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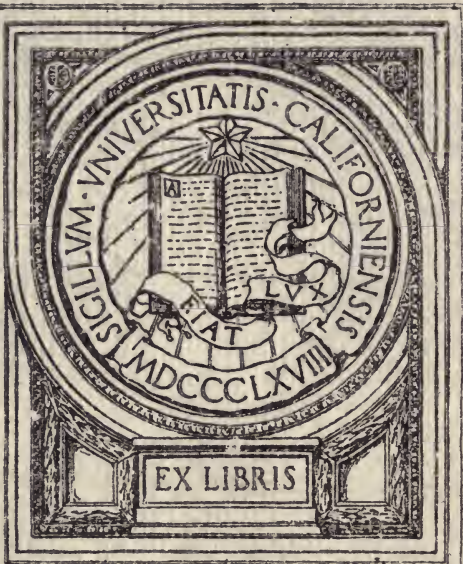
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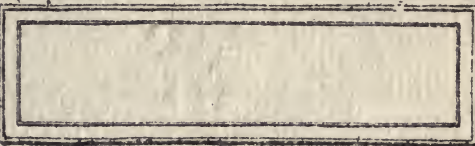
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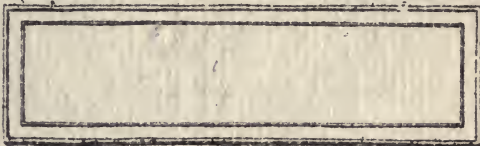
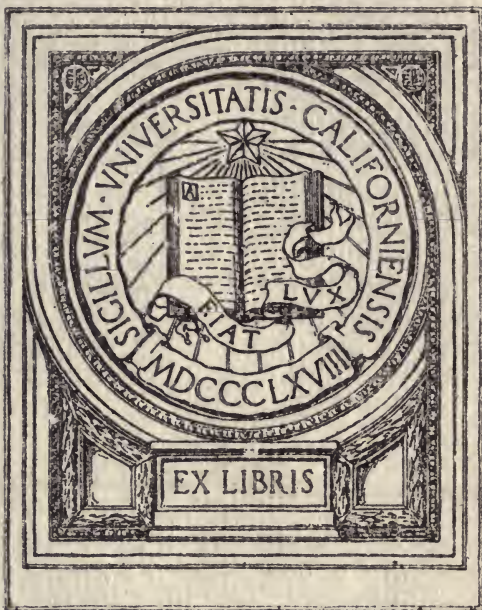


GERMANY'S  
*ECONOMIC POWER*  
*of RESISTANCE*



GUSTAV CASSEL  
UNIVERSITY OF STOCKHOLM.

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ECONOMIC POWER  
of RESISTANCE*



**GUSTAV CASSEL**  
UNIVERSITY OF STOCKHOLM.







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GERMANY'S  
ECONOMIC POWER  
OF RESISTANCE

BY  
PROF. GUSTAV CASSEL  
UNIVERSITY OF STOCKHOLM

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## INTRODUCTION

In February, 1916, the German Minister at Stockholm asked me, as a neutral economist, to visit Germany to study the economic and financial conditions in that country and embody the result of my observations and investigations in a public report.

Quite naturally, I hesitated before undertaking a task that must inevitably be attended by so many great difficulties, and the completely satisfactory performance of which was quite beyond the power of any one individual. But equally obvious was the fact that I had placed before me an opportunity for scientific study of which I could not refuse to take advantage. I answered, therefore, that I was prepared to accept the invitation of the German Government on the condition "that my journey was to be considered as one undertaken for purely scientific purposes, having as its sole object to make an objective investigation of things as they really were," and also that "an opportunity should be given me of seeing all of the economic life of Germany that I might consider necessary for the execution of my purpose." The German Minister accepted these conditions without the least reservation and I started for Germany at the beginning of March.

I had stipulated that I should be allowed to take a secretary with me, and for this post I selected my amanuensis at the Stockholm University, Mr. Gunnar Silverstope, B.A. Mr. Silverstope has been of great aid to me in recording the conversations I had with various persons in Germany and also in collecting material of various kinds.

My work at the Stockholm University prevented my spending more than three weeks in Germany. As, however, I was able to make good use of this limited time and as the German authorities and representatives did everything in their power

to enable me to meet the chief men in various lines of endeavor, it was possible for me in the limited time at my disposal to obtain a broad, general view of the economic and financial position of Germany, and of the general point of view of the Germans themselves, which is the finally determining factor.

A scientific economic investigation is most valuable when it is based, in so far as is possible, on statistical material. In the present instance we are limited in such material; during the war statistics have not kept pace with the march of events, since there is no sufficient staff available for this purpose and publication of figures dealing with certain points of military value is out of the question. In a number of matters, consequently, I have been forced to rely for my information as to the actual condition of affairs on statements made by men prominent in those lines. So far as I have been able to judge, the information thus obtained has been given with the greatest candor, with the strictest regard for facts, and with no intention of presenting matters in any false light. It must be remembered that the German, whatever position he may hold, is first and foremost a specialist, and the information obtained from him, despite the stress of war, bears the impress of the specialist. Any one with a delicate ear for the finer distinctions of language can, of course, easily distinguish between general phrases and the conscientious statements of the specialists.

Sometimes, when information has been given me, I have asked: "Can I interpret this statement this way or that? Can I draw this or that conclusion from it?" On very many occasions I have been told that in the interests of truth my informant found it necessary to point out certain restrictions, certain modifications that must be made. Unquestionably, this gives one the impression of thoroughness and reliability.

I have interrogated persons in various positions in life, and in different places, respecting one and the same matter, and, by means of comparison, endeavored to form an idea of the actual state of things. There are a number of problems of

which only a general idea is possible, and in regard to which answers received from different quarters may vary. But, even in such cases, the want of agreement has not, as a rule, been so great that it has been impossible to form a fairly reliable picture of the truth.

In economic questions, however, the problem is not merely one of collecting facts, but also — with the assistance of theoretical analysis — of forming an idea of their actual meaning, and of elucidating general connections between causes and effects. As will be seen by the following pages, I have, on some occasions, formed a different opinion from that entertained in Germany.

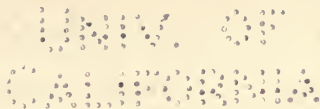
The results I have reached by my observations and inquiries made, and from the study of the material placed before me, cannot, in consequence of the inadequateness of this material, lay claim to being fully scientific, but the present investigation may so far claim a scientific character, that I have endeavored by its means merely objectively to obtain a reply to the question: "What is the truth?" As everybody knows, the world is divided into two warring camps, engaged in a combat for life and death, and, even in neutral countries, people have become hot partisans of one or the other of the groups of nations. Under such circumstances it is not easy to remain perfectly neutral and it may be doubted whether any one is altogether able to attain such a position. But the task is much easier, and, I consider, quite possible, if we restrict ourselves to a sphere from which we can eliminate all spiritual questions, and confine ourselves to a statement of the actual condition of things. This has been my task. I have not had to express any opinion as to what has been done, or as to what result the war should have, or as to any of those questions which, at the present moment, create prejudice and enmity among men. I have merely had to seek for a reply to the questions: "What is the present economic and financial position of Germany? Can Germany, assuming that the military position remains unchanged, hold out economically, and for what length of time?" I am fully conscious that in this matter I occupy the

same position as a witness called before a court of justice, to give evidence as an expert. I now give such evidence, making all reservation for what may be defective in my capacity as an observer, well knowing how insufficient my ability is for the purpose of investigation but I give it with the assurance that I have endeavored to present the most objective view possible of the reality.

It would, of course, be most unsuitable to mention here any names to support my statements in one case or another. As I said before, I have had opportunities of enjoying lengthy conversations with the most prominent authorities in the various fields covered by my investigation, but the report that follows is not intended to give any account of such conversations. What I have to do in these pages is to state the impression I received from them, and from other sources, including my own observations.

In order to deal with the matter in hand, the most suitable plan is, I consider, to begin with an analysis of the present position of the domestic economy of the German nation, i.e., with an examination of the resources at the disposal of German production, and of the degree to which this production is able to satisfy the wants of the population. I shall then pass on to an investigation of the problem from a monetary point of view, giving first an account of the influence of the war on the monetary system itself and proceeding, finally, to deal with the financial problems created by the present conflict.





# GERMANY'S ECONOMIC POWER OF RESISTANCE

## THE SUPPLY OF LABOR

**T**HE economic strength of a country depends, in the first place, on the amount of the productive work that is carried on within its borders. Now, it is clear that a war causes a very considerable disturbance in the productive labor of a country, and that, consequently, a country at war must, as a rule, see its capacity of production more or less diminished. In this connection, however, there is noticeable a clear distinction between the period of general economic confusion that ensues immediately on the outbreak of war, and the succeeding period when economic conditions have had time to adjust themselves in accordance with the conditions brought about by the war. As far as Germany is concerned, this distinction is a very clear one. The first months of the war brought about in the industrial life of that country an economic crisis of extraordinary acuteness. The outbreak of the war almost paralyzed many important branches of production, and trade and transportation were hurled out of their ordinary grooves. The clearest picture, perhaps, of the disorganizing influence of the outbreak of the war is offered by the statistics showing the number of unemployed. On the last day of August, 1914, the proportion borne by the unemployed members of those trade-unions that send in reports on unemployment amounted to 22.4 per cent. of the total number of members—a figure about 10 times greater than the normal one at that period of the year. The number of unemployed diminishes during the months that follow, and, from the second quarter of 1915, inclusive, the figure is only

slightly in excess of the normal. The diagram on the following page gives a clear view of this variation in the relative number of the unemployed at the close of each month, for all laborers combined, and separately for men and women. It shows that unemployment now is at a minimum for men, while for women it is still fairly high.

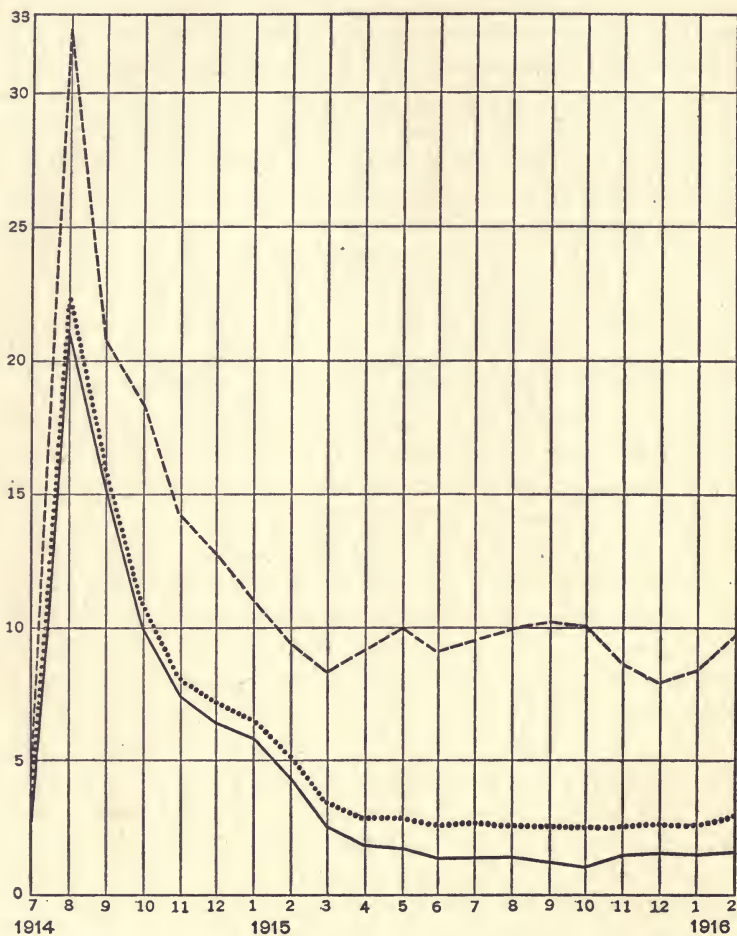
The real extent of unemployment is seen better, however, if we calculate the number of days without work, per 100 members' days. We then for the various quarters of the year find the following figures:

	1909	1910	1911	1912	1913	1914	1915
I. January-March .....	3.2	1.7	1.8	1.8	2.1	3.2	4.5
II. April-June .....	1.9	1.4	1.0	1.1	1.8	2.1	2.6
III. July-September .....	1.2	1.2	1.1	1.1	2.1	11.4	2.0
IV. October-December .....	1.4	1.2	1.1	1.4	2.5	8.7	1.8

The first eight months of the war are characterized by a general disarrangement in the economic life of the country, but this general disarrangement was overcome; it has been possible so to arrange trade and industries that the available supply of labor has, on the whole, been given full employment. The most important exception is the textile industry which, throughout 1915, showed marked unemployment, rising to a maximum of 11 per cent. (the close of October). That the industrial life of Germany, during the war, has passed through a period of disorganization extending over about two-thirds of the year, but has succeeded in adapting itself to the new state of things, is a fact of very great importance in judging the economic strength of the country. The disorganization has meant a national economic loss, which, to judge from the figures of unemployment, must have been a very considerable one. The fact that industrial life recovered control over itself signifies, therefore, a considerable increase in the economic resources of the country, as compared with those existing during the first eight months of the war.

It is clear, however, that the number of workmen who have been summoned to the colors and whose normal productive labor has consequently ceased, plays a still greater

rôle as regards the economy of the country. Quite naturally, no exact figures are to be had in this field, but it would be a



Unemployment: ..... total, — for men, — — — for women.

mistake to suppose that industrial life had been entirely deprived of male laborers. For the first of January, 1916, the sick-clubs that sent in their reports for that day state that the

total number of male members in good health amounted to 4,747,613. For Berlin it is stated that the general local sick-club there, in the middle of 1915, numbered 150,516 members, and that, of this number, a little more than one-half (50.8 per cent.) were of military age (between 21 and 45 years). At the beginning of January, 1915, this proportion was 58 per cent. and, in July, 1914, 60.7 per cent. Thus the decrease in the relative number of male laborers of military age was strikingly slight until the middle of 1915. We must not, however, draw any general conclusion from this fact, for the proportion of men drawn for active service is undoubtedly much greater in the country districts than in the towns.

We should calculate that from 7 to 8 million men have been called away on active service. We are then forced to ask: How is it possible, under such circumstances, for Germany's industrial life to exist at all? The answer is, that the labor which was called away by the war has, to a very great extent, been replaced by other labor, and that, to no slight degree, it is still engaged in productive work.

The last statement is probably surprising. As a matter of fact, it is a chapter of the economy of the war as peculiar as it is interesting. Behind the German trenches there is carried on a most extensive and varied work for the production of necessaries of life. It appears to be chiefly men of the supply department who are engaged in this task, although other troops are employed now and then. The army horses which in this trench warfare are of comparatively little use, are utilized as beasts of burden in this military agriculture. Within the commissariat lines of merely those parts of France occupied by the German forces, there were said to be no less than 60 motor-plows at work last autumn; in various tracts tillage was carried on on a most extensive scale. In one place, for example, there was one area of some 25,000 acres being farmed as one unit. In addition there is a most extensive system of cattle-farming, with dairies and slaughter-houses, etc., complete. Both horned cattle and pigs are kept in bomb-proof underground rooms in the neighborhood of the trenches.

Agriculture is carried on as close to the scene of actual operations as possible. Hay, for instance, is mown only a few hundred yards behind the trenches.

How is it possible to obtain hands for such an extensive system of agricultural work? Soldiers that can be spared for the purpose are an important factor. Of course, inhabitants of the various places are employed to a certain degree, and, in addition, as we shall see later on, so are the prisoners of war. But whence are obtained the expert leaders of such work? The answer is that they are taken from among the soldiers, and from among the many volunteers who are too old for actual military service. Here, as in all other spheres of labor, one sees clearly the tremendous resources in technically trained people that Germany has at her disposal.

By means of this agricultural work there is gained not only a very necessary change of occupation for the soldiers, but an addition to the support of the army which is of real economic importance. If we glance at the map and see the enormous length of the fronts, we can understand the great extent of the "commissariat areas" and the importance possessed by agricultural work energetically pursued in these districts.

