BANK RATE

and

OPEN MARKET OPERATIONS.

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by

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A Thesis
Submitted in Candidacy for the
Degree of Bachelor of Arts
in the
Course in Honour Political Economy

McMaster University
Hamilton Ontario
May 1940

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INTRODUCTION

For nearly a century the financial world has been accustomed to experiencing wide and frequent fluctuations in the bank rate. However, since 1932, when the Bank of England's discount rate was pegged at 2 per cent. - at which figure it was maintained for seven years - low and stable rates have become accepted phenomena throughout the world. The old flexibility of the bank rate, which for generations in England was the traditional policy of the Bank, is gone, to be supplanted by a rigid and inflexible figure, drastically imposed. This thesis will attempt an investigation into the reasons for and results of this change in policy.

CHAPTER I.

Theory of Control Through the Bank Rate.

Mr. J. M. Keynes concisely defines the bank rate as "the terms on which the central bank is bound or accustomed to make.... advances".[1] A theory of central bank control of credit conditions through alterations in the bank rate was for a long time accepted by economists and bankers. Going back to the classical economists, we find the opinion freely held that the rate of interest must fall slowly as a country progresses in opulence until the stationary state is reached[2] wherein the rate will be at a minimum. Adam Smith held the view that, as a country progressed, capital accumulated and, as a consequence, very great competition ensued between owners of capital for the services of labour. This led naturally to a rise in wages and a fall in profits and since, according to Smith, the amount of profit determined, in the long run, the rate of interest it followed that a fall in profits was synonymous with a fall in interest.[3]

Ricardo held similar opinions to Smith with regard to the tendency of profits to fall though for very different reasons.[4] Ricardo's theory was that an accumulation of capital gave rise to an increase in population and that, as additional food could only be procured at greater cost owing to the law of diminishing returns, wages rose and profits fell. The cause, therefore, of the fall in

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1. J. M. Keynes, Treatise on Money, II, 226.
2. R. A. MacDonald, "The rate of interest since 1844", Journal of the Royal Statistical Society, March 1912, P. 335 et seq.
3. Loc. cit.
4. Loc. cit.

profits, in his view, was the increase in wages due, not to the competition of capitalists in their demand for labour, but to the increased cost for food. According to both economists, then, an increase of capital ultimately led, though in different ways, to reduced profits and so, to a reduced rate of interest.

Mill saw more clearly than his predecessors that interest was only one of the elements which formed profits, nevertheless he agreed that a low rate of profits implied a low rate of interest.[1] A high rate of profits did not, however, necessarily imply a high rate of interest, since such a high rate may prevail owing to an increase in the amount paid as wages of management.

These writings were largely predictions rather than rules of policy. It was not until 1839[2] that the bank rate policy, until recently current in the banking world, was first adopted. An historical study of this policy can rightly be limited to the history of the Bank of England since it was first introduced by that institution. It was followed steadily and with most conscious intent by the great public institutions of which the Bank is the archetype. The Bank's lead in the financial world comes from no special or peculiar characteristic in its structure. It used to be the predominant, and still is a most important dealer in money. It lays down the least price at which alone it will dispose of its monetary stock and this, for the most part, enables others to obtain that price, or

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1. Ibid. P. 366
2. G. E. Campbell, "Open Market Operations", Unpublished M.A. Thesis, McMaster University, 1939, P. 7.

something near it. It has the power of a large holder of money and no more.

In the Report of the Lord's Committee of 1848 an account of the earlier practice of the Bank of England can be found.[1] For a long time prior to 1844, the Bank kept its rate fixed at from 4 to 5 percent. When the market rate was high the Bank discounted but when it was low - and it was sometimes from $1\frac{3}{4}$ to 2 percent lower than the bank rate - the Bank, of necessity, ceased to discount since no one was willing to apply to it. After 1844 the Bank began to compete with the other banks of discount sometimes leading and sometimes following the market.[2]

In the Report, a Mr. Horsley Palmer advocates the earlier policy, "The result of this (earlier) system, your Lordships will perceive, must have been to check that fall of the rate of discount when already low which the active competition of the Bank of England must have produced; and, on the other hand, to check the tendency upwards which would have been the result of a reduction in the number of lenders and of a consequent scarcity of money. In the one case the Bank was kept out of the Discount Market; in the other it obtained almost the command of the market. In both cases the effect was to produce steadiness and diminish fluctuation.

"This system was abandoned in 1844 after the passing of

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1. Tooke and Newmarch, A History of Prices, V, 568
2. A. Andreades, History of the Bank of England, P. 314.

the Act. For the rate of discount already described there has been substituted a rate which fluctuates from time to time. A 'minimum' rate has been substituted in the Bank Notices for an average one; and a practice has been introduced of discounting bills at the same time at different rates ...."[1]

This bank rate policy was originated in the discussions which followed the monetary crisis of 1836-7 and preceded the Bank Act of 1844.[2] Before 1837 such ideas did not exist; in the works of Ricardo, for example, nothing of the sort is to be found[3] and the explanation is not far to seek. For, throughout the life of Ricardo and up to the repeal of the Usury Laws in 1837, the rate of interest was subject to a legal maximum of 5 per cent. For seventy-six years to June 1822, the bank rate stood unchanged at 5 per cent; from 1822 to 1839 there were small fluctuations between 4 and 5 per cent. The rate of 5½ per cent. established on June 20, 1839 (raised six weeks later to 6 per cent.) was the first occasion on which the official rate of the Bank of England had ever exceeded 5 per cent.[4]

The traditional doctrine which has been developed in the years which have since elapsed has been woven of three distinct strands of thought, difficult to disentangle, to which different writers attach different degrees of importance. All of them have

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1. Tooke & Newmarch, op. cit.
2. Keynes, op. cit. I, 186.
3. Loc. cit.
4. Loc. cit.

been obscurely present from the beginnings of the discussion.

The first of these regards the bank rate merely as a means of regulating the quantity of bank money. This is the basis on which the practical method of the bank rate as the characteristic instrument of the Bank of England was developed in the middle of the nineteenth century. To maintain its reserve the Bank adjusts its rate of discount, raising it when the reserve is undesirably small, lowering it when the reserve is needlessly large.

This notion "that an upward change in the bank rate is associated with a diminished quantity of bank-money either as cause or effect, — or at least with a less quantity of money than if the bank rate had not gone up — and conversely that the alleged association of high bank rate with falling prices follows directly from the usual Quantity Theory of Money and runs, indeed, through all the latter nineteenth century literature of the subject".[1] Thus the bank rate was first used with the idea of restricting discounts without having to refuse them entirely. Indeed, as recently as the years before the Great War "the Bank of England in deciding whether of not to raise or lower the bank rate decided primarily on the relation between the reserve in the Banking Department and the outstanding liabilities of the Banking Department".[2]

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1. Ibid, I, 187.
2. Sir E. Harvey, Committee on Finance and Industry, Minutes of Evidence, Par. 336.

It was sometime later than 1839 that it was discovered that a high rate had an influence in attracting money from foreign countries for temporary investment. This leads to the second strand, one which is generally uppermost in discussions by practical bankers. They regard bank rate policy primarily, not as a means of regulating the price level, but as a means of protecting a country's gold reserves by regulating the rate of foreign lending. The mechanism of banking, currency, and international trade may be said to have an innate repugnance to the flow of gold from country to country. All sorts of devices are resorted to in order to control or lessen such a flow. The most effective of these devices is regulation through the rate of discount. The bank rate is raised to make it higher relative to interest rates current in other international financial centres and so turn the balance of international indebtedness in a country's favour by influencing the international short-market. Gold like any other form of money tends to go to the place where the return on loanable capital is the largest. When specie first moves out of a country it comes ordinarily from the bank reserves and when it goes into a country it goes ordinarily into these reserves. There is therefore a close connection between these two uses of the bank rate.

Often changes in the rate of discount affect not so much the volume of the flow of gold as the time when it takes place and its direction. A rise in the rate brings additional pressure to bear on those foreign exchange dealers who may be preparing for a shipment of specie. Higher interest on money makes it more profitable to keep the money at home. It tempts bankers to wait until perhaps the currents

of foreign trade turn and enable the demand for exchange to be met without shipment. Or it may lead such persons to arrange for shipment of specie from some other country.

Still another phase of international dealings is connected with changes in the bank discount rate; movements of securities from one country to another. The prices of securities in any one country are usually affected inversely to the rate of discount, rising as this falls and falling as this rises. Hence securities which have an international market are likely to be sent in place of specie in settling balances.

The third strand of thought is the one which, in the mind of Mr. J. M. Keynes comes nearest to what seems to be the essence of the matter. It conceives the bank rate as influencing the rate of investment or at least the rate of some kinds of investment. It is argued that, "to raise the bank rate discourages investment relatively to saving, and therefore lowers prices which, by causing the receipts of entrepreneurs to fall below the normal, influences them to offer less employment all round; and this sooner or later brings down the rate of earnings in the same proportion as that in which prices have fallen; at which point a new position of equilibrium can be established".[1]

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1. Keynes, op. cit. I, 190.

CHAPTER II.

Historical Application Of Bank Rate Theory

Examination of the bank rate figures[1] shows that for nearly a century banking policy was dictated by this classical theory. The histories of the major financial crises of the period illustrate this.

Crisis of 1857.

Two of the most serious disturbances of the financial market of the past century took place within ten years of each other; the crises of 1857 and 1866. The first of these began with great suddeness although there were signs of stringency on the money market before 1857.[2] A bad harvest and a decline in foreign investments had caused pressure in the European market as early as 1853.[3] However the threatening crisis was delayed by the Crimean War (1854-56) which served to increase people's timidity and to make the business world more prudent.

It is not easy to define how far credit may be extended safely but it is very clear that during the years 1855 and 1856 the extension of credit was both enormous and dangerous. A tremendous rediscount business was done in London and the largest operators kept practically no reserves, depending on the Bank of England to

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1. See Table I and Graph I
2. Andreades, op. cit., P. 343
3. Loc. cit.

supply their wants.[1] In June 1855, when the Bank's vaults were full, it had reduced its rate to 3½ per cent. but heavy war remittances coinciding with the harvest failure of 1855 persuaded the Bank to keep its rate particularly high during the last months of the war.[2] During this period "the average rate of interest paid on loans and discounts was very high and, though it is true that no prudent trader was ever killed by interest paid on borrowed money, it is clear that in a condition of things when traders generally were large borrowers the existence of a very high rate of discount was one of those circumstances which combined to create an electrical and excitable condition in men's minds so that alarm and panic were very liable to supervene."[3]

Moreover, to add to the difficulties of the situation, the Bank's reserves in 1857 were continually at the danger point[4] despite the exceptionally heavy demand. True the Bank was guarding these reserves with high rates - 5½, 6 and 6½ per cent.[5] but the weakness was there nevertheless.

