

Address by Governor Booth,

Before Cal. State Grange, at San Jose, on Friday Evening, October 17th, 1873.

LADIES AND GENTLEMEN:—The organization of the farmers of the United States into one "guild," if permanently carried forward in the spirit of its inception, will lead to consequences of the highest importance. I understand that, while a portion of the work of the "Patrons of Husbandry," like that of the Masons, Odd Fellows and other similar fraternities, is secret, while it has certain degrees, orders, honorary titles and decorations, these are mere incidents to its general objects—that it means business, not show—that its substantial design is to improve the material interests, the mental moral character and social privileges of the members of the largest and most important industrial interest of our country. How far and in what ways this design shall be accomplished will depend upon the intelligent efforts and patient co-operation of the members themselves.

The Forms and Symbols.

There may come a time when all the observances and ceremonies with which societies of this kind hedge themselves in, and the forms and symbols with which they endeavor to make their proceedings attractive will be banished by that severe taste which loves to contemplate truth as a pure abstraction. But that time is very distant, and the millennium will tread close upon its coming. Some of the critics who are wont to sneer at the official titles and degrees conferred by the "Granges," would be giddy with delighted vanity if the meanest and most profligate monarch who ever sat upon a throne would salute them as "Sir Knight."

While the soldier follows his flag with inspiration of courage, and will lead a forlorn hope for the sake of a ribbon; while the parade in bright with the glory of gold lace; while the church has its stained windows, its organs and choirs; ministers their gowns and bands and surplice; while every State occasion or event has its prescribed ceremony; while colleges and universities annually pepper us with A. M.'s, D. D.'s, and LL. D.'s, while everybody who is a member of the civil government is "Hon.," and everybody who is not is "Col.," or "Gen.," why should not industry, too, have its colors, and holding its patent from nature, confer its titles and degrees? Why is not the "Knight of the Plow" as honorable a title as the "Knight of the Garter"? Or why may not the decoration of "The Horse" be worn as proudly as that of "Elephant" of Denmark, or "Black Eagle" of Prussia? Since from the constitution of our nature the forms and shows of time are a part of man's life upon the earth, we need not reject those which are images of peace, the coinage of civilization, while clinging to others which are emblems of war or relics of barbarism.

Concentration.

Whoever has studied the growth of our population must have observed an increasing tendency towards concentration in towns and cities, and that in the large cities—the centers of capital, commerce and manufactures—the increase is in greater ratio than in the smaller, which depend upon local trade for support. It is noticeable, too, that cities where population and capital are concentrated have year by year a greater relative influence in shaping the general policy of government. In them public opinion is massed, and can be thrown immediately upon any given point. They support the great newspapers, attract the leading men and surplus capital. The great moneyed interests, and schemes which have in cities their centers, are never without special and plausible advocates. They organize lobbies, and have agents and attorneys before every important legislative and congressional committee. Their influence is thus felt directly and specifically at the time and place where it is wanted. To illustrate: No capital of the same amount in this country, perhaps none in the world, has in the same time averaged as large profits upon the investment as that of the national banks. The security for their bills is Government bonds, on which the banks receive interest. The medium with which they redress is Government notes. The number of banks is limited, so they have a monopoly of the privilege they enjoy. It is credible that but for the influence of the banks themselves and the public opinion they have been able to create, the Government banking, as it does annually, from one hundred and fifty to two hundred million dollars in gold, and collecting and disbursing in gold and currency every year an amount equal to more than half the entire circulating medium required by the business of the country, with a credit based upon a continent, and supported by the patriotism and interest of the whole population, would not long since have furnished the currency direct, making the profit on circulation a common benefit, and have made its exchangeable value equal to gold? The people themselves are entitled to whatever profit there is from the circulation of bills or money, which could have no value but for the credit given by them, and for whose redemption their own bonds are pledged. The problem is not a difficult one, but its practical solution has never been earnestly attempted. If any banking house enjoyed the credit, commanded the resources, and handled the money the Government does, it would find no difficulty in making its bills of par value with gold. Whether any financial policy is proposed it is "Wall street" that is heard. First, because Wall street, having a special interest, will speak secondly, because we are apt to concede that Wall street has made this subject a specialty, has a right to determine. In truth the Wall street interests should bear about the same relation to the industrial pursuits of the country that the hands on the dial do to the machinery of a watch. If the main-spring and wheels are right, you can easily adjust the hands to register the movement.

