wood. The product of fruit will be greater, and instead of the vine expending its energies in the continued formation of new wood till frosts occur, its strength will be directed more to the maturity of the fruit; as a consequence the wood earlier ceases to grow than it otherwise would, which will give it time to ripen and harden. If your vines are artificially irrigated, the supply of water should cease after the grapes have attained their full size, and begin to take color; this practice tends not only to an early maturity of the wood, but to the fullest perfection of the fruit. If neither of these modes secures the object, we would recommend the early substitution of other and better varieties.

STOCK RAISING.

IN talking with stock growers, one is forcibly struck with the desire universally expressed to increase the number in their herds, without regard to the quality, quantity seeming to be the desideratum. This eagerness to multiply is to be regretted. It is accomplished generally with little or no forecast, as to ability to provide adequate supplies of food. Indeed, stock raisers seem to ignore the fact that most of the large rich valleys, where the old Spanish herds grazed unrestricted, are now subjected to the dominion of the plow, thereby depriving them of those sources of abundant forage, and compelling their stock to scatter over the hills, or take up with the herbage found on plains unfit for cultivation. In many parts of the State, there is such an excess of stock over the area of range, that the most nutritious grasses are swept clean to the ground before they mature the seed; this, to a great extent, has exterminated all that is suitable for food, thereby giving to the mustard and noxious weeds full scope for multiplication.

All admit that the range is becoming more limited, and the grasses of a degenerated character over large sections of the State; this induces the necessity of immediate attention to the cultivation of substitutes. Much can be accomplished by the planting of annuals; such as the cereals, Chinese sugar cane and root crops; but they afford no adequate relief, except for the dairy; because, for extensive feeding we must rely on perennials; which, besides being grazed a portion of the year, afford an annual hay crop. Of all cultivated grasses, none promise so well as alfalfa or Chili clover, as it is possessed of a tap-root which penetrates to a great depth; in fact it goes down to permanent moisture.

This plant, possessing great tenacity of life, is easily produced and soon takes entire possession of the land. Severe grazing and frequent mowing does not injure this clover in the least, but makes its roots increase in size by forcing out a greater number of shoots from the stool, the root being full of eyes for some distance below the surface of the ground. Into many of the cities of the west coast of South America, large quantities of alfalfa are daily brought on the backs of mules in a half cured or wilted state, horses seeming to like it best in that condition.

W. F.

Sacramento, Feb., 1859.

THE VALLEY OF RUSSIAN RIVER.

WE have just returned from a visit to the valley of Russian River, one of the finest agricultural districts of the State. For more than sixty miles in length Russian River, before taking its final westerly turn towards the ocean, perambulates from Mendocino county southerly, through one of the widest, truly alluvial valleys in the State. As a corn growing country it is probably without a rival on the Pacific coast, and a good corn country can always be relied upon as suitable for a large share of the staple products of temperate climes.

We see therefore along this great alluvial belt, the whole family of cereals cultivated with singular success, and in the main quite free from smut, or injury from climatic influences. As far as any attempts have been made to grow fruit, it succeeds admirably. Along the borders of the valley, at the foot of the range of hills that bound it on either side, the vine flourishes luxuriantly, producing grapes of fair size and a flavor of peculiar richness; and we cannot but believe, that the time is near at hand when the acres of vineyards along this great valley may be counted by hundreds, if not thousands. What the effect of climate may be upon the health of vines and fruit trees along the more central portions of the valley, remains to be seen. Of the indigenous forest trees, the deciduous oak largely predominates; and throughout nearly the entire extent of the valley may be seen this monarch of our lowland forests, in its wide spreading, but varied and beautiful forms, standing apart and alone, or clustered in groups of a score or more upon a single acre; and though at this season of the year without a leaf, all are draped in their beautiful pale green, mossy livery, that pendulous from every twig and limb, imparts a mellowed softness to the breeze, that alike in summer and in winter gently sweeps along the valley.

And yet, with all its loveliness and fertility, and admirable adaptedness to every desire of the husbandman—the maker and beautifier of our country's homes—one blighting curse rests down upon it. A very large proportion of the entire valley, and all the smaller valleys that branch out of it, are covered by "grants," the claimants of which, with their real or fancied titles, are for the greater part at war with the actual settlers. This state of things has the effect to paralyze every effort at improvement, beyond what is actually required for the immediate positive necessities of the occupant. Thus we find many wealthy men along Russian River, with no further improvements than a surrounding fence of redwood rails, and a mere shanty of boards to live in; and but few of us would do differently.

It is this condition of titles that continues many a district of fine arable land in the State, merely a pasture ground. Men can drive away their stock, whilst being themselves driven from their homes; but their beautifully adorned grounds and orchards they cannot take, therefore they'll not have them. The condition of our land titles is the one great bane to our State's agricultural improvement.

BREEDING, AS AN ART.

ANIMAL and vegetable life left to itself, seems to be subject to a general law, that continually reproduces itself in the same form in which it originally appeared. The hardy crab, gnarled and thorny, is the same on the western prairies, as on the eastern hill-sides—the same now it was a thousand years ago—the same it was when the stars sang together. Left to itself it is unchangeable. But subject it to the control of man, and the rules of art, and the acrid, worthless crab swells into the princely Baldwin, and golden pippin. The change is slow, and the result of much care and labor. It must be taken from the forest and planted in better soil. Competing trees and hungry weeds must not steal away its nutriment. With careful and generous culture, the fruit will be enlarged, slight deviations in flavor will appear

to the critical and careful observer. The best of these must be planted and reared to bearing, and the best again selected, and so on until the highest perfection is attained.

Precisely the same law obtains in animal life; and those animals and birds that are domesticated, have been, and can be, greatly and permanently changed by the breeder's art, in color, form, qualities and disposition. The changes you desire will perhaps seem slow, but will be certain if the rules of art be steadily followed. But first of all, the breeder must have a clear and distinct idea of what he wants to breed, and this should be determined by the soil on which his animals are to be put. For instance: the Durham, so admirable for the shambles, and so well adapted to the luxuriant pastures of Kentucky, and the prairies of the west, would probably find the rugged and scanty pastures of many parts of New England insufficient to develop his rapid growth, when the same pastures would easily sustain the lighter, more agile and hardy Devon. Because a breed of animals are adapted to, and profitable in one location, it does not therefore follow, that they will succeed equally well in other places, with a different soil and climate. The skillful breeder, who pursues his object by the highest rules of art, must thoroughly consider and decide on the result to which he wishes to attain. Does he wish to increase the size of a breed? This, perhaps, is easy. But is it wise and will it be profitable? We should have no difficulty in increasing the size of the Devon or Morgan; but when you have increased the size will you have the Devon steer, and the Morgan horse? What you have gained in size you may have lost in symmetry, compactness, ease of motion and vigor. The question of size is of the greatest importance in breeding, and one in regard to which the inexperienced breeder is very liable to mistake; and the more so, as committees and agricultural societies often foster and encourage erroneous opinions on the subject. A great calf or colt, if very fat, is likely to get a premium—all can see that the colt or the calf is large, but all are not critical judges, and under a load of fat, but few are capable of pointing out the defects in the animal. It is probable that every departure from the medium size of a race of animals is attended with some loss of power; or at least that the medium size of the race should not be departed from, except to raise animals for special purposes. The draught horse for heavy weights must be heavy. But he will be slow, and will not have the ease and grace of motion, nor will he have the iron hardihood and endurance of the medium sized horse.—L., in the *American Stock Journal.*

HINTS ABOUT BREEDING.

THERE can be no doubt but that the attention of farmers and others who have a taste for fine animals, is a good deal awakened to the importance of breeding from the best kinds of animals. This feeling is now calling forth the careful attention of farmers to the blood of the animals from which they breed, as well as to the form and qualities which belong to the race from which they have been derived. While a great improvement may be reasonably expected from these causes, there is an error which is not unfrequently committed by those commencing to breed fine stock, which ought to be amended.

Many persons think, if they have a fine colt, or calf of superior blood, that the more food it gets, the better it will be. But this a mistake. The young animal requires the milk only of its dam, if that is an average quantity and quality. It is true they will, as they increase in size, take more milk, if offered them; and by such means their growth will be very rapid, and they will take on a great deal of fat. A

colt, or calf, pampered in this way, has an unnatural growth. They are over-fed and the muscles are not as well developed as in animals less stimulated with rich food. Nature is the great teacher, and those who neglect her counsels will be very sure to find out their mistake. A young colt, a calf, a lamb, wants nothing for some months after birth but the milk of the dam and fresh pasturage, with free scope to leap and race at their pleasure; thus stretching to the utmost every muscle, gaining strength, healthy development and symmetry, with every effort. Over-feeding is not probably so common as under-feeding. But it is an error into which good farmers and good breeders sometimes fall. They have a fine young animal, and they want to make it very extra, and high feed will often deceive pretty good judges. Many a common calf has taken the premium, not because it was the best, but because it was the biggest and fattest. By careful inquiry you would perhaps find that it had taken the milk of two or more cows, for a considerable part of the season.

The continuance of high feed for a few generations, with little exercise, will destroy the good qualities of a fine race of animals. They lose their symmetry of form, which depends on the proper action of the muscles, and become barren and worthless.—*Ib.*

FARMERS' CLUB.

New York, Tuesday, Dec. 7th, 1858.

AT 12 o' clock, on Tuesday, the Farmer's Club held its regular meeting at the rooms of the American Institute on Broadway, Mr. Lawton in the chair.

The Secretary read an interesting memorandum from the New Zealand *Gazette*, announcing the fact that silk-worms are very abundant in that country, "clinging in countless swarms to the vegetation that they make their food," whose silk in staple and fineness is pronounced by the Glasgow manufacturers that have tested it, superior to the best in use: and that to the amount of its production there is no assignable limit.

He called attention to the operation of the French "Imperial Zoological Society of Acclimation," which has its agents scattered everywhere, and aims to introduce into France the desirable plants and animals of every climate, that can be acclimated. It has already bred ostriches, and is filling the gardens and conservatories with plants and trees not heretofore deemed possible on French soil.

He remarked that Mr. Fuller, of Brooklyn, was cultivating slips and seeds of the Washington Gigantic Pine of California. In 1853, seeds and slips of this tree were introduced into England, and in 1854 in France. The intelligent Superintendent of the Central Park should not neglect the hint.

Dr. Gallagher exhibited some wine from the native grape of the vicinity of Washington, N. C., and some also from the Mish grape, supposed to be a Scuppernong stock, grafted with the Butters grape. Though there was a great deal of saccharine matter in the grape, sugar had been added in the manufacture. Prof. Mapes remarked that the fermentation of the sugar of grape make brandy, while the fermentation of the cane sugar makes rum. Brandy decomposes animal matter, rum preserves it. The older a wine becomes, to which sugar has been added, the worse it is; the older that wine which has no sugar added, the better its flavor. Old rum has higher flavor than new. Hence, the French when they put up fine wines of fleeting flavor add brandy, not sugar, after it has passed the period of fermentation. He had been making what they called "wines" from fruit, from rhubarb, &c., to which he added sugar. They certainly were very pleasant, but the trouble was that they would not stay what he made them; as fast as the fusil oil separates, they become rummy. It

was easy to increase and change the flavor of fruits, especially of grapes. The experiment of mixing a drop of fusil oil with a drop of different acids was familar, and the production thereby of the flavors of different fruits. Now, when we saw that the union of tannic acid and fusil oil gave the strawberry's flavor, it was easy to believe that dressing the strawberry bed with tan-bark would improve the flavor of strawberries—especially when it was remembered that the wild wood strawberry, where the fallen leaves and decaying bark of trees furnished an abundant supply of tannic acid, had a finer flavor than any cultivated berry. But the finest flavored grapes did not produce the finest flavored wines, for the reason that they contained too much fusil oil. This topic was of immense interest to fruit-growers, and experiments were already being freely tried. There were 800 kinds of pears now in existence which were unknown when they came on the stand, and he felt sure that the palate was only just beginning to enjoy the pleasures in store for it, and which chemistry and the horticulturists were fast developing.

THREE MODES OF RAISING SWEET POTATOES.

I HAVE tried, during the last five years, three different methods of raising this delicious vegetable, which, by the way, I believe can be had in perfection in many parts of the Northern States, where the people who have never made the trial, would as soon think they could raise oranges.

The first of these methods is, I suppose, the common one, viz.: to obtain slips, as they are pulled from the uplifted seed potato in the hot-bed, and plant them out in high ridges, or hills, about the time of planting corn. I have in this way, in rich, well-worked ground, obtained every year for the last four, what I have regarded as amply remunerative for the care and labor bestowed.

The second method is to take off the slips two or three weeks earlier, and plant them in another hot-bed or cold frame, that they may become well-rooted and strong. I this year had very fine plants in this way, with abundance of roots, ready to go right along with a vigorous growth as soon as put into the open ground. But mark the result—a great number of small potatoes.

The third method, which, judging from the experience of a single year, the present, is by far the best of all, is to raise your own plants at home, in your own hot-bed, and be ready as soon as they are large enough, and the danger of frost is over, and there is a fair prospect of a shower at hand, to take up the seed potato from its bed, and cut out a little of the old potato from each shoot, so as not to injure the fibrous roots, and immediately plant out in the prepared hills. Of course you will not get half as many plants from the same quantity of seed in this way, as by the other method of taking off slips, and leaving the old potato to send up a new crop. But if the object is to get fine, large, and early ripened potatoes, rather than plants, I feel confident that great advantage will be found in the method proposed. At least such has been my experience this year—the crop raised in this way the present season being the largest and finest I have ever seen. Will some others take note of this, and try the same thing next year, and communicate the result?—H., Hudson, Ohio, 1858.—*Moore's Rural New Yorker.*

Sorghum.—Altogether, I think there has been no plant introduced into our country for the last quarter of a century that has so well realized my expectations as the Chinese sugar cane.—*C. A. Pettibone, Erie Co., Pa.*

MISSION GRAPE AT SAN LORENZO.

Editor Culturist:—Last year I set out about 3,000 two year old fruit trees; 2,500 apple, 250 peach, 130 pear, 60 cherry, 40 plum, a few figs, apricots, almonds, nectarines, raspberries, gooseberries, currants, strawberries and Mission grape vines. The Mission grape does not appear to do well here; the grapes are sour and few, too late, and the vines do not bear much until seven or eight years old. The Black Cluster, Chasselas Violet, Chasselas of Fontainebleau and Black Hamburgh, have borne well for Mr. Lewelling this last season on much younger vines. Now I want to put out twenty acres, in vines, as soon as I can ascertain what variety is the best wine grape, also taking the bearing amount into consideration. I think the Los Angeles grape makes a very ordinary or poor wine. Probably the same grape, grown without irrigation, would make a better flavored and heavier wine. The Malaga grape I think will do well here, though the vines are too young to tell much about them. I would like to know whether those foreign varieties are good for wine purposes or not? whether they make too light a wine or not? and what varieties make the best wine? I would like much to see a piece in the *Culturist* on this subject.

H. W. C.

San Lorenzo, Alameda Co.

Unexceptionable in point of quality and fertility, as we believe the soil cultivated by our correspondent to be for the growth of the grape vine, if he does not succeed in perfecting the fruit to his entire satisfaction, we are inclined to believe the difficulty lies in the peculiar climate of that locality, or possibly in the mode of pruning adopted.

Every month is bringing to us additional evidence, that hardly any two sections of the State, of any considerable extent, will admit of the same system of pruning and cultivation of the vine. In the vicinity of San Andreas, a writer in the *Independent*, a grape grower of experience and observation, judging from the manner in which he handles the subject, is satisfied that the true mode of summer pruning the vine is to clip back, or pinch in the bearing shoots during the growing of the fruit. At Los Angeles this practice is discarded, after a determined series of experiments to establish its utility; and the same can be said of Alhambra valley, in Contra Costa county. In those sections of country it is evident that the entire growth of the vine, beyond the point of fruit bearing, is required to elaborate sufficiently the juices or sap for the fullest perfection of both fruit and wood, and that all thinning out of the leaves around the fruit, with the view of letting in the sun or forcing an additional quantity of nutriment into the fruit, is an injury, because producing just the opposite effect. It is possible, therefore, that our correspondent's vines may have been subjected to improper treatment; of this, however, we cannot form an opinion without seeing them.

The varieties of grapes you have named are all excellent, and we presume almost any one of them would prove equally productive and even more hardy than the

Mission grape,—and yet they are better as a table or dessert fruit, than for wine. It is quite difficult to say which of the European varieties of the grape will eventually prove the best for wine making on the Pacific coast, as none of these varieties have answered the expectations of the vine-growers of the Atlantic States. It must, therefore, remain to be ascertained by years of test experiments; and even then, kinds that may produce the best wine in one locality, may prove nearly worthless in another, so varied are our soils and climates.

If we were here quite restricted to the growth of native varieties for the production of wine, as the vine-growers of the Eastern States are, then perhaps it would be safe to adopt the kinds that are there known to succeed well. Of the native varieties, the Catawba doubtless holds the first rank. It is not only an excellent table grape, but the best for wine. Its juice requires no addition of sugar, and the wine improves by age. From it the different varieties of Madeira, Hock and even the finest sparkling champagne are produced by an experienced "wine cooper."

The Isabella is another good table grape, and with the addition of sugar makes a fair, sweet wine; but rather loses than improves by age. The Alexander, as a native variety, is esteemed next to the Catawba, for wine making; but as many of the European varieties, wholly worthless in the Atlantic States, are found to succeed admirably here, many of them may be found fully equal, a few perhaps greatly superior to any American variety for wine making. California opens a vast and greatly diversified field for the introduction of all the finer grapes of European and Asiatic origin; and time only, with oft repeated experiments, can determine the relative value of the different varieties for wine making.

GRAPE CUTTINGS.

Editor Culturist:—As a regular reader of your valuable and to me highly interesting journal, I have been much pleased with your remarks upon the growing of vines from cuttings, as practiced by different persons in their several localities; particularly as regards the position of setting the slips or cuttings and their length. Nearly all seem ready to concede the point, that in planting out a vineyard, the best mode is to prepare the ground properly and then set the cuttings in the places where they are to remain. I am of this opinion also; but I cannot agree with you in reference to the length of the cutting, as my experience has led me to believe that a cutting cannot be too long, provided the soil is of such a depth and quality as to favor the growth of roots.

To suppose that grape roots will not penetrate a good soil to the depth of four or five feet, is simply absurd, and I can see no objection to a cutting occupying an equal depth. True it is, that if trenches are to be dug or plowed for setting cuttings of this length, say four or five feet, it would be an expensive mode of planting out a vineyard; but in a suitable soil this is wholly unnecessary.

I have a vineyard of three-fourths of an acre, of as fine, thrifty and productive

vines as I ever saw. I set my cuttings—nine hundred in number, to be exact, nine hundred and four—in the places the vines now occupy; and though the first summer of their setting was an unusually dry one, I lost but thirteen out of the whole.

My mode of setting is this; my soil being alluvial and deep, it was first prepared by plowing it deeply and thoroughly. Having no crowbar, I borrowed at a neighboring blacksmith's shop a bar of inch, round iron, eight feet long; having first marked out the ground, I proceeded to sink holes of a depth of from three to five feet, depending on the solidity of the soil. Having trimmed my cuttings close of all lateral shoots, I would thrust down the cutting till it struck the bottom of the hole; then from a wheel barrow load of perfectly dry and pulverized surface soil, fill in around the cutting till nearly full. Then I poured in about a quart of water, and as the dirt settled down filled in with dry soil again and then wet as before, till completely filled; the whole operation occupying but about three minutes.

Now this is what I believe to be the rationale of my success by this long cutting system of setting out grape vines. Even suppose if you will, that the cutting never strikes root below eight or ten inches—as you or some of your correspondents claim—still, the fact being that the end of the cutting penetrates to, and the whole lower end is surrounded with earth that is always moist, this alone is sufficient merely from the capillary attractive power of the cutting itself to carry it safe [with the roots above, Ed.] through the first season, be it ever so dry near the surface.

So well satisfied am I with the result of this, my first experiment in vineyard planting, that were I to plant an hundred acres, I should use as long cuttings as I could conveniently set, leaving but one bud above the surface.

Placer Co., Feb. 6th, 1859. T. A.

We are very glad to receive and publish the views of our correspondent; though really we can see no possible advantage in setting a cutting any deeper in the soil than it can throw out roots, unless it be that for a single season and before it decays, it answers the purpose of a tap-root reaching down to moisture, thus preventing its destruction by drought, till roots are formed. After the first summer it must decay and become wholly unservicable for any good purpose. But how "doctors disagree;" why it was but a few weeks since that "Colonel" Warren, leveled one of his *exaggerations* directly at us, by endeavoring to ridicule the very plan you have so successfully pursued in setting out cuttings "five feet long with a crow bar," though we had never advocated any such doctrine. But hear what the "Col." says: "The old Mexican or Spanish system of planting a vineyard with *cuttings*, by drilling a hole in the ground three or four feet with a crowbar, and inserting the cuttings and leaving them to their fate, and planting seedling trees with *tap-roots* four or five feet long, entire, or planting the *seed* of a fruit tree where it is to remain, are alike theo ries that should immortalize their authors."

We are perfectly willing to be ranked among just such authors as Professor J. W. Darby, Wm. Bacon and others. See their articles on "Roots and their Uses," and "Transplanting Trees," in this number.

HIGH BUSH BLACKBERRY.

SECOND GROWTH, DUCHESS DE ANGOULEME.

SECOND GROWTH. We here present the outline of a Duchess de Angouleme pear, one of some six or eight all nearly as large, which we had the pleasure not only of examining but tasting, on the 3d of February—the largest of the specimens weighing twelve ounces, another eleven ounces, avoirdupois.

What we deem remarkable in reference to this is, that these pears were all the *second growth* of the season from the same tree. The first crop ripening last of September and first of October; the second crop just now in good eating condition, and possessing in a most remarkable degree, the full flavor and richness of this highly esteemed autumn pear. They were the product of a tree in the grounds of R. W. Washburn, Esq., Shell Mound nurseries, Alameda.

It is through the kindness of Mr. Washburn and his devotedness to horticultural pursuits, that we have been enabled to present much o interest to our readers.

Editor's Repository.

A Few Words to our Contributors—And firstly, you will please excuse us if we do not pour out upon you week after week, or rather month after month, heaps upon heaps of silly, sickening, sentimental flattery; we are not accustomed to it! and yet feel truly grateful for favors received. Secondly, we believe it would be highly gratifying to a large majority of the readers of the *Culturist*, if you would permit your names in full to be appended to your articles. It is often the case, that in reading the views of an experienced culturist in the columns of a journal, matters are brought to mind that are not fully treated of in the article presented; and were the author known, application might be made direct for further information at a great saving of time.

Another benefit would be, the additional confidence inspired in the reader of the article, that the statements therein made were reliable; becausc men seldom attach their names to that which they do not approve. We have received two letters asking us, "who is Yuba?" the only object in finding him out being to consult with him personally, in reference to the culture of the cereals and the growing of timber from seeds in California upon a large scale; and it would be gratifying to us to be permitted to say who he is. Still, if he, or other of our contributors, decline giving their names to the public as the authors of their articles, of course they will be withheld. We are more desirous in his case than others, on account of his position taken on the tap-root question.

Now a few words to the general reader. We have been told that to advocate the growing of orchards, by planting the seeds where the trees are to remain, or recommending the use of very small trees, would be working in opposition to the interests of the nurserymen of our State having trees, and many of them *large* trees, for sale. Now to such men we would say, that our object is a very different one, and they would be surprised to know perhaps, that "Yuba" is acknowledged to be one of the most scientific and practical nurserymen in the State, and sells large numbers of trees annually, *without* the tap-root.

Now, it is not to do injury to the nurserymen, but to establish a principle, which, if adopted in the growing of orchards or shade trecs in our extremely arid soils, will securc healthy, long lived and fruitful trees; and though we have not seen a single argument going to prove the falsity of our "new doctrine," we have in connection with our contributors presented many facts to sustain it.

On our first introducing the subject, we said: "But for the inconvenience of properly taking care of trees during the first and second years of their growth from the seed, we would always, in California, plant out a tree—be it fruit, shade or ornamental—by planting the seed where the tree is to stand." Equivalent to saying *it is not* convenient thus to plant out an orchard, which we admit, and nowhere can it be found that we have recommended it; yet we would do it, "but for the inconvenience" of the mode; knowing that we should get trees with tap-roots, and consequently able to withstand our dry summers without irrigation, in places where otherwise it might be indispensable,—and though our arguments in its favor are by no means exhausted, we leave it for the present in the hands of such men as Professor J. W. Darby and Wm. Bacon, Esq., whose articles upon "Roots and their Uses," and "Transplanting Trees," in the present number, will be read with interest by every one at all engaged in the growing of fruit, shade or ornamental trees in the arid soils of California.

Our Frontispiece.—In our October number we made mention of the receipt of a beautiful quince, from the gardens of Mr. John Churchman, of Green Valley, Bodega, Sonoma county. In latitudinal circumference, fourteen and one-half inches; longitudinal circumference, fifteen and one-half inches, and weight one and a half pounds. We now present an accurate lithograph of the specimen, handsomely executed by Knchel & Dresel, of San Francisco. In our illustration of the fruits of California, we mean to give a fair specimen in every case; one that will show the form rather than the size of the fruit; and whilst we shall never exceed the actual size of the specimens copied from, we shall not always give the largest.

Thus in the present instance, we have copied from one of only one and a half pound weight, because beautifully fair and perfect, although a specimen was grown by Mr. Churchman and exhibited at Petaluma, weighing two pounds.

To be entirely satisfied on this head, we not only called upon Mr. Churchman at his residence, at Bodega, during the past month, but upon others in his vicinity, and all attest to the fact of its uncommon weight. We say uncommon, though hardly a proper term, because we found that many other specimens had been raised in that vicinity, that fell but one or two ounces short of two pounds.

The climate and soil of that section of Sonoma county seem admirably adapted to the production of this valuable market fruit, the peculiarities of which are a moist atmosphere during the summer, with frequent fogs and occasional winds from the ocean direct, and yet tempered in their rawness by the frosts that intervene, to that degree that nearly all the fruits of temperate climes are there raised in perfection.

Native Strawberries.—Adjacent to the suburbs of Petaluma, in Sonoma county, we called during the last week in February at the well kept garden and grounds of Mr. J. W. Bracket—what a pity that he should remain a bachelor—and in viewing his strawberry plants, we were a little surprised at finding one variety full of fresh blossoms; this, with the color and form of the leaf, so different from other varieties adjacent, led us to make inquiry of its character.

We were informed that it was a native variety, obtained at no great distance from thence among the hills, that on cultivation had exhibited a wonderful improvement, both in the quality or flavor and size of the fruit. That they usually blossom and set their first berries in February, and are ripe earlier than any other introduced or foreign variety that he has ever seen, and command a high price in the market. We believe amateur culturists would be pleased with the possession of this fine, early, native variety, though we do not know that Mr. Bracket would dispose of any of his vines at present.

The Baldwin Apple.—We really thought, previous to our visit to Bodega, two weeks since, that we had seen Baldwin apples, and very large ones too. But when Mr. John Churchman, of Green Valley, produced one actually weighing two pounds, we were compelled to admit that we had never seen a large Baldwin apple before. Just such an apple as this, Mr. C. did grow the last year. But what a pity it is that this fine variety, as regards size and flavor, is not later keeping in our California climate.

How they will talk of us.—*The California Culturist.*—We could not help the common "American" exclamation, "This *is* a great country," when we received this, one of our very latest exchanges. Here is a Magazine of the size and style of the "Horticulturist" established by Downing, excellently illustrated, and in type and paper, as well as contents, one of the first class, and yet the production of a State of yesterday. Many of the older States of the Union may be put to the blush by the far greater energy and enterprise of their young sister. The *Culturist* is edited by W. Wadsworth, Secretary of the California Horticultural Society, and published by Messrs. Towne & Bacon, at San Francisco.—*American Farmer, Baltimore.*

The *American Farmer* is the oldest agricultural paper in the United States; first number published April 2d, 1819. It is ably edited by N. B. Worthington & Co.

☞ We had our answer prepared for the article on page 392—"The vine in Ione Valley"—which by mistake was overlooked in making up the form. It will appear in our next.

Editorial Courtesy.—Portland, Oregon, January 19, 1859.—W. Wadsworth, Editor Culturist: Dear Sir:—By Wells, Fargo & Co's Express, I take the liberty of sending you a small box of specimen apples, some of which, you may rest assured, will "keep till February," and with care, later in the season. The greater portion are fair specimens; the Spitzenberg and American Pippin are under size. I am disappointed in not sending you our best keepers, Yellow Newtown Pippin and White Pearmain.

I am glad to see you award to Oregon that which is justly her due as regards her most valuable production, *Fruit*. Envy should find no foothold upon our coast, but each work for the general good. With wishes for your success, I remain, truly yours,

A. G. WALLING, *Ed. Oregon Farmer.*

Just in keeping with the manner in which Wells, Fargo & Co. usually do business for Editors, the "box of specimen apples" was delivered to us in excellent condition, *free of charge.*

To Mr. Walling we are under obligation for his most acceptable and delicious gift. The specimens were all perfect, if not the largest of their kind; though we think it would be difficult to find many larger. We find the Rambo, Baldwin, Geniton and Blue Pearmain, on this the 10th day of Febrnary, fully matured and in excellent eating condition; and so say our friends who have called in to taste their qualities.

The Spitzenberg, Tulpahocken and American Pippin we have laid aside until time shall have somewhat mellowed their constitutions; we shall then examine and report upon their condition and qualities.

We had formed an opinion—which, by the by, may prove injurious to our health, judging of appearances from a certain quarter—that as the climate of Oregon, during summer, approached more nearly to that of the Northern States than does our California climate, apples might be raised there possessing more of a late keeping quality, than the same varieties grown in the long, late summers and intensely heated valleys of California, where at present nearly all our market apples are produced.

We may be mistaken in this, but until our markets can show apples of California growth, of the same varieties, side by side with those of Oregon, and as late in the spring, we must be permitted to suppose at least, that as at present grown Oregon apples keep the longest.

We wish it were in our power, in some way to reciprocate the kind regards of our cotemporary of the *Oregon Farmer.*

Notice of Publications.—We have received No. 1, Vol. I, of the *Horticultural Monthly*, in its new and improved form. We have placed it upon our list of valuable exchanges. It is ably edited by William H. Wilcox, and published at Morrisania, N. Y.

The Working Farmer.—The first No. of Vol. XI, of this first class Agricultural Journal, edited by Professor J. J. Mapes, New York, is received. As usual, it is replete with interesting and valuable information for the agriculturist, and should be in the hands of every farmer and stock grower in the United States. It is published by Fred'k McCready.

The Genesee Farmer.—This ever welcome and valuable agricultural journal reaches us regularly. No. 1, of Vol. XX, is in hand, full of interest. Published by Joseph Harris, Rochester, N. Y.

The Hesperian.—Before our next issue, or about the first of March, this popular publication, edited by Mrs. F. H. Day, and changed to the more elegant form of a magazine and finely illustrated, will again appear. We shall heartily welcome the second advent of the beautiful Western Star. Terms $4,00 per year.

The *Culturist* has brought me correspondents from Canada to Louisiana.

Sacramento, Feb. 5, 1859. THOS. M. LOGAN.

To Thos. M. Logan, M. D., we are indebted for our monthly meteorological table, valuable as a record of our atmospherical changes and meteorological phenomena.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending January 31st, 1859; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By Thos. M. Logan, M. D.

JANUARY, 1859.	7h. A. M.	2h. P. M.	9h. P. M.	Month.	Average of seven yrs.
Barometer, Maxima	30.489	30.491	30.452	30.491 inches.	+ 0.112 inch.
" Minima	29.582	29.438	29.819	29.438 "	— 0.141 "
" Mean	30.232	30.194	30.208	30.211 "	+ 0.125 "
Thermometer, Maxima	51.00	57.00	51.00	57.00 deg.	— 3.14 deg.
" Minima	34.00	37.00	36.00	34.00 "	+ 4.14 "
" Mean	41.48	48.35	44.77	44.87 "	— 0.30 "
Force of Vapor, Maxima	.335	.362	.335	.362 inches.	— .016 inch.
" " Minima	.155	.120	.160	.120 "	— .005 "
" " Mean	.211	.243	.238	.231 "	— .024 "
Relative Humidity, Maxima	93.00	87.00	93.00	93.00 per ct.	— 2.00 p. ct.
" " Minima	54.00	32.00	53.00	32.00 "	— 7.33 "
" " Mean	81.19	72.29	80.68	78.05 "	— 2.58 "
Number of Clear Days	3	5	13	7 days.	— 2 1-7 days
Number of Cloudy and Foggy Days.	28	26	18	24 "	+ 2 1-7 "
Number of Rainy Days				7 "	— 1 5-7 "
Quantity of Clouds	7.4	6.6	4.9	6.3	— 0.0
Quantity of Rain and Fog				0.964 inch.	— 1.696 inch.

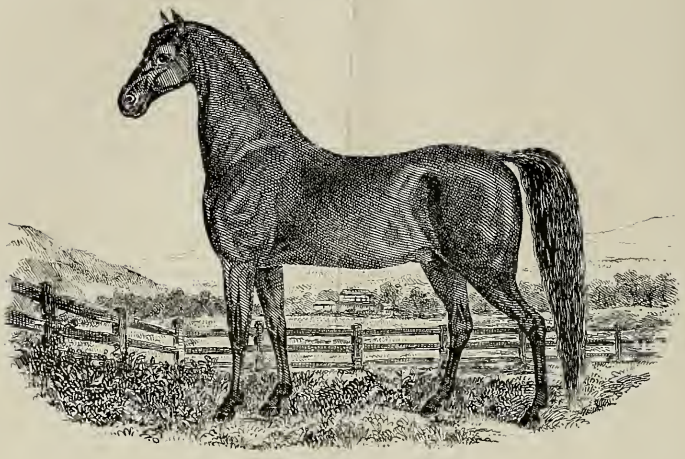
1st Days and 2d, Force of										
" " N. Wind.	11	2.1	13	2.5	10	2.3	11 1-3	2.3	+ 5	+ 0.4
" " N. E. Wind.	8	2.4	5	2.0	5	1.6	6	2.0	+ 3 1-2	+ 0.5
" " E. Wind.	1	1.0	2	2.0	1	1.0	1 1-3	1.3	— 1-3	— 0.5
" " S. E. Wind.	5	3.2	8	2.9	6	2.3	6 1-3	2.8	— 2-3	+ 0.7
" " S. Wind.	1	4.0	1	2.0	4	3.5	2	3.2	— 2-3	+ 0.8
" " S. W. Wind.	2	2.5	1	4.0	1	1.0	1 1-3	2.5	— 1-3	+ 1.1
" " W. Wind.	0	0.0	0	0.0	0	0.0	0	0.0	— 1-6	— 0.4
" " N. W. Wind.	3	2.0	1	5.0	4	2.2	2 2-3	3.1	— 6 1-3	+ 1.0

Thermometrograph.

	Deg.		Deg.
Highest Reading by day on the 19th	58.00	Mean of all Highest Readings by day	48.84
Lowest Reading by night on the 10th	30.00	Mean of all lowest readings by night	36.97
Range of Temperature during month	28.00	Mean daily range of Temperature during mo.	11.87

Remarks.—Having now entered on the seventh year of our observations, we have added to our table an additional column of averages for the benefit of the readers of the *Culturist*.

In confirmation of our predictions made during the last three months, January, which has always heretofore been our coldest month, has this winter proved warmer than December, by 40-100ths of a degree. Owing to the predominance of northerly winds, the Barometer has ranged very high during nearly the whole month, attaining on the 7th the highest maximum on record, viz: 30.491 inches, and never falling below 30 inches but once (on the 31st), when it sank four-tenths of an inch in twenty hours. Notwithstanding the effect of the first mentioned winds on the atmospheric pressure, their force was not sufficient to dispel the vapor wafted in the upper regions of the air by the great southerly current, and for the greater part of the month the whole valley was shrouded as if by a pall of dense fog, which presented an impenetrable barrier to the sun's rays. During all this gloomy period the weather was clear and cloudless in the higher and mountainous parts of the valley, as at San Francisco, and of course but little rain has fallen. The prospect, therefore, of abundant rains, with which the present season opened, is not as favorable as was anticipated, for we now find ourselves no better off in this respect, at the present writing than we were at the same date last year. As, however, the rain commenced earlier than usual this season, we may regard January as taking the place of February, which latter month usually constitutes a period of interregnum between the early and the latter rains; so that we have still three more months of the rainy season, during which the present deficiency may be amply made up.



Lith^r of Britton & Co. S. F.

PEDIGREE

OF

MORGAN BLACKHAWK COMET

Sire

YOUNG BLACK HAWK

Gr. Sire

BLACK HAWK & SHERMAN

SHERMAN & JUSTIN MORGAN

Dam by

MORGAN TALLY HO

Gr. Dam by

ANDREW JACKSON

THE

CALIFORNIA CULTURIST.

MARCH, 1859.

A NEW STAPLE PRODUCT—CHINESE SUGAR-CANE.

SEVERAL inquiries having reached us in reference to the mode of cultivation, average yield and value of Chinese sugar-cane, as a field crop, and believing that its importance to California has not been as fully appreciated as its merits deserve, we have compiled from the latest Patent Office Reports and other journals, such information as it appeared to us would be interesting to farmers desirous of attempting its cultivation.

That this product is peculiarly adapted to the soil and climate of California, repeated experiments, upon a small scale, have already clearly demonstrated. In the Eastern States its cultivation has become a matter of prime importance, and has been attended with great success and but few failures. In nearly all the Middle and Western States, as far north as Iowa, on all lands adapted to the growth of Indian corn, the cane has been successfully produced, and possessing a saccharine quality fully equal to expectation. If entirely successful in a climate such as those States have, with their wet and cloudy summers, what may we not expect in our climate, where the sun's rays, interrupted only by the shadows of night, are poured out upon our vegetation for four or five months in succession? That very peculiarity of growth so common to much of the vegetation of California, a tendency to produce stem or stalk of unusual height compared with similar products in other countries, would seem to be highly favorable to the production of immense yields per acre of the cane; whilst our long heated summers, with no rain and but few cloudy days, would seem to be equally favorable to the fullest concentration and perfection of its saccharine qualities.

In many of the more elevated districts of the State, where the cultivation of corn has been attempted, it has been found often, that though an immense yield of stalks was easily procurable, yet but a comparatively meager crop of ears or grains was

the result of the best of culture upon the best of soil. In the Chinese sugar-cane we have a product that, however prone to run upward, the further it goes the better; quite unlike the habit which we would most desire in Indian corn, which, to get the best ears upon the smallest stalk, is ever the desideratum. So that many localities which seem admirably adapted to the growth of corn stalks without the ears, may prove the very best for the growth of the cane.

We believe that there is not a good corn district in the State, that is not even better adapted to the growing of the cane; whilst in many soils in which corn—being a surface feeder—would not succeed, the Chinese sugar-cane could be grown successfully. We are confident that the broad valley of Russian River might easily be made one vast saccharine producing region, amply sufficient for supplying the entire State with sirups of the finest quality; and in many other of our valleys, where corn is grown to perfection—except the destruction to the ear by the corn worm—the very finest quality of sugar-cane might be produced.

The time is ample for the preparation of the ground for this new staple product, for such it really is already, in the Eastern States, and undoubtedly will become so here; for though highly valuable as yielding an excellent sirup, and even sugar, its merits as a stock feeding product are fully equal, and by many considered superior, to that of any other. We do not from any knowledge of our own, attempt to urge its culture upon the attention of our farmers: but so many seem desirous of obtaining reliable information thereto, we have collated, from the best authorities, and devoted several pages in this number to the subject.

We prefer this course to that of giving a single article now and then throughout the year, irrespective of season. We shall endeavor to give our views, or the views of others, upon the culture of all farm products, early in the season rather than too late; thus enabling those who may please to adopt our suggestions or views, to put them in practice the same season.

Before the season arrives for summer cultivation, gathering and manufacturing of the cane juice into sirup and sugar, we shall give such further information of interest as we are enabled to obtain.

SORGHUM CANES.

REPORT OF THE UNITED STATES AGRICULTURAL SOCIETY.

Conformably to the resolutions adopted by the United States Agricultural Society, held at the city of Washington in January, 1857, the committee appointed to investigate and experiment upon the *Sorgho sucré*, or Chinese Sugar cane, with the view of determining its value for the purposes of sirup and sugar-making, soiling cattle, use of the seed for feeding stock, for bread-making, and for the manufacture of paper and alcholic liquors, beg leave to report as follows:

Agreeably to the requirements, there was imported from France sufficient sorgho seed to plant one hundred acres of land. This seed was placed in the hands of a

number of individuals in different sections of the country, who cultivated it under various conditions of soil, climate, etc. From the results of their experiments, in ninety localities, between New Brunswick, in the British dominions, and Mexico on the one hand, and between Florida and Washington Territory on the other; though contradictory or conflicting with each other in some instances, the committee arrived at the following conclusions:

1. The soil and geographical range of the Chinese Sugar-cane correspond nearly with those of Indian corn, and it thrives with great luxuriance in rich bottom lands, or in moist, loamy soils, well manured. It will also produce a fair crop on dry, sandy, or gravelly soils, too poor to give a remunerative crop of other plants. On the latter class of soils, however, it proved more profitable to the cultivator where there had been applied a moderate quantity of bone-dust, wood ashes, poudrette, phosphated guano, gypsum, or superphosphate of lime.

2. This plant endures cold much better than corn, and resists without injury the ordinary autumnal frosts. It will also withstand excessive drought. In favorable seasons, when planted early in May, it will ripen its seeds in September, if the soil be dry and warm, in many parts of the extreme Northern and New England States, and in October in the Middle and Southern States, when planted as late as the 20th of June. At the extreme South, it may be planted successively from January into July.

3. The cost and culture of this plant does not differ essentially from that of the Indian corn. The seeds require to be planted at different distances apart, according to the strength of the soil. On light, moderately rich land, it succeeded best when sown in rows or drills three feet apart, with the plants a foot asunder along the drills, or in hills with a corresponding number of stalks to each; but on richer land, it has been found preferable to plant the hills four or five feet asunder. If cultivated exclusively for soiling or dry fodder, the seed may be sown broad-cast or in drills, and treated in the same manner as Indian corn when grown for that use.

4. The height of the plant when fully grown varies from six to eighteen feet, according to the locality and the condition of the soil; the stalks ranging from half an inch to two inches in diameter. The weight of the entire crop to an acre, when green, varies from ten to 40 tons. The amount of seed to the acre is reported to range from fifteen to sixty bushels.

5. During the earlier stages of the growth of this plant, say for the first six or eight weeks, it makes but little progress, except in penetrating the ground with its roots, which occasioned so great disappointment in some cultivators that they exterminated it from their fields, and replanted for other crops. From the natural tendency of the genus to which it belongs to sport or run into varieties, many persons have come to wrong conclusions with a belief that the seed was impure or mixed. The period of growth varied from ninety to one hundred and twenty days; the seeds often ripen unequally in the same field.

6. The yield of juice in weight of well-trimmed stalks was about 50 per cent. The number of gallons of juice required to make a gallon of sirup varied from five to ten, according to the locality, the nature of the soil on which it was produced and the succulent condition or maturity of the canes. In the province of New Brunswick it required ten to one; in the rich bottom lands of Indiana and Illinois about seven to one; and in light lands in Maryland and Virginia, five gallons to one of sirup. The yield of sirup per acre varied from one hundred and fifty to four hundred gallons. The amount of pure alcohol produced by the juice ranged from 5 to 9 per cent. In places where the plant was well matured and grew upon a warm, light soil, the juice yielded from 13 to 16 per cent. of dry saccharine matter; from 9 to 11 per cent. of which was well refined crystallized cane sugar, and the remainder,

uncrystallizable matter, or glucose; but that taken from stalks obtained on rich lowlands, luxuriant in their growth, yielded considerably less.

7. A palatable bread was made from the flour ground from the seeds of this plant, of a pinkish color, caused by the remnants of the pellicles, or hulls, of the seeds.

8. By accounts from all parts of the country, this plant is universally admitted to be a wholesome, nutritious, and economical food for animals; all parts of it being greedily devoured, in a green or dried state, by horses, cattle, sheep, poultry and swine, without injurious effects; the two latter fattening upon it equally as well as upon corn.

9. Paper of various qualities has been manufactured from the fibrous parts of the stalk, some of which appear to be peculiarly fitted for special use, such as bank notes, wrapping paper, etc.

From the above summary, the committee are of opinion that the Sorgho sucré possesses qualities which commend it to the especial attention of the agriculturist of all parts of the country, as the preceding facts have demonstrated that it is well suited to our national economy, and supplies what has long been a great desideratum.

All of which is respectfully submitted.

D. Jay Browne, *Chairman.*

Statement of Samuel Logan, *of Blandinsville, McDonough county, Illinois.*

The Sorgho sucré seed, sent me from the Patent Office, grew finely, and the plants attained an average height of twelve feet, although the season was remarkably dry.

The crop of seed was a heavy one, which I intend planting the coming season, as, from satisfactory proofs, I believe it to be profitable, regarded either as a forage crop or for sirup or molasses-making purposes.

Statement of Benjamin Whitaker, *of Warsaw, Hancock county, Illinois.*

I devoted three-fourths of an acre of good wheat land to the culture of the sorgho, planting the seed at three different periods, May 17th and 23d, and June 2d. The ground selected was a high ridge, clay soil, one mile from the Mississippi River, and had been under cultivation ten years. A distance of three and one-half feet each way was observed in planting. No manure whatever was used with the crop, and it received the first plowing on the 13th of July, when the plants were knee high. On the 16th and 18th of July, when the mercury stood 102°, Indian corn suffered very much, but the sugar-cane did not wilt in the least. About the 20th of August, it put forth seed-heads, which turned purple on the 22d of September, and ripened about the 10th of October. The plants, when cut, were from ten to eleven feet high, the tallest twelve feet, the diameter from one to two inches.

In crushing the cane, I used wooden rollers, and found, by experiment, at several different times, one hundred stalks produced eleven gallons of the juice, four gallons of which made excellent molasses. The quantity of molasses may vary with the skill and economy of the producer. All my experiments have been entirely satisfactory.

I might further add that I have also ascertained, by actual trial, that the cane is not so sweet on rich prairie land, but grows larger and higher than in other locations.

My sugar-cane took the premium at the county fair, as the richest in saccharine properties, and my molasses the premium of $5, as the best exhibited.

Statement of E. H. Bowman, *of Edgington, Rock Island county, Illinois.*

I cultivated an acre of deep, rich prairie loam in sorgho, in four-foot rows, twelve

inches in row, on the 23d of May. It was hoed twice, June 15th and 30th, and on July 10th plowed, and followed by the hoe. On the side of the patch, next to a wheat field, I found the plants attacked by the chinch-bug. It stood drought better than corn, and was not damaged by white frost; a wet autumn retarded ripening and weakened the sap. It put forth its panicles on the 20th of August, yet in October they were not matured. The plants averaged about ten feet in height, and an inch in diameter. The crop yielded 500 gallons of juice, which was converted into 100 gallons of sirup.

My mode of proceeding with the crop was this: I caused it to be cut, and shocked, like corn, before frost; my mill was of iron, with cast-iron rollers, fifteen inches in diameter, and driven by a steam engine. My horses, mules, and cattle have had no other fodder to this date—December 25th—and do well.

Statement of JOSEPH B. ELLIOTT, *of Burnettsville, White county, Indiana.*

From a small package of the cane seed, received last year from the Patent Office, I raised sufficient to plant fifty acres.

I had no conveniences at the time for making sirup, and, therefore, did not attempt it. No other use was made of the crop than as food for my cattle. Next season, I intend manufacturing the sirup, and to experiment further with the plant as a fodder. I observed, last year, that my cattle ate it with the greatest avidity.

I presented each of the members of an agricultural society in the neighborhood, to which I belong, with sufficient seed to plant half an acre; and I have also sent quantities over the country, wherever I had an opportunity, for experiment.

Statement of JAMES F. C. HYDE, *of Newton Centre, Middlesex county, Massachusetts.*

My sugar-cane seed was planted on half an acre of light, loamy soil; poor, in consequence of having been let out for a number of years.

A compost of stable manure and muck was well applied, and the seed planted on the 20th of May, in hills two feet by three and one-half feet apart; and, in drills, rows three and one-half feet apart, plants four to six inches apart.

The plants were hoed about the 15th of June, and in the course of their growth, were injuriously affected by excessive moisture. The leaves and panicles were killed by frost about the first of October, but the stalks were not at all damaged. The 1st of September, the panicles appeared, but did not eventually ripen. The average height of the stalks was twelve feet, and the diameter of the largest of them one and one-fourth inches.

I obtained 1,600 pounds of dry fodder from the leaves and tops of my half acre; and 750 gallons of juice, which made me 70 gallons of excellent sirup and a small quantity of sugar. I had the cane cut and laid in piles until wanted for the mill; then stripped, and the tops cut off three or four feet from the end; the stalks were then run through the rollers, each of which weighed 1,200 pounds, worked by two or four horses. The juice thus expressed was boiled down, in common potash kettles of large size, until it became a sirup of proper consistency. The juice is very rich in saccharine matter, yielding from one-fourth to one-fifth of its bulk in molasses.

I believe the Chinese sugar-cane to be one of the most valuable plants that has been introduced for many years—second in importance to few things that a farmer can grow. Another year it is desirable that careful experiments should be made with it, in order to test its comparative value as a field crop. Being so rich in saccharine properties, it is a fine article for cows, pigs and horses, which will eat the

stalks, as well as the leaves, with the greatest avidity. The seed, when ripened, is good for fattening poultry.

Statement of DRURY SUMRALL, *of Paulding, Jasper county, Mississippi.*

I planted one-fourth of an acre of rich prairie land with sorgho, on the 15th of April, in drills four feet wide and eighteen inches apart. It put forth its panicles the 1st of August, and by the last of the month, the seed was entirely ripe. The plants averaged from ten to twelve feet in height, and were about an inch in diameter. I then gathered the crop, cutting off the panicles, which produced fifty bushels of seed; and that portion which I designed as forage, I had stacked, butt ends down, to poles ten feet long, stuck upright in the earth. Here it was suffered to remain three weeks before I hauled it to the barn.

My horses and cows ate the fodder and chewed the stalks, apparently, with great relish; and I found that if hogs are turned into the field, when the seed becomes ripe, they will eat greedily and fatten very fast. The weight of green plants I estimate to be 20,000 pounds to the acre, and when cured one-half.

My crop brought $60 for the molasses alone, 200 gallons of which I manufactured and which readily commanded 30 cents per gallon.

Statement of JOHN BOYDEN, *of Brooklyn, Cuyahoga county, Cleveland, Ohio.*

About the 15th of May last, I planted five square rods of sandy land, in good condition, with the sorghum. It came up well, but cold weather retarded it for a long time; it finally grew to the height of ten or twelve feet, but did not ripen, in consequence of frost. About the 1st of October, I began to cut the cane, press out the juice, and boil it down to syrup. The result was, six gallons of as pleasant molasses as that of New Orleans, though not so clear, owing to not having been properly cleansed. I used lime for the purpose, but should have had recourse to subcarbonate of soda, which I think far better.

