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WAR FINANCE.

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G-4 COURSE NO. 1.

In days of antiquity, the common method of financing a war was by means of the treasure chest. Monârchs accumulated large sums of money in peace to be expended in war. The historian McCulloch tells us that the Athenians amassed upward of 10,000 talents, or about $11,000,000, in the interval between the Persian and Peloponnesian Wars, and the Spartans imitated their example. The riches which fell into the hands of Alexander the Great came largely from the war chests of the East stored since the age of Cyrus, and Alexander's successors, the Ptolemies, are supposed to have collected the equivalent of nearly $200,000,000.

The Romans accumulated war treasure, both under the commonwealth and under the empire. It was a frequent practice during the Middle Ages, and persisted in even more modern times. Frederick II of Prussia received 8,700,000 thalers, the equivalent of $6,000,000, from his father when he came to the throne, and, despite his constant warring, left his successor a fund of 70,000,000 thalers. x

This method of treasure chest financing was possible in times when warfare was comparatively inexpensive. Armies, to a large extent, were sustained and paid by plunder of the conquered. Arms and other equipage cost little compared with the complicated machinery of modern times, and frequently were furnished by the soldiers themselves or the nobility who commanded them. People still largely agricultural could go to war between seed time and harvest without serious loss of income or decrease in the productive power of the country.

The invention of gunpowder and other vastly improved weapons worked a great change. So rapidly did the cost of war grow that Adam Smith was led to write in 1776 that it was "commonly computed that not more than one-hundredth part of the inhabitants of any country can be employed as soldiers without ruin to the country that pays the expenses of the service." Mr. Francis W. Hirst, in his "Political Economy of War", remarks that "it is striking proof of the growth of wealth and of scientific organization for war that in spite of an enormous addition to the cost of munitions and arms since 1776 both France and Germany in 1914 were able so long to maintain at the front or in reserve over one-tenth of their population."

War has become a contest of workshops as well as of armies, and of methods of conserving and directing the whole energies of a people in the pursuit of victory. Expenses have mounted to the point where any anticipatory hoards of money now would look ridiculously small. The total world stock of monetary gold is estimated at about $8,000,000,000, and the expenditures of the United States in the World War, including $10,000,000,000 of loans to the Allied Nations, were more than three times this amount. The United Kingdom's expenditures during the six fiscal years ended March 31, 1920, were over £11,000,000,000, or larger than the total expenditures for the two and a quarter centuries preceding 1914." xx

The true war reserve of the present day is a high, well balanced productive capacity, and a peoples' willingness to consume less than is produced. The country possessing such a reserve, if its methods of war finance are sound, may draw upon it in much the same way as the ancient kings drew upon their treasure chambers.

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x Adams - Public Debts.

xx Bankers' Trust Company - English Public Finance.

I said, "If its methods of war finance are sound." Unfortunately, history is far more replete with glaring examples of unsound war financ and their disastrous results than with examples of sound financing. The most constantly recurring error into which finance ministers of all ages have fallen has been that of debasement of currency. In ancient and mediaeval times it took the form of clipping coins or otherwise reducing their bullion value, and in modern times the still more dangero form of irredeemable paper money.

With the example before us of the disordered conditions resulting fr paper money inflation in Russia and elsewhere in Central Europe, few persons would advocate a deliberate course of currency debasement. It is not that which we have to guard against. But paper issues have an insidious way of beginning on a comparatively small and apparently harmless scale, and of growing irresistibly until they envelope and overwhelm.

The first issue of the famous - or one might say infamous - French assignats was four hundred million livres, a large sum for those days, but small compared with the flood of succeeding issues. Andrew D. White tells us in his interesting history of the assignats that within five months the first four hundred millions had been spent, the Government was again in distress, and people throughout the coûntry were clamoring for another issue. With each succeeding issue, prices, in terms of the depreciating currency, rose higher, thus creating a demand for more issues. The vicious circle continued until it ended in the ultimate worthlessness of the assignats, and the complete economic and financial prostration of France.