Despite the uneasiness of the market during 1856 and the first part of 1857, the future looked promising. Indeed the Bank of

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1. W. Fowler, "Crises", Palgrave's Dictionary of Political Economy (1926), I, 462.
2. the rate stood as high as 6 per cent. from October 1855 to May 1856.
3. Fowler, op. cit., P. 463
4. See Table III.
5. See Graph II

England felt so confident that, on August 17, 1857, it opened negotiations with the East India Company to export £1,000,000 of its £10,000,000 specie reserve to the East.[1] One week later, on August 24th, the crash occurred in New York. Money was already dear in London and complaints were being raised against the Bank's policy when news came of the failure of a large American corporation, the Ohio Life Insurance Company. In England intense alarm was felt for, in 1856, more than one-fifth of Britain's exports had gone to the United States and, furthermore, British holdings of American stocks and bonds were estimated to total £80,000,000.[2]

Early in November the Western Bank and the City of Glasgow Bank closed their doors causing numerous failures. By November 12th the discounts in London had almost ceased except at the Bank of England;[3] that institution had become the only source of discount in the country during a crisis which paralyzed everyone's courage. Meanwhile the Bank had been pushing up its interest rate steadily and had raised it to 10 per cent. by November 9th. The situation was deemed so critical that the Chancellor of the Exchequer authorized the Bank to contravene the provisions of the Bank Act of 1844 by issuing notes unbacked by gold beyond the maximum set by law so long as it did not discount below 10 per cent.

Gold flowing in from Australia together with the high rate of discount which kept capital in London soon helped the bill brokers

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1. Andreades, op. cit., P. 344
2. Clapham, Economic History of Modern Britain, II, 368.
3. loc. cit.

to resume their interrupted business and, on December 24th, the Bank, reporting a stock of over £10,000,000 in the Issue Department,[1] dropped its discount rate from 10 to 8 per cent.[2] This proceeding registered the end of the gold crisis and automatically set the Act of 1844 in force again.

Great care was taken not to reduce the discount rate too quickly and it was kept above 5 per cent. until the stock of bullion had risen above £15,000,000.[3] By the end of January, 1858, it had been lowered to 4 per cent. Complete recovery was, however, slow. For two years, except for a month in 1859 when there was a scare in the stock exchange, the bank rate was at 3 per cent. or less and not until the end of 1860 did it rise above 5 per cent.

Crisis of 1866.

In January, 1861, when five cotton states seceded from the American Union, specie was being shipped by England both to the east and to the west; east to India because of wild orders for cotton from men who saw the American supply cut off; west to the United States because of a shift in the balance of Britain's trade with America. To meet this drain the Bank put its rate up to 8 per cent. but dropped it during the latter part of the year when things quietened down. During 1862 it was maintained at a low level.

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1. Ibid., P. 369
2. See Graph II
3. Andreades, op. cit., P. 351

Throughout 1863, there was heavy cotton buying in India, Egypt and Brazil. Bullion was wanted for all three and the foreign exchange turned against Britain. Accordingly the bank rate was twice raised to 8 per cent.,[1] once before and once after Christmas. This scarcity rate had the effect of drawing to London, for a very short time, large amounts of capital from the continental countries where the cotton pressure was not felt so that the rate could be reduced as promptly as it had been raised.

In 1864 domestic demand was exceptionally brisk and rates were high despite an influx of gold during the early half of the year. During the year there were two serious crises which caused the English great uneasiness. Twice market excitement, with which cotton was sure to be connected, drove the rate up from 6 per cent., the year's base, to 9 per cent. This temporarily averted the crash but it was only delayed a couple of years and England gained nothing by the waiting.

During 1865 British exports to America dropped tremendously. Along with this there was political unrest and a continuance of the slackening of business which began in 1864 consequent upon the end of the Civil War in the United States. In nine months the bank rate dropped steadily from 9 to 3 per cent. Then in September, 1865, British export trade to America jumped considerably and continued to rise through the early months of 1866 owing to reconstruction in the war areas. The bank rate rose with it and there was a period of dear money which, by the end of April, gave way to actual stringency. In

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1. See Graph III

February two large financial houses failed and the situation grew worse from day to day. The bank rate which had fallen to 6 per cent. was raised early in May to 7, 8, 9 and finally 10 per cent, the traditional panic rate.[1]

The crisis, which was purely British, was brought to a head by the failure of the historical house of Overend, Guerney and Company on May 10th. The following day was for a long time remembered in the annals of the "City" as "Black Friday". The excitement which prevailed on May 11th is indescribable and demand for accomodation increased to an extraordinary extent. On this one day alone the Bank of England made advances to the value of nearly four millions and its reserve which had been £5,727,000 in the morning was reduced to about £3,000,000 by nightfall.[2] The position was extremely dangerous and the publication of the day's returns combined with the raising of the rate of discount to 9 and 10 per cent. served to aggravate the alarm. In five days the Bank made advances and discounts totalling £12,225,000.[3]

On May 11th the Bank had received, from the Chancellor of the Exchequer, the customary permission to break the Act of 1844, but the crisis could not be appeased in a single day. Early in July the banking reserve ran low again [4] and the discount rate was maintained at 10 per cent. for no less than three months (May 11th to August 6th). So great was the distrust, on the continent, of English investments

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1. See Graph III
2. Andreades, op. cit. P. 359
3. Ibid, P. 360
4. See Table III

that even this high rate failed to attract capital from countries where, as in France, the rate continued to be less than 4 per cent. When the rate did finally begin to fall on August 6th, 1866, it was lowered steadily until, in the following July, it stood at 2 per cent. at which level it remained until late in 1868.[1]

It is interesting to note that it required two serious catastrophes to make the British financial world aware of its main weakness, the excessive extension of credit. The lesson was not learned in 1857 but after 1866 the evil was seen and credit was to some extent curtailed.

Crisis of 1914.

The year 1914 ushered in both the Great War and another period of financial distress. During the first half of the year the market in London was very much depressed owing to the political disturbances in Ulster and the appearance of war clouds on the horizon. Quotations fell and English financial houses adopted an extremely cautious policy refusing to renew expiring loans. This may have eased the effects of the imminent crash but the result was a strong foreign demand for specie to meet overdue debts and the value of sterling rose abnormally.

With the approach of war in the latter part of July everyone wanted ready money to meet possible emergency and there was a world-wide

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1. See Graph III

rush to sell securities on the leading stock exchanges. Had the London Stock Exchange remained open it would have been flooded with securities and gold would have poured out of England. Accordingly it closed its doors on July 31st.

With the exception of the Bank of England, the London financial houses practically suspended operations and the Bank therefore was the only available resort for borrowers. The Bank's gold reserve, which had been £40,164,000 on July 23rd, fell to £38,132,000 on July 30th and by the outbreak of war in the first week of August it was down to £27,622,000.[1] To protect these reserves, and in an attempt to halt the outflow of gold, the Bank was forced to raise its discount rate from 4 per cent. to 8 per cent. on July 31st and to 10 per cent. on August 1st.[2]

Again the Bank received a letter from the Exchequer authorizing it to issue beyond the limits set by Peel's Act. Usually this letter had alone been sufficient to calm the alarm but the crisis was so severe that the Bank was forced to use this authority and for the second time in history extend its note issue for a few days until the Treasury issue of pound and ten shilling notes relieved the stringency.

Post-War Crisis

For the next five years prices rose steadily throughout

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1. E. R. A. Seligman, "Drain of Bullion", Palgrave's Dictionary of Political Economy (1926), I, 869
2. See Graph IV

the world. This price rise, combined with the great demand for capital for war purposes, served to bring about the post-war boom which began in 1919. The fact that money was depreciating probably stimulated a rise in interest rates to "a level which meant a certain compensation for the loss on investments in money capital".[1] On November 17th, 1919, the bank rate was raised to 6 per cent. and on April 15, 1920, to 7 per cent.[2]

In midsummer of 1920 there was a definite turn from boom to depression and a one-year period of deflation was inaugurated. However it was April, 1921, before the Bank attempted to reduce its rate. Before the end of the year it was down to 5 per cent.

The depression was unusually severe and the demand for capital was materially reduced. Moreover unsettled currency conditions prevented an outflow of capital to other parts of the world where the shortage was still acute. Consequently the rate had to be lowered still further until, in July, 1922, it finally reached 3 per cent[3] at which level it remained for a year. Aided by this reduction, business gradually improved, unemployment declined and frozen loans were slowly liquidated.

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1. K. Kock, A Study of Interest Rates, P. 130
2. See Graph V.
3. See Graph V.

CHAPTER III.

Bank Rate Policy Since 1925.

Britain On The Gold Standard

Between 1925 and 1931 the Bank of England's policy had to be adjusted to five major episodes; the return to the gold standard, the inauguration of the cheap money policy in the United States in 1927, the French gold drain, the stock market boom and finally the suspension of the gold standard.

Early in 1925 an upward movement of money rates in London at a time when they were declining in America made the level of rates in England higher than in the United States. This not only led to a flow of funds from New York to London but also influenced the diversion of a large volume of foreign borrowing from the English to the American market. This influenced Great Britain to take the decisive step of restoring the gold standard and, in April, London, after a period of ten years, once again became a free gold market.

Actually the law of 1920 prohibiting gold exports for a period of five years except under special license did not lapse until December 31st, 1925, but on April 28th the Bank of England was given a general license to export gold.[1] Britain did not attempt a return to the full gold standard of pre-war days for, under the new standard, the obligation of the Bank of England to redeem its notes in gold was limited to redemption in gold bars and in amounts of not less than 400 ounces; i.e. about $8,000. After 1925, therefore, England was

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1. Federal Reserve Bulletin, June, 1925, P. 369

on what has been sometimes called the "gold bullion standard" under which gold is not used for domestic circulation but is available for export purposes.

With London, the principal money market of the world once more a free gold market, and the exchanges stabilized, the international flow of funds responded more freely to differences in money rates and credit conditions. In March, 1925, anticipating the resumption of gold payments, the Bank of England had raised its rate from 4 to 5 per cent.[1] and following the restoration of the gold standard, the higher rates in the London money market and the confidence in the stability of sterling led to a movement of funds to London and an accumulation of gold at the Bank.

For the first three and a half months after the return to gold there was a continuous inflow of specie into England but it was realized that this was likely to be only of a temporary duration and should not, therefore, be used as a basis of credit expansion. However conditions in the London market did become easier during the summer as a result both of this inflow and of the inactive demand for credit.

During the following three and a half months the movement was reversed. However, since this outflow was not caused by unduly high internal prices, the situation did not call for a restriction of credit especially as such a restriction would have had a serious

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1. See Graph VI

effect on trade which was already depressed. Between January and August there had been a considerable slackening in business activity which caused a diminished demand for bank credit. Accordingly the bank rate was reduced from 5 to 4½ per cent. on August 6th, and to 4 per cent. on October 1st.[1] Thus, during the first five months after the resumption of gold payments, the Bank of England was able to make two reductions in its discount rate.