Owing to the inefficiency of the mill, I did not obtain more than three-fourths of the juice. I should think that about 200 gallons of sirup can be produced to the acre. I succeeded in getting a small quantity of the sirup to granulate.

Statement of JAMES CASSIL, *of Huntsville, Logan county, Ohio.*

On the 5th of June, I planted sixty rods of black loam and sandy clay soil with the sugar-cane seed, three and one-half by three feet apart, which I have since been convinced is too close.

The crop was hoed on the 15th of July, and again on the 15th of August. The panicles appeared about the 10th of September, but did not ripen, owing to frost. The plants were not otherwise injuriously affected, the season not being unfavorable; that is, either too wet or too dry.

When sufficiently matured, the crop was cut up, stripped of blades and seed-heads, by hand, and passed through a mill, consisting of two wooden rollers, in a vertical position, and turned by horses attached to a sweep. The cost of the arrangement was about $6.

The average height of stalks raised by me was eleven and one-half feet. I found the machinery I employed very defective. Notwithstanding this, I succeeded in procuring 300 gallons of juice, which, after boiling, gave me 30 gallons of excellent sirup.

The entire cost of producing 30 gallons of the sirup was $12. I would recommend that a wider distance be observed in planting the seed than I selected in my

experiment, say four by two feet apart; that the plants be thinned out to three in a hill, and not manufactured until fully ripe.

Had my machinery been more perfect, I could readily have procured from the 60 rods 60 gallons of good syrup, which is at the rate of 160 gallons to the acre.

Statement of A. E. CARSON, *of Carmichael's, Greene county, Pennsylvania.*

I planted about 250 square feet of rich, sandy loam in the Chinese sugar-cane. It came up well, and grew finely until affected by frost, which was just before the seed matured. Nevertheless, I am confident that it will grow to perfection in this latitude.

The ground I planted, produced about seven gallons of good, thick, well-flavored sirup. It would be difficult for one unacquainted with the article to distinguish it from sugar-house molasses.

Statement of G. ROGAN, *of Lockhart, Caldwell county, Texas.*

I received from the Patent Office a sample of the Chinese sugar-cane seed, which I planted about the first of March. It came up well, but a portion of it was destroyed by the frost; the balance grew very well, and, notwithstanding the unprecedented drought, matured good stalks and a quantity of fine seed.

Want of time and the smallness of the crop prevented me attempting the manufacture of molasses; but, after the seeds were cut off, some of the young members of my family took a few stalks, crushed them, put them in a common iron pot, poured water over them, and boiled them. They then strained off the water and boiled the stalks again, producing, to my surprise, a fine, richly-flavored sirup. The yield was a large one, considering the crude process employed.

I feel satisfied now of its great merits as a molasses-producing plant, and of its high value as a green fodder.

Statement of AUSBERT G. Z. VANLEAR, *of Long Glade, Augusta county, Virginia.*

I received, last spring, a small quantity of Chinese sugar-cane seed from the Patent Office, which I planted on the 15th of May. By the 15th of October, it had perfectly matured, when I gathered the seed, amounting to at least half a bushel.

I have fed the cane to horses, cattle and hogs, and they all appeared extremely fond of it. The seed, I partly distributed among my neighbors, desiring to see the plant largely cultivated, as, in my opinion, there is no other fodder equal to it, either in a green or dry state.

YIELD OF SORGHUM.

ABOUT the 20th of May last, Col. Warring planted a piece of land at Indian Hill, a few miles from this city, containing between one and a half and one and three-quarter acres, with Sorghum. He has now made the sirup therefrom, and finds the following result:

The yield of sirup was 440 gallons. This he expects to sell at 75 cents a gallon, wholesale, as its retail price is about one dollar. It cost him some nine cents a gallon to have it refined and clarified, so that the net proceeds will be $290. Counting abor, etc., on the cane, he will receive net over $100 an acre. He says that with he mill and boilers which he uses (and which cost him about $300) two men, three

boys and a pair of horses, can make in one day two barrels of molasses or sirup, and that the seed and the leaves or strippings of the cane will pay for crushing, etc. The seed is valuable for fatting hogs, and the strippings make excellent feed for milch cows, who eat it with avidity. He has become satisfied that the sorghum will ripen here, and he intends next year to plant fifteen acres with it. He will also plant it earlier than he did this year,—say about the first of May. The Colonel's mill and boilers are now busied in making molasses from the sorghum of his neighbors. They bring the cane to the mill, and he does the entire work upon it, retaining therefor, one-half the sirup.—*Cincinnati Gazette.*

Experiments with Chinese Sugar Cane.— On the 22d of May last I plowed up a small, rich garden spot, containing one-ninth part of an acre, and planted it with Chinese sugar cane seed in hills four feet apart each way. Much wet weather succeeded, and I think about two-thirds of the seed came up. I thinned it to about an average of six stalks to a hill. I harrowed it once with a cultivator and plowed it twice with a corn plow, keeping it clean of weeds with the hoe. It grew well and surely, and when ripe averaged about thirteen feet in hight. On the 9th of Oct. I stripped it of blades, topped it and cut it. On the 11th, took it to a sugar mill for manufacture into sirup. The mill was composed of three cast iron rollers, and the clarifyer and boiler consisted of sheet iron bottoms and wooden sides, made in the shape of oblong trougths.

The product of my one-ninth of an acre, was thirty-seven and one-fourth gallons of good sirup, and five bushels well ripened seed.

From what little observation I have been able to make, I am convinced that the riper the cane is when growing the better will be the quality of the sirup.—*Ohio Cultivator.*

Sirup and Sugar Making in Trumbull.— Having some business, last week, requiring us to visit the northern part of the county, we made it convenient to stop an hour or two in Vernon, with Mr. G. K. Pelton, who is engaged in the business of making Sorghum sirup. Mr. Pelton employs an iron mill made by Hedges, Free & Co., Cincinnati. The machinery is placed in a wooden frame, which Mr. Pelton considers preferable, under the circumstances, to an iron frame, as in case of accident to the latter it would be difficult to have it repaired. The juice from the cane, as it is pressed, runs into a strainer which covers a large receiving box, from thence it passes through an iron pipe, and is conveyed to pans or kettles, two of which are placed over furnaces large enough to accomodate three kettles. In the first kettle it is boiled and skimmed, when it is passed into the finishing kettle. He exhibited fine specimens of sirup, made without the use of any alkalies or tempering ingredients. He also showed us some sugar he had made from the cane. Its taste was pleasant, but it lacked dryness and clearness. His experience is, that cane is rarely sufficiently ripe to ensure graining.—*Trumbull Democrat.*

Perfection of Sorghum.—In proof that cane which produces ripe seed loses its sweetness and juice, and becomes dry and pithy, I would simply say that I made it my particular business, while my cane was growing, to determine its peculiarities, so far as I could, that I might know how to cultivate it profitably. I cut stalks every few days, after it is tasseled out, until dead ripe, and found that before the seed was full in the milk, the juice had a greenish, unpleasant taste, and the inner portion of the stalk was about as sweet as sugar candy, and the stalk perfect. When the seed began to turn dark on the tip of the heads, I found a small hollow forming in the

centre of the stalk next to the head, and as the seed ripened this extended down the stalk from one-half to two-thirds its entire length, and the stalk had a pithy appearance. The juice about this hollow became flat and insipid, and tasted very much like the last run of maple sap, after the buds have started. The lower joints of this same stalk usually remain sound and very sweet, while the upper portion, as the seed ripened, became nearly dry, and very much resembled the inside of a ripe corn-stalk. From these observations I came to the conclusion that when the seed is fully formed and about to turn dark, then the stalk is at the highest state of perfection for use, and will make either sugar or sirup, as you desire—that after the seed ripens it becomes unfit for sirup or sugar.—*Rep. Intelligencer.*

CISTERN-BUILDING—CISTERN WATER CHEAPER AND BETTER THAN WELL WATER.

AMONG the desiderata eminently desirable in house hold economy, but few can claim a higher importance than an abundant supply of pure, soft water at all seasons of the year; and particularly is this the case in California, where so many of our mountain streams come rolling down and reaching even the waters of San Francisco Bay, impure and muddy from the wash-dirt of the miner. Hardly a creek or river makes its way from the Sierra Nevada westwardly, that you can see the bottom of, two feet from the shore; and yet large numbers of our population use no other than this, to say the least, impure water; and though becoming accustomed to its use, it does not do away with the fact of its impurity.

The city of Sacramento is supplied, to a great extent, with water for drinking and most domestic purposes from the American River, turbid or muddy the year round.

In the following article, from the *American Agriculturist*, we present a plan by which persons possessed of house or barn roof, of moderate extent, can supply themselves with an abundance of pure, soft water at even a less cost than constructing the old fashioned well. And, as rain-water is so infinitely superior, for all purposes, to hard water from wells or the muddy water from our rivers, we give the hints and process by which it can be obtained; believing the plan will meet the approval of many of our readers.

In the March number of last volumn, page 88, we discussed the properties of water, its impurities, etc., and gave a description of a simple filtering apparatus. It was there stated that in the water of most wells and springs, there is no small amount of impurities derived from the soil, and that the purest water, except that artificially distilled, is rain water. But even rain washes down dusty particles floating in the air, or lodged upon the roofs of houses. For this and other reasons it is desirable to have even cistern water filtered. Early last year we received from Wm. Bennet, of Alleghany Co., Pa., sketches and description of a double or filtering cistern constructed by him. The general plan we have been familiar with for several years, and we believe it to be a very good one. We have, therefore, kept the comunication on file for insertion when we could fill up the sketches and procure the engraving which we present herewith. We fully indorse the remarks in regard to the economy and utility of cistern water. In constructing the walls of the cistern, we think

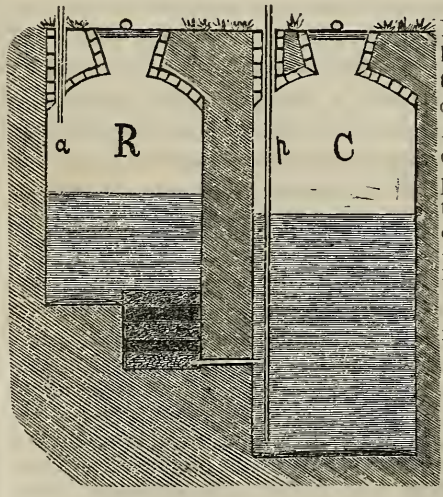
that in most soils it is safer to put a layer of brick or small stone, laid in cement, around the outside, and coat the inside well with mortar of hydraulic lime. Mr Bennet's communication is essentially as follows:

Your call for *hints* on various useful topics induces me to give some items respecting a cistern we had constructed last spring. I had derived some good hints from the *Agriculturist* and other sources, but, Yankee like, I tried to improve on all other plans. I give the result, with the desire of putting others on the track of obtaining *easily* and cheaply the inestimable blessing of a full supply of pure, soft water, both for drinking and cooking, as well as for washing purposes.

We sunk two cisterns, R, and C, three feet apart, right alongside of the piazza, so that we could put the roof conductor perpendicularly into the receiving cistern, thereby preventing its freezing up, and also that we could have the pump *under cover*. The receiving cistern, R, is seven and one-half feet deep from spring to arch; the other fourteen feet deep. Both are six feet in diameter. They are both covered with an arch of hard burned bricks, laid in mortar. Each has a man-hole at the top, and a brick flue or chimney in it for the running spout, *a*, and in the other for a pump, *p*. Both man-holes are well covered with large flat stones laid in mortar, sufficiently deep to be uninjured by frost. Neither one of the cisterns is lined with bricks, as the cement sticks best on earth, clay, stone, etc., and does not leak so soon.

The first coat of cement was composed of one-third cement (water-lime or hydraulic cement,) and two-thirds good sharp sand. The second was one-half of each, and the third was pure cement (a thin coat). One man mixed *a bucket full only at a time*, while another put it on.

Any one who has seen a plasterer at work can put it on; but he must be quick at it, or the cement will set, like plaster of Paris, before it is laid on smoothly. There is a drain—of brick laid in mortar and lined with cement—leading from the *receiving* cistern, and both this and all the other apertures are so well secured that even a worm cannot get in.



In the bottom of the receiving cistern, R, we sunk a small cistern two and one-half feet deep and three feet wide, to hold the filtering materials. It is (of course) on the side nearest to the deep cistern. At its bottom, we put through into the deep cistern, a hard burned stone-ware pipe, two inches in diameter. The end in the small cistern is covered with a piece of copper having a number of small holes punched through it. This prevents displacement of gravel. The other end is plugged up with wood, and a one half inch hole bored through the wood to prevent a too rapid rush of water through the filtering materials. The first layer of these is clean gravel, say to the depth of eight inches; then a piece of canton flannel; then a layer of pounded charcoal, four inches; then a layer of coarse, clean sand, say six inches; and so on, flannel, charcoal and sand to six inches above the top, making a bed of filtering materials about three feet deep. The upper six inches are held in position by two courses of bricks around the edge.

You will notice that the pipe connecting the two cisterns is *four* feet above the

bottom of the deep cistern, so that if we wish to replace the present with *fresh* filtering materials, we have four feet depth of water to use, until more rain comes. And notice, also, that the receiving cistern is so large as to hold a very copious shower of rain. Showers sometimes are few and far between, and a *small* cistern is a nuisance anywhere. Water will keep better in *large* quantities than in small. We have now a full supply of the best of water, only six feet from and on a level with the kitchen door, and under cover too. We use the water for *every* purpose and prefer it to any other. We have an excellent spring about a hundred yards from the house but we almost forgot it. The water is so much purer—and it never gets muddy. It is out of the way too of all the crabs, frogs, worms, rats, mice, etc., etc.

If it does not rain for eight or ten months we are still supplied with plenty of *soft* water as clear as crystal. The whole cost—including pump and pipe, $12 20, and nine and one-half barrels cement at $2 50—was $90, which is less by considerably than the cost of sinking a well in addition to making the usual soft water cistern, with pumps or windlass to both of them. If my health had permitted me to have done the work, the cost would have been much less, say $65. One more advantage of the filtered water is, the women can make the clothes look so much cleaner.

P. S. In a letter just at hand—Dec. 20—Mr Bennet writes: The *filtering cistern*, I wrote about some time ago, has now been in use about one and one-half year, and we are better pleased with it the longer we use it. While many springs and wells have been dry, subjecting the owners to great labor and inconvenience—especially the women—we have had an abundant supply of pure, soft water for all purposes. You may confidently urge similar constructions.

HORIZONTAL WELLS.

THERE is hardly a tunnel miner in California, who could not teach many of us a lesson of value upon the subject of horizontal wells, in place of those sunk perpendicularly into the earth. You may call this kind of well a tunnel if you please. Every such miner, almost, has had a too truthful experience of the fact, that whether his tunnel is driven into earth or rock, one of his greatest annoyances, ere he reaches fifty feet into the hill or mountain before him, is the presence of water. From every pore of the earth and every fissure of the rock, the dripping water accumulates, and in many instances in sufficient quantity to furnish—by being detained in reservoirs—the water for washing his auriferous earth; and when not in sufficient quantity for this purpose, would often supply hundreds and even thousands of gallons of water every twenty-four hours.

In many situations, along our narrow valleys, the farm house and buildings are located at no great distance from the foot of the hills and ridges that bound them on either side; and sometimes, doubtless, with the very view of rendering available the water from some pure spring, issuing from their sides. It is in such localities or in the immediate vicinity of abrupt hills, rising high in the back ground, and where no springs are found, that the horizontal well or tunnel is peculiarly practicable.

The advantages of such a tunnel over the common well are these: they can be constructed generally at a less cost than attends the construction of the ordinary well. They can be run in at such an elevation that the water, conveyed in a pipe, can be

carried to any part of the farm buildings; or such a pressure can be secured as will enable the possessor to ornament his grounds by a *jet d'eau*, or fountain; or he can water, in the evening, by an artificial shower, the little lawn devoted to perpetual green. There is a greater certainty that water will be found at all seasons purer than much that is collected in wells. The common well usually excavated in the immediate vicinity of the farm house, necessarily contains water that, to some extent during the rainy season, has filtered through the immediately adjoining soil and taking along with it more or less of its impurities; hence the necessity of cleaning out wells at intervals.

Not so with tunnel wells; their water is always clear; no flood effects their purity, or protracted drought the quantity of water they furnish; and it is far more likely to be what is usually termed soft water, than when obtained from wells sunk in a clay or earth composed, to a great extent, of the debris of alkaline or limestone formations. The mouth of the tunnel, secured at all times by a door under lock, would be safer against the admission of all foreign substances, detrimental to the quality of the water, than is the ordinary well, thereby securing to the consumer an article as pure as from the natural spring.

Many suppose—without making inquiry—that the cost of pipe, for the conveyance of water from such situations to the farm buildings, would be too great to warrant the expenditure. To such we say that half-inch pipe—we mean by this, pipe that is half an inch in diameter on the inside—is amply sufficient for all the purposes that water is used for around a single farm house and buildings, except for the purpose of irrigation; and if reservoirs for its accumulation are provided, it is astonishing to the uninitiated how much water will flow through even a half-inch pipe, if kept constantly running.

The convenience of having fresh water at all times of the day above ground, and susceptible of being conveyed to any hight about the buildings—below the fountain head—by its own power, instead of being compelled to draw it from wells, is so great that even if the first cost considerably exceeded the construction of an ordinary well, the advantages inseparable from the tunnel well, would be more than equal the difference in cost.

EXTRAORDINARIES.—At the late Ill. State Agricultural exhibition, a silver pitcher was awarded for the best five acres of corn. The award made, under oath, for 857 1-2 bushels of shelled corn on five acres, or 171 1-2 bushels to the acre. in Vanderburg county.——T. P. Huntington, of Hadley, harvested last fall, 130 bushels of potatoes from three-eights of an acre.——G. M. Atwater, of Springfield, raised ninety-six bushels of "King Philip" corn on an acre of ground the past summer, and last year sold 29,600 pounds of carrots from an acre.——Ira Thorp, of Somerville, says in the *Ploughman*, that he has a cow seven years old, that through June, July and August last, being milked three times a day, averaged twenty quarts daily. In one week in June, she made seventeen pounds of butter.——Paoli Lathrop, Esq., of South Hadley, recently sold a short-horn cow, "Lady Chesterford," for $650.——In the British isles, green crops, as they are called, viz.: Swedish turnips, mangolds, carrots, cabbages, rape, &c., are grown in quantities that, to us "this side of the water," are really astounding, and almost beyond belief.

ABOUT OUR DAIRY PRODUCTS.

IT will appear evident to the most casual observer, that the products of the dairy must, before any great length of time, assume a very important place in the agricultural business of this State; for there is little doubt but we have the pasture grounds, and soon will have the cows that will enable us to produce butter and cheese sufficient for our own population, let them become ever so numerous. At present, however, we come very far short of supplying our own wants, as regards quantity, and quite a large proportion of the articles—particularly butter—that are manufactured here, is totally unfit for table use, and must be sold for cooking or some other purpose at a reduced price.

It is already feared, by some dairymen, that our production of butter will soon exceed the demand; but a recurrence to a few statistics will very soon convince us of the fallacy of such an idea.

Our importations for the year 1858 are supposed to be about 40,000 packages, or 4,000,000 pounds; and the products of our own dairy, for the same year, will amount to about 3,000,000 pounds; which will give scarcely fifteen pounds, in the year, to each inhabitant in the State, excluding Chinese and Indians. Now, if we should allow twenty pounds as the annual consumption of each person—which would seem to be an amount small enough, when the article could be obtained for any reasonable price—we shall need over 2,000,000 more to supply our present population, than we now obtain from all sources; so our dairymen need have no fears of overdoing the thing for years to come; but, on the contrary, should use every exertion to increase the amount and encourage the manufacture of good butter in this State; for the bad policy of importing four to five million pounds of butter annually for years to come, when we can produce a better article here, for less money, must be apparent to every one.

Hence our general and individual interest would induce us to use all the means we have to keep States' butter out of the market, by supplying, as far as possible, our own demand, and saving these large fluctuations which are the natural result of large importations. Now, if we do supply our own demand, and that we must some time there is no doubt, our dairymen must take an enlightened view of the whole subject, and be able to overcome all the difficulties that seem to lie in the way. They must be able to produce an article that will stand the test of six or nine months age, and still be suitable for table use; for whatever we may think, there is no doubt but every dealer, that has had four or five years experience in this market, has seen it pretty clearly demonstrated that quite a large portion of the butter, made here within that time, has been decidedly inferior, and by no means suitable to pack down for future use, and much of it unfit to go upon the table at all.

This ill success has been caused partly from the fact that many of our largest dairies were owned by parties, who were quite unaccustomed to the business, and not at all familiar with the stringent rules that must be observed in order to produce

a choice, number one article; and partly for the want of good, cool dairy rooms, and other conveniences necessary in the manufacture. And now, with due deference to the superior skill of very many who are engaged in this business, we take this occasion to offer a few hints which we think, if observed, will ensure tolerable success.

We need not urge the necessity of having good, healthy cows, kept in good and proper condition, and a selection of those which give the best quality as well as the largest quantity of milk; for a small amount of common sense will teach us that it will be useless trying to make good butter from a lot of half-starved, sickly animals, or those that give an inferior quality of milk; and it is just as obvious that your cows must be supplied with the requisite quantity of good, wholesome food; and here is perhaps one of the most important points for our consideration. The reason, doubtless, why Orange county, N. Y., has become so justly celebrated for fine butter, is that the soil furnishes the richest and most nutritious pasturage. But we have no idea that the soil of Orange county will produce any richer or finer pasturage, for butter, than the coast range of counties in California, providing this soil can have a little of the cultivation that has been expended on that.

There is no doubt even now—with comparatively no cultivated grass lands—that well made butter, in many parts of those counties, is fully equal and even superior in flavor to any made in the Atlantic States. The importance and necessity of cultivating our grazing lands is a subject that has, as yet, attracted but little attention among our farmers. Yet one single plowing, without any seed except what was native to the soil, has been known to treble if not quardruple the amount of pasturage; and by destroying the bitter and unwholesome weeds, produced a much sweeter and more nutritious quality of feed. This subject, as well as the cultivation of roots and green food to last through the season, demands our more earnest attention; as it is a well known fact, that a large part of the counties are already overstocked, and will be until we learn to produce two blades where now we have but one.

Every body should understand that the utensils, used about the dairy, must be kept perfectly clean and sweet; and the milk room should be so neat that every unpleasant flavor shall be excluded. Hogs should by no means come about the place and wallow in mud holes made by the slops thrown out from the dairy rooms. Butter is very sensitive and will readily absorb any rank smell with which it comes in contact, as any one can ascertain by a little experience. Bitterness, which frequently occurs, probably arises from one of two causes; either bitter weeds in the pasture, or the cream in cold weather, becomes bitter before rising. The one can be obviated by cultivation, the other by increasing the temperature of the milk room or scalding the milk before it is set.

Not a little of the butter, in this market, is overworked. There seems to have been an idea prevalent among inexperienced persons that all inferior butter was not sufficiently worked, and that working would cover up and obviate any and all defects. But so far from this, overworking is one of the worst defects butter can have. The true rule doubtless is to work just enough to get the butter milk out and the salt properly diffused through the mass and then stop, for any more will probably be inju-

rious. To facilitate this operation, we would recommend the use of the World's Fair Prize Churn, formerly made in Sacramento, but now in this city—which works the butter completely with the least possible trouble and handling before it is taken from the churn. Wash the butter milk out with cool water if you choose, or not; we think it makes no difference in the quality or flavor. Salt to suit your taste, and you will soon find out if it suits the market; this is a small difficulty.

For immediate sale the most convenient mode is to put it up in blocks of brick form, of four to six pounds each, covered with new bleached muslin wet with pure strong brine. The blocks should be entirely covered. By no means use fresh water on the clothes; it will bleach the butter, and make the outside look badly. A great many failures are made here in packing, after every other point has been attended to properly. It is quite evident this climate is not as favorable for making butter as the Northern Atlantic States—that we have more difficulties to contend with—still they have been met successfully and can be overcome, if all the necessary conditions are complied with.

Before packing, you should be absolutely certain that the butter is, in every respect, right; If not, by no means lay it down; for it may be quite passable when it would come out worthless after six or eight months age. Outside packages from States' butter, newly shaved on the inside, are doubtless the cheapest, most convenient and best thing that can be had here for the purpose. They should have both heads and be in every respect perfect, so that when filled they may be made air tight. Much of the packed butter here, has been ruined by exposure to the atmosphere; it will not stand this climate unless the air is absolutely excluded. If you use salt at either head of the cask, place a cloth between the salt and butter. Pack entirely solid, so there are no vacancies left to contain air. If the different churnings differ in color, a cloth should be placed between them in the package so they will not mix; variegated butter always sells poorly. It should be packed down as soon as may be after being properly worked and salted, and unless the cask is filled and headed up at once, an inch or two of strong brine should be poured on top to keep it, as far as possible, from exposure to the air. Many persons have succeeded very well by packing the cask with rolls, covered with cloth, and then filling up with brine; but this method requires too much package room, and the cloths are liable to become dingy, unless the brine is very pure. In either case it is well to boil the brine and take out all the impurities. It had better be taken to market in the package, as it will not keep sweet, any length of time, after being taken up.

Now we do not suppose that any theory will answer as well as a thorough practical knowledge of the art; and we advise every person, engaged in this business, to neglect no opportunity of obtaining any information upon the subject; and never to be satisfied until they attain to something like perfection. The difference in labor between making it first rate and very inferior must be trifling. And now if your butter does not sell readily and at the highest price, if possible ascertain the difficulty. Go over to your neighbor, who you know makes a choice article, and learn his plan. Keep trying until you are successful; and you will save yourself a great deal of money, and save the dealers and consumers a great deal of needless perplexity and misery.

W. F. L.

THE CHEESE SEASON.

IF no other argument could be used of itself, conclusive of the peculiar adaptedness of large districts of California to the production of butter and cheese, it can be found in the fact that from the first day of January to the last day of December is the cheese making season of the year. Not only does the climate favor its making, as regards the processes at the dairy house, but the feed for the stock is from natural pastures always obtainable. Thus at Punta Reyes, Marin county, we find the dairy of Laird Bros. already turning off, between the first of January 1859 and the fifteenth of February, eleven hundred pounds of new cheese, which sells at San Francisco for thirty-seven and a half cents a pound.

They make no butter at this dairy for market; so that the charge of skimming the cream a little too closely for the good of the cheese, so often made by consumers, can hardly hold good as against the cheese of the Laird's establishment. The price too, they invariably obtain, is a sufficient index of the quality and the high estimation in which their product is held. They keep about seventy cows, of the common breed, a considerable number of which are not at present in milk; and the only feed they get is the natural herbage of the country, at this season of the year.

We can instance another winter cheese making establishment; that of Steele Bros. of three hundred cows, also at Punta Reyes. This dairy has turned off, between January first and February fifteenth of the present year, four thousand five hundred pounds of new cheese of excellent quality, that also brought thirty-seven and a half cents a pound at wholesale. The usual daily yield of cheese, from this dairy during the summer season, is one hundred and sixty pounds; which, at thirty-seven and a half cents a pound, shows a sixty dollar a day business, of course subject to a deduction for current expenses; but leaving a large profit to the producer.

Cheese will, undoubtedly, be lower than at present, before many weeks; but paying prices can always be maintained and realized by those who are disposed to hold on through short seasons of depression, caused by excessive importations. Thus a portion of the product of the dairy of Mr. Joseph Knowles, of Bodega, three thousand three hundred pounds of 1858 cheese, recently brought forty cents a pound wholesale; whilst his new cheese, made since the first of January, has brought thirty-seven and a half cents.

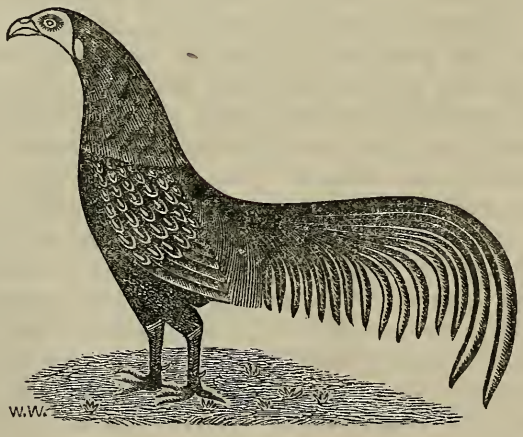
There is one fact, not generally understood at the East, in reference to the value of new cheese in California, or the little comparative difference there is between very new and old cheese. At the East a new made article does not bring that price in market that a prime old cheese does. Not so in California; here, owing to the peculiar tastes of our principal consumers—the miners—new cheese, and the newer the better, is preferred to old at the same price. So that unless it is to take some advantage of the market upon a pretty sure basis of calculation, it is generally better to dispose of it while new.

This decided preference of our consumers, for new cheese over old, is the reason why importers of Eastern cheese are so often disappointed in their schemes of large

profits from such importations; so that were it not that there are always some who will sell their new made products at any price they can get, California dairymen might reap a large profit from their business. But even as it now is, with all the competition from an Eastern article and much of a poor quality of California made cheese thrust upon the market, both in and out of season, a good article of new cheese will generally command a fair remunerative price.

The most of our dairymen sell their cheese soon after making, so long as it brings eighteen cents a pound. This is very much like an admission that, at that price, the business pays well. When much below that figure, those who can, usually hold on.

The fact that in face of heavy importations from the East, a large quantity of cheese is annually sold from the dairy shelves of California at from twenty-five to forty cents a pound wholesale; and that all seasons of the year are favorable for its manufacture, clearly indicate the great present as well as prospective value of our dairy business. We are not disposed to make invidious comparisons from any unworthy motive; but we would like to hear from that dairy at the East, north of the thirty-eighth parallel, that has turned off four thousand, five hundred pounds of new cheese between the first day of January and the fifteenth day of February, 1859, and the cows fed only upon the natural pastures of the country.



Sumatra Pheasant Fowl.—Above we give a miniature portrait of the beautiful Sumatra Pheasant Fowl; but few specimens of which, have as yet been imported. Mr. Chas. E. Johnson, near Oakland, has the genuine breed, and a very neat, trim fowl they are, and exceedingly tame; for quite unlike the common fowl, these allow themselves to be petted and handled as we do kittens. Their elegant turned neck and form everyway, renders them an ornament to the farm yard, and no fowl-fancier should be without them.

PLANTING VINEYARDS.

I HAVE read several articles in the *Culturist* and newspapers of the day, upon the best mode of planting vineyards, all favoring the plan of planting the cutting where the bearing vine is to remain. Now, I propose to take issue with this theory, and as vine-growing has already assumed importance as an industrial pursuit in this State, and the vintage is surely in no long time to become our greatest article of commerce, and consequently of productive industry, it is a subject of great importance, requiring thorough investigation by practical experiment. The history of the vintage in the Old World, as well as the New, shows that the dry seasons produce the best wines; this sustains the proposition that irrigation is injurious to the vine. On the Island of Madeira, and on the upper Douro of Portugal, the lands are of a calcareous nature, and the grape growing season is almost totally exempt from rain. The former district is acknowledged to have been the best wine producing country in the world, and the latter probably holds that position at this day. In the districts mentioned, cuttings are seldom planted on the vineyard site; for the reason that the soil is so thin and dry, that they fail to emit roots without copious irrigation, which is difficult to be had, and if convenient would be rejected as unnatural to the health of the vine.

I perused, with much pleasure, the Editor's notes upon the success of planting the cuttings in vineyard form in the Alhambra Valley, Contra Costa county, and being acquainted with the locality, I make the prediction that the vineyard in question will not be a success; I go further, I hazard the broad proposition that no land is suitable for vineyards, where the grape cutting strikes root with facility, unaided by artificial irrigation. It is only on moist, heavy soils that cuttings succeed. The bud of the grape expands into the leaf, late in the spring, after the weather has become hot and dry; and as the granulations from which the roots are emitted take place with the flow of descending sap, elaborated by the expanding foliage, it will be seen that the soil, in dry, good vineyard localities, is not sufficiently moist to furnish through the bark of the cutting sufficient moisture to carry on the process of elaboration by the leaf, in its effort to send down woody matter to harden the roots, so that it can perform its requsite functions. On dry soils, cuttings that had started and afterwards dried up, will, in many instances, be found to have emitted thread-like roots which are merely spongioles having no woody substance; this is caused, as mentioned before, by the non reception of a supply of moisture through the bark, during the critical process of maturity. It may be argued that this can be remedied by planting long cuttings, which are placed below the drought of early summer; to some extent it will be a remedy, but an insuperable objection to this mode of drilling a hole in the hard soil, is that the earth is entirely too compact for the young, tender roots of the vine after they have been emitted. No tree or vine should ever be planted until the soil has been mellowed to a considerable depth below and around where it is to remain.

It is contended by the advocates of planting cuttings, that it is a matter of

very great economy; as the expense of drilling a hole with a crow-bar, and planting cuttings over a large vineyard, is but a trifle compared to the process of digging holes and setting rooted plants. I admit that the first cost is less; but when you take into account the many failures on such a vineyard, where other cuttings have to be planted the succeeding year, and the loss of time by failure of a portion of the vines, I question if it will not be found quite as expensive, to say nothing of the difference on proper vineyard soil, between the two vineyards, one drilled in with a crow-bar, which presses and packs the earth solid as cement away from the cutting: and as some of the advocates of this mode recommend finishing the work of making the cutting fast in the ground by pouring into the interstices moist loam and sand, reminding one of pouring molten lead into the crevices of blocks of granite to fasten irons, and one where fresh rooted plants are set with proper care. I sold some rooted plants—500 in number—two years since, to a gentleman living on the great plain between Sacramento and Stockton. It is a thin, red, sharp soil, from twelve to thirty-six inches in depth, underlaid by what he termed a bed rock, but which is mainly a deposit of calcareous marl. These vines made a feeble growth in the spring, and almost every leaf and the young wood was eaten off by the grasshoppers during the summer; yet the roots retained life, and the ensuing year made a fine growth, without the failure of a single plant.

Now, after repeated trials, it is found impossible to raise vineyards, in this locality, without irrigation. I could mention other and more favorable localities where I have the present season furnished quantities of rooted vines to people who had planted cuttings, many of which failed; indeed I may state the fact that, of over seventy-five thousand rooted vines which I have disposed of this season, a large portion of them have been furnished persons who had previously failed with cuttings. It may be urged against my theory that it is my interest, as a nurseryman, to favor planting vineyards with rooted vines instead of cuttings. This I admit, but I should not turn my attention so largely to the growing of vines in nursery, were I not certain of a market, and that mainly from those who will fail with cuttings.

As it is rather expensive to buy rooted plants for a large vineyard, and as the demand is likely to be far beyond the supply, I would recommend those desiring to plant vineyards to grow on a heavy, moist piece of ground the first season, and transplant to the dry site early in the winter; prune the roots within three to six inches of the old stalk and cut the top down to within one or two buds of the old wood, or even entirely off, so that the vine is entirely covered in planting, which will produce a vigorous shoot from the surface, not so liable to sucker as from the shoulder or bulb, formed when the top shoot started from the cutting, which is full of eyes.

My choice of vines for a vineyard would be those that had been raised from a single eye—that is a single joint cut about three inches long and then split—planting them as we do corn. Where grown from a single eye or short cutting, the granulations entirely cover the pith and the heart of the vine is protected against decay; but where the cutting is long, the bottom is beyond the reach of atmospheric influence, consequently loses vitality, and, as one of your correspondents remarks, "rots

off." Now where does this rotting off stop? Surely not where it meets the first, lowest, feeble set of roots; the rot is in the pith, the very marrow of the vine, and the virus eats slowly, steadily, surely up into its very heart, above the surface of the ground.

I have frequently had occasion to remove vines of considerable age. Some of these vines were hollow and decaying in the centre from the bottom where the first roots were emitted up. These decaying vines were in every instrnce where long cuttings had been planted. It is true these vines had produced fair crops of grapes, and externally appeared healthy and vigorous; but it cannot be contended that the product of such plants will possess the desirable qualities of healthy ones, any more than it can be contended that the offspring of parentage, tainted with hereditary ills, can compare with the happy exempt.

RIVERSIDE.

SACRAMENTO, March, 1859.

TRAINING FRUIT TREES.

Editor Culturist:—In December last I obtained, from a reliable nursery, twenty-two two year old pear trees on quince stock. I wish to train them as dwarfs, and I so stated to the nurseryman when I purchased the trees. The trees are from three to five feet high, with but few side shoots, and what there are, have started out two feet or more from the ground. I was told that on removing them from the nursery row, where the trees stood thickly together, they would throw out limbs lower down where I want them to—say within one foot of the ground—for I would like to grow them in a pyramidal form with a broad base and tapering to the top.

My trees are all alive I am certain; but I am situated where from a lesser quantity to an inch of snow falls during the coldest of our winter rains, so that my trees have made no start yet.

They being all fine, handsome, healthy looking trees, I had congratulated myself on possessing, in a few years, the kind of trees I so much desire to grow as regards their form. A few days since, however, an old English gardener, on looking at the trees, remarked that they were set too closely for standard trees. I told him my intention was, as they were on quince roots, to train them as dwarfs in the pyramidal form, with the first or lower set of limbs only a foot from the ground; when he coolly remarked that it could never be done, without first "cutting back" or, as I should call it, cutting *down* the whole tree to within fourteen or fifteen inches of the ground and then, from that time forward, training properly every tree.

Now is it true that I must cut down my beautiful trees in order to get limbs to grow a foot below the few that started out last summer, a little below the point that divides the first and second years' growth, in order to secure my object? Or is the

advice I have received, but another whim of a conceited foreigner, not to be relied upon as applicable to tree training in California?

By presenting the proper view of this subject, you will confer a favor, perhaps upon others, as well as upon Yours truly,

A NOVICE.

The view, as taken by our correspondent's "old English gardener," is entirely correct. You may as well despair at once of expecting limbs to grow from your trees within a foot of the ground, unless you cut them down to near that hight. Trees growing from seeds or from grafts, set upon roots at the surface of the ground, require to be grown in open ground, and not in the thick nursery row, if the object is to obtain dwarfs with limbs near the surface. After trees have stood for two years in the nursery row, so crowded that but few side limbs are produced, and they have attained a hight of four or five feet, it is impossible to make them produce handsome sets of horizontal or side shoots, by any other mode than cutting the trees back. Bringing them out into open ground will not alone effect it. Your trees will doubtless put forth from every bud along the body of the tree to near the surface of the ground, but to produce for the greater part only leaves and fruit spurs instead of wood limbs.

It is not difficult to train the pear in pyramidal form, but you must start right. The base of the tree must be first formed or it never can be afterwards, without severe cutting. Had your trees been set in orchard a year earlier, or one year from the graft, and at that time cut back to say fourteen inches, you would now, doubtless, have had trees with several fine limbs at that hight, instead of the straight, handsome bodies you now have; and you would have had the basis of fine pyramidal trees. The longer a tree stands in close nursery row, the more difficult it is to make it assume the low dwarf habit; consequently the sooner the tree is placed in its permanent position the better, when this form is desired.

Other trees than dwarfs are frequently trained pyramidal. There is no difficulty in training the apple, pear, peach or plum, causing it to branch at the surface of the ground and producing a large, heavy top, perfectly accessible in every limb whilst standing upon the ground, either for its training or fruit gathering; but such cannot be grown from two or three years old nursery trees. In our hot and dry climate this form is undoubtedly the best that can be adopted, as it affords the very best protection to the trunk and large limbs, from the scorching effects of the sun's rays; and shading the ground perfectly.

It is sometimes objected to, in orchard culture, on account of the difficulty attending the plowing near the bodies of the trees; but as few weeds grow beneath the shade of such trees, and their roots or feeders extend into the soil to a greater distance than the limbs reach on the surface, the manuring and culture, even with the plow, can be brought as near the bodies of the trees as would in most cases be requisite. It is quite an error to suppose that culture and manure is only necessary im

mediately around the body of a tree, when the fact is the principal feeders of a three or four years old tree have already reached as many feet beyond.

We regret that our correspondent should find it necessary to " cut down" his trees to fourteen inches of the ground in order to secure a growth of limbs at that hight; but we know of no other alternative.

SALT FOR QUINCE TREES.

Editor Culturist:—Allow me to answer the enquiry of W. F. C., of Ione Valley, in your last number, in reference to salt to cause the quince to fruit.

I have about sixty trees, which are now five years old, and for the past three years have blossomed full and when the fruit became as large as a hazelnut would all fall off. In the autumn of 1857, I applied salt at the roots of one-half of them, and the result was that I had a good crop of fine fruit from the trees which were salted, whilst those without salt produced *not one*, although they all blossomed and set fruit alike, and were of the same variety and on similar soil—a deep sandy loam.

Another remarkable feature connected therewith is, that before the application of salt, the trees were *evergreen*; the leaves not falling until new ones came out in the spring; and those that were not salted still maintain that feature, whilst those that received the salt, shed their leaves last fall at the time of other fruit trees. Will, or can you explain this phenomenon? E. T. C.

San Lorenzo, March, 1859.

GRAFTING THE VINE—FROM THE GARDENER'S MONTHLY.

IN another part of our paper we have given a few ideas on grafting, which we penned down as they occured to us at the moment of writing. We wished to say much more, till the length of our article admonished us to cease. But we refer to it again on account of the important subject of grape grafting, which is so little understood, and yet which, if more were known of it, would prove very valuable to many, who can thus soon get a strong and vigorous bearing vine from a comparatively weak and feeble shoot. Not only this, but some of the newer kinds do not seem naturally to grow so rankly as some of their wild and foxy progenitors; and all such might be vastly improved by being worked on some luxuriant growing variety. The season in the South is now drawing so close for the successful performance of the operation, that we cannot let this month go over without describing one of the best processes known to us for succeeding readily in this, as usually performed, precarious operation.

The first thing to care for is the scions, which must be selected from as strong and as well-ripened wood as can be procured, and be cut off at once to be preserved for grafting, which must be done just after the buds of the stock have started in the spring. After the shoots have been cut off and reduced to lengths of about a foot

or so long, they should be buried nearly their whole length in the soil in the open ground, to remain there till wanted.

When ready to commence operations, if a choice of plants to be operated on can be had, select those which at the ground are about half an inch in thickness, and remove the soil about it to the depth of two inches or more, and head off the stock about one inch below, with a clean cut, at an angle, and then make a vertical slit down the heart of the stock from the middle of the cut, and across its face.

Then choose a strong scion of about four or more eyes in length, and if provided with a portion of two years old wood at the base, so much the better. A cut should then be taken from just above the third eye from the top, and continued until it nearly reaches the second eye, penetrating about two-thirds the depth of the scion. The tongue thus formed should have its bark slightly shaved off on the back, so as to flatten it a little, and then be inserted in the stock, as represented in the annexed cut; after which it should be bandaged and waxed over. The two outer barks must, of course, meet, as in other kind of grafting. After all is completed, the soil may be filled in about the root, covering up the whole, except one bud, which will appear just above the soil. The sap of the grape vine is very watery; and, in contact with the air, it will prevent the union of the scion—care will, therefore, be required to see that the waxing is properly done. A long heel is left to the scion for the same reason, as the exudation of watery matter is kept away from where the union is desired.

This mode is employed extensively in England for grafting pines, and is one of the best in any case where a sappy exudation is likely to defeat the end desired.

YELLOW LOCUST.

Editor Culturist:—What kind of timber tree would you recommend as the best for cultivation as *timber*, on a scale of say, seventy-five or one hundred acres, upon an alluvial soil, deep and rich? I would like that kind of tree which possesses the following desirable qualities: rapid, upright growth and a durable and valuable timber when grown. Will you be kind enough to give me your opinion, and having named the variety of tree, can the seed be procured in season for this year's planting, and what the mode of propagation? Yours truly,

RUSSIAN RIVER.

We are acquainted with no tree that possesses more of the desirable qualities than that which we here place at the head of our correspondent's inquiry, the yellow locust It is a tree of very rapid growth, excelled in this respect by hardly any other variety. Its habit of growth is upright and not spreading, with but few lateral or side limbs when planted sufficiently close for timber. In reference to its durability, it is one of the most valuable woods known, either in the ground as posts, or for building purposes.

Even at the East, where other woods, as the oaks, chestnut, ash and black walnut

are plentiful, the locust, of size suitable for treenails or pins in ship building, is more valuable than either, for that purpose, and will command a higher price in the ship-yard markets.

Six or seven years is ample time for it to attain to good sized fence posts, and furnishing from one to three, to each tree, whilst the remaining tops and limbs make excellent fire wood. The best mode of propagation is to fit the ground as for corn, and plant the seeds three or four feet apart each way. It is the practice of some to plant with corn; the locust seed occupying the alternate spaces between the hills of corn; and this is not a bad practice, as the corn for a single year is not of much injury; but on no account should the crop occupy the ground with the locust after the first year.

Scalding hot water should be poured over the seed and allowed to stand till such as will, swell to two or three times their natural size in a dry state, and then plant precisely as you would corn. The seeds that do not swell on the first application of hot water, should have the scalding process repeated upon them until they do. By this mode they are almost as sure as corn, and often times more so. At the end of the first season or in early spring when the young trees are not yet a year old, they will make finer bodied trees, when the whole top is cut off nearly to the surface of the ground. Allow two or three buds to start and in a week or two cut off all but one; this will then grow like a sucker, straight and handsome and more than equal the growth of any not thus cut back.

At the end of the fifth year, alternate trees may be cut out in August or September, for posts or poles large enough for vineyard stakes or fire wood, or the whole can be allowed to remain. By cutting down in August or September, the stump and roots are destroyed, which is highly advantageous to the growth of the remaining trees. Seeds can be procured at the seed store of S. W. Moore, 110 California St., San Francisco.

CORN GROWING—RUSSIAN RIVER VALLEY.

RUSSIAN River Valley, in Sonoma county, is unquestionably one of the finest corn-growing sections of California; and when our State shall raise her own full supply of this valuable crop, a large proportion of the quantity, grown north of the Bay of San Francisco, will, in our opinion, be produced in this valley. In conversation recently with an extensive corn-grower of that district, of Sonoma county, we obtained some interesting information relative to the corn culture as well as the soil and climate of that section of the State.

Quite unlike the greater part of Sonoma, Napa and Solano counties, bordering upon the Bays of San Francisco and Suisun, the Russian River valley is almost entirely exempt from the annoying force of the diurnal trade-winds that, rushing in at the Golden Gate depression of the coast range during the summer, sweep with such chilling power over a large extent inland; for though even at distances from

the coast sufficient for it to become heated to a degree adapting it to the most delicate vegetable product, it still maintains a force sufficient to give to nearly all vegetation, of upright growth, a decided "set," or leaning in the direction of the prevailing wind. Not so in Russian River valley; for though the river makes its way through valley and cañons to the ocean, the wind that finds its way inland through this coast range gorge is so mellowed and softened, and so checked in its velocity and power by the natural woodland screens, that everywhere line the banks of the river and clothe with beauty the bordering hillsides, that before it reaches the broad, valuable corn-producing alluviums of this river it loses its power for harm to the growing corn; indeed to all vegetation; so that a perfectly upright position is usually maintained where the habit of growth admits of it; at the same time that the winds retain to a surprising degree the moistening properties they start with from the ocean, and which is so near the point of saturation that the coolness of the nights, during the corn-growing season, is sufficient throughout the entire extent of the valley, far beyond Cloverdale to the north, to cause the nightly dews to fall, that in their copiousness more than equal many a gentle rain-shower of other lands.

This peculiarity of their summer climate renders the growing of all surface feeders a matter of the greatest certainty; and among this variety of feeders, Indian corn stands pre-eminent; and upon this fact is based the system so generally adapted in its culture in that section. The principal features of the mode are a mellowing of the soil to only a moderate depth—say eight or nine inches—and then planting the corn nearly at the bottom of it, with only a two or three inch covering of earth. This secures to the seed certain and sufficient moisture for its germination, whilst the after culture, as the plant progresses, is rendered easy by the gradual working of the soil at each hoeing towards the plant, and yet creating but little hill or ridge; so that for the most part the surface of the ground, after a corn crop, is nearly as level as before being plowed.

This mode of planting the seed, deep below the general surface of the prepared soil, and yet not deeply covered, followed by the gradual raising of the earth about the plant as it progresses in growth, gives to the stalk a far greater power to resist the effects of severe winds, wherever they do occur; because, at every new hoeing or application of additional earth around the plant, new roots are sent out from every joint covered; and in fact, joints near the surface not quite reached by the earth, will throw their roots downward till they strike the soil and then spread outward beneath the surface, if sufficiently moist to maintain their vitality. These additional surface roots answer the double purpose of braces against the effects of winds, where they prevail, as well as new feeders to sustain the plant as it approaches maturity. We give the foregoing as embodying the views of a practical corn-grower of Russian River valley.

THREE CROPS OF APPLES IN ONE YEAR.—The Coloma *Times* speaks of an apple tree in that place which has this year produced three crops of apples! A Sonora paper also speaks of a tree in Sonora which has yielded two crops this year.

FEED FOR DAIRY STOCK.

THE importance of the dairy product of California as a feature of her agriculture, has ever stood conspicuously prominent. The high prices heretofore invariably obtained for butter and cheese of home manufacture, if a good article, has been the incentive to a constant increase of the means for augmenting the supply; and yet an annual importation of millions of pounds is required to supply fully the demand.

We question not the ability of California dairymen eventually to supply all that we may need and some for export; but it must be apparent to every careful observer of facts that the best and most truly reliable of all countries for the production of a superior quality of butter and cheese, is one in which the natural pastures and natural grasses can be relied upon, rather than the introduced grasses forming artificial feeding grounds.

There are large districts of country within the limits of California that produce grasses of a biennial character, that is, the seed naturally sown, springs up the first year; producing a profusion of blades, and therefore fine feed for animals; but which on the second, run up to seed and perish with the year. Now, although these grasses as long as produced are without doubt highly nutritious, yet the fact is becoming apparent that the constant grazing of these lands throughout the year, thus preventing a renewal of the seeding, is causing a great deficiency of pasturage in districts where formerly it was abundant.

Our correspondent, W. F., in the February number, a good culturist, and an observer of cause and effect, has very opportunely presented the subject in its proper light, as it is one highly deserving the careful consideration of every dairyman in California. Because if they should find, as they most certainly will, that constant grazing is destroying to a considerable extent their former luxuriant pasture ground, a resort to one of two methods for a continuous supply of forage will become a necessity. Either the land must be subjected to tillage, with the artifical grasses and root crops as a main feature of the routine, or our dairy herds must be driven for a part of the year to our mountain pastures of indigenous clovers, that year by year from the same roots throw up an exhaustless supply of the sweetest forage.

But even with the artificial grasses there are but few soils, even in the most favored climes, that will continue permanent feeding grounds without adopting some means artificially to increase their waning fertility. It is quite evident then that every effort in the power of the agriculturist tending to retain the present fertility of his lands, should be a paramount object; or the result must eventually be a wide spread deterioration of our soils, and a consequent diminution of the numbers of animals that now constitute the main wealth of our stock growers. Should such diminution ever occur, its effect will be more apparent upon the dairy stock than sheep. The former cannot range beyond a certain limit, and that limit is fixed by the extent of a single day's range in going out from, and returning to, the vicinity of the dairy buildings; whilst sheep and cattle, other than dairy stock, under the

care of experienced shepherds may roam for weeks, among our mountain pasture grounds, without a necessity of feeding for two days even in the same place.

