

THE RALEIGH STAR.

"North Carolina—Powerful in intellectual, moral and physical resources the land of our sires and home of our affections."

RALEIGH, WEDNESDAY, JANUARY 23, 1850.

AGRICULTURAL.

SUBSOIL PLOUGHING.

A Prize Essay of the Westworth Farmer's Club.

BY THOMAS KIER SHORT.

As for the advantages derived from subsoiling much diversity of opinion exists, and, on the whole, very little is yet known. Some practical farmers maintain that it is labor lost, and money thrown away; others equally competent to judge, say that it is one of the most beneficial operations in farming, almost equal to a good manuring, and no system is complete without it. Thus we see practical men differ; both may be right and both may be wrong.

I can produce instances where the use of the subsoil plough has been attended with the greatest benefit, and others where it has been so much money thrown away. Many of its advocates are too much prejudiced in its favor, being under an impression as a matter of course, being beneficial to them, it must be the same to others; but this does not follow, for, like many other operations in agriculture, science must be called to our aid. Analysis is requisite, and chemistry solves the question.

A friend of mine subsoiled ten or fifteen acres of land which had been previously furrowed three inches deep—the land termed strong clay—the subsoiling being performed across the drains; two lands were left undone; the land sown with wheat, and red clover. The crop looked well all winter, except one end, which had been much damaged by game; the subsoiled part always keeping in advance of the other. The crop is now reaped, but not yet threshed. The produce of the subsoiled part is laid by competent judges, at fifteen bushels per acre over that undone, and was ready for the scythe ten or fourteen days before the other, which is of much consequence if a wet latter harvest sets in. The red clover on the two lands subsoiled attained the height of ten inches, from the thinness of the corn, and was shaken out for the horses; whereas that on the subsoiled land was only four inches high, from the luxuriance of the wheat crop.

Another friend subsoiled a similar looking piece of land a few miles distant. The greatest care was taken to perform the work well. The results were that no difference in the crop was perceptible, and that it was time and money thrown away.

These two experiments gave sufficient evidence to the contending parties for and against subsoiling to back their opinions; for in these two cases both were right and both were wrong, both being ignorant of the cause.

We will now examine the cause chemically, which will elucidate the question. Strong land contains large portions of a mineral called alumina, which is a very compact adhesive substance, possessing strong attractions for water and ammonia. An analysis of the soil where the experiment was successful, was found to contain twenty-eight per cent. of alumina, the soil resting on the red sand stone formation. The other soil where no good was derived, contained 45 per cent. of alumina, and rested on one of the worst of clays—the liae.

I was induced to try these analyses from having seen a paper some time back, in "The Journal of the Royal Agricultural Society," by Mr. Thompson, who is of opinion that no permanent good can be derived from subsoiling land containing more than 43 per cent. of alumina. I am inclined to think that 40 per cent. is the greatest to which the per centage should go; and, as an instance of this that the less alumina the land contains, the more permanent the advantage.

Land containing less than 85 per cent. of alumina, when ploughed after being subsoiled, and having produced a crop, turns up in a much better state, approaching more to a strong loam than clay, and is much easier to work; and I am of opinion that the cost of subsoiling is saved in the labor alone.

I have been much surprised to see strong land on the liae formation, which had been subsoiled, turn up the year following as compact and tenacious as ever, without a crack or any other mark in it to denote that it had ever been moved; and this can only be accounted for by the presence of alumina in such large quantities, which, being divided into very minute particles, having a very strong attraction for each other and for water, causes them to unite in firm as ever.

On the light or sand land I have seen great advantage derived from subsoiling also; but in this case we cannot allow alumina to have any thing to do with it, consequently we must look to other causes. At the same time I have seen failures equally as great on light soils as on strong clays.

As an instance of the benefit derived from subsoiling sand or light gravelly land, a level field was ploughed 7 inches deep with the common plough, and followed by the subsoil plough fourteen inches more; two lands were left undone in the middle of the field; the operation was performed in November, 1845. In 1846, the land was sown with Swedish turnips on ridges, the ridges crossing the subsoiling; the whole of the field was manured alike with bones and fold yard manure; nothing par-

ticular was noticed in the turnips until the bulbs began to form in the autumn, when it was evident those on the subsoiled land were growing the fastest.