Our tariff represents no general principle or policy, either of protection, "incidental protection," or "revenue only," but is a patch-work, clearly disclosing just how far each special interest seeking protection was able to make itself heard.

Public Evils.

If there is any principle of governmental policy upon which all party platforms and public speakers, candidates, office-holders and newspapers agree, it is that the public lands should be held for actual settlers. If that sentiment could be put to a strict vote, one universal "Aye!" would go up from sea to sea. But we have had land-bonuses to soldiers for military services, land-serp to agricultural colleges for educational purposes, land-serp for the extinguishment of Indian titles, swamp lands to States for reclamation purposes, land-grants to railroads—and somehow these do pass into the hands of speculators, for the most part, and the charm of that very musical motto in American politics, "Homes for the homeless," dies away on the ear.

I instance these illustrations not to find fault, but to show how much and how naturally legislation is influenced and directed by the immediate interest which presses its claims at time, place and occasion. One positive will effect more than an army of neutrals. One man who knows what he wants and seeks it, will accomplish more than a hundred who don't want him to get it, but who resolutely stay at home and say nothing about it until it is too

late, and then indulge in the luxury of grumbling.

The Granges a Reserve Force.

What we desire and hope for from the Granges upon this subject is that they will give shape, consistency and definiteness to that diffusive public opinion which now, unorganized, is heard rather in criticism than in direction, and that law-makers and public men shall realize at least that there is a reserve force which, though slow of speech, will speak, and that when private and special interests are clamorous it is safe to wait until those general interests can be considered, which are often the first to suffer and the last to be heard.

Irrigation.

One subject will doubtless be soon presented for legislation of the greatest importance to a large body of the farmers of this State, and on which they ought to be heard—that of irrigation.

In some districts where irrigation is now regarded as the only assurance of a good crop of grain, deep plowing and summer fallowing might prove cheaper, more healthful and about as successful. This can be determined by careful experiments and collection of facts. It will certainly be a public calamity if, under the operation of State laws, the supply of water necessary for irrigation should pass into the possession of private parties. The mere statement of the possibility of a water monopoly is a stigma upon our law. Whoever has lived in the mines must have observed that the ditch owners could own the mines if they desired to. The unrestricted control of the waters necessary for irrigation would confer the same power over lands.

If a general system of irrigation should be projected, the work to be constructed and managed by the State, it is possible that a great deal of work would be done which would prove unnecessary and unprofitable; some portions of the State would be taxed for improvements in which they had no interest, and the mining districts, to which water is so essential as to the farming, would have a right to demand that the system should be extended to them.

Is it not possible to divide the State into irrigation districts, allowing each to determine the question for itself, and giving to each a vested right to its pro rata of the water supply, and conferring upon each district the power to condemn the water rights which are necessary for its own irrigation?

Another question in connection with this subject will be the practicability of using the same canals for purposes of irrigation and transportation.

It is of the highest importance that at the outset the State should adopt the best system, and too much care cannot be given to the arrangement of its details. The report of the Commission of Engineers appointed by the General Government to make a reconnaissance of the State will doubtless furnish facts of great value in arriving at a correct conclusion. I trust the farmers, who are most interested, will give the matter their patient, careful and intelligent attention, so that we shall have the benefit of full discussion and free interchange of opinion. I instance this as a striking case; but if the Granges shall succeed in giving the affairs of

Local Government.