We find in very many localities recently visited, the greatly restricted range for dairy stock a matter of very general and serious complaint, and in not a few instances a diminution of the number of animals has become imperative. So that whilst no assignable limit can at present be fixed to the increase of other farm stock than that of the dairy, it is evident there is not that probability of an immediate over supply of home dairy products that many have anticipated, and consequently present prices will be steadily maintained, subject of course to the fluctuations incident to large and irregular importations.

THAT TAP-ROOT QUESTION.

Editor Culturist:—Can I have a "put in" on the Tap-Root Question? I have not had the satisfaction of reading what you have written on the subject. The *California Farmer* has contained all I have seen on the question for years; and the views there held forth reminded me of the medical quack who asserted that every medicine was good, therefore it made no difference what kind you gave the patient. The editor of the *Farmer* appears to believe—as I gather from what little I have read in his paper—that one kinds of tillage is adapted to all kinds of soil; hence he insists on sub-soiling and fallowing, on every ranch in California, without regard to the nature or composition of the soil. My experience has demonstrated to me that on light, sandy soil, or rich loam, sub-soiling nor fallowing will pay the additional labor and expense; while on a hard pan or stiff clay, both will prove highly beneficial. So with the tap-root. In some situations it may be of little or no advantage to the tree, or positively detrimental, while in other situations it is indispensable.

During the lifetime of Judge Buel, of Albany, N. Y., the tap-root question was discussed in the *Cultivator* for years "*pro et con*" its utility. Against its usefulness were ranged nearly every nurseryman, because their craft was in danger. The pomologists were divided in their opinions. The discussion resulted in all being of the same opinion still. Time rolled on; farmers had planted orchards according to their own notions; some choosing trees grafted on stalks grown from the seed, others perfering those grafted on four or five inches of root, from which only lateral roots could shoot out, supplying no tap-root.

Both description of trees flourished, produced fruit, and most people came to the conclusion that eight or ten years before a great war of words had been carried on to little or no profit. Next year the test came and the question was settled, as far as that section of the country was concerned. The four winds of heaven were let loose. Orchards, where the trees were eight, ten and twelve years old with no tap-root to sustain them, were torn from the ground and whirled in every direction; and thus the labor of years, with all the golden anticipations, were utterly destroyed.

Orchards set out with trees, having the tap-root entire, weathered the storm with

little or no damage. More than twenty-five years have passed since that time, and I have heard nothing said against the tap-root, until within a few months past. Another thing I remember, and I think it was very significant. The nurserymen advertised trees for sale, grafted on seedling stalks.

The soil of my ranch is a sandy loam, to the depth of from ten to twenty feet, when you reach three or four feet of gravel before coming to the bed rock. The drainage is perfect; no undue moisture or stagnant water can injure the roots of my trees, consequently I would not plant a tree without a tap-root if it was given me and my labor paid for in the bargain.

Not so with my neighbor; his ranch is situated on low ground. The soil is a stiff clay, extending to the depth of eight or ten feet to the bed rock, and water can be reached any where, the year round. A tap-root would probably be of little utility in such a situation, if not actually injurious.

Past experience sheds light along our future path in every avocation of human life. It is the only sure criterion the farmer can look to, prosecuting his labor with either pleasure or profit. The advocacy of this or that theory, however plausible it may appear, when unsupported by thorough trial under all circumstances, is like Dexter's sending his ship load of warming pans to the West India Islands. It may prove advantageous, but the chances are greatly against it.

The tillers of the soil, in California, have not the benefit of centuries of experience to guide them in their pusuits. The past reflects but a faint light for the future, consequently they need the most truthful teaching in regard to everything pertaining to their business. Past truth and past error will prove of little benefit if not of positive injury. Better let a man follow the bent of his own ideas than lead him astray. The pride of opinion often leads men to adhere to their expressed notions after they are convinced that they are untenable. This is wrong, exceedingly wrong in matters affecting the best interest of one of the leading pursuits of the country.

If you, or your readers, have access to the early numbers of the *Albany Cultivator*, you will find the tap-root question argued, at length, by some of the ablest pomologists of the day. Experience decided that, in a great majority of cases, it was best to retain the tap-root, and to plant trees grafted into seedling stalks.

M. Siuol.

The above communication—a "clincher"—we received last month too late for February number; but as we gave in that number a pretty "full broad-side" upon the subject of the tap-root, its unquestionable utility in the extremely dry soils and season during which trees make their growth and perfect their fruits with us, and its importance in promoting the health and longevity of trees in all soils with a perfect subdrainage, we leave the subject at present, in the hands of our contributors; ready, however, to resume it at any time with evidence constantly "thickening" in its favor from every direction.

ADOBE LAND.

EXPERIENCE has somewhat abated the prejudice and dislike existing pretty generally against our deep clay, or "adobe" lands. In '53 I was warned against the cracked lands of this region, and it is evident that a decided preference has been given to the sandy and gravelly, though inferior soils of this vicinity—for the clay portions of this valley have been the last to be purchased or occupied, and very little that is bought is employed in agricultural operations. It may be affirmed that clay is the predominating constituent in all large bodies of fertile land in the world, and the great value and productiveness of our California lands may be attributed to the predominance of clay. Its practical value is greatly enhanced where overlaid by mountain detritus or sandy alluvion; thus the ground is immediately available to comparatively small outlay for tilth. Yet our "adobe" soils may be brought into a high state of productive tilth without the top-dressing of sand, though it may require greater expense of time and labor. The first breaking is the principal difficulty, though requiring no more team than is needed to break prairie in Illinois.

But as the great mass of our California settlers have come here to "get rich in haste," whether to stay or return, they have not the patience to pay the worth of the gold in the way of clay improvements, but invest in stock, or make hay, or willingly come under the position of "second best," in the imposed duty of contestingly and with labor to "subdue the earth and have dominion over it;" for I affirm that the same time, and team, and labor, necessary in Illinois prairie to make productive farms, will do it in our clay lands here.

I will here state what I have found to be the process of bringing our clay lands into a state of productive tilth. With proper plow and team, say four yoke of oxen, break up, at any time you can plow, during fall or spring; no crop can be raised the first season. The autumn rains will partially slake down the rigid soil, and it may be harrowed and plowed with ordinary team, and put to small grain or left to spring planting and vegetables. And now the annual routine must be followed. After the wild oats and weeds have come up after the fall rains, plow your ground, if only two inches deep, and for corn or vegetables plow again in the spring, or whenever dry enough to plow—*but never plow or tramp your ground when wet.* By plowing in the fall and spring only, when in order or not too wet, it will become more and more crumbly, and you will have an inexhaustible soil, suited to a variety of productions, and but little liable to be affected by drought. The predominance of clay here would seem to be indicative of Providential design, in adapting the soil to the climate; for no mineral or soil is so retentive of water as clay.

Our long dry season, extending into autumn, gives ample time to gather crops and prepare for the winter rains. The clay lands in the vicinity of Petaluma now inclosed and used only for pasture and hay, are susceptible of being turned into the most productive and valuable homestead farms. The abundance of McAdamizing material in the branches and creeks at the foot of the mountain, afford the means of obviating the existence of mud in the paths and roads to where the clay land farmer only ought to go in the season of mud, namely, to town—and at home, to barn, garden, well, etc. Those who favor long run investments, and have something thus to invest, may be interested in the consideration of the foregoing views.—M., in *Sonoma County Journal.*

ELECTRIC CLOCKS.—In Marseilles, France, one hundred electric clocks have been placed in various parts of the city, and in the street lamps, so that the hours may be known from them by night as well as by day. Such clocks have been on the street lamps in the city of Ghent, Belgium, for some years.

HOG HUSBANDRY.

IT is not uncommon to speak of sheep husbandry, and we might by putting on "airs," have headed our artiele Swine Husbandry; but as we really want to talk about hogs, and our rule being always to use the fewest words and the shortest, in expressing our ideas, we shall start in on hog, and though to have much to do with either hog or swine may be deemed a very hoggish business, yet we have notieed that the money, obtained as the product of hog husbandry in California, is peculiarly clean. Probably no other farm stock ean eompare with the hog in its large, immediate, annual returns upon a money investment. We know of men who have made large sums indeed as stoek-growers, upon a very small eapital, have beeome rich by raising hogs, and are now largely adding to their already eomfortable wealth by a eontinuance in the business.

To raise hogs to the best advantage requires a loeality adapted to the peculiar habits of the animal; and this again varies with the mode intended to be pursued in their rearing and fattening for market. The hog is a very aceommodating animal; he can live, grow and fat upon food given him in his pen, or he can be made to work for his living almost from the day he is one month old till he is fitted for the markets.

The large grain producer has it in his power, under certain eireumstanees, to raise hogs eheaply and profitably. If he has a range where they ean be kept from growing crops, by fence or otherwise, and this range produeing sustenanee sufficient to maintain them in a tolerably thriving condition until harvest time, and then the harvest eondueted in such a manner as to admit of the hogs being turned in after the reaper, a very profitable business ean be realized; because, without any eost beyond an oecasional supervision of the herd, the whole will maintain a steady, healthy growth till the eorn, peas or other material, more particularly intended for their fattening, shall be fully matured. And then the fact, that pork in California is not required to be so very fat as at the East, the best to meet the tastes of our hot eountry eonsumers, is one that renders the bringing it to a fit condition for the markets a comparatively easy and eheap process.

The best range for hogs, during the early season of the year, as furnishing the largest amount of available nutriment at no eost, is unquestionably the low ground around our tules and marshes; and whatever the food may be, that hogs obtain from sueh grounds, the faet that they invariably thrive when they have aceess to sueh localities, is sufficient evidenee of their value as feeding grounds.

There are a few districts in the State in whieh are produced large quantities of acorns every few years; but as they are not an annual erop they eannot be relied upon. If our farmers would introduce the ehufa or earth almond, as late autumn and winter food for their stock of hogs and poultry, they would undoubtedly find in it a produet unsurpassed in value by any other description of eheap available food. Hogs and poultry eat them greedily, and owing to their highly nutritive qualities, fatten rapidly upon them. When we look at the rapid increase of hogs from a given num-

ber of old sows—for none other should be permitted to rear pigs—we are no longer surprised that money is still annually coined by those engaged in the business. From sows, two years old and upwards, it is perfectly safe to calculate upon two litters of pigs a year numbering five each, or an increase of ten to one in a year, and from very many sows a much larger number can be safely calculated upon. What other farm stock can at all compare with this in natural increase? Another advantage is, they attain to nearly full size in a single year, quite unlike horses or neat cattle, that require three and four years to arrive at a like maturity.

The steady, annual increase of the consumption of pork, incident to our increasing population, and the immense importations of the article, in its various forms, are certainly so many evidences that, for a long time to come, hog husbandry will rank among the most lucrative in which the California farmer, favorably situated for its prosecution, can possibly engage in.

FARMER GARRULOUS TALKS.

"IT beats all creation, John, that women folks cannot hear a man say O of the alphabet, without supposing he said P too. When I was a youngster, I used to practice saying my letters backwards, and could repeat them just as glibly commencing with &, Z, Y, X, as to commence at the top of the column, and I never had any difficulty in stopping at any letter. Now, when I said to that editor the other day, that 'My Jane argues with me right up and down, that hoss-back riding is good exercise for women,' I didn't say she did not convince me it was—no such thing. Neither did I refuse her the use of the pony, John, to canter over the prairies just as much as she pleased, and *you* know that young doctor thinks she needs fresh air mighty often. Now, *if* there *is* anything that makes me nervous, it is these women tearing about my ears about their 'rights.' Why, Lord bless me! I would like to know if they don't do just us they are a mind to? My girls do—I cannot resist them, and do not want to as long as they behave reasonable; but there is nothing reasonable in two *men* riding their hosses round a course lick-it-to-swich at a country fair, or any where else—much less two decent minded girls. And I tell *you*, that picter did cut them up the worst kind. Jane don't say much about her and the doctor riding for the cup next fall. Bless her! she shall have the pony, mane and tail, if she won't disgrace him and me and herself in such a manner. That Carrie Maynard don't know *me*, if she supposes I do not despise squeamish inaction and nervous inability in women. I like to see nerve and muscle and love of fresh air as well as refinement and modesty. These are by no means in—incom—what is that word? I always get stranded when I undertake to get out of my sphere (wish women did); I know the meaning well enough, but it ain't nateral in me to splurge;—ah, yes, that's it—incompatible! I was saying they are by no means incompatible. What a pity it is that women do not get opportunity to drink in more of this fresh air—ah, John, your whole appearance proves it to be an elixir of life—a giver of health. And Carrie—Heaven take care of her!—thinks I would deprive all the women folks of it, and of the pleasure of a gallop! No *sir!* she don't know me. Jane and Kate and Lizzie and Vine and—all the rest of my girls shall have their privilege, but *on the race course*, before a crowd of hoss jockeys, *never*, with my consent.

"I *do* wish you would attend to those stables to-day. This wind carries frost with

it wherever it goes—it is searching. I see that hired man left that plow out yonder in the furrow. It will not answer. Tools must be housed as well as cattle. By the way, John, have you ever said anything to neighbor Jacobs about our club meetings? He is secretary, and ought to call the club together. We cannot better spend an evening. Wish you would see him.—*Prairie Farmer.*

FINE vs. COARSE-WOOLED SHEEP.

"Which is the most profitable breed of sheep, the fine-wool or the coarse-wool mutton breeds?"

TAKEN literally, this query divides sheep into two classes—Merinoes and other sheep—and I have no hesitation in saying that the coarse-wooled sheep are the most profitable. If, however, the first half of the sentence be taken as a text, the question becomes much more difficult to answer in a country where the soil and climate are so various. No particular breed will suit all localities; and the kind that is most profitable in one place, will prove the reverse in another. Where the climate is mild, the range extensive, and mutton in little demand, of course the Merino must be the most profitable. Where the soil is rich, the pasture luxuriant, and proper shelter and winter food are available, the Leicester breed and its grades will be found the most profitable. Where the soil is poor and hilly, the Southdown breed and its grades will be the most profitable; and more particularly in localities where the quality of mutton is appreciated. In general, however, cross-bred sheep are the most profitable; and there is no better cross than that between the Leicester and the Cheviot—combining a large quantity of good mutton with a heavy fleece of wool, besides being much hardier and better breeders than pure Leicesters. But as far as my experience goes, the most profitable sheep are of no breed. Buy poor and inferior ewes, (of the native breed, if possible,) cross them with the best Leicester or Southdown rams, according to their roughness and other qualities, and they will pay from 50 to 100 per cent. per annum or more. This is simply taking advantage of the established maxim in breeding, that the first cross is the best. You thus obtain an increase in mutton of from 20 to 35 pounds, and an increase in wool of from 50 to 100 per cent., besides a great improvement in the quality of both.

To sum up, in order to keep the most profitable kind of sheep, every man must decide for himself, by comparing the qualities of the different breeds with the nature of the soil and climate, nearness to market, demand for wool, etc.—J. C., in *Genesee Farmer.*

BRAZILLIAN BEES.—A scheme is on foot to introduce bees from Brazil into this country. We presume the variety is the *enchu*, which is of the wasp family, about the size of a horse fly, with the head black and the body yellow. It builds a hive, about three feet in circumference, for itself on the branches of trees, making it of a papery material.

Most people would prefer, however, the introduction of the bees belonging to the genus *Melipomena*, some species of which construct their hives in the hollow trunks of trees, and others build beneath the ground. They are indigenous to South America. Their principal peculiarity is the absence of the sting, and they are generally smaller than the Apismellifca, or European hive bee. The honey of four species is sour; of two, bitter; the other species supply an excellent article. The absence of the sting, which is their characteristic, would make them favorites, if they should be capable of domestication.—*New York Post.*

THE NATURE AND PROPERTIES OF TIMBER.

BY THOMAS TREDGOLD.

WOOD is that substance which forms the principal part of the roots, trunks and branches of trees and shrubs; and its usefulness in building ships, and the mechanical arts, is well known. The *wood* of different trees differ much in strength, hardness, durability and beauty; and, consequently, in their fitness for the various purposes to which they are applied. The wood which is felled and seasoned for the purpose of building, is called timber; and in stating the properties of woods, I shall consider those only that are fit for timber.

If the stem or trunk, of a tree, be cut across, the wood is found to be made up of numerous concentric layers or rings, very distinct in some trees, but less so in others. One of these layers is commonly formed every year; consequently, their number corresponds nearly with the age of the tree. Each layer consists, in general, of two parts; the one solid, hard, heavy and dark colored; the other of a light color, porous and soft; which renders the line of separation between the annual years distinct.

Scarcely any two layers of the same tree are precisely alike, either in the proportion of the hard part, or in the thickness of the layers; as the layers vary in thickness according to the vegetation which took place in the years of their formation; and also in the same tree they vary in thickness, either according to the situation of the principal roots, or the aspect; the annual layers being always thicker on that side of the tree which has been most favorable to the growth of the roots, or that has had the advantage of a good aspect.

The structure of wood, and the nature of the vessels through which the fluids move in the living plant, are not thoroughly understood. Indeed, the study of vegetable anatomy is attended with considerable difficulties, but some important facts have been ascertained which contribute materially towards a more perfect knowledge of the nature and properties of wood. Wood appears to be composed of various vessels, which in the living tree, convey the fluids necessary to its growth; between those vessels there are cells interposed. There is nothing of the character of solid fibers in wood, except the thin membranous coats of the cells and vessels, which adhere so slightly together in recently formed wood, that it is easy to separate them. The vessels in the growing tree are intended to convey a watery fluid, called the sap, from the roots to the leaves. When it arrives at the leaves, it undergoes some changes, and returns through the bark;* and the bark, being expanded by the accession of moisture, rises from the wood, and leaves a cavity that becomes filled with the proper sap, which gradually hardens and forms a new layer of wood. The rising sap flows chiefly through the annual rings next the bark; and from the experiments of Mr. Knight, it appears that the sap, during its ascent, dissolves some portion of the substance that has been deposited in the vessels of the wood during the preceding winter, for the nourishment of the buds, leaves and young wood; hence the flowing sap

* Art. Anatomy, Vegetable, supplement to the Encyclopædia Brittannica, page 192.

is more dense in the upper, than in the lower part of the tree. Dr. Darwin draws a like conclusion from the debarked oaks producing leaves.

In trees, as the leaves expand, the sap ceases to flow, and the bark again adheres to the wood, and from the middle of June to the middle of August there appears to be a pause in vegetation; but, after this period, the sap again begins to flow, and the bark, which adhered so closely in the preceding months, may be separated nearly as easily as in the spring.

The sap which rises through the wood, from the roots, is very different in its nature from that which descends through the bark to form a new layer of wood. That which ascends is nearly as liquid as water, and is called the common sap. It has, in general, a sweetish taste, and contains sugar and mucilage. It always contains acid, sometimes in a free state, sometimes combined with lime or potash. When this sap is left to itself, it soon ferments and becomes sour, and when the proportion of sugar is considerable it will undergo the vinous fermentation.

The descending sap, called the *proper sap*, differs so considerably in different trees, and is so difficult to procure in a separate state, that its properties have not been much examined. It is always less liquid and contains a much greater proportion of vegetable matter than the common sap. It is also very possible that trees of the same kind produce proper sap, of different qualities, in different climates; as we find the facts established respecting timber the growth of one climate, are not applicable to the same species of timber grown in another climate. That part of the wood next the bark is called *sap-wood*, because it is through it chiefly that the sap ascends; and as it is shown by Mr. Knight, to contain some vegetable matter to be expended in forming leaves and buds, it is reasonable to suppose that sap-wood must be more prone to decay than the internal part of the tree, called the heart-wood. As trees increase in size, the oldest part of the sap-wood generally loses all vegetable life, and the more fluid parts of it are either absorbed by the new forming sap-wood or evaporated, its vessels or cells become closed by the pressure of the new forming wood, and it ceases to perform any other part in the growth of a tree than to support it. When these changes have taken place, it is found to be more compact, and generally of a darker color; and also contains only a small proportion of vegetable matter besides that kind which is called the *woody fiber* by chemists. It is then heart-wood, or wood in its most perfect state. The life of trees, like that of man, has been commonly divided into three stages: infancy, maturity, and old age. In the first, the tree increases from day to day; in the second, it maintains itself without sensible gain or loss; but, in the third, it declines. These stages vary in every species according to the soil, the aspect, the climate, or the nature of the individual plant. Sir H. Davy, states that oak and chestnut trees decay sooner in a moist soil than in a dry and sandy one, and their timber is less firm.

The sap-vessels being expanded with moisture without the necessary degree of nourishing matter, the general texture becomes necessarily less firm — such wood splits easily—and is very liable to shrink and swell with the changes of the weather. Trees of the same kind arrive at the greatest age in that climate which is best adapted

to their nature. The common oak, the fig and the birch thrive best towards the northern; the ash and the olive tree thrive best towards the southern parts of Europe.

We find, says Mirbel, the ashes of Calabria and Sicily to be longer lived than those of Prussia or Great Britain.

Oak and chestnut trees, under favorable circumstances, sometimes attain an age of about 1,000 years; beech, ash, and sycamore seldom arrive at half that age.

The decline of trees appears to be caused by the decay of the heart-wood; it is this, as Sir H. Davy remarks, which seem to constitute the great limit of the age and size of trees; and the long period the central parts are preserved by the cooling influence of the living trees is truly wonderful.

SWEET CAROLINA POTATOES.

Editor Culturist:—Reading an article in the last number of the *Culturist*, on the sweet potato culture, reminded me of a promise to send to you my experience with the Carolina variety. Thinking it unnecessary to occupy space with an account of their importation and our success in keeping them the year round without having to pack in leaves or sand, as is done in the Eastern States, I will only state that the decay of a quantity of them this year was caused by the presence of miasma, arising from the rotting of other vegetables in the same building, and not by the loss of any of their keeping qualities, as was proven by the fact that a box of the first lot, sent to Graves & Williams, being overlooked, was found the other day as good and sound as ever; and that in parts of the building furthest from the vegetables, I find potatoes, in the center of the heaps sound, with every prospect of continuing so.

To those who wish to plant I would say, plow and subsoil your land as well as should be done for any other root crop. In this section of the country make your hot-bed about the first of April; not by digging a hole and putting manure in it, where the first rain will run in, making it cold and wet, as I have seen done; but pile your manure on the top of the ground to the depth of about one foot. Let it be well and evenly packed by treading. On this, place a frame nine inches deep; then bank up with manure or—if scarce—earth, around the outside. Within, put good soil three inches deep; then cover with straw enough to turn most of the rain or, if lumber is plenty, put on a foot of straw and boards to turn the water. In three or four days, if it should be warm, place the potatoes on the bed nearly, but not quite, touching each other, and on them put from two to three inches of good fine earth, after which let it have a shower or with a watering pot moisten the soil; then all you have to do is to keep it moist and warm by covering with straw, but leaving off the covering when too warm. If that should not cool it enough, a good watering will greatly lessen the heat. In about three weeks the sprouts may be large enough to remove to their places in the field, which is done by holding the potato in its place with one hand and drawing off the sprouts with the other. Plant on unridged ground, in rows two and

a half feet apart, and the slips eighteen inches apart in the rows, giving each plant, at the time of setting, a half pint of water. The after cultivation consists only in keeping down weeds with the horse and hand hoe. Continue to plant during May. Four men—one to drop plants, two to set, and one to water them—can plant six thousand per day. For every hundred pounds of potatoes, between three and four square yards of hot-bed will be necessary, according to their size and their nearness to each other.

ISAAC B. RUMFORD.

OAKLAND, Alameda Co.

[E. L., Sacramento River, and Jas. M., of Folsom, will find their inquiries fully and reliably answered in the above timely communication. ED.]

TRANSPLANTING EVERGREENS.

A CORRESPONDENT wishes to know the best season and mode of transplanting evergreens, from the forests to cultivated grounds. Whenever we answer an inquiry of this kind or a similar one, we invariably give the result of our own experience, unless we distinctly state to the contrary. There is generally a greater difficulty experienced in successfully transplanting evergreens than deciduous trees. When growing in the forest, they are generally found occupying an entirely different soil from the one they are destined to occupy in their new position; for it is seldom we find them indigenous to localities at all adapted to garden culture; so that even if removed with the greatest care, it still remains a question as to their ultimate success in maintaining life and vigor.

Another important feature, as connected with the successful removal of evergreens, pines, cedars, hemlocks, etc., is found in the fact that, in nearly all such trees, the juices or sap is a species of turpentine, balsam or gum, that once becoming hardened or dried, is ever after, as with pitch or rosin, insoluble in water. The small fibrous roots, as well as the surfaces of the larger ones, on becoming dry by exposure to the air, seldom maintain their vitality; because no amount of water can ever again dissolve the once inspissated sap or rosin in the roots. Hence the reason why so few of the resinous trees, taken from the forests and conveyed long distances with their roots exposed to the sun and air, survive their transplanting.

It is not so with the saps of most deciduous trees; they are more of a watery character; and, though some of them may possess to a considerable degree the properties of a gum, as in the peach, plum and cherry, yet these are all soluble in water; so that if, on the removal of such trees, their roots become in a measure dried, a copious supply of moisture will more easily re-dissolve their juices and set them in full flow. The reverse being true of evergreens, the importance of keeping their roots always moist, during the entire process of displanting and transplanting, is plainly apparent.

Another difficulty in removing evergreens successfully, is found in this, that nearly all conifers in their natural positions have a strong main or tap-root, which ren-

ders their displanting extremely difficult without a severe loss of the most important roots. So also, owing to the perfect symmetry of most conifers growing in the open grounds, there are but few limbs that can be spared without marring the beauty of the tree; therefore no chance to head back the top, properly to maintain a balance between it and the roots, if the latter suffer loss. This makes it necessary either to use great care in their removal, or resort to very small trees; as the smaller the tree, the easier its removal with roots entire.

In regard to the proper time of transplanting evergreens, there is no question but that, with care, it can be done at any time from November to the first of April, as with all deciduous trees; but the best time is unquestionably just as the tree is commencing to put forth its new growth, whether it be in April, May or June. We have found, after repeated trials, that all evergreens of the cone or conifer varieties, suffer less when removed at that season than when done earlier. Both top and roots are then more completely filled and flowing with thin, fluid sap; and, therefore, less likely to suffer from inspissation or drying. But, at whatever season the transplanting is done, the utmost care should be observed in saving the roots as entire as possible, and never allow them to become in the slightest degree dried. If the roots unavoidably suffer much injury, trim off as many of the *lower* limbs as will be equal to the loss; then, by giving preference to small trees over large ones, success can be generally rendered certain.

BULLS FOR TEAM WORK.—Of all our domestic animals, none can endure so much as the bull. One of my neighbors worked a bull with an ox; but the ox could only work one day, when his place was taken by another; taking two oxen to work against one bull, and the bull held out longer than both oxen.

At the State fair of Massachusetts last fall, a five year old bull, owned by H. Ford, of Roxbury, was exhibited. He was first tested in a horse cart with a load of 4,000 pounds, and performed more evolutions in drawing, backing and turning than any ox team on the ground. And the chairman of the committee says, "we know of no team so cheap as the bull. He can handle the cart, provoke the soil with the plow or harrow, mow, reap or rake, with the machines for that purpose, and still be all the surer as a stock-getter of his kind."

The difficulty of breaking and training a bull may all be avoided by gentle, kind treatment, accustoming them to the halter and the yoke at an early age; begin with them when a few days old. I saw a fine bull only eight months old lately in Chicago perfectly gentle, used to the halter, and very fond of being handled. He had been carefully treated, well fed, and then weighed 700 pounds.

Now these are plain, simple facts, and farmers will find it greatly to their advantage to abandon the practice of keeping a poor scrub of a bull, and choose the best calf and begin with him very young, feeding well, gently handling and training him, and at four years old, he will be of more value on the farm than four oxen of the common sort.—*Prairie Farmer.*

THE SEX OF EGGS.—M. Genin has addressed the Academie des Sciences on this subject. He says he is able, after three years' study, to state with assurance that all eggs containing the germs of males have wrinkles on their smaller ends, while female eggs are equally smooth at both extremities.

HORSE-SHOEING FOR OVERREACHING.

WE have found a new way for shoeing horses that overreach, to remedy this perplexing evil. It is of value and I send it for the benefit of all who may own such horses, not to yield to the errorneous notions of blacksmiths any longer. They reason thus: If a horse overreaches, the forward shoes must be made short and placed as far forward as possible on the forward feet or they will be torn off, and the hind ones as far back to prevent them from clicking together.

I have opposed this method for years and have tried to reason with our smiths, but it is of no use, as they seem to know *it all.* I could not give it up but what my theory was correct. At any rate, I wished to see it tried before I could be convinced. This was impossible, as every smith would pettifog his erroneous belief and say:—"I will warrant if you will follow my directions, or charge you nothing." This of course would take, and the owner would obey and fall in with, and try the same old way as before, with the same result, clicking at every step. My reasoning is different: In the first place I was anxious to know the reason why horses overreached in order to remedy this evil if possible in shoeing. I have studied much for a preventive, and reason teaches me the reverse of the above upon the subject. My theory stands alone and but little known as yet to the public at large, and will be unless we can convince these blacksmiths, and I know of no better way than to publish the facts through the *Ohio Cultivator*, and then advise every one to be sure and have their horses shod as I direct, and my word for it, it will be worth more than one year's subscription.

In the first place, you must increase the speed of the forward feet and retard the hind ones—not spread the horse farther apart unnaturally by setting the forward shoes on his toes and the hind ones on his heels as they do it, for the shoes will hit when shod in this way. Nature should teach man this. Make the forward shoes long and the toe calks short and standing little under, and then set them as far back as convenient, in order to let the feet roll over as soon as possible to get out of the way. And in setting the shoes on the hind feet, reverse the order, to keep them back, to give time for the forward feet to get out of the way. Make the toe calks low, to keep the feet back and then he will travel like other horses. This may be remedied in part in the mode of paring the hoof. This is essential in all cases and where too many good horses are made cripples. My theory is no humbug, it has been tried. A horse was led in and shod the old way and when led out he was nicely fettered with his shoes clicking at every step in spite of the blacksmith. The horse could not travel and was brought back to try my plan. This was done as I directed; the horse was led out for trial, and he traveled clear without a click, and his speed increased, which astonished us all. Try it once and be convinced—we did.—E. L. GIBBS, in *Ohio Cultivator.*

THE ACTION OF PLASTER.—Why gypsum has a good effect on clover and not on wheat, we cannot tell. The fact seems to be well established. We cannot tell why superphosphate of lime has a good effect on turnips and not on wheat, but the fact is undeniable. Analysis of the plants afford no explanation. You think the good effect of plaster is to be ascribed to its power of drawing ammonia from the atmosphere. This is LIEBIG'S explanation; but there are two objections to it: First, it is very doubtful whether plaster will attract ammonia from the air; and second, if it does, an application of plaster ought to have the same effect as a dressing of sulphate of ammonia, *but it has just the reverse effect.* Sulphate of ammonia has a much greater effect on wheat than on clover, while plaster benefits clover and has little, if any effect on wheat, in the majority of cases.—*Genesee Farmer.*

INFLAMED UDDERS IN COWS.

IN the spring of the year and in the first part of summer, cows that calve are very liable to have swollen and inflamed udders, and sometimes the inflammation runs so high as to bring on general fever and cause the death of the cow.

This trouble is easier prevented, than cured after it has commenced.

To prevent it, if the udder becomes much swollen and "cracked," as it is called, before the cow calves, it would be well to empty it by milking it out. The inflammation is caused by the secretion of milk; which, not being taken away, stretches the vessel containing it to an unnatural degree; hence, pain, soreness and inflammation ensue. Some have an idea that it is injurious to milk a cow before the calf shall have come. There is no danger about it, while there oftentimes is much danger in suffering an accumulation of the milk, beyond the natural capacity of the vessel to contain.

Sometime since, an article was published in the *American Agriculturist* on the subject, in which was related the experience of a correspondent in this business. His ideas were so conformable to common sense, that we make the following extract from them, abridging them in some particulars.

"So far as my experience goes," says he, "none but good milkers, such as secrete large quantities of milk before or immediately after calving, are much subject to this disease. I employed a German—by birth—for a farm laborer, who, in his 'fatherland' had large experience in the management of milch cows, and to his care I committed mine. His mode of managing them, immediately before calving, especially if it occured after the grass had a good start, for cows that secreted large quantities of milk before calving, was to milk them as often as every two days, for a week or two before calving, as circumstances seemed to require. When the calf had taken its first meal, which it will do as soon as it is able to stand upon its feet, he would milk the cow perfectly clean, repeating it at least three times a day, for three or four or more days, at the same time rubbing the udder with lard to prevent inflammation. After milking the cow for the first time, he would give a pail full of tepid water to drink, with perhaps a pint of corn meal and a handful of oil meal stirred into the water; this, with a lock of good hay, if before grass, would be all the sustenance she would get for twenty-four hours. From that time he would gradually increase the amount and frequency of the food and drink, always taking the chill from the water for two or three days, until, in the course of a week or ten days, she would be able to have full feed. If the cow should not come in until turning out to pasture, he would give the tepid mush, as before stated; otherwise the cow to regulate her own diet from the pasture."

We have found it a good plan, when inflammation and hardness of the udder has taken place, to milk it often, and bathe freely in cold water, or cold salt and water.—*Maine Farmer.*

THE FRUITS OF A HALF-CENTURY.—Fifty years ago steam boats were unknown—now there are 3,000 afloat on American waters alone. In 1800 there was not a single railway in the world—now there are 10,000 miles in the United States, and about 22,000 in America and England. Half-a-century ago, it took some weeks to convey news from Washington to New Orleans—now not as many seconds as it then did weeks. Fifty years ago, the most rapid printing press was worked by hand power—now steam prints 20,000 papers an hour on a single press. "Now" is a great fellow, but will be much bigger half-a-century hence.—*Philadelphia Ledger.*

Editor's Repository.

Our Apple Market.—We like to talk about fruit and give our opinion of its merits, particularly at this season of the year when, in most of the other States than California and Oregon, but few varieties are in keeping condition. But let any one go into our markets at the date of our present writing—March 15th—and he will be able to enumerate as we have, eight varieties of Oregon apples, all in good sound condition and, from their appearance, promising to continue so for weeks. We say Oregon apples because we find none on sale but such as come from that fine apple-growing State. Not that there are no California apples in the hands of original producers, but that they are not to be found in our markets.

It was our purpose to have given a lithograph of a California specimen of this staple fruit in our present number; but we were unable, after a two hours search, to procure a California grown apple, without breaking in upon sample fruits kept for other purposes than sale. And what does this imply? Either that California apples do not, in as great variety, keep as long as those grown in the cooler climate of Oregon; or that Californians do not as yet raise them in sufficient quantity to supply our markets at this season of the year; or, in the language of one who looks with bleareyed horror upon the introduction and use of any product from abroad, "our apples will keep better, only that our citizens won't let them—they buy them up and eat them."

We believe that white men, judges of fruit, usually allow it to mature before eating, and do not devour it while yet unripe and unfit for use, just because it is California grown. If there are no California apples in our markets, from February to June, and there is nothing to prevent there being but the want of trees to produce them; then it is the best argument possible in proof that orchardists need not fear an over-production, or the competition arising from the annually increasing importation of Oregon fruits.

The climate of California is peculiarly adapted to the rapid growth and early maturity of fruits and vegetables. It may also be equally adapted to just the reverse of this; but we have yet to be satisfied on this point. An esteemed personal friend, at Victoria, has just forwarded to us two apples each, of the following varieties grown in Oregon: R. I. Greening, Roxbury Russet, Baldwin and Rambo; it is now the 15th of March, and we invite our California friends and fruit-growers to send us, if only a single specimen of each of the three varieties named, that we may place them side by side with our Oregon specimens, and let them take a fair race on their merits for longevity. We do not ask for the White winter pearmain, or the American pippin or Yellow Newtown pippin, because these are well known late keeping varieties wherever grown, and for weeks yet will be found arriving from Oregon.

It is not unusual to find specimens of year old apples in most countries where apples are grown; they are exhibited, more or less, every year at the horticultural fairs in many of the States; but if upon this fact any one assumes the position that the apples of the Southern or hotter States of the Union—taking the usual market varieties—are as late keeping as those produced in the latitude of New York and New England, we believe they are mistaken in their assumption.

California Horticultural Society.—The day for holding the annual meeting of this Society, is the second Wednesday, 13th of April.

Morgan Black Hawk Comet.—This beautiful animal, the subject of our frontispiece, is just one of those fine specimens of the horse that we like to bring to the notice of stock growers. He is the property of Mr. J. H. Fish, San Francisco, and if there is his equal in the State, we have yet to learn where such horse can be found. Should there be any person claiming to possess a superior animal, or even his equal, we should be pleased to be informed.

Would you like to know more of him—see advertisement on a following page.

Correction.—In our description of the Portugal Quince, in February number, a typographical error occured that needs correction. In the last line but one: "frosts that intervene," should have read, *forests* that intervene; making, we think, much better sense of our article.

Again, on page 377, bottom line, for "we should doubt it at once," read, we should *adopt* it at once.

Decay of Oregon Orchards.—We learn, direct from an extensive and successful fruit-grower of Oregon, that large numbers of apple trees, only eight or ten years old, that have produced finely, indeed large quantities of apples for four or five years, are already showing marked symptoms of a premature decay, and in many instances dying outright. That these trees are of the grafted varieties, and grafted upon pieces or sections of roots, and not upon seedlings with their roots entire. Mutilation, instead of preservation, seems to have become the watch-word among nurserymen as applicable to the roots of the trees they propagate, and the injury, arising from such treatment, is becoming apparent in eight or ten years old trees.

There has been too much of an unnatural forcing of surface roots, tending to premature and excessive fruitfulness, and the consequence is the early decline of the tree. It is folly to expect the same health and vigor in an artificially grown tree, subjected to a continual mutilation of its roots, that we would in one that from the first germination of its seed, never suffered from such treatment. The old pear and apple trees that in the hilly pasture grounds of New England, were bearing fruit in our earliest boyhood days, are even now the same fruitful trees; whilst generations of pampered orchard trees have, in the mean time, been grown, borne fruit, decayed and gone.

The Hesperian.—This new monthly magazine, edited by Mrs. F. H. Day, San Francisco, we have received. It is a fair specimen of typography; the illustrations are lifelike and elegant, and the matter contained just what we might expect to find from the pens of such writers as Soule, Caxton, McDonald, Delano, Sproat, etc. We believe Californians will be pleased and proud to possess the work.

Contra Costa County—Agricultural Society.—The farmers of this fine agricultural county, are awake to the importance of a well organized effort to improve the condition of its agricultural, horticultural and stock-growing interests. Preliminary steps have been taken to organize a society; a constitution, in part, has been adopted, and a committee consisting of the following gentlemen, Nathaniel Jones, James M. Allen and E. H. Cox, appointed to report by-laws for adoption on the first Monday in May next, at a meeting to be held at the Walnut Creek House.

The first agricultural association which was formed in this country was known as "The Philadelphia Socicty for promoting Agriculture," established in 1785. Premiums were awarded for the improvement of certain articles of domestic manufacture, and a Mr. Matthewson, of Rhode Island, received a gold medal for the best sample and greatest quantity of cheese exhibited. The first cattle show held in this country was held in Pittsfield, Mass., in October, 1810, and from this era sprang the system of agricultural societies and shows, as they exist at present, in most parts of the United States.

☞ Mr. J. B. Morse is our authorized agent to receive subscriptions for the California *Culturist*.

MONTHLY JOURNAL OF THE CALIFORNIA STATE AGRICULTURAL SOCIETY.

This is the title of a neatly printed pamphlet, published monthly, at Sacramento, by the Board of Managers of the State Agricultural Society, the first number of which we have received. The object of the publication is one that cannot fail to meet the approval of all interested in the management and well being of the Society, and is set forth as follows:

The State Agricultural Society have long felt the need of some ready channel of communication between its Board of Managers and its members, through which the latter might be constantly informed of the doings of the former. To supply this growing need is the prime object in the establishment of this journal. It is not designed to furnish an agricultural or horticultural paper, in any ordinary sense of that term. The JOURNAL will in no wise conflict with or supply the place of any such periodical. Its object will be to communicate to the members of the Society and correspondents of the same, the various movements and propositions of the Board, in the interim of annual meetings, and to keep the whole community advised of the current transactions. It will have no subscription list, nor solicit any subscribers; but will be regularly mailed to all members of the Society and such bodies as shall honor us with correspondence.

It will contain the proceedings of the Board at its monthly meetings, lists of letters received, and donations to the library and cabinet, together with the schedules of premiums offered and the lists of awards made from time to time; lists of State Agricultural Societies; time of holding their Fairs, etc.

It will also, from time to time, contain short extracts from the volumes of Transactions, and such other brief statements as are appropriate to its purpose, and will be the official organ of the Society.

OFFICERS FOR 1859.—*President.* C. I. Hutchinson, Sacramento. *Vice Presidents.* E. B. Crocker, Sacramento; J. W. Osborn, Napa; J. R. Pointer, Sutter; Cary Peebles, Santa Clara; J. F. Pinkham, Nevada; A. H. Myers, Alameda; J. C. Davis, Yolo; F. J. Staples, San Joaquin; L. H. Tower, Shasta; J. W. Thompson, Plumas; J. R. Crandall, Placer; Wm. Blackburn, Santa Cruz; L. H. Bascom, Santa Clara; J. T. White, Los Angeles; G. H. Howard, San Mateo; J. Centre, San Francisco; John McConnahue, Siskiyou. *Corresponding Secretary.* O. C. Wheeler, Sacramento. *Recording Secretary.* A. G. Richardson, Sacramento. *Treasurer.* A. Redington, Sacramento. *Managers.* A. P. McRae, Butte; J. S. Silver, San Francisco; A. P. Smith, Sacramento.

Regular monthly meeting of the Board of Managers, second Wednesday in each month. State Agricultural rooms, 120 J. street. Fair for 1859, Sacramento. From September the 27th to October the 6th.

BOARD MEETING. February 25th, 1859. Present.—C. I. Hutchinson, President, in the chair; E. B. Crocker, J. W. Osborn, D. J. Staples, J. C. Davis, John Center, Vice Presidents; O. C. Wheeler, Corresponding Secretary; A. Redington, Treasurer; A. P. Smith and J. S. Silver, Managers.

After reading and approval of the minutes, the following business was transacted.

Mr. Wheeler from the Committee on the Election for an appropriation from Sacramento county, reported that 2,362 votes were cast for the Tax, and only 462 against it; giving a clear majority of 1,900. Report received and Committee discharged.

Resolved, That the regular monthly meetings of this Board shall be held on the second Wednesday of each month, at the rooms of the Society.

Resolved, That in addition to the five thousand dollars appropriated by the State for premiums, this Society will offer seven thousand dollars, making an aggregate of twelve thousand dollars.

Resolved, That the five thousand dollars appropriated by the State for premiums, shall, in all cases, be paid in cash; and the seven thousand dollars appropriated by this Society from its own funds may be paid in plate, medals, diplomas, books, etc., as the Board of Managers shall deem for the best interests of the Society.

Resolved, That J. W. Osborn, of Napa, and D. J. Staples, of San Joaquin, be added to the Committee to draft a schedule of premiums, and present for the consideration of the Board. [The committee now stands: E. B. Crocker, A. P. Smith, O. C. Wheeler, J. W. Osborn and D. J. Staples.]

Resolved, That the Annual Fair of this Society, for 1859, be commenced on the twenty-seventh day of September next, and continue ten days, in the discretion of the Board.

At a previous meeting it was resolved unanimously that all premiums offered in plate, books, etc., shall be paid at the actual cost of the articles.

O. C. WHEELER,
Secretary of the Board.

FINANCIAL SUMMARY FOR 1858.—It appears from the books of J. A. Paxton, Treasurer of California State Agricultural Society, for 1858, that the gross receipts from all sources, during the year, amounted to $27,987 55—and that the expenditures were $27,985 40. The receipts are as follows:

From Previous Board $1,718; from the City of Marysville $1,700; from the State $5,000; from Membership Fees $5,990; from admissions to the Fair $9,420; from Lumber and Materials sold after the Fair, Rent of Refreshment rooms, etc. $1,128; from the Annual Ball $1,974; from other sources $557.

The expenditures were, for Premiums $7,485; for Buildings, including materials, labor and fixtures $8,463; for clerks, laborers, police, watchmen, printing, stationery, feed for stock and incidentals $9,968 64; fitting and furnishing rooms, library, etc. $448; rent of same $270; rent at Marysville $132; salary of Corresponding Secretary $1,120; salary of Recording Secretary $100.

According to a schedule just received from the ex-president, J. C. Fall, Esq., there are bills payable, amounting to $971; and bills receivable, amounting to $565; all of which is to be liquidated by the ex-board; when this is done, the grand total will stand thus: Receipts $28,958 55; Expenditures $28,956 40.

THE TAP-ROOT.—Down, down, down, and up, up, up, it had gone, until it could go no further either way. All who desire to satisfy themselves upon the *utility* of growing trees for an orchard by planting the seed, and *not transplanting the trees afterwards,* are invited to call at the FARMER office, and we will show them the *tap-root* in earnest, being a sample of a tree measuring five feet root and seven feet top, and of equal size and length; a clean straight tap-root and clean straight top, no branch upon top or root. It was grown at Smith's Pomological Gardens, Sacramento, and sent to us to prove the new theory of *tree planting by seed* and this specimen tree is enough to immortallize any advocate of the new doctrine.—*California Farmer.*

The above is an instance of the fairness (?) and honesty of purpose (?) of our cotemporary. He says he has "a tree measuring five feet root and seven feet top, and of equal size and length." How the root can be five feet and the top seven feet, and still be of "equal length," his arithmetic only can show. That such a tree as he describes, was ever grown at Smith's Pomological Garden, Sacramento, by planting the seed in the place where it was intended the tree should remain, in open ground, at a distance from all other trees, sufficient for orchard culture, and grown with "no branch upon top or root," no one but him who chooses to swallow humbug and misrepresentation will ever believe.

A resort to such miserable subterfuge, with an attempt at ridicule, to sustain what he has failed to do by argument or practical experiment, is conclusive of the untenableness of his position.

The beautiful conifers, including the pines, cedars, hemlocks and the Big trees of Calaveras, that for centuries have decked our highlands, as well as the wide spreading oaks that grace our plains and valleys, are growing where nature planted them; and larger, older, or more beautiful trees are not known on earth. They "prove the new theory of *tree planting by seed;*"—but which is not new, see page 435—and in them, even Nature has immortalized herself by her advocacy of the "new doctrine."

THE HORSE.—We have received a finely executed lithograph print, representing the "external or outside appearance of the horse," depicting the beauties and pointing out the defects of the animal by admirable illustrations. There are also eighteen different illustrations in lithograph, representing the changes and forms of the teeth at different ages. It must be, to the horse fancier, a valuable chart of information and should be in the hands of every one having the care and management of that noble and useful animal.

It is published by L. Nagle, 151 Clay street, San Francisco, under the supervision and approval of J. S. Taylor, Veterinary Surgeon.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending February 31st, 1859; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

BY THOS. M. LOGAN, M. D.

FEBRUARY, 1859.	7h. A. M.	2h. P. M.	9h. P. M.	MONTH.	AVERAGE OF SEVEN YRS.
Barometer, Maxima	30.332	30.330	30.323	30.332 inches.	— 0.008 inch.
" Minima	29.626	29.638	29.669	29.626 "	— 0.054 "
" Mean	30.030	30.024	30.025	30.026 "	— 0.039 "
Thermometer, Maxima	56.00	62.00	58.00	62.00 deg.	— 2.43 deg.
" Minima	39.00	49.00	45.00	39.00 "	— 0.00 "
" Mean	46.96	54.29	50.22	50.49 "	— 0.81 "
Force of Vapor, Maxima	.391	.436	.423	.436 inches.	— .002 inch.
" " Minima	.173	.245	.225	.173 "	+ .038 "
" " Mean	.263	.316	.289	.289 "	— .010 "
Relative Humidity, Maxima	93.00	94.00	88.00	94.00 per ct.	— 1.25 p. ct.
" " Minima	65.00	65.00	60.00	60.00 "	+17.50 "
" " Mean	81.00	75.32	79.89	78.73 "	+ 0.89 "
Number of Clear Days	2	1	7	3 1-3 days.	— 8 1-3 days
Number of Cloudy and Foggy Days.	26	27	21	24 2-3 "	+ 8 1-3 "
Number of Rainy Days	.....	.....	.....	16. "	+ 7 2-3 "
Quantity of Clouds	6.6	5.8	4.2	5.5	0.0
Quantity of Rain and Fog	.....	.....	.....	3.906 inch.	+ 0.217 inch.
1st Days and 2d, Force of N. Wind.	3 1.7	5 2.0	5 1.6	4 1-3 1.8	— 1 1-3 — 0.0
" " N. E. Wind.	1 2.0	1 2.0	1 1.0	1 1.7	— 1-3 + 0.3
" " E. Wind.	1 1.0	0 0.0	1 2.0	2-3 1.0	— 2-3 — 0.3
" " S. E. Wind.	12 2.9	5 3.4	7 3.1	8 3.1	+ 1 1-3 + 1.0
" " S. Wind.	9 3.6	9 3.1	7 2.5	8 1-3 3.1	+ 4 2-3 + 1.0
" " S. W. Wind.	0 0.0	4 3.0	7 2.3	3 2-3 1.8	+ 1 + 0.2
" " W. Wind.	2 2.5	4 2.8	0 0.0	2 1.8	+ 1 1-3 + 0.7
" " N. W. Wind.	0 0.0	0 0.0	0 0.0	0 0.0	— 6 1-3 — 1.8

Thermometrograph.

	DEG.		DEG.
Highest Reading by day on the 5th	63 00	Mean of all Highest Readings by day	55.07
Lowest Reading by night on the 22nd	34.00	Mean of all lowest readings by night	42.39
Range of Temperature during month	29.00	Mean daily range of Temperature during mo.	12.68

REMARKS.—As the observations respecting the rains are possessed of the greatest interest and importance in California, we have framed the following table to show the comparative rain-fall of the present with that of past seasons.

TABLE OF RAIN, FROM JULY 1, 1853, TO THE PRESENT DATE.

