HORTICULTURE.

Orange Culture.

Nearly all authorities, writes Mr. W. Day, Jr., of Daytons, Florids, ascribe the nativity of the orange (citrus aurautium) to Asia, but any one visiting the immense wild groves of Fior-ida, some of which may be reckoned by the square mile, will find it difficult to arrive at square mile, will find it difficult to arrive at any other conclusion than that it is also indigenous to the soil of our American States. The orange is the most beautiful of all fruit trees. It grows with a round, symmetrical head to the hight of 30 feet, has a bright, glossy green leaf with an apron or wing upon the stem. The bark is of an ash or sted-gray color, and the twigs, which are of a dark green, are profusely bestudded with the most aggravating thorns. The sweet and mild trees may readily be distinguised by the leaf. The sweet leaf is of a darker green, and the apron upon the stem is larger in proportion to the main the stem is larger in proportion to the main leaf. The tree flowers in January and February; the fruit begins to change its color in September, but cannot be said to have fully ripened until the following spring. It clings to the tree with greattenacity for many months, improving as it hangs, until during the following season it becomes perfectly delicious. One who has not gathered directly from the tree an orange thus ripened, knows little of its true flavor. Upon the wild trees the flowers, the cum fruit, and the ripe oranges, one and two gum fruit, and the ripe oranges, one and two years old, may often be found.

It is stoutly affirmed in Florida that the crange seed will always be true to its kind, but in the Hearth and Home of November 4th I find the remark "there is no certainty that the and the remark "there is no certainty that the varieties of the orange will reproduce them selves from the seed. If a particular variety is desired, it must be budded." I cannot agree with the writer. I have seen, in the vicinity of Daytona, seedling orange trees in full bearing eight years old, the fruit the exact counterpart of that in Mr. Sutton's grove, whence the seedling was taken. But the wild groves tound in the true orange belt show most conclusively oney mind the seed is true to its variety. At to my mind the seed is true to its variety. At Daytona we have very large groves of bitter, to my mind the seed is true to its variety. At Daytona we have very large groves of bitter, sweet and sour oranges. Now, if the seed is not true, and, as is affirmed, the sweet orange is an accidental off-shoot from the wild orange, is an accidental off-shoot from the wild orange, we should have in these groves an endless variety of oranges. There should be sweet and sour, bitter sweet, bitter sour, and bitter pure and simple, with every conceivable variation of form, color and flavor. I a lmit all that is done in the way of improving fruits by budding and crossing in various ways, but when "in the perioning the carth breath of the grass and beginning the earth brought forth grass and herb-yielding seed after his kind and the treeyielding fruit whose seed was in itself after his kind, and God saw it was good," I think it was part of the divine plan that every seed should be true to its variety.

be true to its variety.

Last winter, orange trees were killed at Jacksonville and in northern Florida, while on the Halifax they escaped, and the trees are this year more heavily laden than ever. The orange will grow on almost any soil, but if planted upon pine lands fertilizers are necessary. Burned shells, ashes, bones, etc., should be freely supplied. The advantage of planting upon hummock land is that it is exceedingly fertile, and it is often supplied with the needed alkali in its shells and shell-marl. This is the case along the coast. From St. Augustine south, the coast soil is based upon immense beds of coral. Sometimes the shells have been broken up by the friction of the have been broken up by the friction of the waves of the sea when the land was forming, and concreted into what is known as coquina rock, while the hummock lands—the lands which were last reclaimed from the waters are filled with microscopic shells, constituting with the admixture of sand and vegetable mat-ter, what we call shell-marl. Oftentimes the surface of the ground is mainly an immense mass of oyster shells, harder to spade than a gravel pit. Mr. Sutton's grove, near Daytona, stands upon such a bed, and his grove of 1,000 trees, with that of Capt. Burnham's, has made the reputation of the Indian river orange. The cluster of twenty-eight oranges upon a single twig twelve inches in length, brought to this place by Dr. P. A. Gordon, of Daytona, a few days since, came from Mr. Sutton's grove. — Trans. Am. Ins.