The fact that an extensive productive work is carried on by the army in other spheres of labor as well as, for instance, in the building and improvement of roads and railways, should be mentioned here, chiefly for the purpose of bearing witness to the labor-resources the army has at its disposal.

In the districts occupied by the Germans in the eastern seat of war, much has been done by them to improve the somewhat defective means of communication formerly existing. The railways have been rebuilt in accordance with the German gauge so that German rolling-stock can be run over almost all the lines. Towards the southeast, extension of the railroads by laying double tracks and by other improvements has taken place on a large scale. Right through Belgium a four-track railway is being built, planned before the beginning of the conflict but never undertaken.

Of course, this work is in the first place to serve immediate

military purposes, but it certainly contributes to a more complete utilization, from an agricultural point of view especially of the districts which are touched and should the war be continued for any long period this work will certainly play a most important economic rôle.

It is obvious from these circumstances that Germany's productive labor has not been diminished by the call to the colors to quite the same degree that the mobilization figures would tend to show.

In this connection, special attention should be directed to the fact that the military authorities in a very great measure take into consideration the specially pressing needs of civil life for labor and, wherever it is necessary, permit the men called to the colors to return to their employment in the civil service in business life, in the chemical and mechanical industries, in coal-mines and for harvesting work. Very naturally, consideration is paid first to military needs, such as the manufacture of munitions of war and the maintenance of the railway traffic. But by this method of procedure there is gained in any case, a considerable surplus of labor for production and just at the place where such an addition is, for the instance most desirable.

In another respect, too, the war gives national production certain compensation for the labor-supply of which it has been deprived. Of the large number of prisoners in Germany by far the greater part — some 1,200,000 men, it is stated — are engaged in productive work. The prisoners are occupied chiefly, it may be supposed, in agriculture, forestry and the construction of communications, but they also assist in coal-mining, in industries, in the communal gas-works, etc. Certain prisoners, Russians especially, have to be trained for their work — in, for example, mining — but it is said they work very well; on the western frontier numbers of Russians are at present engaged in the iron and coal mines. The prisoners' work seems, on the whole, to be very satisfactory. Astonishment has been expressed that it has been found possible to place Russian prisoners on farms, one or two men on each

while the men belonging to the places are away at the war. But apparently these Russian prisoners are, on the whole, fairly contented with their lot, and, in any case, prefer the work to the monotonous life in the internment camps, especially as those engaged in such labor probably enjoy a little more liberty, and obtain somewhat better food. At all events, it is a fact that in this way German industrial life has obtained an addition of 1,200,000 laborers, though they are not to be compared in efficiency with the 1,200,000 Germans whose places they are supposed to fill. Prisoners' work is of an inferior quality, the degree to which this is the case depending on the kind of work performed and the character of the prisoners employed. Their work is, however, paid for at a considerably lower rate than other work, and as the prisoners do not spend all the wages they receive — the greater part of this sum being kept in reserve for them — it is clear that such labor, as long as the war lasts, forms an actual and by no means unimportant addition to the national economy of Germany.

How and to what degree is that want of labor made good that the war actually does cause? The incomparably most important factor to be mentioned in this connection is the work performed by women. The contribution made by the German woman toward the war is simply magnificent, and for the economic power of resistance of the country this contribution has been of decisive importance. It may almost be said that woman's labor has come to the aid of nearly every branch of industry, first and foremost, to that of agriculture, where the number of men called to the colors has been proportionately greatest. Here the women have labored most arduously — performing skilled manual work on the small farms and, on the larger ones, directing and organizing the labor. And this task has been crowned with success. During the past winter the season was exceptionally mild so that farming could be continued for an unusually long period, enabling the work to be carried out in full with the reduced amount of labor that was to be had. The want of hands, therefore, has hardly

reduced the productive capacity of the farming districts to any essential degree as far as regards the coming harvest year.

Manufacturers, too, have made use of woman's labor on a very large scale during the war. It is little short of wonderful that such a large amount of previously untrained labor has been made useful in such a short time. I spoke to one of the principal representatives of German industry on the matter. In his works, 10,000 women had been taken on since the beginning of the war. How was it possible to bring such masses up to the standard which is demanded in a modern mechanical workshop? The answer was that, during the war, the firm had established special schools where the instruction of women hands had been carried on systematically.

He who, during the war, pays a visit to Germany, be the stay ever so brief, is at once struck by the new and extensive use that is made of women in the municipal tramway service. In Berlin, as far as one can see, most of the conductors are women. But women-drivers of electric trams are also to be found in other large towns; in Frankfort-on-Main, for example, this phenomenon was quite common. No inconvenience seemed to ensue, but it was stated that it was usual for women so employed to have a somewhat shorter working day, in some cases, but half a day. By this means, however, the tramway service can be kept up, and as far as could be seen, to its normal extent.

One field of work from which, in peace-time, the German woman, unlike the Swedish, is almost totally excluded, is bank employment. One of the principal bank directors in Germany gave me the following explanation of this. As a matter of principle, his bank accepted none but men applicants, since none but men are desired for responsible positions in financial institutions. In each clerk there may be a future financial leader, a man predestined to fill the very first position in the bank. Now, however, it has been found necessary to adopt other views and, since the war, the large German banks have engaged hundreds and hundreds of women, one single establishment having no less than 500 women on its staff in Berlin.



alone. Whence have these women come, and how has it been found possible to place them at the bank-desk at once? The answer is that the greater number have been recruited from the less important branches of trade which in consequence of reduced business have less need of assistants, or have seen themselves obliged to engage persons possessing fewer qualifications than those discharged. Employees in the export industry and the export trades have also, and on a large scale, been set at liberty to engage in other occupations, and have been found specially fitted for bank-positions.

There exists a considerable reserve of female labor in the great number of married women who were formerly business employees; during the war these women have been called on in large numbers to assist in industrial occupations.

If we study the figures showing the numbers of the men and women members of the sick-clubs, we gain a picture of the degree in which female labor has come to the relief of the labor market. The relative numbers, which are published by the *Reichsarbeitsblatt*, show, for the men, a decline in 1915 from 100 to 86, and a corresponding increase for women from 100 to 113.5. On January 1st, 1916, the report showed 4,747,613 men and 4,019,564 women members of the sick-clubs. In absolute numbers, therefore, the women members come very close to the figures for the men; the deduction is reasonable that, as regards 1915, the loss of man's labor was to a very great extent made good by an additional supply of woman's labor. It should be noted that the prisoners of war are not members of the sick-clubs, and that, consequently, the addition to male labor which they represent is not taken into account in the sick-club statistics.

Juvenile labor has also been employed during the war to a greater extent than formerly, and on a scale large enough possibly to occasion serious consequences. Old people, too, have been obliged to quit the peaceful existence to which they had retired, and once more engage in industrial pursuits. In Berlin one can see cabmen who, like their horses and their vehicles,

look as though they had been brought out from some museum of antiquities.

In addition to all this, the hours of work in all branches where it has become necessary to make the change are now longer than before. In the Government offices and the banks, in business-offices and in the schools, as well as in the majority of factories, overtime is now the rule. If any of the employees are absent and other persons cannot be had to take their places, the work must be done by extra labor on the part of the remainder of the staff. In a primary-school, for instance, the men teachers are absent on military service; women teachers are at once called in and put in the places of their colleagues. Where no female teachers are available the remaining staff must do the additional work, sometimes amounting to 50 per cent., in order to keep the school going. The case is the same everywhere else. In industrial activities, overtime, Sunday and night-shift work are resorted to extensively. It is merely necessary to read the report issued by the *Reichsarbeitsblatt* dealing with industrial employment to realize the extraordinary extent to which this overtime work now prevails, reports of overtime work in one form or other appearing from almost every branch of the mining, iron and metal, machine, electric and chemical industries.

In order to effect these sweeping industrial changes, it has been necessary to suspend the regulations restricting the working hours. If, under normal conditions, these regulations are of use—a matter in regard to which there is hardly any difference of opinion—the conclusion must be drawn that the present extension of the working-time, and the employment of women and of minors, will in the long run prove incompatible with a healthy and economical utilization of labor. If the war continues for a great length of time, the present intense labor is bound to have injurious results in one way or another. At present, however, this point of view is entirely lost sight of in consideration of the task of maintaining the economic life of the nation during the war. This problem has been solved in a way that could hardly have been imagined possible.

Of course, as compared with what it was before the war, productive labor has really diminished. But, by the productive work of the soldiers themselves who have been called to the colors; by the adoption of the plan of releasing, altogether or temporarily, the men in service for the purpose of carrying out important work in civil life; by the productive employment of the prisoners of war; by the use of women's labor; by the extensive employment of young or aged persons, and by means of a general regime of overtime, it would seem as though success had been gained in the struggle to maintain the productive capacity of the nation at a standard not very far below the normal.

## THE INDUSTRIES

FROM the facts given in the preceding chapter concerning the position of the labor market in Germany, it may be deduced that the greater part of the industries of the country — and especially those occupied in supplying military needs — are as busy as they possibly can be, taking the labor supply into account. In order to obtain a definite idea of the work done, it would be of very great interest to have figures showing the quantities of produce, but with few exceptions, such figures are not known. Only in the coal and iron industries can statistics be had which give a clear picture of the condition of affairs.

The production of pig-iron within the whole of the German custom-district, which, during 1912, amounted to almost 1,500,000 tons per month and during 1913 to somewhat more than 1,600,000 tons, underwent a very considerable reduction during the earlier part of the war, but has since shown great improvement. The monthly production, which fell as low as 586,700 tons in August, 1914, and 580,100 tons in September, 1914, had, in the December of the same year, risen to 854,200 tons, and, in July, 1915, to 1,047,500 tons, this being about two-thirds of the normal. A comparison between the monthly production for the following months and those for the corresponding months two years earlier gives this result (in thousands of tons) :

	<i>1913-14</i>	<i>1915-16</i>
July .....	1,646.9	1,047.5
August .....	1,638.8	1,050.6
September .....	1,589.2	1,034.1
October .....	1,650.2	1,076.3
November .....	1,587.3	1,019.1
December .....	1,609.7	1,029.1
January .....	1,566.5	1,078.4

As 1913 was a record year as far as pig-iron production is concerned, we cannot be far wrong if we say that the production of pig-iron in Germany, since the middle of 1915, has been two-thirds of the normal. The monthly production even as late as 1908 was somewhat lower than 1,000,000 tons, not rising above the million mark until 1909 — excepting only the extraordinarily productive period 1906-1907. The existing decline signifies, therefore, a return to the conditions prevailing before 1909, or, if the reader so wishes, to the high-water mark of 1907. During the twelve months, August 1914-July 1915, the first year of the war, the total production of pig-iron was 10,121,500 tons. At the present rate, the yearly production will be about 12,500,000 tons, an increase, in comparison with the figures for the twelve-months' period just mentioned, of 23 or 24 per cent.

The production of ingot steel in January, 1916, amounted to 1,227,100 tons, as compared with 1,599,800 tons in January, 1914. It is, therefore, about three-quarters of the normal. In August, 1914, it fell to 567,600 tons. There is, therefore, a considerable increase as compared with the first critical period.

The production of coal, which, in 1913, reached 191,500,000 tons, amounted in 1915 to 146,700,000 tons, a very considerable reduction. The production of brown coal (lignite), on the contrary, had risen from 87,100,000 tons in 1913 to 88,400,000 in 1915. The total production of coal and lignite, together, shows a reduction from 278,600,000 tons in 1913, to 235,100,000 in 1915, or a fall of 15.6 per cent. The total production in 1911 amounted to 234,200,000 tons. The war has reduced the production of coal to about the amount gained in 1911. It has, so to say, moved the hand on the dial of development four years backwards. Taking into consideration the extraordinary importance that the production of coal possesses for all German industrial life, not only as a material factor but as an index of its condition, these data concerning the actual extent of the decline in coal production are deserving of the greatest attention.

In comparison with the critical period during the early days

of the war, the present production of coal shows a very considerable increase. As the total production for 1914 is given as 161,500,000 tons, and as the first seven months were marked by a fairly normal output — about 16,000,000 tons per month, or a total of 110,700,000 tons — there remain for the last five months of 1914, the first months of the war, 50,800,000, or about 10,000,000 tons monthly, which is less than two-thirds of the normal production. In comparison with this, the average monthly production for 1915 shows an increase of fully 20 per cent.

In addition to Germany's own supplies of iron and coal, we have to take into calculation the considerable quantities of these minerals present in the parts of France, Belgium and Poland occupied by the German forces, and which, to a very considerable extent, are now being mined under German direction. Consequently, Germany cannot suffer from any want of these minerals, which are of fundamental importance in the manufacturing industries. Within Germany itself the production is restricted chiefly by the want of laborers, but in the occupied districts these mining industries are carried on for the most part by the aid of foreign labor.

So far as the other raw materials required by industries are concerned, the position is by no means so favorable, and a considerable scarcity of certain important raw materials exists. How this scarcity has been made good, or how it has been possible to carry on work with the limited supply available, is a chapter of the very greatest interest. As, however, numerical data are wanting, and for easily understood reasons, measures concerning the matter have not been made public, only a few general and very incomplete statements can be given here, although these should be sufficient to give an approximate idea of the actual condition of the German industries.

In the first period of the war, the greatest interest was attached to the question of the supply of copper. Germany's native production of this metal was comparatively unimportant, and her imports — chiefly via the Balkan peninsula — were

probably very limited, while, on the other hand, the manufacturers of munitions demanded large amounts of the metal. The considerable stock of copper intended for industrial purposes that Germany possessed at the beginning of the war, increased by that which was made available by the occupation of Belgium and the north of France, could not, in the long run, satisfy these demands. It became necessary to observe the greatest possible economy in the use of copper. An altogether wasteful and extravagant use had been made of the metal previously and it was discovered that, to a very great extent, copper could be replaced by steel or by zinc. During times of peace, copper had been employed for certain purposes in the manufacture of ammunition, because steel would rust when the ammunition was kept in storage. Now, however, when ammunition is made for immediate consumption, this reason for the use of copper is eliminated. By means of new methods, perfected during the war, for the manufacture of zinc, it has been found possible to produce this metal in such forms that it can be drawn into wire and turned, and consequently it can be used instead of copper both in the electric industry and for other purposes, especially in the manufacture of ammunition. Zinc is now employed in many instances instead of copper for electric wires, and such progress has already been made that entire transformers are now built with zinc instead of copper.

Since, by the occupation of Belgium, Germany gained all the supplies of zinc she needed, she has been to a very essential degree independent of her customary copper supply. It has also been found that the stock of copper utensils in German households forms a reserve of copper of an extent which had not been even imagined. In every fairly well-to-do German home there was, among other copper utensils, a large copper boiler for washing. The large hotels have proved very rich in copper. Consequently, when a demand was made throughout Germany for all copper utensils, an enormous supply of the metal was obtained. All this copper has by no means been sent to the munition-factories, but has been stored, and forms

a considerable reserve of the metal. Many fixed objects of copper of large size, such as cisterns and the like, have been called for and will be probably sent in during the course of the next few months. These requisitions can, as need demands, be extended to copper utensils employed in industries; the breweries, especially, are said to be perfect mines of copper. The foreign territories occupied will also send their tribute. Brass and bronze can be used, and of these metals there are extraordinary amounts in household articles and in the brass-mountings which have been employed very lavishly in modern buildings, to say nothing of all the brass that has somewhat unnecessarily been used for the fittings of the German railway-carriages. From these facts it is evident that Germany will not suffer from any scarcity of copper, and in that country itself the general opinion is that the copper problem has been satisfactorily solved.

Nor does there seem to exist any lack of other metals that should cause any anxiety. There is not the same demand for nickel as before, nor for manganese. It is probable that Germany, so far as her demand for metals is concerned, will, for a long time, be fairly independent of imports because of her own natural supplies and the large stocks in hand. The country has sources of raw material to which, formerly, no attention was paid: poor ores, stores of scrap-metal, slag-heaps — everything is now being made use of. In a Belgian mining works, for example, large stores of old slag were found which proved to contain 6-8 per cent. copper.

