to decompose the wood and cause all its parts that are volatile to rise in the form of steam and smoke, and these, under the influence of heat, will combine with the air of the atmosphere and form new compounds which will all be dispersed and lost.

If the fire is made under a chimney, a part of these volatile products will be condensed by its lower temperature, and will show themselves as black soot, while the ashes left on the hearth will consist of the earth, metal, and potash, which are neither volatile or combustible, under the degree of heat made use of; and if the soot could be cleanly collected or scraped from the chimney, its weight must be added to the ashes, and this would show the visible quantity of the 100 lbs. of wood that was left behind.

Let us now suppose, that instead of consuming our 100 lbs. of wood by burning it on an hearth or on an open fire, we adopt the plan that is resorted to for making charcoal for the manufacture of the best gunpowder. In this case the 100 lbs. of wood is put in an air-tight iron cylinder, set in brickwork in such a manner that we can kindle a fire round it and make it red hot. The cylinder would soon burst with the violence of a bomb shell, unless a vent-hole was made in its upper part, to allow the volatile products to escape, and yet these very products are identical with those that arose in our former experiment, in the form of smoke, without any appearance of effort or violence, because they were then unconfined. Now, instead of our vent-hole being left a mere hole, let us apply a close pipe to it and let that pipe be coiled round like the worm-pipe of a common still, and be placed in a refrigerator or worm-tub, filled with cold water like a still, and the vapor that blows out, will now be (to a certain extent) condensed and converted into a fluid form. The first product that comes over, under the influence of the heat, will be the sap or water of the wood, and the acid before held in combination with the potash or alkali, which being also very volatile, will arise and combine with the water, rendering it quite sour, and to this will be added the resinous and oily part of the wood, which, when cold, assumes an appearance like molasses, but which is in fact wood-tar. They will, however, all distill over together, forming a dark brown liquor with a decided odor of wood smoke; and this fluid is crude or unpurified Pyroligneous acid. The quantity will be considerable, and can now be weighed, although it was all lost in the air by the former process. This very liquor, every farmer and housekeeper is in the habit of making, by a more round about and wasteful process, without being conscious of it. It is in fact the condensation of the smoke upon the bacon, hung up in our smoke houses, when we burn materials for its production; consequently the distilled Pyroligneous acid will produce the same effect in a few hours, if we wash or anoint our meat with this fluid, because it is in a more concentrated state. In this, I speak from experience, having several times used it in this way. If this impure Pyroligneous acid is again carefully distilled at a low temperature, it can be separated from the tar, which, thickened by boiling, is brought to the proper consistence of tar for ordinary use, while the fluid that passes off is the strongest and best flavored vinegar that is manufactured.

We shall moreover find, that all the products discharged from the wood, and which pass off through our pipe, are not condensible by cold, but assume the form of air, and will rise to the top of the distilled fluid, and if that air is received in a close or air-tight vessel, it may be conducted away, and may be saved and weighed, and will be found to be Carburetted Hydrogen Gas, the material now so extensively used for lighting up cities, public buildings, and private dwellings, for this gas may be conducted by metal pipes to any distance, and will issue through minute holes, made wherever we please, in the pipes, and on approaching them with a lighted taper, the gas will burn with a steady flame, far exceeding in brilliancy of light any lamp or candle that can be made; and our vinegar manufactory can be brilliantly lighted up with one of the products of the process which is always wasted or thrown away when we burn wood in an open fire. The reason of this is, that all wood that will burn with a flame, must contain Hydrogen—that Hydrogen is disengaged when we decompose the wood by heat, and is converted into Hydrogen gas, which is very combustible, but burns with a pale, lambent flame, nearly devoid of illuminating power, but when Hydrogen gas is combined with Carbon, it is called Carburetted Hydrogen gas, and burns with extreme brilliancy,—and this combination is effected by a portion of the carbon of the wood, rising in vapor, and combining with the hydrogen as it is evolved or given out. The same thing occurs in every open wood fire, for burning wood only blazes on account of its giving out this same gas which is ignited by the heat. So long as any hydrogen exists in the wood and is given out, our fire will blaze; but when it is all exhausted, nothing but carbon or charcoal remains, and this will give us a hot fire of embers, but without flame, unless indeed there be a flickering flame, of a splendid blue color, hovering over the fire, which is produced by another gas, called oxide of carbon.