WILLIAM Mawson, one of the champion watermelon-growers of Sutter county, relates watermelong rowers of Suter County, relates the following novel way of producing seedless watermelons: When the vine begins to bear he lets the first watermelon on each branch grow undisturbed; but covers the branch up with dirt, from the first melon to the second one, or within six inches or more from the end of the branch, and the watermelon that grows near the end of the vine will be a seedless watermelon, the melon nearest the body of the vine having kept all the seed.

Cabbage worms, as far as we know, do not trouble early cabbage much. We know of no way of securing the butterfiles. The worm should be hand-picked; every cabbage must be critically examined, as the worms lie close to the ribs of the cabbage and are of the same

POMULAO OBANGE,—We are told that Mrs. Rev. Wm. Taylor, of Alameda, has a tree bearing the above named orange. Among other peculiarities it is said to be pear-shaped. We would like to present our readers with an engraving and description of it.

VEGETATION INSIDE AN EGG. - A foreign journal states that Prof. Panceri made an interest-ing communication to the Institut Egyptien at its meeting in December, on the cryptogamic vegetation which he had found within the egg vegetation which he had found within the egg of an ostrich. This egg had been given him at Cairo, and was still fresh, the air space having not even been formed. He soon, however, noticed the appearance of dark blotches within the shell, and having been broken open to ascettain the cause, he found that they were produced by the growth of minute fangi. Instances of a similar kind had already been studied by him, and he had communicated the results of the Botanical Congress held at Lycano in to the Botsnical Congress held at Lugano in 1859. The believers in the reality of the spon-taneous generation of living organisms have not been slow to seize on these cases as an argument in their favor, since a priori it would argument in their favor, since a priori it would seem that the shell of an egg would be quite impermeable to germs derived from without. Panceri has succeeded in satisfying himself, however, that the unbroken shell of an egg is permeable to liquids, and that these may introduce germs into its interior. He has, in fact, actually succeeded in inoculating other eggs with a fungus which he had obtained from the interior of one in which it had made its appearance in a way apparently so mysterious. appearance in a way apparently so mysterious. He cultivated the fungus in egg abumen, and thus conveyed it to the uncontaminated egg.

RAWHIDE JOURNALE.—A correspondent of the Scientific American says: I have run a piece of machinery in rawhide boxes for fourt-on years without oil; it is good yet and runs at 4,500 per minute. I put it in while soft, and let it remain until dry.

Scoan Barrers.—The sugar barrels used by the Sacramento beet sugarie are made of cotton-wood. For this purpose, and doubtless for many others, it is well adapted. It is cheaply worked because the wood is soft.

Stock Exhibition at the Bay District Fair Grounds.

[From the Pacific Bural Press.]

It was well known by all parties that horse racing was to be the principal attraction at this exhibition, but as a good display of live stock was expected, the RUBAL PRESS sent forth a reporter on an exploring expedition, to ascertain what there might be worthy of note in this important department. In numbers the exhibit of animals far exceeded his expectations, and in quality it is enough to say that it was fully up to what he expected to see; conscious as he was that California is, at the present time, on an equality with any State in the Union. Especially is this the case in

Cattle,

The cattle breeders in this State having im ported largely and judiciously of late, and the California-bred stock proving that the climate

California-bred stock proving that the climate does not by any means necessitate deterioration. This is a point that has attracted a good deal of observation, and the showing of California-bred cattle is as good as could be desired. George Bennett, of Napa, has on exhibition a beautiful Ayrshire cow, "Rosa Saul." Wm Fleming, of Napa City, exhibits his Durham bull, "May Duke;" the Devon heifer, "Queen;" the Devon cow, "Victoria," and the Devon bull "Earl of Leicester." A. Mailliard has the finest display of Jerseys that we have yet witnessed; comprising the two-year-old bull, "Keystone;" "Cora," a four-year-old cow with bull calf five months old; "Floradell," a two-year-old cow with bull calf four months old; "Romana," a two-year-old cow with heifer culf four months old; "Bloomer," a one-year-old heifer, and "Lady Jane," a heifer-culf five old heifer, and "Lady Jane," a heifer-calf five months old.

