

THE COTTON MANUFACTURE IN THE SOUTH.

In a recent article we proffered some advice to the South, as to the proper course to pursue in the reconstruction of her industries. In that article we recognized the possibility that some of the industries which under the old system of things were prosperous, could not under the existing state of affairs be profitably restored, and suggested the substitution of others. Since that article was published a correspondent has called our attention to the feasibility of cotton manufacturing in the southern states, and as evidence of the correctness of his views, has furnished us with some interesting details of the Augusta (Georgia) Manufacturing Company, as shown in the report of its President, for the first six months of the present year. Mr. Wm. E. Jackson, the President, says in his report:

In presenting my twentieth semi-annual report it is with pleasure I can state the condition of the company is very favorable.

The gross earnings for past six months have been	\$135,510 65
Interest received	3,921 65
	\$139,432 30
From which is deducted expense account ..	\$8,731 64
Repairs account	3,475 11
Taxes paid	19,691 41
	\$31,898 16

Leaving as net profits

From which two dividends of five per cent each; amounting to \$30,000 have been paid, enabling us to carry to the credit of profit and loss account \$47,534.14, making the amount now to the credit of that account, \$224,798.22.

Goods manufactured from December 14, 1867 to June 13, 1868:

	lbs.	Pieces.	Yards.
4-4	707,018	54,139	2,135,418
7-8	363,801	33,475	1,324,691
Drills	60,685	4,589	178,143
3-4	53,341	6,145	250,049
	1,184,845	98,348	3,888,301

Bales goods on hand December 14, 1867:

	7-8	4-4	Drills.	3-4	Total.
Made	19	47	6	0	72
	1574	2567	254	294	4689
Sold	1598	2614	260	294	4761
	1558	2561	253	270	4642
On hand	35	53	7	24	119

Cotton consumed	1,362,571
Average cost of cotton	19.98
Average yds. per loom, per day	49.13
Average number of looms running	505
Average number of hands employed	507
Aggregate wages paid	\$87,546.93
Aggregate sales	\$519,965.01

The operations of the company for the past three years, or since the close of the war; viz., from June, 1865, to June 13th 1868, have been as follows:

Nominal balance 17th June, 1865	\$562,583 09
Amount paid creditors due them in Confederate notes,	35,775 22
	\$598,358 31

Deduct depreciation in Hamburg and Columbia Railroad stock	\$26,625 00
Deduct depreciation in various assets,	446,284 05
Deduct suspense account St. Louis, ..	4,703 71
True balance, profit and loss account, 17th June, 1865, in United States currency,	100,745 55
Gross earnings from 17th June, 1865, to 13th June, 1868,	932,906 57
Expense account,	\$78,300 61
Repairs,	33,386 72
Taxes,	244,479 81
New machinery,	92,686 76
Dividends paid,	360,000 00
	808,853 90

Add to profit and loss account,	124,052 67
	\$224,798 22

Bales goods made	23,545
Aggregate sales	\$3,765,301.80
Aggregate wages paid	\$622,280.15
Average yards per loom per day	45.9
Average number of hands employed	578

	Pounds.	Pieces.	Yards.
4-4	3,726,014	292,540	11,337,660
7-8	2,120,137	200,154	7,711,451
Drills	362,173	28,275	1,065,759
3-4	53,341	6,145	250,049
	6,261,665	527,114	20,364,919

It may not be uninteresting to some of our present stockholders to state what has been accomplished in the past ten years. It will be remembered by those who were among the original purchasers, that the property was purchased of the city for \$140,000 on ten years' credit, with interest at seven per cent, payable semi-annually, and one tenth of the principal annually, the purchasers paying in as commercial capital \$60,000. This amount, in consequence of the dilapidated condition of the property, was almost entirely expended in the first two years, in repairs rendered necessary by the then condition of the property. We have, since the purchase, paid for the entire property without calling on the stockholders for another dollar; added largely to the property by purchase and building, bought about \$100,000 worth of new machinery, increased the capital to \$600,000 by the addition of a portion of the surplus; paid dividends regularly, and have now a property worth the par value (\$600,000 in gold).

Our correspondent, who writes us from Nashville, Tenn., says;

Should you wonder how it is, that the people of the South (who are usually supposed to be quite ignorant in regard to manufacturing knowledge) could succeed so well in making so profitable a matter of a cotton mill, I can readily solve the mystery. In the first place, owing to the mildness and salubrity of our climate, equally free from the intense cold of win-

ter, or the extreme heat of the further South, added to the unbounded fertility of our soil, we produce provisions of all kinds, not only the bare necessities of life, but as well many of the luxuries at the lowest possible cost of capital or labor—here we have cheap labor and especially of that class (I mean the youth) who are most needed as operators in cotton manufacturing—and this class of labor too, is quite abundant, as there have been but very slight drafts as yet made on it. Beside cheap labor and cheap means of living, we have a great abundance of cheap fuel of all sorts—wood, away from the cities or large towns at a merely nominal cost—with a supply of bituminous coal enough to run every steam engine on the continent for centuries.