Several products of minor importance will be produced by this process of close distillation of the wood; and as neither wood or any other combustible can burn away and be consumed, without what chemists call a supporter of combustion, which in all ordinary cases is the oxygen that is contained in the air of our atmosphere, so, if that air is shut out from a burning body, that body can no longer burn. It is for this reason that a candle goes out when we put an extinguisher upon it, or that a fire is quenched by covering its fuel with water. Now, the 100 lbs. of wood that were put into our close iron cylinder, had no supply, (or at least a very small one in the commencement of the operation,) of atmospheric air, consequently, notwithstanding that wood was kept red hot in the cylinder for hours together, it would be incapable of burning away. The cylinder is therefore allowed to cool, when it is unscrewed, and now all the wood can be taken out, without any diminution of bulk or change of form; for all its annual rings, sap vessels, pores, and fibres will be as perfect as ever, and yet the whole will be found converted into perfectly *bright black charcoal*, and if now weighed will be found deficient of the original weight of the wood used, only by the weight of the water, pyroligneous acid, tar, and carburetted hydrogen gas that had been extracted from it, for now nothing has been allowed to escape. The charcoal is now bruised and soaked in warm water to dissolve out the potash or lie, which can be weighed, and thus the precise quantity of every element or ingredient that entered into the wood can be weighed and ascertained.

In the former experiment all these products seem to have been lost, but we must not believe this to be the case, for the same things are produced, whether the wood be burnt in the open air or in the iron cylinder, with this difference that in the first experiment much of the operation is invisible, and the products seem wasted in the air, while in the latter they are confined and kept subject to an examination. Still, however, the air has no occasion for them, nor will it retain them; they merely float about in it for a short time, and are then precipitated, or dropped down upon the earth again, though in a very divided, and therefore invisible state.

Decomposition, in its chemical sense, is the act of taking compound things asunder, so as to reduce them to their original simple elements, and this is done in two ways, viz. artificially, and naturally. In the experiments I have just referred to, the process was an artificial one, being accomplished by the application of heat, (and the practical chemist has many more methods of producing the same end,)—the natural process is *decay*. All things, if left to themselves, will perish and decay, and this is the process of decomposition adopted in the grand laboratory of nature.

Chemistry clearly teaches us that the elements of which all things are formed, are merely *lent* to them for a time, to serve the period of their natural existence, and this being accomplished, the materials are not wasted and thrown away, but are carefully restored to their parent earth, to be used again and again in a chain of endless existences, and thus, when a plant or an animal dies, decomposition and decay soon follow. By this, the elements are uncombined and separated more perfectly and completely than they could be by the skill of the most profound chemist.

Respiration or breathing, and combustion or burning afford curious instances of natural decomposition. The air of our atmosphere consists mainly of a mixture of Oxygen and Nitrogen gases, in the proportion nearly of one volume or measure of the first to four of the latter, without variation in any country or location; and these gases can be separated, and are then found to have very different properties. Oxygen gas is absolutely essential to all burning or combustion, and is equally essential to the support and continuance both of animal and vegetable life; for no living creature can exist without breathing it, nor can a plant grow and flourish without it; on which account our all-wise creator has caused it to be always present in the atmosphere. Yet such are its stimulating powers that, breathed in a separate state, although at first the effect may be pleasing, it will soon produce fever and death. The other gas, Nitrogen, will not support flame or animal life for a moment. A lighted candle put into it, instantly goes out, and any living animal, so treated, would as suddenly die. Not that this gas contains anything corrosive or poisonous, but that it is not a supporter of life and combustion. Water is equally innocent, and contains no poisonous principle, but if received into the lungs, as in the case of drowning, it produces death just as nitrogen does, by excluding the necessary supporter of life and combustion; yet when these two gases are mixed in the proportion of 4 to 1, they mutually destroy each other's deleterious effects and produce that pleasant and wholesome pabulum, atmospheric air. The moment we light a candle or kindle a fire, we disturb, to a certain extent, the composition and purity of that air, for its oxygen is extracted from it to support the combustion, and nothing but the nitrogen gas is left behind. The oxygen does not, however, combine with the fuel, but with its carbon, and carbon and oxygen, when mixed in the proportion of 1 of the first to 2 of the latter, produces Carbonic Acid gas, formerly called fixed air, which is just as obnoxious to combustion and animal life as the nitrogen gas. When anything is burnt in a limited quantity of atmospheric air, that air will be changed into a mixture of nitrogen and carbonic acid gases, and will become incapable of supporting future combustion or animal life.