Major Vernon had on exhibition on the day Major Vernon had on exhibition on the day of our visit, the second day of the Fair, but one animal; but that was a somewhat famous one, the four-year-old short-horn Durham buli "Daudy Jim." M. Wick, of Butte county, enters a creditable stock of Durham cattle eight in number. The first is "Orlando," a Durham bull, sired by "Crown Prince;" "Evira," a beautiful heifer three months old; "Belle of Butte" a three-year-old cow: "Carlotta." a Butte," a three-year-old cow; "Carlotta," one-year-old heifer; and "Prince Alb rt," bull eight months old.

Col. Younger, of Sun José, has on exhibition a large and creditable stock of Durham cattle, consisting of all ages, sexes,—but not of all conditions—for they were all in fine condition; and would bear thorough examination. We noticed two particularly fine bulls in this herd -"Tempest," a three year old, and "Lord Nel-

on," a yearling.
Mr. J. Bridgford, of Missouri, has some Durham cattle on exhibition, also three horses.

Mr. Robert Ashburner, of San Mateo county, Mr. Rebert Ashburner, of San Mateo county, has a good display of graded and thorough bred Durham stock. The graded bull, "Jupiter," is prominent among them. "Water King," is a thoroughbred bull, one year old. There are also three fine bull calves. There are two thoroughbred Durham cows—"Princess," three years old, and "Sarah," four years old, a splendid dairy cow. "Water Prince" is a large six year-old bull; he was weighed a year ago, bringing down the scales to 2,660 pounds. "Waterman" is a thoroughbred bull, four months old. Mr. Ashburner's stock enfour months old. Mr. Ashburner's stock en-

four months old. Mr. Ashburner's stock entry numbers 21 head.
Chas. Clarke exhibits the graded heifer calf, "Mollie," the Durham bull, "Duke of Manchester," and other imported and graded cattle.
S. B. Cameron has on exhibition the thoroughbred four-year-old bull, "Sheriff," and the imported heifer, "Princess." He has also some fine Holstein cattle. The patriarch of this Holstein herd is here—a seven-year-old thoroughbred bull, who is famous for the uni-Holstein herd is here—a seven-year-old thoroughbred bull, who is famous for the unithoroughbred bull, who is famous for the uniformity of color and other qualities which he
transmits to bis progeny. "Opodose," is a
yearling, full-bred Holstein; "Fairy Queen" is
a three-fourth breed Holstein.

A. Whipple offers a good show of Durhams;
conspicuous among which is the "Lady of the
Valley," and "Mary Aun," a graded cow.
John Judson exhibits the Durham bull,
"Grand Duke of Sonoma."
Carr & Chapman have on exhibition a large

Carr & Chapman have on exhibition a large representation of their celebrated "Gabilan herd" of Durham cattle. We recognize among these some of the bulls and cows whose portraits and pedigrees have been given in the

RUBAL Passes of late.

Dean & Co. have in stall 23 a steer, exhibited principally for his weight. His keeper declared that his weight is 4,000 bs. Perhaps he does weigh a couple of tons, but the by-standers—our reporter among the number— rather made light of this statement.

On the whole, the exhibition of cat'le may be pronounced a good one; but we can hardly say

M. L. Brittan, however, makes a fine show of just such stock as we want—a lot of heavy druft horses, mares and coles.

druit horses, mares and coles.

Mr. Hamilton exhibits a large and superior lot of horses of the "Ethan Allen" stock. This stock is bred mostly for speed and as roadsters, being extremely kind and gentle, and easily broke to harness. Did our space permit, we would like to speak further of the merits of some of the horses in the stock of Mr. Hamilton, and also of those exhibited by Jesse D. Carr and others, who also make a good display of horse-flesh here.