There exists a certain scarcity of mineral oils. To some degree this is made good by importing from Rumania and Austria-Hungary. Of benzine, which Germany usually obtains from Galicia and Rumania, the supplies are about equal to the demand, as motor-car traffic appears to find benzole or spirit sufficient for its purpose. Great economy has to be practiced with illuminating oils, but very much has been done to increase the employment of electric and gas lighting; that the authorities know how to take rational measures to enforce necessary economy in lighting is shown by the new regulation



which, for the summer-time, places the clock in advance of the real time.

In the manufacture of explosives, Germany is not hampered by any want of material. The development and use of coal tar products is almost Germany's special province, so that she is well provided with all the important substances — such as toluol — which are needed in the production of explosives. It is said that Napoleon's campaigns were hindered by a failure in the supplies of saltpeter. No such scarcity exists, or ever will exist, in Germany, since the problem of the extraction of nitrogen from the air has been solved in a fully satisfactory manner. More will be said about this, in the chapter on agriculture. Formerly, cotton was important in the manufacture of explosives, but a substitute has been found in the home-produced cellulose. There can be no question of any scarcity of material in this line.

That branch of industry in which Germany might be expected to feel most severely a scarcity of raw material is the clothing-industry. The textile industry, during the period immediately preceding the war, was suffering from marked depression. Large stocks, not only of raw materials, but of yarn and manufactured products, had been stored. This altogether abnormal accumulation of stocks proved to be of the greatest service during the war. It is said that Bremen — the center of the cotton-trade of Germany — had, at the beginning of the war, raw cotton in storage to a value of 100 million marks (\$25,000,000). Besides this, a great amount of cotton was captured in Antwerp and other places. The import of cotton from America was for some time unhindered and the opportunity was seized to pile up large stocks in Germany. As for wool, the stocks at the beginning seem to have been smaller than those of cotton, but that want was soon made good by the stores that the German troops found in the manufacturing towns of Belgium and the north of France, which are considered to have exceeded Germany's normal yearly demand. As for linen, at the beginning of the war, the country possessed large stocks which were rapidly augmented by what was taken in Belgium and in Poland.

After the first confusion, the textile industry began to run in its usual grooves, and for three-quarters of a year the mills worked almost exclusively to supply military needs. During this period the civil market was supplied from the stores of previously unsaleable goods which proved of unexpected help both to the textile industry and to the national economy of Germany. Since then the industry has had time to work to supply civil needs and to manufacture the half-ready goods which, at the outbreak of the war, had to be laid aside.

If we wish to form an idea of the capacity of Germany to hold out by reckoning her supply of raw goods for the textile industry, it must first be fully understood that the needs of the army administration for textile goods are already very well supplied and that, to judge from all appearances, the military stores now lying in reserve are extraordinarily large. One proof of this can be found in the proclamations that have been issued to prevent further offers of certain textile goods such as, for example, military blankets. The statements, too, respecting the condition of the labor-market, tend to show that the orders given by the army administration for certain articles are beginning to diminish, which may be taken as a sign that the demand is very well supplied. If close attention is paid to the soldiers one meets in great numbers wherever one goes — in streets and restaurants, in trains and the trams — one will find without exception that they are very well dressed. Observing the men on leave or those on guard, there is no sign that the uniforms are being worn out or can no longer be replaced by new ones. The supply of articles of civil wearing apparel seems to be equally ample; the shop windows present their usual appearance and the large stores are full of goods and purchasers. The reader must not imagine that the civil population is badly dressed, although it is possible that an eye better trained than mine to note deviations from the latest fashions might be able to discover that everything is not quite "up to date." I cannot express any opinion on such a subject, though I believe that persons of the higher classes sometimes, for patriotic reasons, wear their clothes for a longer

time now, during the war, than they otherwise would, and I cannot but wish that the same sound conception of what existing conditions demand could be entertained in Sweden too. But from what one sees in Germany, one absolutely does not obtain any impression that the dress of the population has in any way suffered in consequence of the war. This opinion holds good for all classes of society. Should it prove necessary in the future to exercise economy with regard to textiles, the German nation has a very extensive limit of reserve in the clothes that are being worn at the present moment. Any restriction that may be considered necessary in the consumption of textiles for articles of pure luxury will be considered by nobody in Germany as a matter of serious inconvenience.

There always exist in the domestic economy of a whole nation very large stocks of textile goods for which there is no real employment. Clear evidence of this, in respect to woolen goods, was borne by the so-called national wool-week during which, it is said, there were collected by means of voluntary gifts, woolen articles to a value of from \$7,500,000 to \$10,000,000. Nor is Germany entirely devoid of natural resources. As the Government takes all the wool that is shorn within the country, there is always a considerable yearly supply to count on. Wool can now too be imported from the Balkan peninsula and the near Orient. In order to increase the supplies of textile raw material, resort has been made to the use of native vegetable fibers. The cultivation of flax has been increased, and plants to which no attention had hitherto been paid are now being made of use. The nettle, especially, seems to be about to play an important part, and large mills are already engaged in the manufacture of this raw material, wadding and sacking being some of the articles produced. Of special interest are also the attempts made to employ cellulose as a textile material.

What has been said about textiles probably holds good, approximately, in regard to leather also. Under ordinary circumstances, Germany exports very large quantities of leather (about 45,000,000 lbs.) and of manufactured leather goods

(about 22,500,000 lbs.), but to maintain this trade she has to import a great number of hides. Where the greater part of the raw material for any trade is obtained from other parts of the world, there always exists a comparatively large reserve stock; the German leather trade is said to have had a very considerable supply on hand when the war broke out. In addition, Germany possesses great natural resources in her great wealth of cattle. At present, no exterior signs of a scarcity of leather goods can be observed. The boot-shops exhibit just as many shoes as usual, and prices do not seem extravagantly high. Even on closest scrutiny, not the least sign of want of foot-wear for the population can be discovered. In one primary school in a rather poor quarter of Berlin, I paid special attention to the children's boots. I saw only one child with bad shoes; two were wearing wooden shoes, but the rest had excellent foot-wear. I do not believe a better condition would be found if a similar examination were made in a secondary school in Sweden. I need hardly say that the foot-wear of the army gives the observer no opportunity whatever for adverse criticism.

It is probable that the scarcity of rubber is pretty severely felt. It is true, artificial caoutchouc is made by a synthetical process. If the product is not perfect as a material for motor-car tires, probably it can be very well used for insulating purposes, and this means a considerable saving. The military motor-car traffic is very extensive, and there are cars in civil use, too, although in limited numbers.

German industries have been compelled to undergo an extraordinarily radical transformation, caused by the needs and conditions brought about by the war. It has been necessary to do without an export of industrial goods amounting to hundreds of millions of money, and in the home markets demand for many articles has greatly lessened. New tasks have been laid on industrial production. We have seen something of the manner in which labor and materials for production have been procured, and of the extent to which this has been done. What remains to be described is the solution of the problem of adapting the industries to their new tasks.

The story of this adaption is extremely interesting and when its history at last comes to be written, an entirely new light will be thrown on the adaptability of modern industrial enterprises. What people in Germany are fond of asserting may be true: that business men in that country are more than usually capable of adapting themselves to circumstances. But an explanation of how such thorough and rapid alterations could be carried out at all is certainly to be found in the highly scientific management nowadays employed in industrial production. The foundation of this production is the machine industry which has attained an extraordinarily high degree of perfection in Germany. This industry, carried on in normal times chiefly for export trade, has been adapted in a very short time to meet the demand for new machines necessitated by the transformation of production. Whatever, and however widely different, the purposes may be for which machines are intended, they consist essentially of fairly similar component parts, all produced by the machine shops. The transformation that has been required of the machine industry itself has, consequently, not offered any very special difficulties. The entire mechanical industry, electric works, inclusive, possesses large masses of machinery which can be adapted for other production than the normal. A modern factory consists primarily of large, well-lighted premises, with room for the erection of machinery and with suitable driving-power for it. If it be desired to employ such a factory for new purposes, little more is needed than to move the old machinery and replace it by new.

Such alterations have been carried out very extensively by German industries during the war. Factories hitherto devoted to specialties of one branch have applied themselves to the manufacture of other specialties in the same branch of more service for military purposes. Manufacturers of lace, for example, have turned their activities to the making of bandaging material. At the beginning of the war, a large maker of furniture stuffs found himself in a most unpleasant predicament; he had in his possession a large and valuable

stock which he was quite unable to sell. He made a desperate resolution, tore all his stuffs to ribbons and made quilts of them which he sold to the military authorities. He then moved out his machines and replaced them by new ones.

There are also factories that have changed the character of their productions completely, manufacturing ammunition instead of chocolate and sweets. The head of one of the principal industrial establishments in Germany informed me that the old plant in his works had almost entirely been replaced by new machinery and the character of the production altogether altered, so that it might be of assistance in the manufacture of ammunition. I asked how this could be possible from an economic point of view. The answer was that the cost of the new machinery, or parts of machines, was being amortized by the price obtained for the products. And such amortization is carried out with great rapidity. In consequence of the unheard of amount of work done under the present circumstances, the machinery is worn out in a very short time and at the works mentioned the new machines had already been replaced several times over by fresh sets. When the war is ended, consequently, the temporary plant will have been paid for, and no loss caused to the establishment. For the national economy, this simply means that the cost of the machinery required for the manufacture of ammunition is included in the current expenses of the war.

An interesting question that necessarily presents itself in this connection is: how is it possible to obtain workmen able to execute the absolutely new kind of labor that is thus demanded? The explanation I received from a large employer was as follows: Modern machinery for the production of implements had reached an extraordinary degree of precision and nowadays performs its work with the most minute exactness. As a result, the various parts that are to be put together fit each other exactly, and no adjustment, no filing, or addition, is necessary. It was just this fitting which, under the old condition of things, required the attention of an extremely skilled mechanical workman, but now such work has become super-

fluous. The putting together of the several parts is now a purely mechanical process, which is soon learned. Another result of this accuracy in construction is that the manufacturing of the various parts of a complicated piece of mechanism can be distributed among a number of work-shops, thereby including such small factories as are provided with machinery adapted only for some special detail of the work, so that these shops as well can be employed as a link in the great chain of the production of war material.

If, on the basis of what has been said above, we endeavor to form a general idea of the position of German industries during the war, we cannot but conclude that they are being carried on as near normally as the supply of available labor permits. There is no lack of premises possessing driving-power, transport arrangements, etc.; mechanical industry attends in an absolutely sufficient degree to the manufacture of machinery and implements for the new production; scarcity of raw material does not make itself felt, or at least, not to such a degree as to lead to the cessation of any necessary manufacture. The restricted supply of labor is the chief factor in limiting the scope of the industries; all that is included in the term "capital," in the concrete sense of the word, exists to the degree required by the industries as now employed and with the given limitation of their tasks. As far as can be seen — for one must, of course, make reservations in regard to fields of labor of which it is impossible to obtain any information — this state of affairs is based on such conditions that it can be maintained for a very long time to come, and even in regard to some aspects, for an unlimited period.

The period of transition from the former normal to the present military organization was, of course, attended by very considerable difficulties. This period of transition was characterized by a considerable want of employment, by an incomplete utilization of the national powers of production in general. To judge by the figures showing the scope of this non-employment, this period of transition lasted about two-thirds of a year. The disorganization during this period occasioned

very considerable losses. To this should be added the not unimportant initial costs — incurred but once, of course — for the transformation of the production. If we take all this into consideration, industrial Germany, now that it has once grown accustomed to the new order of things, should prove more productive than during the first year of the war, and this increase should be large enough to more than neutralize that increase in difficulties which the continuation of the war must, quite naturally, cause. This deduction is undeniably supported by the figures given above, showing the increase in the production of pig-iron and coal, as compared with the amounts obtained during the earlier critical period.



## AGRICULTURE

**I**N the endeavor to form an opinion of Germany's economic power of resistance, it is of first importance to comprehend clearly the extent to which the agriculture of that country can be maintained at its former level, or eventually be made to increase its capacity of production during the war. In the matter of human labor, the reply has already been given in as great detail as possible. Thanks to the work performed by women and children, and to the assistance received from the prisoners of war, it seems that, aided by the favorable weather conditions of the past winter, which permitted a certain amount of plowing to be carried on into the month of January, it has been possible to maintain agriculture on a fair level. In addition to the regular farm work, market gardening is being carried out since the war by other than agricultural laborers, and on parcels of land that have hitherto lain uncultivated. This additional work, if regarded in detail, may appear insignificant, but still it contributes to a very considerable degree to the solution of the problem of obtaining the necessaries of life for innumerable families.

As to the increase in the area of land under cultivation, there must also be taken into consideration the great extent of enemy country occupied by the German troops, especially the north of France and Courland, where the productive capacity of the soil is considerably in excess of the needs of the remaining population. Courland, which was almost denuded of its population by the Russians, but which has been systematically cultivated by the Germans, will, in 1916, make a by no means contemptible contribution to the food supplies of Germany. The extension of the cultivation of bogs, of which great expectations were at first formed, has turned out to be of comparatively little value because of the scarcity of labor.

In addition to labor and land, agriculture, like industrial production, also needs certain raw materials. These are, in the first place, artificial manures—potash, phosphorus and nitrates. So far as potash is concerned, Germany is exceedingly well provided, supplying in times of peace not only her own needs in this respect but those of a great part of the remainder of the world, so that even should there be a decline in the production of this manure there would still be enough to satisfy home wants. The demand for phosphorus is filled, under ordinary circumstances, by imported phosphates and by Thomas-phosphates, the latter obtained in the basic production of steel. Of natural phosphate of lime there were imported during the years immediately preceding the war more than 900,000 tons, chiefly from North America and the north of Africa. On the other hand, superphosphates were exported in considerable quantities. The Belgian phosphates now obtainable are poor in comparison and cannot fill the demand. Of Thomas-phosphate, however, there appears to be no real scarcity; although the production of pig-iron and, consequently, that of Thomas-slag, has fallen off, the export of Thomas-phosphate, which under normal conditions was quite considerable, has diminished. Still it is probable that, during the war, German agriculture suffers from a scarcity of phosphate fertilizer. This scarcity is made good to some degree by manuring with bone-powder. All bone is now utilized with far greater care than formerly, and is employed for the production of glue and bone-powder.

Nitrogen manures are also not abundant. Of Chili saltpeter, Germany imported net about 750,000 tons in 1913, of a value of approximately \$41,250,000. To make up for this, Germany has devised and perfected certain methods for the utilization of atmospheric nitrogen. The important firm of *Badische Anilin und Sodafabrik* now produces, by the aid of the method described by Haber, ammonia, ammonia-sulphate and sodium nitrate (Chili saltpeter), while newly established works, in which the German state is a specially interested partner, produces calcium nitrogen. The ammonium sulphate

of the Baden factories is very suitable for manure, and easy to spread. An inconvenience attached to the use of the calcium nitrogen is that it is very dusty. Consequently, it is mixed with a little damp sawdust when it is to be spread by hand. These manufactures have long since passed the experimental stage, and are already being conducted on a very large scale. The production is so satisfactory from an economic point of view that it will be able to compete with imported manures when peaceful conditions return. Indeed, the Germans consider that they will then be able to do without the former large importation of Chili saltpeter. At present, the manufacture of ammunition makes such great demands on the saltpeter compounds that in spite of the vast progress made in their production the supplies of nitrogenous manures for agriculture are still somewhat limited. Still, the development of the new production of nitrogenous compounds seems so rapid, that even as early as next autumn there will probably exist considerably greater facilities for the production of an ample supply of the necessary manures.

I have asked various agricultural experts what effect the scarcity of mineral manures may have on the 1916 harvest. They pointed out that the land in Germany had been well fertilized for years and that it may be said to possess some reserve capital in this respect, so that a certain scarcity in the amount supplied, especially of phosphoric acid, for a period of a year or two, would not have any very great effect on the harvest. A deficiency in nitrogenous manures would be a more serious matter, but it will prove easier to make good such deficiency. At all events, this scarcity of mineral manures is of far less importance than the character of the weather prevailing during the year. The weather was very bad during 1915, and the harvest was considerably below the average; the crops of oats and barley especially were in some localities a total failure. There is no very great probability that such unfavorable weather conditions will be repeated, and experts in Germany are of the opinion that if atmospheric conditions are at all normal the harvest of 1916 may be expected to be

considerably better than that of the preceding year. There exists direct reason to hope for such a result, for the winter in Germany has been rich in moisture, so that the earth has regained that normal water-percentage in the deeper strata of the soil which has really been wanting for a succession of years. Experts in various parts of Germany told me that they regarded this as most propitious circumstance for the harvest of 1916.