The other classic example of history was our own Continental currency. It began with the issue of \$3,000,000, authorized on June 22, 1775, - a beginning, says one historian, "as humble and insignificant, at the outset, as the Genie of Arabian tales, whom a small bottle at first sufficed to hold, but who, freed from his imprisonment, swelled into proportions so vast as to enfold both land and sea." x As the necessities of Congress continued, further issues were made, accompanied always by a growing unwillingness on the part of the people to accept them on a parity with coin. All efforts to maintain their value by resolutions or severe penalties were useless. Shopkeepers took down their signs and closed their places rather than take the money at its face value. By the close of 1779, the original modest \$3,000,000 had grown to nearly \$242,000,000, and its value had fallen to 40 to 1. It later fell to below 500 to 1, and was funded by Hamilton at a rate of 100 to 1.

War financing by paper money is like an attack on the army from behind. The Continental currency nearly beat us in the Revolution. The British regarded it as one of their strongest allies. The American General McDougal, writing from Peekskill to General Reed, said, "The enemy is confident our currency will fail us, . . . and that, whenever the supplies for the army fail, the people will return to their allegiance. He is now counterfeiting another emission, which will soon be out." xx

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x Poor - Money, Its Laws and History.
xx Poor, Money, Its Laws and History.

The use of irredeemable "greenbacks" during the Civil War is estimated to have increased the cost by nearly $600,000,000, x due to the fact that the Government had to accept pay for its bonds in the depreciated money, but pay interest and principal in gold.

History furnishes one notable example of a country fighting a long and exhausting war on sound money, and one all the more interesting for purposes of contrast in that its opponents resorted to paper. For nineteen years, - or nearly five times as long as Germany held out in the late war, - Napoleon fought practically the civilized world, and never once weakened from the determination expressed in a letter to one of his ministers, that "while I live I will never resort to irredeemable paper money." Under this policy, and nothwithstanding the length and severity of the struggle, France commanded all the gold she needed, and supported her armies in the field. The tribute levied on conquered nations was an important factor in making it possible to maintain gold payments, but is far from being a complete explanation. Other conquering nations have all too frequently been unable to resist the lure of paper issues. The policy laid down by Napoleon must receive major credit. Even after invasion and defeat at Waterloo, there was no acute financial distress, and complete recovery was rapid.

In contrast with this comparative financial tranquillity, England, on an irredeemable paper basis, was severely shaken. The immediate effect of the suspension of cash payments in 1797 was not unfavorable. But without the automatic check provided by redemption requirements, the fatal facility to over issue began to get in its work. The exchanges turned against England. Paper depreciated until the premium on gold in 1813 touched nearly 30 per cent. The country endured all the hardships of a fluctuating currency, culminating in 1814, 1815, and 1816 in serious economic distress and unprecedented bankruptcy. Not until 1821, or 24 years after the first suspension, was the country prepared to resume specie payments.

These examples serve to illustrate the vast possibilities for help or harm which revolve about the financial plan upon which a war is conducted. These possibilities grow in magnitude as the expense of war increases. They make it emphatic that a well thought out plan for mobilizing and organizing the financial resources of the country must be an essential part of any military program.

In order to get a clear idea of the task before the modern finance ministry, let us reduce the problem of war finance to its simplest terms. Let us suppose that we are chiefs of some communistic society wherein all deposit their surplus production in a common warehouse for the benefit of all, and that we are charged with the duty of marshalling the wealth of that society for defense against a threatened attack. There immediately becomes necessary an entire reorganization of the economic life of the group. All men of military age who can be spared are withdrawn for service in the army. This means more intensive effort on the part of those who remain at home. The same, - and probably a larger, - production of food and clothing will be required, plus munitions and other equipage, and there will be fewer to do it. To meet these requirements, we probably

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x Ely - Outlines of Economics.

will first speed up our productive machinery by patriotic appeals to those already at work. Next, we will recruit as additional workers old men and large numbers of women. Lastly, as people learn to do without luxuries and many things previously considered necessities, we begin the abandonment of non-essential industries and diversion of energy thus released to the prosecution of the war. In such a community, there is no question of taxes or of loans. Each individual contributes freely his labor and skill in the best interests of all, and receives his return in the accruing common security and prosperity.

Our modern methods of war finance are more complex, but they rest finally upon the same basis, - namely, a mobilization of productive power in the advantage of the state. We do not require that farmers and manufacturers shall turn a certain proportion of their output into a vast common storehouse from which the Government may withdraw wheat, corn, automobiles, munitions, clothing, etc., but we do require that they shall turn over a certain part of their income. By this acquisition of purchasing power, the Government obtains that control over labor and commodities that it enjoyed more directly under the hypothetical communistic plan referred to.