I may remark here that a curious similarity as to these effects exists in combustion and respiration, or the act of breathing; for man, and every animal large or small that breathes, destroys the air of the atmosphere in precisely the same manner; a man and a lighted candle are very nearly equal in producing this effect, for each will destroy, or at least render unfit for future use, about one gallon of atmospheric air in one minute. We take the air into our lungs whenever we draw in our breath, and we immediately afterwards expel or drive it out again. The air we took in was a mixture of one part of oxygen with four parts of nitrogen, that which we breathe out consists of the whole of the nitrogen, but without any mixture of oxygen gas, the deficiency of which will be exactly replaced by an equal quantity of carbonic acid gas. As this process is constantly going on, the air will become so rapidly spoiled that we see the necessity of good and perfect ventilation or change of air in all rooms and close places, when many persons assemble, and especially if that assemblage is at night, when lamps and candles are necessary for producing light. If the air is not constantly changed a repetition of the dreadful tragedy of the Black Hole at Calcutta, where one hundred and twenty-three prisoners of war expired in one night, by being shut up in this prison without ventilation, must be expected.

When we consider the age of the world—the number of living creatures that have existed from time to time, and the many lamps, candles and fires, that have been consumed, each perhaps on a rough average, spoiling a gallon of air in each minute, we are naturally led to the conclusion that our atmosphere must be much less pure now than it was centuries ago. And yet, from chemical examination of the best proportions of oxygen and nitrogen gases to support life and vegetation, there is every reason to believe that the breezes we now enjoy, are just as pure and perfect as those that were wafted over the garden of Eden, before any of these processes of deterioration had commenced. Nature must therefore, possess some powerful self physic by which the atmosphere has been preserved so long. *That physic is the vegetable kingdom.* By a beautiful ordinance of our maker those things that are unnecessary and detrimental to animal existence, are the necessary food and sustenance of the Vegetable world, and are greedily absorbed and taken up by it (principally by the leaves) while the roots are searching for what the earth can furnish. This will perhaps be better understood by an example. I will take an acorn weighing one eighth of an ounce and put it in the ground, in a few years I shall find it a tree higher than myself and weighing many pounds, in wood, sap, leaves, bark, and other products, of which the wood and sap will be the most ponderous. From whence has all this matter been obtained? Admiting the two laws of chemistry before mentioned, the tree cannot have formed its own elements, but they must have been furnished from those things in contact with the growing plant, and these were alone the soil and the surrounding air. We shall have no difficulty in accounting for the formation of the sap and water in the wood, for that is merely a retention of some of the humidity that has fallen upon the ground as dew or rain, and a portion of that water may be decomposed by the vital action of the tree and converted into hydrogen and oxygen, thus supplying some of the hydrogen to the wood which is necessary to cause it to burn with flame when ignited—but carbon is the chief ingredient of all wood and of all plants, and from whence has this been derived? the earth, if pure, contains none of it. But whenever plants of any kind have grown and died, their leaves and stems will fall and become mixed up with the earth, and will in fact be one of its coloring principles; and as these consist chiefly of carbon, of course such earth will contain it, and will be ready to give it up to such plants as may demand it; and thus some of it will be furnished, though there is little doubt but that the largest quantity of carbon is derived from the air, which from the causes before referred to, will always contain much carbonic acid gas, a gas so much heavier than atmospheric air, that it always seeks the lowest places on the earth's surface; and here it is that vegetation is most abundant. The leaves of plants are the active absorbent organs of gases—carbonic acid gas is, however, a combination of carbon, and oxygen, and this the plant absorbs, but the carbon is alone necessary for its growth and development; and the vital functions of the plant enable it to separate them, and to retain and assimilate the carbon, while the oxygen (being useless) is set free and returns again into the atmosphere, thus maintaining it for ever of its original purity. This is but a single instance of the many wonderful and beautiful workings of nature in supporting organic life—and the more we study and investigate them, the more we shall be convinced of the identity or similarity of animal and vegetable life. We are compelled to admit that plants feed or imbibe nutriment both by their roots and by their leaves; that plants may be overfed or can be starved—and that they have their likes and dislikes, and that while some nutriments agree with and nourish them, others have a decidedly opposite effect.—This is no longer matter of hypothesis or supposition, but is proved by the test of chemical analysis. Chemistry points out several easy processes by which not only soils but plants also, may be analyzed, so as to expose to us not only the elements that enter into their composition but their proportional quantities likewise. Suppose that we so analyze a plant abounding in oil or rosin, that plant will be found to contain a large proportion of hydrogen and carbon, and if we attempt to grow such a plant upon a soil that contains neither of these necessary elements, the plant cannot obtain them and must be starved; or in other words cannot thrive and come to perfection. In like manner wheat and corn (and the grains generally) have a hard shining external coat or bark which upon analysis will be found to consist almost wholly of silex or flint. If, therefore, we should attempt to raise such plants on soil that held no silicious or flinty sand in its composition, such plants must fail. The great secret that has been laid open to us by studying Agricultural Chemistry is, that the soil must contain all, or most of the elements that are to enter into the composition of the plant to be grown upon it, and then we shall ensure strong and healthy vegetation. To see that this is the case we must analyze the plant by chemical means, and then the soil must be analyzed to ascertain that it contains at least all the elements necessary to the plant—if they are present we may safely proceed, but if they are not, we ought either to desist from attempting the growth, or if we do it we must previously prepare the land by dressing or manuring with any material that will yield and furnish the necessary elements: for this is the true philosophy of applying manure, and without previous analysis, much time and money may be thrown away without any beneficial result to the land. If land is deficient in lime, it must be manured with burnt limestone, or marle, or old mortar rubbish, or unburnt bones in a crushed state—should it be deficient in Carbon, then fallen leaves or decayed wood and stalks of plants will be beneficial—should potass be deficient, surface burning, or wood, or bone ashes will be necessary—and should the land prove deficient in nitrogen, animal refuse and stable manure will afford it in the greatest abundance. Without previous knowledge, and analysis, we throw away much valuable time and money in manuring, and instead of doing good may do harm—we may incorporate manure with our land that the crop will not want or require, and consequently will not take up when it is growing, while we may leave out that ingredient that would have been most important—we may add lime, or nitrogen, or any thing else to land that is before redundant in the same material.