That consequence and attention to which they are entitled, they will do an incalculable good. We seem as a people to have had a quadrennial attack of insanity over a presidential election. How we do "save the country" with speeches and processions, and the burning of tar and turpentine, the blaze of Roman candles and sky rockets and the explosion of gunpowder. Distant be the day when the election of a President of the United States shall not be considered a matter of grave importance. That is the occasion when a sense of the unity of our country is made most vivid and real to us all. But the election of Supervisors, School Directors and local officers is often of more immediate concern to our individual well-being. Good roads, schools, correct administration of justice in affairs of daily life, taxes imposed only for common benefit, and correctly expended are things which touch us where we live—are real every day. Local officers, too, who are amenable to the criticism of their neighbors, should also have the benefit of their intelligent and friendly counsel, so that local administration shall be directed as far as possible by the common neighborhood sentiment of what is right. There is a homely proverb: "Take care of the pennies and the pounds will take care of themselves." If the local affairs of our country are wisely administered the general administration will not be far wrong. Indeed, government is a growth from within, and the true character of any Government depends upon the local institutions of the country, and these in last resort upon the average character of the people themselves. France finds that exterior changes in government are ephemeral, often only changes of name, because local institutions and interior administration remain the same. These are the springs and wheels, and the clock strikes the hours wherever the hands may point. If by constant attention in each neighborhood we can succeed in getting our public schools as nearly perfect as possible, we shall lay a bond of life for the security of free institutions. Emerson says our New England ancestors discovered that the pomps and shows of royalty, with horse-guards and foot-guards, big wigs and little wigs, knights of the bed-chamber, keepers of the bounds, etc., were unnecessary. Perhaps they were too poor to afford them. "Selectmen" would answer the purpose and were cheaper—hence the democratic principle, and representative republican government. We must keep the sources pure if we would have the stream clear, and not allow republican shows to destroy republican simplicity.

Union of Producers and Consumers.

I have referred to the comparative over-growth of cities. One of the objects, I observe, of Granges, is to simplify the machinery of exchange, to dispense with middle men as far as practicable, and bring producers and consumers more nearly together. In the degree in which they shall proceed in this they will check one of the tendencies towards the concentration of capital and population. This increase of city population, and the aggregation of capital, is not confined to the United States, but is common to the civilized world. London is growing more rapidly than ever before, and the growth of Berlin in the last few years is as great a marvel as that of Chicago. The causes must be sought in principles of universal operation. At one period of the world's history men gathered in cities, walled towns for mutual protection. At another, cities were great political capitals, law-givers, in fact, making vast provinces and distant countries tributaries to their wealth and power by conquest. Now cities attain their importance as the centers and capitals of money, manufactures and commerce. Think for one moment how vastly their importance as mere money centers has been increased by the introduction of national funded debts. The funded debt of the United States is \$1,738,245,900; that of the various States, \$324,747,959; of counties and towns, \$429,075,548; the last figures are from unofficial statistical tables and are probably largely under. The floating debts of the General Government, and of the States, counties and cities would add more than \$800,000,000 to this sum of our public indebtedness. The funded debt of the

railroads in the United States is \$1,206,645,061. The total debts of the nations of the world, compiled on the basis of Hubner's statistical table, and probably embracing only such as are quotable at the London Exchange, is \$18,700,599,758—more than quadruple the gold and silver coin in the world. Add to that already inconceivable sum the debts of States, counties and municipalities, and we become lost in a bewildering maze of figures. The interest upon this vast sum is an annual tribute paid by the world's industry to the world's moneyed centers and capitals. What a glorious, happy holiday the world would enjoy, what a year of jubilee, if it could get out of debt. Nearly all the vast sums I have recapitulated are the price of wars, and must be paid from the accumulations of peace. There is no escape. No nation can afford to incur the disgrace of repudiation. Capital, when invested in machinery and material improvements, adds to productive capacity and to the sum of human happiness, but no "national debt is a national blessing," and their vast aggregate is a silent, constant drain on the world's productive industry. It is that much of the world's "stock in trade" held by a "dead hand."

Machinery.