And again, we have the raw material (cotton) right at the doors of the mills that fabricate it into cloth, saving the enormous cost of transporting it to Lowell or Manchester, and re-transporting its manufactured product back again.

If you will estimate this item alone, and suppose for argument sake (for it is not otherwise supposable) that the labor employed in converting it into cloth is as great as it is in New England, you will at once see that it allows as much profit as any reasonably avaricious man should desire.

Our correspondent assures us that the above is not an isolated case, and there are plenty of others which although their business has not been so extended, have achieved equal success in proportion to their investments. He says all that is needed to develop the resources he has enumerated is capital. The capital of Tennessee as of the other slaveholding states in past times, consisted largely in their slaves. This is lost to the South, and until it is in some way replaced in part at least, manufacturing growth must be inevitably retarded.

He states that clever, honest, industrious people will be welcomed to Tennessee, and their personal safety, and that of their property, will be assured there as in the North.

The journal from which we have copied the above extract challenges a comparison of the report of the Augusta Cotton Manufacturing Co., with that of any similar establishment in the Northern States, and thinks the cotton manufactures of New England had better look to their laurels.

Correspondence.

The Editors are not responsible for the Opinions expressed by their Correspondents.

Propulsion and Dynamical Levers.

Messrs. Editors:—The prevailing opinion among engineers, and, in fact, with scientific men generally, is, that no power can be saved or gained by use of a lever. While this is absolutely true, as relates to the use of the statical lever, it is radically wrong and a very great fallacy as relates to dynamical levers, as will be seen by the following argument.

Under the head of statical levers are included the common scales, the pulleys, the wheels of fixed machinery, and every other kind of levers where the axis is fixed and stationary.

Dynamical levers are those where the supposed axis is not fixed or stationary, but actually the point and line of motion; and under this head are included the wheels of any vehicle, the oar, the legs of all animal and insect organisms, the wings of a bird, the fins of a fish, the duck's foot, and, in short, the one vital principle of the propulsion of all animate and much of inanimate nature is the dynamical lever.

Let us inquire whether or no anything is gained by this kind of lever. Now, it is a solid fact, that a horse can pull a ton weight on wheels, at a speed of two or three miles per hour; whereas, if the ton weight were not on wheels, he could scarcely move it at all. Why is this? The general answer given is, because the wheel overcomes a large amount of friction. This, of course, is correct, but does not give a full solution; for it may also be asked, why a mere wheel being round, produces this economy; the more philosophical answer being because the vital principle of the wheel is a lever of the dynamic series. From this fact, one of two deductions only can be made; namely, that economy or saving of power is produced by use of a dynamical lever, or that the wheel is not a lever.

Again, take another variety of this kind of lever—a man's legs. Given, A and B, two men of exactly equal powers, let A use his own legs, and B have stilts added to his, enabling him at each stride to step three times the distance of A, and it must be conceded that if there is no gain or economy in the dynamic lever, that A will be able to walk as far in any given time as B. But we know that this is impossible, hence the manifest gain by use of the lever; and those who would deny the gain or saving produced by the lever, will be forced to deny the fact that legs are levers.

Furthermore, the closer the student of nature examines the wonderful structure of all living creatures, he finds that nothing is created by accident, everything that God has created being supplied with most perfect means for any desired end, and becomes more and more impressed with the wonders of the universe, and the goodness and absolute wisdom of its divine architect. Therefore, he who would still dispute the economy of the dynamic lever, must be prepared to deny the wisdom of the All Wise.

Were the practical effect of this fallacy limited to the mere expression of opinion, and did it not interpose a serious obstacle to the advancement of a very important branch of science, namely, that of propulsion and steam navigation, it would be an error of small importance.

The paddle-wheel, owing to its axis being the actual and true line of motion by which the speed of the boat may be measured, acts as a lever of the dynamic series, and much is to be gained in economy by the proper application of power; for from the application of power to the axle of the cart wheels, and to the axis of the levers we call legs, it is evident that the nearer the power is applied to the axis or line of motion, and the longer the lever used, the greater the economy. Therefore, it stands to reason, that the shorter the crank by which the axis is turned, the greater the economy—provided always, however, that this gain or saving shall not be lost or counterbalanced, owing to some radical defect in the present rotary system, as is actually the case.