Late in the autumn, in crossing the field, the two lands undone had the appearance of a hollow or valley across the field, being much less in both bulbs and tops, and four tons per acre less in weight. The barley also showed the two lands conspicuously, and the seeds this summer have stood the dry months much better than where the land was not subsoiled. I could give it some other evidence, but I do not consider it requisite.

We will now examine the cause of success and failure on light soils. It is well known that a soil may be rich in mineral constituents requisite for the growth of plants, but from the state of combination in which these minerals are found, cannot be assimilated by plants as food; consequently, in their present state, are of little use. Science teaches us how to bring these constituents into use, and the more we know of it the simpler we find the process.

These minerals, in their present state of combination, are termed "dormant," and in many cases only require exposure to the air for it is well known that the hardest rock in time becomes disintegrated by the action of the air, which is principally attributed to the presence of carbonic acid in the atmosphere. It is to the influence of this atmosphere, to which I attribute a large portion of the benefit derived from subsoiling sandy soils, but not entirely, as it is well known that the laws of gravitation carry all bodies heavier than the atmosphere downwards, consequently much of the valuable properties of manure are carried down into the soil, particularly a porous one, by percolation, and are after placed beyond the reach of the roots of plants ordinarily cultivated.

By the process of subsoiling, the air is admitted to a greater depth, and in larger quantities than before; the carbonic acid of the atmosphere comes in contact with a larger portion of these dormant constituents of the soil, and by chemical action forms them into a state for the assimilation of plants.

I am also fully convinced that much depends on the time of year when the operation of subsoiling is performed, particularly on sandy soils. As an instance of this, during the process of subsoiling early in January, the operations were stopped by frost; other circumstances occurred to prevent the completion of the field until the early March; the field was sown in turnips, which sold in the row where the stoppage took place, the others not being any better than the part left undone. I have often observed that the greatest number of failures on sand land have taken place from this circumstance.

The best period for subsoiling is from the end of October to the end of January, as the land has then the full benefit of frost and snow. Some persons run the subsoil plough down every furrow; this I do not think is necessary, and it prevents many who can only command three or four horses, from performing the operation at all. The system I recommend is to clear the land of weeds and rubbish as early in the autumn as possible, plough it once over, drag it deep, then throw the land into winter ridges with the common or double moldboard plow as deep as possible, after which run the subsoil plough down each furrow to the depth of fourteen or sixteen inches; nothing more is requisite until the spring, when it is prepared for turnips. If it is intended to subsoil for barley, the operation must be performed as soon as the turnips are taken off; but for wheat, the old system of the subsoil plough following the common plough down each furrow is all that can generally be done.

I am inclined to believe that many of the cases of wheat being thrown out of the land by frost, may in a great measure be lessened by using the subsoil plough, as I have observed that it never occurs to such an extent on land that has been subsoiled. It is caused principally by the expansion of the matter contained in the soil during the process of freezing; and, as most farmers are anxious to have what they term a firm bed for their wheat, the light soil which covers the grain expands when it becomes from the resistance of the firm soil below; but, where subsoiling has been practised, the water has a much better chance of escaping by being able to percolate the soil more rapidly.

Also, the deeper a soil is ploughed, a much better chance is given to the various crops to withstand dry weather, as it is well known to the gardener that the more he sows the soil between his crops in dry weather the less water they require; so it is with agricultural crops on a large scale. Some soils contain a pan or bed of hard concrete a few inches below the surface; and although the land may be free from springs, is often very wet from the surface water being unable to percolate. On such soils as this, the subsoil plough is invaluable.

I knew a part of a field of this description this spring which had been subsoiled; after the operation, between ten and fifteen tons of the hard concrete was carried off, the stones and pebbles being cemented together with oxide of iron. The operation has

been successful, and the land is now as dry as possible, even after the heaviest rains.

One great obstacle to subsoil ploughing is the great draught that some of the cumbersome subsoil ploughs require; in fact, in this age of invention, it has often occurred to me that the various implement makers seem anxious to cram as much cast metal and iron into their productions as possible, as if the railroads and other branches of the arts could not consume it; also, as much complication as possible is now introduced into the various branches of agricultural mechanics.