Among other material required by German agriculture under normal circumstances, a prominent position is occupied by the fodder stuffs obtained from abroad. Of fodder barley there was imported during 1913 somewhat more than 3,000,000 tons, and of maize a little more than 900,000 tons. In addition to this oil-cake and bran were imported. Altogether, the average imports of fodder stuffs is put at about 6,000,000 tons. There can be no doubt but that the cutting off of this importation causes German agriculture difficulties, which have been overcome chiefly by feeding the cattle with potatoes and sugar.

The cultivation of the potato in Germany is carried out very extensively, an average harvest being estimated at about 45,000,000 tons. Of this less than one third, or about 14,000,000 tons, are required for the food of the population. The remainder is used as fodder, for the manufacture of brandy and motor-spirit and for other purposes, and nothing is said to be actually wasted. The potato harvest of 1914 amounted to 45,600,000 tons, about the normal quantity. That of 1915 is said to have exceeded 50,000,000 tons, and was a considerable contribution towards making good the deficit in fodder. By carefully economizing the supply of potatoes, and by restricting the quantity employed for the manufacture of spirits, a still larger amount can be made available for feeding cattle. In addition, it ought to be quite as possible for Germany as for Sweden to produce sulphite spirit from wood, which would leave a considerable quantity of potatoes available for fodder. As Germany's large sugar export has practically ceased during the war, another addition of great value to the food economy of the country is obtained.

However, Germany has not restricted herself to these measures but with extraordinary energy has endeavored to discover new means of producing substitutes for the deficiency in the fodder supply, and practical results have already been attained. Among them may be mentioned the new method of utilizing the nutritious substances in straw, by the manufacture of straw-meal. Straw contains the same alimantal substances as the ear, and by means of a chemical process and by grinding the straw to fine meal, the substances can be utilized. The method has already passed the experimental stage, and it is calculated that from the straw crop for 1916 a very considerable amount of straw-meal can be gained. In April, 1916, ten factories were to be ready to begin the manufacture of this new straw food. By means of a similar method it would seem as though a solution had been found for the problem of utilizing the nutritious substances in heather, the young shoots of which are ground to meal. The process has reached such a degree of development that large masses of heather are imported from places so distant as Sweden. Experiments to the same end are being made with other plants, such as sea-weed and the refuse of vines, and it is said that large quantities of sea-weed have been brought from Scania, in the south of Sweden.

Great efforts have been made to produce albuminous fodder substances. The Delbrueck method of gaining albumen from ammonia with the aid of blastomycetes is very generally spoken of, and the albumen thus obtained can be perfectly assimilated by the human organism. By adding a small quantity of such albumen to straw-meal, a fodder substance is obtained which is stated to possess 20 per cent. more nutritive value than oats.

It has also been discovered that the direct addition of ammonia to the fodder of horned cattle results in a greater economy of albumen within the animal's body, this implying a saving in the amount of albuminous fodder required. Authorities do not seem unanimous, however, as to which of these methods is the more advantageous.

In the production of substitutes for fodder, considerable

progress has been made and the development of new methods is proceeding very rapidly. There is every reason to expect that next winter the former deficiency in fodder will to no slight degree have been made good by means of material which was not formerly available.

Besides all this, we must consider the systematic economy observed with the fodder, and the extraordinary care that is taken to utilize the waste from all kinds of food. Considering the waste of which domestic economy is guilty in this respect, the reserve of fodder material to be obtained from this source must be rather great.

A not unimportant improvement in the providing of Germany with fodder stuffs has been gained by the opening of traffic on the Danube, and by the large quantities of fodder which since that event have been purchased from Rumania. The purchases made in March, 1916, were of such scope that prime importance must be ascribed to the transaction, especially in the matter of the import of maize. The fodder stuffs which will be transported to Germany as a result of this agreement will facilitate the solution of the problem of preserving the stock of pigs in the country. Rumania and Bulgaria, under normal conditions, enjoy a surplus harvest which will go a long way towards covering the shortage in German supplies. If communications between the countries can be kept regularly open, Germany will hardly run any risk of a great scarcity of the necessaries of life, even if the war should last many years. But Germany does not place her reliance on such a supply; she is taking measures to make her own resources sufficient for her most indispensable needs.

It is very difficult, not to say impossible, to discover without a detailed investigation how far the fodder supplies that can with any tolerable amount of certainty be considered as at the command of the country will be able to satisfy the demand. The safest opinion would be based on the fact that Germany, who has now been for more than a year and a half cut off from her usual imports of fodder stuffs, has so far succeeded in overcoming the resulting difficulties. There are several cir-

cumstances that point to Germany's supply of such fodder being more abundant next winter than at any preceding period of the war. In the first place it may be taken for granted that the oat and barley harvest will be about normal and considerably in excess of last year's. Great progress will have been made undoubtedly in the production of substitute materials; greater economy will have been exercised as regards existing means, and supplies will be received from the southeast of Europe. There is every prospect that Germany will ride out next winter with even greater success than she did last. During the summer, the problem will be an easier one, as then the cattle are out grazing. In the west and south of the country, this favorable period begins as early as March, when cattle can be seen in the meadows. By the end of February, or the middle of March, 1916, Germany had probably passed the most difficult part of her fodder troubles.

The scarcity of fodder stuffs has chiefly made itself felt by a considerable decline in the milk supply; the falling-off, it is said, has amounted to about 33 per cent. There has also been a decline in the numbers of horned cattle, but only to a very limited extent. The number of horned cattle, which in December, 1913, amounted to 20,994,000, had, by December 1, 1914, risen to 21,817,000. On October 1, 1915, the number was considered to be still above 20,000,000.

The stock of horned cattle in Germany normally allows of a very considerable meat supply annually. In 1912, no less than 3,703,000 cattle more than 3 months old, in addition to 4,454,000 younger calves, were slaughtered. There is a report from 1899 giving the number of calves born in that year as 7,616,000. A decline of one or two millions in the number of stock does not signify any actual danger for Germany's agricultural economy. Oxen and old cows only are slaughtered, so that the production of calves will not suffer. The decrease caused can be made good in a very short time, when once there is a sufficient supply of fodder available.

Of horses, Germany, on December 1, 1912, possessed 4,523,000. On December 1, 1915, the total number, exclusive

of "army horses," was given at 3,441,000. Even at that period, the number of horses available for agricultural purposes was comparatively little reduced. Since the latter date, however, a larger number of horses has probably been called for. The number of horses killed was, we may suppose, considerable during that period of the war when the armies were more in motion, but there appears to be but little loss in the trench warfare. In addition, there are large "horse-hospitals" behind the front, employing all the means known to modern surgery for the purpose of making the animals serviceable again and the results are said to be very favorable, a number of invalid horses having returned to agricultural work again. As Prussia alone produces 150,000 foals yearly, the annual fresh supply of horses bred in the whole of Germany can probably be put at 300,000. This natural increase in the stock of horses should contribute in no inconsiderable degree to make good the losses caused by the war. It is likely that some compensation has been obtained by imports, the occupation of Belgium having been probably a great help in this respect. However, the total number of horses in Germany, as far as I can learn, must now be considerably less than the normal stock. One result of this is that the demand for fodder is also less. Horses for the plow, and other traction-work, have been in part replaced by motor power — which has come more widely into use during the war — and also, by cows. These animals were employed in some places as beasts of burden even before the war, but to-day they form a very considerable and important reserve of traction power in the service of agriculture.

The stock of pigs is one of special importance for the fodder situation of Germany. On December 1, 1912, the number of pigs was 21,924,000, but by December 1, 1913, it had risen to 25,659,000, this number falling by December 1, 1914, to 25,339,000, a very inconsiderable decline. Anxiety caused by the scarcity of fodder led to a determination to reduce the stock, and, in the spring of 1915 there was carried out the measure which in Germany is commonly termed "the mas-



sacre of the pigs," whereby the stock was reduced to 16,570,000 (15 April, 1915). Later on it seemed to many that this measure had been a hasty one, and every step was taken to increase the stock again. On October 1, 1915, the number of pigs is said to have risen to 19,228,000. In order to be able to form a correct idea of the meaning of these figures it should be remembered that about 24,000,000 pigs were slaughtered in Germany in 1912, i.e., actually more than the number surviving on December 1 of the same year. The natural increase of these animals is exceedingly rapid, and even so very considerable a reduction of the stock as may be necessary during the war in consequence of the want of fodder will probably have no fatal results in future.

In addition to the above mentioned classes of cattle, Germany possesses about 5,500,000 sheep and 3,500,000 goats. In the matter of cattle, therefore, Germany is very well provided for, especially from the point of view of meat production. Germany's extraordinary large stock of pigs absolutely insures her meat supply, for none of the other large European countries is even approximately as well supplied as Germany in this respect. A certain reduction of the stock of cattle can be effected in Germany without any great risk.

## SUPPLY AND DEMAND OF COMMODITIES

**A**FTER this rapid survey of conditions in the most important branches of national production and the resources at disposal, the question remains: To what degree is German production able to supply the needs of the population, and what are the prospects of this supply being maintained should the war continue for a long time? As to the question of the food supply, without discussing the psychological side of this problem, it is possible by means of a proper arrangement and comparison of statistical data and other known facts to obtain a fairly clear idea of the actual situation.

Germany's total consumption of bread grain (after deduction for seed) amounted during the harvest year 1913-14 to 10,322,000 tons of rye and 6,455,000 tons of wheat. The figures for that year were slightly above the average; in round numbers, the bread grain consumption amounts to 10,000,000 tons of rye and 6,000,000 tons of wheat, altogether 16,000,000 tons. Of this demand, less than one-tenth is met by imports. In so favorable a year as 1913 the net import of wheat was 2,000,000 tons, while of rye there was an export of 600,000 tons. There was a considerable net export of flour, both of wheat and rye, representing 500,000 tons of grain, so that the actual net import of bread grain scarcely amounted to 1,000,000 tons, that is about 6 per cent. of the total consumption. Germany is, on the whole, self-supporting in the field of bread grain and will not suffer very much inconvenience from her exclusion from the outer world. Under normal conditions, bread grain is used not only as food for the population but for several other purposes, especially for fodder, the manufacture of spirits and the production of starch. Calculating on the average for the two years 1912 and 1913, it can be estimated

that, of a total amount of 17,842,000 tons, no less than 3,162,000 tons were employed for cattle feeding, the manufacture of spirits and industrial purposes. For seed 1,466,000 tons were used, after which there remained 13,214,000 tons for human food, so that human food and seed took altogether 14,680,000 tons. This essential need of bread grains can be met by a normal harvest. The average harvest for the decade 1905-1914 amounted to about 15,000,000 tons, the maximum being 17,300,000 and the minimum 13,700,000 tons.

The consumption of bread stuffs in the forms that are usual under the normal conditions of modern town life is attended by very great waste. When the bakers produce fresh bread several times a day, a great amount of stale bread is thrown away, or employed to feed the pigs. With a sensible system of economy a very considerable diminution will ensue in the consumption of bread grain, without any necessity for anybody to eat less bread.

Of late years, Germany's consumption of bread grain has been abnormally great, as compared with that of other countries. For the quinquennial period 1902-1906, it is calculated at 500 pounds per head of the population, while the corresponding figure for England is only 365 pounds. The consumption of bread grain in Sweden during the decade 1901-1910 was, on an average, 402 pounds per head. That the population can get along with a considerably smaller amount is shown by the fact that the Swedish consumption during the seventies of the last century, was 310 pounds and, during the sixties, 301 pounds per inhabitant. During the period 1901-05, Italy was satisfied with 330 pounds per head of the population. If Germany adopts this Italian standard, its 68,000,000 inhabitants can make 10,200,000 tons of bread grain suffice for their wants. If the Germans adopt the Swedish standard for the first decade of the present century, Germany will need 12,500,000 tons, a minimum which has not been reached by even the lowest net harvest during a whole decade.

To obtain a sufficient supply of bread grain is by no means a difficult problem for Germany.

The harvest of 1915 was a very poor one. The estimates made cannot be considered as fully reliable, although it seems to be certain that the harvest was considerably below the average—probably even below the minimum of the last decade. The oat and barley harvests were also bad, and since the lack of foreign fodder stuffs caused inconvenience, it was impossible to prevent the employment of a considerable part of the bread grain as fodder. Under such circumstances it became necessary to adopt the strictest economy in the consumption of bread grain as human food by means of a system which strictly limited the daily consumption of each individual. Matters were, however, not so bad that this method did not meet the situation. Nor does any doubt exist in Germany but that the nation will be able to tide over until next harvest; it is even estimated that there will be a surplus sufficiently large to allow for a possible late harvest.

This is the actual condition as to bread grains in Germany. There is obviously every reason to believe that conditions for next year will be better. If the harvest of 1916 be but normal, the bread grain supply will be quite sufficient for the following year; even should the harvest be somewhat unfavorable, there will not be any danger of any real scarcity of bread stuffs.

Despite the figures quoted as to the potato production in Germany, during the past winter there undeniably existed in many places an actual scarcity of this vegetable. The chief explanation is to be found in the considerable increase in the use of potatoes as fodder which circumstances rendered necessary. But other things, too, added to the difficulty. In the autumn there appears to have existed a serious disorganization of the potato market, which prevented the distribution of the stores that must be carried out before the winter begins. The measures taken later by the Government and by the administration were not successful in bringing order out of the chaos. In Germany it is the custom to bury the potatoes in the ground in the autumn, and cover them with earth. There they lie in these "Mieten" ("caches") over the winter, and during this

period, are not available for the market. All these circumstances made it very difficult during the past winter to keep the population supplied with potatoes, but these difficulties were overcome with the arrival of spring. An improved central organization for the regulation of the potato market was created, the supplies became accessible, and the temperature permitted of transport on a large scale. As early as May and June the new potatoes will make their appearance in the market, so that the supplying of the population will not cause any serious anxiety; for next year many improvements in the organization of distribution may be expected. The technical progress that has been made in regard to the utilization of the potato as an article of nutriment will also add materially to the German menu.

As to meat (inclusive of pork) Germany is able in times of peace to satisfy 95 per cent. of her needs by means of her own production. There must, of course, be some decrease in the production of cattle now, because of the diminished supply of fodder; this may, indeed, lead to the killing off of some part of the stock. But there is no reason to suppose that the supply of meat will ever be less than during the past winter. Improved methods of using the meat supply should also tend to make the meeting of food demands easy. The scarcity of meat of late should be ascribed largely to the want of organization in the slaughtering of the cattle during the earlier period of the war. The uncertainty as to the length of time the fodder could last led to an excessive killing off of the stock at that period. The increase in wages has, probably, temporarily led to an increased consumption of meat; then the enormous demands made by the meat-preserving factories must be taken into account, demands which caused a most uneconomical use of the supplies. A central regulation of the meat market has now been effected, and as all the experience gained has led to a clearer insight into the conditions necessary for the success of such regulation, it is reasonable to assume that in the future it will be possible to supply the necessary public demand for meat without any difficulty.

