

## FINANCE.

IN the progress of contemporary finance the midsummer months of each successive year are a period of singular interest. It is then that there come into public view the forces over which neither human foresight nor human ingenuity can exercise the least control, and yet which are fundamental in their influence on national prosperity. Of all the wealth produced each year, in the modern as in the ancient world, the greater part is that which grows out of the ground; and this is precisely the portion of the world's annual production which is wholly subject to the caprice of nature. It needs but a moment's consideration to see how vitally the financial fortunes of a people depend on this question of the crops. Complete and general harvest failure, in a highly developed industrial state, means, first, the loss of a year's income to the farm community. Next, and as a natural consequence, it means the curtailment of that community's buying power, and hence a large reduction in the purchase of manufactured goods. But this must also, in the third place, involve sudden disappearance of demand for transportation, both from and to the farm communities. If there is no wheat to send to market, one-fourth of the business of the grain-carrying railway disappears; if there is no demand for city merchandise on the farms, freight traffic in the opposite direction will be decimated.

But the railway which fails to earn its dividend will not in such a case be the only sufferer. Loss of expected income by the farmer, and by the numerous trades which thrive with his prosperity, means diminished savings, decreased resources in the banks, and hence reduction of capital available for use in financial enterprise. It is a well-known fact that the enormous borrowing operations in our Eastern markets, through which the huge financial schemes of the last three years have been carried out, were made possible by the placing of Western bank credits at the disposal of Wall Street. These credits were chiefly the net result of profitable crops.

Even this does not tell all the story. Shortage in crops would be followed, necessarily, by falling exports, and falling exports foreshadow

reduced command over foreign capital. With all the extraordinary recent progress of the United States in her exportation of manufactured goods and of mine and forest products, it still remains true that our agricultural shipments make up sixty-three per cent of our annual export trade. In other words, harvest failure jeopardizes simultaneously the fortunes of the railways and banks, and also the country's foreign credit. Alike in 1901 and 1902, immense sums of capital were borrowed in Europe, during the spring, for use in the costly financial operations of the period. With abundant crops and consequent abundant exports, our own banks can take up such foreign loans in the autumn and carry the load themselves. But if crops are short and the foreign creditor calls for settlement, the American banks must pay in gold, depleting their own reserves at a moment when large reserves are needed. This is what happened a year ago. Human sagacity is absolutely unable to predict the situation. It can only wait to see what the farm weather of a summer season brings to pass, and adapt itself, as best it may, to the resultant conditions.

These are very elementary and well-known facts. The reason for reviewing them in the present connection is that they played a very conspicuous part in creating the caution among conservative financiers which was the noteworthy incident of last midsummer, and in leading to the better feeling of the autumn. The season had, in fact, been sufficiently trying to the financial nerves. Starting out with a devastating drought in the winter wheat region, which cut down the estimate of yield from 410,000,000 bushels in May to 350,000,000 in July, the weather changed to drenching rain throughout the wheat belt, accompanied by extreme dry weather in the Texas cotton-fields. From time to time, even as late as the early weeks of last July, dispatches from the crop country hinted at possible disaster. In some sections of the country real crop catastrophe occurred. In Texas the Government's July "condition percentage" on the cotton crop was the lowest ever recorded. Spring wheat began with an acreage by 4,000,000 acres smaller than last year's, and its condition fell three per cent during July. All this occurred when the stock market was under the highest pressure of forced speculation, when bank returns showed credit resources to be strained more heavily than at any similar period in the last nine years, when July gold exports reached much the largest figure since the demoralized summer season of 1896, and when it was plain to every one that our floating debt to European banks was piling up at a rate which seemed to recognize no limit.

It is scarcely to be wondered at, conditions being what they were, that the financial markets should have paused with something like dismay. It is, in fact, a truth perfectly well recognized by every one conversant with last season's finance, that the feeling throughout the markets at that time was one of genuine apprehension, mingled with something like resentment at the furious process of exploitation which, at the moment, seemed to be proceeding in utter disregard of limitations of capital, credit, and safety. As usual, foreign critics were not slow to point out the dangerous elements of the situation. Some of them unhesitatingly predicted disaster.