MONTHS.	'53–'54.	'54–'55.	'55–'56.	'56–'57.	'57–'58.	'58–'59.
July	0.001	.....	.....	.....	0.012	.....
August	.....	Sprinkle.	.....	.....	Sprinkle.	Sprinkle.
September	0.003	Sprinkle.	Sprinkle.	Sprinkle.	.....	Sprinkle.
October	0.005	1.010	.....	0.195	0.655	3.010
November	1.500	0.650	0.750	0.651	2.406	0.147
December	1.540	1.150	2.000	2.396	2.632	4.339
January	3.250	2.670	4.919	1.375	2.444	0.964
February	8.500	3.460	0.692	4.801	2.461	3.906
March	3.250	4.200	1.403	0.675	2.878	
April	1.500	4.320	2.132	Sprinkle.	1.214	
May	0.210	1.150	1.841	Sprinkle.	0.203	
June	0.310	0.010	0,033	0.350	0.098	
Total inches	20.069	18.620	13.770	10.443	15.003	

It will be seen that thus far we are ahead of the last four years, and that there yet remain four more months, during which we expect, on account of the lateness of the spring, more rain than sufficient to make up the compliment for the season. Should the fall of rain be at all commensurate with that of the spring of 1855, which the present season resembles in several of its meteorological features, we will then have over twenty inches for the whole season. Even if the amount should measure less than this, there are still reasons why the rains of the present season must prove more than usually beneficial; and these are, that there have been more cloudy, foggy, and rainy days than ever before experienced; and thus while the rains have been more regular, equable, and generally diffused over all parts of the State, there has been less loss by evaporation, and escape by the rivers. The Sacramento river has never risen higher than eleven feet ten inches; and this failure of the river to respond to the rain-fall, indicates that a great deal of water has been kept back in the reservoirs, and also in the form of snow in the mountains. Doubtless also a vast amount that formerly ran off from the unbroken surface of the land, has this year been soaked up by the ploughed and cultivated fields. Falling slowly and continuous as the rain has done from the 21st October to the present time, the earth has become thoroughly saturated with moisture, and the prolonged opportunities thus afforded for miners and agriculturists to avail themselves of its benefits, will doubtless result in rendering the present summer the most prosperous ever known in California.

As an evidence of the lateness of the spring, stated above, the peach, which is generally in flower during the first half of February, is only now beginning to open its blossoms; and the willow always in frondescence by the 10th February, did not assume the leafing process until the 1st of March.

About Irrigation.—*Editor Culturist:*—Should our placer mines ever become exhausted, and the mountain streams once more be permitted to resume their flow, to some extent, along their ancient beds, an immense extent of valley country, along the base of the foot-hills of the Sierra Nevada, would be capable of being converted into the finest wine and fruit-growing districts in the world, simply by the application of a judicious system of culture and irrigation; a system that, at present, we know but little of, and even among those who know the most, but few seem inclined to give the result of their experience.

So true is this remark that, to the present moment, I have not yet seen so much as a single article in allusion to the effects capable of being wrought by a well conducted system of irrigation, except what has appeared in the June and December numbers of the *Culturist*.

There are very many, I am sure, who would be highly pleased, if those who have practiced to some considerable extent this most important appliance of California agriculture, would give the result of their experience in your widely circulated journal.

Mariposa. C. B——n.

The Season.—The winter of 1858–9 will be long remembered by the farmers and miners of California, as one peculiarly favorable to their pursuits, so far as an abundance of rain can contribute to such a result. In no winter since 1852–3 have we received that copious supply, so necessary to the well being of all the great industrial interests of our State.

In all the more elevated districts, owing to the average temperature of the winter being lower than for several seasons past, an immense quantity of snow has fallen, and to a great extent remains where it fell, creating no little apprehension of serious floods to the valley country below, should a sudden and protracted season of warmth, accompanied by rain, shortly ensue.

In some districts, quite local in their extent, there seem to have been unusual bursts or outpourings of the storm-cloud, deluging both hill-side and valley, much to the detriment of the occupant; whilst but a short distance from thence, no more than a general average has fallen. We instance that portion of Contra Costa county, in and around La Fayette and Taylor Valley; there a perfect deluge has fallen, gullying the hill-sides, rushing over the alluviums of the west branch of Walnut creek, tearing up the wheat by acres, and sweeping, from the vicinity of Brown's steam mill, over one hundred cords of wood, and scattering it along the borders of the creek for miles; whilst but a short distance from thence, as at San Ramon valley, no extraordinary quantity of rain fell, and the main Walnut creek was swollen to no unusual degree.

Thus it appears that, though we have had ample rains and snows during the past winter, we have not had too much. We may, therefore, confidently anticipate for the coming season an abundant yield of agricultural products, whilst our mines will yield more than their accustomed millions to swell the golden coffers of the world.

Grape Leaf Pest.—*Editor Culturist:*—The vine-growers, in this section of the country, are very much troubled with a small fly. It is nearly white, with some small spots on the back. It is about one-fourth of an inch in length. It eats the under side of the grape leaf, and towards fall, the leaves where the flies are thick, turn brown and dry up.

We do not hear of any complaints in other sections of the State. We would like to have you make inquiries in your valuable work in regard to the prevention and destruction of these pests, and you will much oblige your subscribers. S. B. Kingsley.

Jacksonville, Tuolumne Co.

The insect alluded to by our correspondent is probably the Thrip, though we have never before heard of its depredations in any part of California as amounting to a serious injury to the grape crop. And there are those who do not consider its ravages as greatly injurious, even when numerous and preying upon the leaf extensively; but we think differently, believing that any insect that feeds upon the leaf of the vine, either before or during the ripening of the fruit, is injurious to the health of the leaf, and consequently the vine and its fruit.

Allen, in his treatise on the culture of the grape, says of this insect: "The thrips, small, white insects that infest the under side of the leaves; are not so injurious as would seem by the spotted appearance of the leaf. Smoking or syringing with tobacco-water will destroy them; they injure the looks of the vine, giving the foliage a diseased appearance. Wide mouthed bottles hung among the branches, and filled with sweetened water, will collect and destroy large quantities of moths and other insects. These will require to be emptied every few days, or the dead insects on the surface removed."

Corn in the Ear.—A farmer who had employed a green Emeralder, ordered him to give his mule corn in the ear. On his coming in, the farmer asked: "Well, Pat, did you give the corn?" "To be sure I did." "How did you give it?" "And sure as yez told, in the ear!" "But how much did you give?" "Well, yez see, the crathur wouldn't hould still, and switched his ears about so, I couldn't get above a fistful in both ears."

WHITE WINTER PEARMAIN.

THE CALIFORNIA CULTURIST.

APRIL, 1859.

DWARF APPLE TREES.

THE peculiar adaptedness of the soil and climate of California to the successful growth of the pear in its almost infinite varieties, and the early productiveness of nearly all of them, when trained as dwarfs on quince stocks, seem to have monopolized, to a very great extent, the attention of fruit-growers, to the neglect of other descriptions of dwarfs.

The pear is an admirable fruit, and we would not detract from its merits by introducing dwarf apple trees more particularly to notice than they have yet been; but the great value of the apple, as a staple and always marketable fruit, cannot be denied, and its culture and production here can never equal the demand. It is not, however, to the orchardist on a large scale, that we would particularly urge the growing of dwarf apple trees; but to him whose grounds are of but limited extent.

By the use of dwarfs of any description of fruit trees, we are enabled to concentrate upon a small space a larger variety, thus keeping up a succession of ripening fruits through more months of the year than could otherwise be done.

A garden of dwarf trees is an orchard in miniature in every respect except the size of the fruit; and this is a singular and pleasing feature in dwarfs, that whilst the tree is kept down to a size admitting a large number of varieties upon a small plat of ground, the size of the fruit is not lessened or the quality deteriorated. There are but few more beautiful objects in the vegetable kingdom than a beautiful tree; and when we get a fine pyramidal dwarf apple tree, laden with its rich and luscious fruits, we get a concentration of the beautiful and useful.

Apple trees, of any variety, are as easily dwarfed as pears, by propagating upon suitable stocks, and make quite as beautiful trees; but they differ from pears in this, that they do not go outside their apple family for stocks, as the pear upon the quince for dwarfing. There are two varieties of the apple adapted to the rearing of dwarfs. They are the Paradise and Doucain; either of these for roots, will dwarf any other variety grown upon them; but they differ again in this, the Paradise is the extreme,

the Doucain the medium between the Paradise and the common varieties. The Paradise is, therefore, the best for very small gardens, the Doucain for more extended grounds; but both making beautifully formed trees when properly trained, and there is no form more desirable than the pyramidal; always easy of access, even when large, and the trunk—what little there is—and all the large limbs, shaded by the dense foliage of the outer and smaller branches, giving perfect protection against any injurious effect from the scorching rays of the summer's sun.

In reference to the mode of propagating the Paradise and Doucain stocks, we find the *Gardener's Monthly* speaking so directly to the purpose that we appropriate its remarks.

"We were a little surprised recently at a correspondent inquiring where he could procure *seed* of the Paradise apple; but on reflection, it struck us as remarkable how very few nurserymen even, who have been handling these stocks for years, know of their origin.

"The Paradise apple is but a variety of the common apple, as the Baldwin or Newtown pippin, but of a dwarfish habit of growth, and like these or any other variety, has to be propagated by other means than the seed to maintain its character. The Doucain is also a variety, but of a little stronger habit of growth. These are raised by off-sets in the French nurseries. The old shoots are cut down to a few inches *under* the surface of the ground before the leaves push, early in the spring, and the fall following are taken up and the numerous rooted off-sets taken off as separate plants. A few other nurserymen, however, have a *secret* way of raising them, which we will divulge—*sub rosa*, of course—to our readers, for their special benefit.

"About the month of March they prepare a hot-bed of stable manure, not very deep, two or three feet, more for the purpose of maintaining a slight humidity without watering, than for any other reason. This hot-bed they make under a board fence, south wall, or other sheltered place. A few inches of soil is put on the manure,—then the fleshy roots are cut into pieces about an inch or two in length and laid on—then a half an inch of soil—then over the whole bed a very thin layer of straw, which keeps them regularly moist. As soon as the warm weather comes, they sprout like peas, and make fine plants by fall."

We give the foregoing because we too have been inquired of, during the last month, in relation to the growing of dwarf apples and also of what nurseryman such trees can be procured, or even the Paradise or Doucain stocks or roots. We are satisfied that if some one or more of our nurserymen would, this season, give their attention to the productions of stocks for dwarf apple trees, a ready sale would be found next autumn and winter, for we shall continue to present the subject to the notice of the amateur and general fruit-culturist, from time to time throughout the season, and directing their attention to specimens now growing in this vicinity, beautiful in form and promising abundant fruit.

AMERICAN ALOE, OR CENTURY PLANT.

(Agave *Americana.*)

WE here present an engraving of a plant which is truly "wonderful" as its name, *Agave*, signifies. It is called the *Century Plant*, because it is popularly supposed to require one hundred years to arrive at the blooming state. This is not strictly so, for in its native home, in the tropical climates of the American Continent, it sometimes blooms in ten years, under specially favorable circumstances, and usually in from thirty to sixty years. When cultivated in Northern climates it seldom matures in less than eighty to a hundred or more years. *It blooms but once.* Having arrived at maturity, the plant sends up a gigantic flower stem, and then perishes. The number of flowers is immense. An Agave plant in the Royal Botanic Society's Garden, in Regent's Park, London, commenced blooming last June, and in October contained full *three thousand flowers!* This was supposed to be 120 years old.

As grown in the hot-house at the North it continues for many years with a short semi-woody stem. The leaves are hard, thick, fleshy, spiny and sharp pointed—of a bluish green color. These leaves continue for a long period, so that very few decay or are replaced until the plant is many years old. Except a very gradual enlargement of the stem and elongation of the leaves, the plant undergoes little change until it is ready to send out its flower stem. The stem shoots up quickly under favorable circumstances, often attaining the hight of thirty to forty feet in its native locality, but seldom more than ten to fifteen feet in the house. The flower stem grows very rapidly after starting, and begins to bloom in about three months. In shape it appears like an enormous candelabrum of pyramidal form, bearing on the extremity clusters of greenish yellow flowers which continue to be produced for two or three months in succession.

Such is one of the wonderful plants with which our beautiful earth is beautifully adorned.—*American Agriculturist.*

NOT TO BE PUT OFF.—An athletic specimen of a man from the Emerald Isle called at the counting-house of a river-side merchant, and took off his hat to make his best bow. "The top of the morning to ye, mister," says Pat; "I've been told ye're in want of help." "I've but little to do," replied the gentleman, with mercantile gravity. "Then I'm the boy for yes," says Paddy.

ABOUT CHINA.

WE extract the following interesting facts from an admirable work by Dr. Draper.

If the European wishes to know how much he owes to the Asiatic, he has only to cast a glance at an hour of his daily life. The clock which summons him from his bed in the morning, was the invention of the East, as were also clepsydras and sun dials. The prayer for his daily bread, which he has said from his infancy, first rose from the side of a Syrian mountain. The linens and cottons with which he clothes himself, though they may be very fine, are inferior to those which have been made from time immemorial in the looms of India. The silk was stolen by some missionaries, for his benefit, from China. He could buy better steel than that with which he shaves himself, in the old city of Damascus, where it was first invented. The coffee he expects at breakfast was first grown by the Arabians, and the natives of Upper India prepared the sugar with which he sweetens it. A school boy can tell the meaning of the Sanscrit words *sacchara canda.* If his tastes are light and he prefers tea, the virtues of that excellent leaf were first pointed out by the industrious Chinese. They also taught him how to make and use the cup and saucer in which to serve it. His breakfast tray was lacquered in Japan. There is a tradition that leavened bread was first made on the waters of the Ganges. The egg he is breaking was laid by a fowl whose ancestors were domesticated by the Malaceans, unless she may have been, though that will not alter the case, a modern Shanghai. If there are preserves and fruit on his board, let him remember with thankfulness that Persia first gave him the cherry, the peach, the plum. If in any of these delicate preparations he detects the flavor of alcohol, let it remind him that this substance was first distilled by the Arabians, who have set him the praiseworthy example, which it will be for his benefit to follow, of abstaining from its use. When he talks about coffee and alcohol, he is using Arabic words. We gratify our taste for personal ornament in the way that Orientals have taught us, with pearls, rubies, sapphires, diamonds. Of public amusements it is the same. The most magnificent fireworks are still to be seen in India and China; Europe has produced no invention which can rival the game of chess. We have no hydraulic constructions as great as the Chinese canal, no fortifications as extensive as the Chinese wall; we have no Artesian wells that can at all approach in depth to some of theirs; we have not yet resorted to the practice of obtaining coal-gas from the interior of the earth; they have borings for that purpose more than 3,000 feet deep.

HORSES STIFFENED AND HOOF-BOUND.—Let me tell your readers a few things I have learned by experiment, which is of lasting benefit to all concerned. A horse that is driven on a hard road is liable to get stiffened. I have seen valuable horses driven on our plank roads a few days, get quite lame. I reasoned to myself of the cause, and produced a remedy which proved effectual. I have since tried it on foundered or hoof-bound horses, and with good results. I made a solution of salt and water, and applied it three times a day, by washing the legs and pouring upon the bottom of his feet and holding them up a few minutes to let it strike in, and saw the wonderful effects in a few days. I account for it in this way: Salt will extract moisture from the atmosphere, which keeps the feet moist all the while; it acts nearly like melted grease upon the foot. The hoof becomes tough but yet pliable. Like a chunck of wood saturated with salt or brine, it is tough yet moist; and so with a horse's foot. And here let me add, the practice of rasping the cracked hoof to toughen it is all folly. Apply your brine and you will effect a cure. Try it, and blame me if it does not. The above is cheap and effectual.—*Correspondence of the Ohio Cultivator.*

BONES AS FERTILIZERS.

APART from the uses and purposes to which bones, in the hands of the skillful artisan are made to subserve, their value as a concentrated fertilizer of soils is of the highest importance. In a country like ours, where the labor of a judicious cultivation of the soil and the managment of crops cost so largely, farmers and gardeners are too much inclined to neglect the real cultivation of their soils as regards their permanent productiveness; and instead, follow that system which, though it subserves the present, must inevitably rob the soil, in a great measure, of those constituents that are the basis of fertility.

Either too much is taken from the soil, or a too meager return is made. Our best soils are becoming less productive from year to year; and unless a greater attention is given to fertilizers and their application, we shall too soon find our lands reduced to a condition below the standard of profitable culture. We would therefore urge upon the attention of pomologists and gardeners particularly, the so called "artificial fertilizers," believing that highly satisfactory results would be sure to follow their introduction and application.

By artificial fertilizers we mean those that require, to a certain extent, a process of preparation or admixture of ingredients in order to render them adapted to the purposes designed. One of the best of this description of fertilizers is ground or dissolved bones; best, because their application is always attended with advantage, and they can be applied to all soils and to the growth of almost every description of plant or vegetable.

Bone, as a fertilizer, is either reduced to the condition of a powder more or less fine, by the bone mill, or dissolved by sulphuric acid. The former mode, when a mill can be secured, is the cheapest; but the latter produces a product of greater power, and is the substance so often alluded to in agricultural chemistry as the superphosphate of lime. Upon the preparation and use of bones as a fertilizer, we extract the following excellent article, from the *American Agriculturist.*

"A dozen or more letters have accumulated, making inquiries about the value, treatment, etc., of *bones.* We have, in former numbers and volumes, answered every question, but will sum up a few hints here. We firmly believe there is no fertilizer so good for all crops, and on almost all soils, as *unburned* bones. We *buy* no other manure. When immediate benefit is desired, we use bone *sawings*, obtained from factories where bones are worked into buttons, knife-handles, and other articles. This material costs us, delivered, $3 75 per barrel of about 300 or more pounds. It is packed solid, and attracts moisture enough to keep damp. It is first mingled with four or five times its bulk of fine dry surface soil, and well mixed by mashing and sifting. A handful of it is then scattered in the soil immediately in contact with, and around seed sown and the roots of plants set out. It is delightful to witness the effect. We use it for everything grown, with unvarying good results. The quantity used varies from two to eight barrels per acre, according to the previous good or poor quality of the soil. *It pays well.*

For fruit trees and grape vines we use large quantities of ground or broken bones. The larger the pieces the slower will be their decay, and the more lasting their effect. If bones merely broken with a hammer are used, some finely ground bones or bone sawings are added for more immediate effect.

Bones crushed or ground in an ordinary bone-mill contain less fine material than is required for immediate effect, unless considerable quantities are used. It is desirable to have them as near a *powdered* condition as possible. But if freely applied the fine material will be immediately beneficial, while the coarser portion will continue to yield good results for several years, according to the coldness or warmth of the soil, and their consequent slow or rapid decay.

TO DISSOLVE BONES.

If no mills are accessible, bones may be dissolved in sulphuric acid. For 100 lbs. of bones take about thirty lbs. of acid (two gallons,) and mix with it, say 32 lbs. of water (four gallons.) First, put the water into a strong wooden-hooped cask or barrel, and add the acid slowly—stirring it, as added, with a stick. Crack the bones, or not, as may be convenient, and put them into and above the fluid. Punch them down and stir them occasionally with a stick. Let them stand, four, six, or eight weeks, until softened and mostly dissolved.

Many assert that they cannot dissolve whole bones, but *they do not take time enough.* From repeated trials we know they *will* dissolve. The time will depend upon the dryness of the bones, and their freedom from fat.

After standing two months, more or less, mix the mass *thoroughly*, with six or eight times, or more, its bulk of muck, or even the common soil, if need be. This makes an excellent fertilizer, worth anywhere all it costs, and more. Sulphuric acid, in carboys of 120 to 160 lbs., costs from two to three cents per pound, according to distance from the manufactory. It needs to be handled with care, as it is corrosive to the flesh and clothing.

Without any preparation except breaking fine, unburned bones are worth fifteen to fifty cents per bushel, according to the necessities of the soil, the value of the products, and the cost of other manures. The best mode of using is to have them finely ground."

Concentrated Fertilizers.—Among many fertilizers which attract the attention of the farmer, and which are not produced on the farm, are lime, guano, super-phosphate of lime and bone-dust. Lime is applied at the rate of twenty-five to one hundred bushels per acre. Generally the stronger the ground the more can be applied. In my opinion, the best place to apply it is on young clover.

Guano.—Of this there are many varieties. The best is the Peruvian, because it comes from a place where but little rain falls, and is not leached like most others. It is applied at the rate of one hundred and fifty to four hundred pounds per acre. Its effects are more plainly seen on poor land than on good land. It is not lasting,

doing the first crop all the good. As a top-dressing it should be applied before a rain.

Super-Phosphate of Lime.—There are also many kinds. Apply it at the same rate as guano. It is composed of sulphuric acid and bones.

Bone-dust.—The kind I have been using is the sawings from button factories. There are also coarser kinds than this, which last longer, but do not have so great an effect. I can say of bone-dust, taking everything into consideration, it is the cheapest of the three last above named fertilizers. It will last three or four seasons, and how much longer I do not know, as I have not used it longer than that.

A Young Farmer.

VARIETIES OF YELLOW INDIAN CORNS.

THE great importance of the corn crop to all countries where the climate admits of its successful culture, is our reason for bringing to the notice of the farmers of California at this time, a few of the many varieties of this product, that those who may feel a desire to experiment in reference to their relative value may procure seed in time for the approaching corn season. There is not a doubt but that there are many fine corn-growing districts, within the limits of California, that are as yet unknown, so far as practical experiment has demonstrated their appropriateness to the culture of this product.

The greatly increased value of this crop at the East as compared with wheat, owing to its almost total exemption from the attacks of insects and parasites, has been the means of bringing more immediately to the attention of agriculturists, the relative value of the different varieties of this favorite grain. The range of latitude in which corn, in some of its varieties, is successfully grown on the Atlantic side is so wide, we are inclined to believe that here, with our great diversity of climate from geographical position, altitude and wind currents, that, were more extended experiments made with the different corns, there might be, with the aid of a few years acclimation, a variety found suited to almost any locality — soil being suitable— enjoying from three to six months of summer. With a view of putting our farmers upon the track and pointing out some of the peculiarities of the several varieties, we subjoin the following, from that excellent hebdomadal, the *Dollar Newspaper*.

1. *Golden Sioux.*—The Golden Sioux, so called after the color of its grains and the Sioux Indians, of Canada, from whom it was obtained, is a twelve-rowed variety, with a tendency to pass into fourteen, as it frequently has fourteen rows of grains at the base of its ears. Cob thick and rather short, but well covered with moderately sized, bright, golden colored yellow grains, (as figured in the Patent Office Report,) which are very flinty or hard and abound in oil, and rank among the best varieties as a human food and for fattening animals. It has, under skillful tillage, yielded as high as one hundred and twenty-two bushels of shelled corn to the acre; and, being a hardy-growing plant, is a favorite in our cold Northern regions. It has also been cultivated to some extent in Pennsylvania where its ear has become longer and its grains larger, and so given rise to a new variety called the "*Pennsylvania Golden Sioux.*" The Pennsylvania Golden Sioux, as well as that of Canada, ripens early.

2. *Early Yellow Canada.*—This corn, so called from the earliness of its ripening and its orignating in Canada, is when pure an *eight*-rowed variety. It has a smaller and thinner stalk and cob, and also grain, than the Golden Sioux; but its grains, though small, are compact, solid and heavy, and contain more oil than any variety, except the rice corn and the pop or parching corn, and weighs sixty pounds to the bushel. It yields from sixty to one hundred and twenty-two bushels of shelled corn to the acre. And its smallness of stalk which admits of close planting, its earliness of maturity, and great productiveness, and freedom from damage by rains at husking time, and easiness to husk and shell, render it a valuable and popular variety in our more Northern States, especially in those districts where the larger and softer kinds of corn do not flourish. The *pure* early yellow Canada corn is not more than five to seven inches long in the ear, but its ears have, through continued culture in our Northern and Middle States, now attained a length of from ten to twelve inches, while its flat and and close-clinging grains have also increased in a corresponding ratio, and so constitute—as figured in our Patent Office Report for 1853—one of the richest colored corns we have. But while it has thus increased in the size of its stalks, ears and grains, it has also ripened later and later in the season until it has arrived at the ripening season of our ordinary early varieties of corn.

3. *King Philip Corn.*—This corn, so called after Philip, the celebrated King of the Wampanoag Indians of Massachusetts, is also an eight-rowed yellow variety, and is sometimes termed "the *large* eight-rowed yellow corn of the North," by way of distinction from the smaller eight-rowed early yellow Canada corn, and also the small-grained, eight-rowed King Philip seems to consist of two varieties, a large and a smaller-grained variety. So it is sometimes called "the large, yellow *flint* corn of the North," on account of the size of its grains and their flintiness or hardness. The King Philip has a shorter stalk, longer ears, a thicker cob, and larger grains than either the golden Sioux, or early yellow Canada corn, and also about the same quantity of oil as the golden Sioux; and being a very hardy and productive plant, has always been a favorite in our New England States, ever since the time of our far-famed Pilgrim fathers, who landed on plymouth rock in 1620. And it does equally well in our Middle States, where it has been extensively cultivated for many years, and seems to stand more bad weather, and yield as well as, and prove a surer crop, than any variety of corn yet tried here. But as its grains have a *roundish face* on the cob—that is, taper off towards the sides where the rows meet, so as to leave quite a hollow between the rows—it will not, in the opinion of some, turn out so well nor weigh so much to the bushel when shelled, as the *flat-faced* and close-clinging grains of our Pennsylvania early Canada flint and yellow Dutton corn. But it is a handsome corn as figured in our Patent Office Report for 1853.

4. *Improved King Philip, or Brown corn.*—This new variety of corn, as figured in the Patent Office Report for 1853, is uncommonly attractive, both for its size and beauty, and seems to possess a rare combination of excellencies; for its stalk only grows about five feet high, and hence it will bear closer planting, and do better in shady places, such as orchards, than most other varieties. So it will, even in unfavorable seasons, ripen in from ninety to a hundred days from the time of planting, and so may be planted later in the season than common, and yet ripen early enough to admit of its being cut down and removed, and the ground plowed up and resown, in good time, with winter grain—a matter not easily done with other varieties of corn. So its dwarfish growth makes it less exhaustive to the soil, and also less liable to be blown down and injured by high winds, than most other varieties; while it also yields more to the acre, under the same culture, than most other kinds do; for every stalk produces from two to three good ears, which have thin cobs, from ten to thirteen inches long, and spring out of the stalks near the ground, and are compactly

covered with large, broad, smooth, hard and heavy handsome grains, that abound in oil and are excellent for fattening stock, and makes a rich and superior flour for shipping, as it will not easily turn sour. Its grains have various shades of color, from a light yellow and a strong rich yellow up to a fine glossy chocolate or reddish hue; but wherever grown seem to retain the same shape and elegance of form. And hence it has been called "the *improved* King Philip corn." It is called "the *Brown* corn," after John Brown, of Long Island, in New Hampshire, its originator, and is the result of a continuous planting, by Mr. Brown, of choice grains of the old King Philip corn, selected from such stalks, the second ripe in the field, as contained more than two ears to a stalk and had small butt-ends. Mr. Brown plants this corn in hills *three by two feet* apart and four grains to each hill; he having, after numerous experiments, found that it yields more to the acre when planted at this distance than at any other. Early plantings of this corn have frequently ripened on the Hudson river, in New York, by the middle of August. And some have planted it as late as the 9th of June and still realized a fine ripened crop. And hence it is admirably adapted for our Northern latitudes, and for elevated grounds and valleys where, from the shortness of the summer, other varieties are liable to be destroyed by the late spring or early autumnal frosts. Mr. Brown, who thins his growing stalks so as to have but three in each hill, says that he has repeatedly raised over one hundred bushels, and once as high as one hundred and thirty-six bushels of shelled corn of it to the acre—weighing, when shelled and dry, fifty-nine pounds to the bushel—so that our General Government has acted wisely in giving this valuable corn an extensive distribution in such localities of our Union as need a corn of this character. (See Ag. Rep. 1847, p. 130; 1853, p. 111–13, and 1855, p. 175–6.)

5. *Yellow Dutton.*—The Yellow Dutton, so called after Samuel Dutton, of Cavendish, Vermont, who brought it into notice in 1818, seems to range from an eight to to a sixteen rowed variety. It appears to have orignated from the seeds of carefully selected yellow ears of corn from eight to twelve inches long and containing from twelve to eighteen rows of grains on each ear. The Dutton corn has a short and slender stalk and long and slim ears, ranging from ten to thirteen inches in length, and so completely and compactly covered with grains of a light yellow color that two bushels of sound ears usually make five pecks of shelled corn—and these grains, though below the medium size as figured in the Patent Office Report for 1853, are so heavy as to weigh sixty-two pounds to the bushel, and also possess great fattening properties from the abundance of oil contained in them. It has often produced from one hundred to one hundred and twenty bushels of shelled corn to the acre. The late Judge Buel, of New York, informs us that he obtained the twelve-rowed Dutton variety of corn from Mr. Dutton himself—that it ripened earlier for him than the common eight-rowed yellow or any other variety of field corn he had ever seen—that he invariably harvested it in the first fourteen days of September, and once as early as the last week in August, and that it yielded him more to the acre than any variety of corn he had ever grown, as two bushels of it in ears always produced five pecks of shelled corn, weighing sixty-two pounds to the bushel. And its hardness, earliness of ripening, productiveness, quickness of drying on the cob and uncommon heaviness or weight per bushel have rendered the Yellow Dutton corn quite a favorite among the farmers of New York and other cold and exposed Northern localities. The Yellow Dutton corn, early yellow Canada, and the improved King Philip corns are also very valuable for late after-planting, when the other seed corns, when planted, fail to grow.

6. *Yellow Dent.*—This corn, so called from the yellowness of its grains and the small *dent* or hollow on the face of its grains, as if its face had been pressed in, seems to vary from a sixteen to a twenty-rowed variety. It is pretty popular in

some of our Northern and Northwestern States. It has large stalks and long ears, and ripens two weeks earlier than the white dent and three weeks earlier than the yellow gourd seed, and is very productive and makes a good flour for shipping. Its depth of root, for it runs deeply into the ground, makes it stand drought finely and succeed well on sandy soils in a dry season.

7. *Yellow Gourd Seed.*—The gourd seed corns are so called from the resemblance which their long and narrow grains bear to the seeds of the gourd plant. The true or pure yellow gourd seed corn seems to have originated in Virginia, and to be a hybrid or cross between the white gourd seed of Virginia and our yellow flint corn of the North, and varies from a twelve to a twenty-six-rowed variety. And the pure yellow gourd seed, as figured in the Patent Office Report for 1853, is a splendid, richly-colored yellow grain whose starch, while the grain is still in its green or soft state, projects quite through its top or summit; thus giving to each grain a protuberance there, but this protuberance, by the contraction or shrinkage of its starch in drying, gradually disappears and finally leaves there those pits, dents or hollows peculiar to the dent and gourd seed corns. The pure yellow gourd corn has a pretty stout stalk, long ears and quite long or deep and pretty broad yellow grains which cover the cob very closely, but ripen rather late in some districts, though early enough in some others, and where early enough to escape the autumnal frosts, yield as well, if not better than most other varieties of corn. Its grains also shell easily and make a pretty, soft and easily masticable and fine fattening food for horses, hogs and cattle. And it is likewise considered hardier and earlier and also more heating and nutritious than the white gourd seed corn for fattening animals. And hence the yellow gourd seed corn is a favorite in all of our States south of Pennsylvania. But the pure yellow gourd seed has, through the changes of climate and the diversity of soils where it has been cultivated, now assumed some ten or more different *bastard* forms. For the yellow gourd seed of Pennsylvania and of our other Middle States, is not the true Virginia gourd seed but a *bastard* variety of it—shorter-eared and smaller and more roughly-grained than its parent. And our bastard varieties have both red and white cobs, the grains of each being of a rude *shoe-peg* form, and there seems to be quite a difference of opinion as to whether the white or the red-cobbed bastard gourd seed is the best and most productive. For while some prefer the white-cobbed others as decidedly prefer the red-cobbed; so that farther trials and comparisons will be necessary to settle this point. The yellow gourd seed corn, however, sometimes remains so soft in our Middle States when husked and cribbed, that it is apt to ferment and get moldy and spoil in the crib, when our ordinary yellow corns remain solid and free from mold—a circumstance that tends, of late years, to bring our Pennsylvania gourd seed corn more or less into disfavor.

8. *Yellow Oregon or Shoe-Peg.*—The yellow Oregon corn, so called because introduced here from the Southern part of Oregon, is a most splendid yellow corn as figured in the Patent Office Report for 1853, and varies from a fourteen to a twenty-six rowed variety. It is sometimes called "the shoe-peg corn," from the length and shape of its grains, which sometimes resemble a shoe-peg in form. It was first cultivated in our States by Gen. Harrison, of Ohio, afterwards President of the United States, who received it from Oregon in 1838 and commenced its culture in 1839. It has a pretty tall and quite stout stalk, full of large and broad leaves—long roots—and ripens earlier than the yellow gourd seed—and produces unusually large grains of a strong and rich yellow color; for Gen. Harrison assures us that his crop of 1839 yielded him thirty per cent. more of corn per acre than any variety of corn he planted—that every stalk of it bore from two to three ears and contained from eighteen to twenty-four rows of grains, varying from one half to three-fourths of an inch, and sometimes an inch long, on a very small or thin, red cob. And H. R. Smeltzer,

of Maryland, whose experience of it agrees with that of Gen. Harrison, informs us that a part of his Oregon corn crop of 1853 yielded him one hundred and twenty-one bushels of shelled corn to the acre; and that every barrel measure of it in the ear shelled out seven and a half bushels of corn, being two and a half bushels more per barrel than any other Maryland corn commonly did. He also informs us that its roots, in growing, run deeply into the ground, and so enable it to resist drought better than any variety of corn he ever knew. I will only add that the Oregon corn, as grown by me last season, resembles, in the size, form and color of its grains, the yellow gourd seed corn more closely than any other corn—but its cobs were either red or white—its grains large and indented on their face like those of the gourd seed varieties—and as a whole formed a splendid growing plant which stood the dry weather most admirably; while other corn-plants were drooping, and also dried quickly on the cob when ripe. (See Ag. Rep. 1846, p. 414; 1847, p. 130; 1850, p. 152, 400.)

9. *Large Southern Yellow Flint.*—This splendid corn, which has a medium sized and leafy stalk, varies from an eight to a twelve-rowed variety. It has long ears and very large and richly colored yellow grains which have a roundish face, and taper off so much to their sides where the rows meet as to make the ears resemble, in some degree, a fluted column. It ripens from ten to fifteen days earlier than the Southern white corn, and will grow on thinner soils, and produce a heavier and richer grain than that variety—and yields abundantly and forms an excellent food for man and beast. And hence it is very extensively cultivated in our Southern States, and is also deservedly becoming a favorite in our Middle States. It is called a flint corn because the exterior coating of its grains is pretty solid and flinty, and this hardness increases as it is grown farther and farther North. Its grains contain more starch but less oil than our yellow flint corns of the North and, therefore, are not equal to our Northern yellow flint corns for shipping flour; but if it be grown in the North it gradually and greatly improves in this respect.

10. *Small Southern Yellow Flint Corn.*—The small yellow flint corn, so called from the smallness of its stalk and grains, ripens earlier but is less productive than the large Southern yellow flint corn, and has shorter and thinner cobs and smaller and harder grains, which have the same circular form but a deeper yellow color than those of the large Southern yellow flint. And its grains, though smaller, contain an abundance of oil which renders them more solid and richer and more valuable for shipping purposes, and also for fattening poultry, cattle and hogs than those of the said large flint corn.

11. *Spanish, St. Antoine, or Creole.*—This is the largest variety of all the corns yet known, as it grows from sixteen to eighteen feet high and so yields more fodder than any other variety. It is a very hard yellow flinty corn; its grains being, in their natural state, too hard for stock. It also ripens later than any other variety; and so, in our hotter regions, escapes the injuries of excessive moisture and of drought better, and yields more corn to the acre in Louisiana, where it is a favorite, than any other variety of corn. (See Ag. Rep. 1849, p. 169; 1850, p. 398.)

All of these yellow corns, besides some other yellow varieties that I cannot describe for want of sufficient data, are supposed to have originated through a long culture by the Indian and white man, from the *very small, wild yellow corn*, as figured in our Patent Office Report for 1853, and which is still found growing wild on the borders of the Rocky Mountains and elsewhere in our Western wilds. And now if any one of your readers will send me a package of Etrurian, golden chaff, white Mediterranean or wild goose wheat, or Iverson grapeseed, or Honolulu or Venezeula sweet pumpkin seed, I will forward a pre-paid package of any two of the above yellow corns, execepting the two last named, as I have none of their seeds.

As corn-planting time is now drawing near, let those who wish to secure choice varieties of corns or of beans, cabbage, lettuce, celery, sweet pumpkins or the like—for I will send either of these as may be desired—avail themselves of this rare offer. Address "*Box No.* 19, *Milton P. O., Milton, Pennsylvania.*"

A PROGRESSOR.

FRUIT CULTURE IN THE MOUNTAINS.

THE San Andreas *Independent* has an observing and practical traveling correspondent, and he discources, upon the culture of fruit trees in the mountains, thus:

Mr. Editor:—In a former hastily written communication, I stated my intention of making allusion, at some future time, to the great interest manifested in the cultivation of fruit trees in almost every locality I have recently visited. That irrepressible perseverance and energy of character of our hard-handed, hard-working population, seems to be inspired by an additional devotion to the cause of horticulture, from that which is and has been applied to other pursuits requiring manual exertion and endurance. It needs but a glance at the advancement already made, the success attending, and encouraging proofs of prosperity obtained, in the pursuit of horticultural avocations to convince the most skeptical mind of the eventual greatness and importance of this feature of our home industry. Go to every mining camp throughout the country and you will find extensive orchards and vineyards rapidly advancing and flourishing well. In Murphy's, it is really astonishing to see the progress already made.

Whether any idea ever prevails that trees would do better by adopting certain improvements in the mode of cultivation, is a question that the cultivators themselves can only answer. For my own part, I am satisfied to abide by what practical men declare to be right; and would be exceedingly well pleased to see and hear the rights and wrongs of horticultural procedure fairly made apparent. I am satisfied that neither the "tap-root" question, or the use of the pruning knife, bears so important a connection to the success of the orchardist, as a thorough knowledge of how, and when, and what to irrigate. I firmly believe that there is nothing connected with this branch of industry, so poorly understood. I mentioned Murphy's, because there I preceived many trees and grape vines of—as it seemed to me—superior excellence. In the enclosures of Dr. Jones, Messrs. Shearer, Traver and many others, I found the mode of cultivation quite different from that practiced in other localities, The knife is used liberally, yet not with any noticeable degree of severity, and from appearances, I would judge that irrigation was entirely suspended in the fall.

PRUNING OF THE GRAPE.

Grape vines which form an arbor on the approach or entrance to the residence of Dr. Jones, are pruned exactly in the manner practiced in conservatories in the Eastern States. So many leading shoots are selected, which are allowed to grow without checking their growth by pinching the tops off; but the side or bearing shoots which start from the spurs left on the *two-year-old* wood, as well as the bearing wood which starts from each bud on one-year-old wood—(the spur is only one year old also, but is cut close—within one eye of the two-year-old wood)—likewise the lateral growths which grow out of all the new wood, are pinched in during their growth. This, it is believed, not only prevents an unnecessary accumulation of rambling wood

and meager foliage; but contributes directly and at once to the strength of that which remains. These grape vines, however, are intended to be trained on lattice-work, and therefore require to be pruned somewhat differently from standards in the vineyard. But when and how much water ought to be given, will be nearly the same in both cases. The strong, short-jointed wood is a proof of the healthly condition of the vines—neither too luxuriant nor suffering for the lack of nutriment.

FRUIT TREES.

Apples, pears, peaches, etc., particularly in Murphy's, Douglass and Vallecito, appear to receive excellent treatment. The ground is well worked, kept clear of weeds, and every attention and effort used to facilitate the growth of the trees. At Douglass, there are several excellent orchards. Mr. Healy devotes much of his time to the propagation and growth of trees. Mr. Hitchcock, judging from the extent of his orchard, must undoubtedly devote the whole of his time to the same pursuit. Mr. Ginter has also his cottage home surrounded with fruit trees.

At Vallecito I particularly noticed the garden and orchard of Mr. Spershot, which is managed excellently. He uses the knife more freely than any other I have seen in this section of the country. Also, the vineyard of Mr. Meinecke, is in a thriving condition. Both prune their grapes during summer.

At Washington Flat, the principal feature of horticultural interest is the extensive, though rather scattered vineyard and orchard of Messrs. Harvy & Green. A large portion of their ground is supplied with springs on the upper side of their land.

At Angel's, Mr. Crocker has the largest orchard I noticed at that place. There are many gardens and orchards of small extent in and around the suburbs of Angel's and Altaville.

At Hawkeye, there is a garden of excellent land. Fruit trees are healthy, and of strong growth. Within one-third of a mile of the Hawkeye, there is another orchard and vineyard belonging to Mr. Thomas Wilson.

ABOUT IRRIGATION OF TREES

Mr. Wilson unfortunately lost the most of his grape vines in consequence of having irrigated them too late last fall. The first frost nipped them while full of sap and in the full vigor of growth. Late irrigation cannot be too much deprecated. During the summer months, irrigation promiscuously applied, in many instances cannot but be detrimental. It is often the case that water is applied, in great quantities to the trees in fruit gardens, at times when it suits the convenience of the cultivator, rather than when needed by the plants. Enough, and enough only, at proper times, is what trees and vines need, and not an alternate inundation and term of parching thirst. The quantity and frequency of application, by observing and intelligent cultivators, will be determined by soil and position. It is in the application of water where cultivators most materially differ in their modes of culture. Some run floods of water around the roots of grape vines when the fruit has colored and is nearly ripe, thereby keeping up a luxuriant growth in the vine at a time when the fruit requires but little nourishment—only that which ripens. The ripening of the wood and the fruit ought both to receive attention. One of the evils of late irrigation, upon any fruit-bearing tree, is its tendency to excite and destroy the fruit-buds, which would *naturally* produce fruit the following season. This two-crop-a-year enthusiasm, is nothing short of a literal and consummate humbug. It is not only unnatural, but will prove very unprofitable.

HOW TO SUCCEED IN CULTIVATING FRUIT.

In order to succeed well in the cultivation of fruit in most of the mining counties,

if not all of them, I think it will be found prudent and profitable to study the subject of irrigation thoroughly, and by close attention and intelligent observation, become as intimately acquainted with the phenomena of growth, as will, by an exercise of good judgment, enable the cultivator to determine for himself what is sufficient, and *no more*, regardless of the experience of those in lower lands and heavier soil.

G.

THE DAIRY—PRIZE ARTICLES.

IN the January number of the *American Agriculturist*, we find the first of a series of "prize articles" upon the dairy; and as this interest bids fair to become one of the first importance to the agriculturists of California, we shall avail ourselves of such portions and selections of these articles, as we believe will be read with interest by those who are already engaged in, or about to commence the dairy business. By a careful perusal of the following, a solution can be obtained of the mystery of the great difference in the quality of butter and cheese of different districts, where the mode of manufacture and care bestowed are in nowise dissimilar.

That the food of the cow should have a marked effect upon the quality of butter and cheese, is not surprising; and, therefore, the advantages to be derived from studying well the character of the soil and its forage product, before locating for strictly dairy purposes; and, if reliance can be placed upon the deductions to be drawn from the following article, it is not surprising that all the butter and cheese that is produced by our dairymen, from cows fed upon the grasses of our lowest valleys and our highest grazing districts, should not be all alike of superior quality.

"As this subject, from the extent of investigation it will require in the articles of butter and cheese, will demand a *series* of chapters, which, in the end, will be fully equivalent to a cheap and available hand-book for every rural housekeeper, we shall, even at the risk of appearing tedious at first, try to cover all the necessary ground, and in the most condensed manner possible, to embrace this entire interest of our agriculture, namely: the *Proper Soils and Climates;* the *best kinds of Cows;* the *proper Grasses and Foods;* the *best method of making Butter and Cheese.* We shall not follow the modern custom of going to England, Ireland, Holland, France, or Switzerland for our main ideas; but endeavor to discuss the best and most approved modes of dairy practice at home—contending, by the way, that we both can and do make as good butter and cheese in the United States as in any other country whatever. The dairy is a largely productive branch of our agricultural wealth. Millions of capital in land, buildings, cows, and labor are invested in it—more or less productive, as the soil and climate whereon and wherein it is located, are appropriate, and the labor applied skillfully directed. Of its importance, then, no argument is necessary.

THE BEST DAIRY CLIMATE,

of the United States, as so far developed, may be said to commence at about the parallel 41° north, and extend to about 45°, while its *present practical* longitude extends from the Atlantic Coast to about 5° west from the meridian at Washington, taking in the majority of the "Western Reserve" lands in Ohio, bordering on Lake Erie, and embracing in its range that section of Ohio, Northern Pennsylvania, the

"Southern tier" of counties in New York—or all the western part of the State south of the limestone wheat region, and near Syracuse, running north to Lake Ontario, and following its southern border to St. Lawrence, and thence east to the Atlantic Ocean. There are some exceptions, however, even within these boundaries, caused chiefly by the soil, and geographical character of the country; but, so far, this region comprehends the chief *present* cheese-making, as well as the best butter-making district of the United States.

There are many localities, however, outside, both south, west, and north in the Canadas, where good butter is made, such as the "Sweet-scented-vernal-grass" neighborhoods of Philadelphia, and other portions of Pennsylvania, and some others not now necessary to recount. To explain the term, "good butter," we mean butter that can be packed for market, which will keep sweet for table purposes six months to a year, including its shipment for "Navy" consumption—like the "Irish Rose Butter," or that of Holland. Every-day table butter of fair quality can be made almost anywhere that good grass will grow, or that succulent food can be obtained for cows; but such butter will not keep for any length of time, and for *distant* market purposes, is unprofitable to the purchaser. The new States of the Northwest may in time produce good butter for the Eastern markets when their artificial grasses shall have become properly developed, but as yet their soils have not proved them to be a part of the favored dairy region.

THE DAIRY SOILS,

so far as producing the *best* butter and cheese is concerned, are peculiar, particularly in cheese. What the peculiarities are, it is not, in all cases, easy to describe. A rolling, elevated country, hilly oftentimes, abounding in springs of soft water, and drained by clear, rippling streams flowing over gravelly beds, compose its predominating character; while loamy soils, inclining to clay—or argillacious, running into shale, are the strongest usually, as being the *natural* blue-grass and white clover lands, and usually of "secondary" formation. Yet fine dairy lands are found in the "primitive" districts, loamy, in general, with a friable warm subsoil beneath, and sometimes abounding in loose stones, or fixed rock, either granite, or trap—as in New England, Eastern New York and Northern New Jersey—while the shales and clays predominate chiefly in the dairy lands of Northern, Southern and Western New York; Northern Pennsylvania and Ohio. In all these the best and sweetest natural grasses obtain—and perhaps half a dozen or more different varieties abound, in themselves full of the best milk-producing qualities. Among them the common blue-grass (*poa-compressa,*) and white clover (*trifolium-repens,*) predominate, while they are filled in with timothy, red-top, red-clover, spear, or June-grass (*poa-pratensis,*) and some others less conspicuous. We say *natural* pastures, as distinguished from such as require resowing every few years, on soils not tenaciously holding these grasses by their natural tendency—like some of the strong limestone lands, the very best for wheat, but not so friendly to natural pastures. Indeed, we contend that no lands are of the best quality for either the butter or cheese dairy where the grasses upon them are not of the above named varieties, and where they will not flourish continuously from year to year without plowing and reseeding. Such varieties are eminently healthy, and nutritious, producing milk in the largest quantity, and richest quality.

It may be asked, why are not the wide prairies, and wooded regions of the Western and Northwestern States equally good for the dairy, producing, as they do, the finest beef, and wool, and in a climate essentially the same as the soils above described? In answer, we say that the soil is essentially different; the water is *hard*, and the face of the country unlike. Besides, no butter or cheese of the best quality

has been *yet* produced there, although frequent trials by experienced Eastern dairymen have been made. "Western" butter, of any age, is usually quoted in the Eastern markets as "grease" at a low price; and cheese made *west* of the "Western Reserve" is scarcely known, any where. So far, then, the cheese districts of our country seem to be pretty well defined, while the *table* butter of those regions outside of them, appears to be confined chiefly to the local markets within them.

Such facts—if facts they be—and of them the writer has no doubt—might open a wide field for speculations in the future agricultural economy of our country, in the absence of other new dairy lands opening in the future at the West and North-west; but as this is no part of our present subject, we shall not further notice, other than by simply remarking, that our present dairy lands bid fair to be ultimately much more valuable than at present considered, when the demands upon their annual yield shall have crowded their production to their proximate limits. Understand; these dairy lands are not all productive alike. They vary in producing value, as much as our corn, wheat, or ordinary farm lands, according to natural fertility, location or improvement, facilities for getting to market, or otherwise, and may now range in value from twenty to one hundred dollars per acre. We note the facts incident to dairy lands, generally, to guard against the belief, with many, that dairies can be adopted *any where*, and by any body, without regard to soil, climate or position.

Good pasture soils are usually good *hay* soils also. Timothy, red, and white clovers, and red-top will flourish wherever the pasture grasses we have named *naturally* grow. They form the best of hay for winter forage, and although they may, under ordinary usage, "run out," after a few years, with the pasture grasses altogether; yet, by plowing and manuring, they will still hold their productiveness in hay for all coming time. Although not intending to now treat of the management of either meadow or pasture lands, as a system, we will remark that pastures, once well set, properly used, need never be broken up, for the reasons that it takes them half a dozen years to get well reseeded, and acquire a thick, heavy turf; and that the grass of an old sod is every way sweeter, and more nutritious than that of a new seeding. Of this fact all experienced dairymen are aware.

We know of extensive ranges of pasture and mowing lands in our best dairy regions which have never been disturbed by the plow, even on their first clearing—two hundred years ago, and down to fifty—the grasses having been simply sowed upon them with a first harrowed-in crop of oats, wheat, barley, or rye, and remained ever since in the full and profitable production of grass, either pasture or meadow. We are a much younger country than England, and our climates are unlike; forming, therefore, no exact parallel in the mode of cultivation which should govern them; but it is well enough to remark that in her best dairy districts, as Cheshire, Gloucester, and others, the lands devoted to that object have lain in grass from time immemorial—perhaps a thousand years, and upwards. We know large farms in the rich limestone and blue-grass regions of the "Valley" of Virginia, and in Central Kentucky, worth a hundred dollars an acre, which have lain in grass, devoted to grazing of beef cattle ever since their first clearing—eighty years—and said to be at this day better than ever. We do not say that these natural grass lands will not, at some time, need rebreaking and manuring; but of the general policy of letting them lie in permanent grass, so long as they produce well, there can be little dispute.

Saying thus much in favor of the congenial soils, and the proper climate for the dairy in producing the *best* butter and cheese, we do not deny that there are wide, and frequent districts which will produce passable butter and indifferent cheese; but they are of such character as to render these articles unprofitable as staples of their production. They can be better turned to ordinary crops, or raising cattle, feeding beef, breeding sheep and growing wool. So, then, let him who is about to embark in the

dairy select the proper soil, unattractive even, though it be at first, yet by the proper application of labor, skill and capital he will find, in the course of time, that he has judged wisely to plant himself where the aid of natural advantages are in his favor, and he has only to apply his best energies to a successful result. In our next we will talk of cows and their selection."

VITALITY AND PROPERTIES OF SEEDS.