Those persons who are inclined to follow the practice of subsoiling, will find it to their advantage to attend to the following rules, if they wish their efforts to be crowned with success—

Strong clay, containing more than 40 per cent. of alumina, derives little benefit from subsoiling.

The period from the beginning of October to the end of January the best. Subsoil across the drains if possible.

Work the horses one before the other; avoid treading the subsoiled land as much as possible.

Look that your men do not alter the depth to save the horses.

Use only such instruments as are of the best construction and light draught.

Always see your implements tried and proved before you purchase.

FOREIGN NEWS.

14 DAYS LATER FROM EUROPE.

Rebellion in Austria and Turkey!

Rise in Cotton, &c.

BALTIMORE, JAN. 14.

The steamship Canada arrived at Halifax yesterday, with Liverpool dates to the 29th December.

The Canada brings over to this country one hundred and three passengers. She experienced rough weather on her voyage.

INSURRECTION IN AUSTRIA.

Accounts from Vienna and Berlin to the 22d December have been received; they communicate intelligence of the highest importance, nothing less than a formidable rebellion had broken out simultaneously in Serbia (a province of European Turkey) and in Slavonia (a province of Austria, lying between the rivers Drave and Danube.) The troops stationed along the boundaries of the Austrian empire, having coalesced with the insurgents, the military cordon of Austria on the Turkish frontier is at an end, and the retreat of the insurgents thus secure, in the event of failure to make headway against the imperial troops. It is said the Slavonians were fully assured of the support of the troops on the frontier, before they took up arms against the Government. These troops have hitherto been regarded as being the bravest in the service of Austria.

The force of the Slavonians already in the field, is estimated at one hundred and twenty thousand men, including the Austrian regiments which have joined the standard of revolt. This immense force is said to be hourly swelled by desertion from the Austrian regiments stationed in Peterwardien, Essek, &c.

This revolutionary movement originated in the military districts of Serbia, Peterwardien and Wileck, in Slavonia. It has been surmised that this formidable insurrection has been brought to a head through the instrumentality of Russian intrigue. The powers generally supposed to be ambitious of placing both Austria and Turkey entirely dependent upon its succor for an existence amongst the nations of Europe.

Russian agitation and Russian diplomacy is said to be daily developing itself. That haughty power is becoming more open and daring, and will, it is supposed, throw off the mask entirely at the proper time.

It is announced that the rebellion in Slavonia had its origin at Comorn, in Hungary.

ROME.

We have nothing of special interest from Rome, if we except the fact that the Pope refuses to return to Rome.

From India, we have the most cheering news, accompanied with large orders for the manufacturing districts.

ENGLAND.

The recent movements in Canada, on the subject of annexation to the American Union, is regarded with indifference in England. The subject excites very little interest.

Col. Webb, U. S. Minister to the Court of Vienna, has safely reached Liverpool, en route for the capital of Austria.

An extensive conspiracy has been detected in the City of Moscow, having for its end the deposition of the dynasty of Romanoff.

The coup-d'etat against the Czar was to have been attempted on New Year's day.

It is reported that Russia purposes concentrating all the disposal force of the Turkish frontier.

Austria, it is said, will garrison Poland.

FRANCE.

From France there is little of moment, The Journal du Havre announces that the American Cabinet admits the justice of M. Pousin's demand for indemnity.

LIVERPOOL MARKETS, Dec. 29.

COTTON—Prices have advanced 1d since the departure of the steamship Cambria. The following are the quotations of the committee of the Board of Brokers, viz: Fair Upland 6 1/2, Mobile 6 1/2, and Orleans 6 1/2. The market closes with an upward tendency.

FLOUR—Best American brands 2 1/2 to 2 3/4; ordinary 2 3/4 to 3.

WHEAT—Prices have advanced 2d per bushel.

CORN—White 29 a 30; yellow 28 a 29a per quarter.

SPECIE AND STOCKS—The bullion in the Bank of England amounts to seventeen pounds sterling. American Stocks continue firm.

THE REY CASE.