But the cloud passed over, partly, no doubt, because the apprehension had been overdone, but chiefly because the worst possibilities which had been prudently kept in view did not materialize. As the London "Times" expressed it, many weeks afterward, the dice fell kindly for American finance. That the crisis, if it was a crisis, has been for the time safely passed, is to be explained by three cardinal facts. The crops, in the end, turned out as a whole abundant. The foreign markets, which at one time promised such revived activity as would divert from here some very much needed capital, fell into stagnation, which released a good part even of the capital in use in Europe's own affairs. Not least important, the strain on the money markets relaxed; speculators and promoters alike reserved their energies for a more convenient season; and with this relief the money market managed to hold itself in equilibrium. The fact that this occurred along with a season of large profits for interior trade, of increasing railway and industrial earnings, and particularly of unabated demand in the basic steel and iron trade, did its part in restoring not only confidence, but buoyant hope. Each of these several factors in the outcome must be examined by itself.

So far as regards the outturn of the crops, it can now be said that, from all indications, the corn harvest of 1902 will exceed all American records; while the wheat crop as a whole will be, with three exceptions — 1891, 1898, and 1901 — the largest in our history. It was the cotton crop which suffered most seriously from accidents of the season, and which most seriously disappointed hopes. The Government's first monthly estimate, that of June, fixed a "percentage" of 95 for the growing crop, which would have been the largest ever harvested. It would have been the highest rating given in twenty years, except for 1887 and 1897, a figure so high, in fact, that despite a small decrease in acreage, the cotton experts figured out a probable crop of fully 12,000,000 bales. Almost with the beginning of the season, however, a drought set in over some

12,000,000 acres of the cotton district — not far from one-half of the entire planted area. It affected the Southwestern cotton-fields. The "condition percentage" of Texas fell from 95 in June to 53 in September. The average for the entire country, which began as 95, declined by September to 64, the lowest since the short crop year 1896. Crop indications sank from the 12,000,000 bales, at the opening of summer, to 10,500,000. This was the heaviest blow to expectations since the partial failure of winter wheat, in much the same section, earlier in the year. Nevertheless, even the cotton crop, by indications at this writing, will slightly exceed last year's, and with favorable weather may do better than present promise. The following, then, are the trade estimates of the leading crops, based on the Government's latest estimates of condition, and compared with the Agricultural Department's final estimates in the last three years:

	1902.	1901.	1900.	1899.
Wheat, bushels .	610,611,000	748,460,218	522,229,505	547,303,846
Corn, bushels ...	2,495,081,000	1,522,519,891	2,105,102,516	2,078,143,933
Cotton, bales ...	10,500,000	10,700,000	10,400,000	9,400,000

Much of this favorable outcome resulted from the fact that early adverse conditions stopped short of actual devastation. Experience of this season has, moreover, taught American markets that, with the vast expanse of newly opened farm country — West and North and South — national crop failures are no longer easy possibilities. The whole productive area of Europe might be easily placed within the geographical boundaries of America's farm area, leaving great cultivated regions still outside; and crop failures which affect even the whole of Europe are by no means usual occurrences. Twice only in the last generation — in 1879 and 1897 — could it be said that Europe's crops as a whole had met disaster; and such possibilities are growing still more remote in the United States. Apparently the corn failure of 1901 would upset the principle; but corn, the northern and southern boundaries of whose acreage are relatively near together, will always remain as a whole the most vulnerable crop in the United States. Happily it escaped unscathed this year.

I have mentioned the action of the foreign markets as an important factor in saving our own market from a strain that at one time seemed unavoidable. In fact, the popular view regarding a possible "boom" on the English markets, which was taken by the average Wall Street

oracle, was extremely singular. During the months of April and May, while the Transvaal peace negotiations were in progress, it was a common argument that, when peace was actually announced, a furious speculation for the rise would begin on Europe's markets, and that the movement would extend by sympathy to our own. Now it was not in all respects unreasonable to expect some revival of the foreign markets. But it should have been manifest, to any one taking the trouble to reflect a moment on the matter, that expansion in trade and speculation on the London market would attract to that centre, and retain there, very large sums of capital which had been released during the three-year period of dulness. Now it was perfectly well known that in our own operations of last spring we had been compelled to call very heavily on British capital. Securities, to an enormous aggregate value, had been sent abroad to be "carried" in London through the loans of the London banks. If a wild advance in mine stocks or in the London market generally had occurred, nothing could be more certain than that this capital would have been recalled for its own use by London.

