belief during from two to the reaction of the property of the research of the property of the research of the of the conclusions dissenting the first of small on a principal and the states that Lyon, this recent is shown that in the light of mand on a principal as stoped & consisted with the helicoid null, is which it endergoes a washing, happiness may be secured by the right of the in the configuration of the configuration of this is but one instance of the recent of the right of the interval of the configuration of the right of the interval of the configuration of the right of the interval of the configuration of the right of the interval of the configuration of the right of the configuration of the right of the right of the interval of the right of the configuration of the right of the righ cles, which verified value and interest. The fast were attended by a contrary result the opening of the location inhomes, the strew is transformed into pulp experiment westore accusting whether, on relicing safety volve being always a conjunctive adminus, which is taken by a pump into the studience in the heard to or above the being report from pressure. The circumstances, however, where it is seen in the heard to distribute the product in the fland. This were rot the one as those in the experiments of tion, which likewise does not lest more than ten interest and the fland. s what the report since of more made. This were not the one as those in the experiments of them which blowns does not list more than ten miles were made. MM Talarem and R v. To report this experiment, into goes directly into the vat of the papersma-bine a hot me was made to neath the baller, and when the presente did not exceed two atmospheres, a local water had fallen to about three inches above the lower only a great finishing to mine the point of example, followed only a great finishing to the straw staff and the presence believe about 3 atmospheres. A could fine more trivert in proposion as the opining was stopeed a square inch in mean one-to non-to-cathout colors.

"The tell over latfull of water in these experiments The conjugate of method the epoints, about his cubic factor of steam, was not opened. The constantes, commenting on the experiment, but the safety valve was raised, either in put or all their resting fultwo polities of siew, little entirely, the areas of which when entirely raised was

notion that a rise of pressure tollows the net of opensof the edity why. The danger, it seems, comes solely from the sudden formation of a heavy foam which rustes violently toward the point of least herted until it attained reduces, possue; of course pre sire. The word betaming, used in this contest through the temperature of nextment apportant then, should not be contounded with 6 nothing. The of the water thrown in the featuring upon the fren water filed with steam lubbles are quite different water was cahausted. Water was then injected in lossics. Froth is mostly air of gas lubbles with the small quantities, and, with the bottom of the boiler tolings to discuss a value of the colors. and projected by the contained steam bubbles, and its belief that there is a rise of pressure in consequence and projected by the contained steam bubbles, and its belief that there is a rise of pressure in consequence with failure. It is true the attempts have been momentum during expansion is a force not to be dessert making an opening in a steam boiler, even though desultory, and consisted in sending samples of small pleaf when concentrated upon the surface surrounding there may be not plates upon which the water is consignments to New York houses. If it was possible the opening through which it is morning. the opening through which it is impelled. By its thrown by reason of the sudden liberation from presource safety values and their housing have been blown sure upon its author. If the opening is large enough oil bodily from steam bolices, by the too sudden opening of a safety valve of farce area, and by its force initial ruptures in explosions ere developed into a by the contact of water with the hot plates - Manuscomplete destruction of the boiler shell. The discussional Builds sten of the effect of "throwing the water against the heatel surfaces" is reserved for its proper place after THE MANUFACTURE OF STRAW PAPER IN the experiments which the committee made with the sides of the bolter heatest red hot. These experiments are very interesting and important as bearing on the subject of explosive evaporization of water. The two kinds of straw paper that are manufactured ment; for instance, Dogsish-breakfast is termented; gauge cocks in the experimental belier, were in the "Dauphine" have no resemblance with these Colong is not. There can be no doubt but that if the 1.85 inches apart, measuring from the of southern France, or of the "Linousin," and though i Indian tea growers will make their tea as good or as are very interesting and important as bearing on the centre of the opening of the middle one above and to less pleasing in aspect, find nevertheless a constantly

"The stoam in the biller not being ligher than two atmospheres, the following experiment was made ers. The straw is not cut, but faid straight and in its The level of the water was reduced until it stood just full length, pressed carefully together and bound in below the lowest gauge cock. On opening this cock, bundles of about ten kilogrammes each. These steam at first flowed out, then water and steam, on opening the second excl. in addition, water flowed boiler, in which they are boiled, during four hours, treely from the lowest, which was above the hydro- with lime-mith, containing 6 per cent, lime. The static level :- The founding within the boiler, which was produced by thus relieving the pressure, were distinctly seen through the glass windows. On opening the third cock, strain and water issued from the second, which was 2 luches above the water level, and on partially raising the safety valve, water flowed treely from the second cock. A further rise of the valvo filled the boiler with foam, water flowed freely out of the third coes, more than 31 inches above the water level, and finally through the opening of the safety valve itself. In these experiments an opening of .03 of a square inch in area, the lowest cock, to the area of the water aurines was as 1 to 13.700, caused the water and steam to issue through the cock telow which the water was known to be below which the water was known to be. A further opening .03 of a square inch, making with the first, 05 inch, or one-08:0th of the area of the water surface, higher than it really was. "A first apparatus which was contrived for applying fusible plates to the boiler, anddenly opened an aperture of 35 of an inch in Even at low pressures the scalding contents of the bolles were violently discharged through this opening against the roof of the experiment house. - It is now time to speak of the glass gauge tube as a means of fullcating the level of water within a boiler, in connection with which an experiment hearing upon the performance of the gauge cocks will be