It is the problem, then, of the finance minister to tap and divert to the uses of the state, by taxation or borrowing, as large a part of the national income as possible without impairing the processes of production. In an ideal state, it is conceivable that the citizens might turn over to their government, through taxes or loan subscriptions, enough surplus capital to meet fully the war expenses. Staggering as these expenditures are, they are, after all, no more than the value of the current production which they are intended to control. For thepopulation of the modern state to turn over to the government the needed portion of its income would be doing in effect the same thing that the members of a communistic society did when they contributed more directly their labor and the products of their labor to the common defense.

If government war receipts could be so closely adjusted to expenses, the task of the finance minister would be comparatively simple. He would be little more than an exalted bookkeeper, charged with collecting funds from the profits of industry and paying them back to industry as the government made its purchases. Under such a system, war could be carried on indefinitely, so far as the problem of finance alone would be concerned, with immeasurably less of the disturbance to wages, prices, and general living costs that is now so vivid in our minds.

As a matter of fact, however, there are limits to the extent to which the civil population may be expected to deny itself effectively and devote its savings to the support of a war. Patriotism will permit a very material increase in taxation and stimulate a large investment of savings in government securities, but if the war is long and exhausting there comes a time when the receipts from these sources fall below expenditures. Meantime, the requirements of the war continue imperative, and the army and navy must be supplied at all costs. Under pressure of this necessity, the government recognizes that its problem is no longer the maintenance of strictly sound financial methods, but has become in the nature of a choice of the least of evils. It is at this juncture that the temptation to issue irredeemable paper money is likely to prove most alluring. While this is the worst of all possible steps, the consequences of which we have already considered, it is well to bear in mind always that all methods of balancing a deficit other than by the savings of the people are evil, and justified only by the supreme necessity for victory. It is departure from this principal that causes most of the economic hardship wrought by the w...

During our own war with Germany, the flow of Government securities came too rapidly to be absorbed entirely by current savings. This was notwithstanding the fact that our people presented an inspiring example of a nation whole-heartedly united in support of the common effort. I need not remind you of the cheerfulness with which, on the whole, Americans submitted to commodity rationing, price fixing, and other regulatory measures, as well as voluntarily limiting themselves, in order that our energies and resources might be devoted more completely to the prosecution of the war. From the greatest manufacturing establishments down to the humblest homes the response was most gratifying. The truth of the matter is, however, that under our complex social system it is extraordinarily difficult for a people to save currently and place at the disposal of their government the capital needed for the prosecution of a great war. Standards of living are more or less fixed, and are less susceptible to change than in more primitive societies. Our economic relationships are intricate, and under a system where concerns must show a profit to exist, the problem of the extent and manner of contribution to the state is a difficult one. Finally, mobilization of a people for war is to an important extent a matter of publicity. In a vast country like the United States, the importance of sacrifices and the extent of sacrifices required are not borne upon all sections immediately with the same force.

Consequently, our government had to make up the deficit in receipts from savings by resort to bank credit. You will recall that the Government after requesting the maximum investment of current savings in Liberty bonds, also asked investors to anticipate their future savings and buy bonds on the partial payment plan. Every effort was made to encourage people to save and complete these payments as soon as possible, but many did not or could not pay rapidly, and the result was a continuously increasing amount of Liberty bonds being carried on bank credit. In addition to this, the Treasury also borrowed large amounts on its short term notes, as much as 80 per cent. of which at times were lodged in the banks. Thus, we see that what purchasing power the Government was unable to obtain by tapping the savings of the people, it manufactured through the creation of bank credit. At first sight, this looks a good deal like manufacturing paper "Continentals" or assignats, but the vast difference was that the credits and currency we created were always, for any legitimate purpose, immediately convertible into gold. This convertibility could be maintained by reason of the fact that for the first time the country's gold reserve was mobilized in a single reservoir, - the Federal Reserve System, - instead of being scattered, as it was formerly, among thousands of individual banks all over the country. Such a centralization of reserves permitted them to become the basis for a much larger creation of credit and currency than would have been possible under the old system.