The recognition of this fact was one striking reason for the apprehension in our market of the spring; but the expected did not happen. To the general public, nothing could seem more reasonable than the belief that, when the war in South Africa was over, the shares of the Transvaal gold-mine companies would rise with great rapidity. Undoubtedly outside speculators all over England had been buying the shares, throughout the spring, on precisely that expectation. What was not carefully observed, however, was the fact that other and shrewder buyers, who had entered the market when the scale of prices ruled much lower, had been waiting for the rise in May and June to sell.

It had been suspected by the shrewder watchers of the situation that there would be disappointments in this matter. But few imagined such a complete reversal of the market's hopes as actually occurred. Beginning in the very week of the peace announcement, at the opening of June, prices for Transvaal mining shares on the London market yielded with great rapidity. There was no recovery of any consequence. In fact, the decline was so severe as to cause failures of banking houses of the minor sort in several weeks during the worst of the London strain. British consols declined along with mine shares, and, as the season went on, other elements of discouragement presented themselves.

The announcement that France must issue a large loan, in response to which capital would be diverted from London to Paris, had a distinctly bad effect. Hardly had the South African treaty of peace been

signed, when labor trouble broke out among the African mines, and the monthly rate of increase in production was diminished. This may be seen from the following table showing the output of the mines during the first eight months of 1902:

#### TRANSVAAL GOLD OUTPUT.

	Ounces.		Ounces.
January .....	70,340	May .....	138,602
February .....	81,405	June .....	142,780
March .....	104,127	July .....	149,179
April .....	119,588	August .....	160,000

A year ago, when mining began to be resumed, it was predicted in London that, by the autumn of 1902, pretty nearly the full production would have been resumed. But full production, as measured by the month of August, 1899, was 459,709 ounces. The value of that output was \$9,194,000; the value of August's product this year was but \$3,200,000.

Events at the mines were, however, only an incident in the disappointing failure of English finance and industry to revive. The French economist, M. Leroy-Beaulieu, has stated the case impartially and correctly in his remark that, with the payment for unsettled war accounts still outstanding against its Treasury, and with an expenditure of twenty to thirty millions more in sterling necessary to put even the Transvaal mines in order, "some considerable time must still elapse before Great Britain again becomes the inexhaustible reservoir of capital which it was before the war." In the prediction that a long and heavy reckoning would be left to pay, even after the peace, Sir Michael Hicks-Beach has fully concurred. The summer in financial England, therefore, and in a measure throughout Europe, has been a season of liquidation. The capital thereby released was placed, fortunately for our financiers, at the service of American enterprise.

Freed from the strain of a sudden recall of capital to an active foreign market, and freed also, as I shall presently show, from the abnormal demands of company promoters which marked 1901 and 1900, the American money market became a less serious source of apprehension. But, as the season drew on, it became manifest that the market was weighed down, not by borrowing for new undertakings, but by the load imposed by projects started months ago and uncompleted. Capital, so to speak, was waterlogged. Even at the close of August, after a relatively quiet summer, the New York banks reported loans greater by \$15,000,000 than the huge total of a year before, and \$93,000,000 above the same date in 1900. With the resultant drag on bank liabilities, cash

reserves at the New York institutions were \$10,000,000 less than a year before, and \$9,000,000 under the total of August, 1900. There were few weeks this year, even during the quiet summer months, when it could not be said that the surplus reserves of the New York banks were at the lowest figures reached since 1893.

Late in July the Banking Department of New York State published the statement of the trust companies for the previous half-year. As it is only at this semi-annual period that these companies issue statements, the figures possess more than ordinary interest. Comparison was naturally made with the same date of 1901. As compared with the figures of that time, it was shown that loans of these institutions had increased \$82,394,000; deposits, \$84,483,000; cash on hand, \$1,600,000; and cash on deposit with other institutions, \$11,100,000. The increase in cash on hand and on deposit was in a ratio about the same as the increase in the deposit fund, so that it could not be said that the position of the institutions had weakened during the twelve months ending this midsummer. This was somewhat reassuring; for in the corresponding period a year before, while deposits had increased no less than \$221,680,000, cash on hand or on deposit had actually decreased \$25,705,000.