After some trials of a prismatic glass water-gauge which proved too frail, the committee's report describes the glass water-tube gauge used, which will be recognized as substantially what is in use to day for indi-cating the water level. They say: "The gauge used was 9} inches in length, the upper part being so near the top of the boiler as only to be affected by the forming in extreme cases, and the lower part so near the bottom that the level of the water was indicated, unless when very low indeed."

The committee experimented in this connection with some apparatus devised by Mr. Thomas Ewlank, for ascertaining the water level by means of internal erforated attachments to the gauge pipes thats were tested by the commutee, and a full descrip-tion given of one used by Mr. Enbank, which was to is wholly enclosed in the boiler to avoid the studingtest commonly used to pass the index-red of the fleat through the top of the beider. The committee say on this subject. "A float serving to give an alarm by the subject. The most energy to give an atom by some engines, we indeed attring to produce appears the issuing of steam was made the analytic of a few article, differing as much as possible from those of experiments, and answered well as far as those trials his competitors. The manufacturers of cardioard or went. Long use, however could alone determine perfeetly the peculiar II delitties to demangement in this apparatus. The point next examined by the committee, was the effect of the foaming on the elasticity this straw is sufficiently steeped, it is carried to a of steam within the boiler. The proposition was as reservoir, which mechanically feeds the mill, and, rollows: "When an opening is made in a bester, of which the sides are heated, will the effect be to dim-inish the classicity of the steam within, by permit-

the area of water or three at the beginning of the experiment, delivering per second, at 3} atmospheres,

to allow of the escape of the elean that is generated

(The Paper Makers' Circular.)

good sale. The manufacturers of the Dauphine boil the straw in cylindrical, and generally vertical, boilbundles are fald closely one beside the other in the straw is then taken out, mixed in the stuft-engine with 15 per cent, rags and 10 per cent, old paper, then sized, and, if necessary, colored. The paper is made upon horizontal paper machines, possessing from six to eight drying cylinders, in order that the paper be perfectly dried. Half the manufacturers of these engines whose cylinders are not provided with the usual blades, Numerous experiments have been and by which the fibres of the straw should preserve their strength and clasticity. The efforts of these inventors tended to the combination of apparatus not requiring so great a motive power as that indispensable for mill-stones or for stuff-engines. From the above description it has been seen that the finest paper is maile in the manufactories possessing vertical mill-stones; but these manufactories dispose of a grea and almost gratuitous water-power, whose equivalent in steam power could not to obtained without great The general expenses, already so considerable in a manufactory not possessing hydraulic power do not allow this treah outlay. For this motive many paper-makers have adopted certain machines whose mechanical combinations furnish the means of ottalining with but little motive power, the results hithertoonly obtained in manufactories situated by latgo rivets. The new helicoidal mills, used for triturating straw, are working with success in various countries, and the fereign manufacturers who possess them say the different kinds of paper that they make, as much as those possessing mill-stones or stuff englars, early indeed striving to produce a special of thick packing paper steep the straw in cold water, as above described in the Limousin, and make use of this straw without addition of rags. When when ground, goes directly from the latter into the

CENERAL INTELLIGENCE.

Londot steel by the barding what is could be conjusted which is a grid a branches in poper intended for a superior to expect the second standard of the superior to expect the second second standard of the superior to expect the second standard of the superior to expect the second second standard of the superior to expect the second second standard of the superior to expect the second second standard of the superior to expect the second second standard of the superior to expect the second second standard of the superior to expect the second second standard of the superior to expect the second second standard of the superior to expect the second second standard of the superior to expect the the superior to ex