Inability of the civil population to limit its consumption sufficiently to release production fully for war purposes means that both the Government and individuals become bidders for labor and goods in the open market. As long as labor is not fully employed and factories are not running at capacity the effect of this on prices is not marked. When, however, every man has been put to work and every mill wheel is humming, and increased demand can no longer be matched by increased production, the effect of this competitive bidding is simply to run up prices and wages. Each rise in the price and wage level created a need for additional purchasing power, which, when it is supplied through the medium of bank credit tends to inflate prices, and wages still further. This very process in itself prevents full utilization of maximum productive capacity. Prices and wages rise unevenly, - more in some lines than in others, - and distortion of the normal relationships causes heavy demand and often speculation, accompanied by shortages, of the commodities the prices of which are rising. It causes shifting about of labor from one position to another, discontent, and strikes. It disrupts the smooth workings of industry and creates waste where the vital need is for economy. If the process is continued, an actual decrease in total production often occurs.

In our own case, when we entered the war in 1917, our factories were already over-driven. The warring European nations had bought heavily from us, and they had sent us in payment a vast amount of gold which became the basis of an even greater domestic buying power. As our production could grow only gradually, the inevitable result of this accumulation of buying power was a rise in prices, which, between July, 1914, and our declaration of war, had amounted to 72 per cent. When, after that, our Government, armed partly by bank credit, became likewise a bidder for men and goods, prices showed a further rise, which up to the Armistice amounted to an additional 20 per cent. Before the rising circle of prices and credits came to a halt in 1920, the level of prices had gone 172 per cent, above the pre-war level. The following table shows the percentage price rise in three periods, - the period before our entrance into the war, the period of our participation, and the post-Armistice period. The index of prices is that of the Department of Labor.

July, 1914	100	April, 1917	172	Nov., 1918	206
April, 1917	172	Nov., 1918	206	May, 1920 (peak)	272
Increase	72 per cent.		19.8 per cent.		32 per cent.

If it had been possible for us as a nation to reduce our private consumption by the amount of the Government's needs, the competitive bidding and consequent price and credit inflation attributable to the war would have been avoided. There is reflection of the highly commendable effort made by our people in this direction in the fact that, notwithstanding the withdrawal of more than four million men from industry for the army and navy, and the huge Government expenditures, the price rise during our period of participation in the war was relatively small.

Bearing in mind, therefore, the need for balancing expenses out of savings, so far as possible, the finance minister will have a choice as to which of three courses is best calculated to bring about the desired results. These three courses are: taxation, borrowing, or a combination of taxation and borrowing.

Were it a practical possibility to finance a war entirely by taxation, it probably would be advisable to do so. Undoubtedly, a nation able so to do would be in a strong position for rapid recovery at the conclusion of hostilities. Theoretically, it is not impossible, for, as has been pointed out, the income that is taxed is merely symbolic of the goods which must be produced during the period of the war. Under the communistic regime described all expenses were defrayed by taxation in kind.

The objections against such a program for the modern state are purely practical difficulties that would arise in the levying and collection of the vast amounts required. Where billions are needed an inequable apportionment of the burden would be disastrous. It is not necessary for us here to go deeply into problems of taxation, which constitute in themselves a profound science, but it suffices to point out that taxes must be levied in proportion to the ability of each taxpayer as well as of all of the people to pay and that there is no certain way of knowing very closely just what this ability is. Under our present economic system founded on the principal of profits, it is inevitable that too heavy a rate of taxation will discourage enterprise, and be the means of killing the goose that lays the golden eggs. As a matter of fact, however, it is seldom necessary to warn a people against the dangers of too heavy a rate of taxation. The example of history indicates that they are usually too ready to magnify its dangers, and find other means of financing, often yielding to the fatal attraction of paper money.

Directly opposed to a policy of financing by taxation is a policy of financing as completely as possible by borrowing. Here, too, it may be said that if the loan program could be carried out ideally, - that is, if the bonds could be taken up entirely out of savings, and without resort to bank credit, - the plan would be sound. Not only that, but it probably would be the best method, though for a different reason than the one commonly advanced. It is fallacious to assume that the flotation of loans and the creation of a public debt enable a generation at war to pass some of the destruction, which we sometimes call the cost of war down to future generations. The "cost" of war is paid to the last cent during the war in the destruction of capital that it entails. Borrowing is simply a device whereby the cost is borne immediately by a comparative few, and is redistributed later over a wider area through the medium of taxation for debt interest and redemption. The advantages of the system would lie both in the fact that larger sums can be obtained by offering an interest return than by taxation, and in the fact that it contains within itself some potentiality of a recouping of the war losses. If the post-war taxes for debt service are levied properly and broadly, they constitute an enforced saving on the part of the great body of the people which eventually will replenish the capital fund.