We have looked at the statement of Rey, to which we yesterday referred. The result of the deliberations of the Grand Jury has created much excitement in New Orleans. There seems no doubt of the counsel's guilt in the opinion of the New Orleans press. One of the N. O. papers says:

"The country will learn, with astonishment, that with testimony clear, copious and indisputable—to borrow the expression of one of the jurors, 'sufficient to send a man to the gallows if the crime warranted it'—the question of the guilt or innocence of Espana has been passed upon by the grand jury in a way, and accompanied by penalties unexampled in the history of these bodies."

The Washington Union has the shamelessness to assert that the decision of the Grand Jury was obtained by the connivance of Mr. Clayton, and by a bargain made by him with the Spanish minister. Are there no bounds to the recklessness of party? We are glad to see that Senator Downs, of Louisiana, has called for the papers in the Rey case. They will be forthcoming, we have no doubt, with great promptness, and make the Union ashamed of itself.

Rich. Rep.

ENGLISH CHILDREN.

Mrs. Kirkland, in some notes of travel in England, thus speaks of the physical management of children in that country:

"Pretty children one sees in abundance every where—and so nicely kept! It seems to us that nobody knows so well how to take care for the physique of children as the English. They feed them with the simplest possible food, and are astonished when they hear that our young folks share the rich, heavy, high seasoned dishes of their parents. Oat-milk porridge is considered a suitable breakfast for infant royalty itself; and a simpler dinner at one o'clock, the proper thing for children whose parents dine sumptuously at seven. Exercise is considered one of the necessities of life, and a daily walk or ride (not drive) in the fresh air, the proper form for it. It might be superfluous to notice anything so obvious if it were not that so many people in good circumstances, with us, neglect this, and keep their children immured in nurseries, or cooped up in school rooms, with no thought of exercise in the open air as a simple requisite. We wish nothing so much for these benighted parents, as that they should once become acquainted with the habits and principles of a well-ordered English nursery. A reform in that quarter is very much needed among us, and we know of no people so well able to be our instructors as the English, who have certainly brought the nursery system to great perfection, both as respects the comfort and advantage of the parents and children."

GOLD! GOLD!!

We gave notice in our last, of gold found in our Western counties, and we have seen specimens in the possession of N. W. Woodfin, Esq., of this place, of a mine in Cherokee, as beautiful and pure as any we have ever noticed from any mine in the State. The Messrs. Woodfins of this place, and Mr. McDowell, of Burke have sent on hands, and are making preparations to thoroughly test the properties of the ore and the mine.

We have never been able to account for the non-appearance or non-discovery of gold to any extent, in the counties west of the Blue Ridge, while it lies all along on both sides of them in abundance. We hope that it yet may prove as plentiful as in other portions of the State, a rewarding not only employment, but profit to the labor of our many idle hands a good part of the year all over the Western counties, and save them from the dreams of and trips to California, that land of golden visions and realities. Asheville Messenger.

CROW KILLING.

The Crows, at this season, roost in vast numbers near Newberry Court House, S. C. The South Carolinian says a hundred men went out recently, with guns, and killed 5000! The Mountain Banner confirms the statement, by informing us that one of the Editors was once in one of these Crow hunts, with a company of 20, who killed 1500 crows in one night. That was nicking them.

We learn from the Mountain Banner, that two sons of Rev. Mr. Page, of Rutherford county, were killed on the 22d ult., by the falling of a tree, near where they were chopping.

MISCELLANEOUS.

UNITY OF THE BRETHERN.

The Union and the N. Y. Evening Post (says the Richmond Republican) are at loggerheads. The Union, replying to the Post, says: "Now if the political antecedents of the editor of the Evening Post were not really so unfavorable, we might take some concern at his denunciations. But when we remember him as an old original federalist, and the lamponer, in doggerel verse, of the illustrious Jefferson—when we recollect that he has for years been an open and avowed abolitionist, at the same time pretending to be the most orthodox exponent of democracy, &c. &c., we really do not look upon his denunciations as very formidable, nor much to be dreaded." And yet, notwithstanding the "antecedents" of the Post, the Union fought side by side with that "old original federalist," "lamponer of Jefferson," and "open and avowed abolitionist," and had not a word of censure till he fell out with the Washington Union—Why, man, if you talk in this disrespectful manner of "old original federalists," you will have yourself in a hornet's nest forthwith. Cass, Buchanan, Taney, Ingersoll Hubbard, &c. &c. will be down upon you without mercy. Take away the "old original federalists" from the head of Democracy, and it would be a serpent without itsfangs.