But we must pass on to the

But we must pass on to the

Angora Goats.

Landrum & Rogers have three pens of An-tora goats here, and J. P. Sargent has two pens of the same class. These animals show splendid fisece. A larger exhibit of thorough-bred and graded Angoras was expected. But the disappointment was less in

The Sheep Department

B. T. Watkins has a good exhibit of Spanish Mericos—twenty in number. Lewis Pierce has entered twenty-one of his Shropshire herd, his splendid ram, "Jack," being among the numb r. John Judson exhibits a Cotswold buck, three lamb rams, and a pen of fine ewes—all Cotswolds. George Bennett has a very fine display of Southdowns. Jesse D. Carr also exhibits some Southdowns. Wm. Blacow has a conditional of Franch Merings, and Severance. display of Southdowns. Jesse D. Carr also exhibits some Southdowns. Wm. Blacow has a good display of French Merinos, and Severance & Peet have 68 h-ad of Spanish Merino sheep on exhibition, including their rams, "California Chief" and "Big Leg." This ram is the grauds on of "Gold Drop," of New Hampshire. Twenty of his lambs are here on exhibition, with the one-year-old ram, "Seville." and "Alameda." a ram two years old, a son of "Gold Drop." "Fremont" is another two-year-old ram of remarkably heavy fleece. He was sired by "Fremont," of Vermont. Young "Fremont" is valued at \$1,000, while "Big Leg" could not be bought for \$1,500.

The Pigs

Now demand our notice. R. S. Thomson, of Napa, has on exhibition 27 Berkshire pigs, among which are several imported boars. "Young Comet" is one of these—a fine boar two years and four months old. There is another splendid imported boar, bearing the suggestive title, "Souce Genteel." Mr. Thomson's large display is well assorted as to age, giving the observer a good idea of the characteristics of the breed. This is a breed of pigs pecu-

liarly adapted to this climate, and is becoming popular at the East. They make flue hams and shoulders, the proportion of lean to fat being remarkably large. They can be brought to a good killing condition at any age.

Mr. J. C. Mills has on exhibition some fine Berkshire pigs, among which are two fine sows, "Princess" and "Victoria;" the latter accompanied by six pigs, her promising offspring. The splendid imported boar, "Wellington, Jr.," belongs to this exhibit.

Charles Clark has also on exhibition some fine Berkshire pigs, from four to six months old.

old.

While the representative of the Parks was on the grounds, the cattle and horses on exhibition were paraded on the track, and made an extremely satisfactory display, though there was a noticeable lack of matched teams among the horses, and too large a proportion wer-colts. They were, however, about as fine a lot of colts as we ever saw, though their appearance and conduct were rather suggestive of hoodlumism.

Generalities.

Although the horse racing element is the power behind the throne here, the exhibitors of farm stock were satisfied with the treatment received at the hands of the directors. The secommodations for stock are good, though somewhat incomplete. Why is it that the pub-lic cannot enter any industrial or other fair, at any time during the first half of its allotted time, without incurring the danger of being knocked over by a lot of belated curpenters? Is there no possible way of escaping this pur-gatory before entering the blissful regions of the exhibition?

The Bay District Fair grounds, it is plain to e seen, are destined to be a decided success. The race track is pronounced to be superior to any within reaching distance of San Francisco. and by many declared to be the best in the State. It affords the fluest possible view of the horses during their whole course. A little change in the spirit of the exhibitions on grounds—achange which we believe would not incur even any pecuniary sacrifice—would se-cure to this Associa ion the hearty co-opera-tion and support of the community at large.

Interesting to Farmers.

[From the Pacific Bural Press.]

As banks of deposit gather surplus money and equalize its value, so there are banks of depo-it for the wheat of the world, which prevent its sinking below a certain price in times of surplus, and check its a lyance when grain

One of these great granaries we will describas an example of all. It is in the Isle of Malta, in the Mediterranean sea, about midway between Gibraltar and Egypt.