On the other hand, it must be pointed out that all the relatively conservative showing in the reports of last July, as compared with a year before, came from the operations of the last half of 1901. Comparison with the half-yearly statements of last December makes a different showing. During the subsequent six months — the first half of 1902 — while they added \$94,000,000 to deposits, cash in reserve or on deposit elsewhere increased barely \$8,000,000, and cash on hand only \$623,000.

Exactly the same story was told in the season's reports of the national banking system. On July 16, statements from all these institutions were called for by the Comptroller of the Currency. The figures, when compiled, showed the ratio of reserves to liabilities to have been steadily contracting, the July percentage being considerably below both that of April's returns and that of a year ago; reaching, in fact, the lowest average for the period in a decade. By the statement of July, 1901, cash holdings of the 4,165 national banks then in the system footed up \$540,800,000. Their reports, prepared in the same month of 1902, when their number had increased to 4,535, made a somewhat better showing; the total cash holdings then being \$571,116,000. But in the meantime outstanding loans had made the huge increase of \$264,953,000.



Nor does this tell everything. The so-called "country banks," meaning the institutions outside the larger commercial cities, made the following comparisons:

	Loans.	Individual deposits.	Cash.	Percentage reserve to liability.
July, 1902 .....	\$1,490,561,432	\$1,634,640,741	\$144,038,221	26.67
July, 1901 .....	1,315,198,782	1,468,065,182	134,076,054	28.95
Increase.....	\$175,362,650	\$166,575,559	\$9,962,167	

In other words, these interior institutions, which had for months been hurrying all their spare cash to the New York banks for use in that rather needy market, were less prepared to provide for the autumn cash requirements of their own harvest districts, in the middle of 1902, than they were in 1901, when there were no such crops to move. It was clear that the money situation could not comfortably endure such gold exports and such domestic cash withdrawals as distinguished the fall of 1901. September, when the currency sent by Western banks in the spring to Eastern markets is needed for use in the harvest district, is always the period of test. If we suppose that thirty or forty millions in actual cash are needed for such purposes; if we also assume that the Western banks have credits to that amount in the Eastern markets, that they cannot provide for the farmers out of the cash reserved at home, and that the Eastern banks also have used all these Western credits in the Eastern market, the situation is plain enough.

The above assumptions are, moreover, all correct. Last autumn a sum of upward of \$30,000,000 net is known to have left New York for the interior during September, October, and November. Western bank money was as much a factor in Wall Street, during the spring of 1902, as it was a year before. The July national bank returns to the comptroller showed the ratio of cash reserves to liabilities in the Middle West to be three per cent lower than a year before; in the farther West six per cent lower; in the South three per cent lower. Finally, surplus reserves of New York banks, at the close of August, were \$9,700,000, against \$11,900,000 in 1901. In the second week of September they virtually disappeared, the showing then being the weakest for the period since 1890. The case was clear.

To avoid distress arising from the resultant drain — which, even if temporary, may be severe — there are three expedients. The Eastern banks may cut down their loans and liabilities; the Treasury, through



bond-redemption or through an actual deficit, may pour out its surplus on the market; or gold may be drawn from Europe. The first expedient could not be employed on a scale sufficiently large to restore equilibrium. Something had been expected from the Treasury, chiefly because of the laws enacted during April, which cut down yearly internal revenue \$72,000,000 further, and increased appropriations by at least \$20,000,000. The entire public surplus, during the fiscal year ending with last June, was \$92,000,000: it seemed reasonable, then, to suppose that no surplus whatever could occur this year, and that a deficit was possible. But the calculation missed one salient point.

I showed, in the last number of this magazine, that the unparalleled domestic consumption of commodities, notably steel and iron, had caused, even in the spring, continuous increase in the import trade. This increase was even larger later on. In July, internal revenue, as a result of the tax-reduction law, decreased \$6,700,000 from 1901; but customs receipts increased \$3,200,000. In August, while internal receipts declined \$4,500,000, customs expanded \$5,100,000. In the first half of September, customs receipts rose four times as rapidly as internal receipts declined. New York, where most of the customs revenue is paid, was drawn upon very heavily. The Government took \$4,000,000 from that city's banks in the closing week of August, and \$12,000,000 in the first half of September.