About a hundred years ago Watt invented the condensing steam engine, which has revolutionized the arts of peace in as great a degree as the invention of gunpowder did the art of war. So much has it added to productive capacity, that it has been estimated that with it, and the inventions to which it gave rise, and the creative power of Great Britain in the arts of civilized life would be as great as that of the world without. One immediate effect of this and almost every other great invention, however, is to strengthen the strong, to make capital a more powerful element in production. Hargrave's spinning jenny, Arkwright's spinning frame, Cartwright's power loom, and the methods of puddling and rolling iron, which were nearly contemporary with the steam-engine, with the introduction of cotton as a cheap textile and the application of steam to transportation by land and water, have completely modified the methods of industry and exchange, and the currents of population. Before that personal skill was the mechanic's best capital; now personal mechanical skill is worth comparatively little, without the use of large capital. It cannot compete with machinery; before this, mechanical trades were carried on as independent pursuits, by men who learned them as apprentices, to practice them as masters, with such means as they could save; now they are largely supplanted by manufactured labor. When Adam Smith wrote of the division of labor as a cause of increased production, he little dreamed of the minute sub-division to which the principle would be carried. Before the invention of pins any of our ancestors could gather thorns or make a skewer; now a pin I believe, passes through a dozen hands before it is ready for the cushion, but it is cheaper to buy it than go to the woods for a thorn, or even for a Yankee to whittle a skewer. Outside of agriculture every one who produces is now working to supply the wants of others, and drawing upon the labor of hundreds to supply his own. Now, too, it is very seldom that any man produces from raw material an article that any one wants. He only contributes to it in some minute degree—and the whole is the joint production of many hands. This makes exchange more necessary and frequent. All articles being for sale seek common centers—places where buyers can purchase everything they want. The volume of commerce is thus wonderfully increased, its machinery exceedingly complex and delicate. These are great centripetal forces which constantly draw population and capital to those vast human hives, modern cities. They are social forces far more powerful than any legislative enactment.

Industry in Early Times.

If any of you grew up, as I did, near the frontier you will have observed the operation of these forces in your own experience. Thirty-five years ago, in that was then the "Far West," almost everything consumed on a farm was raised on it. There was some barter. Butter and eggs were exchanged for sugar and coffee. Tea was a luxury, kept for cases of sickness, a few such State occasions as the visit of the minister, or of that most august official—in those days—the Circuit Judge. Wool came from the sheep's back into the house, and never left it until it went out on the backs of the boys and girls. It was carded, spun and woven by hand. The flax went from the field to the breaker, from breaker to hackle and loom. At the farm I best remember the trough was still in the farmyard, and the remains of the vat were to be seen, where not many years before deerskins and cowhides had been tanned, and the lap-stone was still kept, which had been in family use for making shoes from the home-tanned leather. The farms where more than one hired man was kept were rarer than those that had none. Farming implements were of the simplest kind. I remember the first thrashing machine—a horse-power—brought into our neighborhood. It made its appearance about the same time the first piano came into the village. I think both were generally regarded as evidences of great innovation, likely to break their owners. All this has been changed. The introduction of improved agricultural implements, which substantially dates back scarcely twenty-five years, has a tendency to bring about the same kind of changes in farming that labor-saving machinery has effected in the mechanical arts. The gang-plow, the reaper, the header, threshing machines, enable one owner to cultivate more acres, increase the size of farms and make the use of capital a more essential condition of success.

The Present Day.

Now almost everything produced on the farm is sold, almost everything consumed in the house is bought. Sometimes the markets are distant, as Liverpool now fixes the price of wheat in Santa Clara. The farmer necessarily becomes interested in the laws of trade, methods of exchange and price of transportation. It is important that he should know what kind of weather they had in England at harvest, how much wheat Russia can spare, and how many ships are on their way to his nearest port. It is important that the friction in handling what he has to sell and what he must buy, should be as light as possible, and that he should not be taxed in extra profits to pay losses by bad debts. Now he desires to know about where the money is to come from—to move the crops. He needs more capital at some times than at others, wants banking accommodations and low interest. As moneyed interests, manufacturing interests and commercial interests from the nature of their transactions have their capital and pivoted centers, and as from the nature of their pursuits agricultural interests have not, but are as necessarily diffused as the others are concentrated, it is eminently proper they should organize for their own advancement and protection. Farmers living in comparative isolation ought to feel that there is a net-work of sympathy connecting each with all. This want the institution of the Patrons of Husbandry, through State and subordinate Granges, is intended to supply. The specific objects it proposes will acquire patient thought and sometimes careful experiment, but it can hardly fail to contribute to social enjoyment, to the diffusion of practical information, and to a cultivation of a feeling of esprit de corps, and that sense of honor which results from pride of pursuit and mutual pledge.