Malta is a small, rocky isle, rising abruptly from the sea, belonging to England. It has a fine harbor, excavated from the rock, and it is made an impregnable refuge for the English navy in that sea. It is always well stocked with provisions. The government has excavated vast granaries in the free-stone rock, upon the steep hights. A bird's-eyeview would show here as nameral below each covered by the step lights. A bird's-eye view would show them as numerous holes, each covered by a large stone, requiring machinery to move them from the hatchways to the chambers below. Every chamber is protected from damp by a coating of cement, so that the grain is not affected by the frequent rains on the roofless surface. Many cargoes find storage in each.

A yearly rent charge is made, which include

the perpetual goardianship of promenading sentinels. They are leased to a muxed com-pany of English and Greek merchants of unimited capital. Its rule of business is inflexi-ble. When wheat falls below their standard prices, they buy and fill their granaries. When the price advances above a certain rate, they sell and empty their stores. It may be three or four or five years. They are patient. The turn is sure to come and their profits are relia-

We presume that these great storehouse were emptied at last year's prices, and that the low rates of this year will fill them sgain, and materially sid in sustaining the demand.

Had Napoleon's reign continued, it was his design to establish such granaries, to save the wheat of France from being sent away at un-remunerating rates one year, and the next to be

bought back at exorbitant prices.

So long as Catifornia farmers depend on wheat, public reservoirs of this kind may be worthy of consideration. The French plan was to charter district banks with great privies, to make advances on wheat in its stores. and to share in the profits realized. Suppose now that wheat is stored at, say, \$1.40 per cents!—\$1 being advanced—and in a year or two prices advance to \$2.25, the profit is easy to calculate. At our high rates of interest, the margin would be much smaller, of course, than in Europe.

LIGHT AND EXCENDENT.—The English electri-cian, Willoughby Smith, has recently discov-ered a most carious action of light in altering the electrical resistance of a metal. In experi-menting for a special purpose, with some small rods of selenium, about one-twentieth of an inch in diameter by three or four inches in length, enclosed in glass tubes, with platinum terminals, he found that their electric resistance terminals, he found that their electric resistance varied most conspicuously and to a very great extent. He finally trac d the disturbance to the action of light—finding that when the rod-were enclosed in a dark box their resistance was perfectly normal, while even a slight exposure to light immediately reduced it some 16 or 15 per cent. On burning a magnesium ribbon at a distance of nine inches from the selenium rod, which, to cut off all disturbing action of heat, was immersed in its tube to a depth of several inches in a basin of water, the conductivity of the bar was at once increased nearly three-fold, remained constant while the nearly three-fold, remained constant while the light lasted, and as soon as the fisme went on immediately returned to its original value. The discovery opens an entirely new field of investigation. Jour. of Chem.

PLATE POLISHING POWDER .- The English Me chanic states that an excellent preparation for polishing plate may be made in the following polishing plate may be made in the following manner: Mr tog-ther 4 ozs. spirits of tarpen tine, 2 ozs. spirits of wine, 1 oz. spirits of camphor, and ½ oz. spirits of ammonia. To this add one pound of whiting, finely powdered, and stirtill the whole is of the consistency of thick cream. To use this preparation, with a clean sponge cover the silver with it, so as to give it a coat like whitewash. But the allver aside till the paste has dried into a powder; then brush it off, and polish wish a chamosleather. A cheaper kind may be made by merely mixing spirits of wine and whiting together.

To Take Stains out or Ivosy .- A little pre pared white chalk, tinged with sweet oil and sal volatile into a paste; rub it on wet with a piece of wash-leather; let it remain until dry, then brosh it off.

THE metric system of weights and measure is to be made compulsory in all commercial dealings throughout the Austrian Empire from January 1st, 1877; and in the pharmaceutical establishments it is required this year.

Building Houses.