VERY many farmers and gardeners are of opinion that the newer and fresher the seed for planting, the better; and thus, to meet the demand for such seeds, men not unfrequently advertise their stocks as of *last year's growth.* There is an error here, if the object is fruitfulness, instead of running to top or vine. It is a well known law in vegetable physiology that the nearer a plant or tree approaches a condition of decay and death, the greater is the effort of nature in the tree to continue its kind. Thus we see in very young fruit trees, if from any cause they become injured in their vitality, to that degree that a premature death is inevitable, they almost invariably cease their production of wood, but greatly increase their efforts at fruitfulness.

The same will apply to seeds; when new and fresh seeds are employed, we may expect a strong, vigorous growth of wood, stalk or haulm. If the seeds are old—and the older the better, so that they retain their vitality—the plants, whatever kind they may be, will exhibit a tendency to the production of that portion of the plant or tree that contains the seeds. The intelligent culturist takes advantage of this singular law in vegetable physiology, in the use of seeds that shall be best adapted to the production of seeds, fruit, stalk or haulm, as may be desired. We are by no means advocating the purchase or use of old seed indiscriminately, for we are well aware that it will not do to trust to the vitality of such seeds in all cases; and yet, if they will grow, the older the better if the object is seed or fruit. There are many kinds of seeds that retain their vitality much longer than others, and among these can be reckoned all the pumpkin, squash, cucumber and melon family. The seeds of any of these can hardly be too old if properly preserved; for not only do they retain their vitality, but they produce less vine and more fruit, the older the seed.

On the other hand, there are some kinds that, though it might be desirable to use old seed upon the principle we advance, it will not do to trust them beyond two years; among these are peas and beans, a large majority of which lose their vitality after the second year. Onion seed—not the bulbs—should never be more than one year, as not one out of five will vegetate if kept beyond two years; and for another reason, that the object is the bulb as a product, rather than seed. Parsnep seed should never be more than one year old, because they will produce finer roots and are less inclined to run to seed. Beets, though the seed will vegetate when two or three years old, are better for being new; old seed producing plants more inclined to run up to seed the first season at the expense of the root.

The rule to be observed is this: if stalk or haulm is desirable, as with Chinese

sugar-cane, alfalfa, clover and all the grasses and bulbous roots used as food, get the newest, freshest seed that can be obtained; but where you would desire the fruit or berry, as in every description of melons and cucumbers, as well as the cereals and Indian corn, the older the better, so that its vitality or power to vegetate is preserved. Flax seed is somewhat remarkable in this respect; beyond two years old it is hardly worth the gift to sow; for, besides having almost entirely lost its vitality, the product of that which does vegetate is of meager growth, full of seed-bolls upon a slender stalk.

Farmers and gardeners are everywhere complaining that some of their vegetables are prone to run too much to seed. In most cases it will be found that they have sprung from *old* seed. In the case of melon vines, often that they run too much to vine, here the seeds are too *new;* for, as in many instances they are from melons of their own saving of the last year's growth, when they should never be planted before three or four years old. We throw out these hints as a guide to the inexperienced in the choice of their seeds for field or garden purposes; knowing that by a little attention to the laws of vegetable physiology in this department a great deal of unnecessary vexation may be avoided, and a real benefit secured.

THE FARMER'S MOTTO.—Gen. Bierce closes an Agricultural Address, at Twinsburgh, Ohio, Sept. 17th, 1857, as follows: "Let the farmer's motto be, then, 'good farms, good stock, good seed, and good cultivation.' Make farming a science, in which your heads as well as your hands are employed; let there be system and reason in all your operations; study to make your farms beautiful, and your lands lovely; entice, by kindness, the birds to visit, and cheer your dwellings with their music; I would not associate with the man or boy that would wantonly kill the birds that cheerfully sing around our dwellings and our farms: he is fitted for treason and murder. Who does not, with the freshness of early morning, call up the memory of the garden of his infancy and childhood? the robin's nest in the old cherry tree, and the nest of young chipping birds in the currant bushes? the flowers planted by his mother, and nurtured by his sisters? In all our wanderings, the memory of childhood's birds and flowers is associated with our mother and sisters, and our early home. As you would have your children intelligent and happy, and their memory in after life, of early home, pleasant or repulsive, so make your farms, and your children's home."

WHEAT IN HILLS.—A writer in the *Genessee Farmer* says that he has tried the cultivation of wheat in hills like corn, having the hills two feet apart each way, and two or three plants to the hill; and he reports obtaining from a small plot of ground a crop so large as to be equal to two hundred bushels to the acre. The soil is kept stirred and cultivated during the growth of the crop.

BOUSSINGAELT, who probably made more experiments in feeding horses than any other man, found that his horses required per day twenty-two pounds hay, five and a half straw, and seven and a quarter oats. The horses weighed about one thousand pounds each. Of course, smaller horses would require less food.

CULTIVATION OF TIMBER.

UPON this subject, so interesting to the present as well as future of California' we find in the *Dollar Newspaper*, the following article written for the latitude and longitude of Illinois; but as it contains so much of truth applicable to any country in a measure destitute of the hard wood timbers, we copy it and endorse it, in all but the recommending of the cotton wood for any purpose. We can hardly conceive of any suitable place for, or any good use to which it can be applied, in place of which there are not other timbers to be preferred.

"Any one acquainted with our prairie country will at once see the necessity of cultivating groves of timber; not only with regard to their value for fuel and mechanical purposes, but also for the protection they will give to farms from the heavy prairie winds. The subject has been very much neglected, but the importance of it is becoming daily more and more visible to every one. The fact is, in some parts of our State, the timber in a few years will have entirely disappeared; so that there is now no time to be lost. Then we should go to work immediately in sowing seeds and planting out groves of timber. But what shall we plant some may ask? The varieties of timber for this purpose are numerous. The locust is excellent, and for posts it cannot be beat. It is also of very rapid growth. The seeds can be gathered any time in the fall, or from the pods on the trees during winter and spring. If not sown till spring, the seeds will have to be scalded in order to sprout them. Pour boiling water on them, and let them stand till cool. They are then ready for sowing. The black walnut is very good and is of very thrifty growth. Then there is the chestnut, hickory, oak, maple, and many other of our forest trees which, under cultivation, would soon make fine groves of timber. I think it the best plan to sow the seeds where the trees are wanted to grow, and not to transplant them. The protection which forest trees, and more particularly our hardy evergreens, give to our farms is another great reason why we should plant them. For this purpose the cotton wood is very desirable, both for its rapid growth and ease of propagation. It will grow readily from cuttings, and which, in a few years, will make fine trees for protection and shade. The maple is of very thrifty growth, and is, too, a very beautiful tree. In respect to evergreens, the Norway spruce undoubtedly stands at the head of the list. It is among the hardiest, and is also very thrifty in growth. Then next would follow the white pine, cedar, American arbor vitæ, hemlock, etc. The evergreens can all be bought quite reasonable, by the thousand, at our principal nurseries. Hedges exert a modifying influence on our cold winds. The osage orange I consider is now and will be generally the hedge plant of Illinois. Then haste the time when our prairies shall be covered with groves of forest trees and spanned by belts of hedges and evergreens. Then we may expect to raise our fruits to perfection—the luscious peach, the tender cherry, and all of the finer varieties of tender fruits.

W. L. G.

HAVANA, ILL., 1859.

UNFRUITFUL VINES MADE FRUITFUL.

A CORRESPONDENT of the *Dollar Newspaper* makes the inquiry, "How shall I make an unfruitful vine bear grapes?" Having had considerable experience in this line, I should dissent from the opinion expressed by another correspondent, in answer to the above, that the case was helpless, on account of the barren vine being a staminate plant. I have never seen any good thrifty vine grafted with a cutting from a fruitful one, that failed to produce a crop of grapes. My way of grafting is this: Take the cuttings of last season's growth, from the bearing vine, any time in February or early in March, and keep them fresh in a cool cellar, by covering with sand or saw-dust, until the sap flows freely in the vine which you would graft. This is indicated by the buds being well swollen and ready to burst forth into leaves. Remove the earth around the root, say two inches deep, and cut off the entire stock smoothly and put in the common cleft graft as you would an apple graft. *Apply no wax* or other material, save the earth removed, which should be packed close up to the graft. It is immaterial even whether the barks of the graft and stock are united, as the sap asscends through the entire stock of the vine. When the stock is very large you can put in several grafts by boring holes in the stock with a gimlet much smaller than the size of the graft, so as to admit of a good shoulder being cut in the graft, which should fit nicely down on to the stock. As all know, it takes but a little time to produce a *top* when we have a *good root.* And in this way I have known a barren vine produce a number of clusters the second year after grafting, and the third season a plentiful supply of grapes, with less trouble than to take up a vine and set another in its place. This information is particularly valuable to those who have vines well rooted, but unsuited to climate, as they may be changed speedily, and with little expense, into "Hartford Prolifics," Delawares, Rebeccas, Concord or Dianas which are early enough to mature in any climate south of Maine. From observations, the past season, let me recommend the Hartford Prolific as the *best earliest* grape produced. Growing side by side with the Isabella, the former were fully ripe when the latter had hardly changed color. The only objection is that it bears too abundantly, and is liable to drop the fruit unless a portion is picked off early, or when the grapes are about the size of peas.—H. W. P., in *Dollar Newspaper.*

SPICED VINEGAR FOR PICKLES.—For every pint of spiced vinegar it is intended to make, take one ounce of black pepper, half an ounce of salt, half an ounce of ginger, a quarter of an ounce of allspice, and if desired to be hot, add also a quarter of a drachm of cayenne, or a few capsicums. And put them into a jar, or wide mouthed green glass bottle, tied over with a bladder. Place this in a saucepan of water and keep it hot for two or three days, shaking it now and then. If the maker has an enamel saucepan, this operation can be facilitated by simmering the ingredients together. Spiced vinegar is used hot for walnuts and cold for cabbage.

LIMA BEANS.

OF the many varieties of running or pole beans, there is probably no greater favorite than the Lima, as it is always in demand both in a green and dried state; and, like the choice fruits of pomologists, can never be produced in sufficient quantity to supply the demand. With the consumer it unquestionably stands at the head of the *vicia faba* family, in point of richness and its adaptability to use at all seasons of the year. It is not a favorite, however, with the producer, for several reasons. By the ordinary mode of planting it is a difficult bean to grow. Unless care is observed they do not take to the poles readily, and the crop is never all ripened at once. It requires the longest season to produce the fullest crops, and they are exceedingly impatient to cold and wet.

Nearly three-fourths of all the Lima beans, planted by the inexperienced grower, fail to vegetate or reach the surface, simply because they are not properly planted; the failure, which is usually attributed to the poor quality of the seed, lies almost wholly in the mode of planting. It will never do, as with the more rank growing varieties, to throw them into the hill and cover with earth, regardless of depth and position; we say position, because with their broad flat sides once loaded with earth they seldom rise to the surface, and unless they do rise in the process of germination they perish.

A grain of wheat, barley or Indian corn once planted, never changes its position, but throws its roots downward and the blade or top upward as does also the pea and potato. Not so with the bean; they must and always do rise to the surface, where, parting in halves, they make the first set of leaves, usually termed by gardeners the seed leaves. To insure the best success, therefore, in the culture of the Lima bean, care should be taken in having the ground, which should be a strong sandy loam, properly prepared and the poles all set before the beans are planted. The beans should then be carefully set by hand, every one with the eye downward, and with the larger end a little the highest; press them into the ground just sufficient to hold them in position, and then cover them with fine mellow mold, never more than one inch deep, and a half inch is better if the ground is sufficiently moist to insure germination. Plant eight beans to the hill and the hills three feet apart each way. Having attained a hight sufficient to reach the poles, they should be inclined towards them by bending the plants slightly at the ground and bringing the dirt against them to retain them in position. It is important that such as incline to straggle off be early conducted to the poles and always placed to the right hand side of it as you face it; for beans always run the same way round a pole and always in the direction as from south to east north and west. After they have made a single turn around the pole they require no further care.

To the cultivator of beans in any of their varieties, we would enjoin the precaution from our own practical experience, never to hoe or stir the dirt around them when wet by dew or rain. We do not give any positive reason for this, as to the injury produced; but we do know that of a half acre of beans in which there was

no perceptible difference before hoeing, in three days after the process, presented the appearance of a blight having passed over a portion of it, and just in extent and in proportion as the patch was hoed early in the morning after a heavy dew, was it effected injuriously. We afterwards repeated the experiment and invariably found that they were greatly injured if worked around whilst wet with dew or rain. We advance no theory respecting it, believing that the simple fact established is of more importance to the practical culturist.

Lima beans should be planted as early in the season as possible and escape injury from late frosts. The best hight for poles is nine feet above ground; but, though they will run to twice that hight, they are more productive when trained lower; like the hop vine they should be allowed to reach the top and then hang around, rather than continue their upward unchecked growth. It is the practice of some to pinch in the tops of the vines when they have reached the top of the pole, as inducing a growth of prolific side shoots; but, as these shoots are produced in abundance as soon as the haulm begins to bend over for want of support, we believe but little is gained by the pinching-in process.

Lima beans, of good quality, in the Atlantic cities, readily command from four and a half to six dollars a bushel. In our markets they are seldom procurable in a green or fresh state at even double these rates; so that were our farmers, as well as gardeners, to turn their attention more to the production of this always saleable variety of bean, they would find it much to their advantage as a paying crop, provided that poles are procurable at reasonable rates.

In the culture of almost every fruit, plant or flower, there is some one little mode, rule or practice to be observed that, if attended to properly, insures success; when without it a failure would be nearly as certain. This practice, as applied to the growth of Lima beans, consists in simply placing them in the hill with their eyes down and covered as directed.

RAISING POTATOES UNDER STRAW.—The practice of growing potatoes under straw, we find is yearly extending. It is now some four years since statements were first published of the practice and results, and as yearly we have read the records of those who have adopted it, we do not recollect an instance of failure, or an example of rot occurring in fields so grown. The potato, it is well known, succeeds best in cool, even temperatures, and as the straw on the surface has a tendency to create more regular heat and moisture, than ground exposed to the full rays of the sun, giving thereby a longer season of maturity, we presume the cause and results are plainly apparent. The process of such a practice is, to plant in the usual season, covering the seed very lightly with earth, and afterwards covering the whole field six or eight inches deep with straw. No labor of cultivation is practiced, but in the fall the straw is raked off, and the crop of potatoes found superior to those grown by the old mode of hilling.

On light, sandy or dry ground, we believe this course will be successful, if planted late in the fall. We once planted in January, and succeeded admirably, but the next and following years we had no land sufficiently drained, and therefore could not continue our experiments.—*Farmer and Miner.*

AN OREGON ORCHARD.

WE were favored, a few days since, with a call from Wm. Meek, Esq., of Clackamas county, Oregon. Mr. Meek is the cultivator and proprietor, in connection with Mr. H. W. Eddy, of the most productive apple orchard on the Pacific coast of our continent. No California orchard as yet, can at all compare with it in quantity of apples produced; for not only are the markets of the North furnished with large quantities of this staple fruit during the whole fruit season, but it is the source from whence is derived the major part of the winter supply for the San Francisco market; and yet all grown upon fifty acres of land.

It is not, therefore, the great extent of surface devoted to this product that enables the proprietors at present to excel in quantity any other producer; but their advantage lies in the greater age, size and consequent productiveness of the trees of perhaps one-half of their grounds. Mr. Meek was the first person to introduce into Oregon the finer varieties of apples. In 1848 he left the frontier of the Western States with a wagon loaded with one year old trees and proceeded on his more than two thousand mile journey to Oregon. This load of trees presented a very different appearance from the wagon loads of fruit trees so often seen traveling the country during the usual transplanting season; for, instead of being packed in bundles, the trees were carefully set in good fertile mold or earth in the usual upright position, two or more of a kind, and completely filling the wagon box. In this position, by good attention in supplying them with a proper quantity of water, though jostled and shaken for several consecutive months over the then almost untroden plains of the interior, they not only survived, but made a fair summer's growth—considering the circumstances of their condition.

In the same year, 1848—a few weeks behind Mr. Meek—followed Mr. John Lewelling with another wagon load of trees, including a great variety of all the best fruits known to pomologists, and reached Oregon with his trees in like good condition; and from these two experiments has resulted a success in the early introduction of the best known varieties of the fruits of temperate climes, to our entire northwest coast; and but for the spirit of these gentlemen, even California would now have been years behind her present supply of fine fruits.

In reference to the adaptability of the climate of Oregon to the production of the apple, there is, in the opinion of Mr. Meek, but one unfavorable feature as yet developed. There is no lack in their tendency to fruitfulness, or any want of vigor in the growth of the tree; but there is an evident liability to premature death from climatic influences. Many trees that have borne fruit regularly with every appearance of health and thrift from the first season of their setting in an Oregon soil, suddenly die; and to very many persons the cause seems wholly unapparent. But Mr. Meek, whose interests lead him to make careful note of cause and effect in everything relating to orchard culture, is entirely satisfied as to the true cause of the evil referred to.

He is confident that it results from a determination of the tree to a second growth

late in autumn, induced by a premature flow of sap that should not have taken place before the following spring; that this sap, becoming suddenly chilled by the winter's frost and freezing, is the immediate cause of the subsequent loss of vigor and, in very many instances, the death of the tree. The immediate cause of this untimely flow of the sap, is doubtless attributable to the warm early rains of autumn. Whenever these rains occur, followed by warm sunny weather, though the tree may neither blossom or put forth its leaves, yet a vigorous flow of sap is immediately induced; and if an examination is made, it will be found the bark peels as freely as on the first flow of the sap in the spring, and this flow is continued till checked by the cold of autumn or winter. If, after this premature flow of sap, it be suddenly frozen, the death of the tree is nearly certain to follow; the bark and the space between the bark and the wood turning black, and exhibiting other symptoms of disorganization.

There are doubtless some varieties of trees more than others, liable to this influence; and which acclimation, by raising from seeds or otherwise for a series of years, may, in a measure, better fit to withstand this peculiar climatic effect. If this cause, so destructive the last season, was but occasional, a better prospect would be presented to the extensive Oregon orchard-grower; but it seems to prevail almost with the annual return of the seasons, presenting rather a discouraging prospect. Still, Oregon orchards will long maintain a high rank, even though a frequent renewal of trees be required.

Messrs. Meek & Eddy are certainly fortunate in the possession of so productive an orchard as theirs proves to be, even with the loss of some of their best trees annually. They have sold, during the last season, over four thousand bushels of fruit, the culture, gathering, housing and fitting for market requiring no small amount of skill and care. Experience, which is always the best teacher, has taught these fruit raisers not only the best mode of gathering fruit for the market from the tree, but preserving it till the favorable moment for shipment and sale.

In their mode of keeping fruit, we see exemplified what we have from the first steadily maintained; that in almost every department of husbandry new plans and appliances are needed in our peculiar climate, wholly differing from those to which a majority of our farmers have been accustomed in their earlier years of practice in other climes. Thus, instead of the usual practice of many of the first apple producers of the northern and western States, of packing their fruit in air tight barrels at the time of, or soon after the gathering, there to remain till needed for consumption, we find as the result of experience the very opposite practice to be the best in our Pacific coast climate.

Messrs. M. & E. endeavor to pick their entire crop of apples by hand, and if a single specimen falls to the ground it is carefully kept apart, managed and disposed of as a perishable commodity compared with the picked portion of the crop. The apples are carefully conveyed to the fruit-house, where they are kept undisturbed till packed for transportation. The fruit-house consists of a wooden building, thirty by forty feet square and two stories high, directly upon the bank of the Willamette River, entirely above high water mark, and in position so that the front of the lower

story and the rear of the upper one have their floors on a level with the ground. Each story is ten feet in hight; the lower one is exclusively devoted to picked, sound winter fruit; and the utmost cleanliness is maintained throughout. Around the room, attached to the walls, are board shelves, planed smooth on the upper sides, and one foot apart from the floor upward to the ceiling; they are thirty-two inches in width, with strips of board, three inches in width, nailed to the front edge. Through the middle of the room are double ranges of similar shelving, with suitable passage ways between. Upon these shelves, the apples are placed in quantity as deep as they can easily be stowed; of course shallow in front, but eight or ten inches deep at the back. By this mode every distinct variety, as it approaches maturity, can be seen at a glance, enabling the proprietors to dispose of those kinds first, that present the first feature of ripening or indication of decay. The fruit-room is kept thoroughly ventilated by two windows in front and one on each side for the admission of air. From the center of the ceiling above, a flue ventilator rises through the upper story and out at the roof; it is twenty inches square at top and two and a half feet at bottom; it is kept always open, as well as the windows, except that the latter are covered with wire gauze to prevent the ingress of vermin.

Thus, at all times, is the air freely admitted to the fruit until the freezing season sets in. When the cold is sufficient to endanger the fruit, the windows are closed; but care is had to open them at the first recurrence of a mild day. The humidity or dryness of the atmosphere is never taken into account so that perfect ventilation is only secured. The upper story of the fruit-house is devoted to the reception and packing of fall and early winter apples, upon which not so great care is necessarily bestowed as upon the more valuable late keeping varieties.

In front and adjoining the lower story of the house, between it and the river, is the packing shed, where the fruit is put up in suitable packages, as boxes, etc. From both the upper and lower floors of the building and passing under the packing shed, are sliding-ways that convey the packages with expedition and without concussion to the deck of the vessel in waiting to receive them; a portion of these slides at the lower ends admitting of being raised or depressed to suit the stage of the water or hight of the vessel's deck. Altogether, it is doubtless one of the best arranged fruit-growing and fruit-packing establishments in the world.

Conclusive of its model management, we find the proprietors realizing from two to five cents per pound more for their fruits than other producers of the same varieties; whilst the question as to the profitableness of fruit-growing upon their system can be answered by the results. Messrs. Meek & Eddy, the last season, raised closely on to four thousand bushels of apples—forty-five pounds to the bushel being the standard weight. These apples brought them from fifteen to thirty-five cents per pound, or an average of twenty-five cents, amounting to the cozy little sum of forty-five thousand dollars. This is from one year's yield; of course the expenses of picking, packing and shipment must be deducted from this amount to arrive at the net profit of the year's business; but still, it must leave an enormous margin over all expenses. Who would not be a Pacific coast fruit-grower?

HISTORY AND GENERAL PROPERTIES OF BEANS.

THE bean was cultivated in Egypt and Barbary in the earliest ages, and spread thence into Spain and Portugal, from whence we have received our seed. "One of the most noble and powerful families of Rome derived the name of *Fabii* from some of their ancestors having cultivated the bean called *Faba.*"

The proportion of nutritive matter in beans as compared with other grain, is, according to *Einhof*, much greater than even that of wheat, it containing seventy-four per cent., while French beans are rated at eighty-four per cent.

Sir Humphrey Davy gives as the analysis of Kidney beans in 3,455 parts:

Starchy matter	1805
Albumen and matter approaching to animal matter in its nature	851
Mucilage	799
	3455

Bean meal when mixed with water and given to cows materially increases their quality of milk.

It has in common with the pea and vetch, though in a greater proportion, a peculiar principle termed *legumen*, which is analagous to casein, the animal principle in milk: this is convertable into cheese, and in its nutritive properties it is essentially the same as the fibrine of lean meat, the albumen of eggs, and other animal matters. There is no vegetable we produce which so nearly supplies the place of animal food as the bean.

The straw or haulm of beans is much valued as food for horses, oxen, etc., and when dried is equally valuable with the best English hay.

Manures.—A heavy soil, fully under-drained and thoroughly and deeply subsoil plowed, is alone suited to the raising of Lima beans, and while success in degree may be met with in other soils, the market gardener can only pursue the growing of this crop to full profit in those of heavy character, properly prepared as above and judiciously manured.

The nitrogenous constituents of beans call for manures capable of supplying full quantities of nitrogen combined with soluble phosphates—all of which are furnished by the nitrogenized super-phosphate of lime, which for this crop, in common with many others, is the best known manure. With 600 lbs. of this manure to the acre, we have procured one quart of dried Lima beans to the pole. Thus at four feet apart in each direction, we have 2,722 poles per acre, yielding 85 bushels of dried Lima beans, worth $4, is $340 per acre; the price is frequently $6, and we have never known them to be worth less than $4. The cost of the above manuring is $15, and the results are greater than from the use of twenty cords of barn-yard manure.

Cultivation.—Horse hoes or cultivators may be run in both directions so frequently, as to prevent the appearance of weeds, and so closely as to render the hand hoeing unnecessary. The slight use of a scuffle hoe immediately around the poles is the only hand work, except the shortening-in which will be required.—*Working Farmer.*

VINEYARD PLANTING.

Editor Culturist:—The importance which the culture of the vine assumes in our State, I plead as an excuse for the presumptiou to introduce facts, evidently confirming the opinion "that cuttings are better than rooted vines for planting out vineyards." The reader may be assured that I have not preconceived a theory, nor taken issue with any favored idea; but freely impart my experience to my fellow-laborers in horticulture. I do not make a practice of selling cuttings, but such as are not used for planting, I have them cut into small pieces, and scatter them over the ground, by which I restore a valuable element for the further use of the growing vines.

There is probably no other fruit whose qualities are so much affected by the variation of soil, the conformation of the surface or its descent, elevation, exposure to currants of air, rays of light, etc., etc.; these topics open a wide field for observation and discussion. Happily our climate is so favorable to its perfect development, that almost in any part of our State, good table grapes can be produced; they will be soon, and justly so, considered one of the necessaries of life: how important, then, for every man to know how to plant a vine.

In ascertaining the adaptability of the soil for a vineyard, I would dispense with the costly experiments of the chemist; the indigenous growth of plants is a far better criterion of the composition and consequent fertility of the soil. I have observed that any soil which will produce, without irrigation, garden vegetables—Irish potatoes, late in the season, excepted—is well adapted for the culture of the vine. On sandy soil, without facilities for irrigation, grapes do not succeed here.

Loamy soils should be made mellow and friable by frequent plowing, subsoiling or trenching. Next, to insure the success of the vineyard, the cuttings must be carefully selected, of strong, short-jointed wood, minimum length, two feet; the lower end cut slanting, close below a bud, kept in moist soil from the time of pruning until the day of planting—handled with care to prevent their being bruised—planted in a hole, large more or less, according to the mellowing of the soil. If, after planting, there is sufficient rain to settle the soil around the cutting, no further care is required; otherwise a bucket of water to each cutting will insure success. It is a demonstrated fact with me, that select cuttings at the highest market value, are preferable to one year old nursery-vines obtained gratis.

To secure any advantage from planting rooted vines, they ought to be two and three years old, of thrifty growth and a well formed stalk; but above all, dug out with all the roots entire, which is almost impossible to do, and will require the use of the knife to cut smooth the ragged ends; but certainly not to mutilate your labor by pruning them to three and six inches long.

To demonstrate, as the desirable length of a cutting is a mooted point, I send you several grape vines, raised from long cuttings, dug out promiscuously from nursery; they are two and three years old. The main roots, called "foot-roots," have grown from the lower end of the cutting, which surface is well granulated over, to guard against any fancied injury to the pith—whose functions are demonstrably abrogated—

these main roots in transplanting are more or less destroyed, and there is no surface left for the emission of a new set; hence the irreparable injury to the vine. The cutting, after planting, having emitted spongioles in quest of nourishment, is apparently altered in its constitution; adapting itself to the new office, and for every purpose has the quality and properties of a root; and as the roots descend to greater depth in quest of food, so by the long cutting this condition is favored, which is absolutely necessary on unirrigated land in California.

For the sake of some of your readers, who may be deceived by the oft expressed opinion of writers, and be induced to plant vineyards on dry soils and picturesque hill-sides, without enjoying facilities for irrigation, permit me to extend this communication.

I consider myself justified in the remark, that the indiscriminate allegation, "that irrigation is injurious to the health of the vine," is not sustained by experience. The history of the vintage in the old world, teaches me that dry, warm weather is absolutely necessary during the ripening and gathering season, to insure a choice, high flavored wine; at the same time that any unusual drought, during the "stoning and swelling" process, will reduce the quantity to one-half and to less—in proportion to its duration. Here we have to consider that absence of rain, during two months with them, is considered a dreadful affliction, on a soil which was fully saturated with moisture during the months of May and June. My experience here is, that even on my moisture-retentive soil, to insure success, I must resort to a careful culture and thinning out of the bunches, etc., etc., to produce fine, well-developed grapes; and that by one copious watering in the month of July, I could almost double the yield without injury to quality.

J. Strentzel.

Alhambra Valley, near Martinez, March, 30th, 1859.

LONG OR SHORT CUTTINGS.

THE vines with their roots raised from long cuttings, alluded to in the foregoing interesting and valuable communication were duly received; and we are ready to acknowledge that we were taken somewhat aback in our opinions relative to the utility of using grape cuttings two or more feet in length for planting vineyards. In a previous number of the *Culturist*, in our remarks upon the use of long cuttings, we said "we can see no possible advantage in setting a cutting any deeper in the soil than it can throw out roots, etc.;" meaning by this, that at a greater depth than ten or twelve inches from the surface, they could hardly be expected to grow roots, and, therefore, if deeper than this must be useless; but in the specimens on hand, and which we invite all vine-culturists to examine, we find at a depth of two feet from the surface around the extreme lower joint of the cutting, all the principal roots. We also observe that, even from this point, the roots, instead of growing towards the surface, had plunged directly downward.

We are, therefore, unhesitatingly compelled to admit that there are soils, and doubtless in many localities, in which two feet is not too great a length for a cutting;

and we are inclined to believe that very many of the failures to grow vines from cuttings have grown out of the use of those that, too short to reach, with their young roots, the moist subsoil before the drought of summer is upon them, necessarily succumb for the want of the very moisture that might have been secured by the use of a longer cutting. We are aware that very many of our most successful and experienced nurserymen are in favor of raising vines from short cuttings or even from single eyes; and, without doubt, for all the purposes of the nurseryman, single eyes do produce what, on being removed, appear to be the most perfect plants.

Vines, grown from a single joint or eye, have a fine set of roots all starting from one point and if not to be removed from their place of first growth, and can be supplied with sufficient moisture to insure their vigorous growth till their roots have penetrated a more retentive subsoil, doubtless will make very perfect vines; for it is an axiom with some in tree-growing, that "a new tree or vine is the more perfect, the more it is divested of any section of an old one." But where such vines, with only surface roots, are to be transplanted to the vineyard, we doubt their superiority over vines raised from cuttings planted out where they are to remain. So far from being true that the lower end of a cutting, in the soil of the Alhambra valley, rots if more than a foot in length, we find in the specimens before us the cut completely and smoothly grown over, and perfectly sound two feet below the surface.

Every day convinces us more and more that we must not be governed solely by the established theories or even practices which have been our guides to a successful horticulture in other lands and climates.

FRETFUL FARMERS.—The New York *Tribune* well says: "Men make themselves uncomfortable, destroy the peace of their families, and actually make themselves hated by fretfulness." Beecher says: "It is not work that kills men; it is worry. Work is healthy; you can hardly put more upon a man than he can bear. Worry is rust upon the blade. It is not the revolution that destroys the machinery, but the friction. Fear secretes acid, but love and trust are sweet juices."

We know a man with a patient, good, Christian wife, and we never heard him speak a kind, pleasant word to her, and doubt if he ever did in the half century they have lived together.

He is always in a fret; everything goes wrong. You would think that he was made of cross-grained timber, and had always been trying to digest a cross-cut saw. He is eternally cross, and always thinks that his wife and children, hired hands, and all the domestic animals, have entered into a combination to worry him to death. He is incased in a shell of acid secretions, through which no sweet juices ever distill. Friction has literally worn him out, and he will soon worry himself to death. Of course he has never worked to any advantage to himself or any one else. With him everything always goes wrong. He superstitiously believes "it is because the devil has a spite against him," when in truth it is nothing but his own fretfulness.—*New Jersey Farmer.*

THE CRANBERRY TRADE IN WISCONSIN—*An Extensive Business.*—The Juneau county (Wis.) *Argus* figures the total quantity of cranberries marketed at that point at 28,000 bushels, and the total amount of cash disbursed in connection with the traffic, $58,000. This is a very respectable business.—*Emery's Journal.*

Horse Races at Fairs.—We have heretofore borne our testimony against horse-racing at Agricultural Exhibitions, and urged all sensible farmers to stay away entirely from any so-called agricultural fairs, where horse-racing is directly or indirectly encouraged or allowed; and we have, likewise, been so ungallant as to advise the ladies to make no display of equestrian skill on such occasions. Let Agricultural Exhibitions be such, and such only; and let those who delight specially in fast horses get up their own shows or races. If, however, the advocates of racing insist on showing off their fast horses at the Fairs, we commend to their consideration the following hints from the Springfield *Republican:*

At every show there are a class of beautiful horses, of moderate abilities. Like some handsome humans we have read of, they are pretty but not smart. We have a plan to display these at the coming Fair, of course with the consent of the owners. It is said that the inhabitants of Minorca have the following amusement on their list, viz., *a donkey race*, in which there may be from twelve to twenty competitors. The rules of the race are that no owner shall ride his own animal; that no one who starts shall turn back or stop; and that the last one at the goal shall be considered the winner. Of course, it is for the interest of every aspirant for the prize to urge on the donkey on which he rides, so as to keep ahead of his own, ridden by another. It must be a very comical and ludicrous sport, and being a very unusual thing, we throw it out as worthy the attention of the horse-committees at the approaching Fairs.—*American Agriculturist.*

There is one department of the Massachusetts cattle shows—says the *Farmer's Magazine*—that has rather startled, as well as amused us. We give the account in Mr. Parkhurst's (Secretary to the Plymouth A. S.) own words:

"The most attractive scene of the whole show was to take place at ten o'clock—the exhibition of *female equestrianism*, which did not take place till eleven o'clock. Twenty-six ladies entered their names for premiums; but thirteen appeared on the ground. The cavalcade left the village about eleven o'clock, and went around the track once, each lady accompanied by a gentleman, and presented themselves before the judges' stand. By order of the judges they performed a variety of evolutions, riding in pairs, in quartets, all together, and each lady alone, riding slow or fast, as best suited her taste or convenience. After performing an hour or more, they left the ground. These equestrians performed their parts—so far as we are capable of judging—well. Many of them labored under disadvantages: their horses were not thoroughly trained to the saddle. There were a few good horses, but generally they were not fit for the occasion. The question comes up, whether this is the proper place for ladies to exhibit for premiums?—whether the fairest of nature's workmanship should be shown for money, *in connection with the grossest animals and the products of the land.* I think not."

Trusting to a Single Crop. There is no crop that does not fail sometimes, though there are a few which are never wholly cut off in any season. Grass, for example, always yields a partial crop, and a person may, if need be, depend wholly upon this product as a means of subsistence. The same thing, however, can hardly be said of any other staple crop. Innumerable illustrations might be given of the danger of depending upon a single crop. The result in Ireland of relying upon the potato crop is patent. The failure of the wheat crop, in many parts of the country, has involved thousands of farmers in debt, which it will take years of toil and econ-

omy to liquidate. A friend at the west had been so successful in raising peaches that he turned his whole attention to that crop. Last year he realized a large net profit, and looking for still greater results this year, he laid out his plans accordingly, and incurred considerable debts to be paid from the proceeds of his peaches. The result is, that from five or six thousand trees he gathers scarcely two bushels of marketable fruit.

A mixed cultivation is the safest, in the long run. If the potato crop fails, let there be corn, wheat, barley, or other grain to fall back upon. The chances of utter failure are diminished a thousand fold where there are three or four different crops under culture. A season destructive to one is likely to be just the thing for another. —*American Agriculturist.*

FLOWERS.—How the universal heart of man blesses flowers! They are wreathed around the cradle, the marriage-altar, and the tomb! The Persian in the far East delights in their perfume, and writes his love in nosegays; while the Indian child of the far West clasps his hands with glee, as he gathers the abundant blossoms—the illuminated Scriptures of the prairies. The Cupid of the ancient Hindoos tipped his arrows with flowers; and orange buds are the bridal crown with us, a nation of yesterday. Flowers garlanded the Grecian altar; and they hung in votive wreaths before the Christian shrine.

All these are appropriate uses. Flowers should deck the brow of the youthful bride, for they are in themselves a lovely type of marriage. They should twine around the tomb, for their perpetually renewed beauty is a symbol of the resurrection. They should festoon the altar, for their fragrance and their beauty ascend in perpetual worship before the Most High.—*Lydia M. Child.*

PLOWING DEEP—PLOWING SHALLOW.

AT first thought it would seem surprising, that practical men should differ as they do on this topic. For instance, we have before us a dozen well written communications, about half of which contend strongly in favor of "going down to the bottom," while the other half assert that to plow below four or five inches is not only useless, but actually injurious to most crops. We cannot give these communications in detail; but we venture the assertion that both parties are correct in *their* conclusions. They reason from different points of observation. Let us examine the matter a little.

1. All plants consist of three parts—the main stem and its branches; the leaves whose office is to collect the principal *food* or nourishment from the air; and the roots which collect water (sap) from the ground to keep the plant moist, to supply its juices, and to act as a vehicle for carrying to different parts of the plant the food gathered by the leaves. The roots also serve as supports to hold the plant in its place.

2. The roots take in whatever liquids they are brought in contact with. They are increased in size and number by the direct application to them of food or stimulants (manures.) They are also injured by coming in contact with such soluble poisonous materials as they can absorb.

3. *The contact of air is necessary to destroy, (oxidize) certain poisonous mineral salts found in all soils—particularly the protosalts of iron.*

Now then, suppose we have a soil from which air has been shut out, by its compactness, or by the constant presence of water or moisture in its pores. To break up and pulverize such a soil deeply, is to invite the growth of the roots downward *below the usual access of air.* These deeper penetrating roots then absorb some of the poisonous (unoxidized) mineral compounds. The consequence is, the structure, not only of the roots, but of the whole plant, is injured. On such a soil it very often happens that shallow plowing, which only disturbs the thin surface portion immediately in contact with the air, will be preferable for the time being, to go down deeply at once. The true way is to go only half an inch to an inch deeper every year, and bring up a little of the under soil to contact with air, to be fitted by it for use; but not to bring up enough to injure the growing crops. Every one must have observed that the soil thrown out of a deep well will at first grow nothing; and yet after contact with the air for a year or two, or more, it becomes quite equal to the old surface soil.

Let us now look at another class of soils—those which are open, porous, and by reason of good natural under-drainage are a part of the year free from standing water to the depth of a foot or more. In this case the air will have penetrated deeply, and destroyed poisonous mineral compounds. Deep plowing will not loosen a mass of dangerous material, but on the contrary, will invite down the roots of plants where they will find a supply of moisture even when the surface is parched with drought. To stir such soil only at the surface, would tend to a shallow growth of roots, and when the surface dries up, the plant fails to get moisture enough to supply the waste of water by evaporation from the leaves. In soils of this character, it is manifestly desirable, nay, important, to plow deeply.

It is owing to such diversity of condition in soils, that practical men, reasoning only from their own experience, have been led to exactly opposite views in regard to deep and shallow plowing. Literally, what is one man's meat, is another's poison. And this remark has a wider application than to the mere question of plowing. The manures appropriate to particular soils, differ as widely as does the treatment required. Quacks in medicine recommend one kind of pills as a cure for all kinds of disease. Quacks in agriculture, in like manner prescribe a particular treatment or manure as just the thing for all soils and crops. If ingenious, they can each make out plausible arguments to support their pretentions.

In regard to plowing deeply, the true theory is to provide a deep, thorough drainage for all soils not naturally dry to a considerable depth from the surface; and then, *by degrees,* break up the subsoil, until a deep bed of dry, warm, air-exposed soil is secured. When this is done, plants will send down and spread widely a mass of roots that will support a corresponding growth of vegetation above the surface, and as before remarked, our crops will be independent of the mere surface effects of droughts or rains.—*American Agriculturist.*

SHORT-LIVED FRUIT TREES.

NO one, even in California, has a word to say about short-lived forest trees, nor in the older fruit-country of the Atlantic States do we hear of the decline of such fruit-bearing trees as have sprung from self-sown seed and been nourished by neglect; for these are invariably the longest lived trees. There must be something, then, in the condition of a pampered, cultivated tree, either as regards the soil in which it is grown, or mode of culture, or management, that predisposes so many to an early decay. Were we to attribute the evil solely to the properties of the soil in cultivated grounds, we might be at fault in the opinion of many; because, say they, cultivation and manuring improves all soils and is essentially necessary in the production of continuous crops.

In a preceding article upon deep and shallow plowing, we take exceptions to one or more points. It is there said that, "the roots take in whatever liquids they are brought in contact with." Most vegetable phyisologists maintain that of trees or plants, to a very great extent, each take from the soil in which it is grown properties peculiar to itself and its own wants; and upon this view is based the system so invariably adopted by the best agriculturists, of a change or rotation of crops. Thus a field in which potatoes or beets may have been cultivated for years in succession, and until it will no longer produce an average yield of such crop, is rendered none the worse or but slightly less available for the production of any of the cereals, as wheat, rye, oats or barley.

By a rotation of crops we avail ourselves of this peculiar property of soils—or rather of all their properties. But when an orchard is planted it becomes a fixture, without rotation, and consequently goes on from year to year exhausting the soil of those properties only, the best suited to its growth. We do not believe that the tree is injured by its roots "coming in contact with such soluble poisonous materials as they can absorb," so much as the want of proper food or material to absorb. A tree will elect from the soil through the agency of its roots, the property it most needs; and, if not found in the soil, the tree declines for want of the proper nourishment, rather than from appropriating substances of a nature it does not require and cannot assimilate.

Reasoning from this data, we believe that, though orchard grounds may be kept in a state of perpetual fertility as regards a rotation of the ordinary farm crops, the orchard portion of its product, from remaining a perpetual draft upon the soil of such properties as it requires for its continued thrift, may lack the necessary food to maintain it. A correct knowledge, therefore, of the food best suited to the growth of the orchard, becomes a matter of the highest importance and should not fail to engage the attention of pomologists.

But in the growth of self-sown fruit and forest trees without removal, and no care bestowed in supplying them with renewed nutriment, we find perpetual thrift. This must be owing, then we think, to a continued extension of the roots into new soil. We believe that the roots of a tree have different functions to perform. We know

the limbs have; for whilst some are fruit producing only—as the fruit spurs—others are wood and leaf producers; then why may not the roots, differently situated as they are in reference to soil and subsoil, have their appropriate spheres of usefulness? If this be true of the roots of a tree, then are we inclined to believe that the deep running roots have an office to perform essential to the well-being, health and consequent longevity of the tree, that cannot be performed by surface roots alone.

If we are right in our conclusions, then may we not attribute the disposition in cultivated trees to premature decay more to the loss or want of these deep running roots, and an undue proportion of surface roots, than to any lack of fertility or proper constituent of food in the soil? In reference to the effect of heat, cold and rain upon fruit trees with only surface roots, read the answer to "Amateur" on another page.

ABOUT SURFACE ROOTS.

Editor Culturist:—In the March number of your monthly, I find a notice to the effect that Oregon orchards are, to some extent, exhibiting marked symptoms of an early decay, and which you seem to attribute to the mutilation of the roots in the different processes of transplanting, grafting, etc. Though not cultivating fruit as extensively as are some of our Oregon orchardists, I do claim that, with the few trees I have, an unusual degree of interest has been felt in their successful growth as well as care bestowed in promoting it. And yet after all, the fact is apparent that, as with other Oregon trees, mine are—a few of them at least—dying, and dying young; but that their premature decay arises from a loss or mutilation of their roots, I can hardly believe; because an occurrence, simple in itself and happening in my immediate neighborhood, is conclusive to the contrary.

The owner of a few apple trees that have borne but sparingly for three or four years, though making annually a strong growth of wood, was recommended to try the effects of root pruning as a means of inducing fruitfulness. With no knowledge of the proper mode of proceeding, instead of shortening-in the extremities of the roots by digging a trench and cutting them off at a distance of two or three feet from the body of the tree; he, one year ago, proceeded to dig down and cut off close to the body all the surface roots, to the extent of probably one-half of *all* the roots; thus leaving only the lower or deeply descending ones to nourish the tree. Now this process is just what you would doubtless term an unnecessary mutilation of the roots, and as a result we might in accordance with your theory have expected injury to, if not the death of the trees.

The real result, however, is quite different from this; for not only were the trees, thus operated upon, made fruitful, but they have withstood the cold of the past winter better than those which suffered no mutilation of their roots. How do you reconcile these *facts* with your *theory*, that root pruning—which you are pleased to term mutilation—is working an injury to Oregon apple trees?

PORTLAND, Oregon, March 28th, 1859. AMATEUR.

OUR ANSWER.—We are pleased at having an opportunity of setting "AMATEUR" right, in reference to our "theory," as you seem disposed to term our *opinion* in reference to the mutilation of the roots of trees. We never have said that root pruning was shortening the lives of Oregon apple trees. Root pruning, properly practiced, is a very different matter from mutilation. We have objected only to the practice of destroying the main lower roots of a tree at the time of transplanting. Cutting away and utterly destroying the limbs or tops of trees, is a very different matter from properly pruning them. When you destroy all the lower roots, you force the tree to the production of surface roots; and, as this is the practice of many orchardists, let us inquire into the probable effect of this unnatural forcing of roots, near the surface, by the destruction of the lower ones.

One of the most extensive apple growers of your own State—Oregon—says, that the cause of the dying of Oregon apple trees is unquestionably found in their disposition to make a second growth late in autumn; which growth is induced by early fall rains, whilst the surface soil is yet warm from the long summer's sun. If this be true, and we have every reason to believe it, then no more effectual way to destroy your orchards can possibly be devised, through climatic influence, than to destroy the lower roots and encourage the growth of surface roots; for it must be apparent to every one that it is the surface and not the deeply running roots that are the first to feel the influence of these early fall rains.

The effect is, to cause the tree to renew a circulation in the fall, that, but for the undue quantity of surface roots, would have been retarded until spring, and the tree saved harmless from the effects of frost upon immature sap and wood. We think there can be no better exemplification of the truth of this, than appears in the experiment of root pruning to which "AMATEUR" alludes. In that case, the surface roots, to the extent of half of all the trees possessed, were not merely pruned, but actually cut off, destroyed, close to the body of the tree, and mark the effect; "not only were the trees, thus operated upon, made fruitful, but they have withstood the cold of the past winter better than those which suffered no mutilation of their roots." This is undoubtedly true, and why? simply because the trees had fewer surface roots to feel the revivifying influence of the early fall rains. Their roots all run low, and consequently escape the effects of sudden transitions of heat, cold, moisture or drought.

That a certain natural amount of surface roots is requisite to the well-being of all trees we admit; but we deprecate all unnatural forcing of such roots. We have observed that vines, grown from short cuttings, are more disposed to start too early in the spring, than those raised from long cuttings. This, of course, subjects them to injury from late spring frosts. We believe that had more of our trees, whose fruit was totally destroyed by the recent frosts, been provided with more deeply running roots and less in number near the surface, to be forced by the first warmth of spring, their growth would have been sufficiently retarded to have escaped injury.

That fruit, shade or ornamental trees, introduced into a California or Oregon soil and climate, must necessarily be short-lived, we do not believe; and if they are, it is because some law of vegetable physiology, applicable to their growth here, is disre-

garded or violated. We believe that, to a very great extent in California, that law has been violated, in an unnatural forcing of a growth of surface roots, by the destruction or mutilation of the main and more deeply running roots.

WINTER FORAGE—LOOK AHEAD!

IF there is one point more defective than another, in California agriculture, it is the deficiency of winter food for stock. Whilst our flocks and herds are gradually increasing, the means of affording provisions, during winter, for their rapidly augmented numbers, is decreasing in an alarming rate. Every additional settler, when inclosing his ranch, restricts the heretofore almost unlimited range possessed by the earlier farmers, not only for grazing, but also of cutting winter forage, and will speedily compel the bulk of persons, engaged in agriculture, to depend for a winter supply of food for their stock upon the productions of their own farms. Not only, however, is this restriction confined to space; but, in a still more alarming ratio, is it diminishing the weight of food obtainable from a given area. Notwithstanding all the advantages which have been claimed for California in respect to its general soil and climate, as pre-eminently adapted for agricultural pursuits—and we most cordially admit that they are many and great—though not altogether unalloyed with some disadvantages, one of which we shall shortly allude to; still, California forms no exception to a general law of nature, namely: that, if the land is continually cropped without an adequate return being made to the soil by means of cultivation or manure, or both, diminished production will be the speedy result. It will be well for all engaged in stock raising throughout the State, to forcibly impress the fact just mentioned upon their attention; for, if unheeded, the time is fast approaching when it will be most emphatically made evident by serious losses incurred by their flocks and herds being more than decimated through starvation during the winter season, the survivors being only living skeletons, requiring a long time to depasture in the spring, to resume their pristine condition.

The past winter must have afforded practical evidence of the correctness of these remarks to a large majority of our husbandmen, notwithstanding which we do not see the slightest evidence of any steps being taken to alleviate the ever returning evil. With sheep, the loss is greater than on cattle; because the wool of the former, which forms so considerable an item of revenue, is not merely diminished in weight of fleece, but the character of the staple is also greatly deteriorated, owing to general unevenness of fiber and inequality of strength, in consequence of which, it breaks into short lengths, in the course of manufacturing.

No axiom can be laid down as more certainly true, by the stock raiser of any description, than this, namely: that in order to obtain the most profitable results in stock raising, the process must always be onward, any falling off requiring a more than equal amount both of time and weight of food, to restore animals to their previously improving condition.

Let us examine as to the facts connected with the present system of feeding cattle in California; laying aside the limited instances, such as occur in Santa Clara Valley and a few equally favored places, where beet root and squash are easily grown, and retained for feeding stock during winter, what is the provision made by the bulk of farmers for maintaining their stock in a good condition, as they will be found to be in August next? The answer is a most humiliating one; absolutely nothing! Even in many instances where the means, at a very little trouble, are in their possession, of palliating the evil, the advantages are carelessly overlooked. We have alluded to the reprehensible practice so common as to be almost stated as the sole practice of California, namely: of allowing wheat straw to rot in the fields or clearing it off by burning.

Now carefully saved wheat straw and chaff, mixed with the tailings of grain, form by no means an indifferent kind of winter fodder; and, if the farmer has been wise enough to grow some potatoes, beets, squashes, turnips, etc., to be used along with the dry food, not only will a provision, most agreeable to cattle during the winter season be provided capable of holding their own, but improving their condition; whilst, if proper arrangements are made, a quantity of manure will be accumulated adequate to raising, during the succeeding year, an amount of green winter feed, sufficient for use during the following season. A system once commenced and followed out with care, may be continued any number of years with renewed advantage to the soil and enormous value to stock.

The subject of preserving mauure is, however, the last thing thought of by the bulk of California farmers. We should like to be informed what has been the loss on stock during the past winter through such starvation—the amount must be enormous.

It is one of the weak points in California husbandry, that the climate of this State is somewhat inimical to the growth of plants, such as turnips &c., by which the British farmer is enabled to provide a larger quantity of winter provisions than he can procure in the summer season. The obstacles to accomplishing a similar result, are, however, far from being insurmountable; partial failures may attend attempts made with other special kinds of plants, from either being planted in unfavorable soils or at unsuitable seasons, but if five hundred intelligent farmers, and there are surely that number throughout the State, with public spirit enough to make experiments on a small scale, and publish their experience we would speedily accumulate a great amount of practical knowledge which would doubtless be of considerable private benefit as well as enormous public advantage.