During the panic in New York the associated banks for some time received and paid out as money, certified checks of each other. The word of a member of a Grange should be sterling in every transaction, and pass current as the coin of the realm. Not only his fields, but his life, should be made fruitful by his association. His presence at home should be an atmosphere of peace, and his influence among his neighbors as fragrant as an orchard in bloom.

Trees.

Recurring for a moment to the period of my own recollection to which I have before referred, I recall with regret the destruction of trees. Now, it seems almost wanton and cruel. The spreading black walnut, the straight, lithe hickory, the tender ash and the hard oak, were girdled, felled, logged, rolled into heaps and burned, to get them out of the way. One-quarter, perhaps a tenth, of these left standing would be worth more than the fields from which they were cleared. Will not the California State Grange take the trees under their fostering care, and the subordinate Granges make it a point of honor with their members to plant trees? I hope they have, or will establish an honorary degree for that. All value is the result of labor. The farmer works nearest to Nature, and gets most of her assistance. Nature is his silent partner. But of what form of value does labor contribute so little, and the invisible forces of Nature so much, as in the planting and growth of trees?

Blessings of Home.

One word and I have done. I have known farmers who toiled all day, and almost every day in the field, when a daily half hour spent on the house and garden, in making home attractive, would add more to their real happiness than all their toil. For after all, home is the true source of lasting joys. Fortunate they who have happy homes—blessed are they who make them happy.

Stramonium Plant.

I noticed under the head of "Wild Flowers," by J. T., on page 178, mention made of the "Gymnasium." From the brief description, I inferred it might be the "Dalura Stramonium," Jamestown Weed, or Thorn Apple, of our Southern States. The second name, with its more common corruption of "Jimson-weed," is the one by which it is usually known.

Perhaps a brief history of the first application of this name might not be uninteresting to your readers.

It seems according to the tradition that during one of the wars with Great Britain, a company of foragers from the enemy's force, stationed at Jamestown, Va., visited one of the neighboring planters in quest of supplies. The planter, though by no means pleased with the compliment, put the best face possible on the matter, and as dinner was just done, gave them a cordial invitation to sit by and partake. The hospitality, so freely extended, was accepted. Among the dishes served, was one of "Greens," much relished by the guests, so much so, indeed, that after dinner the host was requested to point out the plant from which the material was obtained. History is silent as to the phrenological peculiarities of this hospitable Southerner, but I imagine there might have been a slight vein of humor in his composition, and that his jokes were sometimes of a practical kind. At any rate, he pointed out the Stramonium as the plant from which they obtained their "Greens," and as the weed was plentiful in the vicinity, ye Britons departed in high glee, with the prospect of such a delicacy being added to their Bill of Fare. Next day it was tasted. You that are acquainted with the noxious properties of the plant may readily imagine the sequel. From this incident came the name Jamestown or Jimson Weed.

I will add a few words concerning this plant. If it is identical, as I inferred, with the "Gymnasium" of your correspondent, let him beware. According to "Gray's Manual," it is not a native of this region, but brought from Asia or Tropical America. It is rank, narcotic and poisonous. And as I know from observation on a terrible pest to the farmer. I have never met it as far north as this, but in the southern part of the State, it with the Ragweed and Cockle-burr, have taken such complete possession of the roadsides and waste grounds, in some neighborhoods, that literally nothing else can grow.—Cor. Pac. Rural Press.

Squirrel Extermination.