Every man who contemplates building s dwelling for himself, will make it a home, a hospital, or a grave for his family, according to his plan. The driest houses are the healthiest, hence those built of wood are the best; they are more liable to complete destruction by fire, but not more complete than iron or granite. Brick houses are the least injured by fire, because they neither melt, scale nor crumble.

The damages to which they are liable may be prevented by two expedients. By placing a layer of slate or stone between layers of brick about a foot above the ground, the dampness from the earth is arrested, as brick soaks up vater like a sponge.

The outer walls may be protected against the

absorption of rain and fog thus; dissolve three-quarters of * pound of mottled soap in one gallon of boiling water, and with a flat brush spread it over the outer surface of the brick wall, while hot, without allowing it to lather; in clear, dry weather; text day dissolve a quarter of a pound of alum in two gallons of water, and paint it over the soap coating; the two combine and form a film of varnish which the rain can not penetrate. There should be a space of about an inch between the brick and the plaster. The old-fashioned comb roofs are best, as they shed water more rapidly, and give a garret, which protects the upper rooms from the heat of the summer sun. If possible, let the house stand east and west, the front facing the house stand east and west, the front facing the south, thus exposing three sides to the sun, and let the family room and all the habitually occupied chambers face the south, so as to have all the advantages of the warming, drying, and cheering influences of the sunshine. The house should be on an elevation, to allow the water to drain off in every direction. Plasterd walls are cleaner than these papered: Plastered walls are cleaner than those papered; perhaps varnish is better than either, and is not so readily soiled, and is more easily dusted

not so readily soiled, and is more easily dusted and cleaned from stains or grease spots.

Bare walls are dreary and barn-like. They can be onamented with pictures and engrav-ings, and thus made instructive, amusing and diverting to a very high degree. If frames are preferred, a very neat and cheap pattern can be preferred, a very neat and cheap pattern can be made by getting a place of pasteboard and a glass of the size of the picture, which should be place i between the two, and a rim made to answer the purpose of a frame, as well as to keep all in place, by doubling over the edges a ribbon or strip of velvet. Ornsmentation may go still further, and be made to afford quite as much because to the exact patients by since the street of the st much pleasure to the eye as paintings, by sim-ply placing a handful of heads of wheat in a vase of watr. Each grain sends out bright green leaflets, and continues to replenish the f ding ones for weeks together.

f-ding ones for weeks together.

An exquisite transparency may be made by arranging pressed ferns, grasses and autumn le eves on a pane of window glass, laying another pane of the same size over it, and binding the other with ribbon, leaving the group imprisoned between. It is well to secure a narrow strip of paper under the ribbon. The binding should be gummed all around the edge of the first pane, and dried, before the leaves, form etc. are arranged; then it can be neatly of the first pane, and dried, before the leaves, fern, etc., are arranged; then it can be neatly folded over the second pane without difficulty. To form the loop for hanging the transparency, paste a binding of galloon along the edge, leaving a two inch loop free in the center, afterwards to be pulled through a little slit in the final binding. These transparencies may be hung before the window, or, if preferred, secured against a pane in the sash. In halls, a be sutiful effect is produced by placing them against the side lights of the hall door. Where the side lights are each of only a single pane, it is well worth while to place a single transparency against each, filling up the entire space, thus afferding ample scope for a free arrangement of ferns, gra-ses and leaves, while the effect of the light passing through the rich autumnal colors is very fine.—Hall's Jour. of Health.

How the Wheat Eating Population of the World Grows.

From the San Francisco Journal of Commerce. There is one thing that is not at all taken into account in estimating the future market for Cali-fornia Wheat, and that is the rate at which the

Wheat-eating population of the world grows.

In Europe that population may be estimated at 120,000,000, in the United States 42,000,000, and in all the rest of the world at 12,000,000, making a grand total of 174,000,000, consuming abou 1,400,000,000 bushels per annum.