For reasons which I set forth in the preceding number, the redemption of government bonds by the Treasury, Mr. Gage's usual expedient, had ceased entirely; therefore this automatic source of releasing the Treasury's accumulated money was no longer in operation, and Secretary Shaw was resolved, quite properly, that it should not be resumed. In fact, since the forced redemption of government bonds by the Treasury had ceased, prices for these bonds had declined substantially, and bank-note circulation had again begun to increase. The total circulation, which had reached in June its minimum of \$356,672,000, increased \$2,300,000 during July, and \$2,300,000 more in August. The Secretary then proposed to officers of the banks that note circulation should be utilized for the relief of the money market. His theory was that if enough of the new circulation could be taken out, notes could be used in place of legal tender for harvest purposes, and the drain on bank reserves be at least mitigated.

There were, however, two very practical obstacles in the way of such achievement. In the first place, government bonds were hard to obtain

in quantity, except at such a price as rendered their use for temporary purposes undesirable. On the other hand, the question came up rather pertinently as to how much use the new bank notes, which are not issued in less than \$5 denominations, could serve in the harvest region.

There was left the possibility of relief through imported gold, and in this regard the outlook for ample crops was of the highest consequence. With the prospect of large agricultural exports, and with the demand for capital in Europe as light as I have already shown it to be, the financial community settled down to the more or less comfortable assurance that not only would European lenders fail peremptorily to call in the heavy loans made by them in the spring to American borrowers, but that gold, in the nature either of payment for our grain or of advances to our financiers, would be sent to make good our Eastern bank reserves. The London estimate current at the opening of September was that at least \$30,000,000 could be spared. It is sufficiently obvious, however, that unless an unprecedentedly heavy export of agricultural produce should occur, our debt to Europe, at the conclusion of the season, will be larger, not smaller, than to-day's. Under similar circumstances, twenty years ago, the European public bought our stocks. It has not done so this year.

The agricultural export movement, on which so much depends this autumn, showed in the summer how little, as compared with a year ago, that trade has contributed toward paying our foreign debits. This is the showing for the midsummer months:

#### WHEAT EXPORTS.

	1902 — bushels.	1901 — bushels.	1900 — bushels.
May .....	9,576,367	15,857,058	9,299,934
June.....	7,286,897	12,863,155	8,833,625
July.....	8,517,852	18,460,991	5,550,895

#### CORN EXPORTS.

	1902 — bushels.	1901 — bushels.	1900 — bushels.
May .....	453,348	10,535,868	18,705,084
June.....	595,399	10,845,166	14,431,427
July.....	518,351	6,999,028	15,991,745

## COTTON EXPORTS.

	1902 — bales.	1901 — bales.	1900 — bales.
May .....	268,721	411,447	250,488
June .....	176,270	231,996	147,222
July .....	125,994	235,237	156,008

The story of decreased values is even more impressive. Taking all agricultural exports — oats, barley, rye, provisions, and oils, in addition to the above-named commodities — the decrease in the value of exports, during the three months in question, was no less a sum than \$57,000,000. What should especially be noticed is that not only corn, whose crop of 1901 fell short, but wheat and cotton, ran this season far below their export record of 1901. Exports of other than agricultural products held to the level of 1901, but this was solely because of the larger copper shipments.

This reduction of our export trade may be expected to cease when the autumn crops move out in quantity. The import trade is another story. In June, imports of merchandise increased \$4,300,447, making an increase of \$79,739,143 for the fiscal year. In July, the increase over a year ago was \$6,110,608. Of the July increase, which was typical, \$2,764,000 was in manufactured goods and \$3,096,000 in foreign material for use in manufacture. Most noteworthy of all is the fact that imports of iron and steel alone increased \$2,204,000. This was the true cause of the remarkable increase in the customs revenue which had so considerable an influence on the Treasury's attitude toward the money market. Incidentally it may be observed that this American demand for foreign iron had substantial influence in helping out English trade from its worst depression.

The iron was needed simply because our mills could not produce enough to provide for the immediate and pressing needs of consumers. This demand for iron, during the season just past, was not restricted, as it largely was in the "boom" of a generation ago, to buying for railway purposes. The laying of new rails and the building of new bridges have formed an important part of the railway operations of the year. But the striking phenomenon of the season has been the immense increase in the use of structural iron. The erection of iron buildings has continued throughout the country at a rate without parallel in the history of the world. One of the incidents in the combinations of the summer was the formation of a huge corporation with \$65,000,000 capital, in the

nature of a "building trust," to combine a company formed for structural work with three or four large corporations dealing in real estate, and to secure, through its widely extended operations and its connections with the steel corporation, the ready obtaining of material and the prompt completion of work. But even this rapid increase in construction work was only a part of the phenomenon of trade. The erection of new buildings this year followed general trade activity and prosperity, as it always does.