On this subject a Californian says: I notice the farmers are determined to be rid of the squirrel nuisance. Now I will state my experience in killing squirrels for the last 18 years, most part in Alameda and Sonoma counties. On a farm of 160 acres of land to be rid of these pests cost me annually for strychnine from \$50 to \$70, the same for phosphorus about \$20.

Taking danger and work into consideration, strychnine is the most effectual and cheapest. The last year I adopted steel traps, succeeding in all respects surprisingly. They are far cheaper and safer than the above methods. I can positively state that one dozen traps will clear a field of 100 acres within a month by a little industry and acquiring the proper way of setting, one man, say, spending one hour a day. After clearing the field the traps, may be, have to be set anew, on account of the constant immigration of the squirrels from neighboring farms.

If the farmers will act together to get rid of the nuisance it can be accomplished and not till then. We need not apply to our representatives in Sacramento for State or other aid. If I recollect rightly, the experiment made in Alameda county about four years ago, failed after spending some \$50,000. The squirrels became as plentiful as ever. I think the greatest reason for not succeeding to abate the nuisance, is that farmers for some cause or other, cannot be brought together to act jointly on the land they work themselves, or lease, etc., for farming and grazing purposes. Generally the largest landholders are the least attentive; because they think they have land enough for their cattle to subsist through the winter. But instead of spending \$50 or \$100 to exterminate squirrels, they would rather lose 10 or 50 head of cattle, dying in January and February of actual hunger, which is mostly produced by the waste of squirrels. Let the farmers meet in their different school districts, in different counties and commence action, and I will venture to prophesy that the nuisance will be abated in time to correspond to the wishes of the farmers. The traps once bought, will last for years, with no expense of bait. Only by setting them in the proper way at the entrance of the hole, so that the squirrel in going in or out is bound to step on the trigger plate with his fore or hind feet. Keep your traps together according to the holes, and you will succeed in catching six squirrels daily with twelve traps. Let the farmers try this method, with a little patience in the start, and success will crown their efforts.

To Dry Plums.—Split ripe plums, take the stones from them, and lay them on plates to dry in a warm, hot oven or hot sun. Turn them frequently, in order that they may dry evenly; bring them in before the dew falls every night, and do not put them out again before the sun will be on them. When perfectly dry, place in paper bags, and hang in an airy place.

Our Sagebrush Lands.

We are quite willing to speak a kindly word or repeat a good story told of our sister just east of the Sierras, and finding the following in the Territorial Enterprise of October 3d, we appropriate it.

"The people of Nevada are little given to boasting, in which respect they differ from their neighbors across the mountains, True, we are producing more of the precious metals than California; our stock ranges are so extensive and superior that cattle are driven here by the thousands from California for pasturage; our beef commands a better price than any other in the San Francisco markets; our mutton is equal to the English stall-fed; our potatoes are especially ordered by San Francisco epicures able to afford the luxury; and wherever irrigation is possible the yield is enormous of everything produced in the temperate zones.

Our sagebrush plains, embracing a goodly portion of the area of the State, contain the vital elements of eminent productiveness. Dry, dusty and uninviting in the summer months, they are regarded as deserts by the thoughtless; but every drop of water produces a blade of grass, and a change in the character of the seasons, such as has followed the settlement of many of the Western States, would make Nevada one of the richest agricultural States in the Union.

Railroads and telegraphs, the turning of the soil, the smoke of furnaces and the increase of water brought from the depths of the earth and from distant points in the mountains, are all tending to summer rains. The volumes of our small rivers are insufficient for general irrigation, and our rich but arid plains are awaiting in comparative desolation such change as human life and industry may effect. But, deplete as our sagebrush plains may appear, they embrace some of the finest stock ranges in the world.

The editor of the San Francisco Chronicle recently conversed with an "intelligent gentleman" from White Pine county, in this State, and learns with amazement that over great portions of these plains "bunch-grass is found in great abundance, and is highly nutritious, affording splendid summer pasturage for cattle and sheep, while in the winter the white sagebrush is eaten with great relish by all kinds of animals. During the summer season, neither horses, cattle nor sheep will feed upon the wild sagebrush; but as soon as the frosts touch it, it becomes palatable and is an excellent pasturage and almost inexhaustible in its grazing capacity.