This population increases naturally at the rate This population increases naturally at the rate of 3,000,000 per annum. The increase caused by those who adopt a wheaten diet in preference to that which they have been accustomed, is equal to 3,000,000 per year more. The majority of the people of Europe do not now use a wheaten diet, but the number of Wheat-caters is increasing sensibly from the tendency of population to grav-itate to great cities where a wheaten diet is invariably used, and from the change in the diet of the well-to-do peasantry. This gives 6,000,000 more mouths to be filled every year than were the year preceding. And the consumption of these at the generally estimated rate per head is 48,000,000 b ushels a year. There are then 48,000, 48,000,000 bushels more required this year than last, and 48,000,000 bushels more will be required in 1875 than are now.

If California was called upon to supply this

increased quantity she could not do it, and con-sidering how, even in the United States, the city is being built up at the expense of the country, and how the ratio of the agricultural population to the whole, in certain sections, is decreasing, it is quite certain that the united efforts of all the Wheat growing sections of the Union could not supply it. True it is, that the area under Wheat in

ALFALFA ON ADOBE SOILS .- Mr. W. N. Roberts, I La Patera, sowed about 15 acres last spring with mixed barley and alfalfa seed, on adobe land, and after cutting off a heavy crop of bariey, new finds the alfalfa springing up from the hard, dry earth, without a grop of rain. Those who have experimented in that neighborhood are satisfied that alfalfa will be a perfect success, even on our average top lands, w thout irrigation, though it may take a year to get it fairly started. Once rooted, alfalfa is a determined grower, and will yield from three to 10 tons per acre each year, according to the character of the soil.—Santa Barbara Index.

Thermometers.

The simple principle of the thermometer is that a change in temperature produces a change in volume; and upon the uniformity of this in-crease depends the accuracy of the instrument. crease depends the accuracy of the instrument. As instruments are usually made, this is assumed to be so throughout their entire range, but, in reality, this is not the case, either with a mercurial or spirit thermometer, especially the latter at low temperature, or with either one as the heat approaches the boiling point of the liquid. For measuring all ordinary ranges of temperature the expansion of mercury is so nearly uniform that the graduations are made equidistant. If they were divided in accordance with the expansion of the mercury the spaces for each division would increase from the zero point upward, and decrease from it downward.

the zero point upward, and decrease from it downward.

The freezing and boiling points are defined for the thermometer by immersion in boiling water and melting ice, and the space between these is then divided into any arbitrary number of equal parts, according to the standard desired. In the common instrument, used for the ordinary observation of temperature, the space is divided into 180 equal parts, and is known as the Fahrenheit scale, so named after its inventor. In this instrument the zero point is 32 degrees below the freezing point of water—erroneously so placed by its inventor, because he supposed that the swas the absolute zero of temperature.

temperature.

Now, since the rafe of expansion is not uniform in the tube of the thermometer, it follows that the divisious of the scale are too short from the boiling point up or down, and too short from the freezing point up; consequently there can be only one point on the scale of a thermometer which is really accurate, all the others being only approximate, either above or

below the truth.

There are yet several other unavordable sources of error to be considered. First, the glass in which the mercury is contained also expands and contracts with the changes of expands and contracts with the changes of temperature, but at a rate corresponding to only one-seventh that of mercury; so that, in order to be accurate, allowance must be made for this, if the graduation is made upon the stem of the instrument; if made upon the metal scale to which the glass is usually attached, still another compensation must be made, as expansion of the metal is different from either. Erroneous, therefore, as the measuring of heat must necessarily be by the use of a thermome-ter, it is yet an instrument of the utmost imter, it is yet an instrument of the utmost importance to the practical scientist in every field of investigation and industry. Where very minute differences of temperature are to be measured an instrument called a thermomultiplier is used. This ingenious instrument was brought to such a wonderful degree of perfection by Tyndall that even the difference the bodily temperature of insects could be measured, and by its use many interesting and useful discoveries have been made.—Wastrn Manufacturer

How Thimbles are Made.