INDIAN TEA IN AMERICA

the news comes from the other side that a syndia cate has been formed in Calcutts, for the introduction in its a last upon the apparatus designed to show the 20s of a square inch, or energically of the water surlevel of the water within the tester, second, by its
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throwing to matering the first to be the total centres of the direct to the principal centres The feet which is printed in Italies above, is recome write caused by the experiment, the sterm wien become and get them interested in the scheme. It mended for sandy to those who have a superstitions came surcharged with heat, and the front of the boiler. Is a matter of doubt if any scheme of this sort can be them near the water line to more than one third of brought to success. The manuer of tea manufacture the distance from the lowest line to the middle of the La India produces an article which does not suit the convex surrive, became on each side of the water line trates of the average American consumer, and radical changes would have to be made before an acceptable article to the people of this country would be presduced. The Ipillan tea Is as a rule strong and rough, troth upon the survey of forming liquors and heated. The experiments were made at intervals, until all the and even in England, where the majority of the probefore it gets to the consumer. Attempts have been ! for Indian teas to be introduced here the syndicate could hardly have chosen a worse time at which to commence their experiment, for the ten market is and has been, very much dipressed by the excessive stocks and the persistent efforts of some of the older importing houses to bear the market through the medium of heavy auction sales, and thereby forcing some of smaller importers to the wall. There is very little difference between the quality of the tea-leaf raised in Chica, Initis and the United States. The quality or flavor of the tea is developed by its treatsultable to American tastes as is the Chinese article. and can sell it at a suill lently low price, a trado can be developed. But then if the efforts of Commissioner of Agriculture Le Duc are successful, and they bid fair to be, we will in the course of time raise our own tea, and the efforts of our Indian trickids will liave proved nugatory.-Grocer.

The various agricultural shows held last autumn in different parts of the country cannot fall to impress all who visited them with the extraordinary developless, from the use of numerous dreing cylinders, has genius and the labors of the mechanician. We may no rough side. The kinds of straw taper principally go back in thought to the time when the spade, the made in the north and west of France form a sort of live, the rickle, and the fall comprised the farmer's mixed fabrication, that is to say, straw alone is store of machinery, and when the plow was the rudest used slightly boiled with a small quantity of lime in contrivance hardly worthy to be carled a tool. Then the boller, then at once carried to the mill stones, every man tilled the soll or engaged in pastoral purand, lastly, sized and finished in the stuff-engines, suits because it was all one man could do to provide The advantages of this mode of proceeding are, that himself and his dependents with food. Then each compared to what is necessary when it is steeped in came home to him with unmitigated force. In course cold water. Another class of straw paper is that of time improved and effective tools so lightened the which is triturated without mill-stones and in stuff, labors of the agriculturist, and so increased his products, that the opportunity to make a division of labor arrived, because there was food to spare for the made with a view to substituting a new method of mechanic. This condition of things became more trituration to the above-mentioned proceeding, by and more firmly established, until it changed the means of a system whose action should be continued, whole social and political aspect of human affairs. whole social and political aspect of human affairs.
And now what do we see? The true "landlord" is not the owner of an English estate, proclaims a writet in Capital and Labor, but the farmer who cousmands an army of farmers, with brigades of plows, respect, and other machinery upon the plains of the mechanic, the soul of agriculture is the inventor. One farmer can now, with the help of machinery, feed a hundred men with greater case than at one good and indifferent reports of what the harvest shall treights of breadmuffs, provisions, meats, cattle, and sheep. He maintains the millions of artisans who clothe and shelter him, and who provide for every one of his wants outside of the held. The mechanical power of the age is like a series of concentric and ecceptric circles, of which the farmer stands out in the principal centre. These all revolve with and about agriculture, and the same force sets all in motion. It is the farmer's duty now to make the most of his op-portunities. He should be the foremost man of the age. His influence should be felt everywhere. It is folt everywhere, for the wealthlest merchants and capitalists and the most active politicians all ask themselves how far the farmers can be depended upon before they make a movement in their special pursuits. But the tarmer should see this himself. It

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NEW BRUNSWICK RAILWAY COMPANY

Land and Lumber Company," with a capital of \$1 (0.000). They are granted the power or purchase for acquiring, settling, improving and cultivate. linds and hereditaments in Canada, developing the resources of the said lands by building upon, clearing draining and others iso improving, forming and planing on any terms of system that may to considere advicable; stocking the same lands, and breeder growing and dealing in all kinds of stock, catt then and produce; working, converting, with the death of the contract of the c produce of the property of the company, established shops or stores on the said property, and purchase and vending articles and goods of every docarition excepting white, spidts and form ated or otherwiintexteating liquors, conducting the business of lun berees and timber merchants, including the prepara tion, manufactore, it in-port and sale of timber aci lumber, ere ting or acquiring kinemille or off. wills, buildings, wechinery, coves, bouning, pounts duct le taken, it has to be mixed with China tea and utenella, building, acquiring and navigation steam and sailing vessels required for the basiness of tolinest of liquid envelopes, while toaming water in a tor the most part red hot, the trials were repeated this country, but they have without an exception met ways, canals, reads and all other works and means. transport necessary, or expedient for the improve ment of the property of the company, and contribut ing to the expense of promoting, making and near the xild works or any of them, adding, encouraging and promoting immigration into the property of the company and colonizing the same, and for the parpercentage and; to lend or grant sums of money to purchase or otherwise acquire timber limits and reaand personal estate for the objects and purposes: the company, and to sell, leave, exchange, mortrage or otherwise deal with all or any of the timber limitand real and personal property of the company and generally to do all the attiluments of the above objects.