That railway earnings should have increased while the immense and profitable trade of the summer season was in progress followed as a matter of course. The remarkable fact about this railway revenue during the greater part of 1902 has been the small extent to which the shortage in the corn crop seems to have been reflected. That traffic which would otherwise have been enjoyed by the companies in question did not reach them was of course undeniable; but the figures show that the loss in that line of traffic was amply made up in others. Taking two months of the recent summer, the gross earnings for June, on the leading railways of the country, increased \$3,300,000, or seven per cent, and in July \$4,300,000, or seven and five-eighths per cent. This happened on a mileage increased barely two per cent over 1901.

In one group of railways, traffic and profits were seriously curtailed by the anthracite coal strike, which began on May 12 and has continued into September. It would be out of place to discuss in this connection the various matters of dispute between the union and the coal-mine owners. Behind the various technical grievances alleged, and behind even the demand for shorter hours or higher wages, it has been manifest from the first that the union's purpose was to force itself to a position of more formidable power. Apparently it has failed, as the strike in the steel mills failed last year. No large undertakings of the sort have, in fact, succeeded, since the same anthracite union, in 1900, won its demands through the pressure put on the owners by the politicians during the presidential contest.

The coal-mining railway companies appear to have lost some six or seven million dollars by the embargo during the recent summer; but that is the smaller part of the matter. Economically this year's struggle is but another step in the working out of the deeply interesting problem whether the consolidation of industries into a few huge companies, with a single management, is or is not to be followed by a similar consolidation of the labor unions.

The coal strike was, in fact, only an incident. Aside entirely from

the railways, nearly all American industries have added their testimony to the country's great prosperity. No more conclusive witness can be had than the record of the clearing-house exchanges, representing the total amount of checks drawn on the banks of the United States. Since the volume of New York exchanges has been largely governed by speculative operations, clearings outside of that city are alone included in the subjoined table:

## CLEARINGS OUTSIDE OF NEW YORK.

	1902.	1901.	1900.	1899.
June .....	\$3,250,010,000	\$3,248,940,000	\$2,793,408,000	\$2,726,496,000
July.....	3,586,142,000	3,287,854,000	2,704,365,000	2,703,322,000
August.....	3,136,097,000	3,060,987,000	2,523,041,000	2,581,453,247

It was the genuine demand at the back of this prosperous trade, quite as much as the Wall Street operations pure and simple, which created the strain on the money market. Had Wall Street asked new credit facilities in the magnitude of 1901, either the country's normal trade would have been stripped of its resources or the money market would have collapsed under the double burden.

Fortunately, promoters and speculators gave this season's market a reasonable spell of ease. Few new enterprises placed their securities on sale; promoting syndicates were little heard from; some undertakings ready for exploitation — among them, apparently, the shipping trust — were quietly postponed to a more convenient season. What was perhaps more striking still was a movement of some of the large controlling interests to extricate themselves from their heavy commitments in the money market. This could be done by simply throwing their share holdings, or part of them, on the market. But to that course there were two distinct objections — the demoralization in prices likely to ensue, and the fact that such sales might forfeit control of the enterprise. With the problem thus presented, ingenious minds were set at work planning how to retain unquestioned control on a smaller outlay of capital, and how to arrange the securities involved so that they might be sold to the public without upsetting confidence. It is possible that this purpose was in a way to have been served by the plan of converting \$200,000,000 Steel Corporation preferred stock into bonds. It was undoubtedly the inspiration of the plan, earlier in the year, by which the great Metropolitan Street Railway property, with its \$52,000,000 capital, was leased to a company having no assets, the control of whose stock

could be acquired cheaply. It was brought to its highest point of development by the Rock Island Railway's capital conversion, placed before the financial public at midsummer.