During the rest of the year there was a drain on the London market through gold exports which was intensified by a heavy demand from the East Indies. This was accompanied by a growth in the demand for credit arising out of a revival of trade and production, a decrease in unemployment and a considerable demand in the security markets. Furthermore, on November 5th, the embargo on foreign loans was removed. All of these factors contributed to the tightening of conditions in the London market during the autumn months which preceded the advance in the Bank of England rate from 4 to 5 per cent. on December 3rd.[2] This restored the discount rate to the level which prevailed at the time of the resumption of the gold standard in the spring. During the year the Bank had been very active in the open market and the changes of its discount rate were in support of its policy in that field.[3]

Thus, in 1925, though gold was flowing in, the bank rate

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1. See Graph VI
2. See Graph VI
3. Federal Reserve Bulletin, 1926, P. 378

was raised and kept at a fairly high figure and at the same time credit was restricted to conserve the reserves and hold the gold standard intact. The restriction of credit had helped to depress industrial conditions still further. Moreover, Great Britain had been losing gold and there was apprehension regarding the discount rate in New York where a rise was expected. Accordingly the rate had been returned to the 5 per cent. level.

The Bank found that in order to maintain the exchange position it was necessary to keep the bank rate at a higher level than in New York. Between 1925 and 1929, Britain's export trade failed to maintain its progress and lost ground in comparison with its competitors; the wholesale price index showed a continually falling trend and the Bank of England frequently found itself resisting a tendency to lose gold. Accordingly the bank rate was below 4½ per cent. for only two months of this period.

The 5 per cent. rate was maintained until April 21, 1927, when a drop to 4½ per cent. was made. This reduction was made possible by a growth in the Bank's gold holdings and by the relatively easy conditions in the short term money market during the spring. Every effort was made to stabilize the rate at 4½ per cent. and the Bank was successful for nearly two years. This was quite an accomplishment in view of the fact that the 4½ per cent. rate survived the period of cheap money in the United States which lasted from August, 1927, to February, 1928, and which stimulated an increase in both the Bank's gold stock and the reserve in the Banking Department.

During the first eight months of 1928 there were large additions to the gold reserve but, in the last few months, all the gold that had come in during the first part of the year was lost and, in an effort to keep the bank rate stable, assets were sold as fast as the gold went out. The Bank kept credit stable while hoping that steps would be taken to curb the speculative boom in New York before England was forced off the 4½ per cent. rate. Nevertheless, although the Bank of England even competed for gold at special prices, the gold reserves fell considerably and, on February 7, 1929, the rate was finally forced up to 5½ per cent.[1] Regarding this, Sir Ernest Harvey explained, "We were contending not with an official rate normally below our own, but with a real effective rate in New York, which was always higher, and sometimes much higher, than our own rate".[2]

The bank rate was not again raised until September 26th, 1929, when it rose to 6½ per cent., the Bank having lost gold steadily after July.

During the three years, 1927, 1928 and 1929, France had a very disturbing influence on the financial world. At that time France was enjoying a domestic boom which combined with a shortage of currency to attract an enormous inflow of gold. Paris became the principal receiver of gold in the world market. The increase in the demand for currency in France was due, in part, to an increase in the

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1. See Graph VI
2. Committee on Finance and Industry, Minutes of Evidence, Great Britain, (1931), II, Par. 7597.

country's business activity and prosperity. It also reflected a reduced velocity of circulation such as usually follows stabilization of currency owing to renewed confidence in the value of the monetary unit.

Added to England's difficulties was the fact that her prices had not been moving in harmony with prices of the world. In 1925, prices in Great Britain had been about 10 per cent. higher than in the United States but, since American prices were rising it was thought that there was a possibility of the gap narrowing. However prices had begun to fall in England, general deflation had set in and the English price level declined over the next decade even during the period of 1927 to 1929 when they were rising almost everywhere else.

Still further to complicate things there came the American boom in 1928 and 1929. Large quantities of English gold began to flow to the United States as well as to France. Although England did not experience as great a speculative boom as raged in other parts of the world, she could not help but be affected. Moreover, England's attempts to keep the foreign exchanges steady were made difficult by the low rate at which the French, Belgian and Italian governments had stabilized their currencies. Unfortunately, in 1925 England had decided to restore the gold standard at the old parity when the low figures at which the other European countries were to stabilize could not have been foreseen.

When, in consequence of the boom on the New York Stock

Exchange and the high money rates in America, the export of capital from the United States ceased and funds flowed to America from Europe in an ever increasing volume, European countries were forced to take steps to protect themselves against the exodus of capital. The American boom, therefore, was followed by a series of extraordinary advances in discount rates. The Bank of England, whose discount policy appears to have been considerably influenced by the business situation, hesitated to adopt this course and not until its gold holdings had declined to £134,000,000, as the result of an outflow of gold to America, France and Germany along with the Hatry collapse, did it decide to raise its rate to 6½ per cent.[1]

The next month, October, the New York stock market boom collapsed and a world-wide financial depression was ushered in. Everywhere business was paralyzed and confidence was shattered; activity on the discount market slackened and rates tumbled throughout the world. In six months[2] the Bank of England rate was lowered seven times until it reached 3 per cent, where it stayed for the remainder of the year. On May 8th, 1931, the New York Federal Reserve Bank reduced its rate to the extremely low level of 1½ per cent. and a week later the British bank rate declined to 2½ per cent.

It was with the Bank of England rate at 2½ per cent. and with the prospect of a 2 per cent. rate being openly canvassed in

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1. This rise took place on September 26th, 1929; See Graph VI
2. October 31st, 1929 to May 1st, 1930; See Graph VI

the money market that the storm burst upon the world in the summer of 1931. Shock followed shock and London became deeply implicated in the crisis, for foreign centres, principally Paris, began to draw in their London balances, partly in order to strengthen their own cash position and partly for fear that difficulties might be put in the way of the withdrawal of funds. During July the Bank lost £30,000,000 of gold and the rate was hurriedly raised first to 3½ per cent. on July 23rd and then to 4½ per cent. on July 30th.[1]

Then came the downfall of the Labour Government and the establishment of a National Government on August 24th.

All this time the drain of funds from London continued for confidence then had been destroyed and banks in France and the United States were faced with ugly rushes by their customers. On September 21st the breaking point was reached; withdrawal of foreign funds from London had by ~~this~~ then reached £200,000,000 and the Bank and Treasury credits were both practically exhausted. The Bank of England received authority to suspend gold payments, the bank rate was raised to 6 per cent. and the Stock Exchange was

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1. On the grounds that a rise of less than 1 per cent. is usually insufficient to produce the desired effect upon the international market, the Bank of England, since 1860, has generally observed the rule that, while in lowering the rate it may be expedient to move by steps of ½ per cent., in raising it the advance should be by steps of 1 per cent.

closed for two days. By this action the Bank was relieved from the obligation which it had assumed, six years before, to redeem its notes in gold.

Suspension of the gold standard was decided upon by the British Government in consultation with the Bank of England in consequence of the continued large withdrawals of funds from the London market. These withdrawals were almost continuous from the middle of July to September 19th and amounted, for the period, to £200,000,000 of which about £32,000,000 represented a loss of gold during the latter part of July when the gold reserve of the Bank of England was reduced from £162,000,000 to £130,000,000.[1] In August and September the use of foreign credits had protected the Bank from further loss of gold and it was only after these amounts were substantially exhausted that England decided to suspend the operation of the gold standard.

Surprise has since been expressed that England suspended gold payments with a bank rate of only 4½ per cent. and that a higher rate was not imposed in a last attempt to remain on the gold standard. But, in the existing state of world confidence, no rate however high would have served to check the outflow of funds nor would an artificial attempt to retain or attract foreign balances have been more than a temporary remedy attempted at the cost of aggravating the disease. As Sir Josiah Stamp argued, "Not only would rapid rises have increased the foreign apprehension...., but any balances retained or attracted

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1. These figures are approximations.

by such a method would have been a source of equal danger at a very early date".[1] In its comment upon Sir Josiah's statement the Economist expresses the conviction that "for the Bank of England to have fought the crisis of last summer with the Bank rate weapon would have been about as effective as to resist a fleet of tanks with a child's bow and arrow".[2]

The Year 1932.

In the London money market the year 1932 fell naturally into two parts. The first half of the year was a period of general restoration of confidence in British financial stability and of an unprecedented reduction in money rates from the crisis rate initially enforced on the suspension of the gold standard to almost the lowest rate within the memory of man. When the year opened the bank rate stood at the high level of 6 per cent. and both the Bank of England and the Treasury were heavily indebted to Paris and New York lenders because of credits raised the previous August and September in defense of sterling.

However, as the year progressed, the situation swiftly changed towards ease. The rapid and successful collection of revenue assured the world of England's budgetary stability[3] and, in the narrower sphere of the money market, allowed substantial

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1. Economist, January 16, 1932. P. 113
2. Loc. cit.
3. See Economist, January 7, 1933. P. 7

reductions to be made in the volume of Treasury bills. Comparatively high money rates, the restoration of confidence in British finance and a marked lack of confidence in American finance brought a steady influx of foreign money into London, while a fresh source of strength was found in the transfer to London of a part of India's gold as a direct consequence of the heavy premium on gold.

Early in 1932 the restored confidence and the influx of gold had served to reverse the flow of international short money in favour of London and the absence of any big demand for money made the market quite easy. By the middle of February the bank rate had long been completely ineffective - there was a spread of 1¼ per cent. between the bank rate and the Treasury bill rate - and the reduction of the rate by a full point on February 18th was regarded as a step long overdue.[1] From February until June 30th the course of events was uniformly one of successive reductions of the bank rate[2] following cautiously the steady and continuous decline in money rates.[3]

As early as February funds had begun to flow from America To England and money became even more plentiful in the London market. Accordingly the rate was again reduced, this time to 4 per cent. on March 10th. Sterling continued to gain strength against foreign currencies and by the middle of March it had improved from $3.38

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1. Economist, July 9, 1932. P. 57
2. See Graph VII
3. Economist, loc. cit.

to $3.82 in New York, the bulk of the Bank of England and Treasury credits had been repaid, all restrictions upon foreign exchange dealings had been removed and the bank rate had been reduced to 3½ per cent. in another attempt to make it effective.

In view of the uncertainties created by the suicide of Mr. Kreuger, the Swedish financier, in March some surprise was caused by the decision of the Bank of England to make this third reduction in its rate.[1] The action was regarded, however, as evidence of the Bank's determination to make it clear, by its policy, that it desired to discourage a capital influx which would not be in the best interests of the country and would be bound to add a further disturbing influence to the world's monetary system.[2]

Further reductions were made during the next three months, partly as a reflection of the weight of idle money and in an attempt to make the rate effective and partly so as to prepare the ground for the impending War Loan Conversion scheme. The rate was lowered on April 21st to 3 per cent., on May 12th to 2½ per cent., and on June 30th, when the Conversion scheme was launched, to 2 per cent.[3] for the first time in thirty-five years.[4] Evidence of the huge surplus of short money was found in the fact that, for the first time within living memory, the turn of the half-year witnessed no market borrowing at the Bank of England.[5]

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1. Economist, March 19, 1932. P. 622
2. Economist, March 12, 1932. P. 568
3. See Graph VII
4. See Table I
5. Economist, January 7, 1933. P. 8

The second half of 1932 was a period of almost unprecedentedly cheap and abundant money. The glut of loanable funds, the shortage of commercial paper and the restricted demand for Stock Exchange loans continued during the whole of this period. Bad trade and the absence of any enterprise either by traders or investors brought about a progressive increase in bank deposits and a large decrease in advances leading to the accumulation of an abnormally large quantity of idle short money.