By August next, all kinds of stock for the presenty ear will have arrived at their highest condition, at which period they will be crowded into the market at prices no higher than what would be obtained for starvlings during the following spring; whilst from the beginning of December to the end of February, our market can scarcely be supplied with well fed meat at prices fifty per cent., and even more than that, above what animals in like condition would obtain in August and September.

We have written this with the present object of drawing attention to the subject

merely so far as to ascertain what are the opinions of our subscribers on the matter, and to glean from them, if possible, whether any are acquainted, either by their own personal practice or by that of their neighbors, with any mode or modes adapted to this climate, that are found to palliate the evil under notice. If so, we shall be glad to hear from such, and give their results to the public; afterwards we may probably draw up a resumé of the principal winter forage plants, together with a brief account of soils, season, etc., best adapted to their cultivation, and the kind of stock by which they are consumed most economically.

It was our intention to have enlarged on the subject of pasture and meadow lands, suggesting at the same time, the employment of additional kinds of grasses to the number now employed here; however, on looking over the subject, we found that we had not the space to spare in the present number to do justice to this very important branch of farming, and must consequently defer the matter for a more favorable opportunity. In the meantime, we shall be glad if any of our subscribers will give us their experience respecting the different grasses used for laying down land, either as meadow or pasture. With the exeeption of the spontaneous natural grasses, we find as far as our experience extends, the only seeds employed by farmers in this State are red-top, herdsgrass and Kentucky blue grass; our own opinion of the first is most unfavorable, excepting it be to sow on dry, gravelly soils or uplands. The two last named are good grasses, but would form far superior pastures if combined with others. For it is a well known fact that grasses generally, and some especially so, grow much better in associaton than alone, or along with one or two species only.

It would afford a poor exemplification of the energy, enterprise, industry and perseverance claimed for Californians, were they to sit down and allow the evil complained of to continue unremedied, nor do we think our fellow citizens will.

For what was reason given to man but for the purpose of surmounting difficulties? "By the sweat of thy brow shalt thou eat bread," is part of the primeval curse, and entails upon every man that is born the necessity of unremitting labor, care and attention. Perhaps few countries are generally so favorably placed in all matters dependent upon nature as California, still it is far from an Eden; did all its fine valleys and hill sides naturally combine every requisite for continued luxuriant vegetation without human assistance, they would speedily be overrun with dense forests of timber or chapparel, as within the tropics. Even in these intertropical countries, constant attention is required to maintain the land clear of forest or jungle, the cactus and cicads. Without industry, therefore, in pursuance of the original malediction, "thorns and thistles shall it bring forth to thee." That California possesses a climate and soil capable, with the judicious outlay of capital and labor, of producing the largest amount and most varied species of valuable agricultural produce within an equal geographical space, we are willing to admit, but that we have as yet set about getting into the best way of realizing its great natural advantages, we are not disposed to concede.

ABOUT SEWING MACHINES.

I HAVE been in possession of a sewing machine for about nine months. It works admirably, and is well adapted to the wants of the farmer's family. If we look at our time, ease and comfort, and above all, health, the sewing machine is almost indispensable. I can do as much on my machine in one hour, as I can in four or six hours with the needle. Of stitching and close back-stitching, I can do as much on the machine in one minute as I can in half an hour with the needle. It does not require much more fixing and basting, as many suppose, than is necessary with the needle. As for ease and comfort, which is equivalent to time, there is not more labor in operating the machine one hour than sewing the same length of time with a needle; besides, in operating the machine, the exercise is rather conducive to health than otherwise, while it is well known that hand needle work has slain its thousands. Some say it has slain more than the sword. Then, again, is not health one of the greatest blessings bestowed upon us? Why not take advantage of the opportunities afforded by the invention of a machine so well adapted to our wants, as well as conducive to economy? I believe it is the most economical piece of furniture that can grace a homestead. Reflect for a moment on the difference in time spent, labor saved, as well as expense of a seamstress, or of overtaxing tired heads and hands, long after nature calls them to be at rest. I know this to be a fact, common among the mothers of families and those who sew much. I have known something of this myself, and would urge any who may read these lines to procure a machine as soon as possible.

There is such a variety of machines, both high and lower priced, they come within the reach of any farmer's family as well as others. It does not require any great length of time to learn to operate them, and is so easy and simple that almost any child ten or twelve years of age could be taught quite readily.—PHEBE W. COOPER, in *Genessee Farmer*.

ON THE MANAGEMENT OF CANARIES AND OTHER BIRDS IN THE HOUSE.

IN keeping birds in the house, I always use unpainted cages, as I think them more healthy than painted ones, as birds peck the paint, which often poisons them. Cages that I have used are made of mahogany, with a draw in the bottom for convenience of cleaning, with china or glass cups on each side to hold the seed and water. There should also be a cup of water large enough to bathe in but not to drown them. They cannot be healthy without plenty of clean water, both for bathing and drinking. The cage should be large enough to allow them to fly about and enjoy themselves.

The time for canaries to pair is about the middle of March, when they should be placed together, each pair in a large breeding-cage. If brought together before, they will fight and sometimes kill each other. If they agree, they will soon begin to feed each other, when they must be supplied with a box, two and a half or three inches

square, or a basket made for the purpose, hung up in their cage, in which to build their nest; also materials for building. I have found hemp rope cut about an inch long and picked to pieces, and the white hair from a calf's tail to be the material they prefer. They will build and throw out their nests several times; but when they begin to be really in earnest they will work very fast.

When the bird has laid one egg she will begin to set, and lay an egg every day till she has four; and in two weeks from the time the first egg is laid it will hatch. During the time of setting, the birds must be attended to very carefully, giving them a variety of food, such as eggs boiled hard and chopped very fine, with bread, and bread and milk, as well as seed, of which it is best to give them several kinds. The milk should be scalded to prevent their becoming sick during incubation, which frequently happens without it. The white of the egg should not be given to the young—only the yolks—as they cannot eat the whites and remain healthy.

The cage should be examined while there are young in it very frequently by lamplight, to ascertain whether there are mites about it, which are small red insects barely preceptible to the naked eye. Unless these mites are kept out of the cage, it is useless to attempt to raise or keep birds. A single drop of sweet oil on the sole of each foot of the female, when she commences setting will guard against their attacks.

Once a month the birds should have a small pinch of saffron in their drinking water. Great attention must be paid to the cleanliness of the cage. The draw should be cleaned and sprinkled with fine, white sand, daily. The cage should be cleaned thoroughly once a week, and well dried before the birds are returned to it, except while the bird is setting, when it *must* not be disturbed, except to take out the draw and replace it when cleaned, covering the bottom with fresh sand.

If it is necessary to handle the birds, it must be done carefully, as they are very tender, and will not bear much handling. Great care should be taken not to frighten them. I have known a valuable canary bird so frightened that he never sung again. Strangers should not go very near the cage, and no one should look into the nest while the bird is setting, or she may desert it.

We have frequently let them out of their cages, taking care to close all places where they could make their escape. They fly about and alight on heads and shoulders, and sometimes on our hands; and if there are plants in the room they seem to take great delight in flitting about among them. When tired they will return to their cages. It may be necessary to place a piece of apple or something tempting inside the door of the cage to call them back; but they will soon become so familiar, if allowed to be out often, that they will not need much coaxing to induce them to return.

Ripe fruit in its season, sugar, chickweed, or lettuce, are excellent to keep them in in health. Cuttle fish bone and bread or cracker should always be in the cage for them to peck at, but they should not have rich cake. If they have the dumps they will set on the perch with their feathers rough, not taking the trouble to dress their plumage. Put a drop of sweet oil on the sole of each foot and it will cure them. A

little scalded milk on some bread will cure the diarrhœa. When moulting they should have less seed, but be supplied with soaked bread, lettuce leaves, fruit, etc., to allay the natural fever.

In winter they should be kept in a warm room, but not very near the fire. In summer, the cages should be hung out of doors a part of the day, to give them air, but shaded from the sun. Dew or rain should not fall on them.

I have kept none but canaries and goldfinches in cages, as I am not one of those who would deprive our native songsters of their liberty, and have them pine away in cages. *

CREEPING DOG'S TOOTH GRASS.—(Cynondon dactylon.)

THIS plant is a native of Hindostan, where it is known under the names of Duroa, Dub or Doob-grass. The identity of this Indian grass and the British species *panicum dactylon* was first pointed out by A. Lambert, Esq., in the sixth volume of the Transactions of the Linnean Society. Subsequently, some seeds of this highly celebrated grass in India were forwarded to the Duke of Bedford from the East Indies by the Marquis of Hastings, the then governor-general. The seeds were sown in the experimental grass garden at Woburn Abbey, where they vegetated readily, and produced plants which flowered the second year from sced. A portion of the seed was sown in the hot-house, and the plants cultivated in the same artificial atmosphere, in order to ascertain the effects of climate on the habits of the grass. There can be scarcely a doubt but this grass would prove highly useful on our southern tule lands and yield an immense acreable produce on such soils at a time when the upland pastures are dried up.

In the East Indies, the doob-grass grows luxuriantly and is highly valued as food for horses, etc. In England, however, it was scarcely found to vegetate until the month of June; in fact, was generally unsuitable to the climate. On much of our low-lying lands in the southern part of California, where the summer temperature approaches a tropical one, it might probably be found to luxuriate equal to what it does in its native country.

The celebrated Orientalist, Sir William Jones, states that every law book and almost every poem, in Sanscrit, contains frequent allusions to the holiness of this plant, originating, no doubt, in its extraordinary fruitfulness.

PRACTICAL BENEFITS OF SCIENCE.—It is an interesting fact, that the superior quality of the products of the oil-candle factories is a contribution from chemical science. A french chemist discovered that fats, such as oil, were composed of three inflammable acids; two of which, called stearic and margaric, are solid; and one called aleic, fluid. Another substance, called glycerine, is also present. The oil is freed from the aleic acid and the glycerine, which interferes with its power of producing light, and the two solid acids are crystallized. What are called stearine and composite candles are thus produced, at a cost which is really less than that of the old tallow candles, when it is considered that they burn longer and with greater brilliancy, besides being freed from a disagreeable smell and from a tendency to gutter.

Editor's Repository.

Change is the touch-stone of progress, and without it there could be no improvement. The California *Culturist* is now the property of its Editor; though printed and published, as heretofore, at the office of Messrs. Towne & Bacon, San Francisco. Correspondence, of any and every description relating to the *Culturist*, should, in future, be addressed to its editor.

But we would remark yet another change: we are to be assisted in our editorial capacity. The rapidly and widely extending circulation of our periodical, has induced us, in order to make the *Culturist* a still more valuable medium of information in all points connected with agriculture, to engage a gentleman—Mr. Thomas Rowlandson—to assist us in conducting the work.

As Mr. Rowlandson will probably be known, either personally or by reputation, to only few of of our readers beyond San Francisco, we shall here make a few observations, respecting his previous character as an agricultural writer.

We cannot afford a more perfect illustration of Mr. R's capacity, than by stating that he has had awarded to him not less than eight prizes for essays, by the Royal Agricultural Society, of England, namely:

£50	"Farming of North Wales,".....	equal to	$250
10	"Burning of Land for Manure,".....	"	50
20	"Cultivation of Hemp,".....	"	100
20	"The Breeds of Sheep best Adapted to different Localities,".....	"	100
20	"The Breeding and Management of Pigs,".....	"	100
15	"Top Dressing Soils with Mineral Substances,".....	"	75
10	"The Formation of Butter,".....	"	50
50	"The Farming of Herefordshire,".....	"	250
	Total.....		$975

We understand that no other person has as yet received more than three prizes from this distinguished Society. This fact alone speaks volumes for the merits of Mr. Rowlandson.

If further evidence was requisite, it will be found in the valuable testimonies, afforded by certificates—a copy of which can be seen at our office—given to Mr. Rowlandson by some of the highest dignitaries at England's court; the most illustrious men connected with modern science down to a humble, plain, but talented Scotch Gardener.

Having made so pointed an allusion to an individual in a humble but useful sphere of life, we may state that we have done so for the purpose of showing the eminently *practical* character of Mr. Rowlandson's works. In order, however, to fully illustrate the matter, it will be requisite to make a few observations as to how the certificates were obtained.

A short time prior to Mr. Rowlandson leaving England, a vacancy occurred in the chair of Agriculture at the University of Edinburgh. Mr. R. was a candidate for the office. On such occasions, it is usual to present testimonials of sufficiency for the office along with the application. To procure these, Mr. R. addressed letters to the members of the Council of the Royal Agricultural Society, of England, and to those who, like himself, had been successful prize essayists. The result was most congratulatory; being responded to most warmly, not only by those personally known to Mr. R., but by a far more numerous body, who were only acquainted with that gentleman by his works on agriculture. Several were from parties who, by their private letters, stated that they had been

rival essayists for some of the prizes obtained by Mr. R. More disinterestedly honorable testimony to both giver and receiver could not be adduced. Amongst others received was the following:

WEST PLEAN, STERLING, Jan. 4th, 1853.

Sir:—Your articles, in the *Journal of Agriculture*, have been useful lessons to me; and I am glad of the opportunity afforded me of thanking you for the information conveyed to your humble servant, PETER MCKENZIE.

To Thomas Rowlandson, Esq.

We have been somewhat lengthy in making these remarks; we have done so, however, in order to show to our readers, that whilst our future coadjutor is eminent as a man of science, his writings in the *Culturist* will, we firmly believe, be devoid of abstruse language, or where such may be found indispensable, explanatory notes will be given, so as to make it understood by the humblest capacity. We have introduced the above testimony, on account of its being exceedingly brief and emphatic, and, at the same time, will serve to show that papers, on scientific agriculture, may be clothed in language easily understood, and not, as is too frequently the case, so unintelligable that the bulk of the matter, to the greater part of readers, is as incomprehensible as though it had been written in Latin or Greek.

We cannot adduce a better testimony of the practical style of Mr. R's. writings, than the one above quoted; and, we believe there is none of which Mr. R. is more justly proud, notwithstanding it emanates from probably the most humble in social position of Mr. Rowlandson's numerous correspondents.

It may easily be conceived that the addition of Mr. R., to our editoral staff, is only obtained at a very considerable pecuniary outlay. This we have undertaken under the firm conviction, that a community possessed of so large a share of local public spirit as that of California, will not allow us eventually to be losers, by taking the preliminary risk in the endeavor to raise the character of the agriculture of the State, to the highest eminence compatible with its climate, geology and other attendant circumstances.

With these sentiments we, therefore, boldly and somewhat confidently solicit at the hands of our many and fast increasing subscribers, that they will second our efforts by using their personal exertions amongst their friends and neighbors, to become subscribers to the *Culturist*.

The arrangement alluded to, was only made within a week from the date of this publication; consequently, little could be done for the present number. A short article, however, appears on the important subject of Winter Food and Forage; a matter to which we have previously drawn the attention of California farmers.

As the next number of the *Culturist* will complete the first volume, it is not intended to introduce other than brief notices of interesting topics, reserving such as require the necessity of a more lengthened treatment, to be divided into parts for publication in the second volume.

Our present purpose is to have Mr. Rowlandson's prize essays, on sheep* and butter, re-written with orignal matter applicable to the peculiar situation of California, as respects market, climate, etc., and appear in the first part of volume second. These will be followed by others, on cattle, the culture of oats, barley, wheat, hops, cider and wine-making, climates, geology etc.; their influence in farming, and other subjects of important interest to agriculture.

ALAMEDA COUNTY FLORAL FAIR.—We learn, from the *Gazette*, that the members of the Alameda county Agricultural Society, have decided upon holding their first Floral Fair in Oakland, commencing on the 14th of June next. Alameda county has the men and mind, and will have the products, at that season of the year, for the best display, in the floral department of her agriculture, ever yet made in our State. An unusual degree of interest is felt to make the Fair an attractive one; and we believe it will be a success. San Francisco lovers of the beautiful in all its forms, will throng the Alameda county Floral Fair.

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* Which appeared in the *Alta California*, and attracted much attention.

Our Frontispiece.—In presenting the diffcrent fruits of the season, from time to time, we shall as far as convenient, adapt them to the time of ripening, the better to impress upon the notice of the reader, their rcal merits. Were we to give illustrations of the peach, in January, and of the yellow Newtown pippin apple, in August, it would be at least in bad tastc, if not entirely out of place. But to talk of the white winter pearmain, in April, scems well cnough ; because it is an apple not only excellent as a variety, but just now in the most perfect condition for eating.

The engraving which we present is a copy, in form and outline, of a specimen of the white winter pearmain, prcsented to us with other varieties of apples by Mr. John Lewelling, of San Lorenzo, for the purpose of testing their rclative merits for late keeping, with similar varieties received from Oregon. The white winter pearmain is unquestionably onc of the best of three or four of our latest keeping applcs, and deservedly ranks high as a superior dessert fruit. It is a little more than a medium sized apple generally, and, though much larger specimens than the one we have figured are easily obtaincd, wc have chosen to give the medium size.

No orchard of selected fruits should be without the white winter pearmain as one of the reliable market varieties.

Winter Fruits.—In answer to our call upon the fruit-growers of California, to send us some of thcir best kecping varieties of apples, that we might test their keeping qualities, side by side, with those of Oregon growth, we have reccivcd some beautiful specimens of Messrs. E. T. Crane and John Lewelling, of San Lorenzo. Mr Crane scnds us about as fine a specimen of the R. I. Greening as we ever saw, ccrtainly at this season of the year, and which bids fair to outstrip its competitors of Oregon growth. Should it do so, we shall be pleased to make a note public of the fact; but we are inclined to the belief that, with the R. I. Greening as a variety, it is even unusual to find it in good keeping and eating condition at this season of the year in any country, and that these specimens arc rather exceptions.

Mr. Lewelling brings us duplicate and more specimens of the white winter pearmain, Y. N. pippin and Frazier apple. The white winter pearmain will bc recognized in our frontispiece. All three varieties are kceping admirably, and we have yct to wait another, or perhaps two or three months, before we can detcrmine their relative merits as late keeping varieties. But we shall carefully note and correctly report the result as soon as determincd.

Agricultural Meeting in San Leandro, March 26th, 1859.—Pursuant to adjournment, and to the call as announccd by printed posters circulated throughout the county, the Socicty met, and was called to order by the President, A. H. Myers, Esq.

On motion, C. L. Goodrich was chosen as Secretary *pro tem.*

On motion, the Society decided, by a unanimous vote, to hold the first Floral Fair of the Alameda county Agricultural Society, in the city of Oakland.

On motion, the Society decided to open the said Floral Exhibition in the city of Oakland, on Tuesday, June 14th next.

Mr. Harry Linden submitted the following resolution, which was, on motion, adopted:

Resolved, That the Treasurer bc required to entcr into a good and sufficient bond in the sum of two thousand dollars to the President of the Alameda County Agricultural Society, and his successors in office, within twenty days from this date ; and in default thereof, that the office of Treasurer be declared vacant ; and it shall be the duty of the Board of Directors to fill such vacancy.

Mr. H. C. Smith introduced the following resolution, which was, on motion, adopted:

Resolved, That the Agricultural and daily newspapers of San Francisco are hereby asked to copy the proceedings of this meeting from the Alamcda *Gazette.*

On motion, the meeting adjourned.

A. H. MYERS, President.

C. L. Goodrich, Secretary *pro tem.*

Advertisements.—We would especially direct the attention of our readers to the advertisements in this number, as they cannot fail to interest.

Third Annual Meeting of the California Horticultural Society.

San Francisco, April 13th, 1859.

Society met at the rooms of H. Gushee, at 10 o'clock, A. M. On motion, meeting adjourned to 1 o'clock, P. M.

Afternoon Session.—The President being absent, John Lewelling, Vice President, took the chair.

The credentials of Messrs. Staples, of San Joaquin, and Wheeler, of Sacramento, as Delegates from the California State Agricultural Society, were received.

J. W. Osborn, Chairman of Executive Committee, reported. Report accepted and adopted.

On motion, it was *Resolved:* That a Committee be appointed to confer with the Mechanics' Institute respecting the amount claimed to be due to this Society, and failing in an amicable arrangement, that they have authority to take legal proceedings at the expense of the Society, to recover the amount they may find to be due. The Committee consisted of—A. A. Cohen, H. Gushee, T. D. Woolsey.

Resolved: That said Committee report to the Executive Committee at their earliest convenience.

Report of Secretary read, accepted and ordered on file.

On motion, it was ordered, that a proper entry be made upon the records, showing the appointment of W. Wadsworth to the office of Secretary of the Society, by the Executive Committee, on the resignation of O. C. Wheeler, former Secretary.

Report of Treasurer read, accepted and adopted.

Secretary presented his account for expenses incurred in cash, $14, which was allowed.

It was also voted to pay to the Secretary the sum of $36, for services rendered the Society.

Resolved: That the Report of last year's Proceedings be immediately published.

That the thanks of the Society be tendered to the Officers and Committees of last year; and also to the proprietors of the *Alta California* for the gratuitous publication of the Reports of the Committees, in full, thereby enabling the Society to place their proceedings before its members prior to the Annual Meeting. Also to the Auctioneers, Messrs. Riddle and Eldridge, for their services at the close of the Fair.

Communications from various members read and placed on file.

Communication of F. W. Macondray, showing that, on account of ill health, he wished to decline the nomination to the office of President for the ensuing year, was received with an expression of regret by the Society.

Unfinished business being closed, the meeting proceeded to the choice of the Society's Officers for the ensuing year.

On the first ballot, J. W. Osborn, of Napa, was unanimously elected President.

The following Officers were elected. The Committees were appointed by the President.

Vice Presidents.—John Lewelling, San Lorenzo; H. Haile, Alameda; John Center, San Francisco; A. P. Smith, Sacramento.

Directors.—Joseph Aram, San Jose; A. W. White, Alameda; H. Gushee, San Francisco.

Secretary.—W. Wadsworth, San Francisco.

Treasurer.—Charles R. Bond, San Francisco.

COMMITTEES.

Finance.—A. A. Cohen, J. S. Silver, D. E. Hough.

Library.—A. H. Myers, T. D. Woolsey, H. F. Williams.

Premium.—F. W. Macondray, San Francisco; W. Daniels, San Jose; G. H. Beach, Marysville.

Committee on Names and Synonyms of Fruits.—John Lewelling, Wilson Flint, Joseph Aram, A. P. Smith, F. W. Macondray.

Committee on Distribution of Seeds.—D. L. Perkins, G. W. Fountain, C. L. Kellogg.

Committee of Publication.—W. Wadsworth, J. B. Rumford, J. S. Silver.

On motion of Mr. Rumford, the following amendment was offered to the Constitution, Sec. 2d, which was ordered to be placed upon the record.

The following amendment to Sec. 2d of Art. 3 of the Constitution is submitted for your consideration:

Let forty-five be changed to twenty, and fifty to twenty-five dollars, so that it shall read: Any person already a member, may become a member for life, by paying twenty dollars additional, and shall be exempt from all further dues or assessments, excepting for the library.

Any person not already a member, may become a member for life by the same process as a subscription member, and paying twenty-five dollars.

The bond of the Treasurer was presented and accepted.

Resolved: That the Society hail with pleasure the announcement that the Alameda County Agricultural Society will hold a Floral Fair, on the 14th of June next, and recommend the members of this Society to co-operate with and encourage the same.

On motion of Wilson Flint, after some discussion, it was

Resolved: That the next Annual Fair shall be opened in San Francisco, on the 23d of August, and continue four days.

Resolved: That the Committees of Award shall be appointed at the time of the Fair, by the Executive.

Meeting adjourned to call.

Subsequently at the Board meeting, the following gentlemen were chosen *Executive Committee.*

J. W. OSBORN,
W. WADSWORTH,
A. W. WHITE,
H. GUSHEE,
J. LEWELLING.

STATE AGRICULTURAL SOCIETY.—The affairs of this Society, through its present able Board of Managers, we fully believe will be conducted the coming season upon a basis that will insure its continuous prosperity. That every effort is being made that able and honorable men can make, to secure the best site for the Fair grounds, and all the necessary concomitants tending to make the next Annual Fair a success and credit to the State, and equal if not greatly superior to any that has preceded it, we firmly believe, and that the efforts of the gentlemen who compose the Board of Managers should receive the full and hearty co-operation of the working men of the State, is our earnest wish.

For whilst no effort will be spared to secure every accommodation that can conduce to the convenience of exhibiters and visitors, the closest care will be exercised in reference to the proper use of the Society's means. As an earnest of the determination of the Board to this end, one of their first acts has been to secure the publication of a *Monthly Journal* of the Society, a notice of which appeared in our March number.

The Agricultural Societies of New York, Ohio, Michigan and we believe several others, issue like publications and with marked benefit to the agricultural and mechanical interests of their respective States, in disseminating monthly intelligence of the condition, progress and prospects of the interests to which they are devoted. And yet we believe not one of them can show a better financial arrangement for its publication than has been effected by the indefatigable Corresponding Secretary of our Society's Board.

One thousand copies of the Monthly Journal of the California Agricultural Society are published *without cost* to the Society, and circulated gratuitously. It will serve as a medium for advertising the Society's list of premiums *without* cost, thus saving hundreds of dollars annually to the Society. It is a medium through which any one who wishes to communicate directly with the members of the Society, upon any subject tending to promote its interests or that of the State at large, can do so; and for many reasons not necessary here to enumerate,—and which a want of space forbids at this time,—its publication is well devised.

THE RECENT LATE FROSTS.—Though fears of great injury to the fruit crop of the coming season, from the severe frosts of the past month, have prevailed in many sections of the State, yet from all the information we are able to obtain, it appears that the destruction has not been as general as at first anticipated. Pears, plums, nectarines, apricots and cherries, seem to have suffered most; the apple and peach less. We believe there will be nearly an average yield with that of past years, of all the fruits except those above enumerated as having suffered most.

STATE AGRICULTURAL SOCIETY'S REPORTS.—A bill appropriating a certain amount for printing the Report of the State Agricultural Society, passed the Assembly some time ago, but still hangs fire in the Senate. This is to be regretted, because there is danger that the bill may fail in consequence of the short time yet left of the session, and the great amount of unfinished business still before it. That a reasonable amount should be appropriated, can scarcely be denied by any one who has fully considered the great importance of the Society, and the immense influence it has had and is calculated to have upon the interests of the State both at home and abroad. There is no institution in the State which has done so much good. It has made people wiser and richer by the information collected and imparted, and has, by informing people abroad, been the cause of bringing many people — worthy, industrious farming people and others to the State.

Our Legislature have never appropriated money to a better purpose than in granting a few thousand dollars to this Society, to be expended in premiums for the encouragement of agricultural and kindred interests. It is bread cast upon the waters, which comes back again before many days. And next to this encouragement — perhaps indeed superior to it — is the necessity existing that the transactions of the Society embodied in their reports should be published and spread all through the State, and through the Union. The State Agricultural Society is a school for men, for all classes, and is one of the most efficient of teachers and disseminators of knowledge. It should, therefore, be fostered by the State Legislature as one of the strongest supports of State prosperity. Will not some member of the Senate make a special effort to get the bill alluded to taken up and passed? By such an act he would secure the gratitude of the Society and thousands of the people of our State.—*Daily Times.*

CHINESE AGRICULTURE.—The *Pennsylvanian*, referring to a narrative of travel in China, published by a Russian officer, says:

"This author, like every other who has visited China, bears testimony of the high development of agriculture in that mysterious country. The harvest in China, he remarks, 'produces fifty, seventy, and even a hundred fold. The cause will be found in the care with which they manure the ground, and the custom of sowing early, of weeding and watering, etc.' The acre of land yields in England, Germany and France, twice or three times as much as with us, but the Chinese agriculturist surpasses even the European by far. 'How infinitely inferior,' says Professor Liebig, 'is the agriculture of Europe to that of China! The Chinese are the most admirable gardeners and trainers of plants, for each of which they understand how to prepare and apply the best adapted manure. The agriculture of their country is the most perfect in the world; and there, where the climate in the most fertile districts differs little from the European, very little value is attached to the excrements of animals.'"

Travelers tell us of one particular attainment of Chinese agriculture, which, though it is not always of practical value, indicates a wonderful knowledge of the laws of vegetable growth—that is, the power of enlarging or dwarfing, at will, many of the productions of nature. Thus, an oak tree, for instance, will frequently be seen growing in a flower-pot, bearing its thrifty little leaves, and bringing its tiny acorns to maturity, with all the regularity of its forest kindred; the entire tree not being more than two feet high. Such specimens of human ingenuity may be worthless, but they imply a knowledge and skill that are worth a great deal.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending March 31st, 1859; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By Thos. M. Logan, M. D.

MARCH, 1859.	7h. A. M.	2h. P. M.	9h. P. M.	Month.	Average of seven yrs.
Barometer, Maxima	30.385	30.332	30.367	30.385 inches.	+ 0.086 inch.
" Minima	29.483	29.809	29.771	29.771 "	+ 0.043 "
" Mean	30.167	30.149	30.136	30.151 "	+ 0.081 "
Thermometer, Maxima	56.00	64.00	60.00	64.00 deg.	— 2.87 deg.
" Minima	40.00	51.00	47.00	40.00 "	— 1.47 "
" Mean	46.94	55.61	51.87	51.47 "	— 1.74 "
Force of Vapor, Maxima	.322	.403	.410	.410 inches.	— .021 inch.
" " Minima	.113	.078	.146	.078 "	— .036 "
" " Mean	.234	.267	.271	.257 "	— .045 "
Relative Humidity, Maxima	92.00	81.00	87.00	92.00 per ct.	— 0.98 p. et.
" " Minima	50.00	19.00	44.00	19.00 "	— 14.72 "
" " Mean	72.94	61.03	71.00	68.32 "	— 4.00 "
Number of Clear Days	9	10	14	11 days.	0.0 days.
Number of Cloudy and Foggy Days.	22	21	17	20 "	0.0 "
Number of Rainy Days	.....	.....	.....	14. "	+ 4 "
Quantity of Clouds	4.8	4.1	2.3	3.7	— 1.0
Quantity of Rain and Fog	.....	.....	.....	1.637 inch.	— 0.970 inch.
1st Days and 2d, Force of N. Wind..	9 3.4	8 3.4	9 2.8	8 2-3 3.2	+ 3 + 0.8
" " N. E. Wind.	2 2.5	0 0.0	1 1.0	1 1.2	— 1-3 + 0.3
" " E. Wind....	3 2.3	0 0.0	0 0.0	1 0.8	— 1-3 — 0.3
" " S. E. Wind..	8 3.1	2 4.0	5 2.6	5 3.2	— 2-3 + 0.8
" " S. Wind....	3 2.7	5 2.4	4 2.8	4 2.6	+ 1-3 + 0.5
" " S. W. Wind.	2 3.0	8 3.3	4 3.3	4 2-3 3.2	— 1 1-3 + 0.9
" " W. Wind...	3 2.0	5 2.6	4 1.8	4 2.1	+ 2 + 0.4
" " N. W. Wind.	1 4.0	3 4.3	4 2.5	2 2-3 3.6	— 3 + 0.9

Thermometrograph.

	Deg.		Deg.
Highest Reading by day on the 25th	66 00	Mean of all Highest Readings by day	56.26
Lowest Reading by night on the 5th and 31st	33.00	Mean of all lowest readings by night	41.68
Range of Temperature during month	30.00	Mean daily range of Temperature during mo.	14.58

Remarks.—The prolongation of the wet, cold season, predicted in our last month's remarks, has retarded the genial development of spring. Indeed, the weather of the whole month has been inclement and changable, attended, more or less with high winds, hail-showers, frosty mornings, etc. As is seen above, we have received an additional contribution of rain during the month, swelling the aggregate for the season to 14,002 inches. That we may expect a continuance for some time to come of the present unseasonably cold weather, can be readily inferred from the fact that the mountains, on all sides of us, are covered with an immense amount of snow which has been accumulating all the winter; thus chilling the winds that reach us from over their icy crests. The last warm rains —commencing on the 20th—brought down a sufficiency of snow, to cause a rise in the river of six feet eight inches, on the 23d, and to reduce its temperature from the usual standard of the season (51 deg.) to 48 deg.

Of all the varied and numerous meteorological phenomena of the month, the Paraselenæ, observed on the evening of the 19th, at about 10 o'clock, P. M., shortly after a change of wind, from N. to S. E., are well worthy of special note. The moon was surrounded by a circle of about 45 deg.; and, in the horizontal diameter of this, two mock-moons, of a whitish color and about five times as large as the real moon, were seen, for about five to ten minutes, giving out luminous beams, converging from the periphery of the circle. From the fact that cirri clouds were manifested simultaneously with the disappearance of this remarkable meteoric occurrence, we are inclined to attribute its production to small spherieles of moisture, or iee floating in the atmosphere; and in aecordance with the theory of Fraunhofer. Several circumstances, however, attending these phenomena, remain unexplained.

AJAX.

THE CALIFORNIA CULTURIST.

MAY, 1859.

OUR FAR-WEST TERRITORIES.

INTERESTING STATEMENT IN REGARD TO THEIR AGRICULTURAL CAPABILITIES AND DEFECTS.

MANY enthusiastic writers upon the agricultural resources of our country have marshalled forth a startling array of figures to show that we have available land enough to support a population equal, perhaps, to the present entire inhabitants of the earth. They have pointed to a territory westward, larger than the whole area of the organized States. Prof. Joseph Henry, of the Smithsonian Institute at Washington, in a recent address, throws a "wet blanket"—or rather a dry one—upon the agricultural prospects of the vast region lying west of Iowa and Nebraska, and extending to and beyond the Rocky Mountains, including the corresponding wide belt in Mexico, and stretching northward indefinitely towards the polar regions. After referring to the extended observations made upon the meteorology of the country, he says:

"My experience has already demonstrated the correctness of the views previously held by scientific men, and based upon the theory of the motions of the atmosphere. The winds blowing from the shores of the Pacific in an easterly direction, were at first laden with moisture; but this was deposited on the western slopes of the successive ranges of mountains, until, having descended to the plain country to the east of the Rocky Mountains, they came almost with the hot breath of a simoon to parch vegetation, and rendered a vast extent of country, almost one-half of the width of the American Continent, *quite unfit for tillage.*

The general character of the soil, between the Mississippi River and the Atlantic,

is that of great fertility; and, as a whole, in its natural condition, with some exceptions at the West, is well supplied with timber. That portion also on the western side of the Mississippi, as far as the eighty-ninth meridian, including the States of Texas, Louisiana, Arkansas, Missouri, Iowa, and Minnesota, and portions of the Territory of Kansas and Nebraska, are fertile, though abounding in prairies, and subject occasionally to droughts. But the whole space to the West, between the meridian and the Rocky Mountains, denominated the Great American Plains, is a barren waste, over which the eye may roam to the extent of the visible horizon with scarcely an object to break the monotony.

From the Rocky mountains to the Pacific, with the exception of the rich but narrow belt along the ocean, the country may also be considered, in comparison with other portions of the United States, a wilderness unfitted for the uses of the husbandman; although, in some of the mountain valleys, as at Salt Lake, by means of irrigation, a precarious supply of food may be obtained sufficient to sustain a considerable population, provided they can be induced to submit to privations, from which American citizens generally would shrink.

The portions of the mountain system further south are equally inhospitable, though they have been represented to be of a different character. In traversing this region, whole days are frequently passed without meeting a rivulet or spring of water to slake the thirst of the weary traveler. Dr. Letherman, surgeon of the United States army, at Fort Defiance, describes the entire country along the parallel of 35 degrees (that is west of Arkansas) as consisting of a series of mountain ridges, with a general direction north and south inclining to the west, and broken in many places by deep cracks, as it were, across the ridge, denominated *cañons*, which afford in some cases the only means of traversing the country, except with great labor and difficulty.

The district inhabited by the Navajo Indians (northern Central New Mexico) has had the reputation of being a good grazing country, and its fame has reached the eastern portions of the United States; but, taking the region at large, it will be found that, with regard to abundance of natural pasturage, it has been vastly overrated, and we have no hesitation in stating—says the same authority—that were the flocks and herds now belonging to the Indians doubled, they could not be sustained. There is required for grazing and producing hay for the consumption of animals at Fort Defiance, garrisoned by two companies, one of which is partly mounted, *fifty square miles;* and this is barely sufficient for the purpose. The barrenness and desolation so inseparably connected with immense masses of rocks and hills scantily supplied with water, are here seen and felt in their fullest extent. The character of the districts lying across the mountain system, along the 32d parallel, which has been still more highly lauded for its productiveness, is, from reliable accounts, in strict accordance with the *a priori* inferences which may be drawn in regard to its climate from the influence of the mountain ranges, and the direction of the prevailing winds.

Dr. Antisell, geologist of one of the exploring expeditions, describes the country along the parallels of 32 deg. to 33 deg. (in the latitude of northern Texas) as equally deficient in the essentials of support for an ordinary civilized community. On the

west, within these parallels, occurs the great Colorado desert, extending to the river of the same name, which empties into the Gulf of California. From the Colorado River, which is generally regarded as the eastern edge of the Colorado basin, in its southern portion, the land rises eastward by a series of easy grades, until the summit of the main ridge of the mountain system is gained, at a point about 500 miles east of that river. For the first 250 miles, the ascent is across a series of erupted hills, of comparatively recent date, and similar in constitution to the line hills and ridges which are dotted over the various levels of the basin country. The entire district is bare of soil and vegetation, except a few varieties of cactus. Over the greater portion of the northern part of Sonora and the Southern part of New Mexico, sterility reigns supreme.

At the mountain bases may exist a few springs and wells, and in a few depressions of the general level of the surface sloping to the Pacific may be grassy spots; but such are the exceptions. A dry, parched, distintegrated sand and gravel is the usual soil, completely destitute of vegetable matter, and not capable of retaining moisture.

The winter rains which fall on the Pacific coast, west of the coast range of mountains, do not reach the region eastward. This is partly supplied with its moisture from the Gulf of California, but chiefly by the southeast wind from the Gulf of Mexico, flowing up between the ridges of mountains. We hazard nothing in saying that the mountains, as a whole, can be of little value as the theatre of civilized life in the present state of general science and practical agriculture. It is true that a considerable portion of the interior is comparatively little known from actual exploration; but its general character can be inferred from that which has been explored. As has been said before, it consists of an elevated swell of land, covered with ridges running in a northerly direction, inclining to the west.

The western slopes, or those which face the ocean, are better supplied with moisture, and contain more vegetation than the eastern slopes; and this increases as we approach the Pacific, along the coast of which, throughout the whole boundary of the United States to the Gulf of California, exists a border of land of delightful climate and of fertile soil, varying from fifty to two hundred miles in width. The transition, however, from this border to a parallel district in the interior, is of the most marked and astonishing character. Starting from the sea-coast, and leaving a temperature of 65 deg., we may, in the course of a single day's journey, in some cases, reach an arid valley, in which the thermometer, in the shade, marks a temperature of 110 deg.

We have stated that the entire region, west of the 98th deg. of west longitude, with the exception of a small portion of western Texas, and the narrow border along the Pacific, is a country of comparatively little value to the agriculturist; and, perhaps, it will astonish the reader, if we direct his attention to the fact that this line, which passes southward from Lake Winnipeg to the Gulf of Mexico, will divide the whole surface of the United States into two nearly equal parts. This statement, when fully appreciated, will serve to dissipate some of their dreams which have been considered as realities, as to the destiny of the western part of the North American Continent. Truth, however, transcends even the laudable feelings of pride of country; and, in

order properly to direct the policy of this great confederacy, it is necessary to be well acquainted with the theatre on which its future history is to be enacted, and by whose character it will mainly be shaped.—*American Agriculturist.*

BOKHARA CLOVER.

CONSIDERABLE attention was drawn to this plant, in England, about the year 1839, owing to a paragraph which went the round of all the agricultural journals, entitled "New Era in Agriculture;" describing the plant as a tree clover, a few seeds of which had just been brought to England, from Bokhara, by a gentleman who stated that, in that country, it attained a hight of fourteen feet, and yielded several cuttings per annum, of highly nutritious food for cattle and horses; also that its bark yielded a fiber similar to and used for the same purposes as that of hemp, etc.

The Bokhara clover is a large growing variety of the *Melilotus* themantha*, and was known in the south of Russia and other parts of Europe, for some years prior to its introduction into Britain. We have seen specimens grown in England, upwards of twenty feet high; but Mr. Peter Lawson, of Edinburgh, states that he has obtained, in his experimental garden, plants upwards of eighteen feet high.

Mr. Henry Stephens—author of the "Book of the Farm," and the most thorough, practical farmer living—states, in this valuable work alluded to, "that having raised the Bokhara clover for several years past as an ornamental plant, and having found it to stand the winter and grow early in the spring, I am induced to recommend it as a forage plant that may be sown early in autumn and cut early in spring; and also sown in spring—in April or May—and ready to be cut in August. If sown after early potatoes in Scotland, and after early stubble in England, at the end of August the plant will, I think, be so far advanced as to stand the winter—at least it has done so with me—and, although its herbage is cut down by the frost, its roots send up shoots early in the spring."

When intended for feeding, the plants should be cut down when little more than a third of their full hight, as the stems afterwards become very hard and woody. Like the more common species of mililot, it should be treated as a biennial, and sown or planted in rows nine to twelve inches apart, according to the soil, and about nine inches apart in the rows. It is a plant that bears much moisture in the earlier stage of its growth, and is all the more succulent for it.

In the secend year it sends up a great number of stems, which throw out side branches, which are covered with a profusion of small, neatly formed, white flowers; having a scent not unlike that of the sweet scented vernal grass when made into hay. Mr. Stephens states that the raceines grow and appear in succession from June, until the frost, in November or December, cuts them down.

If such are the characteristics of Bokhara clover, as grown in as cold a country as

*Variety *Melilotus themantha meijer.*

Scotland—57 deg. north latitude—it may be inferred, with a tolerable share of certainty, that the plant would succeed better in California where the climate does not differ much from that of Bokhara. In this State there can scarcely be a doubt but it would succeed well on the rich bottoms and tules. The seasons best adapted for sowing, so as to be most useful as winter forage, would bear in the first place to be made matter of experiment. We believe the seed can be procured, and should be happy, should a sufficient number of farmers desire small lots of the seed, to use our exertions to obtain it for them, if possible, in time for the next autumnal rains, which will probably form as good a time as any for sowing the seed in this State. We are not disposed to recommend our readers to go largely into sowing Bokhara clover, until it has at least been demonstrated, by indispensable experiment, that it is worth doing so; numbers of our farmers, however, could easily afford the expense of a pound of seed and the trouble of trying it. As a plant calculated to remedy the want of winter forage, it is well deserving of attention, and we are disposed to think that it is peculiarly well adapted for the climate and moist lands of California. At all events, we are only fulfilling a duty in calling attention to a subject which promises considerable interest. Bees are uncommonly fond of the flowers.

THE WHIN, FURZE OR GORSE.

IN the most higly cultivated lands of Europe, and especially in the rich grazing lands of England, this plant is looked upon as a pest; yet it has many qualities deserving the attention of the Californian farmer; for it is a plant if only grown judiciously, will afford him three most useful things, namely, shelter winter, forage and fuel. Possessed of such a combination of good qualities, it may be supposed, from its not being commonly grown, to also have others of an opposite nature; the latter, however, are far from being very objectionable, the most obnoxious quality is its tendency to unduly extend itself amidst pasture lands, owing to its peculiar powers for distributing its seeds, which are very numerous; by the introduction of the double flowered species, even that bad quality would be obviated.

Most of English writers on this subject recommend its culture, whether as a field or hedge plant, on light dry soils; our experience is, that it is more luxuriant on moist ones, and we appeal to our Irish fellow citizens whether theirs is not the same. The truth is, that in England its neglect is owing to causes the opposite of which occurs in California. When coals can be obtained for one dollar per ton, the farmer does not want it for fuel; where Swedish turnips are only valued at two dollars per ton, it is not required as winter food for stock, and for the purpose of shelter and division of property, the furze falls far inferior to the hawthorn in climes and in soils where that beautiful plant will flourish.

In California, however, we want winter forage; fuel is expensive, and we require something more economical and less unsightly from its sameness, than the eternal post and board. To the farmer of slender means, it will be found in California almost

invaluable, as it will permit money to be laid out in lumber for many requisites about his house, in place of purchasing posts and boards to make fences.

Having said so much in praise of this plant, and having so strongly recommended it to the attention of our farmers, we will at once proceed to give a fuller description.

The whin is of the Jenus Ulex; it belongs to the natural order Leguminosa of Jussiu, and ranks in the class Diadelphia and order Deeandria, of the artificial or sexual system of Linneus. It is of that order which composes the family of plants, having palpiluvaceous or butterfly-shaped flowers and leguminous seed-vessels; of the same class are clovers, vetches, peas, beans and lupines. The last named, especially the sweet smelling yellow flowering species, is indigenous to California, and is found occupying to a large extent the sand-hills around San Francisco. If any doubt however existed as to its adaptability for the soil and climate of California, it is put an end to by the fact that it can be seen growing in the garden of the late Captain Folsom in San Francisco, and at Oakland.

There cannot be the slightest doubt but it will flourish on drained tules or dry sands; on heavy clays it does not grow well, nor on swampy ground.

The furze which we are now recommending, is the Ulex Europæus or common furze, frequently, but improperly, called Irish furze; it has vulgarly obtained the name of Irish furze, owing to its being commonly seen on that island, growing in hedge-rows. The true Irish furze is the Ulex strictus, and is a rare plant even in Ireland, being much more common in the Asturias and Gallicia in Spain. The Irish furze, properly so called, produces a great number of upright shoots from one stem, and possesses much luxuriance; while its thorns are feeble, and its shoots succulent and soft. From these properties, it might be supposed and probably is best adapted of the different varieties, as food for domestic cattle. The Irish furze, however, does not make a good fence, nor afford much fuel. The double-flowering whin, *Ulex Europæus flore pleno*, is held in high estimation as an ornamental shrub; but as it does not produce seed, and can only be increased by layers or cuttings, this variety is too expensive for being otherwise employed than in the garden or shrubbery. Were it not for the time which it would take to introduce this species into general field culture, we would recommend a trial, as it forms a pretty good fence.

The common whin possesses many advantages over other plants as a fence. It is an evergreen, and presents the same beautiful green appearance and the same shelter in winter that it does in summer. It will grow in soils and situations where the thorn and other plants will scarcely exist. It is much more easily raised than the thorn, and becomes much earlier a complete fence; and were as much care bestowed upon it as is generally done in a good thorn fence, it would form as efficient a one. In many of the open spaces of our mountain pine forests, the whin would grow well, and form an abundance of winter horse feed; in fact there are few pine forests in California where the whin would not grow well as underwood, and be found most useful as food for all kinds of stock, but especially for milking goats. On what are miscalled alkaline soils, if not too highly impregnated with saline substances, the whin might be advantageously grown.

We shall not at present recommend farmers to cultivate the whin other than as a fence, unless as underwood amongst trees or on tule salinas. The fence we recommend, should be earthen mounds, two feet high, four feet wide at the bottom, and two feet ditto at the top, formed by the earth cut from ditches at each side, the turf side being made to face outwards; two rows of whin should be sown on the top, so that when one side is cut down for fuel or forage, the other would remain as a fence until the opposite side should have grown up. After this third year, the whin may be cut every year for fodder.

We would be disposed to dwell more on what we might not inaptly state as the inestimable properties of whin, especially as it is a plant calculated to fill up that blank in vegetation between the decay of summer vegetation and its revival in spring; it is a plant not much sought after by animals during dry weather, but in wet seasons is particularly relished by them. When properly bruised, so as to render any hard prickles innoxious, horses, cattle, sheep, and even pigs, when mixed with other food, feed upon it most greedily. The modern improvement in husbandry of bruising and cutting food intended for stock, is pretty generally adopted in California, its advantages being well known and appreciated; and it is only by the aid of such methods we recommend its adoption; as otherwise, the hard prickles of the older wood, which cannot be prevented from becoming intermixed with the young shoots, would make it disagreeable to cattle. Notwithstanding the great quantity of these hard species found on an old whin bush, it is curious to see how cattle will endeavor to snatch every soft shoot, though surrounded by sharp spines. The prickly nature of the old wood however renders it of admirable use as a fence.

During the Peninsular war, the horses belonging to the British army, under the command of the Duke of Wellington, whilst in the north of Spain and in the defiles of the Pyrenees, were fed wholly on furze and barley, on which food they were found to thrive remarkably well. Lieutenant-Colonel Macgregor and a friend of the Colonel's, in letters to W. Tytler, describe the method adopted during the campaign. The whole of the regimental horses and mules of the division were fed on whins; they were mostly given to them at night when doing up, and the quantity given to them was as much as they could eat during the night. They occasionally got a small allowance of grain, and were turned out to browse the whole of the day when not wanted; but what they then picked up could not have affected them much in point of nourishment, it being then winter, and great numbers were grazing at the same time on a limited space of ground and for lengthened periods. The time during which whins constituted the principal part of the food of these animals, was from October until March. During the greater part of the time they were fed in this way, they had not much work to do, and improved in condition, having previously fallen off much, owing to their great fatigues and privations, and on the army advancing to Bayonne, the animals so fed were able to do their work well.

One of the writers continues as follows:—"At the time of the year when forage is scarce on the frontiers of both France and Spain, the natives feed their horses

and mules on whins; and in every house a trough with a heavy mallet for preparing it, is to be seen.*

It is the green shoots of the whin that is cut, perhaps about a foot in length or more, which is placed in the trough, (generally scooped out of sound hardwood tree), afterwards beaten with a mallet until it is completely smashed, so small in fact that it may be rubbed in the hand like bran, the prickly heads being perfectly pounded. Mr. Tytler states that in an experiment under his own inspection, and extending over five years, he never had a sick horse in his stable during that long period that he had whins for part of his food. There is always considerable difficulty in estimating the value of an article grown in our country, as compared with another differently circumstanced. Mr. Elby, of Wexford, however, states that forty-nine square yards of gorse yielded his eight head of cattle their daily food. He says twenty acres of gorse should support one hundred head of cattle for the winter, six months, without any other food, save the morning feed of Mangold Warzel turnips or potatoes. Dairymen well know that milk-cows yield inferior milk when fed principally on squash, pumpkins, beet, turnips or other watery food; if however ten or fifteen pounds per day of bruised gorse is given to each along with these, the milk becomes as rich as the yield is abundant.

We have known an Irish farmer pay his annual rent, in the county Cork, by the sale of gorse alone, cut out of his fences, being sold for firewood.

* During the winter a like apparatus for a like purpose is frequently to be seen in the wilder parts of Ireland and Wales.

FIRST EXPERIENCE WITH A SEWING MACHINE.

BY REV. HENRY WARD BEECHER.