Unfortunately, a program of financing exclusively by loans apparent cannot be carried out ideally during a trying war, and experience has shown the attempt to be highly dangerous. It is altogether too easy for the bonds to find their way into the banks and become the basis of inflation. Our own history, which has furnished so many excellent examples of how not to finance a war, does not fail to present a classic example of the difficulties resulting from depending too much on loans. Before the outbreak of the War of 1812, Secretary of the Treasury Gallatin had stated it as his opinion that "loans should be relied upon principally in case of war," x and his financial program contemplated the collection of current revenue only for the ordinary expenditures of the government and for debt interest, and borrowing for all the extraordinary expenses of war. Congress was still more reluctant to tax, and declined to raise the rate sufficiently to cover interest on new debt and to offset the reduction in customs revenue caused by the war. As a result, notwithstanding the fact that prior to the war the credit of the Government had been high, the success of even the first loan had to be characterized by Gallatin as "more than doubtful." xx With each succeeding issue, the terms became more disadvantageous, until by 1814 the public credit had fallen to extraordinarily low levels. Government bonds were quoted at a heavy discount, and the Treasury, in order to get subscriptions to new issues, had to promise in some cases that the amounts subscribed would be used solely in defense of localities furnishing the money. The dire extremity of the national finances was further indicated in the same year when an offering of nearly $13,000,000 six per cent. public stock brought subscriptions for only $746,403, although the specie price ranged as low as 65 to 69.

It is only fair to remark that invasion by the enemy, the unpopularity of the war with a large class of the people, and the failure of Congress to recharter the United States Bank in 1811, greatly intensified the difficulties of the war program. The failure of Gallatin's war policy, however, was still due in large measure to its erroneous principle, and contemporary critics did not hesitate to place the blame there. Both Secretaries Campbell and Dallas who succeeded Gallatin admitted its failure, and recommended increased taxation. In the words of Dallas, the difficulties had not been due to "want of resources or want of integrity in the nation," but "to inadequacy of our system of taxation to form a foundation of public credit, and the absence from our system of the means which are best adapted to anticipate, collect, and distribute the public revenue." xxx

The German Finance Minister Dr. Helfferich's declaration early in the recent war that additional taxes would be levied only for debt interest sounded singularly like Gallatin's messages. Germany's adoption of this policy was probably due largely to expectations of a short war and indemnities, and when these expectations were not realized the inevitable failure of the plan resulted. Germany ended the war with heavy issues of irredeemable paper, the further multiplication and effects of which since the Armistice are familiar to all.

It is thus clear that our finance minister in a serious or critical or long war can rely neither solely upon taxation nor solely upon borrowing. His proper course lies in a combination of the two. What the

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xx Adams - Public Debts

xxx Adams - Public Debts.

x . Bolles - Financial History of the United States.

proportion of dependence upon each should be is impossible to say definitely. It depends upon the circumstances of the war. In general, it may be said that every dollar that can be collected by taxes should be so collected, and for the rest resort may be made to borrowing. In case of a short war, it may be found possible to rely almost wholly upon taxation. Our war with Spain, for instance, was financed largely by taxes, and the debt increase amounted to only $200,000,000.

Experience of past wars has shown that best results have been accomplished where a vigorous tax policy has been pursued. A good example was the British financing of theCrimean War. When war broke out in 1854, Gladstone, who was Chancellor of the Exchequer, determined to defray the expenses by taxes, and, so far as possible, by direct taxes. At the outset, he secured a doubling of the income tax for six months, and this was later extended to cover the period of the war and a year after peace. Indirect taxation was also increased. While there was borrowing enough to depress public credit somewhat, the range of consols the first year after the war was 93 7/8 - 98 3/4, compared with 90 3/4 - 101 in the year before the war. The close of the war was followed by a very rapid recovery in the country to prosperity.