By this time it had become known that the Government definitely favoured a prolonged regime of cheap money, not only to assist their conversion operations, but in the hope that it might foster some revival in trade. During the years which have since elapsed cheap money has been the established policy and has been maintained by the active collaboration not merely of the Government and the Bank of England but of the whole City of London.[1] The basis of this co-operation has been the conviction that cheap money is an essential condition of recovery.

The Era Of Cheap Money

Because of this cheap money policy various forces which formerly influenced the bank rate have had little or no effect on

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1. "Cheap" or "easy" money does not mean a predetermined figure nor necessarily one which is lower than any other particular rate. The term may mean a number of interest rates, that may vary a great deal within what is regarded as the range of cheap money.

it since 1932. "Under normal conditions Bank rate can be compared to the North Pole. Every other interest or discount rate revolves around it, but business is very rarely done at it. Today the analogy is truer than ever. The market is so swamped with money that resort to the Bank is only necessary upon exceptional occasions such as the end of the banking half-year. The old rule that short loan rates were a point below bank rate with market discount somewhere in between has also gone by the board. No one today pays any attention to bank rate and many people have by now almost forgotten where it stands."[1]

A brief review of the conditions of the money market during this era of cheap money is interesting. During almost the whole of this period money was very easy. There were, it is true, occasional periods of mild stringency but in these the tightening was both temporary and slight.

During 1933, the ease in the market was accentuated by the prevailing unsettlement in foreign centres which caused a great influx of foreign money into London. This was reflected in the heavy gold acquisitions by the Bank of England.[2] Among other events the year witnessed the complete breakdown of the American banking system, the American suspension of the gold standard and the advent of the Nazis to power in Germany. Yet so far from

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1. Economist, November 10, 1934. P. 878
2. See Table IV

money becoming tight, the main problem of British bankers and the London money market was how to deal with inordinately low rates. Events combined to create the impression that London was the sole safe European centre in which to hold funds and the gold inflow to the Bank of England early in the year is sufficient to show that much foreign money was lodged in London for safe custody during the course of the year. All this money, directly or indirectly, entered the London money market in search of employment and so went to swell the quantity of funds that had already been called into existence by the attempt to revive trade and raise prices through an easy credit policy.

A single sentence from the Economist sums up the history of the money market during the next five years. "Money continued to be cheap and the authorities wished it to remain so."[1] During 1934, 1935 and the greater part of 1936 the ultra-low money and discount rates were in force and there was a considerable diversion of funds from the discount market to gilt-edged securities. Indeed, during this period, competent observers such as the editors of the Economist advocated a further reduction of the bank rate to perhaps 1½ per cent. The rate was not changed however and, during 1936, the cheap money policy was threatened on several occasions by appreciable hardening of interest rates. These temporary stringencies were attributed to a general increase of domestic activity and an influx

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1. Economist, Commercial History and Review of 1937 February 12, 1938, P. 7

of foreign money from abroad following the various currency crises of the year.[1]

During 1937 and 1938 the market varied between a continuance of the quiet conditions, with low rates, and stringency, with rising rates, as a result of external influences. During 1937 there had been a tendency towards higher commodity prices, which had threatened to have far-reaching repercussions, but early in 1938 this movement had reversed. The most important influence of the year was the withdrawal of foreign funds. In May there was a temporary stringency caused by the return of capital to France as a result of Mr. Daladier's decrees.[2]

The rise of the English bank rate to 4 per cent. on August 26th, 1939,[3] cannot be regarded as indicating a change of policy. That it was a precautionary measure taken at a time when the outbreak of a second world war was imminent is shown by the fact that the rate was quickly returned to its former level. On September 28th it was reduced to 3 per cent. and, on October 26th, when it was realized that this rate was wholly ineffective, it was returned to the 2 per cent. level.

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1. Economist, Commercial History and Review of 1936 February 13, 1937. P. 7
2. In the first week of May, 1938, Premier Daladier issued a series of decrees which among other things devaluated the franc. One of his aims was to secure the return of expatriated French capital.
   See Economist, May 7, 1938, P. 302
3. See Graph VII and Table II

CHAPTER IV.

Effectiveness Of Bank Rate Method

In practice the bank rate is usually a compromise between the rates needed to control gold movements, price levels, unemployment, interest payments, dividends, war debts and investments. Unfortunately, these various interests are frequently conflicting and a policy which might do good in one direction may do harm in others. These interests can be classed as either international or internal and it often happens that, at the very time when the domestic aspects are in need of help, the international situation becomes so tense as to interpose its influence on the rate to the detriment of the internal conditions. In 1929, although the British price level was dropping[1] and industry needed the encouragement of a low bank rate, the Bank of England could not lower its rate without losing most of its gold because of the existing 12 per cent. rate for call money in New York.

When a country is on the gold standard the primary consideration is usually the conditions prevailing in world trade. The bankers interviewed by the Macmillan Committee on Finance and Industry, in 1930-31, all pointed out the importance of the maintenance of the international position because of its great influence on the domestic situation.[2] It was explained that the Bank of England's policy had been to keep its eye primarily on the movements of the foreign exchange, as the indicator of the balance of international payments, and then

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1. See Table V
2. Committee on Finance and Industry, Macmillan Report, Par. 217

to make its changes in the bank rate in response to these movements. However, during recent years, it has become increasingly apparent that, while the bank rate undoubtedly did have quite considerable influence on gold movements, there were many weaknesses inherent in its use.

The Macmillan Committee concluded in its report that a bank rate policy guided and governed by the tendency of gold to move is a means of maintaining the stability of the exchanges but not the stability of business.[1] Indeed, so far from keeping business on an even keel, the maintenance of stable exchanges has the effect of transmitting to the credit system any serious disturbances, of a cyclical character or otherwise, which may be affecting the rest of the world.

Some authority are opposed to any attempts to control gold movements. In his "Principles of Economics" Professor Taussig points out that the flow of specie is an indicator of the currents of international trade, not in itself a matter of serious importance. In the main it takes care of itself "ceasing by a quasi-automatic process"[2] when the inevitable readjustment of imports and exports has been accomplished. The bank rate instrument does not prevent the movement of gold or its ultimate effect on prices. It may have some power to regulate and equalize the gold flow for ashort period but, when there

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1. Ibid., Par. 219-220
2. F. W. Taussig, Principles of Economics, I, 458

is a balance of payments owing any one country because of an excess of its exports over its imports, the current of gold will continue to move toward that country until equalization is brought about by changes in prices and restored trade balances.

Appearing before the Macmillan Committee, Mr. J. Taylor Peddie argued that a rise in the bank rate could not increase shipments of gold to London.[1] When the Bank of England raises its rate with a view to curtailing credit and attracting gold to London, the competitive powers of the exporting industries are also curtailed. Thus the full credits which these industries could create abroad are not available to assist in maintaining the Bank's gold reserves. Mr. Peddie pointed out that if the raising of the bank rate prevented the exporting trade, even in the slightest degree, from continuing this beneficial work then it must defeat, in part, the Bank's objective policy.

Gold movements are often the last event in a situation which probably has been developing for a considerable time and a policy which waits upon the movement of gold is too tardy. Action may come too late to produce the desired results. Moreover, when the Bank of England raises its rate, other central banks usually follow suit so that the hoped for effect is neutralised and the only result is a period of high money rates. If London does happen to act alone in altering its rate, credit conditions in the rest of the world are

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1. Committee on Finance and Industry, Minutes of Evidence (1931), II, 112, M. 23-4.

bound to be affected, sometimes with undesirable results, and serious dislocations are likely to occur.

When a country is off the gold standard and manages its foreign exchange level by such devices as an Exchange Equalization Fund, the bank rate can be set primarily with a view to internal conditions. Unfortunately, here too, the practical application of the bank rate method brings to light several glaring weaknesses not apparent in the classical theory.

For one thing, the effectiveness of the bank rate depends on the initiative of the borrowers, the commercial banks. Variations in the rate can be used as an instrument of control only when the commercial banks apply for loans. To date not one single weekly statement of the Bank of Canada has shown any bills discounted.[1] The same tendency exists in London; English banks go to the Bank of England only in time of necessity, such as the turn of the half-year when demand is usually quite heavy. Because of this, bank rate action usually comes too late to accomplish the desired results. Generally the more important changes in business take place before the movements of the interest rates can be of any material importance.

In actual practice the rates that the commercial banks pay to the central bank for loans is considerably below what the banks charge their clients. Therefore, even if the central bank raises its rate, it may still pay the commercial banks to borrow at the new

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1. M. L. Stokes, Bank of Canada, P. 278

rate and continue to loan at their old rate.

However, the bankers often do fall in line with the central bank, largely because of the prestige of that institution. Even then the desired results are rarely obtained directly. The commercial banks are reluctant to curtail advances to their regular customers for normal business purposes and will cut down first on their more liquid assets, namely their bills and their loans to the money market, next on their investments and last of all on their advances to industry. Thus there will be little immediate contraction of industrial credit.

A rise in the bank rate does not necessarily affect all advances. Some have a fixed, flat rate; others have a maximum which may have already been reached. The industrial rate is usually well above the bank rate and a rise from 3 per cent. to 4 per cent. in the rate will not affect the man who is already paying 5 per cent.

The majority of banking witnesses who appeared before the Macmillan Committee stated that a rise or fall in the bank rate had little effect upon the volume of applications for advances. Indeed, as Mr. Beaumont Pease pointed out, a high volume of applications often coincides with a period of high bank rate.[1] In an effort to explain this, Lord Macmillan suggested that, "If a thing is essential, if bread becomes dearer, people have to buy it whether they like it

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1. Committee on Finance and Industry, op. cit., I, par. 2189

or not, because it is essential to them."[1] If a business requires money it will borrow even at a high rate. The industrialist, provided he gets orders to carry out, is willing to pay any reasonable rate to provide himself with working capital.