Hence it is that well-informed engineers, and many scientific men, overlooking the fact of the difference in effects produced by statical and dynamical levers, and not realizing the fact that the paddle wheel acts as a dynamical lever, having its great economy overshadowed by the natural defects of the present rotary system of steam navigation, have erroneously decided that there is no economy or saving in the short crank. The writer has spent several years, and some thousands of dollars, in the practical study of propulsion, and has abundant evidence to show that, given the same boat, the same power, and the same paddle, if the crank be one half length of radius of paddle, the "slip" will be much greater than if some power is applied to a crank of one eighth or one tenth.

Now, as it can be proved that propulsion is simply a question of power and comparative resistance, and that the "slip" is diminished by shortening the crank, it follows, that if some other system, not rotary, could be adopted, that the application of the power as near the axis as possible, and as far away from the fulcrum (which in propulsion is the water at the propellers) that the limits of increased economy can only be estimated by mechanical possibilities.

The writer has invented such a system, possessing not only the advantages of great economy in fuel and machinery, but also many important mechanical advantages over either screw or paddle wheels, which will form the subject of another paper.

I hope these remarks will clearly show that there are two classes of levers; namely, the statical and dynamical, and that while nothing can be gained or saved by use of the former, that the economy produced by the latter is almost limitless; and that by so doing, one of the errors that obstruct the path of the world's progress may be removed.

New York city.

F. R. P.

Poisonous Drugs and Cosmetics.

Messrs. Editors:—In your issue of November 25, I notice an article headed "Poisonous Drugs and Cosmetics." Now while the writer fully agrees with you that the evils to which attention is called are very great, he begs leave to differ as to the best curative measures, and he also thinks that the statement, "we believe there is no department of trade in which, as a rule, retailers know so little that is requisite to the proper conduct of their business as in the drug trade," was made without due consideration, and that it is altogether too sweeping a condemnation of the class.

The head of the largest drug house in New York remarked, after twenty-five years of daily dealings with retailers in every State in the Union, that, "outside of the learned professions, no class of men possessed so much intelligence." You fortify your statement by the fact that "a druggist doing a large prescription business did not know that vinegar contained acetic acid." Now, unfortunately for the public, they are very apt to give their patronage to the man who will sell the cheapest, in this trade as in others, forgetting that they cannot judge of the purity of drugs, or the ability of the dispenser, with the same accuracy as they can the quality of cloth, or the taste of the draper. Thus many a man builds up a large business who, judged by the standard of an experienced pharmacist would not be thought fit for a third assistant in a first-class store. If mistakes occur, and ignorance is shown, in such cases, who should bear the blame,—the class of intelligent apothecaries, or an unwise public? We answer, so long as the public will employ physicians or apothecaries who are not regularly educated they must take the consequences if mistakes occur. We advocate the most thorough education on the part of the apothecary, but we think that the public are bound on their part to liberally support such men.

That "nothing should be done blindly" is impressed upon the mind of the youngest boy in the trade, as one of his earliest lessons, in all well-regulated stores. No rule is more thoroughly established and constantly acted upon than this. If an overdose of a powerful medicine is ordered, the prescription is re-submitted to the prescriber; thus many times when physicians wish to order large doses of powerful medicines they find it difficult to get the prescription put up by the careful apothecary.

"Finally, prescriptions should be written plainly in plain English." One would suppose, to hear what is said, and to read what is written on this subject, that physicians adhered to obsolete and inconvenient Latin names for drugs, for the sole purpose of mystifying their patients. Let us examine this matter. That certain exact and invariable names, understood alike by the physician and the apothecary, must be used, is evident. The botanical names of plants, and the chemical name of chemicals, form the basis of the nomenclature of the United States Pharmacopoeia. Should we gain anything by a resort to English names? Let us see. What, for instance, is the English name of the plant known in the Pharmacopoeia as *Cyprripedium pubescens*? It is called in various localities, nerve-root, nervine, moccasin plant, and ladies' slipper. What is the English for the *Gaultheria procumbens*? It is known as wintergreen, partridge berry, deer berry, tea berry, mountain tea, and checkerberry; and no two old ladies well versed in herbs will be found, who can agree that these names all refer to the same plant. "Wintergreen, indeed!—why that's another thing altogether," one says. To be sure, the common princess pine is also known as wintergreen. Indian hemp may mean the *Cannabis Indica*, or it may mean the *Apocynum Cannabinum*—two articles widely different both in nature and use.

Among chemicals, the synonyms are not so many, yet who would choose to give up the simple, exact, and descriptive chemical names for the inaccurate, and in many cases foolish common ones? If common names are not adopted, how are