Pitt's use of the income tax in meeting the cost of the Napoleonic War cost is another illustration of what can be accomplished by a resolute tax policy, even in the face of a bad currency system. Up until 1798, the war was financed largely by loans, and it was during this period that England got started on the road of irredeemable paper. In 1798, Pitt carried an income tax, which, however, due to defects in the law did not become fully operative until 1806. During the following ten years of the severest struggle and exhaustion of the war, when the country was suffering from the effects of earlier bad financing methods, Great Britain, with the aid of this income tax, accomplished the remarkable feat of raising more than enough revenue to meet all civil and military expenditures, exclusive only of those having to do with debt. The step, however, came too late to save England from paying the penalty for delay in instituting a sound policy by a period of severe financial unsettlement. Referring to the results of the tax, Gladstone said in 1853, "Our debt need not at this moment have existed if there had been resolution enough to submit to the income tax at an earlier period." x

Contrasting with Gladstone's handling of the Crimean War finances was our dilatory tax policy in the Civil War. Secretary Chase, like Gallatin, believed in loans, and under his administration taxation was subordinated to borrowing and paper money issues. Two years ago, when it was my privilege to discuss this subject before the War College, I quoted some figures from Professor H. C. Adams' book, "Public Debts," which I would like to present again, as they are highly illuminating. They contrasted the receipts of the Federal Government during the Civil War from revenue with receipts from loans as follows:

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x Hirst - Political Economy of War.

Year	Revenue	Loans
1861	$ 41,500,000	$ 23,700,000
1862	51,900,000	433,600,000
1863	112,600,000	595,600,000
1864	264,600,000	696,000,000
1865	333,700,000	864,800,000
1866	558,000,000	92,600,000

These figures show clearly with what reluctance the Federal Government resorted to taxation. In the year after the war, revenues from taxes were over thirteen times the amount of revenue from taxes in the first year of the war, and about eleven times the revenue from taxes in the second year of the war. The inevitable result of this weak policy, coupled with paper money issues, was inflation, suspension of specie payments, and commercial and financial unsettlement from which it took fifteen years to recover.

Our financial program in the war with Germany rested on a different basis. In the first fiscal year of the war we raised $4,175,000,000 by taxation, compared with $10,700,000,000 by borrowing. In the fiscal year ended June 30, 1919, taxes brought in $4,650,000,000, and loans $12,000,000,000. The lessons of other wars were not forgotten and from the outset our policy was to raise every dollar possible by taxation, to print no paper that could not be instantly redeemable in gold, and to distribute the Government securities to the greatest extent possible without resort to bank credit.

It is now pretty conclusively established that a properly conceived financial program should be in accordance with this policy. There still remains, however, one more important problem for the finance minister to settle, and that is whether the Government, in selling its securities, shall permit the rate of interest to be determined wholly by the ordinary forces of an open and unregulated money market, or whether it shall adhere to a low rate policy, and depend for distribution partly upon keeping money rates low and partly upon appeals to patriotism. Our own plan during the recent war inclined to the latter character, and probably no other phase of our financing has called forth more discussion pro and con than this one. The critics of this method have argued that maintenance of cheap money through low discount rates at the Federal Reserve Banks tended to stimulate private enterprise unduly at a time when the full measure of the country's resources was needed by the government, and that in consequence of this competition what was saved in interest was lost in the higher prices the government had to pay for supplies. It was further argued that the Government, by not offering its securities at a rate which would make them attractive purely and solely as an investment, hampered its own efforts to secure that maximum distribution outside of the banks which we have seen is so important to the successful financial conduct of a war.

I do not wish to take sides here with regard to our war policy in this respect. Let me simply point out, however, that hindsight is better than foresight, and when the country was facing a war which promised to tax its resources very severely there was much to be said for carrying on borrowing operations as cheaply as possible. It may be recalled, also, that at the time there was a disposition in some quarters to criticize even the rates named as too high. In fact, it is probably true that the great body of public sentiment generally favored a low rate policy.

I have spoken thus far only of the general principles of financing war. I might go on to discuss in detail the problems which arise in applying those principles. History is filled with interesting examples of their application and our own recent experience has given us a fund of knowledge which the finance minister of any future war will do well to study. Many of the detailed problems are of a technical nature and concern the finance minister rather than the soldier. Many problems are both military and financial in their implications, as, for example, the basis upon which war contracts should be let to assure a continuous flow of munitions to the points required, at the time required, under conditions of payment conducive to the greatest possible economy. On all of these problems there should be careful study, both on the part of the financial department of the Government and the war making departments. The problems are not ones which can be dealt with adequately by snap judgment on the spur of the moment. Careful advance planning is essential to sound war finance.