The Macmillan Committee was very interested in the effect of a high bank rate upon the internal situation and took a great deal of evidence upon this point. They concluded that, on business already contracted and in the process of production, the effect was very small.[2] A rise of 1 per cent. to 1½ per cent. in the bank rate made an infinitesimal difference in the cost of production. In the opinion of Mr. Pease, the alteration of the bank rate does affect industry, but to nothing like the extent that is popularly supposed.[3] When he was asked to account for the tremendous increase in unemployment which came about three months after the 1929 rise in the bank rate, he replied, after warning against the fallacy of assuming 'post hoc ergo propter hoc', "I think that some of the most active and prosperous periods of our trade were when the bank rate was high, when trade was so active that the bank rate was raised as a danger signal".[4]

Attempts to ease the fluctuations of the business cycle by means of the bank rate have not been very successful. In boom times, high rates have little effect on the stock exchange

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1. Ibid, I, Par. 2190
2. G. E. Campbell, op. cit., P. 17
3. Committee on Finance and Industry, op. cit., I, par. 2164
4. Ibid, I, par. 2166

speculator who thinks in terms of market quotations rather than of interest rates. A type of investor has appeared who will gladly pay 6 per cent. for funds with which to buy a stock which pays very little if he foresees, or thinks he foresees, an increase in the price of that stock. Moreover a rise in the bank rate penalizes legitimate borrowers who really need funds to carry on business enterprises. A central bank usually makes drastic reductions in its rate after the collapse of a boom. Unless other countries reduce their rates at the same time, there may occur large withdrawals of gold which will only add to the difficulties of the downswing. Even during a normal period frequent fluctuations of the bank rate do not make for business stability.[1]

It must not be concluded that the bank rate has no effect upon the domestic situation; it has considerable effect but this is psychological rather than actual. Unfortunately this psychological effect often defeats the purpose for which the bank rate was altered. The business world usually finds it difficult to interpret properly the meaning of a change in the rate. Thus a change of no great significance, a change which is likely to be merely temporary or seasonal in character, may cause undue alarm and may have a seriously unfavourable reaction on business enterprise. Sir Josiah Stamp explains it this way: "The animal that is after you may be

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1. This has been the argument of the Bank of France which believes that it can assure stability by maintaining a stable bank rate and keeping a large gold reserve which it can use to regulate credit conditions. The Bank of England has opposed this view arguing that, besides being too expensive, the maintenance of a large gold reserve is impractical in London, the world's central free gold market.

only a dog but, if you think it is a wolf, you will run just as fast as if it were a wolf. So, this psychology concerning the rate brings about a state of affairs that intrinsically need not exist."[1]

The Macmillan Committee concluded that, although bank rate policy is a "most delicate and beautiful instrument"[2] for the sound management of the monetary system, nevertheless there are limitations to its usefulness. "We think that the instrument of bank rate should be used sparingly when the objective is merely to balance moderate changes in the short-term position by attracting foreign funds and not to affect the domestic situation. Bank rate is rightly used when the Bank of England deliberately desires to contract credit either at home or in the world at large. Its use is of much more doubtful utility when there is no desire on the part of the Bank to contract credit either here or abroad, the main point of maintaining a high bank rate being to attract foreign funds."[3]

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1. Committee on Finance and Industry, op. cit., Par. 3748
2. Committee on Finance and Industry, Macmillan Report, Par. 218
3. Ibid., Par. 352

CHAPTER V.

Open Market Operations

A type of credit control which has been widely used during recent years is known as "open market operations". This term is applied to the dealings of a central bank when it goes into the open market to buy or sell securities. Action directed towards varying the amount of the investments held by a bank is usually called "open market policy".

The governing principle of this instrument is that the central bank through its sales and purchases of securities brings about changes in the commercial banks' balances and, therefore, in their lending power. The central bank may deal in two types of securities; acceptances and government securities, but it is only sales and purchases of the latter which constitute open market operations in the proper sense of the term. Purchases of bank acceptances are analagous to rediscounts and ought not to be included as open market transactions.[1]

The regulation of credit depends upon the power of the central bank to influence the lending operations of the competitive banks. The lending operations of the latter are limited by their cash reserves and the central bank has the power of increasing or decreasing its own assets by dealing in securities in the open market. Its liabilities are decreased or increased by the same

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1. K. Kock, op. cit., App. I, p. 221

amount as its assets, and these liabilities (whether notes or deposits) are reckoned as cash by the commercial banks.

When securities are bought there is an expansion of credit because the money paid for the securities will be deposited with the commercial banks and used by them for further lending. On the other hand, when the central bank sells securities in the open market there is a contraction of credit due to the money taken out of circulation to pay for the securities. The cash of the deposit banks is restricted and they, wishing to maintain their regular ratio of cash to deposits, proceed to cut down on their loans.

Open market operations are a most potent weapon in the hands of a central bank; for cash to a commercial bank is the base on which an inverted pyramid of credit is raised to several times its volume. A diminution of available cash supplies, therefore, quickly forces a policy of credit restriction on the commercial banks.

In Great Britain and the United States the deposits of the public with the commercial banks bear a direct relationship to the deposits of the commercial banks themselves with the central institution.[1] In England the proportion is conventionally assumed to be about ten to one,[2] in the United States about fifteen to one.[3]

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1. In the United States, the twelve Federal Reserve Banks fulfil the functions of a central bank.
2. A.F.W. Plumptre, Central Banking in the British Dominions, P.18
3. Committee on Finance and Industry, Minutes of Evidence, 1931, II, P. 164, M.23

Any action which the central bank takes to increase or decrease the deposits of the commercial banks will accordingly be reflected on a magnified scale in the deposits held by the customers at the commercial banks.

For example, if the Bank of England buys £100,000 worth of securities from someone who banks at Lloyd's Bank, the seller's account at Lloyd's will be increased by £100,000, and Lloyd's account at the Bank of England is also increased by £100,000. Assuming that Lloyd's do not demand cash from the Bank of England it will now be free, having regard to the proportion it maintains, to create new credit by lending directly to customers or by buying securities. The credit thus created will tend to be distributed, by the operations of the clearing house, among all the commercial banks. In their turn these other banks will create and still further diffuse new credit. At the end of the operation, £1,000,000 of credit has come into existence. The reverse process happens when the Bank sells securities, instead of buying them. £1,000,000 worth of credit will, in due course, be cancelled by the sale of £100,000 of securities. Thus open market operations give a central bank a very direct means of control over the credit conditions in its country.

The effect of open market operations in the various

markets differs. In England, a reduction in bankers' balances brought about by the selling of government securities by the Bank of England forces the joint stock banks to call loans from the bill brokers, which in turn compels the latter to borrow from the Bank of England. Since the bank rate is usually higher than the acceptance rate or the bill rate the forcing of the brokers to the Bank of England penalizes them and results in a general increase in the rate on acceptances. Conversely, an increase in the deposits of the joint stock banks at the Bank of England is equivalent to an increase in the amount of cash and the banks, finding themselves with more than their usual proportion of cash to deposits are in a position to grant further loans to their customers or otherwise to create additional credit.

In the United States, open market operations have been the most reliable weapon of the Federal Reserve System in its effort to regulate the reserves of member banks. When the Open Market Committee decides on a policy of restricting credit, the normal method of carrying it into effect is the sale of government obligations by the Reserve banks, or alternatively, allowing short-termed government debts, held as assets by the Reserve banks, to mature without replacing these assets by fresh investments. When a Reserve bank sells securities to the public it receives in

payment for them cheques on the member banks. These cheques are charged against the reserve deposits of the member banks with the result that a reduction is made in the amount of reserve balances. Conversely, when a Federal Reserve bank buys securities, it pays for them with a cashier's cheque which, when presented by a member bank, is credited to the reserve balance of that bank and so produces an increase in the amount of member bank reserves.

The reserves with the Federal Reserve bank are usually kept down to the lowest possible margin and closely adjusted to the fluctuations in deposits and thus to variations in loans and investments. An addition in the reserves kept by member banks with the Federal Reserve banks will lead either to a reduction in rediscounts or, if these are at a low level, to an increase in the supply of money in the open market. A reduction, on the other hand, results in a rise in rediscounts or a withdrawal of money from the market, or more probably, in a combination of the two measures.

In both countries the open market and the discount policies are usually co-ordinated so that they work together to achieve the desired results.

The use of open market operations as an instrument of credit control is a fairly recent development of central banking. Before the World War the Bank of England was known to employ this device, though at somewhat rare intervals, for short periods and

on a modest scale.[1] It sold "consols" for cash on the stock exchange and simultaneously repurchased them "for the account", with the result that the basis of credit was curtailed between the date of sale and the date of settlement of the repurchase which might be any time up to a month later. This expedient was resorted to when the market rates were lagging too far behind bank rate. However, the practice was not very frequent and can hardly be compared with the systematic and extensive open market operations of the central bank in recent years. It is interesting to note that Sir Ernest Harvey, in giving evidence before the Macmillan Committee on Finance and Industry, described this borrowing on consols as "a relic of past history".[2]

During the Great War, the Bank of England and the Treasury cooperated closely, making frequent use of open market operations to enable the government to carry through its war finances. Later, even after the financial structure had returned to normal, they were still undertaken when a temporary stringency made itself felt (on account of tax payments, for example). Moreover the Bank began to make frequent use of them as a supplementary weapon in its monetary policy. Until recently, however, the orthodox doctrine in England was that open market

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1. J. M. Keynes, "Credit Control", Encyclopaedia of Social Sciences, Vol. IV, P. 552.
2. Committee on Finance and Industry, op. cit., I, Par. 402

policy could only be used, not as a substitute for, but to reinforce bank rate policy by making the latter effective. Since 1932 this doctrine has been discredited by the fact that open market operations have been used by several central banks, notably in England and the United States, unaccompanied by changes in the bank rate. Indeed as pointed out above, the bank rate has been almost perfectly stable for these last eight years.[1]

The United States has been the scene of the most extensive application of open market operations although they appeared there more recently than in England. In the First Annual Report of the Federal Reserve Board,[2] open market operations were mentioned. However, they were not used as a regular, large-scale policy until the spring of 1922 when credit expansion was started by open market purchases. Since 1923 they have been employed as a systemized policy under the authority of a central committee with definite credit control in view. In that year the Board took steps to introduce a coordinated policy between the different Reserve banks, and a committee of Reserve bank officers was formed to act under the general supervision of the Board in handling open market problems and operations. Moreover the principle was publicly laid down "That the time, manner, character and volume of open market investments purchased by the

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1. See Graph I
2. Washington, 1915.

Federal Reserve banks, be governed with primary regard to the accomodation of commerce and business and to the effect of such purchases or sales on the general credit situation."[1]

During 1923 the credit expansion, which was begun the year before, was checked by open market sales. In the summer of the next year (1924) the new mechanism successfully passed its first real test. Credit contraction was very severe, so open market purchases were made, the rediscount rate considerably reduced (4½ per cent. to 3 per cent.), and the depression was quickly dissipated. For several years after, little use was made of the new instrument until, in 1927, the Federal Reserve system reverted to extensive open market purchases and initiated a renewed credit expansion. The following year, however, drastic measures of credit restriction were adopted, partly on account of the outflow of gold and partly because of the speculation on the stock exchange. A sharp rise of interest rates (to 5 per cent. on July 13th) was accompanied by large open market sales of securities. The government securities held by the Federal Reserve system, which had been $600,000.000. in January 1928, were reduced to $400,000,000. in February and to $219,000,000. by the end of May.[2]

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1. See Federal Reserve Board's Annual Bulletin, 1923, P. 15, et seq.
2. R. C. Hawtrey, The Art of Central Banking, P. 71

During the first year of depression following the crisis and collapse of 1929, there developed a strong feeling that the open market powers of the committee had been used without much regard to the ultimate purposes of the system, particularly in 1927 and 1929, and that open market operations had, on occasion, offset or neutralized the discount policies over which the Board exercises a much greater degree of control.

CHAPTER VI.