AMONG the things which we did not, but now do believe in, is the sewing machine. One thing after another had been invented; one machine after another had suspended manual labor, until human hands seemed about to go out of use, for any other mechanical purpose than those of lovers' pressures, orators' gestures, and for beaux's and belles' gloves. But we always consoled ourselves, that one or two things there were yet, which no machinery could perform. We could imagine children put through a whipping machine, and we had long been accustomed to see them taught by automatic machines. There was a time-honored business handed down to us without a break from the Garden of Eden, of courting—and kissing as one of its ordinances—no machinery could ever perform that. Machine poetry and machine sermons we were familiar with. Babbage can make machines for ciphering, for computing logarithms, for casting up interest, but can he invent a machine for *saving* interest, and capital, too, for that matter? And, oh! can there ever be a machine for answering letters? We would pay any price for a machine, into which letters

being put, and a crank turned, there should drop out at the other side, answers as good as the letters, folded, directed and stamped;

But machines have steadily gained ground, and the iron muscle has relieved the flesh hand; machines for boring, sawing, cutting, planing; for making bread (I wish there was one for eating some of it,) for pumping water, for making cattle draw their own drink. But, notwithstanding, we firmly believed that some things would never be done by any fingers except human, and eminent among these impossible things was sewing! Nothing, we were sure, could ever perform that, except the latest and best invention of Paradise—Woman!

When the rumors began to prevail, then, respecting an invented sewing machine, we lifted our eyebrows gently, and went our way, with a quiet consciousness that we could not be taken in by any such story. We regarded it as of a piece with new-found morality in our politicians, with the thousand annual rumors of some heaven-dawned virtue in Washington city—a mere device to catch the credulous.

But, day by day, the clatter grew. Indeed, we surprised ourselves with a coat sewed in important respects by a machine. We saw linen pyramids of sheeting made for hotels and steamboats by sewing machines.

The case was growing serious indeed; and, at last it came to a head, when the head of the family informed us that a woman was to come in a few days, with her Wheeler & Wilson, and do up the family sewing. Of course we submitted without a word. And the three capable persons of this houshold began to prepare matter for the machine to an extent which showed how perfectly they had been fooled by the story of its executive ability. Piles of large stuff lay in each corner; little stuff covered the table, and miscellaneous stuff lay everywhere. We ran against button heaps, were in danger of getting tangled in webs of linen and sheeting at every turn, and such basting as went on would lead one to imagine that an army was to be clothed.

The day dawned; the woman came, and the iron Wheeler & Wilson came with her, only the lady had to act as beau and offer her aid to wait on Messrs. W. & W. After a little, there arose a hum from our chamber, not unlike the buzz of a wheat-mill, such as we had heard in summer, sitting under willow trees on the edge of a stream, over against a red mill, white dusted. Soon we heard excited exclamations. Everybody seemed stirred up. The girls left their work; the children forsook their playthings, and we followed the example.

There sat before the simple machine-stand a fair, young woman, some sixteen years old, whose foot, like the old fashioned flax spinner, was working the treadle with the nimblest motion. Then came the conviction, for the first time, that sewing was conquered and vanquished! Long sheets entering the fatal pass, streamed through, and came out hemmed, in a ridiculously short time. An hour's work was done up before your eyes in a minute. A shirt was set in, of such dimensions, that (we call Baron Munchausen to witness!) a man could not get round it by fair walking, in less than—well, in some time! It streamed through the all-puncturing Wheeler & Wilson about as soon as a good sized flag, being hoisted, would unroll and flow out to

the wind. A bundle of linen took its turn, and came forth a collar, a handkerchief, and a cap. There goes in a piece of cloth! there comes out a shirt! We were bewildered. Not much was done for some hours in that house but gaze and wonder. We mistake. A good deal more was done, and done more effectually, than had ever been done in ten times that time before! What heaps of towels—what piles of sheets—what bed-fulls of small trumpery—what bureau-fulls of fine trash—what carpet-littering sacks of unmentionable matters that make up the cloth inventory of household wealth!

The dismayed woman of the house saw her three days' prepared work melting away before noon, as three days' April snow disappears in a few hours!

The voracious machine began to show its teeth and to demand more food—and now it was a fair race, whether two women could prepare as much as one machine could perform! It did our very souls good. At last, we hoped this was working fast enough. Oh, what early hours has our lamp been made to illumine! Ah, what breakfasts have we eaten, and seen cleared away, long before the sun touched even the cheek of day! What impetuous industry had glowed about the house, forenoon, afternoon, night, midnight—never enough, never overmatched! We grew tired even to look at it! At last, said we, you've got your match. Now, then, we will sit down and see this race, with a satisfaction that shall include years of revenge for disturbed indolence!

For a long time the match was doubtful. Sometimes it was the machine that had the advantage and sometimes it was not. The contest was passing into the middle of the afternoon. It was doubtful. Sometimes the fast-driven needle evidently gained; then, again, in rounding up a sleeve-gathering, the needle flagged, and then the hand-worked scissors gained! But iron and steel are more enduring, even, than a housewife's courage. And though, for a single hour, the hand could prepare faster than the machine could execute, yet, taking the day through, Wheeler & Wilson had the advantage, and came out, at dark, decidedly ahead. That settled it. There was a revolution in this household. Our Miriam sounded her timbrel and triumphed over the cruel Pharaoh of the needle, whose dynasty and despotism were ended.

Now, sewing is the family amusement. Our Wheeler & Wilson is played on a great deal more than our Steinway piano—and is the cause, too, of more real music than is ever got out of that instrument; for two canary birds, perched on either side of the bookcase, understand the first click of the sewing machine to be a challenge, and while the machine sings *staccato* they warble *ad libitum*, and between the *solfeggio* of the one and the *cantabile* of the other we go crazy.

This subject is not yet sewed up. It will require a sober article to say the many edifying things that yet remain in our head on the subject of sewing machines and their kinds.

A coach-driver stopped at a house to get some water for the young ladies in the carriage. Being asked why he stopped, he promptly replied: "to water my flowers."

THE DAIRY. II.

SELECTION OF COWS.

WE are not going into a discussion of the different breeds of the cow, as understood by cattle-breeders, but of the general characteristics of those best suited to dairy purposes. We care not what her breed, whether it be Short Horn, Ayrshire, Devon, Hereford, or Native, further than she be a *good milker*. As to the *quality* of her milk, it should always be rich; as to the *quantity*, that may depend upon the size of the cow, and the amount of food she consumes. We have known cows that yielded thirty quarts of milk in the hight of the season, which were not so economical to the dairyman as others not giving over twenty quarts. One ate enormously, the other moderately. It depends much, also, on the quality of the pasturage as to what description of cow the dairyman should adopt. A compact, even-bodied cow will frequently live and thrive, and do her best in milk, where a large, rangy beast would barely live, and yield less milk than the other; while, in abundant pastures, where the food is easily obtained, the largest animal, giving a proportionate quantity, would be preferable. So, in the selection of his cows, the dairyman should understand the *quality* of his pastures, equally with the description of cows with which he is to stock them.

DESCRIPTION OF A DAIRY COW.

As a rule, we would say, that a compact, small-boned cow of her kind, whatever the breed may be, is the most economical for the dairy. A raw-boned, big-jointed, loose-made beast is usually a huge feeder, and a poor keeper; and, although sometimes an extraordinary milker, is not, on the whole, a profitable one to keep. Our own style of dairy cow should have a small head, with a lively eye, and a light horn. Her neck should be thin, her shoulders open, or well spread apart; her ribs round, and extend well back towards her hips; her back straight; her loins and hips broad; her rump level; her flanks deep; her belly capacious, without being *paunchy;* her twist full and low; her udder clean, silky in the hair, with fair sized taper teats, standing well apart as they issue from the bag. When milked dry, the udder should be small, and shrunken—not meaty—but when full, it should be plump, and hard; her tail fine; her legs and feet small; and with all these she should possess a quiet disposition. It may also be added, that she have a yellow skin *beneath* the hair, be the hair what color it may, and the hair be fine, silky, and if possible, waving, or slightly curling. These qualities, of course, will make a *handsome* cow—an objection in the eye of no one, and certainly none to the disadvantage of the cow possessing good milking properties. A beast the contrary to this description, although possibly a good milker, is not desirable; and when the kind we have described is just as easy to be obtained, as its opposite, if one will but take a little pains, the standard of perfection, or as near to it as possible, may as well be adhered to as otherwise. We say a yellow *skin*, as distinguished from a white, or pale one. A yellow skin usually

indicates a *rich* milker, while a pale skin indicates that of inferior quality. All observing dairymen will acknowledge this fact. Exceptions occur, but the rule obtains.

Now, in contra distinction to our choice of a cow, let us see, for a moment, how the mass of dairy cows are generally obtained. At "the West," where the cattle-breeders usually pay little attention to the milking qualities of their cows, and breed them promiscuously without regard to that quality, and also in various other parts of the country among poor farmers who raise, now and then, a cow to sell, the cow drovers or buyers go out to make their purchases for the dairy markets—the dairymen, as a rule, do not rear their heifer calves, but depend upon purchasing their cows, either of the drovers, or go out and pick them up themselves, as best they may. Of course, the selection by the drovers or dairymen, is not of the best, for the owners of them prize their superior quality as valuable to themselves, and the purchasers, consequently, are enabled to buy such only as the owners are disposed to sell. They are, therefore, a promiscuous lot—a few good, some indifferent, and many inferior, if not decidedly bad. These cows are taken by the dairymen, and after trial a year or two, the worst are culled out by them as not being worth keeping, and in turn are sold to another passing drover, who proceeds on his journey towards market, and sells to a further dairyman, till the poor rejected beasts are finally brought up in the butcher's shambles! And such is the history of very many of the dairy herds in our country—a short-sighted, miserable, unprofitable mode of keeping up a supply of milch cows.

In opposition to this we would propose a different plan. Having selected the best herd of cows we could find, instead of getting a wretched inferior bull, with just vitality enough in him to beget a calf, as a means of enabling the cow to produce her yearly supply of milk, and then destroying the calf soon after birth, we would select a bull of some distinct milk-producing breed—and that breed should be of a kind fitted for our own soil, and climate. This bull should be descended from a good milking dam, and also from a sire whose ancestors were of a good milking tribe, if possible. A close examination into these facts would give the bull a pedigree, of course, which we would demand. In addition to his milk begetting qualities, he should add those of good shape, fineness, and general quality peculiar to his breed. We would preserve the heifer calves by this bull from the best cows, and rear them to keep the number of our cows good, as the calves grow up and the cows are worn out or displaced. According to the general physiological rules of "like begetting like," our young cows would nearly all turn out the first class milkers. We would educate the calves to the development of their best milking faculties, thus: They should be *well fed*—not pampered; allowed plenty of new milk for the first month, then gradually led off into skimmed milk, or whey, with a little oat, corn, or oil meal, and be kept all the while in a sweet green pasture. At four months they would be fit to wean. From that time forward, pasture in good grass until winter. Through the winter, soft, sweet hay and perhaps a quart of oats, or half the quantity of Indian meal a day, until grass in the spring. Then good grass pasture another summer, and hay through the winter. At two years old, grass again for the summer, and turned

to the bull in July—even her own sire, if he has proved a good getter, for such close breeding is not hurtful for a *second* generation. The young cow then comes in, a finely developed beast, and being gentle and docile, as she would be if properly treated, she furnishes a fine milking cow, perhaps at a little extra cost, but one which, in the natural order of things, is worth one-and-a-half, or two that can be obtained out of a common drove for dairy use. Three or four good heifer calves thus raised every year by an intelligent dairyman, will well keep up his herd of twenty cows, and in that proportion for a smaller or larger number.

As a proof of the advantage of thus breeding up a herd of dairy cows, the writer would relate his own experience. Many years ago we kept a milk dairy for supplying the town people near by with milk. Our herd was a mixed one of different breeds—Short Horns, Devons, and Natives, with intermediate crosses and grades. We selected two compact, well made bulls—one Short Horn, and one Devon, pure in blood, each of his kind. To the poor bred cows of each breed we bred the same blooded bull, and crossed them upon the grade and native cows, as we juged best to effect our object of producing good milkers. Our thorough bred calves of each breed, we of course raised, and selected the most promising of the grade heifer calves to raise for future dairy cows. In the course of our operations, we bred and reared about sixty heifers, and with *one* exception only, when they came into cow's estate, every individual turned out a superior milker, with fine form, and excellent quality of carcass as well. But we will give the sequel. After some years continuance, not because the business was unprofitable, but because we could not give the personal attention to it that it required, we discontinued the occupation, and sold off the most of our herd, chiefly grades—a part of them at public sale. Coming in, as they did, at different seasons of the year to give a *regular* supply of milk as far as possible, our cows were in different conditions as to flesh. The full milkers were in moderate flesh; the dry, and nearly dry ones were in excellent condition. As they were put up to be sold, since every buyer wanted a "first rate milker," the question as to her milking quality was asked of each one when offered. There was a difference, of course, some better, some not equally good. Yet, no matter what the answer might be, the *fattest* cows, in every instance, *brought the most money!* So much for the eye, over utility!

But many dairymen say that "they can't afford to raise their cows. It is cheaper to buy them, and run the chances." *We* do not believe it—at least, as the *chances* run within our own experience and observation. It may be objected, and with considerable truth, we admit, as in late examples, that the Short Horns and Devons are not milkers. To this we reply, that they are, *naturally*, good milkers; but the modern breeders have bred for flesh, and symmetry of shape, chiefly, and in striving for these have measurably bred out, or sacrificed the milking quality. But the milk can be brought back again by breeding. That quality is still latent in the animal, and use and education will restore it in the manner we have indicated. Still we are not advocating *breeds* of cattle, we speak only of selecting good dairy cows, and perpetuating their best milking qualities in their descendants.—*American Agriculturist.*

ART, SCIENCE AND INVENTIONS.

DISCOVERIES OF THE LAST HALF CENTURY.

THERE has been no period since the commencement of the world, in which so many important discoveries, tending to the benefit of mankind, were made, as in the last half century. Some of the most wonderful results of human intellect have been witnessed in the last fifty years. Some of the grandest conceptions of genius have been perfected. It is remarkable how the mind of the world has run into scientific investigation and what achievements it has effected in that short period. Before the year 1800, there was not a single steamboat in existence, and the application of steam to machinery was unknown. Fulton launched the first steamboat in 1807—now there are from three to four thousand steamboats traversing the waters of America, and the time saved in travel is equal to seventy per cent. The rivers of nearly every country in the world are now traversed by steamboats. In 1800 there was not a single railroad in the world; in the United States alone there are now some ten thousand miles of railroad. In 1800 it took weeks to convey intelligence from Philadelphia to New Orleans; now it can be accomplished in minutes by the telegraph, which only had its beginning in 1843.

SURVIVOR OF FULTON'S FIRST STEAMBOAT CREW.

A correspondent of the New York *Journal of Commerce* has obtained from Captain McKinney, of Deer Island, one of the islands in the Bay of Fundy, and who was one of Fulton's crew when that inventor tried his first steamer, the *Clermont*, the following interesting account of that craft and her first trip to Albany in 1807. The Captain is said to be a man every way worthy of credence.

Captain McKinney says the boat was about one hundred and forty feet long. She was flat-bottomed, like a skiff, sides straight like a scow, stem like a skiff. She was painted lead color. The *Clermont* drew twenty-two inches of water, and the rudder went below the bottom of the boat. To the rudder post, two pieces of wood were fastened. These projected some four or five feet, and a bolt extended across them to prevent the rudder from "going down lower than it ought." In addition, the rudder was so arranged for shoal water that it could be lifted to the surface if necessary. Her wheels extended below the bottom of the boat. A fly was attached to the paddle wheel, having a rim four inches wide, which Mr. Jackson, the engineer, told Capt. McKinney "was to make the paddle wheel pass the center without a jerk." "There was a big hub," continued Capt. McKinney, "just inside the boat, into which the shaft fitted. It could be unshipped with a crowbar, and the revolution of one of the wheels stopped when they wanted to turn the boat round. There were two rows of fire-bricks which the boiler rested upon. These bricks were imported from England, and cost six cents each. The boiler was of copper, top arched; the bottom curved upward.. The boiler fed itself."

The Captain's description of some of the machinery will be both amusing and instructive to those who have watched the progress of this branch of mechanics. His own language, used in describing the apparatus for supplying water to the boiler, will give a far more graphic idea than any which we could hope to convey. "A grindstone was suspended from its center by a wire inside the boiler. A lead pipe ran from the boiler to the water. The top of the grindstone was level with the water in the boiler; as the water boiled away, the stone would fall; as the boiler was filled up, the stone would rise. Machinery working like a pump-handle connected this grindstone with the cock of the water-pipe outside of the boiler. As the grindstone fell, it would open the cock wider, and the reverse, etc., etc.,

Captain McKinney says, when the *Clermont* started on her trip to Albany she left New York, according to his recollection, about 6 o'clock in the morning, and went up as far as the Livingston Manor the first day. There she remained all night, and received passengers—some of the Livingston family. The next morning she proceeded on her journey, and arrived at Albany late in the afternoon. All the way up the river, the steamboat attracted great attention. People thronged the banks or pulled out into the stream to have a closer look at this new monster. The *Clermont* made about six knots an hour. On this first trip the crew consisted of only half a dozen men, while those whom Captain McKinney took to be passengers might number twenty-five or thirty persons.

At Albany, he says that Fulton went ashore, telling them to let no one come on board, and the boat was pulled a plank's length from the shore. But the engineer disobeyed so soon as Fulton was out of sight, and admitted people at a York shilling a head. They came on board so fast that in five minutes they took twelve dollars. So many came at last that they were compelled to turn the tide in the opposite direction and ordered them "all ashore." Fulton's Captain, says our hero, was named Hunt, and on the passage down was bribed (so Madame Rumor said) by the sloop owners, to run the experimental steamboat ashore. In accomplishing the wish of the skippers, one of the wheels was broken, and the *Clermont* was navigated to New York with one wheel.

IMPROVED MODE OF STEERING VESSELS.

A new mechanical arrangement has been devised for communicating the motion of the ordinary steering wheel to the rudder of a ship, so that a more effective action than has hitherto been obtained is secured. This object is effected by operating upon the rudder stem by means of two tangent or endless screws, working into a suitable wheel, through which the upper part of the rudder stem passes and slides freely, the screws being actuated by suitable gearing, which connects them with the steering wheel. The screws—the threads of which are right and left-handed respectively—being worked simultaneously, and in the same direction, retain the rudder in any desired position, at the same time that perfect control is obtained over its motion, thus

protecting the steersman from danger, resulting from the action of the water upon the rudder.

TURPENTINE AND ITS USES.

There are several hundred stills for the manufacture of spirits of turpentine in the state of North Carolina alone, while the states bordering on the Mississippi are all more or less engaged in it. The use of rosin and turpentine seems to increase with every development of inventive talent. In painting, in printing, in soap making, and especially in lighting, its use seems to be almost universal. It forms an important element in many chemical operations, and it is estimated, in a late communication to the London Society of Arts, that from two or three hundred thousand dollars' worth is consumed annually in the American India-rubber manufactories. From seventeen thousand to twenty-two thousand tons have been imported into England annually for many years past, and almost exclusively from the United States. Spirits of turpentine is obtained by distilling with water the semi-fluid sap, or pitch, which exudes from incisions made in the wood of various species of pine; the product left after distillation is a resinous solid, which is popularly termed resin or rosin. Camphene, which is expressly used in lamps, as a substitute for oil, is spirits of turpentine purified by repeated distillations. Burning fluid is a solution of rectified turpentine or camphene in alcohol, the tendency of the turpentine to smoke being diminished by the addition of alcohol. Camphene and burning fluid, although highly inflammable, are not of themselves explosive; a mixture, however, of the vapor of these liquids with atmospheric air is highly explosive, and, igniting at a distance, at the approach of the slightest spark of flame, is apt to communicate fire to the liquids themselves; burning fluid, being much more dangerous. Oil of turpentine is extensively used as a solvent for resin in the manufacture of varnish, and in the preparation of paints; also to some extent in medicine.

SCREW WRENCHES.

Mr Hotchkiss, of Connecticut, is the originator of a screw wrench which possesses the distinctive and valuable feature of being adapted, with extreme facility, to different sized bolts and nuts, the movement being accomplished with ease, by pressing the thumb upon a projection of the moveable portion of the wrench. The bar is hollowed on the front side, and armed with cross grooves which transform it, in fact, into a portion of the nut. A loose, hollow screw, or rather a threaded thimble, is attached to the moveable jaw, and fits accurately into the grooves, being pressed into contact by a concealed spring. The strain on the wrench, when applied to use, tends to force the screw into still closer contact with the grooves, so that all possibility of slipping is avoided, while at any moment, a gentle pressure on the projection raises the screw out of contact and allows of its being shifted—the operation being one of perfect ease and facility.

INSTRUMENT FOR SURVEYING.

A valuable instrument for surveying, lately introduced, is based on the familiar trigonometrical principle; that when the length of the base of a right angled triangle is given, the adjacent angle formed by the hypothenuse serves to determine the length of the perpendicular. The instrument comprises two telescopes, separated at specific distances on a table, one stationary relatively to the table, the other moveable on a pivot in a line which forms a right angle to the stationary one, so that it may be brought to bear upon the same point. The value of the apparatus consists in the fact that the moveable telescope has attached to it an index moving over a graduated scale of distances on the table, which upon being brought to the same point in the stationary glass, indicates, on the scale, the distance of the point.

GERMAN SILVER AND ITS USES.

German silver has come into very extensive use during the past few years. It is composed of one part of nickel, one part of spelter or zinc, and three parts of copper; but all these substances have to be pure, and must be exposed to a great degree of heat before they will unite. The refractory nature of nickel, and the difficulty of obtaining the metal free from arsenic, iron, and cobalt, are the causes of our not unfrequently seeing German silver spoons of gold yellow color; while German silver, prepared from pure metal, will equal in whiteness the best silver, and will not tarnish. Upwards of fifty thousand pounds of this composition are manufactured in this country annually, for which the nickel is imported from Germany and England. There are but three localities of nickel ore in the country. One at Chatham, Conn., yields almost three per cent. nickel; another ore, from the mine La Motte, Missouri, yields about ten per cent.; and nickel ore is also found among the copper ores of Lake Superior. Spoons and forks of German silver, when used, should be washed at once, instead of allowing them to remain soiled and dried. In this way, they will always keep bright, clean and sweet. It should also be remembered that hot water sets stains, while cold water and a little soap will prevent them. If by accident an article made of this material should become tarnished, a pinch of fine salt rubbed over it will restore the color better than anything else.

WHEEL TIRES.

Tires for wheels are now made in such a manner that the wheels may run, at different times, on hard and soft land, as circumstances may require. To this end, the tire for the wheel is rolled on its exterior surface, with a projecting longitudinal rib, which may be square or rounded; so that when the wheel is on hard road or surface, the tire would run on its longitudinal rib; but when on soft land or surface, the rib will penetrate, and the whole breadth of the tire will rest on the land or surface.

THE BAY OF FUNDY.

The rapidity and hight to which the tide rises in the Bay of Fundy is the product

of a variety of causes, and chiefest among them is the configuration of the land. In deep inbends of the shore open in the direction of the tide wave, and gradually contracting like a funnel, the convergence of the water causes a very great increase of the range; hence the very high tides in the Bristol (English) Channel, the Bay of St. Malo, and the Bay of Fundy, where the tide is said to rise sometimes to the hight of one hundred feet. Says Brande: "Promontories, under certain circumstances, exert an influence and diminish the magnitude of the tide. The observed ranges are also very anomalous. At certain places on the southeast coast of Ireland, the range is not more than three feet; while at a little distance on each side it becomes twelve or thirteen feet; and it is remarked that these low tides occur directly opposite the British Channel, where (at Chepstow) the difference between high and low water amounts to sixty feet." The configuration of the atmospheric pressure and winds have also an influence on the tide wave.

NEW MODE OF CONSTRUCTING BOILERS.

The *Derby Reporter* notices a locomotive boiler, lately made at the locomotive works of the Midland Railway Company, Derby, G. B. It says: "Until a very recent date, it was believed that the rivetted portion of the boiler was as strong as any other part of it; but the practical experiments of Mr. Fairbairn demonstrated that if the strength of an ordinary boiler plate was assumed to be 100, then a joint secured by a single row of rivets was equal to 56, and if double-riveted, 70; in other words, if a boiler was made of plates capable of resisting 100 lbs. per square inch, it would only be safe to use 56 lbs. of steam in it, if single riveted. The new plan of making boilers, as introduced by Messrs. Alton and Fernie, of the locomotive department here, is to increase the strength of the plates at this weak point of all boilers, and instead of riveting the plates on the flat part of another, to bend the plates to a right angle and rivet the flanges together; thus angle irons are entirely dispensed with at the flat ends, and, instead of the joints being the weaker part of the boiler, they are by far the strongest. They claim as their invention an entirely new form of boiler plate, rolled thicker along the edges or sides for a certain distance, and gradually tapering into the body of the plate. These plates they bend and flange, or, as the case may be, they rivet on flat to the boiler. In ordinary boilers placed over a fire, or having an internal flue containing it, the plates next the fire gradually get thin and have to be replaced. The locomotive boiler shell is quite removed from the direct influence of the fire, but being subjected to double the pressure of ordinary boilers, and having to sustain some particular strains consequent on its being attached to the engine, it wears differently to an ordinary boiler. Some were pointed out to us which had a narrow seam or strip worn out along the inside edge of the joints, but the greatest amount of wear seemed to be on those plates that had angle irons attached to them, and on the opposite side from the angle iron, and inside the boiler we saw plates which had a channel worn out two or three feet long, half an inch wide, and three-eighths of an inch deep, or nearly the whole thickness of

the plate; indeed, some plates we saw were cut clean through which had only been at work three years. Now, the new plates are made sufficiently wide in the thick part for properly jointing, and also to stand twice the amount of wear at the joints. So that in the new boiler, if the plates are strong enough in the body to resist 100 lbs. per square inch pressure, the joints being made extra thick, are also able to resist the same or rather more pressure, and consequently, an equilibrium of strength is maintained throughout the whole boiler."

MOLTEN SUBSTANCES.

Hitherto water has been supposed to be a singular and special exception to the ordinary law, that as substances are elevated in temperature they become specifically lighter; that is to say, water at thirty-two degrees, on being heated, does, on its progress towards forty degrees, become more dense and specifically heavier until it reaches forty degrees; after which, if the temperature be elevated, its density proportionately diminishes. From a paper, lately read before the British Association, by Mr. Nasmyth, it appears that water is not an exception in this respect; but that, on the contrary, the phenomena in relation to change of density—when near the point of solidification—is stored with every substance with which we are at all familiar in a molten state; so entirely so at least, that Mr. Nasmyth felt himself warranted in proposing it as a general law, that a molten substance is more dense, or specifically heavier then, than the same substance in an unmolten state. It is on this account that, if we throw a mass of unmolten lead into a crucible of the molten metal, the solid mass will float in the fluid.

NEW METHOD OF BLASTING.

A new method of blasting or removing submarine bodies is proposed, according to which, a very heavy cannon, loaded with powder and ball, is sunk with its muzzle in contact with, or as close as possible to the face of the rock or other body to be removed, and fired by a galvanic battery, to project the ball against the rock. The weight of the column of water above the cannon, added to the weight of the cannon itself, prevents recoil, and causes the ball to be projected with immense force. The cannon has adjusted legs, which support it or attach it to the body to be removed, and enable it to be set at such an angle as might be desirable to split off a ledge of rock. When the cannon has been fired, it is raised by chain tackles attached to it. Experiments are said to show this to be a very effective mode of blasting.

CANNON OF LONG RANGE.

A new gun has been invented in Newcastle, England, and tested at Sheerness, the projecting power of which completely distances that of any piece of ordnance hitherto known. At an elevation of thirty-three degrees it has sent a 32-pound shot a

distance of 9,600 yards, or more than five miles. The same range has been attained by a 9-pounder, weighing 16 cwt., of similar construction.

ENGLISH CAST STEEL.

The cast steel of England is made from the fragments of the crude steel of the manufactories and steel works. A crucible, about ten inches high, and seven inches in diameter, is filled with these fragments and placed in a wind furnace, like that of the founders, but smaller, and is furnished with a cover and chimney, to increase the draught of air. The furnace is entirely filled with coke, and five hours are required for the perfect fusion of the steel. It is then cast into ingots, and afterwards forged in the same manner as other steel, but with less heat and more precaution, as it is more liable to break. Its uniformity of texture is for many works an invaluable advantage, but is necessarily excluded from many works of considerable size, on account of the difficulty of welding it, and the facility with which it deteriorates in the fire. Cast steel takes a fine, firm edge, and receiving an exquisite polish, of which no other sort of steel is in so high a degree susceptible, it is made use of for all the finest cutlery; but though it may be cast into ingots, it is too imperfectly fluid to be cast into small wires. The tenacity of steel, hammered at a low heat, or even when cold, is considerably increased; but the effect of this hammering is taken off by strong ignition. Tools, therefore, made of cast steel, and intended to sustain a good edge, for cutting iron and other metals, are not afterwards softened, but the ignition is carefully regulated at first, as the most useful hardness is produced by that degree of heat which is just sufficient to effect the purpose. Cast steel, annealed to a straw color, is softened nearly as much as other kinds to a purple or blue.

PREVENTION OF DRY ROT IN TIMBER.

It is the opinion of many scientific persons, that timber, especially for ship building, ought never to be cut till after the fall of the leaf, when it contains the least sap and moisture. In examining masses of oak, dug from the alluvial strata of the country, where it has lain for ages, many of them are found fresh and sound as they could have been on the day when they were overthrown; in these cases, the timber is uniformly as black as ebony, and obdurately hard. Chemically they contain a far greater proportion of iron than could be supposed to have existed in the natural state of the tree. To this extraneous iron may be attributed the incorruptibility of antediluvian timber, and it must have been supplied by the ore of the soil, or from waters impregnated with particles of iron; in this state of solution it would penetrate the substance of the wood, unite with the astringent principle, and produce not only the black color, but such a density of texture as almost to resist the sharpest instrument. The same means will season new timber, and render it proof against dry rot, that will cure old, namely: the application of iron in a state of solution. This can be

obtained from a solution of sulphate of iron—green copperas—in which the wood must be soaked till of the color of new ink.

CAST AND WROUGHT IRON.

The reduction of iron from the condition of cast iron to that of wrought is a partly chemical and partly mechanical process. Very slight changes, frequently no apparent ones, in the processes, produce very widely varying results. Absolutely, pure iron is not so strong as that with just enough carbon, silica, etc.; crude iron (pig) contains four or five per cent. of carbon, and, when reduced to wrought, this is mostly expelled; but in changing wrought iron to steel, it appears essential that carbon be infused again. Cast iron can be found containing a little more, a little less, and exactly the same amounts of carbon as the best cast steel, but they are as different therefrom as can be. It is believed that wrought iron consists of fibers surrounded by cinder, while cast iron has the cinder chemically combined.

HATCHING DUCKS IN CHINA.

MR. FORTUNE states, in reference to the hatching of ducks in China, one of the greatest lions in Chusan, is an old Chinaman, who every spring hatches thousands of ducks eggs by artificial heat. His establishment is situated in the valley on the north side of the city of Tinghae, and is much resorted to by the officers of the troops and strangers who visit the island. The first question put to a sight-seer who comes here, is, whether he has seen the hatching process, and if he has not, he is always recommended to pay a visit to the old Chinaman and his ducks.

The China dwellings, as we know from experience in California, are generally wretched buildings; in Chusan they are not much dissimilar, being built of mud and stone, with damp earthen floors, scarcely fit for cattle to sleep in. The cottage under notice was no exception to the general rule; bad fittings, loose, creaking doors; paper windows, dirty and torn; ducks, geese, fowls, dogs and pigs, in the house and at the doors, apparently having equal rights with their master.

The hatching house was built at the side of the cottage and was a kind of long shed, with mud walls, thickly thatched with straw. Along the ends and down the side of the building, were a number of round straw baskets, well plastered with mud to prevent them from taking fire. In the bottom of each basket a small tile is placed, or rather a tile forms the bottom of the basket, upon which the fire acts, a small fire place being below each tile. Upon the top of each basket there is a straw cover, which fits closely, and is kept shut whilst the process is going on. In the centre of the shed are numerous large shelves, placed one above another, upon which the eggs are laid at a certain stage of the process. When the eggs are brought, they are put into the baskets, the fire is lighted below them, and a uniform heat kept up, ranging from ninety-five to one hundred and two degrees, as ascertained by a thermometer,

but the Chinamen regulate the heat by their own feelings, and consequently the temperature varies considerably. In four or five days after the eggs have been subjected to this temperature, they are carefully taken out, one by one, to a door in which a number of holes have been bored nearly the size of the eggs; they are then held against these holes and the Chinamen look through them, and are thus able to tell whether they are good or not; if found good they are taken back and replaced in their former quarters, if bad they are excluded. In nine or ten days after this, that is about fourteen days from the commencement, the eggs are taken from the baskets and spread on the shelves. Here no force heat is applied, but the eggs are covered with cotton and a kind of blanket, under which they remain about fourteen days more, when the young ducks burst their shells and the shed teems with life. These shelves are large and capable of holding many thousands of eggs, and when the hatching takes place the sight is not a little curious. The natives who rear the young ducks in the surrounding country, know exactly the day when they will be ready for removal, and in two days after the shell is burst, the whole of the little creatures are sold and conveyed to their new quarters.

WELLS.

THE amount of money and labor expended in California in seeking to obtain water in places and by modes frequently productive of disappointment, renders no apology for addressing a few words on the subject.

In an earlier number of the CULTURIST, we pointed out the greater facilities presented in many cases, such as on hill-sides, of seeking water by means of horizontal drifts in place of perpendicular shafts or borings. For want of geological knowledge, many artesian well-borers have most inflated ideas as to the feasibility of obtaining water in unlimited quantities, and perrenially, at reasonable depths. In a scientific point of view, the matter is not a purely geological one, it is equally connected with meteorology or the climate of any given district; this we probably may make more easily understood by instituting a comparison, say between the valley of San Jose and a valley supposed to be geologically precisely similarly circumstanced, on the west coast of Portugal; in the former the annual fall of rain is only twenty inches, in the latter it is two hundred. It would therefore be absurd to suppose that an artesian well could be found in San Jose to yield as abundantly as at a similar one on the west coast of Portugal. It will be remembered, that on the occasion of an earthquake which took place sometime ago at San Jose, nearly, if not the whole of the wells at San Jose ceased to flow. It had, however, been previously observed that the quantity of water given out had been decreasing. It may easily be understood that with a declining amount of pressure, which the shifting of the earth caused by the earthquake, by means of which the old channels had been closed, thereby increasing the friction contemporaneously with lessened hydraulic pressure, caused a cessation of flow. A person accustomed to hydraulic investigations of this character

can by a careful survey, announce beforehand the amount of water that can be annually looked for by borings and from what depths.

The economy of water supply in California for purposes of irrigation, must speedily attract more attention than it has done, especially with the threatened scarcity of grazing and winter provender, a dearth of both appearing to be close at hand, and on account of which, alarming results are anticipated already by many engaged in stock-raising. We deem this question one of more moment than the mere supply of the farm and homestead with an adequate quantity of that indispensable fluid, for purposes both of cleanliness and general use.

We have not space in the present number to more than generally touch upon this interesting question; ata future day we shall dwell upon it more extensively: in the meantime we shall be glad to have as much information as possible on the subject from our numerous readers.

TRANSPLANTING EVERGREENS.

IT is a true axiom that "one fact is worth a thousand theories." But it needs this qualification, viz:—the fact should be fairly and fully stated. Your remarks on transplanting evergreens, in the March number, so exactly accord with my dear-bought experience this spring, that I think it will interest your readers to narrate the facts.

My neighbor and I joined in giving an order for five hundred Monterey Pines, one year old, the roots to be carefully taken up and kept moist. We were assured that, however other evergreens might fail, there was no fail in this variety of pines. They would grow without any trouble.

To give us an agreeable surprise, the captain brought us plants of two years growth, the roots being in excellent condition and well wrapped in matting. There was no earth about them, nor had any water been applied. They were about a week out of the ground.

We had suspicion of the trees,—we greatly preferred smaller sizes, but we were talked out of it. We planted them in the usual way, viz: in a hole considerably larger than a fit, filling in and compacting with loose ground. The roots, as I have said, looked fresh and all right, but the little fibrous roots were dry.

The planting was in March and the weather was unusually cool. The strong loamy ground was moist; the location elevated. The trees had begun to bud;—experienced men conducted the planting. Not a single tree lived, nor did one make a fair show for life. Every tree died and was lost. Moral.—Don't let any one talk you into buying evergreens of this description.

We tried a large invoice of Cyanothus only a few inches high, with exactly the same success. Evidently the sap of some plants solidifies so as to be beyond re-fluidity, and such cannot be moved with bare roots.

Determined not to give it up, we got Mr. Culver of the Mission, to bring us an

equal number of yearling spruce firs, with balls of their native earth encasing the whole body of roots. These he planted in his own way, April 14th, the day after taken up. They were in bud, about twelve inches high and placed alongside the dead ones mentioned. But the planting was quite different, viz: Mr. Culver made holes nearly to fit the root-ball, and whatever filling was necessary, was jammed around tightly with the heel of the boot.

This gentleman has followed the business for years, and his experience is against much disturbance of the soil. He succeeds and never fails, only when this rule is observed.

It is worthy of consideration whether our deep ploughing and wide holeing is the right way for fruit trees in this dry climate. In the Atlantic States it is well, because it encourages the tree to make a perfect mop of small surface roots; but here the effort of the tree should probably be directed to making downward roots towards moisture; all the more so because in removing we disturb and destroy that most important system of tap or pump rooting, which on examination will prove to be the first instinct of every plant in California, where water is not permanently near the surface.

Every one is in a hurry to have a quick crop of fruit, or a showy growth of ornamental trees. To promote this end, three or four full irrigations may be given the first year of transplanting, which will make a wider-spread growth of surface roots. This will be aided by a mulching of straw or litter, to be raked aside when watering, and returned. Indeed, one watering with mulching is equal to two without, if not three. Mulching requires judgment. The object is to protect the ground from baking and the roots from drought. Vapor ascends from the ground continually, being the evaporation from subterranean waters. In our climate this process is adapted, no doubt, to the exigencies of our long summer drought. It is therefore more active than in other climes. To check its too rapid absorption in our dry atmosphere and especially in our still more desiccating winds, is the object of mulching; and it is only by observation in any locality, that the depth of material can be regulated to effect its purpose best. Generally, we should say from two to three inches of loose material. It is questionable whether as a rule, transplanted trees of any kind should not be nursed along during the first and second years, with as little aid as possible, from water especially; because if left to its own resources, the instinct of the plant will cause it to put out all its power in sending roots down to moisture. The tree will of course make less growth. But will not this secure its future hardihood and longevity? A.

Silver Terrace, San Francisco, April 22, 1859.

The Agricultural Report.—We received several letters expressive of great indignation at the refusal of the Legislature to print the Agricultural Report. There may have been good reasons for this refusal of which we are not aware, but it has certainly excited a strong feeling in the agricultural community. The day has at

length come when the people are giving their attention to what is passing in the Legislature, and the representative may expect his conduct to be closely scanned by his constituent. This is particularly true in the agricultural districts, where homes are being built up, and where the voters begin to feel themselves identified with the country. In former days, it frequently happened, so indifferent were the sojourners in this land of gold to the permanent prosperity of the State, that some "good fellow" would be sent to the Legislature, by way of enabling him to "make a raise" to take him home to the Atlantic States. The only security for good, wise, and careful legislation, is to be found in the strict responsibility and accountability of the representative to the constituent body. Set all his faults in a note book, and haul him over the coals at the next election.—*Standard, Sac.*

VINEYARD PLANTING.

IN a previous communication I assumed the affirmative of the proposition, that it was better to plant cuttings in nursery form, in moist, rich land, than to plant them out in vineyard form the first season; basing my conclusions upon the admitted fact, that the best and surest vintage is produced on dry, mellow soils. Since making that statement, facts confirmatory of this theory are daily accumulating; not but that complete success will attend the planting out of cuttings, in vineyard form, in such soils as the Alhambra valley, where humid winds almost daily, throughout the summer, bring to the foliage of the vine a great amount of moisture—for in such localities there will be no difficulty in producing a luxurious growth of wood and foliage, and a crop of sour grapes, when the mildew and blight does not strike them—but that such localities are ever to become distinguished for the excellence of their vintage, I much doubt. It is upon the question of soil and climate, for vineyards, that a solution of the best mode of planting the vine must be had. Now, I assume that a climate, subjected to damp, cold winds, is not suitable for the production of the grape; and my assumptiom has been sustained by several years' trial of over twenty varieties of Foreign, and of Catawba Isabella and California grapes in a sheltered position, in Alameda county, where I never succeeded in raising, in open culture, a perfect grape. I also assumed that the alluvial bottoms of the Sacramento, and the rich valleys in the mountains—composed mainly of leaf molds—are not good vineyard lands; yet such have generally, thus far, been selected as vineyard soils. The objection to such soils is, that they invariably produce what all vintners and nurserymen reject—long jointed canes. In a locality of this kind, in Placer county, a gentleman of scientific attainments and an enthusiast in horticulture, had the mortification to lose his last year's crop of grapes by mildew, owing to excessive irrigation.

The latter part of February, I planted a small vineyard on a loose, sandy loam, with year old vines. I pruned the roots to within three to six inches of the cutting or main stem, and cut off the top below the new wood, and planted them so that the top of the vine was about an inch below the surface of the ground. Some of these

vines, on the first of May, had thrown up shoots over six inches long, and, out of several hundred plants, I do not find one that has not started. On an examination of the roots of some of these plants, I find each root has thrown out a subdivision of spongioles which are in process of harding into roots, making a complete network of feeders, going in all directions in search of food; surface feeders, too, which have access to light, warmth and air, all necessary to their healthy functions. To some it may appear to be a "mutilation," by pruning them from three to six inches.

I moved some vines from Alameda, which I imported from New York, six years since. I pruned the roots, which were large, from three to six inches of the old stem, and set them out carefully, being particular that the roots were not exposed to the sun or dry winds. They are now showing signs for fruit this season. Cuttings which I was setting in the nursery, at the same time of planting rooted vines in vineyard, have not yet begun to break their buds. The disadvantages of planting vines, two or more years old, is that the work cannot be done as rapidly as when handling yearling plants, as the latter can be set as expeditiously as cuttings "two feet long," and perhaps much more so.

It was my intention, when commencing this article, to have indulged in some remarks upon the tap-root question, as connected with the root pruning of the vine, as well as fruit trees; but having prolonged this to greater length than I intended, I will defer it till another time. As to the subject of vineyards—in which there is a growing interest felt all over the State—I intend to carefully note the mode of culture and success of a large number which have been planted in this vicinity; keeping myself divested of any "preconceived notions" or prejudices, because I really desire to learn in what manner we can obtain the greatest success in our warm, dry climate.

RIVERSIDE.

SACRAMENTO, May 2d, 1859.

LEGISLATION FOR OUR AGRICULTURAL RESOURCES.

THE promotion of the agricultural resources of the State is one of the legitimate objects of legislative action—more particularly is this desirable in our own State, separated from all sources of supply, and liable at any untoward moment to be thrown entirely on its own resources. Satisfactory as the result of our six years of seed time and harvest has been to the efforts of the husbandman, there have been times in that interval when but a small amount of breadstuffs were the bar to famine prices. And, although increase of labor and tillage has made this evil of less magnitude in the future, there are very many other articles capable of being produced within the limits of the State—the want of which in time of war would be the cause of serious distress and difficulty. The introduction of many of the staples of life and commerce, the cultivation of which are novel to our farmers, can only be arrived at by the stimulus of our agricultural societies, backed by judicious legislative support.

Ohio has doubled the value of her stock by timely imports of choice cattle at the

expense of the State. Massachusetts has doubled the products of her sterile soil by her liberal support of her agricultural societies. Even the young State of Iowa affords thrice the aid to her agricultural societies which is afforded by our own State, without a tithe of the necessity which exists from our isolated position. While California aids only the State society with a premium fund—a small amount compared with the State's wealth and resources — many other of the States aid their county societies with the nucleus of a premium fund. We think our State can well afford a greater liberality in this respect, and should liberally aid and foster the industrial and agricultural societies wherever organized, and should widely disseminate the reports of the annual fair, that all within our borders may avail themselves of the information and experience therein contained, and all without our bounds receive explicit evidence of our State's resources. The reports published heretofore have been widely spread; and even at this early day their fruits are shown, in the references to and extracts from them in every agricultural paper of the Union. Provision should be made to increase this information of our agricultural wealth, and the transactions of our State societies should be forwarded to every agricultural society of the Union. They will be read and appreciated, and their statements of the wondrous fertility of our soil and genial climate, will awake an interest in our resources in the minds of agricultural capitalists, charming hither an immigration of a farming population, not under ordinary circumstances to be persuaded from their improved farms and homes.—*Alta Cal.*

GOATS.

WE frequently see a considerable number of goats grazing amongst sheep,—their utility we never could ascertain. We are aware that a real or fancied service is attributed to the presence of goats amongst horses, but amongst sheep or cattle we never could learn their use.

From the preceding remarks it must not be inferred that we are enemies to the goat, other than when they stroll into gardens and other places forbidden to them. What we want to draw attention to, is the fact that they may be made useful. In the first place we scarcely know anything more delicate and agreeable for dinner than a piece of well fed kid; perhaps as an animal diet the most wholesome of any in warm climates. The flesh of the goat when two years old, is somewhat high flavored, but when salted and preserved in the same way as bacon, eats not unlike dried venison. The point, however, to which we wish more particularly to draw attention, is the use of the goat for the manufacture of cheese.

In Holland the mixture of goats' milk along with that of cows, is by no means uncommon, when making cheese. Shap Segur, a celebrated cheese made in the Alps and sometimes imported into California, is principally, sometimes wholly, made from goats' milk. There are certain soils termed, though we think improperly so, "alkaline soils;" the term saline would be more appropriate. Saline soils all over the

world, give rise to a vegetation more suitable to the goat and ass than any other animals in such places. The goat might with economy be combined in large proportion with flocks of sheep, for when left to forage for themselves, goats generally select for food bitter and slightly astringent plants. We are not such admirers of goats as to recommend them to special attention, but we think there are many places and circumstances where they might be made economically useful.

INCREASE OF BEES.

A GREAT deal of attention is now being bestowed upon bee culture, in various parts of the State. Considerable importations have been made, during the past year, which, with the extraordinary increase of those previously introduced, are rapidly supplying our bee-fanciers with abundant stocks.

We have received an interesting letter from our traveling agent, Mr. J. B. Morse, in reference to the success of the honey bee in the vicinity of Napa city. Writing from that place, he says: Although not an adapt in the art of bee culture, it has been my good fortune to meet with Mr. T. G. Baxter, of this place, who has given me the benefit of his experience, but perhaps it may interest the readers of the *Culturist.* Mr. Baxter bought, in April, 1857, from Appleton's stock, ten hives of bees. They were of the Buck importation, and these ten hives have already—March 24th, 1859—increased to forty-four, or thirty-four hives of young bees.

Mr. B. has been conducting some interesting experiments in the propagation of the bee. Three of his hives—which are those having moveable boxes at top—were left without boxes as places for storing honey; of course the bees had but little labor to perform beyond that of their own support and the raising of young bees. Seven swarms were allowed the top boxes to work and store honey in, which they did to the amount of several hundred pounds. And yet there was no apparent difference in the breeding, between those having extra labor to perform and those that had not.

From one hive he obtained five young swarms in a season; one on April 21st, May 5th, May 6th, and on the 9th, two swarms; whilst these young bees afterwards turned off, the same season, three more swarms—making the entire increase eight hives from one old one. There is perhaps something a little extraordinary in reference to the fecundity of this particular hive, for I find written upon the door of the hive the following memorandum:

"Appleton's first swarm, April 11th; cast off, May 15th, 24th, 26th, 27th, one swarm each day;" making four swarms, from this hive, the season before it came into the possession of Mr. B. The novice in bee culture would gain much valuable information by calling on Mr. B., and making a careful note of his mode of management; for, instead of being purely theoretical, it is entirely practical, which is demonstrated by his success.

He has recently procured one of Harbison's patent hives, on which he has made

several improvements; but as they are rather intricate in their construction, it will require too much space to describe them. The Harbison hive, however, seems to be pre-eminently superior to any other in use; the main feature of which is, that the interior of the hive is so arranged that any portion of the comb can be drawn, with but little disturbance to the workers. The improvements are calculated to so govern the working of the bees, that it will be done regularly and in a mechanical style. The patentee, Mr. J. S. Harbison, is a resident of Sacramento, and a very successful importer and propagator of the honey bee.

HONEY BEES.

FROM Mr. J. G. Hoag, of Washington, Yolo county, we derive the following information in reference to the number of swarms of the honey bee, in the counties named, at the opening of the present season. Mr. H. is an extensive and successful apiarian, and is probably as well posted in reference to the progress of bee culture, in this State, as any other man.

In Sacramento county, there are one hundred and ninety-seven swarms; in Napa county, twenty; Sutter, four; Shasta, ten; Merced, twelve; Yolo, seventy-nine; Solano, five; Yuba, fifteen; Santa Clara, the pioneer county, two hundred and fifty.

There have been nine hundred and fifty-six swarms imported this season, or last winter and the present spring. This is the number that left the Atlantic States for this side; but of the number only about two hundred remain. The first considerable loss attended the direct transportation, and of such as reached here alive, very many swarms were so weak that the owners found it expedient to put several together in order to make sufficiently strong colonies; whilst others have been lost by direct desertion of the hives in which they were imported; as many as eight swarms having been lost by our informant in ten days, during the early part of April.

Many of the recent importations were found to be nearly destroyed by the bee moth, and doubtless deserted their hives to rid themselves of their troublesome invaders. The ease with which bees procure a subsistance in California, doubtless is a strong temptation to a swarm, nearly overrun by the moth, to desert their old quarters altogether.

Of all the importations, that known as the "Buck,"—being brought here by a gentleman of that name—stands the highest; being perfectly acclimated, and both the original stock and progeny, perfectly healthy. An account of Mr. Buck's importation of the honey bee, and subsequent success, will be found upon page twenty of our June number. So great is the interest now everywhere felt, in regard to the success and management of the honey bee in this, their newly adopted country, we should be pleased to hear from correspondents upon the subject.

DISTILLERIES AND AGRICULTURE.

NOTWITHSTANDING Ohio and Kentucky may be able to supply California with whisky, cheaper and more adapted to the palates of those who delight in the flavor that derives its smack from corn, there are other kinds of spirit, largely imported, that could be made in California much cheaper than it could be imported. The facilities for growing beets, potatoes, carrots and rye, in California, is not equalled by any country in the world; then why not produce alcohol here. As an illustration of what is done in Europe, we give the following account of the management of a farm, in connection with a potato distillery, in North Germany:

It is situated near Dantzic where potato whisky or, as it is called in that part of Germany, brandtwein—that is brandy—is made. The proprietor possesses a farm of six hundred acres, of which three hundred acres are always in potatoes, and the other half in rye. The land is manured at every crop of potatoes. He has forty horses, besides oxen employed on his farm, and one hundred and twenty cattle tied up to fatten. The number that he is able to fatten depends upon the condition in which he ties them up. When the animals are only skin and bone it will take six months to fatten them. The whole of the animals, horses, cows, sheep, pigs, etc., are fed on the refuse of the distillery as part of their food—the fattening animals get nothing else.