It should be clearly understood that during the period immediately preceding the war, the consumption of meat in Germany had risen to a really abnormal height. It is stated that the annual average individual consumption amounted to 119 pounds. This figure is larger than that for England even, which has previously been considered the highest in Europe and which, for the quinquennial period 1900-04, is given at 115 pounds per head. Such a consumption of meat is unnecessarily great, and affords a very wide margin for restrictions. This is better seen by glancing at the figures showing the growth of the consumption of meat in Germany during the last generation. Even as late as 1880, the annual consumption per head was, according to Professor Esslen's calculations, about 66 pounds. Ten years later this figure had reached 88 pounds, and then rose with great rapidity to 119 pounds. According to this estimate, therefore, the increase in the consumption of meat has risen by no less than 80 per cent. A very considerable restriction in the consumption would be necessary before it fell to the 88 pounds average, and even then it would be merely a return to the standard that the German nation, at the beginning of the nineties, considered a noteworthy improvement as compared with the figures of the preceding decade. It seems hardly possible that the war will force a return to the standard of 1880, the 66 pounds average, but it may be useful to bear in mind that, even with that limit, the German nation was able to satisfy its needs and to perform work of a high standard. According to another report which has been placed at my disposal, the consumption of meat per head in 1870 was 70 pounds, rising to 117 pounds just before the outbreak of the present war. Of course, the estimates for earlier dates are attended with uncertainty, but the figures quoted seem to prove that the present consumption of meat leaves a very wide margin for restriction. Naturally, the high price of meat has already compelled the vast mass of the population to reduce very much its use of meat, so that the compulsory regulation of the consumption would, for these classes of society, mean almost no further restriction.

The consumption of fats in Germany, especially in the north of the country, has been extraordinarily great, and offers ample opportunity for reduction. In my opinion, and I think that of most foreigners, the use of fats in German cookery is carried to excess, and I find the dishes offered at the restaurants on the so-called "fat-free days" in some respects far more palatable than the ordinary ones. Still, this does not prevent the problem of supplying the population with the necessary amount of fat from being a very serious one indeed.

As far as I can see, the gravest part of the food question is the great reduction in the production of milk. The want of milk must in the first place affect the children, who will suffer from the extraordinary scarcity of lacteous fat substance. However, the local authorities and other bodies do a great deal in order that the children belonging to the poorer classes, especially those under two years of age, shall not be without milk.

I also believe that the problem of nourishing the growing generation has been so far solved that the children do not suffer directly from hunger. I endeavored to get first hand knowledge in regard to this for myself by visiting a primary school in one of the workingmen's quarters in Berlin; I absolutely did not receive the impression that the children were suffering from the want of proper nourishment. The very poorest received their food through the school. Very few, however, seemed to avail themselves of this opportunity; in one large class of, I think, fifty girls, only two were getting their meals from the school. None of the teachers thought that the children had lost strength because of insufficient nourishment. The school-attendance was normal and so was the attention paid to the instruction.

If there really were an extreme scarcity of nourishing food, the fact would become apparent in a diminished power of resistance against disease, and this would be the case more especially as regards the children. I have spoken to the leading physicians of Berlin on the matter, and have studied the diagrams of children's diseases and infant mortality kept in the municipal statistical bureau. During the winter there have

been more cases than usual of diphtheria and scarlet fever, but it was thought that the higher figures were due to the greater exactness with which all cases were listed during the war; owing to the employment of municipal sick-nurses, cases of illness were more generally reported than before. The curves showed no increase of infant mortality, however, so that it is clear that the children's powers of resistance to disease has not been less than under ordinary conditions. On the whole, the state of health in Berlin was satisfactory.

The same may be said about the country as a whole. Germany is to-day inevitably more exposed to the spread of contagious or infectious diseases, especially from the east front, where typhus fever and cholera have constantly to be guarded against. In Germany, hundreds of cases of cholera have occurred at various places since the beginning of the war, but it has been found quite possible to isolate these attacks. The efforts made to prevent individual cases of typhus from developing into epidemics have been equally successful. This is a really magnificent result for modern scientific hygiene; and even if there is no direct connection between this fact and the nourishment of the population, the impression is inescapable that it would hardly have been possible to obtain the same results had the population lost its physical powers of resistance to any great degree owing to insufficient nourishment.

A decisive proof that such is not the case is the general increase of the working capacity of the population that has evidently taken place during the war. From the performances of the German army it is obvious that, as far as the military forces are concerned, there exists no general state of insufficient nourishment. In the ranks of the civil population it may be said to be the rule that more work is done than in normal times. In the schools the teachers have to do perhaps as much as 50 per cent. more work than usual. In the Government and business offices, the work of those absent has to be performed by increased labor on the part of the remainder of the staff. In the industrial world, too, there prevails an abnormally long working day, with an extensive use of over-



time and Sunday and night-work. This would be altogether impossible if the population was insufficiently nourished, for such a condition of things would soon become apparent in a diminished power of work.

One does not receive the least impression of insufficient nourishment if one observes the people one meets in the street. And if people who may be considered as authorities be questioned, one hears that in many places there are difficulties, but no kind of famine exists or is to be feared. It is the prevailing opinion, too, that the agricultural population is better fed than the townspeople.

I believe, however, that one must be exceedingly careful when endeavoring to form an objective opinion of the problem of the nourishment of the German nation. Even if, on the whole, there exists no such acute insufficiency of nourishment as to be accompanied by an immediate diminution of the physical powers, it must be supposed that the régime is unsatisfactory, especially for the youth of the country, in so far as in the long run a certain amount of injury to the general health will result. Physicians from neutral countries are said to have expressed the opinion that the diet now observed by German schoolchildren is unsatisfactory, and that the youth of the country who, just at a growing age, are compelled to submit to such restrictions in point of food will suffer from it in future years in the form of diminished vital energy and working power. It cannot be denied that such an opinion is plausible. Should the war continue for a long time, and the restricted diet for children be enforced for that period, it is to be feared that these restrictions would leave lasting traces behind them, thereby increasing the curse that the war will bestow as an inheritance in so many other respects. But it is certain that at present this danger is not considered as actual. The nation is prepared to do everything possible to help the growing generation to escape the sufferings caused by the policy of a "war of starvation," but it is also prepared to endure all the privations and injurious results which cannot be avoided. In comparison with the hecatombs of human lives which are

every day sacrificed at the front, the evil results which may possibly manifest themselves in future years are of altogether too small importance to be taken into consideration.

As to the ability of Germany to hold out so far as the provisioning of the country is concerned, attention must, first and foremost, be paid to the fact that the country has now carried on the struggle for more than a year and a half and that, during that period, it has not by any means been in a more favorable position than it may be expected to enjoy in the future. It is true that one fact or another may have tended to lower the produce of agriculture. It is conceivable that the number of horses employed in agricultural work may be still further diminished, or there may arise a growing scarcity of phosphoric acid for fertilizing purposes. But other very weighty factors act in the opposite direction: the occupation of extensive and fertile enemy provinces which, in the degree that they can be cultivated and utilized must contribute to the provisioning of Germany; then there is in prospect an increased production of nitrogenous manures. In addition, the harvest of 1915 was considerably below the average, almost a failure of the crops; but notwithstanding this, Germany was able to tide over her difficulties during the succeeding winter. From an objective point of view, there are reasons why the coming harvest-year may be expected to be better than the last.

There is another reason why the German food problem must be considered as more favorable for the coming year than it has been hitherto. I mean by this the organization of the entire system of food supply. Much has been said about the organizing skill of the Germans, and they are fully entitled to the general admiration they have aroused for this ability. But it must not be forgotten that Germany entered the conflict perfectly unprepared as far as regards the arrangements necessary for supplying the population with food, so that there prevailed at first a serious amount of disorder, and the earlier measures adopted by the Government came partly too late and partly proved mistaken. It is impossible to study the food supply policy of Germany during the past eighteen months

without receiving the impression that, at the beginning, the Government first felt its way awkwardly, until it finally discovered the comparatively stable and clear-sighted plan it is now following. The proof of this is found in the sharp reversals of method that have occurred in several departments, for example, in regard to the idea entertained of the importance of sugar production, and in the remarkable flood of rules and alterations of which the regulation of the potato market is a much debated instance.

At the beginning, Germany had no sufficient ground on which to base her methods, the amount of the existing resources being unknown. Certain measures of a very dubious character, such as the great slaughter of pigs in the spring of 1915, can be referred directly to such causes; from the beginning it seems evident that the authorities did not fully grasp the nature of the problem before them, and, therefore, did not quite know how to choose the right means of solving the difficulties. The policy of maximum prices, which at the beginning played such a great rôle, should be regarded merely as a concession to popular sentiment in connection with the constant increase in the price of food.

It may be useful to devote here a moment to an analysis of what is really involved by this problem. Under normal conditions, prices have the social-economic function of restricting the demand for any kind of serviceable articles, so as to bring the demand in harmony with the available resources. Under the abnormal conditions caused by the war, prices cannot perform this task without rising to unreasonable heights. The popular remedy is the fixing of prices by law. But people forget that this will not give any solution to the chief problem—the necessary limitation of the demand. This problem must be solved, and it is not before it is seen that this task is the vital one that people begin to find the right means of solving the food supply problem. This means is the direct limitation of individual consumption by regulations which, of whatever nature they may be, have this in common, that in coöperation with the prices charged, they bring about the neces-

sary restriction of the demand. Such regulations are those fixing days when no meat or no fat can be eaten; those that order the early closing of restaurants, or limit the amount of any goods that the individual may purchase at one time, etc. The rise in prices acts together with these measures as a co-operative factor which, in restricting the demand, attains its highest development in the ticket-system, which regulates each individual's consumption of any article — of bread, for example. When the rise in prices is assisted by such a powerful ally as the ticket-system, prices need not be driven up to an excessive height before the object of the measure is attained.

In my opinion — and it is one I have long entertained — the science of political economy has long suffered from the fault that it has not sufficiently emphasized the economic task appertaining to prices, and that it has not, as it should, placed this task in the foreground as the great problem of social economy. The experiences gained during the present war have proved the practical damage caused by this shortcoming of economic theory.

That the problem of the regulation of the food supply was not, from the beginning, always properly understood; that therefore, and in consequence of a want of knowledge of the real state of affairs, mistakes were made; that the development of new systems and the creation of fresh organizations thereby rendered necessary has taken time, and that, in consequence of all these circumstances, the food problem as a whole has hitherto been somewhat ineffectively solved, is indubitable. This statement does not spring from any desire to criticise. Indeed, all opinions concerning persons or their actions fall quite without the scope of the present research. But the shortcomings in the food supply policy of the past must be pointed out here, because they undoubtedly diminished the effectiveness of the system employed for providing the population with food to a point considerably below the standard that has now been reached, a standard which will be determinative of the power of Germany — as far as the question of the food supply is concerned — to hold out throughout the struggle, no matter

its length. Since it has been proved possible to solve the problem of the national food supply of Germany, by means of the more or less defective arrangements hitherto employed, the conclusion is inevitable that in the future this problem, so far as it depends on organization and rational direction, will be met in an even more satisfactory way. And it seems to me that this is a specially important factor in regard to the question that I am now endeavoring to answer.

That the food supply policy will, in the future, be managed better than hitherto, may be considered as probable, because a rich fund of experience has now been gathered which was entirely wanting at the beginning of the war. In addition, there is a circumstance that time has been found to create the great central organizations for the regulation of the distribution and consumption of the necessaries of life. At present, this regulation extends not only to bread but also to such articles as potatoes and meat.

It is true that the want of food is not the only need that requires to be satisfied, but it is the most pressing one; it is a need that must be satisfied every day. Other needs can be served by more or less durable articles, such as clothes, furniture and dwellings. As regards these, one can continue to employ what is already in use, for the necessity of procuring such articles afresh is not nearly so pressing, even if in the long run it will claim attention.\*

As I have already stated, the traveler cannot observe any sign of a scarcity of clothes or of shoes in Germany. As far as I can see, there is no reason to expect that the scarcity of such articles will become so extreme in the nearest future that it will really be felt as a serious difficulty — one to be included in the number of the other great problems and hard sacrifices of the war. Still less, of course, can such a scarcity occur as regards furniture and dwellings. What is at present in use can be employed for a long time forward.

\* This was written before the entire question of food supplies throughout Germany was placed into the hands of one single official whose powers approach those of a Dictator.

The general impression one receives of the condition of the great consuming public is unconditionally satisfactory. People in general do not seem to be suffering from economic difficulties. The theaters and concerts are well attended, and at the great popular restaurants it is very difficult in the evening to get a table. The large wine restaurants have also plenty of patrons. But the most remarkable fact is that one sees no poor people at all. I have gone about in different towns, both in the forenoons and evenings, in well-to-do and in poorer quarters; I have seen the working population making their small purchases in the markets towards evening; I have passed through narrow, badly lighted streets; I have stopped and asked my way, but the whole time I was in Germany no one ever asked me for alms. Neither did I see any beggars. The only one I observed who could perhaps be classed as such was an old man without legs who, late at night, said "good-evening" to someone he met and probably intended to get alms. I mention this merely in the interest of truth, for it was literally the only case of begging I was able to observe. We would be glad in Sweden if, in the most flourishing times, we were able to say that we had reached such a high standard of social care for the poor. But we are still far from that. That it can be maintained in a great industrial country like Germany, which suddenly finds itself cut off from the outer world and is engaged in such a gigantic struggle as the present war, is a most extraordinary proof of internal strength. For if Germany really were on the point of economical breakdown, and if the population really suffered to a great extent from hunger, it would, of course, be impossible for such need not to find visible expression in the daily life. Those perfectly debased and disreputable individuals that one sees at every other street corner in London in the most peaceful times and amid periods of the greatest economic prosperity, are nowhere visible in Germany even to-day. Want and despair, as we know, find expression in excessive drinking. The only sign I could observe was in the case of an artisan who might be possibly described as being somewhat "jolly."

## STATUS OF GERMAN CURRENCY

**I**N order to judge correctly the economic strength of Germany it is of prime importance to have a perfectly clear understanding of the effect the war has had and is probably going to continue to have on the value of German currency during its duration and even after peace has been restored.

In Germany the prevailing opinion is, on the whole, optimistic. It is not admitted that the domestic value of the mark has fallen or, at least, there is a universal endeavor to mitigate this decline to the utmost. The fall in the value of the mark, undeniably apparent in the foreign exchanges, financial experts generally try to explain as a result of the fact that the balance of payment due foreign countries is for the moment unfavorable: Since Germany cannot freely dispose over the amounts due her from foreign countries, or even over the interest on such sums, and since it is difficult for Germany to export goods, difficulties are bound to arise in the way of making payments abroad, and these difficulties find expression in a rise of the foreign exchanges, or conversely, in a fall of the value of German money as measured by other standards. But this diminution in the value of the mark is — according to the German view of the matter — only temporary. As soon as the war comes to an end and Germany has once more at her command the monies due her, together with the interest that will have accumulated during the war and German export trade is resumed, it is believed that the situation will at once change in favor of Germany and the mark value resume its normal position in relation to other leading world-values, such as the pound sterling and the dollar. Of course it is impossible to ignore the fact that the amount of notes in circulation and of other means of payment has increased considerably

during the war, but the idea prevails that this increase in the circulation cannot at all, or only to a slight degree, be considered as actual inflation. It is pointed out that war conditions have caused many gaps in the circulation which must be filled up by an increased issue of means of payment. In the first place there is the amount of gold paid into the Reichsbank that is thought of, besides that it is also argued that drafts have lost their old importance as means of payment and that, especially because of the occupation of foreign territories, the area in which the mark has to serve as a means of payment has increased very considerably.

In my opinion, the seriously weak point in these explanations is that they do not seem to recognize the need to meet that increase in the demand for circulating mediums of payment which must accompany the general rise in prices and which alone must almost correspond to the entire increase in circulation that has actually taken place. The other reasons brought forward to support the opinion that the amount of means of payment in circulation really needed to be increased can hardly be admitted. It may, of course, be true that a certain amount of drafts have disappeared from circulation, but payment by means of drafts has evidently been mainly replaced by payments by means of checks, and the whole of this change cannot have had any great influence on the demand for circulating mediums. Neither can the occupation of foreign territory be considered a very tenable reason for an increase in the demand for circulation mediums. Both in Belgium and in the north of France there are in circulation, great amounts of franc-notes which have been specially emitted under the control of the German administration. It is true that, in addition to these notes, the mark is also in circulation, and German notes lie as security in Belgian banks — in the previous note-issuing bank (*Banque Nationale*) to an amount of 242,000,000 francs and in the new one (*Société Générale*) 164,000,000 francs, a total sum of 406,000,000 francs, or 325,000,000 marks (December 31, 1915). In Poland and the other occupied Russian provinces, the ruble is still the means



of payment and the mark forms only a supplementary means of circulation. According to the best opinions at my disposal, the total amount of German marks absorbed by the occupied territories should amount to about 1,500,000,000 marks. As, however, the total amount of marks in circulation is, in round numbers, 10,000,000,000 about one-seventh or at most one-sixth of the circulation is within the occupied countries. But this is certainly not more than corresponds to that portion of the German nation belonging to the army within the territory in question, if due consideration be paid, as it should be, to the fact that the army consists only of adult men in the prime of life. If these men were at home, then I consider there would fall to their share an equally large part of the total mark-circulation as is now used in the occupied territories, and therefore the occupation cannot in itself be considered as any reason for an increase in the demand for circulating mediums.