This company, whose outstanding common stock amounted then to \$75,000,000, was controlled by a group of Western financiers who had used the enormous profits, derived by them from the steel amalgamations, to buy up an actual majority of the railway's shares. They found the process costly; during the present year the market valuation of the stock had reached 200. Their holdings were, of course, sustained by borrowings from the banks. Attempts to sell even a portion of these holdings would have made possible loss of control such as occurred last spring in the case of the Louisville and Nashville. In that case wealthy speculators, backed by unlimited credit in a group of financial institutions, bought up the shares with absolute recklessness in the open money market, snatched actual control from the Belmont interests, and then forced a powerful banking house, with large railway interests in the South, to take up the stock from them at an excessive price.

To avoid such hazards, and yet to lighten their load of banking obligations, was the problem of the Rock Island owners. It was solved by a very daring expedient. As presented to the market, this plan contemplated the exchange of \$75,000,000 requirement common stock for \$75,000,000 four-per-cent bonds of a holding company. The same Rock Island shareholders who had received the \$75,000,000 bonds were also to receive 100 per cent in new common stock and 75 per cent in new preferred. Apparently it was reasoned that, although the amount of stock would be increased through such a plan, the bonding of the company and the deposit of its equities as collateral for the mortgage would so far reduce the market valuation of the new shares as to make control comparatively cheap. The bonds, of course, would have no vote. If, then, the average price of the new shares were to be, say, half the price of the whole existing stock, it was clear that only half the capital now tied up in the enterprise would be required for control. The proposition met a stormy reception in financial circles, chiefly because of its boldness in heaping on the company new liabilities with foreclosure powers. Yet opposition, being only sustained by minority holdings of the shares, was futile.

The truth is that this particular conversion of contingent into fixed liabilities was only a sign of prevailing tendencies. Its purpose is invariably the same; it is done in order, by use or misuse of power over a company's finances, to make the withdrawal of capital from the enterprise

a safe and easy possibility before financial fortunes are on the turn. The same expedient, applied in a different way, was used by the Goulds and Vanderbilts in the later eighties.

The holder of a company's shares is a partner in the undertaking. If it goes amiss, he is the loser. If, on the other hand, he can convert his share holdings or a part of them into bonds, he thereby becomes a creditor, with all the peculiar advantages which a well-secured creditor enjoys. There can be no doubt that the tendency during the last two years either to issue new bonds to secure the capital of outsiders, or to exchange bonds for shares which it is desired to purchase, has been very striking. Indeed the most startling illustration of the movement happened more than a year ago, when the Northern Pacific and Great Northern railroads issued \$200,000,000 bonds in exchange for the \$100,000,000 stock of the Burlington and Quincy.

This operation has been frequently imitated since. The proposition to convert \$200,000,000 shares of the steel corporation into bonds has already been referred to in these pages. One of the striking episodes of the earlier spring was the acquisition, on a similar plan, of the Chicago, Indianapolis, and Louisville. During the summer large amounts of this stock, of which some \$15,000,000 worth was outstanding, were bought up on the market by a speculative "pool." It so happened that this railway company controlled an important entrance to Chicago from the South. Its purchase in the market, by the speculators, on the basis of borrowed money, raised the price of the common stock from forty-nine to eighty, and of the preferred from seventy-five to ninety. Having acquired control, the speculators offered their stock to two of the stronger railways of the South. In the end, the Louisville and Nashville and the Southern Railway jointly took over the majority holdings of the Wall Street speculators, paying in four-percent bonds at the rate of seventy-eight dollars per share for the common stock and ninety dollars for the preferred. That is to say, upward of \$3,000,000 profit was obtained by the "speculative pool" on their operation, and the price which they received was paid in the bonds of sound and powerful corporations.

The experience of the Steel Corporation during the last three months has been curiously interesting. After the vote of steel trust shareholders on May 19, it was generally assumed that the plan of converting \$200,000,000 preferred stock into bonds would be carried through. The general features of that plan were described in the last number of this magazine. As it turned out, however, litigation was at once



begun to prevent the furtherance of this plan. The first of such suits was brought before Judge Lacombe in the United States Court of New York City, asking for an injunction on the ground that compulsory conversion deprived the shareholder of his contract rights, and was therefore illegal under the Federal Constitution. Judge Lacombe took ground against this contention, although admitting that there was no express provision in the corporation charter for the retirement of stock by bond issues. He pointed out that the practice in New Jersey was to amend or alter charters at the will of the Legislature, and that this fact proved the contract right not to be perpetual.