The whole of the potatoes, grown on the farm, are used at the distillery. They are first boiled, then crushed and malt added afterwards; after which it is laid out on a hard floor and ice mixed with it to cool it more rapidly. The mixture is then run into vats, in the cellar, where it ferments; when completely fermented, it is pumped into the stills and distilled in the ordinary manner. One hundred and fifty bushels of potatoes are used daily, and two hundred gallons of whisky made in summer, but considerably more in winter.

The refuse amounts to about 12,000 quarts, and each feeding cow is supplied with from 110 to 130 quarts. The whisky produced, is sold for about six cents a bottle, and is much stronger than American proof whisky.

CHOICE STOCK.—The purchasing and raising of blood stock, has not only become a matter of extensive interest among the regular stock men, but many importations of choice animals have been made by those who might more properly come under the head of amateur farmers. Some of the best blood from the stables in the Atlantic States is represented here, while the draught horse and racer of old England have their blood relatives on our farms and ranches.

Bakewells and Merinos, Southdowns and Leicesters are found in our flocks; Durhams and Devons in our pastures. Aside from these direct importations by sea, among the herds that have crossed the plains, we have many cattle of the choice herds of Ohio and Kentucky, shortly to be added to by a large herd of pure Devons from

Ohio, and a flock of choice sheep from Iowa; and if it be true that an importation of alpacas will be made from Peru, this year will chronicle a large increase to this source of wealth.—*Alta.*

DEEP vs. SHALLOW PLOWING.

Editor Culturist:—I have waited to see if more of your correspondents coincide with the opinions of "Plow Boy," as advanced in your January number. With all due deference I think he has not his case before the court. He does not state the qualities of the soil, how long under cultivation, or the season of planting; or if both fields have been equally cultivated up to the time one was plowed deep and the other light. I too am inclined to take a farmer's privilege and watch the progress of my neighbors' crops and culture, and in comparison of the following examples of deep and shallow plowing with those mentioned by him, will afford some other reasons beside those given for the difference of crops.

One of my neighbors, rather late in the season, lightly plowed a piece of redish clayey loam,—harrowing the barley as usual; *beside* it, on the same day, another neighbor deep plowed his land, sowed his barley with drill and finished up with a roller. This produced a fair crop, while the crop of the first named party was not worth the harvest. Now this instance standing alone, proves just the *reverse* of that quoted by Plow Boy. The same season another neighbor plowed a piece of dark clay loam ten inches deep, and had a most bountiful crop. Another near by and at the very same time plowed his land also ten inches deep, and only had half a crop: now by Plow Boy's theory neither should have succeeded. But I find another reason for it. The farmer who had the good crop in this case, had worked his land for some years previous, each year gradually deeper; in the other case the farmer had new land, and turned up, at one plowing, the subsoil he should have been three years in reaching. In his desire to bury some noxious weeds, he buried his good soil, which had been acted upon by air, sun and frost, below a crude subsoil.

Your correspondent is right on the necessity of a compact soil for the development of the fibrous roots, and possibly is wrong in the reasons of his neighbor's short crop, which mayhap may be from his having brought up too much subsoil at one plowing; for it is well known, as Plow Boy states, our virgin soils at first do better in shallow plowing, and as our frosts do not extend far below the surface, and in many districts the deposit of vegetable matter has not been great from the constant fires in past years,—the *ash* from which has been blown off by the summer winds, a greater care is necessary where immediate crop is expected, in too readily exposing the subsoil.

I hope, Mr. Editor, your farmer correspondents will freely give us outsiders the benefit of their experience, for in the novelties of California farm life and culture, we each can profitably read a page from the other's book.

UP COUNTRY.

BREAD.

PERHAPS we could not give many of our agricultural readers situate in remote places, any information of more daily and agreeable service, than such as relates to the best mode of making "the staff of life"—bread; of the best quality, and in the most economical manner.

Dough would form a dense solid mass (like crackers) when baked, if in the process of making it a quantity of air was not diffused throughout the mass, forming the cells visible in fermented bread. This can be done in several ways, both chemical and otherwise. In confectionery carbonate of ammonia is used, and for the more common kinds of articles, carbonate of soda; in the latter case some acid liquid has also to be employed, as sour milk, &c. One disagreeable circumstance frequently attends the employment of any of the alkaline carbonates, namely; if in any excess the tendency to make the bread of a yellow color. The science which affords an insight into the laws which affect "the rising" of bread and which have pointed out substitutes as bi carbonate of soda, potash, &c., mixed with cream of tartar or some decomposing acid in place of the ordinary fermenting materials, yeast and leven, is but of recent date. The ferments employed, operate by generating an infinity of gas bubbles, which honeycomb the dough. The earliest process was to employ leaven, a practice generally pursued in Europe in making black rye bread, but we believe in "The States" is only used for making buckwheat cakes. The substitution of yeast for leaven is but a modern practice. Yeast causes a decomposition of the constituents of flour, changing a portion of the starch into sugar and next into carbonic acid gas and alcohol, thus converting the mass of dough by the gas evolved into *sponge*.

The change caused by fermentation and the action of heat in baking will be shown by the following analysis of one hundred parts of flour and one hundred parts of dried bread:

	FLOUR.	BREAD.
Starch,	68.0	53.5
Sugar,	2.3	3.6
Gum, (Dentrim,)	2.5	18.0
Gluten and Albumen,	25.8	20.75
	98.6	95.85

The higher loss in the case of bread results from the weight of carbonic acid, water, &c., not estimated.

In making good bread the alcoholic fermentation is the one desired; if by any accident the acetous, lactic or putrefactive fermentations are induced, the bread will not be good. This alcoholic fermentation is precisely the same that occurs in making wine, beer or whisky. In England the saving of the alcohol drawn off in baking bread, was once the subject of a patent, and a bakery at Chelsea was erected on a large scale with the object of saving the spirit, it having been calculated, and we believe far from overestimated, that the bread annually baked in London yields upwards of four hundred thousand gallons proof spirit.

M. Mege Mouries was the first to point out that the nitrogenous muscle-forming principle of wheat did not consist simply of gluten, which is insoluble in water, but that there exists in the outer layers, which form the mass of the bran, an albuminous substance soluble in water, which he has termed *cerealine*. It is found that the presence of *cerealine* causes increased fermentation, and under certain circumstances renders bread soft, heavy, sour, and of bad quality. Nor is this all owing to its own decomposition, for by the influence it exerts in altering the accompanying gluten, it may leave less nitrogenous matter in the finished loaf than when the bread is made of finer flour. In order to obviate these ill effects, M. Mege Mouries has discovered a method by which this may be avoided, and at the same time obtain much more bread-meal from the grain than by any process previously in use. By his method only a single grinding and dressing of the wheat is required, in which way he obtains from seventy to seventy-four per cent. of fine flour. The eighteen or twenty per cent. of brown meal which remains is stirred up with four times its weight of water, in which sugar and yeast have been submitted to alcoholic fermentation. The mixture immediately ferments and is allowed to continue for six or eight hours; the liquor is then strained from the bran and is immediately used to knead the fine flour into dough. This process both separates the meal that was adhering to the bran and prevents the pernicious fermentation that would otherwise have been promoted by the *cerealine*. The result is a loaf "lighter" than that made by the ordinary process and at a lower price; in consequence of the greater proportion of the product of the grain being used and the diminished amount of labor applied both in the milling and making of the bread. Not only is more of the wheat converted into bread, but a greater quantity of the nitrogenous substances is also retained.

As a rule, bread requires a rather quick oven in baking, or the color is inferior; on the other hand it is important that the outer part of the dough should not become scorched or hard at first, and thus prevent its "rising," when this occurs the heat may char the outside whilst the inside is uncooked. Dough made too wet requires a rather slow heat. When the inside is not properly baked, the chemical changes go on after the loaf is withdrawn from the oven, and in warm weather such bread turns sour and moldy, and is at all times unwholesome.

ALAMEDA COUNTY FLORAL FAIR.

THIS fair, which is to be open on the 14th of June next, at Oakland, will probably surpass, in several of its features, any that has preceded it on the Pacific side. Extensive preparations are making for its accommodation, and much good taste and judgment are displayed by those having the matter in charge.

A special and noticeable feature of the fair, and one which cannot fail to draw out a large attendance of the grain growers of this State, will be the trial of the different reaping and mowing machines now in use and manufactured both here and at the East. The annual fairs of the State and county societies, are usually held so

late in the season, that a fair test of these machines is seldom attained, for the want of suitable fields of grain in proper condition. At this fair, ample scope will be given in this department.

Another rare feature, and one which would almost, yes quite, tempt us, even without a very pressing invitation, to act upon the committee to whom the matter might be referred, is that which includes the making, or rather "baking" of "domestic bread," by Misses under the ages of fourteen and eighteen years.

Doubtless a large majority of the best loved wives and daughters in the land, are those who make the best bread. Now, in this bread "baking" race about to come off, suppose the fact leaks out, becomes perfectly apparent that the mothers made the bread, all but the baking, and that the daughters or Misses, only baked it; who takes the premium? This, however, to us is a matter of but small moment; what we want to know most is, who is to act on *that committee?* and will the bread be placed along side of the butter, cheese and honey?

The season—14th of June—being so propitious for the exhibition of many of the earlier fruits, in connection with the floral display, which cannot be otherwise than highly attractive, certainly must draw, from among all classes and occupations, a large attendance. We give herewith the society's circular and premium list.

ALAMEDA COUNTY AGRICULTURAL SOCIETY'S CIRCULAR.

THE first floral exhibition of the Alameda County Agricultural Society will be held in the pavilion of the Society in the city of Oakland, commencing on Tuesday, the 14th of June, and continuing five days or more.

This being the first fair of the Society, as well as the first *floral fair* attempted in the State, should incite its officers and members to *diligent effort* in bringing out the various products and articles for which awards are offered, that the occasion may be one of interest and utility, both to the county and the State.

The object of the Socicty being to foster and encourage all departments of scientific and practical horticulture and floriculture, we invite the aid and co-operation of all who feel interested in transforming our adopted State into an Eden by the abounding of flowers and fruits, to enable us to make the fair alike creditable to the Society, as well as to the enterprise, industry, taste and skill, of the Florists and Pomologists of California.

The acknowleged benefits that accrue to communities, societies and individuals, from public exhibitions of the product of their industry and skill, and the beneficial, social and moral results growing out of these annual gatherings of our intelligent cultivators, should be a sufficient inducement, aside from the premiums offered, to call out an extended list of members and exhibiters.

The fair will be conducted under the same general rules and regulations as commonly govern such societies.

Any person to be a member of the Society, must pay a fee of three dollars, which

entitles him to compete for premiums in any and all departments of the fair, and his family to free admission to all the exhibitions of the Society for the current year.

The committee of award, or judges, will be selected with special reference to their ability to judge correctly and award impartially.

No exhibiter's name will be attached to his articles until after the awards are made up by the committees, which shall be completed on the third day of the exhibition. The morning of each day until nine o'clock, previous to making the awards, will be exclusively devoted to examinations by the judges, during which time no persons, except such as are invited in by the judges for purposes of explanation, will be admitted.

The Society will provide every facility in their power for the safety and perservation of all articles on exhibition, and will be happy to receive and display contributions, with the names of contributors, at any time during the fair; but no exhibiter shall be entitled to a premium unless his articles are on exhibition before 8 o'clock, P. M., of the second day of the fair.

The Society will also be happy to receive and exhibit contributions from persons who may not be able to be present. All articles forwarded by the transportation companies, labeled "For the Floral Fair" and directed to the "Care of F. K. Shattuck, Esq., Oakland," will receive due attention, and any instructions accompanying them will be carefully regarded. The ferry boats will carry articles for exhibition free of charge.

The products of neighboring territories may be exhibited under the same rules and regulations as those of our own State.

For general rules and regulations, address E. S. CHIPMAN, Secretary, *San Leandro.*

Premium List.

☞ Competitors for Premiums must be members of the Society.

☞ The Executive Committee prefer to award the regular Premiums in the form of a Framed Diploma. Special Premiums may be awarded in Diplomas, Plate, or Cash, at the option of the Committee.

FRUITS — EARLY APPLES—Largest and best collection.
Second best do.
Best specimen.
EARLY PEARS.—Largest and best collection.
Second best do.
Best specimen.
PEACHES.—Best collection.
Second best do.
Best native seedling Peach.
Best specimen.
APRICOTS.—Largest variety.
Second best do.
Best specimen.
NECTARINES.—Largest variety.
Second best do.
Best specimen.
PLUMS.—Largest variety.
Second best do.
Best specimen.

CHERRIES.—Best collection.
Second best do.
Best specimen.
GOOSEBERRIES.—Best collection.
Second best.
STRAWBERRIES.—Largest collection.
Largest collection of choice varieties.
Best specimens.
RASPBERRIES.—Largest collection.
Second best do.
Best specimen.
CURRANTS. Best collection.
Second best do.
FIGS.—Best exhibit.
MELONS.—Best exhibit of Watermelons.
Best exhibit of Musk Melons.
PLANTS AND FLOWERS.—Largest collection of Pot Flowers.
Second best do.
Best collection of Pot Plants.

Second best do.
Largest collection of Roses in pots.
Second best do.
Best collection of Roses.
Twelve best Roses.
The choicest and rarest Roses on exhibition.
Best seedling Rose or Roses.
Second best do.
Best exhibit of cut Flowers.
Second best do.
Best exhibit of cut Roses.
Second best do.
Best Bouquet.
Best vase Bouquet.
Second best do.
Best Floral design.
Second best do.
Best Floral Wreath, 100 feet or more.
Second best do.

Premiums will be awarded to everything of merit in this and all other departments, though not named specially in the premium list.

VEGETABLES.—Largest variety of Garden Vegetables.
Best do.
Best exhibit of Cabbage.
" " Cauliflower.
" " Lettuce.
" " Celery.
" " Rhubarb.
" " Green Peas.
Second best do.
Best exhibit of String Beans.
" " Green Beans.
" " Carrots.
" " Beets.
" " Sweet Corn.
" " Green Corn.
" " Turnips.
" " Tomatoes.
" " Onions.
" " Irish Potatoes.
Second best do.
Best exhibit of Sweet Potatoes.
Best variety of Irish Potatoes.
Best exhibit of Cucumbers.
" " Asparagus.
Best exhibit of Horse-radish.

CEREALS.—Best exhibit of Wheat in head.
Second best do.
Best exhibit of Barley in head.
Second best do.
Best exhibit of Oats in head.

MACHINERY.—Best Sewing Machine.
Second best do.
Best Reaper.
Best Mower.
Best combined Reaper and Mower.
☞ The Machines to be subjected to an actual test during the fair.

FINE ARTS.—Paintings in Oil.
Best Landscape, California scenery.
Second best do.
Best Portrait.
Second best do.
Best exhibit of Daguerrotype likenesses.
Second best do.
Best exhibit of Ambrotypes.
Second best do.
Best exhibit of Painted Photographs.
Second best do.

NEEDLEWORK.—Best Embroidery.
Second best do.
Best Millinery.
Second best do.
Best general Needlework.
Second best do.

MISCELLANEOUS ARTICLES.—Best hive of Bees.
Second best do.
Best Honey.
Second best do.
Best Butter, not less than ten pounds.
Second best do.
Best domestic Bread, baked by a Miss under 18 years of age.
Second best do.
Best domestic Bread, baked by a Miss under 14 years of age.
Second best do.
Best exhibit of domestic Baking, including Bread, Cakes, Pies, etc. *A handsomely framed Diploma.*

A. H. MYERS, E. S. CHIPMAN,
H. C. SMITH, FRANK F. FARGO,
WM. H. DAVIS, J. M. MOORE,
F. K. SHATTUCK, G. W. FOUNTAIN, } *Board of Directors.*
H. LUELLING, HIRAM KEENEY,
R. BLACOW, J. L. WILSON,
DR. H. GIBBONS, ALFRED LUELLING,

An Old Book on the Horse.—Nathan Coombs, Esq., of Napa, has in his possession an old work on the horse, published in 1709, in the old English style, edited by W. Pike, of York, and printed by W. Blanchard & Co., of Coppergate, York. It is an interesting relic pertaining to the horse at that long past period.

Mr. C. is also the fortunate possessor of a *consecutive history* of blooded stock from 1709 to 1858.

NATIVE CALIFORNIAN.

WE have introduced as our frontispiece in this number a colored engraving of the Ajax Strawberry, designating it as the earliest imported variety known. We here present an engraving of the indigenous strawberry of California, improved by cultivation. In its native haunts, without cultivation, it seldom attains to more than half the size of the largest as here given, but possesses really considerable merit. There probably is no cultivated variety that equals it in its high strawberry flavor; and on this account it is preferred to any other for imparting flavor to sirups, ices, etc. It is the earliest strawberry known to gardeners. We this year gathered several finely ripened specimens on the 20th of February, and it is not unusual to find a few in warm and sheltered positions, fully ripe, the last of January, in ordinary seasons.

It improves greatly by a proper cultivation, and we believe its progeny may prove highly valuable if crossed upon some of the imported varieties.

MADIA SATIVA.

CULTIVATED OR OIL SEEDED MADIA.

PLANT upright, with numerous diverging branches, and together with the leaves and involucre covered with a very riscid glandulous hairs or down; leaves lanceolate, entire, and more or less stem-clasping; flowers inconspicuous, yellow, and much crowded at and near the extremities of the branches; annual; grows from one and a half to two feet high. Native of South America.

In its native country, the Madia has long been cultivated for its oleaginous seeds, the produce of which is deemed by many even superior to that of the olive or poppy. In the year 1835, the culture was first attempted in Europe, by M. Bosch, royal gardener at Stutgard; since which period it has been greatly extended, and with the utmost success. From its valuable property of enduring winter and spring frosts, the Madia may be either sown in autumn or spring, the ground being previously well pulverized. Four pounds of seed suffice for sowing an acre in drills, and about six pounds for the same space broadcast. The young plants should be thinned out so as to stand at least four or five inches apart. The crop is reaped when the earliest seeds acquire a gray color, and should be disposed in handfuls to facilitate drying; after which it ought to be immediately threshed, for if stacked in the haulm, the viscid matter which adheres to the foliage, would cause fermentation. The seeds should afterwards be washed in warm water, to clean them from the same viscid or glutinous and strong smelling substance.

Mr. Lawrie sowed some Madia in his experimental garden near Edinboro, in the month of May, which ripened its seeds in the month of August following. A portion of the seeds which were sown immediately after harvesting, produced plants two or three inches in hight in the course of the autumn, many of which perished in January; but the remainder, although weak in spring, recovered sufficiently to produce a good crop of ripe seeds about the middle of July. It is said that an acre will yield five hundred pounds of oil, equal, and by many preferred to olive oil. An impression exists in our mind that we have somewhere seen it stated that the Madia is indigenous to Lower California; whether this is correct or not, it is quite evident that the probabilities are strong that the plant will be found eminently suitable for cultivation in this State. Whether it would be more profitable than olive oil, we have no means of determining, not having the average yield of olive oil per acre. As the Madia will produce sixty-three gallons of oil per acre, worth say one dollar and a half per gallon, and the cake could be consumed by cattle, it is quite probable that if it will not be able to compete with the olive in the districts specially adapted for olive culture, the Madia might be grown successfully and profitably in the southern counties whose winters are inimical to the olive plant. The subject is worthy of attention, as a large amount of oil is used in California for domestic purposes.

VALUE OF GOOD FRUIT-PRODUCING LOCALITIES.

THE experience of the last three years has determined one fact in reference to our climate and its effects upon the fruit product of the State. It cannot longer be denied that, over a large extent of our most valuable lands for fruit-producing, the chilling, killing, untimely frosts are every year liable to prevail. Not that we are altogether more certainly liable to frosts than many other countries of corresponding latitude; yet there are reasons why, with certain concurring circumstances, we are even more exposed.

Thousands of square miles of snows now occupy our mountains, within a hundred miles of like thousands of square miles of cultivated grounds, or grounds susceptible of cultivation. If, from any cause, the great wind currents that almost continually pour in upon us from the ocean, become, for a few hours, changed in direction or lessened in their power, to that degree that the cold winds from the great snow surface of the Sierra Nevada are permitted to roll into the lower country, nearly all positions, favorably situated for a rapid evaporation of moisture, from their surfaces, are in imminent danger of a low or freezing temperature.

Late spring frosts have been the bane of many, otherwise unexceptionable fruit localities, in California, for the last three years. And yet, the very best teachers in the world, experience and observation, point to certain localities that have entirely escaped injury; a succession of years has proven that they are comparatively exempt, whilst around them the reverse is true.

This fact, once established, too high a value can hardly be placed upon them; for nothing contributes more to the prosperity of the producer than steady, unfailing annual crops. We learn that, in Coloma, El Dorado county, a place early famous for its fine peaches, the frosts of the spring have done considerable injury; whilst Placerville, eight miles distant and with a higher altitude, wholly escaped—the peach and other fruit trees promising an unprecedented yield.

In San Ramon Valley, Contra Costa county, almost the entire peach crop is destroyed; but in one locality there, owing to its peculiar situation, and conformation of the surrounding country, the peach and other fine fruits wholly escaped injury. We allude to the grounds of the Messrs. More, an arm of San Ramon valley, reaching cozily into and among the hills that seem to afford them perfect immunity from the too generally recurring late spring frosts.

There are many other places that we cannot find room to designate at this time, highly valuable over surrounding grounds, on account of their every year exemption from frosty annoyances. Purchasers of lands, for orchard or fruit-growing purposes, may well give their attention to this peculiar and certainly interesting feature of the soil and climate of California.

Agricultural Items.—The bulk of the peppermint, used in the United States, it is stated, is raised in St. Joseph's County, Mich.——A writer in the *Prairie Farmer* thinks it very important that large and small cattle be kept in separate yards, otherwise the latter have a poor chance, from being abused by the others, and come out badly in the spring.——A letter writer in Buenos Ayres says that the war in India has increased the demand for horses, and several ship loads have already been taken from there for the East India Company. They are put on board at a cost of about $20 per head, and carried to India for about $100 more, where they are worth from $200 to $300 each.——Two thousand barrels of apples were purchased in the vicinity of Newburyport last fall, to be taken to Philadelphia.——The German wine-growers, at Hermann, Mo., have produced this year 25,000 gallons, though last year's yield was enormous, and it is seldom that the vines yield two consecutive heavy crops. The yield is from fifty to three hundred gallons per acre.——The farmer in the Buckeye State, who received the first prize on farms, last year, says in his report: "My farm shows from $1,000 to $3,000 profit per year. The changes of the times change the profits. *I have never lost money by farming yet.*"

Home Manufactures.—Messrs. Hevener & Walter, near Knauth's garden, in Sacramento, are manufacturing a superior article of fire brick. They are engaged in the pottery business, and turning off large quantities of every description of coarse wares, and are preparing to engage in the manufacture of the celebrated Rockingham ware.

In their experiments in making an article suited to the uses of the acid works, at Mission Dolores, they were eminently successful, producing work that stood the severest test. This will put a stop to the importation of another article of commerce. The insulators for the Placerville, Humboldt and Salt Lake Telegraph company are made at this establishment—a superior article, and twenty-five per cent. less than the imported. Specimens of their manufacture can be seen at No. 34 Clay street, San Francisco. A further importation of such articles as they manufacture, must be at a loss to the importer. Success to the firm.

Hogs vs. Dogs.—"What a dog lives upon will keep a hog." If anybody doubts the truth of the saying, let him kill his useless dog, and put a pig in the pen and give it the dog's allowance. He will find in a few months that he has a fine, fat porker, fit to be eaten—a use the dog could not be possibly applied to by any Christian. There are too many. If they had all been killed a year ago, there might be two hundred pounds of good fat pork in the country, to balance against every dog so set aside, which would be no inconsiderable item in the present scarcity of supplies. Dogs are a nuisance, and should be taxed. While every farmer keeps his dog, and every free negro his two or three dogs, sheep stand a poor chance to get through the world, and yield their annual fleece with untorn throats. The increase of the dog population accounts for the scarcity of sheep.—*N. C. Planter.*

Editor's Repository.

Our First Volume.—We have now reached the twelvth month and number of our Agricultural and Mechanical journal, which complets the first volume. Our progress, during the past year, has been steadily onward, and attended with a success amply sufficient to warrant a continuance. Our enterprise, receiving its initiative at the very hight of the Fraser River excitement, was nearly overwhelmed by the general distrust, pervading all classes and pursuits at that particular period, and, for a time, we had our misgivings; but, with the fourth, fifth and sixth numbers of our mounthly, came troops of new patrons; and, from that time to the present, a succession of new recruits has continued to pour in, until our magazine is now read by over seventeen hundred California and Oregon farmers, gardeners, stock-growers and mechanics.

This cheering prospect induces us—in view of its continuance—to say to our early patrons and all who possess and have paid for the back numbers of the *Culturist*, or who choose to procure them, that if they will forward them—free of expense—to us, at any timc before the first of July next, accompanied by remittance in prepayment for the second volume of the *Culturist*, we will procure their first volume, bound and lettered in gilt, in handsome style, *free of charge*, deliverable to their order.

We are desirous that our friends avail themselves of this offer, because wc believe there is enough of merit in the volume to pay for its preservation—particularly when it can be accomplished at so cheap a rate. The monthly numbers can be sent us by mail, express or private conveyance, as best suits the forwarder. The postage, if sent by mail, will be three cents on each number, because "transient matter;" although to subscribers, from the office of publication, it is but one cent on each number. Missing or back numbers can be supplied at the office of publication at three bits a number, and the entire volume, new and handsomely bound, at $6 00. C. A. Crane, our city agent, will receive volume one of the *Culturist*, from our city subscribers, and return them the same bound, to those who promptly renew their subscriptions for the coming year.

From the first to the fifteenth of every month we are daily asked, "is the *Culturist* out?" It seems difficult to get our patrons to remember that the fifteenth of the month is our regular publication day. We are satisfied, from a year's trial, that the first of the month is preferable, and, hereafter, the *Culturist* will be issued on or before that day of every month, commencing our second and improved volume on the first of July.

We would not allow this occasion to pass without expressing to our patrons our heartfelt thanks, for the liberal support and many favors of which we have been the recipient during the past year. And now, promising a continuance of effort to make the second volume far superior to the first, we hope to receive an early assurance of your approbation.

Our Frontispiece.—In presenting the Ajax strawberry to the notice of our readers, we are aware that no extraordinary merit seems to attach to it, either as regards size or form of outline. It would have been a very easy matter to have procured larger specimens; but thcy would none the better have shown the peculiar characteristics of this variety.

We have chosen the Ajax, as the *earliest* strawberry of the imported varieties known. It was introduced by D. E. Hough, of Oakland—an amatuer culturist of the strawberry—in 1854, who

succeeded in saving three, out of a dozen plants; and, from this small beginning, he has derived his present stock of this admirable variety.

Last year, the Ajax was in market, in quantity, on the tenth of March; this year, owing to the lateness of the season, not as early by a few days. It is a berry of fine size, faultless in form, beautiful in coloring, highly prolific, in flavor superior to the British Queen; and ripening earlier than the Peabody, places it at the head of the list of early varieties.

Our Colored Plates.—We have not yet been able to obtain our engravings of fruits colored to our satisfaction; we hope to improve upon the past and present.

Cane Crushers.—We have received frequent inquiries, of late, in reference to crushing mills for the Chinese sugar cane, and every correspondent has something to say of the quantity he expects to produce, or the extent of ground he and his neighbors are occupying with this new crop. We have made inquiry at a proper source, and learn that cast iron crushers can be obtained, of excellent construction and cheaper than they can be imported from the Atlantic side. Wooden mills can also be obtained which, by many who have exprimented, are believed to be preferable to the iron, because producing no discoloration of the juice by contact with iron. They can be got up at a small expense, and where they have been tried, have answered an excellent purpose for experimental tests of the cane and its juices.

We have information that satisfies us, that a large breadth of lands has this year been devoted to this description of cane, in this State, both for the purposes of sirup making, and as forage for stock. For the latter, experiment has proven it to be admirably adapted, and the product per acre is enormous. We believe that our long, hot and dry summers are peculiarly favorable for the perfection of a highly concentrated saccharine quality in its juices, and that success cannot but attend well conducted experiments in the production of sirups. We shall expect to see samples of the product of our own State's cane fields at no distant day—an interesting feature of our agricultural and horticultural fairs. Mr. Bailey, of Cosumnes, has sent us excellent samples of the seed of the Chinese sugar cane, grown upon his grounds at that place.

Fustes or California Saddle Trees.—On the corner of 7th and R streets, Sacramento, S. Hite is manufacturing a superior article of California Saddle Trees, from native oak and pine. Large shipments of the article are made to the Los Angeles market, and meet with ready sale. The factory possesses features sufficiently interesting to merit examination. J. B. M.

Hops.—In conversation with Louis Keseberg, of the Phœnix Brewery, Sacramento, I find it is his opinion that the climate of California is peculiarly adapted to the growth and perfection of the hop. That the flowers are larger and in every way superior to the best imported article. Mr. K., has found the California grown hop to possess so strong an aroma, as to require or bear well the admixture of a large proportion of those of foreign growth. He considers them one hundred per cent. better than any that can be imported.

May not some of our farmers who have suffered year after year from the loss of their cereal crops, find in the culture of the hop, a field to reccuperate? J. B. M.

All sorts of Fowls.—Seth Briggs, of Sacramento, is decidedly a fowl fancier. He has imported the Sumatra Pheasant game in considerable numbers. Also the black Spanish fowl with white face, which measures eight inches from the bottom of the gills to the top of the comb, at ten months old; curiosities in their way. Mr. B. has several other varieties in keeping, and expects an importation of the Poland, Bantam, Bolton and Dorking fowls in time for exhibition at the next State Fair. Ib.

Smith's Gang Plow.—Burrell, of Hemenway & Burrell, Napa, claims a valuable improvement on Smith's justly celebrated gang plow. We are not informed in what the improvement consists.

Agricultural Society.—The Santa Clara Valley Agricultural Society, which lately re-organized under the incorporation act passed by the present Legislature, is in a highly flourishing condition. The Society has purchased, from Peachey, Billings & Naglee, at a cost of $6,100, a tract of land—part of the Rancho de los Coches—embracing seventy-five acres; beautifully situated on the Alameda, or Santa Clara Avenue. The grounds front 800 feet on the avenue, looking towards San Jose, being just at the first turn or elbow of the road, where the new road to the Almaden mines commences, and opposite the houses of J. W. Johnson and L. C. Ward, about a half a mile from town. On this front are to be erected, on the northern side, a pavilion for the horticultural and industrial exhibitions of the Society; and on the southern, an amphitheatre for the exhibition of stock. The portion of land to be set apart, in connection with the amphitheatre, for the stock department, is twenty-two acres. Back of these buildings and grounds, will be constructed a first-class mile track for the exhibition of the speed, gait, etc., of the horses.

The first improvement will be the enclosure of the entire grounds with a plank fence some eight feet high. This will cost about $3,000. The buildings will be commenced as soon as the funds of the Society warrant. As an instance of the readiness with which the citizens have come forward in aid of the Society in this enterprise, we will state that the Committee appointed for that purpose procured, in two weeks, good subscriptions to the amount of more than $7,000; and on Saturday they had collected, in cash, $4,500. The success of these projected plans, for increasing the effectiveness and ensuring the stability of the Society, has been beyond expectation.

Membership in this association has been fixed at $5 per annum; life membership at $25.—*San Jose Tribune.*

Strawberries.—This delicious fruit is making its appearance, on sale, all over the city. Ajax, leading the column, marched a box of his scarlet coats upon our table, from the grounds of D. E. Hough, of Oakland, so many days back into April that we have lost the exact date. Next, and on the fifth of May, came a box of Peabodys, from the seed grounds of D. L. Perkins, of Alameda. This Peabody's seedling, or more properly Peabody's Hautbois, is one of our finest early varieties; is cultivated extensively and successfully by A. H. Myers, Esq., of Alameda, who imported his original stock, which was known to be genuine.

Our editorial table is not large, but could be made to hold another box of strawberries from some quarter just as well as not.

Pedigree.—We have been inquired of in relation to the early pedigree of the present Black Hawk breed of horses. As near as we can ascertain, it is this: In 1833, Bashaw, a celebrated Arab horse, was imported and kept for a considerable time in Pennsylvania. From this horse came Andrew Jackson, and from Andrew Jackson, Black Hawk, of the Long Island course. For definite information, consult the *Turf Register.*

The Morgan stock, of Vermont, had its origin in a cross of a celebrated Black English horse—owned by an English officer—in Canada, with the native stock of that country. J. B. M.

City Bees.—Not only are our friends in the country awake to the importance of bee culture, and the pleasures incident to the enjoyment of its sweets—not its sting—but the denizens of our cities are occupying, in a few instances, prominent positions among the apiarian aristocracy. In Sacramento and Marysville, a large number of swarms are kept, and the bees are successful beyond precedent in everything they attempt. They can lay up as much honey, do as much stinging, and produce as many new swarms as any other country's bees. Even in the cold, ocean, summer winds of San Francisco, bees have become so acclimated as to be successful citizens, and, though it is more than we can do to tell how they manage to get it, yet a large quantity of honey is gathered. Mr. H. Gushee, one of the first to introduce the imported bee to city life, in San Francisco, has been entirely successful, not only in the multiplicity of his swarms, but in their success as honey gatherers. As early as the 24th of March, Mr. G. obtained his first new swarm of the season, which has done admirably, as well as his more recent swarms. The fact seems established that the bee and its successful culture in California is no longer a problem.

A New Wind Wheel.—A wind wheel probably self-regulating and an improvement, as is claimed, over all others in use; is the invention of W. J. Tustin, of Benicia, in which place it is extensively used, as well as wherever else it is known.

Beautiful Marble.—Aitken & Co., 217 J Street, Sacramento, are working the colored marble, from "Indian Diggins," El Dorado county. More beautiful marble can hardly be the boast of any country. The firm was awarded the highest premium, for their beautiful specimens, at the late State fair. To see this exquisite home product, will repay the trouble of a call.

Spring Apples.—It is common to speak of summer, fall and winter apples; why not of spring? We were in possession, a few days since, of fine specimens of the Newtown pippin and Frazier apples, from the grounds of Mr. John Lewelling, San Lorenzo; and still more recently, of a specimen of the Father Abraham apple, from the orchard of Mr. H. Taylor, on the Cosumnes river, Sacramento county. The fact that these specimens were in tolerable eating condition as late as the third of May, is conclusive that California apples "will keep." This, we have never doubted; but will they keep as late in the season as Oregon grown apples, or such as may yet be produced in some of the more elevated valleys of our own State, is still a point to be settled. Oregon grown apples are even now seen on sale at many of our fruit stands. We sincerely hope that some of our pomologists may succeed in establishing the fact that, in California, all manner of fruits not only ripen from a month to six weeks earlier than do the same varieties in the Atlantic States or Oregon, but that they will also keep that length of time longer. We have always contended that we have a climate and soil so different in their characteristics from what we have been accustomed to in other lands, that not only is a different system of management necessary, but entirely new and different results may as reasonably be expected.

Jas. B. Saul, on Sense and New Doctrine.—In a recent number of one of our city hebdomadals, we find the closing paragraph of an article which reads as follows: "There are always people to be found who are verdant enough to do a foolish thing if they were told to do it by a man who ought to have more sense; and I have no doubt that some will be found trying the new doctrine of the editor of the *Culturist;* and after they have made the effort they will heap anything but blessings on his head. "Jas. B. Saul.

"Smith's Pomological Garden, Sacramento."

Now it may be possible that Jas. B. Saul, in the above, has shown his own good *sense* in penning what he doubtless believes to be—or he never would have penned it—a gentlemanly and courteous expression of opinion, in reference to the editor of the *Culturist* and his opinions. But, if the language of Mr. Saul is courteous and gentlemanly, then he belongs to a school in which we were not educated. We cannot, therefore, be expected to answer him in terms or language like his own.

But what is it that constitutes "the head and front of our offending?" In other words, in what ought we to have shown as much sense as is possessed by Mr. Jas. B. Saul, of Smith's pomological garden, Sacramento, who merely differs with us in opinion? and what is this "new doctrine" with which we stand charged, and which is to "heap anything but blessings" on our head?

Alike with William Bacon, of Richmond, Mass., one of the best practical pomologists of whom our country can boast; with Prof. Darby, and a host of other names quite as widely known and renowned, in the science of vegetable physiology, as that of Jas. B. Saul, we believe that, in any country like California, where, for nearly six months of summer and autumn, but little rain falls, and where the surface soil during that time is almost constantly parched by the sun's rays and the still more desiccating winds, that all trees, in dry situations, will withstand the drought better—will be healthier and longer lived, if permitted to send their roots downward just as far as instinct or nature calls them; and that the destruction of any large portion of such descending roots, is an injury to the tree. And because we believe this, Mr. Saul thinks we ought to have more sense. Now it is certainly refreshing to us, in these degenerate days, to be assured that what we do not know, and what sense we do not possess, Mr. Saul does. Mr. Saul says: "How seldom we see

in our immense forests, a tree of great size, clothed with branches from near the ground up, presenting a graceful outline; and this condition of things is not alone caused by their growing thickly together, for the same thing is to be seen even in the openings, a prolific cause being in the fact that they are growing in the same spot where the seed originally vegetated."

Have we any proof of this beyond Mr. Saul's bare assertion? During a four years' residence among the oaks and conifers of El Dorado county, we never saw a tree, that had always stood apart from the shade or influence of other trees, denuded of its lower limbs, except it had arisen from unnatural violence.

Are the conifers and oaks, the one conical, the other wide spreading, and each with their long tap-roots reaching to moisture, alike submissive and dependent upon those roots for the form and outline of their tops? And if the continued growth of a tree in one position, is the prolific cause of the loss of its lower limbs, would not the same effect be visible in trees in open grounds, that from one or two years from the seed had ever after occupied the same position? Can it be said that the Lombardy poplar owes its form—straight and upright as a pole—to the influence of a tap-root, when it is well known they never have one; but, on the contrary, forming a perfect network of roots that often lie upon the very surface of the ground for many feet around the body of the tree? We believe that, to a very great extent, each variety of tree has its peculiar form of outline and growth, modified of course by surrounding circumstances.

That trees, whilst kept in nursery rows, for the convenience of transplanting only, are preferable without the tap-root or any other considerably extended roots, we have always admitted; but the destruction of the principal roots of the tree, under any circumstances, other than judicious pruning to induce fruitfulness, we do not think advisable; and if Mr. Saul thinks it is, why does he not recommend the practice he preaches—of shortening in annually the roots of nursery trees—to be followed in years succeeding their final transplanting? If advantageous to a conifer or other tree, to be taken up, the roots shortened and reset the first, second, third and fourth years of its growth, or until finally set in permanent possition, why not every year after? why stop at the fourth year?

It is evident enough that our difference of opinion arrises solely from pecuniary interests. We have not, but Jas. B. Saul may have "another's ax to grind," or trees to sell; and until they are all sold, they can be handled with greater ease, and transplanted with more certainty of success, without tap-roots than with. It is upon this fact that, since the time of Adam down to that of Jas. B. Saul, no vegetable physiologist has ever recommended a continuance of mutilation or destruction of the deeply running roots of a tree, after being finally set in its permanent position, that we found our disbelief of any advantage arising from the practice; and if of no advantage to a tree transplanted at three or four years old, it cannot be to one younger, merely because it is such.

We have invariably recommended the planting of small trees over large ones; this may be adverse to the interests of one whom Mr. Jas. B. Saul would desire to serve; but it is no "new doctrine." Mr. Saul applies the epithet of "new doctrine" to our views and opinions. We have never considered them "new doctrines," or called them such; the term has been applied by others, to the opinions we entertain, but we have never used the term in this connection other than as a quotation.

We recommend the transplanting of trees with as little loss of root as possible; but this is no "new doctrine." We have recommended the let-alone policy, as regards the deeply running roots of trees after they shall have been permanently located, whether from the seed or at one, two or three years from the seed; but it is no "new doctrine," for the same let-alone policy has produced those very same "fine old cedars of Lebanon, to be seen in the parks of England," of which Mr. Saul speaks; not one of which can he prove, has ever had its tap-roots disturbed since the day of its sitting.

If Mr. Jas. B. Saul, of Smith's pomological gardeu, Sacramento, differs with us in opinion upon this point or "doctrine" in tree-growing, we can cheerfully accede to him the right and pleasure to do so, without the application of the discourteous inuendo, that he "ought to have more sense," believing it unnecessary to resort to such arguments to sustain our position.

"AGRICOLA," ON "REVOLVING SATELLITES.—*Editor Culturist:*—As an occasional contributor to your journal, I have a curiosity to know what "Agricola," a writer for the *California Farmer* means, when he speaks of the "revolving satellites" of the *California Culturist*. If by "revolving satellites" he means its patrons or contributors, and intends it as a gibe or sneer because they are such, in what light, pray, can he view himself, an acknowledged contributor to the *California Farmer?* Certainly neither his taste or position are to be envied. YUBA.

We dislike to cumber our pages with matter like the above, and shall endeavor, hereafter, to avoid it; but our attention having been called to the article of "Agricola," Mr. T——n, in which he speaks so contemptuously of our contributors or patrons, and no one else appearing in self defense, we have permitted YUBA to appear.

Anything that the *Farmer* or its contributors choose to say of the *Culturist*, serves as an excellent advertisement for us, just so far as the *Farmer* can maintain its circulation.

THREE EGGS IN A DAY.—A correspondent of unquestionable veracity, sends us the following item of fowl news, from Upper Clear Lake.

A lady in this valley has a hen which came into the house, made her nest in a basket of clothes, and laid two eggs before leaving her nest. She then went out and shortly returned and deposited the third, all in the same day. It may be proper to add, that she did not lay again in three days.

Now, though the above may be deemed, by many, a "monstrous egg," yet it has been beaten in former times, if there is any truth in poetry; for many must remember those two important lines of the song about the old family hen, which were, that:

"Every day she laid two eggs,
But Sunday she laid three"

WHITEWASH OUTBUILDINGS.—However glaring they may look, we like to see unpainted outbuildings whitewashed annually. It costs little and saves much. It prevents decay, gives an air of thrift and neatness, and then, if the woodbine, ivy, grape or other vines are planted and trained up beside them, the effect is perfectly satisfactory to the most fastidious. Whitewash the gates and fences where practicable. It will pay.—*Prairie Farmer.*

In Downing's Country House, the following directions are given, which may be acceptable to our readers: "Take a clean barrel that will hold water. Put into it half a bushel of quicklime, and slack it by pouring over it boiling water sufficient to cover it four or five inches deep, and stirring it until slacked. When quite slacked, dissolve it in water and add two pounds of sulphate of zinc, and one of common salt, which may be had at any of the druggists, and which in a few days will cause the whitewash to harden on the wood work. Add sufficient water to bring it to the consistency of thick whitewash. To make the above wash of a pleasant cream color, add three pounds of yellow ochre. For fawn color, add four pounds of umber, one pound of Indian red, and one pound of lampblack. For gray or stone color, add four pounds of raw umber and two pounds of lampblack. The color may be put on with a common whitewash brush, and will be found much more durable than common whitewash."

FLOWERS AND FLORICULTURE.—We have been frequently importuned to devote a corner of our monthly to flowers and their culture. Not being an adept in that department of horticulture, we have refrained from any attempt at instruction or counsel relative thereto; because we never advocate theories, written or oral, unless we have had some experience in coroboration, or the experience of others upon whom we can safely rely. But quite recently, the ladies have especially desired that we devote a page or two in each number to them, and they desire to hear all about flowers—their propagation and management, indoors and out. A request from such a source cannot be refused, and we shall commence our second volume with a floral department, under the special supervision of an experienced and successful florist in the climate of San Francisco, as pertains to both outdoor and indoor culture.

It is our wish to make the *Culturist* all that our patrons desire it to be, keeping strictly within the

range of agricultural and horticultural science, mechanism and kindred pursuits; and we earnestly invite the co-operation of our friends and patrons, in carrying out our designs, by contributing to its pages.

ASPARAGUS.—*Editor Culturist:*—"Blanching Asparagus an error." This was a heading of an article, on page 13, of the first number of the *Culturist;* and, in that, you predicted that, in "two years' time, not a bunch of blanched or purposely toughened asparagus would be found in our markets." Now, sir, one year has nearly passed, and blanched asparagus is still seen in abundance in our markets [Yes, and as tough and stringy as whalebone. ED.] and we are inclined to think it will be another year—quite against your prediction. The fact is, you don't know it all yet, Mr. Editor. AGRICOLO.

What we don't know probably Agricolo thinks he does. But upon this subject of blanching and toughening asparagus, we are not alone in our opinion. On page 239, of the April 14th number of the *Country Gentleman* we find the following on the culture of asparagus: "Sensible men will not plant their asparagus thick; if they do, small grass will be the consequence in spite of "giant kinds." Plenty of room and good soil is the key to "fat" asparagus. Neither will they plant it deep; that idea is old and obsolete; it was greatly in vogue during the days when blanched asparagus, with the point only eatable, was the acme of perfection. Now it is preferred green,—at least where they have had the pleasure of a trial. In this state they can eat *much* and waste *little*. Six inches of soil is enough—its object, not a covering as a preservation or the like, but a weight, the penetrating of which gives the grass additional strength, or rather size. For the broad acre, three feet between the rows, and a foot in the rows, is thick enough to plant.

THE BEST HENS.—*Editor Culturist:*—Will you or some of your readers and correspondents give me a fair, honest opinion as to the best variety of hens for the ordinary California farm-yard. I want the most profitable hen as a layer of eggs, and for fattening. I don't want the Shanghae, Dorking, Bantum, Black Spanish, or any other just for the sake of the name, or pleasing those who may happen to have any particular breed for sale; but I want the *most profitable hen.* B.

Well, Mr. B., you have us in a tight place this time; for though we have passed forty years of our life in the garden and orchard, we have had but little experience in raising hens. We cannot, therefore, answer your query with any degree of certainty from our own knowledge. Were we to judge from appearances and observation, we should arrive at the supposition that the old-fashioned common hen was the best; because, after a great many attempts, for a great many years, to introduce new and fancy varieties, not one of the many has as yet shown the least probability of supplanting the common fowl. Nearly all of the fancy varieties are as scarce in the Atlantic States now as they were two years ago. If they are a great deal better than the common fowl, why do not some of them become as plentiful? However, that we may not be thought opposed to the fancy breeds, or inclined to do them injustice, we give the opinion of RODWELL, who, in his appendix to his work on the Natural History of the Rat, gives his preference as follows, which we find in the April number of the *Prairie Farmer:* "You may now perhaps be anxious to know what kind of fowl I should choose for the ladies of the farm, and I tell you, before all fowls in the universe, give me a breed between the Spanish and the Dorking! The cockerels make the most noble, handsome, dashing birds that can be desired, and as strong as lions; while the pullets make most handsome, full bodied, sprightly hens, looking more like turkeys than barn-door fowls. For laying and breeding they are not to be equaled, and for the table they may challenge anything that can be produced. They are both large and plump, delicate as a curd, at the same time short eating, juicy, sweet and tender. In a word, I believe them to be the most delicate and delicious fowl, whether as pullet or capon, that can be placed upon a platter."

FATTENING SHEEP.—An English feeder buys poor sheep and fattens them by feeding salt and unground barley, or turnips. He says he has tried oil cake and turnips, beans and turnips, and it is his opinion that his sheep gained the most weight on barley and salt.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending April 30th, 1859; Lat. 38°, 34′, 41″, N.; Long. 121°, 27′, 44″, W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By Thos. M. Logan, M. D.

APRIL, 1859.	7h. A. M.	2h. P. M.	9h. P. M.	Month.	Average of seven yrs.
Barometer, Maxima	30.371	30.355	30.282	30.371 inches.	+ 0.078 inch.
" Minima	29.811	29.745	29.698	29.698 "	— 0.044 "
" Mean	30.028	29.999	29.985	30.004 "	— 0.009 "
Thermometer, Maxima	63.00	76.00	67.00	76.00 deg.	— 1.67 deg.
" Minima	40.00	54.00	49.00	40.00 "	— 4.67 "
" Mean	52.40	62.37	56.57	57.11 "	— 1.94 "
Force of Vapor, Maxima	.429	.524	.502	.524 inches.	+ .022 inch.
" " Minima	.142	.133	.152	.133 "	— .016 "
" " Mean	.288	.343	.333	.321 "	— .011 "
Relative Humidity, Maxima	85.00	82.00	87.00	87.00 per ct.	— 3.30 p. ct.
" " Minima	51.00	30.00	44.00	30.00 "	— 4.87 "
" " Mean	72.70	60.60	73.40	68.90 "	— 1.47 "
Number of Clear Days	8	9	14	10 1-3 days.	—3 1-3 days.
Number of Cloudy and Foggy Days.	22	21	16	19 2-3 "	+ 3 1-3 "
Number of Rainy Days	.....	.....	.. ....	5. "	+ 1-3 "
Quantity of Clouds	4.1	3.3	1.4	2.9	— 0.6
Quantity of Rain and Fog	.....	.....	. .....	0.981 inch.	— 0.514 inch.

1st Days and 2d, Force of									
" " N. E. Wind.	5	2.6	9	2.9	2	2.0	5 1-3	2.5	+ 1-3 + 0.4
" " E. Wind.	5	2.0	1	2.0	1	2.0	2 1-3	2.0	+ 2-3 + 0.6
" " S. E. Wind.	1	2.0	1	2.0	1	2.0	1	2.0	— + 0.4
" " S. Wind.	4	2.2	2	2.0	5	1.2	3 2-3	1.9	— 1-3 — 0.2
" " S. W. Wind.	12	2.8	8	3.3	11	2.7	10 1-3	2.9	+ 4 + 0.4
" " W. Wind.	1	2.0	5	3.2	3	3.7	3	3.0	— 2 1-3 + 0.5
" " N. W. Wind.	1	2.0	3	2.0	5	2.2	3	2.1	+ 2-3 + 0.4
	1	3.0	1	4.0	2	2.0	1 1-3	3.0	— 3 + 0.7

Thermometrograph.

	Deg.		Deg.
Highest Reading by day on the 15th	78 00	Mean of all Highest Readings by day	63.60
Lowest Reading by night on the 3d	36.00	Mean of all lowest readings by night	46.47
Range of Temperature during month	42.00	Mean daily range of Temperature during mo.	17.13

Remarks.—As seen in our table, the temperature continues considerably below the average of the preceding six years, causing an exception with regard to the season of spring, which is this year at least one month later than usual. This prolongation of cold weather appears, from all accounts, to be very general throughout the length and breadth of the continent. With us, in California, it has retarded vegetation to such an extent, that crops have not derived the full benefit of the rains which have already fallen, and late grain will need a further supply of rain in May—the last month of the rainy season.

The rise in the Sacramento river to sixteen feet above zero, on the 23d, after a brief period of warm days, without the influence of rain, confirms the statements, heretofore made, of the vast quantities of snow on the mountains. In fact, all the rivers in the State are now quite full, but nothing to what they would have been, had we experienced the usual warm rains of spring. Should we have no more rain, however, the gradual melting of the snow will continue steadily to furnish the necessary supply of water for irrigation, mining and other industrial pursuits.