There are no snows of a sufficient depth to embarrass even sheep in outdoor feeding during winter months." The "intelligent gentleman" from White Pine did not misinform the editor of the Chronicle in regard to the value of our vast sagebrush plains as grazing lands, nor did he deviate from the truth when he stated that summer rains were becoming more frequent, and that grasses sown among the sagebrush would grow and thrive.

The Chronicle has also heard related wonderful stories of the profits of sheep-raising in this State, and says: "One gentleman, now feeding some 25,000 sheep, estimates that in five years his flocks will number 100,000 exclusive of the wethers that he will market during the time; his increase during the past year was ninety-six per cent. The sheep of this region are especially healthy and as a rule free from scab and other diseases that annoy the California wool grower. From this flock referred to the clip has averaged in weight six pounds, and commanded, delivered at the railroad, twenty cents per pound." This rather flattering reference to our grazing and agricultural resources concludes as follows:

"The impression has gone abroad that the hills and higher valleys of Nevada are unproductive and barren, but this is not the case, and already thousands of animals are sent there from California. There is also a large home market for beef and mutton at Virginia, Carson, Pioche and other large mining communities in that State. In addition to the sage and bunch-grass ranges there are extensive meadows, from which hay is produced in large quantities. Altogether, Nevada may be considered a good stock country, and the time will come when by irrigating the dry places and utilizing her streams and springs, she will take respectable rank among the grazing regions."

ALCOHOL IN BREAD.—It has been generally stated that the alcohol formed in dough during the process of fermentation is all expelled in the process of baking, but some earnest test-takers may be pained to learn that Mr. T. Bolas finds that a perceptible quantity of the intoxicating fluid may be obtained from so small a quantity as two ounces of bread. From the report of his investigations, published in the Chemical News, it appears that six samples of new bread, bought at shops in London, yielded from .221 to .401 of 1 per cent. of alcohol. After the bread had been exposed to the air in a moderately warm room for a week, two-thirds of the alcohol had evaporated. Mr. Bolas remarks that "the amount of alcohol contained in bread is too small to be of any dietic importance, but it may be, perhaps, worth while to notice, that forty two-pound loaves are about equal in alcoholic strength to a bottle of port. He hopes soon to determine the amount of alcohol which dough loses while baking. Our readers probably recollect that some years ago attempts were made in England to save the large amount of alcohol supposed to be lost in baker's ovens. A good deal of money was sunk in the experiment, but it was found that the amount and the quality of the spirit obtained were not such as to make the process remunerative.

The manufacture of glycerine has of late, in view of its constantly extending importance in the arts, been greatly expanded. During the past year the production in the United States reached 2,000,000 lbs. of which one firm in Cincinnati manufactured one-half. In a communication addressed to the French Society of Civil Engineers, M. Austin has highly recommended the employment of this substance as an anti-incrustator in steam boilers. Glycerine, which is soluble in all proportions of water, appears, according to M. Austin, to increase very notably the solubility of the lime salts, to which the evils of incrustation in boilers are mainly ascribable; indeed, according to the author, it really forms with them a soluble compound. When the lime salts accumulate to such an extent as to be no longer soluble in the glycerine present, they are deposited in the form of a gelatinous sediment, which does not adhere to the boiler surface. M. Austin recommends the employment of one pound of glycerine to every 300 or 400 pounds of coal burnt. From actual trials made with the material, it is declared in the communication that the employment of glycerine for this purpose, and in the manner above described, proved successful.

CINCERONA.—A careful analysis by P. Carles of the ashes of cinchona bark, from which the well known medicine quinine is obtained, shows that the bark contains the following substances: Insoluble silica, soluble silica, alumina, iron, manganese, lime, magnesia, potash, soda, copper, carbonic acid, sulphuric acid, phosphoric acid and chlorine.