According to the opinion which I shall try to expound and prove in the following pages, the relative increase in the amount of circulating mediums that has occurred in Germany during the war must be regarded, in the main, as an actual inflation which to a corresponding degree has diminished the value of the mark. If I am unable to adopt the opinion prevailing in Germany with regard to the currency question, I must at the same time declare that the theory in regard to German finances exposed by the press of Germany's foes is quite untenable.

In its simplest, popular form this theory is as follows: The pound sterling is quoted in New York at two per cent. discount and the mark at twenty per cent. discount; consequently, it is said, the position of the mark is ten times worse than that of the pound. In other words, the relative appraisalment of the money standards of the warring countries on any neutral market such as New York, is taken as an expression of the relative degree of depreciation of these standards. People even assert that these exchange quotations are an expression of the opinion entertained by the neutral world of the credit

the various belligerent nations deserve and, consequently, of the confidence felt by the neutral world on the economic power and future prospects of the various parties. That this latter interpretation is arbitrary and untenable is perfectly understood by every one who knows anything of international exchange business during wartimes. Such business is conducted from day to day and from hour to hour, and is hardly concerned with any kind of speculation as to what will happen in the long run to one party or another. This is fairly self-evident, but I intend to go a step farther and prove that, on the whole, any idea of the relative depreciation of the money of the belligerent nations which is formed by studying the figures at which their exchanges are quoted on the neutral market, is altogether misleading.

The explanation of this lies in the simple fact that the currency of neutral countries, too, has suffered considerable depreciation during the war. None of these currencies form a fixed point, starting from which one is able to judge of the relative extent of the depreciation of the other currencies. I can sit here in Stockholm and, day by day, observe how much the rates of exchange of the belligerent nations grow worse or better. But this will give me no idea as to the real movements of the values of the different currencies, before I have learned to what extent the Swedish money has fallen in value during the war.

The rates of exchange in one place — for example in Stockholm — reflect the relative movements of the different currencies. If, at the same time, we could learn the actual depreciation of any one of these currencies, it does not matter which, we should have a picture of the absolute depreciations of all the currencies. As to England this step is possible because of the series of index-numbers of general price levels published in that country. I have followed the Sauerbeck series which, at present, is continued by the *Statist*. Before the war this index stood, let us say, at 82. Since then, the general level of prices coinciding with the inflation which has taken place there, has risen considerably and for March, 1916,

the index figure is 130.4. This indicates a relative rise in the proportion of 100-159, that is, English currency shows an inflation of 159.

After having determined the absolute movement of English currency, it will be possible, with the assistance of the rates of the exchange in Stockholm, to determine the relative movements of other currencies in comparison with that of England, and thereby get a picture of the absolute depreciation of all currencies during the war. If we start from the average rates of exchange in Stockholm during March, 1916, we find in this way the following inflations:\*

Sweden .....	146.2
England .....	159.0
France .....	177.8
Germany .....	207.7
Russia .....	251.1

All currencies have considerably deteriorated, including the Swedish, which, however, is at present in a better position than most other currencies in the world. When we study these absolute depreciations, we find that they are everywhere of the same character and that, although there certainly exists a difference in degree, it is by no means so great as one might be led to believe by a superficial glance at the relative depreciations of belligerent in proportion to any neutral currency.

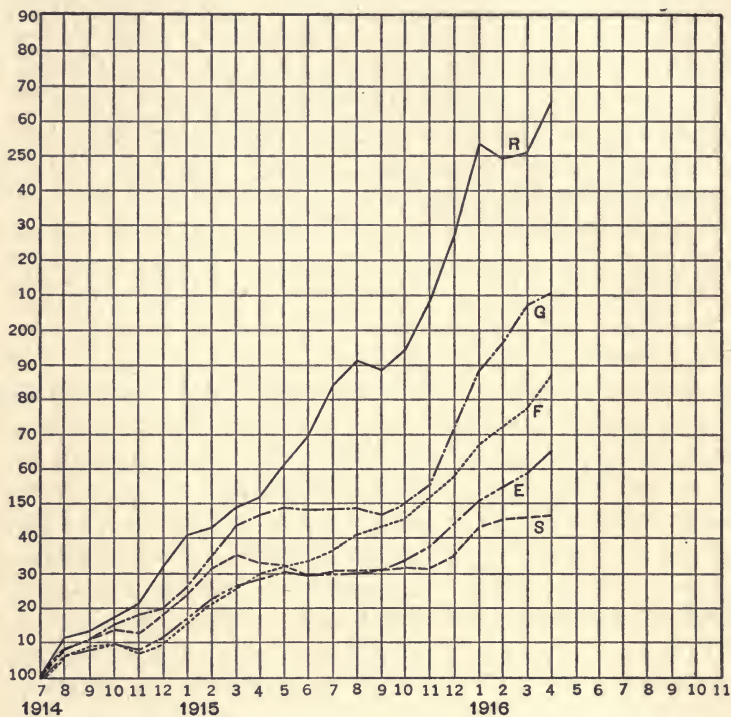
I have closely followed this development since the beginning of the war, and have compared the results in the following diagram which shows, month by month, the continuous absolute inflation of money in the belligerent countries since July, 1914.

This inflation, in each country, is intimately allied with the increase in the total amount of the circulating medium. Though it is true, that a reliable calculation of this increase is attended by great difficulties, an approximate idea of it may be obtained by means of the figures available.

The estimate is, perhaps, most difficult in the case of England, since we do not know with exactness how much gold

\* For April figures, see note at the end of the chapter.

has left the country since the beginning of the war; it is even uncertain how much gold was in circulation there before the war. However, we shall not be far wrong if we estimate the total circulation in England before the war at about \$1,000,-



Currency inflation during the war. S = Sweden, E = England, F = France, G = Germany and R = Russia.

000,000, and during the first months of 1916, at about \$1,500,000,000. The increase corresponds to the issue of the so-called currency notes. This increase amounts in round numbers to 50 per cent., which nearly corresponds to the simultaneous increase in the Sauerbeck index figure. In France, the circulation before the war can be estimated at about \$2,000,000,000. Starting from this figure, I have for March, 1916, calculated the average circulation at \$3,503,-

600,000; here we have an increase in circulation in the proportion of 100-175.2, corresponding to an actual inflation, calculated in accordance with the method given above, in the proportion of 100-177.8. For Russia I have been able, on the basis of the official estimate of the total circulation published by the Russian State Bank, to calculate the normal circulation for March, 1916, at \$1,275,000,000, while the actual circulation may be estimated to have reached \$3,254,500,000. In this case, consequently, there should be a relative increase in the circulation in the proportion of 100-255.5, which is in close agreement with the actual inflation, as calculated above, of 251.1. The relative increase of the circulation in Sweden is indicated by the figure 144.4, while the estimated inflation, in consequence of the exchange rates on London, amounts to 146.2.

It does not lie within the limits of the present inquiry to go further into these calculations. I have given these figures merely to show that, for the currencies which I have chosen for comparison with the German currency, there exists a real inflation which, for each country, must be considered as proportional to the increase in the amount of circulating medium during the war. What, then, is the position of German currency in this respect? According to calculations placed at my disposal by the German Reichsbank, the alterations in the amount of circulating mediums of payment during the war have been as follows. In order to obtain a sound basis for the comparison, I give two schedules of different dates, for periods before the war:

	<i>Feb. 28 '14</i>	<i>July 15 '14</i>	<i>Feb. 29 '16</i>
Gold (in millions of marks) . . . . .	2,350	2,322	750
Silver (in millions of marks) . . . . .	724	727	1,092
"Kassenscheine" . . . . .	131	145	1,361
Bank Notes . . . . .	2,065	2,086	6,667
TOTALS . . . . .	5,270	5,280	9,870

Up to February 29, 1916, therefore, the total circulation has increased since the corresponding date in 1914 in the proportion of 100-187.4. If this calculation is continued with the assistance of the succeeding Reichsbank reports, we find that

in March, the average increase in the total circulation was in the proportion of 100-189.1. To judge by the rates in the exchange in Stockholm and the absolute depreciation of English currency, the inflation of German currency is indicated by the figure 188.1 for January; 196.7 for February, and 207.7 for March. From this follows that, for Germany, too, the fall in the value of currency agrees in essentials with the relative increase in the circulation mediums. The differences shown by the results are important. It is possible that the somewhat higher figures based on the rates of exchange for February and March signify that, for some temporary reason, the rate for the mark was a little more unfavorable than it ought really to have been. But as to this it is too early, as yet, to express any definite opinion.

The idea that the fall in value of German money should entirely, or even mainly, be the temporary result of a momentary increased difficulty of foreign payments cannot be accepted. If Germany were the only country whose money had depreciated, such an explanation might have some degree of plausibility. But when the currencies of all the other countries have also depreciated, then the insufficiency of that explanation becomes plainly evident. It cannot be applicable simultaneously to every country, as an unfavorable balance of payments on the one side must correspond to a favorable one on the other. During the course of the war, the dollar value has undergone an inflation approximately in the proportion of 100-150, and this in spite of the enormous positive balance of trade in favor of the United States. The diminution in the values of currencies during the war is a far more general, and a far profounder phenomenon than can be explained away by ascribing it to temporary disturbances in the balance of payment for any one country.

Our estimate of the inflation of the mark corresponds fairly well with the all too scarce reports available concerning the rise of prices in Germany. The German index figure for the expenses for necessaries of life for a family of four persons (according to Calwer) fluctuates for the months of July-

November, 1915, around the figure of 40, the normal height being about 26. The increase of prices, therefore, is about 50 per cent., which, it will be seen, corresponds very well with the inflation for that period as shown by the diagram. November, 1915, as compared with November, 1913, shows a rise of the index figure of 51.9 per cent., while the estimated inflation amounts to 49.9% for Oct., and 55.8 for Nov.

What is the effect of this depreciation of the mark on the internal economy of Germany? In the first instance it signifies — as does every such depreciation — a revolution in the essential conditions of wealth and incomes to the advantage of all debt encumbered owners of real estate and other real capital, that is on the whole to the advantage of all owners of landed property and of people engaged in business enterprises, but to the corresponding disadvantage of all creditors — not only capitalists, in the accepted meaning of the word, but also of all those possessing small amounts in savings banks, life annuities, etc., and also to the injury, for the present at least, of all wage earners who have great difficulty in getting their wages advanced in accordance with the upward movement of the prices. Such a violent revolution is always to be regarded as a misfortune and a hardship for the many who suffer from its effects. But this is what is important: How does this depreciation of German currency affect the economic strength of Germany at war?

I believe, in the first place, the depreciation of the mark carries with it the necessity for the observance of severe and compulsory economy by that very great mass of the population which find the value of their incomes diminished. The diminution in the purchasing power of the mark necessitates a very general and comprehensive restriction of consumption. This casts an interesting light on the fact that a belligerent nation which is compelled to utilize all its economic strength is almost without exception driven to depreciate its currency. It is true that the immediate cause of this depreciation is another factor, viz., that, day by day, larger sums of money are paid out than find a return in the goods and services actu-

ally offered. But the effect is always that individual consumption is driven to making restrictions, and that more goods and services are placed at the disposal of the war authorities.

The path followed by this development is the same for all the belligerent countries. There is a difference in degree between them in the matter of the depreciation of their currencies. But the more favorable position occupied by some countries is the result of support from abroad gained by borrowing or by the sale of securities, at the cost of diminishing the national wealth by weakening in another form the economic strength of the nation. The degree of difference as shown by the preceding investigation, is altogether too unimportant to be in any way decisive as to the relative economic power of resistance of the fighting powers. On further consideration, no one can really imagine that the result of the war will depend on whether one currency or the other stands at 50, 60 or 65 per cent. of its original value. What this original value was has now become a matter of very little importance, for war has to do, simply and solely, with present actual factors.

If we study the pages of historical experience we find that warring states, on many occasions, have succeeded in continuing the struggle in spite of an extremely depreciated monetary system, and that the fall in the value of money has by no means prevented them from developing a very considerable economic and military strength. American currency, during the Civil War, underwent an inflation for the year 1865, up to as much as 232, calculated according to the price level of the paper currency of the Northern States. That did not prevent the war from being fought to a finish, and the currency, during the course of the extraordinary economic development that followed, from gradually regaining its parity with gold. A century ago, England, in spite of a depreciated paper currency, issued triumphant from the struggle against France. Immediately after the incredible prodigality with which the French Revolutionists issued their *assignats*, forcing them down, to absolute worthlessness, there succeeded one of the



greatest developments of power known in the history of the world ending in Napoleon Bonaparte's dominion over Europe. With such examples before our eyes, we can hardly be tempted to cast a horoscope of the issue of the present struggle, based on the degree of difference in the depreciation of money in the various states. We shall be still less inclined to do so when we consider how uncertain it is which of the warring groups will, in the end, suffer most from this depreciation.

The confidence entertained for the moment by the neutral world in one or other of the currencies of the belligerent nations plays a very subordinate rôle. As a matter of fact it seems as though the neutrals had no confidence in any of them, but, as a rule, demand payment in their own money or, at least, guarantees as to the rate of exchange. Even England has been obliged to submit to such demands. Germany has become to such a degree isolated that she must rely on her own resources, and the support she can obtain from abroad is of comparatively little importance. The confidence felt, or not felt, in the future of the German currency cannot be in any way decisive as to the economic strength of that country.

I should like also to remind my readers that the whole question of the future of money standards is hidden in obscurity. All the combatants wish the world to believe that after the war their currencies will resume their normal value. But, in all probability, this problem will possess far different features from those it now presents. In the first place, there will be a number of problems to be faced whose solution it will be impossible to delay and which will necessitate enormous expenditure. Then it will probably be discovered in various quarters that the restoration of the currency belongs to that class of less urgent undertakings, the performance of which can conveniently be postponed. Further, as far as I can see, an influential part will be played by the opinion that the unheard of financial burdens left by the war will be incomparably more difficult to support if the currencies are to be restored to their old level. The real burden of an annual expenditure in the form of interest on a billion must be doubled if the

monetary unit in which the debt is reckoned obtains double purchasing power. From a future finance minister's point of view, the retention of the depreciated value of money is sure to be felt as a relief.

On the other hand, it must not be forgotten that, on the part of certain countries, great importance will be attached to the restoration of currency. Germany belongs most decidedly to this number. One finds in leading financial circles in that country the unanimous opinion that such a restoration should be carried out as soon as the war is ended. Very much depends on what is meant by the restoration of the currency to its normal level. If it is considered sufficient to have the mark regain its former value as compared with other standards, the problem will be a comparatively simple one. As we know that even such currencies as the pound sterling and the dollar are much depreciated, not very much will be required to bring the mark to parity with them. To judge by appearances, Germany will make great efforts to attain this end, and she will have considerable resources at her disposal for the purpose. Germany has accumulated in foreign countries large amounts in interest and dividends which she has been unable to collect, and she possesses in these supplies a fund which, when peace is restored, will strengthen her international balance. The German maritime carrying trade will also be a big asset. Germany's vessels are now interned, but will be at her disposal the moment peace is concluded. In addition to these vessels German ship-owners are building new vessels on a very large scale. The information I received in this respect was simply astounding, and bears witness to the vigor of German commercial life, in spite of every drawback.