Estimate And Criticism Of Open Market Operations

Some writers do not regard open market policy as a distinct instrument of credit control but consider it to be supplementary to bank rate policy.[1] They feel that the greatest importance of open market operations lies in the fact that they may be used to prepare the ground for, and so increase the effectiveness of, a change in the official discount rate. According to this view, when the balances of the commercial banks, held at the central bank, are low, or when the supply of money in the open market is sufficiently large for there to be little or no borrowing at the central institution, a rise in the bank rate cannot be effective. This may be remedied by open market sales which increase the reserves of the bank and diminish the supply of funds available on the open market. Similarly when borrowing at the central bank is high or when there is a stringency in the market, a lowering of the official discount rate may be made more effective by open market purchases of securities. This permits a reduction in the indebtedness to the central bank and so helps the bank rate to bring about easier credit conditions.

Such was what might be called the "classical" theory of open market operations, but recent developments in the practice of credit management have made it apparent that open market policy

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1. Cf. Kisch and Elkin, Central Banks
K. Koch, A Study of Interest Rates

should be considered a distinct and separate weapon for the control of credit. While it is not absolutely perfect, nevertheless it lacks many of the faults of bank rate manipulation.

A significant difference between bank rate and open market policy is that, in the first case, the initiative lies with the commercial banks through their borrowing from the central bank while, in the latter, it rests with the central institution. The individual commercial banks have virtually no power to influence the aggregate volume of bank money unless they depart from their reserve ratio conventions, and, even then, the old position is restored if the central bank sells investments to a corresponding amount.

Open market operations act much more directly to attain the desired results than do changes in the official discount rate. A bank rate change may, amongst other things, affect the volume of central bank advances as desired. But it does much else besides and even its influence on central bank advances is an uncertain result among those wider and more complex consequences which a change in the bank rate sets up. Open market operations, on the other hand, produce a direct effect on the reserves of the commercial banks, and hence on the volume of deposits and credits generally, by their immediate consequences, apart from their indirect reactions.

Not only are the effects of open market operations

more directly obtained but they are also greater than are the effects of bank rate changes. "Supposing you have....a constant volume of money in fairly normal times, and you change the rate from 3½ to 4, that will have a less vital effect upon business than if the rate remained at 3½ or 4 and you periodically altered the volume of money by seventh or eighth parts."[1] In his discussion of the American system, C. O. Hardy argues that the rediscount rate is not an effective instrument for controlling the volume of credit because member bank borrowing does not respond to rate changes.[2] He points out that the volume of rediscounts is usually low in times of low rates and high when rates are high. On the other hand there is a positive correlation between open market operations and the size of member bank reserves.[3] In most cases the volume of outstanding credit shows considerable responsiveness to changes in the Reserve system's open market policy.

During the period covered by the table the Reserve system made four distinct attempts to increase the volume of credit outstanding, by buying securities, and two direct efforts to contract credit by selling them. It will be noted that there is a high degree of correspondence between the policy of the

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1. Sir Josiah Stamp, Committee on Finance and Industry, op. cit., Par. 3738
2. C. O. Hardy, Credit Policies of the Federal Reserve System, P. 40
3. See Table VI.

System as expressed in the purchases of securities and the direction of change of member bank reserve balances.

Often gold movements work against open market policy[1] but these offsets are rarely sufficient to cancel the effects of open market operations. Indeed these may be used to counterbalance the effects of a movement of gold. The stabilizing influence of the Bank of England's open market operations was illustrated, in 1928, when the effect of gold accretions amounting to about £21,000,000, between February and September, was counteracted by an almost identical decrease in the Bank's holdings of securities. When conversely, in 1929, heavy gold losses occurred the Bank promoted stability by increasing its security holdings.[2]

In recent years, this stabilization of the exchanges has become a recognized field for open market operations. Since the gold standard has been everywhere replaced by either the "gold bullion" standard or "pegged" currency the bank rate is not a very effective aid to stability. However, the larger nations have built up huge "equalization" funds which are used to buy foreign currency when it is offered in excessive supply. Sometimes these funds are strengthened by treaties such as the Tripartite Agreement between Great Britain, France and the United States.

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1. See Table VI
2. Kisch and Elkin, op. cit., P. 110

The practice of pegging exchange to some currency, such as sterling, is very widespread. This pegging entails the establishment of large reserves of foreign exchange and foreign securities and, here too, a form of open market operation is used to prevent too great fluctuations of the exchange rate, the central bank buying or selling exchange and securities to accomplish its purposes. When the exchange rate is unfavourable, i.e. when the value of the domestic currency is low relative to foreign currency, the central authority sells foreign exchange. The increased volume of foreign currency on the market causes its value, in terms of domestic currency, to fall and so the proper ratio is restored. The reverse operation is carried out when the exchange becomes too favourable. Then the central bank buys large quantities of foreign exchange to depress the domestic exchange in relation to that of other countries.

As a means of easing the effects of depression, open market policy has an advantage over bank rate policy. Here again the significant difference is that the purchase and sale of securities can be performed on the initiative of the banking system while borrowing calls for the initiative of the borrower. The ineffectiveness of bank rate policy as a means of controlling the business cycle was discussed above. Low interest rates are merely the outward expression of the unprofitableness of

business and the unwillingness of traders to borrow. This reluctance of borrowers can cause a contraction of credit quite as effectively as a reluctance of lenders to lend. Moreover the lowering of rediscount rates is worthless in dealing with contractions of this sort. In 1895 and 1896, day to day money in the London money market frequently fell to ½ per cent.[1] without any appreciable increase in discounts. "You can lead a horse to water but you can't make him drink."

When the stimulus of cheap money offered to the borrower is insufficient, the stimulus of redundant cash reserves can be applied to the lender. The central bank, by buying securities, can create money and place it in the hands of the sellers. There must ultimately be a limit to the amount of money that the sellers will hold idle and it follows that, by this process, the vicious circle of deflation can be broken, however great the stagnation of business and the reluctance of borrowers may be. This procedure was adopted by the Federal Reserve banks, in 1922, with conspicuous success. Again, in 1930, it was attempted but only half-heartedly. The banks bought government securities in the open market and raised their holdings to the relatively high figure of $600,000,000 but that was far from being enough.[2]

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1. R. G. Hawtrey, op. cit., P. 172
2. Ibid. P. 215

It has been pointed out that the actual effects of bank rate policy often were psychological rather than real. Sometimes the desired results were obtained through the psychological reaction but frequently serious business disturbances were created by the misinterpretation of the meaning of a change in the bank rate. With open market operations, abrupt and discontinuous bank rate alterations are no longer necessary. Moreover open market activity is much less spectacular and can be carried out without the knowledge of the financial world. Thus they are not subject to misinterpretation as are bank rate changes, and the business world is spared the instability which arises from failure to understand properly the aims and purposes of the monetary policy.

For fear that its action might be misunderstood, the central bank formerly hesitated to use its discount rate in dealing with temporary disturbances or in bringing about isolated changes in interest rates in the short-loan market. It can now make use of open market operations to achieve the desired aims. The purchase of securities by which the cash of the commercial bank is increased, is a quick method by which the central bank can, of its own motion, relieve a sudden stringency or prevent its coming by anticipatory action.

It is often argued, perhaps because their use is so obscure, that open market operations are tools of the government by means of which it aids its own financing without regard to the national welfare.[1] Hardy investigated this in the United States and concluded that "the timing of open market purchases in relation to Treasury borrowing indicates that the Reserve system has not been an instrument of Treasury finance".[2] Obviously, if Treasury sales of new issues tend to coincide with Reserve bank purchases, the effect of the coincidence is to lessen the influence of Reserve bank operations on the money market and to enable the Treasury to sell its bonds at high prices. On the contrary, if Treasury sales and Reserve bank sales coincide, the effect of the Reserve bank operations is reinforced and the Treasury has to sell on less favourable terms.

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1. Apparently Mr. A. F. W. Plumptre is among those who do not accept this argument. He writes, "It has been suggested that the Bank of Canada's open market purchases have been influenced by a desire to make the commercial banks take up securities 'at a pace synchronized with the financial requirements of the government' but the figures given in support of this statement are not conclusive". (Plumptre, Central Banking in the British Dominions, P.233)

2. Hardy, op. cit., P. 285

"The evidence is not conclusive, one way or the other, but on the whole suggests that the cooperation between the two organizations has been such as to make the Treasury operations reinforce those of the Reserve banks, rather than the reverse."[1]

A serious fault of open market policy is that open market purchases put funds into the possession of the commercial banks without giving the central bank any direct control over the use made of them whereas if credit is extended chiefly by rediscounting it is necessary for the banks to put their funds into use in ways which give rise to eligible paper.

Another disadvantage of open market operations arises from the fact that the power of a central bank to buy and sell securities is limited by the supply of suitable securities, especially if it is not prepared to incur losses through buying securities at a high price and selling them at a lower one. This very serious fault often prevents the successful use of open market operations as a means of controlling credit, especially in the small countries where, sometimes, a satisfactory money market does not exist.

Loc. cit.

CHAPTER VII.

Canada

So far, this study has been confined to the two most influential nations in the financial world; England and the United States. An examination of credit control as it has developed in countries of minor financial importance should be both interesting and informative. Canada is one of these lesser nations.

In February, 1935, the Bank of Canada first began operation. Prior to that time, the Dominion had had no central banking institution and consequently Canadian banking differs from the English in that it has no historical "bank-rate policy" or"open market policy". However, the Bank, though it is young in years, is old in wisdom for it has been able to profit from the experience of the senior institutions. It is interesting to study how and with what success it has made use of the weapons of credit control.

The preamble to the Bank of Canada Act suggests that the chief functions of the new institution are "to regulate credit and currency in the best interests of the economic life of the nation, to control and protect the external value of the national monetary unit and to mitigate by its influence fluctuations in the general level of production, trade, prices and employment, so far as may be possible within the scope of

monetary action, and generally to promote the economic welfare of the Dominion". To achieve these the Bank was given the usual instruments of credit control; variations of the rediscount rate and open market operations.

As has been seen, there are serious limitations to the effectiveness of bank rate policy even in countries which have highly developed money markets. It is natural that in Canada, where the market is comparatively small and unimportant, that the bank rate should be even less useful. Since the control exercised by bank rate policy is indirect rather than direct it cannot be very effective unless there is a well developed money market sensitive to changes in discount rates. "In the absence of a highly developed money market in Canada, it is doubtful if a variation in rediscount rates would spread automatically and readily through the pressure of market competition to other rates of interest."[1]

When the Bank of Canada was established the official rediscount rate was set at 2½ per cent.[2] where it has remained ever since even though this rate is "quite out of touch with the Treasury Bill rate".[3] In order that bank rate should function properly as a means of influencing credit conditions it is necessary that the commercial banks should do some rediscounting at the central bank. But occasion for rediscounting

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1. Stokes, op. cit., P. 277
2. March 11th, 1935.
3. Governor's Report, First Annual General Meeting of Shareholders, February 25, 1936, P. 16

paper does not exist when business conditions are such that there is no chance for the chartered banks to lend the enormous deposits which they hold. Accordingly, at present, there is no opportunity for the Bank of Canada to function as a re-discount bank. It has already been noted that, to date, not one single weekly statement of the Bank of Canada has shown any bills discounted,[1] and it is quite evident that one of the chief instruments of credit control has not been available to the Bank.