I have in mind a certain commission of one of the allied governments which came to this country during the war for the purpose, among others, of buying a large amount of army supplies. I shall use tents to illustrate. Under instructions from their government, they advertised widely for bids, and as a result set in motion inquiries for cloth and other materials from a large number of concerns throughout the country which, in turn, sought to secure options on their needed materials before quoting a price. Suppose there were twelve firms submitting bids and securing such options. It is clear that the effect of the original order was multiplied twelve times. Furthermore, concerns receiving these inquiries and giving options also felt the need of covering their requirements, and became themselves inquirers for supplies. And so the effect of that tent order tended to spread like ripples on the surface of a pond. When this sort of thing goes on in many lines, it can become an important factor in price and wage inflation, and one quite apart from financing methods. In such case, the volume of credit required to make the purchases is the result of the inflated level of prices and not the cause of it. I use this example to illustrate the importance to the financial plan of proper methods of buying. In other words, bad buying, instanced in the case in point in excessive resort to competition, can be in itself an important cause of inflation.

On the other hand, the financial plan, if improperly conceived, will cause inflation regardless of how soundly conducted the buying. The lesson to be learned is the necessity for close understanding and cooperation of all arms in the formulation of a program which will result in the mobilization of resources with the greatest possible efficiency. Our experience during the war showed it to be extraordinarily difficult to inventory plants in a practical way according to their suitability for handling different types of orders, but if a body of knowledge of this character could be created, those charged with purchasing would be in a position to let their contracts directly to concerns best fitted to take them, and it would be more possible to reduce as much as desired that competitive bidding, which, as we have seen, has harmful potentialities.

All data which tend to make more complete a program for the production, transportation, and storage of munitions and supplies, and to recognize the interdependence of this program with the financing, facilitates the latter.

The army in years past had made careful studies of the problems involved in training large bodies of men for combat. The results of these studies were shown clearly in the expeditious and efficient manner in which our troops, after only three to six months of intensive training, were able to meet the most highly trained troops of Europe on better than an equal basis. The recent war, involving, as it did, more than any previous war, problems of organization of industry, taught to the world the necessity of preparing with nearly equal care for the industrial aspects of warfare. We found that we needed more dependable knowledge of the quantities of clothing, machine guns, artillery, and ammunition that would be required. In some cases, I am told that we found we had no blue prints of many of themunitions which it was found desirable to manufacture. The entire munitions program I have also beentold was held up for several months by delay in the manufacture of those comparatively simple metal parts of shells known as adapters and boosters.

Just as we found we needed more adequate knowledge of the quantities of supplies and munitions required, so it was many months before any reliable estimate could be made concerning the tonnage of shipping required to transport to Europe the army with its supplies. As a result, the provision of ships in the early months was inadequate, and supplies rushed to port were dammed up there. There was no adequate provision for storage of munitions and supplies in the interior, and contracts were drawn in some cases without adequate provisions for adjusting the flow of traffic to the vessel tonnage available.

To the extent that it will be found possible to prepare in advance for these contingencies, the task of the finance minister will be facilitated. While, in the last analysis, he alone must assume responsibility for the financial conduct of war, any provisions that can be made to insure the smooth and expeditious production and distribution of supplies will be of great aid in making his program effective. There are limits, of course, to the extent to which advance estimates are possible. Each war is likely to involve its own problems of tactics and equipment that cannot be foreseen. One of the greatest difficulties in the way of carrying forward an adequate financial plan is the impossibility of knowing even approximately how much money will be required. A part of the uncertainty which exists on this score is unavoidable and arises from the chances of war. A part, however, is susceptible of some reduction as we perfect our machinery for planning the industrial part of the war program.

For the soldier and for the financier there is a common lesson in the experiences of the past. It is theneed for the careful preparation of the entire war plan as it concerns personnel, material, transportation, and finance. The presence of this body of officers at the War College conducted under the auspices of the War Plans Division of the General

Staff is an evidence that the army at least has a full appreciation of the importance of this.