If Germany determines to bring the mark to parity with other leading monetary standards, there are great possibilities of her being able to attain this end. To a certain degree these possibilities depend on the development of the other standards. If the dollar and, under certain conditions, probably the pound too, are actually kept at parity with gold, much will depend on the value gold will possess. If, during the progress of the war,

or immediately after its close, Germany, France and Russia should find it suitable to get rid of any large amount of their accumulated gold reserves, an action which is not at all improbable, the value of gold would easily become considerably depreciated. This would especially be the case if the neutral countries, following the example of Sweden, endeavored to exclude gold from their markets. In such an event, the market for gold would become exceedingly restricted in proportion to the supply. Under such circumstances the depreciated European currencies would soon regain their parity with gold, without any special efforts on the part of the various governments, merely in consequence of gold falling to the level of currencies in question. As gold, in comparison with the period before the war, already shows a depreciation corresponding to a rise of prices in proportion of 100 to 150 or more, such a supposition is by no means improbable. It is, however, imaginable that the development of events will take another direction — that the various states will continue to retain their gold, still further to increase their reserves of that metal, so that gold will rise in price. Under these circumstances the restoration of the parity of the European currencies will become a matter of extremest difficulty.

It cannot be said now, with any great degree of assurance, which of these alternatives will be adopted. The future of gold is enveloped in uncertainties, and the future respective relation of the European currencies to the yellow metal is, therefore, a question to which no one at the present moment can give any satisfactory reply. But all speculations as to the future redemption of one currency or another, however interesting they may be from a theoretic point of view, are of no importance when judging the great question of the moment, viz., what is the economic strength of the fighting powers, and their financial ability to continue the struggle?

If we regard the world as a whole, it may be said that the war has occasioned a considerable depreciation in the value of money. The Scandinavian standards, which, for the moment, have fallen the least in value, show an inflation of about

150. It is scarcely probable that a movement of such scope will be entirely neutralized after the war. It is rather to be supposed that some part, at least, of this general depreciation will be permanent. A restoration of the monetary standards of the belligerent nations to the material values they possessed before the war must be considered as not belonging to the group of problems which will possess actual importance after the war.

NOTE.— Since this was written I have been able to arrive by calculation at some figures for April, 1916. As the *Statist* has not published any index number for April, I have calculated the English inflation, approximately, on the ground of the *Economist* index number. The inflations for the various countries are then as follows:

	<i>March</i>	<i>April</i>
Sweden .....	146.2	146.8
England .....	159.2	165.7
France .....	177.8	186.9
Germany .....	207.7	210.7
Russia .....	251.1	265.5

The relative position of Germany is thus considerably improved. The relative increase in the Russian circulation is, for April, 264.4 which very nearly corresponds to the actual inflation of the ruble as given above.

## THE FINANCIAL PROBLEM

LET us now endeavor to approximate Germany's financial strength and ability to continue the struggle. First of all we must remember that the decisive factor in this matter is the country's own material resources and its capacity for production. The problem now before us is the same as that already studied in the preceding pages. We must now, however, look at the matter from a monetary point of view. It is our task to draw those general conclusions which are possible only when we express economic values in figures that allow themselves to be summarized.

Dr. Helfferich, the present Minister of Finance of the German Empire, in his publication, *Deutschlands Volkswohlstand 1888-1913*, issued in 1913, estimated the annual national income of Germany at 43,000,000,000 marks (\$10,750,000,000), her national wealth at 310,000,000,000 marks (\$77,500,000,000), and the yearly increase of the latter at about 8,000,000,000 marks (\$2,000,000,000). This yearly increase should equal that part of the nation's income that is saved and which serves to create capital. Most people, even in Germany, had estimated the growth of German capital at a considerably lower figure. Quite independently of Dr. Helfferich, and before I knew of the result to which he had come, I had formed, on the basis of the material issued in 1908 in connection with the great tax reform of the Empire the opinion that the annual increase of the national wealth of Germany at that period should be estimated at fully 8,000,000,000 marks. The central point of my calculations was that the annual progress of the economic development of Germany could hardly be calculated at less than 3 per cent. This figure must be considered as a fairly normal one for a progressive European nation, and this holds good for the annual increase not only of incomes and total national wealth, but also for the yearly increase of this growth.

As regards Germany especially this was confirmed in many respects by the material I used. Helfferich's work offers a fairly large number of summaries by the help of which one can test the accuracy of the progress figure given. The consumption of bread grain, from the quinquennial period 1886-90 to the period 1908-12, increased by 76.3 per cent., or by about 2.6 per cent. per year. It is reasonable to assume that this consumption would increase at a slower rate than that characterizing the economic development as a whole. The general progress figure must, therefore, in all probability considerably exceed 2.6 per cent. The consumption of barley during the same time increased by 4.3 per cent. annually; the consumption of oats by 2.8 per cent., and the consumption of potatoes by 3.3 per cent. The consumption of sugar during the 25 years 1888-1913 shows an increase from 398,000 tons to 1,283,000 tons, or an annual growth of 4.8 per cent. The production of coal and lignite, which is a very weighty matter in the general development of the national economy, during the 25-year period 1887-1912, increased on an average of 5 per cent. annually; during the same time, the production of pig-iron increased by a good 6 per cent. yearly.

With these figures before us we can scarcely doubt that the national income and wealth, which may be considered as increasing at the same rate, have during the last few decades shown an actual growth in real utilities of at least 3 per cent. annually. According to Helfferich, the German national income during the seventeen years 1896-1913, has increased by 83 per cent. altogether. This would correspond to an annual increase of 3.6 per cent. Income statistics are inclined to give an excessive increase figure and there is reason to suppose that the increase figure is in reality considerably lower than 3.6 per cent. Statistics of the increase in wealth, which do not suffer from the same defects, are more reliable. According to Helfferich, the national wealth of Germany during the fifteen years 1895-96 to 1910-11 increased altogether by 50 to 60 per cent. If we say 55 per cent., this would correspond to an annual increase of 3 per cent.

As a ground for comparison it may be worth while to mention here that the national wealth of Sweden during the period 1885-1908 — according to the report of the National Defense Committee for 1910 — increased on an average by 3.18 per cent. annually. As the two periods of time which have been taken as the basis of calculation are characterized by about the same value of money, this percentage of increase may be considered as an expression of the real economic progress in Sweden during that period. The coefficient of increase for Germany, with her larger increase of population, could hardly have been considerably less.

The actual economic development of Germany during the last few decades is characterized pretty nearly by the annual increase figure of 3 per cent. If we calculate the national wealth of Germany at the time immediately preceding the outbreak of the war at 300,000,000,000 marks, we must assume that there was at that time an annual creation of capital amounting to 9,000,000,000 marks. Mr. Helfferich has two estimates of the national wealth, one amounting to 285,000,000,000 marks and the other 335,000,000,000 marks, and he takes their average — 310,000,000,000 marks, as the probable figure. Our estimate of Germany's annual creation of capital — 9,000,000,000 marks — is, consequently, scarcely too high.

When the annual income of Germany is estimated at 43,000,000,000 marks, this implies that the value of the net result of the annual production in Germany is 43,000,000,000 marks. But productive labor must, in addition to this, also provide for the upkeep of buildings and structures, machines and implements, etc., in a word, of all lasting real capital in the country, and for the maintenance of this real capital at its full value by means of new buildings and the securing of new materials. This represents a very considerable expense. For buildings, the necessary annual amortizing is usually estimated at 1 per cent., 2 per cent. or 3 per cent. or even more, according to the use made of the structures. For agricultural buildings, of course, the annual diminution in value is usually considerably greater. In addition, there is the expense of current upkeep.

For machinery, these expenses easily rise to 10 per cent. or more, and for implements to 15 per cent. to 20 per cent. and upwards. An estimate of the average cost of upkeep and amortizing of the whole of the permanent real capital must be to a great degree approximate, but it appears not improbable that this expense must be put as high at least as 3 per cent. of the total value of all the wealth that needs upkeep.

In national wealth there is included, moreover, the circulating real capital, that is, all kinds of stocks of materials, and the like, and the stores of products, as well as cattle, etc. This circulating capital should, for the estimate now being made, be deducted from the national wealth. How much of this national wealth will remain? According to the latest estimate of the national wealth of Sweden (for 1908) the item "stocks and stores" can be reckoned at about 10.1 per cent. and the item "cattle" at 4.4 per cent. of the whole real wealth of the country. If we adopt the same ratio for Germany, we obtain for "stocks and stores" an amount of about 30,000,000,000 marks and for "cattle" an amount of approximately 13,000,000,000 marks or, altogether, 43,000,000,000 marks. If we subtract this amount from the total amount of the national wealth, 300,000,000,000 marks, there remain 257,000,000,000 marks to represent the value of that durable capital needing upkeep. This upkeep itself, inclusive of amortizing, should consequently demand an expenditure of 3 per cent. of the 275,000,000,000 marks or 7,700,000,000 marks.

In reality, this sum represents a certain amount of productive work which under normal conditions must be performed every year. This productive work falls outside the limits of that production representing the net income for the year. If, therefore, we wish to have an idea of the value of the whole of that productive work for one year, the net income must be increased by 7,700,000,000 marks. The total annual value of the productive work in Germany should, therefore, under normal conditions, be  $43 + 7.7 = 50,700,000,000$  marks.

We must suppose that this power of production has considerably decreased during the war. We have found that the



production of pig-iron has fallen to two-thirds of the normal amount. This figure can, perhaps, be taken as representative for industries in general. For agriculture, on the other hand, if we take into consideration the work carried out for the benefit of Germany in the occupied provinces and the cultivation within Germany's boundaries of land previously idle, there will be hardly any decrease. If we ascribe to the industrial production twice the importance possessed by agriculture we shall, consequently, obtain an average decrease in the production to about 78 per cent. If the returns given by the buildings employed as dwellings are, practically speaking, unaltered, we shall probably find that the estimate of Germany's present productive power as being 80 per cent. of the normal is a reasonable one. The total amount which is annually available for regular expenses and the war together should be 40,600,000,000 marks, estimated at the mark value existing before the war.

How much of this is required for regular expenses? Helfferich estimates that state and local bodies use normally 7,000,000,000 marks of the national income. After this sum and the wealth increase of 9,000,000,000 marks have been deducted from the normal national income of 43,000,000,000 marks, there remains under normal conditions for the consumption by the people themselves an amount of 27,000,000,000 marks. How great is this consumption during the war? To be able to answer this question we must first bear in mind that we must confine ourselves to a study of the home-staying population's consumption, since the support of the military population is classed as war expenses. If we calculate that one-eighth of the population is mobilized, this fraction would demand 3,400,000,000 marks. As the men mobilized, however, form part of that portion of the population that is an especially heavy consumer, the sum just given can safely be increased by 50 per cent. or, in round figures, to 5,000,000,000 marks. For the home-staying population, then, we should have to calculate a normal consumption of 22,000,000,000 marks. At present, this consumption is reduced in all branches, partly voluntarily and partly in consequence of public measures which restrict it

by compulsion. It cannot be stated with any degree of certainty to what extent consumption has been reduced, but it may be considered reasonable if we estimate at least the same decrease that we formerly adopted for the production, or a fall to 80 per cent. normal. We should then, if we take the mark at the same value as before the war, estimate the consumption of the home-staying population at 17,600,000,000 marks. If to this we add 7,000,000,000 for public expenses, apart from those of the war, and this sum must be considered as a very ample one, we obtain a total consumption of 24,600,000,000 marks. If we subtract this amount from the 40,600,000,000 marks we have taken to be the sum annually available, there remains an amount, in ante-war mark-value, of 16,000,000,000 marks available for other purposes.

In this calculation, however, no attention has been paid to the increase of capital wealth nor to its upkeep. During the war both these items are exceedingly reduced. But there must be *some* creation of capital. I have already mentioned that a considerable number of vessels for the mercantile marine are being constructed. In Berlin, work is still being carried out on the construction of the underground railways. However, no very great amount of money can be spent for such purposes. The expansion of factories, and similar expenditures for the production of war material, cannot be taken into account, as they may be considered as being covered directly by the war expenses. The upkeep of already existing capital is, without doubt, reduced to a very low degree. This circumstance, when taken together with the saving proper, is one of the chief sources whence means are obtained for carrying on the war. How the upkeep of capital is made a secondary matter is easily seen when traveling through Germany; everything is made use of, or is worn, for a longer time than usual, and tenants have to do without house repairs which, under ordinary conditions, would be considered as necessary. The building trade is stagnant, and the replacing of old dwellings is certainly carried out only in a very small way. People have simply to be contented with what they have. But, altogether, one or two

billion marks must be expended for both these purposes, and so we may estimate the sum available for war purposes at, let us say, 14,000,000,000 marks — still reckoning at the old mark-value.

I have made this general estimate in order to give some idea of the manner in which it may be considered possible to cover the expenses of the war. Of course, it is impossible to give any exact figures in such a case as this. If, however, we refer to the figures showing the amount that the war has hitherto actually cost Germany, we obtain a pretty safe measure of Germany's financial resources. For the war expenses *are*, undeniably, paid. During the first eighteen months that elapsed after the beginning of the war, the expenses seem to have come to about 30,000,000,000 marks. To meet this amount, Germany has obtained only very slight contributions from abroad. The export of securities together with various foreign credits, according to the most trustworthy reports, has not exceeded 1,500,000,000 marks. That means that the country itself has provided an amount of about 28,500,000,000 marks.

This figure consists of a total of mark-amounts that have been received during the course of the war. If the depreciation of the mark that has been going on during the whole period be taken into account, it must be calculated at different values. A glance at the diagram showing the depreciation of currencies (p. 52) tells us that for the period up to the end of January, 1916, the average inflation of German currency may be estimated at about 140. The total sum obtained within the country is, therefore, reduced to about 20,500,000,000 marks, if expressed in the mark-value obtaining before the war. As this amount has been procured in one and one-half years, Germany has been able, by means of her own internal resources, to support an annual expenditure of about 13,500,000,000 marks, old mark-value. This amount corresponds pretty nearly to the sum which, according to the estimate made earlier, should have been available for the war.

If we calculate with an inflation at present of 190, this sum would correspond to about 25,500,000,000 marks at their present value. This sum, then, gives the amount which Germany, should her economic strength remain unaltered, would be able to expend annually, without any further depreciation of her currency. In March, 1916, the fourth war loan subscriptions amounted to more than 10,500,000,000 marks, corresponding to about five-twelfths of these 25,500,000,000. This amount can, consequently, be paid in and consumed during a period of five months, such expenditure not necessarily causing any further depreciation of German currency. In other words, Germany can spend 2,000,000,000 marks per month on the war, calculating at the present mark-value. In my opinion, this is the most accurate characterization of the present financial resources of Germany.

I had the main part of this calculation ready long before the fourth war-loan was called for. That, after more than one year and a half of war, there could be subscribed more than 10,500,000,000 marks for this loan is good proof that my calculations give a correct picture of Germany's economic strength. Those authors — both in Germany and elsewhere — who considered that Germany's saving power and ability to find the monetary means for the continuance of the struggle should be placed at a much lower figure, ought to find considerable difficulty in bringing their calculations into reasonable agreement with reality.

As to the financing of the war up to the present moment — not only by Germany, but also by the other belligerent countries — the prevailing opinion appears in a great many respects to differ considerably from my view of the matter. It is a very widespread and popular conception that when an extremely large amount has to be expended for any certain purpose, the necessary means are accumulated during some long period into a fund, which is afterwards made use of as required. This popular idea of war finance starts out with the supposition that, at the outbreak of the war, the different countries had at their disposal large accumulations of "circulating capital,"

which were gradually consumed during the war. Thence followed among other things, the popular idea that for economic reasons the war could not continue for very long. Now, when two years of war are soon past, this popular idea of the problem becomes more and more untenable.

As a matter of fact, the whole idea of an accumulation of "circulating capital," which forms the basis of this fallacy, is singularly obscure, and cannot survive the test of any thorough analysis. A modern people does not provide for itself by accumulating large supplies of "circulating capital," but lives from day to day on what its productive labor places at its disposal. In order to maintain and constantly continue its production, national economy demands certain stocks of articles of consumption, materials and partly manufactured goods in different stages of preparation. Commerce, and transmarine trade especially has often very large stocks of this kind, in order to be able to meet orders. It is these stocks that, in reality, form the "circulating capital" of a nation.