THE CUBA EXPEDITION.

The Louisville (Ky.) Chronicle publishes a very extraordinary letter from Col. Gwinther, in defence of the attempt recently made by a force under his command, to effect a revolution in Cuba. He states that he enlisted quietly five hundred young Kentuckians. He justifies the enterprise as an honorable effort in behalf of Cuban liberty, but acknowledges that "mixed motives" influenced him and his companions. He professes to be "neither a Dugald Daigetty nor a knight of La Mancha." He compares Commodore Randolph's suppression of the expedition to Oudinot's crushing the Roman Republic.

THE MORMONS.

The 'Republic' and the 'Globe,' though having no sympathy with the Mormons, vindicate them from the charges contained in the memorial of Smith and Shean to Congress, which allege that they have taken an oath to avenge the death of Jo Smith, on this country, with a doping polygamy, and other immoralities.

ROSE COLORED SIENITE.

This rare stone, we learn from Captain Dewey, who discovered it, is found in Cabarrus county, not far from Mt. Pleasant. That gentleman left a specimen with us: It is a tough, hard rock, and is easily worked with a chisel. It is therefore very useful for crushing stones; and with raised letters makes a beautiful and most durable tomb stone. SALLIE WATCH.

LONG, LONG AGO, vs. WAGONS.

Fifty-six years ago witnessed the first rattle of a wagon wheel in the county of Buncombe. It was brought from New Jersey by Beaden and Zebulon Baird. It was so great a curiosity as an elephant or giraffe to an untutored savage! People dropped their plow and hoe handles, left their houses and gardens, or patches, and all ran to see "the wagon." Col. J. Barnett afterwards used to charge \$5 for helping persons to get wagons to Buncombe. His plan was on the hill sides, to put both hind wheels on the lower side and to tie saplings to the axles to keep them from turning a somersault! The first road to or across the mountains from South Carolina to Tennessee, was opened out by Col. E. Earle, who was employed and paid to do it by the State of South Carolina for \$2,000. If any one wants to know the whereabouts of that road, and will go to the highest hills and ridges in our country he may find it. Getting up a hill was never thought about in ancient road making—the idea was always, first and last, to get on a long ridge!

B. & Z. Baird brought the first goods that ever came to Buncombe. A Jewish sharp in those days created as great a sensation as the telegraph, or a railroad across the Atlantic now!

An old friend and citizen in town, had a Jewish sharp given to him, which forever immortalized the giver in his estimation, and produced as much gratitude as "Yankee Doodle" would produce merit from upon that instrument, from the lips of that gentleman, in the midst of his friends. We expect in future to gather up incidents of the olden time in Buncombe, and give them to our readers.—ASA. MESA.

DIBBLE'S IMPROVED STEAM-BOILER.

We have been shown the model of an improved Steam Boiler, invented by Richard E. Dibble, Esq., who is now about obtaining a patent; it is well worthy the attention of engineers. Not being sufficiently conversant with the subject to express an opinion in detail upon its merits, we submit the following letter from an eminently scientific gentleman, who has examined the improvement, in which he recommends it very highly:

REPUBLIC.

COLLEGIATE INSTITUTE, ROCHESTER, Nov. 13, 1849.

I have examined the plan of an improvement in the construction of steam boilers for locomotive, marine, and stationary engines, invented by Richard E. Dibble.

The object of the inventor is to effect a saving of fuel in generating steam, and also an increase of speed on railroads, steamships, and boats.

Mr. Dibble's plan is as simple and easy of construction as the present at the least, and promises far more efficiency. It is as follows:

The outside of the boiler is composed of sections or apartments for water, each communicating with the other by tubes, through which the water circulates. These sections are so constructed that the boiler can be taken to pieces, for transportation or for repairs, and be readily joined together.

The interior contains a large number of tubes, each forming a curve or angle, and its upper end opening into the steam chamber at the top of the boiler, while the lower end of each pipe opens into the water-box or reservoir surrounding the boiler, and from which the pipes are supplied with water.