Q. What was the disposition of the extensive war loans that England made to her allies, Prussia, and Portugal, in the Napoleonic wars?

A. My recollection is none of these loans have ever been repaid. I can only speak specifically from recent knowledge of one loan, and I was referring to this in talking with General McGlachlin as we came into the room. There hangs in the office of the Governor of the Bank of England today a proclamation issued by one of the Henry's (Kings) -- it is at least two hundred years old I think -- in which he invites the peoples of the Islands to contribute to a loan which was being issued by His Majesty's Government the proceeds of which will be turned over to his friend and ally, the King of Prussia, for his aid in the prosecution of wars then raging. That loan was made, and I was told when I made inquiry just casually that not one penny has ever been paid on it.

Q. I think Portugal paid the interest for a few years, and finally repudiated it, about 1890?

A. You are aware of the fact, I suppose, that the loans which we received from France during our War of the Revolution were carefully investigated as to the outcome during this recent war, as some guide, and while there was much dispute over the settlement of the account with the French Government, and, as you know our relations with the French after the war for a time were a little bit strained, after our War of theRevolution, the record seemed to indicate that, allowing for a difference of opinion, the American Government did repay every dollar advanced by France in connection with the war of our independence, and that included, I think, the cost of sending troops and ships over here.

Q. I felt during the war and since that we made a great mistake in calling our subsidies to the poor powers of Europe loans instead of subsidies, as they were called in previous wars. Very few advances of money from a wealthy country, England for instance, to poor allies have ever been repaid, just as you have been saying. I would like to hear a little further on what you think of that, sir.

A. I think it is well to put these things in their right relation to each other, and I would like to have a chance to get more accurate information than I have, and I must really, in answering this, depend upon my memory, which is sometimes inaccurate. My belief is that most of these loans between Governments in time of war have been historically of this character; England or France or Germany wants an ally, they are anxious for a partner in the war, and a part of thebargain is financial assistance to the new ally. I have no doubt that when France, at war with England found it possible to enlist the aid of a country across the Atlantic, for what would be a flank attack upon England, would be very glad to promise subsidies to the new American nation. These loans were of quite a different character, these loans to our allies. The new partner entering the war did the banking, put up the money, not only the soldiers and supplies, but the money. And generally it has been the other way around. I have some recollection of negotiations between the Allied Governments and Italy, before Italy declared war, in which not only money advances were promised and made, but territory was promised as I recall, and it wasn't territory that belonged to the promiser either. It is a fact that loans of the character that possibly you have in mind were properly called subsidies because they were made in many instances by the major party to a war that wished to buy an ally and bring new strength to that side. And if there is anything that differentiates our participation in this war from others of like character it is that we not only came in with our men our moral force, but we didn't ask any money. We gave our own money, and then when it was all over we didn't ask the enemy to pay us anything. I would like to reflect a little and look this up further before making a final answer, but I think there is something in that distinction.

Q. I think you will find that loans to new countries have generally been paid, but the old countries don't pay the new countries. For instance the South American countries have borrowed immensely from Europe, and Chile, I believe, has paid?

A. The Greek wars were largely conducted on the basis of subsidies to their neighbors, paid by them from a treasure chest which they had accumulated in other wars. I am trying to recall specific cases, but am afraid I will not be able to, but I think before the establishment of the Macedonian Government in Athens that the Macedonians always joined the Greeks as a result of a cash down payment that came out of this treasure chest.

Q. May I ask for a little further information with reference to that matter of passing the debts on to the future generations. I can't understand why if the future generations pay the taxes from which the interest charges and the ultimate redemption of the bonds are paid, why is it that the cost of the war is not passed to the future generations?

A. I think you have to distinguish between what you would call the generic cost of war, which is the destruction that takes place during the war, and the specific monetary cost, which is the apportionment of taxes, and the apportionment of the tax takes place upon one or another basis according to the decision as to whether loans shall be negotiated or as to whether it shall all be paid out of taxes. The words "the cost of war" are exceedingly misleading, but economists refer to the cost of war as the immediate destruction incident to it. Taxes to defray war cost are borne generation after generation, but the difference between the system of loans and that of taxation is that it permits as a rule, I believe, of a more equitable distribution of the taxes when loans are employed for a part of the immediate financing of the war cost.

mwh