The Bank of Canada Act empowers the Bank to engage in open market operations authorizing[2] it to buy and sell in the open market from or to any person, either in or outside Canada, securities, cable transfers, bankers' acceptances and bills of exchange. These cable transfers and bankers' acceptances must have maturities not exceeding ninety days. The securities must be of the same classes as those in which the Bank may invest with the exception of long-term United Kingdom and United States obligations. The quantity of long-term Dominion and provincial issues which may be purchased are limited by the Act but there is no limitation to the amount of short term securities which the Bank may acquire in open market operations as long as they are of the kinds in which it is allowed to invest.

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1. Stokes, op. cit., P. 278
2. Section 21(1).

Since the short-term money market in Canada is of a limited scope, it is probable that the open market operations of the Bank will, for some time to come, be largely in government securities.[1] Mr. Rogers, the secretary of the Canadian Bankers' Association, stated that, "at all events it is probable that Dominion and provincial short-term issues will be the chief securities which the Bank will buy and sell under this power".[2] A reading of some of the evidence submitted to the Canadian Macmillan Commission might readily lead to the conclusion that it is impossible for a central bank to conduct open market operations in government securities on any large scale. While it is perfectly true that Canada has no money market which can compare with the markets in London and New York, there has been too much of a tendency to conclude that there is no money market at all. Regarding the ability of the Bank of Canada to carry out successful open market operations, Mr. Graham Towers made the following statement: "I believe that in no country and at no time have there been bank and market responses to central bank action and central bank policies, more complete, more full and more in line with anything the theorist might have anticipated,

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1. Stokes, op. cit., P. 180
2. Journal of the Canadian Bankers' Association, October, 1934, P. 35.

than have taken place in Canada".[1]

A study of the Bank's holdings of governmental securities shows wide fluctuations.[2] Between July, 1937, and November of the same year they increased by approximately $65,000,000., and between November, 1937, and April, 1938, they decreased by some $35,000,000.[3] In relation to the Bank's total assets and liabilities, these are very substantial amounts. Certainly movements of the same relative importance would be regarded as very large by the Bank of England or the Federal Reserve System. One must conclude, therefore, that open market operations on a large scale have been conducted without any particular difficulty by the Bank.

This does not mean that large amounts of government securities can be bought or sold without delay. Admittedly there are times when it is difficult, if not impossible, to buy or sell very large blocks within the course of a few days without a serious disturbance of the market. It should be remembered, however, that at a time when it is extremely difficult to sell in a hurry, the central bank will not likely want to do so. The same statement applies to buying operations.

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1. Committee on Banking and Commerce, Minutes of Evidence, May 16, 1939, P. 624
2. See Table VII and Graph VIII
3. Stokes, op. cit., P. 281

Examination of the statistical data and charts issued by the Bank reveals the fact that the Bank's holdings of securities acquired through open market operations show a sharp rise during the latter half of the year. Beginning in December these holdings then decrease.[1] There is a similar or corresponding rise and fall in the cash reserves of the chartered banks and in the active note circulation of the Bank of Canada.[2] In the fall, during the movement of crops, additional credit needs are usually experienced and it is apparent that the Bank of Canada is seeking, through appropriate monetary action, to provide ample funds and credits to meet seasonal requirements of agriculture and industry. This policy is similar to that followed by the Federal Reserve System in the United States.[3]

It can be concluded that open market operations through buying and selling of the securities and commercial paper described above form a most effective means by which the Bank of Canada can influence the volume of credit and thereby general business activity and the price level.

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1. See Table VII and Graph VIII
2. Stokes, loc. cit.
3. Loc. cit.

CHAPTER VIII.

Conclusion

The bank rate weapon developed along with central banking and for almost a century was the sole instrument of credit control used by the Bank of England. A central bank such as the Bank of England could use it very successfully to regulate gold movements and to ease or tighten conditions in the money market as occasion demanded. However, the post-war decade saw the gradual break down of this classical method. Its failure to control credit effectively during recent years was due to certain inherent weaknesses which combined with changing conditions in the financial world to render the bank rate valueless as an instrument and, since 1932, it has fallen into disuse. The English rate has stood at 2 per cent. since June 30, 1932, with the exception of two months in 1939. The rise to 4 per cent. which took place on August 24th, 1939, was of short duration and appears to have been merely a gesture intended to demonstrate to the world Britain's determination to stand her ground in the face of the approaching world conflict. Whatever its purposes, it was roundly criticized at the time as being a useless and senseless move.[1]

By alterations in its bank rate a central bank was

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1. See, New Statesman and Nation, September 2nd, 1939, P. 358

supposedly able to regulate and control both international gold movements and domestic credit conditions. Unfortunately, these often conflicted and it was frequently found that a policy which would benefit one was to the detriment of the other. A rise in bank rate might serve to halt an undesirable outflow of gold but it would also cause a tightening of conditions on the domestic market which already might be suffering from a stringency of money conditions.

When such a conflict has occurred it has been the policy of the Bank of England to place more stress on the international than on the internal situation. Even then, however, it is doubtful if the bank rate can really control the flow of bullion. It may, for a short period, be able to influence the time, direction and volume of gold movements but, when there is a balance of payments owing any one country because of an excess of its exports over its imports, gold will, in the long run, continue to move toward that country. Even if, in the short run, the bank rate is successful in controlling gold movements, action will probably come too late to produce the desired results. Gold movements are often the last events in a situation which has been developing for a considerable time and a policy which waits upon the movement of gold is too tardy.

It is quite apparent that a fluctuating bank rate

cannot serve to stabilize domestic business conditions. Indeed it may transmit to the internal economy shocks and disturbances from the outside world.

Bank rate policy depends too much on the initiative of the borrowers. It is useless to alter the bank rate if borrowers do not apply for rediscounts. Moreover, even when the commercial banks do borrow at the central institution the bankers may not pass on the full charge to their customers. Thus the effects of a change can be delayed and diminished so that they occur too late and are too small to achieve the desired results.

The bank rate cannot control the business cycle. During a boom money will be bought regardless of the price and so a high rate will not seriously reduce the volume of rediscounting. Nor will it hinder the speculator who will pay any rate of interest as long as he sees a chance for profit. During a slump, the banks have found that people will not borrow even when the rate of interest is reduced almost to nothing.

It is true that an alteration in the bank rate may have very great psychological effects but these are rarely such as were intended or desired when the rate was changed.

After England suspended gold payments in 1931 nation after nation followed her example so that now the true gold standard has been everywhere replaced by either the "gold bullion" standard or a "pegged" currency. Instead of gold movements there now exists a fluctuating exchange rate and, since the bank rate cannot control this, it has been deprived of one of its most important functions; the control of the bullion flow. "Equalization" funds have been set up and, with these funds, the central banks can control their exchange rates by buying and selling foreign currency when they wish to raise or lower the rates. Thus a type of open market operation has replaced the bank rate as the instrument by means of which the balance of international payments is controlled.

Open market operations first developed as a supplement to the bank rate weapon. Central banks, by dealing in the open money market, sought to make effective their discount rates. It was soon realized, however, that the new weapon could be successfully used by itself as an instrument of credit control and, since 1932, open market activity has been relied on almost exclusively for this purpose.

Open market policy overcomes most of the weaknesses of bank rate policy. Its most significant feature is that, with it, the initiative lies with the central authority rather

than with the borrower. As a result of this, not only are open market operations much more effective than alterations in the bank rate but they are more likely to attain the desired results.

Open market buying and selling can be of use in attempts to control the business cycle. It was pointed out that, with bank rate policy, the stimulus of cheap money usually failed to arouse the borrower. With open market buying, however, the central banks can apply the stimulus of redundant cash to the lender. As there must be a limit to the amount of cash that the lender will hold idle it follows that the banks, by injecting new cash into the money market, can, to some extent, raise business out of a slump.

Misinterpretation of the purpose for which alterations in the bank rate were made often caused serious disturbances in the financial world. Open market operations, since they are usually carried out secretly, do not have harmful psychological effects.

An objection to open market operations as a central bank weapon is that they are limited by the size of the security market and, therefore, can be used less effectively by the smaller nations. This may, to a certain extent, be true but the experience of the Bank of Canada seems to indicate that extensive open market

operations in government securities are possible and can be quite effective and successful.

The complaint has been made that, by pegging their bank rates at very low figures, the central banks are aiding government financing at the expense of the public welfare. This can only be true if the rates are effective; certainly it cannot apply when business is rarely, if ever, done at the official discount price. Moreover, the various money market rates decide the terms on which borrowing and lending is done and the stabilization of the bank rate has not prevented these from fluctuating.

The figure at which the English rate now stands is meaningless. In 1932, when it was pegged, it had fallen to 2 per cent. as a result of the inauguration of the Bank of England's cheap money policy. So far as the English government is concerned, it might as well be 5 per cent. or 10 per cent.

The government might consider it advantageous to control the rates in the money market. Over a short period it might be able to do this through the open market activity of the Bank of England. This works well in the short run to smooth out fluctuations and stabilize conditions in the money market. However, the Bank cannot buy securities indefinitely and, if

market rates were to show a strong tendency to rise, it would be forced to give up any attempt to prevent it.

Apparently open market operations have replaced the bank rate method as the primary instrument of credit control because of the breakdown of the latter in the face of new conditions in a changing world.

APPENDIX

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Table of Contents (Continued)

Table I.

Bank of England Discount Rate Since 1844.

	%		%
1844	2.5	1892	2.53
1845	3.25	1893	3.05
1846	3.	1894	2.11
1847	5.6	1895	2.
1848	3.5	1896	2.48
1849	2.5	1897	2.63
1850	3.	1898	3.24
1851	3.	1899	3.75
1852	2.25	1900	3.95
1853	3.69	1901	3.7
1854	5.11	1902	3.33
1855	4.89	1903	3.75
1856	6.06	1904	3.3
1857	6.66	1905	3.
1858	3.23	1906	4.26
1859	2.73	1907	4.26
1860	4.16	1908	3.01
1861	5.27	1909	3.01
1862	2.53	1910	3.71
1863	4.41	1911	3.46
1864	7.40	1912	3.78
1865	4.77	1913	3.78
1866	6.95	1914	4.03
1867	2.54	1915	5.
1868	2.09	1916	5.48
1869	3.20	1917	5.
1870	3.10	1918	5.
1871	2.89	1919	5.15
1872	4.10	1920	6.71
1873	4.79	1921	6.12
1874	3.69	1922	3.69
1875	3.23	1923	3.25
1876	2.60	1924	4.
1877	2.90	1925	4.57
1878	3.79	1926	5.
1879	2.52	1927	4.65
1880	4.77	1928	4.5
1881	3.50	1929	5.5
1882	4.13	1930	3.42
1883	3.52	1931	3.93
1884	2.95	1932	3.01
1885	2.89	1933	2.
1886	3.05	1934	2.
1887	3.35	1935	2.
1888	3.29	1936	2.
1889	3.54	1937	2.
1890	3.52	1938	2.
1891	3.26		

Source: 1844-50 Tooke & Newmarch, History of Prices, Vol. V, P. 565
1851-52 J. H. Clapham, An Economic History of Modern Britain, Vol. II, P. 363
1853-1922 Palgrave's Economic Dictionary, Vol. I, P. 93
1922-1935, G. Campbell, "Open Market Operations", Unpublished M.A. Thesis. McMaster University (1939)

Table II

Changes in the Bank of England Discount Rate from 1930 to 1939.