Many of the facts well known, but not understood in older husbandry, are beautifully explained by the application of chemistry. Thus it has long been known that if we continue to grow the same crop year after year upon the same land without proper manure, the growth will become weaker and will at last entirely fail. In this way much of the land of Northern Viginia has been what is called *worn out*, and made good for nothing by constant crops of tobacco. To obviate this, another system has been resorted to in many places, and is allowed to be highly advantageous; that is a change or rotation of crops, alternating green and grain during four years, and then a year's fallow. The advantages arising from this mode of culture is, that different plants take up different kinds of food or nourishment from the soil, and by having annual changes, that nutriment which has perhaps been nearly exhausted in the first year may not be required or sought after by that growing in the next year, and so on in succession while the year of fallow or idleness, is to allow nature to recruit the land, while nothing is taken away from it. But even this has become unnecessary; because chemistry teaches us how to repair and maintain the land, (provided the necessary materials can be procured) more effectually than fallowing will do it.

As all plants draw largely upon the earth for their support, it follows from the principles already established, that if they are allowed to grow and die upon the soil they will on their decomposition, yield back all the elements they have taken away from it. But experience teaches us that they do much more. Much of the matter of a plant is derived from air and water, and all this will be given back in addition to what is derived from the soil; and hence we obtain an explanation of the advantage of ploughing in clover, or other growing plants, or even the stubble of the cereals. By a like chain of reasoning we find that all such plants as make no return of what they have borrowed, to the soil, must be very impoverishing crops; and flax is one of this description; because when ripe it is pulled up, root and all and carried away—and scarcely so much as a leaf is left upon the ground. To make the flax useful, it has to be carried to a running stream of water, and is left in it for some time for the purpose of *retting* or rotting, or in other words dissolving all parts of the plant, except the strong fibres which are alone wanted for manufacturing thread; and consist of little more than *Lignin* or the matter of wood, which being chiefly carbon, might easily be restored to the land by decayed leaves and other vegetable matter. All the other materials of the flax plant are dissolved or suspended in the running water, and this very water is found to be highly beneficial to any land it runs over—it indeed contains the very elements most necessary for the reproduction of the flax plant, with the exception of a small deficiency of carbon, and therefore would be the most suitable manure for a flax plantation, if it could be pumped or otherwise conveyed back to the land that produced it; and in such case, flax would no longer maintain its character of being an impoverishing crop. Every plant that is taken wholly from the soil without being allowed to make any return to it must be of this character.