OLD FOOTISH IS THE HARDWARE TRAIN

We find in the hardware trade two kluds of dealers -one is a league behind the times, the other is a; with the times. The former thinks it is better to se! an old style article, if he can make a little meprofit on it, than to introduce the intest styles. His logic is this: If I can sell an old fashioned lock, ean antiquated set of door trimmings, or an inferce WHAT MACHINERY HAS DONE FOR AGRI
CULTURE.

kind of tools or machinery at a better price than the latest things in their line will bring, it is my interest no to do, because my trade will be account. it unless I educate them to call for the better goods Thus these dealers go on, year after year, filling op their stores with old-fashioned traps and second class articles and trying to paint them off on an unsuspectparts dry their paper in the open air, instead of on ments made in recent years in mechanical appliances. Ing public. But now and then a new dealer comes the machine. All the straw paper made in the for agriculture. It is well, therefore, to notice the into the town and brings with him fresh goods and Damphine has long and strong fibres, and neverthes benefits which this industry has derived from the new ideas, and the result is that the antiquated trader new ideas, and the result is that the antiquated trader sees his business taken away from bim and is left to ponder upon what he deems the mystery and fickleness of trade. The great mistake many merchante make is in thinking that in carrying on a successful business they need to consult only their own whehe and that they must keep their attention solely on making the greatest possible immediate profit Such dealers may for a time hold their trade brought water from the lowest cock, a total of of the grinding in the millistones lasts less time, that man was forced to clothe himself and be his own but customers, not being obliged to give an inch (one-4507th of the area of the water surface, the knots in the straw are easily crushed, that there mechanic for this simple reason. He labored long their patronage to any one, will in the end brought water and steam from the middle-cock, indicated in the straw are easily crushed, that there mechanic for this aimple reason. He labored long their patronage to any one, will in the end brought water and steam from the middle-cock, indicated in the straw are easily crushed, that there mechanic for this aimple reason. He labored long their patronage to any one, will in the end brought water and steam from the middle-cock, indicated in the straw are easily crushed, that there mechanic for this aimple reason. He labored long their patronage to any one, will in the end brought water and steam from the middle-cock, indicated in the straw are easily crushed, that there mechanic for this aimple reason. He labored long their patronage to any one, will in the end brought water and steam from the middle-cock, indibotter goods than the other, they will be sure to patronize the one who keeps the best. A man buys a cheap shovel, or a common saw, or a third-rate lock if he cannot obtain the heat, but he will not be inclined to do so, if by stepping across the street he can got the article he desires. The tendency of the age is towards improvement. Our manifold invations have been displayed in almost every line of traffic but in none more than in hardware productions, and people knowing this very naturally look for the latest improvements in this line. It is tree that there is a demand, and probably always will be, for common articles in the line of hardware. For Western America. He makes laws for countries ordinary purposes people will continue to require the thousands of miles away, and his products rule the cheapest and commonest kinds of these goods and the world's markets. The gentus of agriculture to-day is dealer must needs kee, them in stock, but it is equally as true that the most successful merchant will also keep supplied with the newest and best articles likely to be demanded by his trade. And we time he could feed himself alone. The farmer sup might say in this connection, that the consumers ports the railroads, for stocks rise and fall with the generally are calling for better goods than formerly. generally are calling for better goods than formerly. good and indifferent reports of what the harvest shall and that in the construction of buildings, and to be. He supports lines of steamers with his wonderful other uses, there is a great improvement to the quality and styles of hardware used. The wide-awake merchant will be prepared to supply this demand the old togy must go to the wall - Chiergo In latter. World.

The Board of Trade emigration officers at Lavpool have just completed their returns of emigration from the Mersey for the mouth and the year endlog December 31, from which it appears that there is a atriking increase in the number of departures over the figures of 1879. From the statistics of the year we learn that the total number of emigrants who sailed from the Mereoy was 183,502, against 118,914 in 1879, an increase of no fewer than 64,588. The details of the statistics show that the greater rush of emigrants was in April last, when 29,491 persons left is one thing to have power, and another thing to be the Mersey. The nationalities of the emigrants who which the aides are heated, will the effect be to dim-inish the classicity of the steam within, by permit-tonic to the paper, it is not necessary that the cognizant of the possession. Let the farmers con-left during the year were —English, 74 369; Scotch ting its escape? or will the water thrown upon the straw should be inished, and the latter not having sider now their position, and, as they take a view of 1,811; frish, 27,336.