In the ensuing week a similar suit was brought against the steel corporation in the New Jersey courts. Vice-Chancellor Emery, on June 16, granted a permanent injunction against the conversion of the preferred stock into bonds. Judge Emery's reasoning, in a nutshell, was, that every shareholder was entitled to the bonds issued for such conversion, but that none could be compelled against his will to accept any such exchange. If, therefore, bonds were issued in exchange for stock to shareholders who assented to the plan and were withheld from shareholders who dissented, a contract right was violated. Judge Emery intimated that the conversion plan might possibly have been carried out through allotment of bonds to every shareholder, whether he should elect to accept or not. But he made the point distinctly that such distribution could be made only *pro rata*, and that the plan pursued by the Steel Corporation, of engaging a syndicate to provide sufficient extra stock to make up the total exchange of \$200,000,000, vitiated the entire plan. It was therefore restrained from operation. An appeal was taken, but this reached the Court of Errors only on the eve of its adjournment, so that the whole operation necessarily went over to the autumn.

The case attracted very general interest, from the fact that law and precedent were clearly felt to be in process of formation. One inference which might be drawn from Judge Emery's decision was that the so-called Reed Act of last spring's New Jersey Legislature, by which the Steel Corporation gained authority, on a two-thirds vote of shareholders, to convert stock into bonds, was unconstitutional and illegal. The Steel Corporation appealed from Judge Emery's decision to the New Jersey Court of Errors, and in the interim its lawyers have devoted themselves to proving that the suit against the company was not brought in good faith. Meantime Judge Emery's decision has stood, and the conversion plan has been blocked.

Taken as a whole, the various questions which I have reviewed as

the noteworthy landmarks of the last three months lead to a curiously interesting position. We have seen that although the wholesale floating of new and heavily capitalized concerns was checked, still there have overhung the market large amounts of securities which have not yet found their way into the hands of the general public. It was also shown, by the experience of the spring, that the floating debt of American markets to the European banking centres had again grown very large. Yet, on the other hand, the conditions of general trade have been highly prosperous, the harvests have resulted in a promise so abundant as apparently to assure the continuance of material prosperity; the \$112,000,000 decrease in our export trade of the fiscal year 1902, wholly a result of last year's harvest failures, will be largely or wholly made good in the next twelve months, and thereby the means of taking up some of our foreign liabilities will be provided. The further question is, Will the large blocks of stocks and bonds, as yet unissued or undistributed, be absorbed this year by the investing public? Clearly the problem of the next few months is how far real capital can be made to take the place of mere creations of paper securities.

ALEXANDER D. NOYES.

## APPLIED SCIENCE.

THE utilization of the resources of nature goes on with unabated activity. A few years ago, in addressing the British Association for the Advancement of Science, Sir William Crookes drew attention to the food problem, and pointed out that some artificial method of producing fertilizers must come if the grain supply of the world was to keep pace with the demands of the increasing population of the globe. One of the principal elements in the food of plants is nitrogen, but it must be supplied in the form of nitric acid or of a nitrate of some sort, such as nitrate of soda or of potash. This is usually obtained either by the nitrification of organic matter, or by the utilization of natural deposits of nitrate of soda. Although four-fifths of the atmosphere consists of free nitrogen, this is altogether inert and unfit for plant food; but now practical success is being attained in the fixation of atmospheric nitrogen and its conversion into nitric acid and thence into alkaline nitrates suitable for the indefinite regeneration of the soil and the nourishment of grain.

The process is simply a commercial application of the discovery, made years ago by Siemens, that atmospheric nitrogen is oxidized by the action of high-tension electrical discharges. In the apparatus of Messrs. Bradley and Lovejoy, in operation at Niagara Falls, large quantities of air are passed through a confined space in which powerful electric arcs are maintained, and this is found to produce nitric acid in sufficient quantities for the manufacture of nitrate of soda or nitrate of potash on a commercial scale. When it is understood that more than a million tons of nitric acid are now made every year from natural nitrates, and that the demand is increasing while the supply of nitrates is diminishing, it will be seen that the possibility of the utilization of what has hitherto been considered the most inert element in nature is a matter of more than ordinary interest. The cost naturally depends upon the charge for the electrical energy; and when this is derived, as at Niagara, from a natural water power, we have the remarkable fact of the production of the ultimate source of the food supply of the world from the mechanical energy of falling water.