The whole business of Agricultural Chemistry is therefore simply to search for the component parts or elements of the plants we desire to raise, and to ascertain if the soil, aided by water, air and light, can furnish them. If it cannot, then we must supply the defficiency of the soil by furnishing it artificially, in the form of manure, with such materials as it stands in need of. The apparatus and materials for making these investigations is neither costly or difficult to procure, and the operations themselves, will be found after a little practice, easy and within the scope of the intelligence of almost every person of ordinary perseverance.

So far, our attention has been directed alone to vegetable productions. But the business of the Farmer is to raise and improve cattle, as well as the various useful plants; it may, therefore, be asked "has Agricultural Chemistry any connection with living animals?" We need not go far into the subject to convince ourselves that it has a most intimate connection. Upon the great chemical principle before refered to—that no new element can be produced or introduced into any thing; plants can contain nothing but what they derive from the soil, and water, and air—so animals that live upon vegetables can contain nothing but what they derive from that food, with air, water and light, which all assist in carrying on the vital operations—a great similarity as to elementary formation ought to run through both the vegetable and animal kingdoms, and this is actually found to take place. Some animals, however, feed on each other, or are carnivorous; but, like man, these animals prefer that animal for its food that has lived on vegetable diet, to such as are flesh eaters. But if the flesh eating animal lives upon the grass or herb eater, he can have nothing in his constitution that did not primarily exist in the herbivorous animal, and that, in like manner, can contain nothing but what was furnished to it by the vegetables upon which it lived. The appearance of grass or of wood, and leaves and flowers is so different from bones and and flesh, and fat and blood, that no one would suspect their identity of composition; but chemistry shows us that they all consist of nearly the same elements combined in different ways and proportions. In the animal and vegetable kingdom, the essential elements are few in number, consisting in the former of but four, viz.: Carbon, Hydrogen, Oxygen, and Nitrogen; while in the latter the same elements exist, except that nitrogen is not constantly present. Many other elements enter into combinations, but they are not general like those that have been specified. Thus, Sulphur is always found in fowls' eggs; Iron in the blood of animals; Oxigen gives acidity to many plants; and when Nitrogen and Hydrogen unite, Ammonia or Hartshorn is the result. This compound is not necessary to animal life, but is quite essential to many vegetables, and shows the necessity of having recourse to animal manures in some cases, for such manures, according to circumstances, will furnish carbon, nitrogen, and ammonia.

In fact, the study of organic chemistry teaches us that we have nothing to waste; that all our clothing and food, both vegetable and animal, is primitively derived from the Earth, and must, after it has for a time been performing the functions of life, be restored to its origin again, in order that it may be used in endless succession for the support and maintenance of new and future vegetable and animal lives. The farmer, who is a chemist, will know better how to manage his Bread and his fermenting Liquors. He will preserve his yeast; he will convert his wood ashes and his spare fat into good and useful soap; he will not allow a bone or a shell to be thrown away, knowing that in countries where Lime is scarce, these are a valuable subsitute for it; he will be careful not to permit rain to fall upon his manure pile, (unless placed in a pit,) so that none of its valuable materials may be dissolved and run to waste; and he will even save the soap suds of his household washing, by throwing them on his muck pile, or distributing them upon his land, for they contain elements useful to it. I might proceed with other instances of apparently trifling operations, by which a knowledge of chemistry confers advantages upon the Farmer—but I have trespassed too long on your time and patience, and beg to thank you for the attention you have favored me with.

I have, from the nature of the subject, been compelled to be general in my observations, and were I to talk much longer, I should be unable to give you any particular instructions: for they require some previous knowledge of Chemistry. It is on this account that in our course of Instruction on these points in the University of Mississippi, the first or Junior session of Chemistry is devoted to an acquirement of the general principles of the science, while the second or Senior year will explain the use and application of those principles to the practical and useful purposes of life; and among these, its applications to agriculture stand pre-eminent, and will receive much attention. It is, I can assure you, an interesting, useful, and beautiful branch of science, and one which, I hope, will be fostered and encouraged by the Agricultural Association of Lafayette county. To that Association I shall ever be ready to lend a helping hand, as far as lies within my humble power; for it has my ardent wishes for its prosperity and success. Persevere, and relax not, my friends, and your labors must be crowned with success; and I hope I may be permitted to see the day when this Northern part of Mississippi, (hardly yet laid down on our maps—which but a few years ago was but a lair to the wild Indian, and the town of Oxford unknown 20 years ago, but now boasting its University, Schools, and Churches,) shall become one of the proudest boasts of its parent State; and with this ardent wish, I say farewell!