Germany, of course, possessed such stocks at the beginning of the war. In accordance with the opinion that prevailed in that country as elsewhere, the financing of the war was to be made possible to a very large extent just by means of these stores. The war was to be financed, more or less, by consuming them. To some degree this is correct, but I believe that there has been a disposition to ascribe altogether too great importance to this factor.

We have estimated the normal value of the stocks of Germany to have a value of 30,000,000,000 marks. Such stocks must exist if production is to continue its normal course, and their amount must be in fairly fixed proportion to the extent of the production. In Germany, large stocks have been consumed since the beginning of the war, but they have also been replaced by others. If the calculation be made that production in Germany is now about 80 per cent. of its normal amount, it may be supposed that nearly the same holds good of the stocks too. The diminution in their amount should come to about 6,000,000,000 marks. In addition to this, there is the

diminution of the cattle stock which may be estimated at about 1 or 2,000,000,000 marks. We come to the result that about 8,000,000,000 marks of the war expenses have been covered by the consumption of stocks previously existing in the country. Of course, this figure is a very uncertain one, but it can perhaps help to form a correct idea of the real meaning of the problem of war-financing.

However, we must also recollect that during the first period of the war, production was far more restricted in amount than it is at present.

We have estimated the present extent of production at about 80 per cent. of the normal amount. If we could calculate the average amount of production since the beginning of the war, we should reach a considerably lower figure. The figures which have been quoted to show the amount of labor unemployed, and the production of coal and pig-iron during the first period of the war, point most decidedly in that direction. If, as calculated above, the normal power of production amounts to 50,700,000,000 marks per annum, and consequently, to about 76,000,000,000 marks in one and a half years, we find that, if this power of production during the period that has elapsed has been diminished by a further 10 per cent. below the normal and, therefore, has formed only 70 per cent. of the normal, this would represent a loss of 7,600,000,000 marks for the first eighteen months of the war. Without attaching any weight to this estimate, I wish to point out that it can very well be imagined that during the period in question the advantage of the consumption of stocks formerly accumulated has been approximately balanced by the disadvantage of the particularly great reduction of the productive powers of the country. In other words, Germany, in consequence of her present increased productive powers will in the future have at her disposal about the same financial resources as hitherto, in spite of the fact that the consumption of stocks can no longer play the same rôle as it did at an earlier date.

It may be necessary to remind the reader that at the outbreak of the war the German textile industry, because of the

very depressed state of the market that had been prevailing for some time previous, possessed a very large stock of manufactured goods, some of them a little old-fashioned and not much in demand. During the war it was found possible to sell these goods, and as a result the textile industry is now in a very firm position. But we should probably make a mistake if we imagined that all this stock was now consumed. The retail trade has still large stocks on hand, and the general public probably also is so well provided with textile goods, that the German nation must possess a pretty considerable reserve of such articles, a reserve which, from the very nature of things, is a very elastic one.

Summing up, we may state that the consumption of stocks has been of a certain importance for the financing of the war, but that it has by no means been of such weight that the possibility of this financing has been chiefly based on it, or that in the future the financing, in any general or decisive manner will be dependent on the possibility of a continued consumption of the stocks. Those people who, in a literal or a general sense of the phrase, imagined they would be able to wear Germany out by a continuance of the struggle have been influenced by the popular idea of war-financing as a consumption of capital previously accumulated. If this has been their calculation they must by this time be astonished that the accumulated stocks never come to an end. It is time that they reconsider their economic ideas, and profit by the economic experience taught by the war — not only in Germany, but in the other belligerent countries — that a nation, to the extent to which it is restricted to its own resources, does not live on its accumulated stocks but on the power of production which it is able to develop day by day. The war has continued for such a length of time that what Germany at present is able to perform every day must be considered as a fairly reliable expression of what her current production can do. But if this is the real state of things, the possibility of Germany's stocks coming to an end should be left out of the calculation.

The fact that Germany has been able to continue the war for

such a long period — at the moment of writing, more than twenty months — and that she could actually procure from her own resources the many billions the conflict has already cost, is the surest proof that the estimate we have made of the economic strength of Germany is accurate. It is also of interest to endeavor, as far as the scanty material as yet available will allow us to do, to form an idea of this economic strength of the country from other viewpoints.

The fact that 4,481,000,000, 9,103,000,000, 12,160,000,000 and 10,712,000,000 marks respectively were subscribed for the four loans is in itself a proof of strength. But we obtain a far more tangible idea of the real meaning of this, when we learn that the total numbers of individual subscriptions amounted:

For the first loan to.....	1,177,235
For the second loan to.....	2,691,060
For the third loan to.....	3,992,059
For the fourth loan to.....	5,279,645

The unheard-of and continually increasing number of subscriptions of small amounts revealed by these figures is an unmistakable sign of well diffused economic affluence, and an undeniable proof of the inaccuracy of the idea that Germany is being gradually "drained dry" by the war. A population really suffering from want, or which was day by day being forced down to the minimum limit of bare existence, would hardly be capable of subscriptions to state-loans in such numbers, and in such constantly increasing numbers.

The broad base on which the economic strength of Germany evidently rests is also apparent from the movements of the savings-banks during the war. According to a summary published by the *Dresdener Bank*, this movement, since the month of August, 1914, up to September, 1915, both months inclusive, has shown an increase of deposits amounting to 2,801,000,000 marks; interest on deposits amounted to 817,000,000. Thus, the total increase of saving bank capital due to investors amounts to 3,618,000,000 marks. Of this amount, 2,958,000,000 marks are said to have been employed for subscrip-



tions to the first and second war-loans, after which there remained a net surplus of deposits amounting to 660,000,000 marks. For 1915, the growth of capital at the savings-banks is given at about 3,750,000,000 marks. When the paid up amount of the war loans amounted to 4,250,000,000 marks, 500,000,000 to 600,000,000 marks, approximately 4 per cent. of the savings had been withdrawn.

By far the greater part of the German war-loans is placed with cash subscribers. To some degree this can be seen by the small degree to which holders of war loan titles resort to the loan facilities offered by the Imperial Loan Banks. The sums these establishment have advanced for war-loans come, as a rule, to only some few per cent. of the total amount. The large business banks, too, are only to a very slight extent engaged in the war loans. The home state securities possessed by the eight large banks amounted at the close of 1915 to no more than 276,400,000 marks. This sum, which is not considerably larger than the normal, does not include any appreciable sum of war loan titles. It may be assumed that these banks hold somewhat larger amounts of treasury bills issued for the war. But as the whole sum of bills which embraces in addition to treasury bills, business bills of every description, does not amount to more than 2,492,400,000 marks, it may be understood that what the banks have advanced for the war by means of treasury bills, does not form more than a quite inconsiderable fraction of the more than 30,000,000,000 marks the war has hitherto cost. The total loans made by these banks on securities and to the Stock Exchange do not come to more than 893,600,000 marks, a figure that does not allow of any margin for investment in war loan scrip. The Imperial Loan Banks and the ordinary banks have done great service in the actual paying in of the war loans, but in the definite investment of capital in these loans they have not played a considerable part. The bonds have been taken for the most part by the public as an investment of actual savings.

What is the position of the financing of the war up to the present from a financial point of view? Is not this constant

borrowing of new money, made regardless as to means of repaying the loans and even without a thought as to whether the interest on them can be paid, a very serious matter?

In reply to these questions it may be stated that the financial position of Germany before the outbreak of the war was very sound. The Empire and the federated states together had a debt of somewhat more than 21,000,000,000 marks. But, as opposed to this, there were productive assets to a higher amount. The value of the German state railways alone was estimated at about 20,000,000,000 marks. In addition, there are state assets in the form of landed property, forests and mines, reckoned as worth at least 4,000,000,000 marks.

All the taxes (imperial, state, and local) were estimated in 1911 at a little more than 4,000,000,000 marks. By the middle of the summer, the national debt for the war will have risen to about 40,000,000,000 marks. At 5 per cent., this means a yearly interest of 2,000,000,000 marks. The war, then, will have occasioned an increase of 50 per cent. in the total burden of taxation. That the German nation can support such an increase is beyond all doubt. But the devising, and the administration by financial and political measures of such an increase of the public income, and the solving in practice of all the technical difficulties following in the train of the new taxation which — especially when we take into consideration the federal character of the German Empire — are certain to arise, is quite another matter. Whatever arrangements are made, the taxation will assuredly be felt as a tremendous burden, and will demand sacrifices which at this moment the people can hardly conceive and in no quarter are prepared to accept.

There is full reason to criticize existing financial policies to the extent we have done, but this criticism applies not to Germany merely but to all the nations in the conflict. War is carried on, property is destroyed, billions of money are expended, but not one of the warring powers pauses for a moment to direct a serious thought to the prospects of the future, and to consider how it will be possible to pay the heavy bill.

Such reflections may be made by a neutral observer. They are of no importance to states at war. The belligerents pay absolutely no consideration to anything else than the thought of bringing the war to a successful and satisfactory end. If, therefore, we wish to form an objective opinion of their ability to continue the struggle, it is quite unnecessary to take into consideration the question of what is to happen after the war. For the moment this question is of no importance.

Under the conditions now prevailing in Germany, that empire can, without any great difficulty, by means of raising loans, have placed at its disposal as good as the whole of that part of the national income which is not devoted to the necessary current consumption. This consumption is already considerably reduced, but there is no doubt that it is possible for Germany to make further restrictions, and thus still more increase its war funds. Each further extension of the "ticket-system," or of the other methods by which individual consumption is now regulated in Germany, must act in the same direction. And the income which thus becomes superfluous can, should it be necessary, be employed more effectively for war purposes than has hitherto been the case. All this can and will be carried out as long as the tremendous pressure of the war is felt in the country. Afterwards it will no longer be possible. But it is of no importance whatever to consider the difficulties that may arise in the future, and such difficulties are perfectly irrelevant to the problem we have had to investigate.

## CONCLUSIONS

**T**HE question of Germany's economic ability to hold out during the war is of paramount general interest. It is the first time under modern conditions that an attempt has been made to isolate a great nation completely from the outer world, and therefore also the first time that a country, hitherto existing as an integral link in the world's economic system, is put to the test of having in the main to support itself and prove its ability to subsist under these new conditions. In wondering doubt the world has awaited the result.

To begin with, it was no doubt the all but universal opinion that Germany would be able to hold out for a limited period until her accumulated supplies were exhausted and then have to give away. When the fighting had lasted six, twelve and twenty months, and Germany still showed undiminished economic strength, discussion started everywhere regarding the economic possibility of such a demonstration of strength. The interest in these discussions may best be judged by the fact that well nigh everybody has felt the necessity of forming his own theory regarding the problem of war finance. For this reason my attempt in the foregoing pages to analyze the problem may count upon interest from the great majority of readers who do not generally devote time to the study of such subjects.

There seem to be two main fallacies that have led England and a large part of the rest of the world to the conclusion that Germany could not stand a prolonged period of isolation. The one is the exaggerated idea people have regarding the importance of foreign trade under modern economic conditions. This view is natural to England and to a certain extent justified by conditions. But as for the other great nations, it is mainly a popular illusion arising from the disproportion-

ate interest devoted to foreign trade in politics and in statistics. The other fallacy is that people live on accumulated riches, on "money" or large stocks of commodities. The entirely exaggerated ideas as to the importance of stocks of commodities under modern economic conditions has led to the conclusion that a belligerent country, which does not receive help from outside, must sooner or later exhaust its resources.

The course of the war has already proved the untenable nature of these views and fully proved first — as sound teachings of political economy long ago should have proved — that a nation lives mainly on what it day by day creates by its productive work, and second, that a country like Germany is able to do so without exchange of commodities with foreign countries.

But the human mind is slow to divest itself of ideas to which it has become accustomed. In England people are reluctant to admit fully the truth forced upon them by actual development; they cling to the idea that it is only the incompleteness of the blockade that has enabled Germany to live, that she will ultimately be starved into submission if only every little hole can be still more effectively stopped. But they are mistaken. As regards supplies from the Northern countries they are under present conditions very acceptable to Germany; but it would be utterly wrong to ascribe to them any sort of influence as regards Germany's ability to hold out. Of great importance are the supplies from the Southeast. But Germany is laying her plans for continued war economy without taking count even of these supplies.

The strongest, in fact the conclusive proof that Germany can economically hold out, is that she has already done so for twenty months. In the preceding chapters I have shown that the first year of the war was by no means specially favorable economically, and that even taking the whole period of the war this cannot be considered the case; that, on the contrary, a number of circumstances indicate that Germany's economic conditions in certain important directions are better to-day than during the earlier phases of the war. I have given rea-

sons for the opinion that this opinion, financially considered, may well be assumed to outweigh the deterioration in other fields. This circumstance is obviously subversive of the theory on which the blockade of Germany is based.

Of course Germany is not so strong economically as during the last years of peace. But in peace time consumption had reached a scale which could stand a great reduction. We have seen that this reduction need not in essentials reduce the German to a lower level of consumption than that on which many other civilized people exist or than even the Germans themselves were accustomed to a very few decades since, and on which they were an active and powerful people. The lowering of the standard of living — it may appear to outsiders important and for those concerned hard — cannot involve any serious harm or prevent the continuation of the war.

Let any Swede who imagines that the German people have reached the lowest standard of living that a nation can endure call to mind only for a moment the privations our people suffered during Sweden's wars. By comparison, what has hitherto been demanded from the German population in the way of economic sacrifice will then appear insignificant. And if any German thinks of what his people had to pass through during the long and bitter wars that from time to time have been waged in and over Germany he will admit that any comparison with present times is absurd.

If the war were to continue for years Germany would be weakened economically. But there is hardly any real reason to assume that this weakening should occur more rapidly in Germany than in the countries of her opponents. If the belligerents' economic power is used up by degrees, but about the same degree for all, the war can, in so far as it depends on economic conditions, continue from year to year until Europe is completely exhausted. Truly a melancholy perspective! But the future can hardly be viewed in any other light by any one who objectively strives to gain a clear understanding of what it means to say the war is to continue until Germany's economic ruin is accomplished.

My task has been to give as far as possible a correct, but in any case a fully objective view of Germany's economic strength and ability to hold out. How far I have succeeded will be judged differently. I only wish that that judgment may not be affected by political views of the great struggle or by sympathy for the one or other side. Indeed, there is after all no necessity why a political point of view should enter when we are considering a question like the present. The task I have attempted is essentially of a neutral nature — this point I would again emphasize. It should be of at least equal interest to Germany's opponents as to Germany herself to obtain an objective statement of her economic position. I am prepared to find that anti-Germans of the kind that cannot abandon ingrained political bias, will consider my statements too favorable for Germany, and will accuse me of lack of objectivity. This does not worry me. But I venture to hope that men in responsible positions on the *Entente* side may find my conclusions worthy of consideration. They may perhaps think that my estimate of Germany's economic strength requires some modification. But from their point of view a most important thing is not to make any mistake in the opposite direction. No impartial observer and hardly any of the leading men of the *Entente* themselves would deny that they have from the beginning underestimated the economic strength of their opponent. This mistake should not be continued. If the war is to go on indefinitely one should make sure that one understands fully what has to be faced.

I can imagine that Germany's opponents argue thus: "Next summer, autumn, Christmas, or at any rate in a year, Germany's economic resources must be exhausted; having made such sacrifices for the war, we must try to hold out for the comparatively short period it may still last." It would be disastrous if such arguments should prevail any longer, for they are absolutely wrong. But I am not discussing military prospects, which I am not competent to judge. But assuming that the military position remained about stationary, the economic position will not, as far as I can see, offer any

reason for the concessions on the part of Germany. In three, six or twelve months Germany's economic strength will essentially and from the point of view of continuing the war be about the same as now. I have probably had better opportunities of forming an opinion on this point than the statesmen of the *Entente* and have been able to do so under more undisturbed conditions than they. I wish to press home my view so that at any rate a prolongation of the war with its attendant misery for the whole of humanity may not be forced upon the world merely owing to continued miscalculations regarding Germany's economic power of resistance.

THE END









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