The fire grate is placed in the interior of the boiler, directly under the tubes, so that the fire passes through the interior of the boiler and acts on the tubes, containing water in the most direct and easy and rapidity. The interior of the boiler will thus be filled with a sheet of flame surrounding the tubes, and effecting a more complete combustion of the fuel than can result from the division of the flame by its passing through small tubes in the common mode of construction.

After a careful examination of Mr. Dibble's plan it is, in my opinion, a great improvement upon other modes of construction of steam boilers, and must accomplish the object he designs to attain.

There will be a greater amount of surface upon which the fire acts to convert water into steam, and the fire acts to the best advantage in effecting the change to vapor. The combustion of the fuel must be more complete from continuity of the flame, and, especially, must any inflammable gases and uncombusted carbon or charcoal be consumed in the boiler, where the combustion can produce any valuable effect, instead of escaping through the doors into the air.

There must, on this construction, be a great force saving in fuel, and a higher expansion of power of steam.

C. DEWEY, Professor Chem. &c.

KEEP OUT OF DEBT.

Poverty is a bitter draught, yet may, and sometimes with advantage, be gulped down. Though the drinker make very free, there may, after all, be a wholesome goodness in the cup. But debt, however courteously it be offered, is a cup of aizen, and the more sipped, and delicious though it be, eating poison. The man out of debt, though with a flaw in his jerkin, a crack in his shoe-leather, and a hole in his hat, is still the son of liberty, free as the singing lark above him; but the debtor, though clothed in the utmost bravery, what is he but a serf out upon a holiday—a slave to be reclaimed any instant by his owner, the creditor! My son, if poor see the wine in the ruing spring; let thy mouth water at a last week's roll; think a threadbare coat the "only wear," and acknowledge a white-washed gutter the fittest housing-place for a gentleman; do this, and see debt. Shall thy heart be at peace, and the sheriff be confounded.

THIEVES' CONVENTION.

A Thieves' Convention has been held in London for the purpose of adopting measures to procure an honest livelihood. Two hundred and seven avowed thieves attended. The meeting was opened with prayer and a hymn. An address was proposed to Lord Ashley, asking if any hope was presented of their obtaining an honest living in the British Colonies. His Lordship expressed his willingness to befriended them, as it was his duty to do. He candidly told them that there was little hope for them, unless they turned their attention to the back settlements of the New World.

"We must steal or die," was the response of one of the thieves; "prayer is very good, but it will not fill an empty stomach."

RAIL ARRANGEMENTS.

Raleigh, Sept. 20, 1849.
Northern Mail—By Rail Road, Due daily at 9 p.m. Closes at 11 1/2 a.m.
Southern—Two horse Stage, due daily at 11 a.m. Closes 12 m.
Greensborough—Four horse Stage, due Monday, Wednesday and Saturday at 6 a.m. Closes Sunday, Wednesday and Friday 12 m.
Newbern—Four horse Stage, due Tuesday, Thursday and Saturday at 11 p.m. Closes Sunday, Tuesday and Thursday at 9 p.m.
Tarborough—Two horse Stage, due Monday, Wednesday and Friday at 10 p.m. Closes Monday, Wednesday and Saturday at 9 p.m.
Pittsburgh—Two horse Stage, due Monday and Thursday at 7 p.m. Closes Saturday and Tuesday at 9 p.m.
Roxborough—One horse mail, due Friday at 9 p.m. Closes Friday at 1 p.m.
Holly Springs—Horse Mail, due Monday at 4 p.m. Closes Thursday at 9 p.m.
Letters should be in the Office fifteen minutes before the time of closing.

WILLIAM WHITE, P. M.

Raleigh, September 20th, 1849.

For the Raleigh Star, Randolph Macon College, Dec. 21st, 1849. Mr. Editors: The semiannual examination at this institution closed to-day. We have had a very pleasant and profitable session. Our students acquitted themselves well at examination. The chemical laboratory has been supplied with apparatus, at considerable expense, and Professor Stuart, of this department will enter upon the duties of his chair, the next session, with fine advantages. The present incumbent of the Mathematical chair, Mr. J. C. Willis who entered upon his duties in September last, gives entire satisfaction. His classes exhibit fine progress.

The Spring session will open on the sixteenth of January next. Our corps of Professors and Teachers in each department of College—Preparatory and College proper—is now complete, and entitles our Institution to a full share of public patronage.

W. A. SMITH, Pres.