THE GREAT QUESTION.—There is a cordial and unanimous feeling in some parts of the South on the important subject of abolition encroachments, which, under the circumstances of the case, is surprising, and not the less gratifying. Our whig brethren espouse the cause of reason and the Constitution with as much warmth as the Democracy, whereby our whig brethren seem to show their repentance for having unadvisedly given strength to the abolitionists at the late Presidential election. This is particularly the case in Alabama. The Marion (Ala.) Review condemns the course of some southern whigs in respect to the southern members of Congress to their constituents. The Review sustains the principles, views and language of the Address, and calls upon the people of Alabama in strong terms to sustain it.

A meeting was held at Eutaw, Greene county, Ala., on the 9th inst. The Mobile Register says it was a union of the strong men of both parties. The individuals who took the lead in the proceeding belong indiscriminately to the Democratic and Whig parties—among these was Sydenham Moore, a member of the Democratic Convention at Baltimore, which nominated Cass and Butler, and Mr. Murphy, who was on the electoral ticket for Taylor and Fillmore. The Address and Resolutions were unanimously reported by a committee of 21 members, of whom ten were Democrats, ten were Whigs, and one was a Taylor Democrat, and their Report was unanimously adopted by the meeting.—*N. O. Courier.*

The Organizer.

BENJAMIN F. DILL, *Editor.* WILLIAM DELAY, *Printer and Publisher.*

OXFORD, MI.,

Saturday, May 19, 1849.

DR. MILLINGTON'S ADDRESS.—This able and highly scientific paper excludes many original and selected articles, designed for the "Organizer" this week. We hope its length will not prevent any one from reading it.

☞The Marshall County Democracy have nominated QUITMAN for Governor, and BARTON for Congress.

☞Gen. WHITMORE withdraws from the Canvass for Attorney General.

☞The Hon. S. S. PRENTISS, of New Orleans, declines, on account of bad health, to accept the invitation of the two Literary Societies of the University of Mississippi, to deliver the Commencement Address in July.

CONGRESSIONAL CANVASS DECLINED. COL. ANDERSON, OF DE SOTO.—It will be seen by the following letter from Col. ANDERSON, of De Soto county, that he declines to be considered an aspirant for the Congressional nomination. His letter is appropriately short, modest, and in excellent taste. He is a man of decided talents and moral worth, and an unyielding democrat—The democracy of this district will soon find occasion to call him from his *"quiet obscurity."*

HERNANDO, May 11, 1849.

MR. B. F. DILL:—

I observe in a recent number of the "Organizer" a communication from a correspondent in this county, suggesting my name in connexion with the candidacy for Congress in this District. Your correspondent, I have no doubt, is one of a few friends who contracted a partiality; and imbibed kind feelings for me in other and very different excitements than such as would probably attend a political canvass. That partiality has perhaps misled him with regard to my aspirations and desires. For the flattering terms in which he has seen fit to make mention of me, I thank him kindly, but must ask to withdraw my name from the list of competitors—preferring quiet obscurity to unmerited fame.

I am your friend and ob't s'vt.

J. PATTON ANDERSON.

SPLITTING THE DIFFERENCE.—A nice young gentleman, not a thousand miles from here after a long and assiduous courtship, found himself, one bright evening, the betrothed of a pretty girl, the very pink of modesty.—One night he was about to take his departure, and after lingering about the door for some time, in a fidget of anxiety, declared and protested to Miss Nancy, that he could not and would not leave, until she kissed him. Of course, Miss Nancy blushed beautifully red, and protested in turn, that she could not and would not do that. She never had done such a thing, and never would until she was married—and now he had it. The altercation and debate became deep and exciting, until the betrothed buffed outright, and declared if he couldn't kiss her he couldn't have her,—and was marching off. She watched him to the gate, and saw "the fat was in the fire," unless something was done.

"Come back, then!" said she, coaxing, "I'll split the difference with you—*You may squeeze my hand!*—N. Y. Knick.

ARTESIAN WELLS IN WISCONSIN.—In Fond du Lac, Wisconsin, they had bored to about 150 feet only and found a good supply of water. It is of a high soft quality—sometimes a little impregnated with sulphur—and is delivered at the surface or as much above it within 30 feet as is desired. The cost is comparatively small. Contractors deliver it at the surface, finding everything, for $100. The boring is done by two men with entire ease, whatever may be the depth. A slight stratum of rock, commonly not over three feet, is passed. This is worked through with a drill, to which a cable rope instead of rods is attached. The bore is lined throughout with sheet iron pipe, which follows the drill as fast as it proceeds.