The manufacture of thimbles is very simple, but singularly interesting, and is described as follows: Coin silver is mostly used, and is obtained by purchasing coin dollars. Hence it happens that the profits of the business are affected instantaneously by all the variations in the nation's greenback promise to pay. The first operation strikes a novice as almost wicked, for it is nothing else than putting a lot of bright silver dollars, fresh from the mint, into bri-ht silver dollars, frosh from the mint, into dirty crucibles, and melting them up into solid ingots. These are rolled out into the required thickness, and cut by a stamp into circular pieces of any required size. A solid metal bar of the size of the inside of the thimble, moved by powerful machinery up and down in a bottomless mold of the outside of the same thimble, bends the circular disks into the thimble shape as fast as they can be relaced under the ble, bends the circular disks into the thimble shape as fast as they can be placed under the descending bar. Once in shape the work of brightening, polishing and decorating is done upon a lathe. First the blank form is fitted up in a rapidly revolving rod. A slight touch of a sharp chiest takes a thin shaving from the end, another does the same on the side, and the third rounds off the rim. A round steel rod, dipped in oil and pressed upon the aurface, gives it a lustrous polish. Then a little, revolving steel wheel, whose edge is a raised ornament, held against the revolving blank, prints that ornament just outside the rim. A second wheel prints a different ornament around the center, while a third wheel with sharp points makes the indentations on the lower half end of the thimble. The inside is brightened and polished in a similar way, the tened and polished in a siu thimble being held in a revolving mold. All that remains to be done is to boil the completed thimbles in soap suds, to remove the oil, brush them up, and pack them for the trade.

How to Make a Good Bed.

Perhaps some housekeepers would like to the same time a good and durable bed, or mattress and bolster. I have a bed that will (with good usage) last a lifetime. It is merely (with good usage) last a lifetime. It is merely a tick, the same as for straw, or hasks, with openings in the upper side to insert the hand for stirring, and filled with cut paper. Now, reader, do not throw aside the paper with disgust, but, if for nothing but curiosity, finish the article, it will do no harm; possibly you may be induced to make one. The work of cutting the paper is not such a long job as you would think. Take any kind of clean paper (except straw paper) and fold it, or roll, so that in can be cut with one clip of the shears, and then cut it; you need not be particular as to the width. growing sections of the Union could not supply it. True it is, that the area under Wheat in Europe is increasing from year to year, but it is only in particular countries, and is not all equal to the increased demand. There need then be no fear of markets for our continually increasing surplus of Wheat.

But we must not confine ourselves to selling only to one people. There is not a country of Europe outside of Russia to which we could not send a few cargoes of Wheat. There is not a port of South or Central America of any importance to which we could not do the same. In short, if we mean to continue the production of Wheat on a large scale, and to increase year by year the breadth of land under it; we must imitate the example of the merchants of Great Britan, and seek for markets instead of waiting for foreign communities to invite us. Let this be done, and it will not entirely depend on the fluctuations of the Liverpool market as to whether we shall obtain \$1.50 or \$2.00 per cental for our Wheat, and the fear of overstocking one market will not be allowed to paralyze the progress of agricultural industry on the coast.

Alfalapa on Adones Soils,—Mr. W. N. Roberts.

Alfalapa on Adones Soils, and the leave of the minto the tick. I use the same ticks that I have used for straw; wash them and sew up the openings, so they are just large enough to the minto the tick. I use the same ticks that I have used for straw; wash them and sew up the openings, so they are just large enough to the minto the tick. I use the same ticks that I have used for straw; wash them and to up the openings, so they are just large enough for the hand to pass through readily; three openings are sufficient.—Cor. Cincinnati Times.

> HERE is a Japanese receipt for keeping meat fresh in hot weather: Place it in a clean por-celain bowl and pour very hot water over it so to cover it. Then pour oil on the water. The air is thus quite excluded and the mest

> The Farmers' Union of Stockton have ship-ped turee sacks of wheat to Anderson district, South Carolina, for seed.