		%
1930	February 6	4½
	March 6	4
	March 20	3½
	May 1	3
1931	May 14	2½
	July 23	3½
	July 30	4½
	September 21	6
1932	February 18	5
	March 10	4
	March 17	3½
	April 21	3
	May 12	2½
	June 30	2
1939	August 24	4
	September 28	3
	October 26	2

Source: Federal Reserve Bulletins
Economist

Table III

Notes in Reserve in the Banking Department

of the Bank of England.

(in $1,000.)

	1857		1866
October 3	6,014	April 13	6,317
10	4,606	27	5,844
17	4,024		
24	3,217	May 11	4,950
31	3,485	18	730
		25	830
November 7	2,155		
14	957	June 1	415
21	1,148	8	2,167
28	1,918	22	4.067
December 5	2,268	July 6	3,335
12	3,900	20	2,498
19	5,757		
26	7,426	August 3	2,412
		17	3,611
		31	5,833

Source: W. Fowler, "Crises", Palgrave's Dictionary of Political Economy (1926) P. 465

Table IV

Gold Reserves Of The Bank Of England

1930 - 1939.

(gold at $20.67 oz.)	
December 1930	$718,422,000.
" 1931	587,622,000.
" 1932	582,948,000.
" 1933	928,000,000.
(gold at $35.00 oz.)	
December 1934	1,584,000,000.
" 1935	1,648,000,000.
" 1936	2,584,000,000.
" 1937	2,689,000,000.
" 1938	2,690,000,000.
August 1939	1,162,000,000.[1]
December 1939	1,000,000.

Source: G. E. Campbell, "Open Market Operations", Unpublished M. A. Thesis, McMaster University, 1939.

1. On September 6, 1939, gold to the value of $1,162,000,000. was transferred to the British Exchange Equalization Account. (See Federal Reserve Bulletin, February 1940)

Table V

Price Index Numbers, Great Britain

1929 - 1939.

Economist Wholesale Price Index.

	(1927 = 100)
Average 1929	92.4
" 1930	77.6
" 1931	64.9
" 1932	62.6
" 1933	63.1
" 1934	65.6
" 1935	68.6
" 1936	72.8
" 1937	82.5
" 1938	71.9
" 1939	74.2

Source: Economist, "Commercial History of 1939", February 17, 1940, P. 51.

Open Market Operations in the United States

Net Change of Monthly Averages

(in $1,000,000.)

All Federal Reserve Banks	March 1923 to Nov. 1923	Nov. 1923 to Oct. 1924	May 1927 to Dec. 1927	Dec. 1927 to July 1929	Oct. 1929 to Dec. 1930	Feb. 1932 to May 1932
United States Securities	-233	+ 502	+ 315	-459	+490	+670
Rediscounts	+ 171	-559	+ 56	+567	-547	-362
Member Bank Balances	+ 2	+266	+ 137	- 65	+ 29	+ 231
Monetary Gold Stock	+ 216	+ 324	-235	- 81	+ 202	-111

Source: C. O. Hardy, Credit Policies of the Federal Reserve System, P. 234.

Table VI

Table VII

Total Securities Held By The Bank Of Canada.

(Dom.-Prov. short and Dom.-Prov. long plus all other securities)

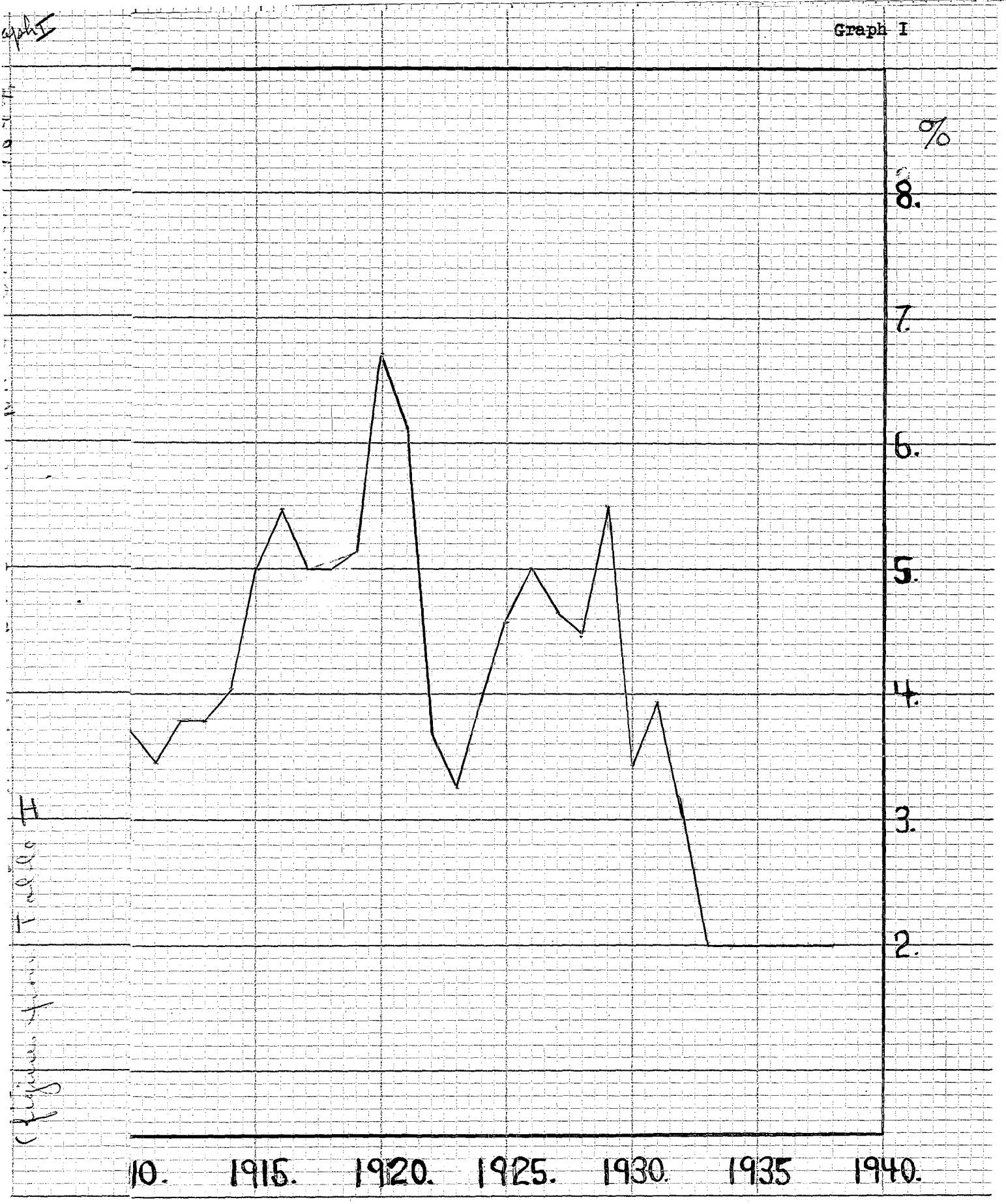
Average of Wednesday Figures, ($1,000,000)

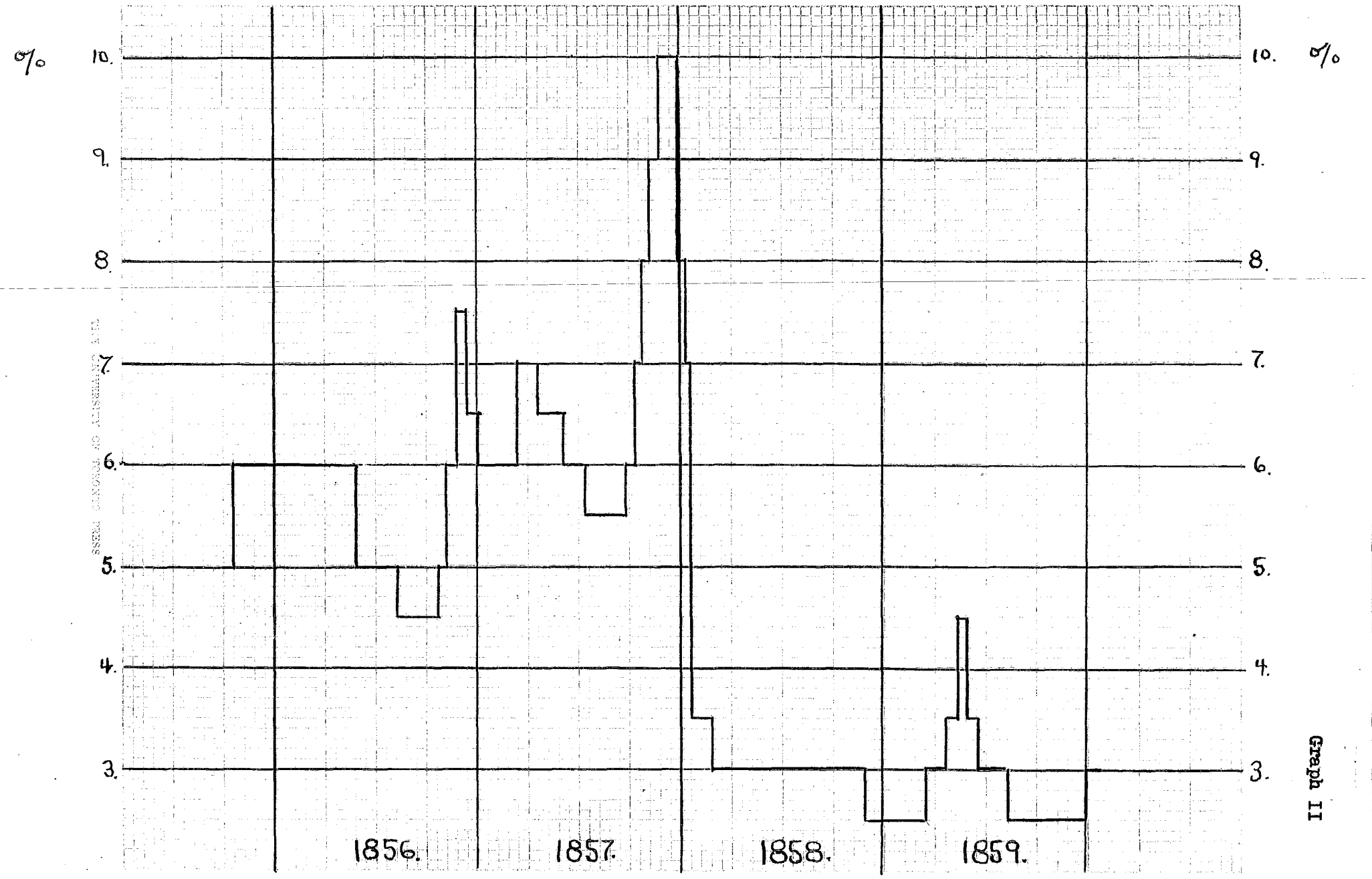
	1936	1937	1938	1939
January	109.5	159.7	180.9	181.7
February	105.7	161.7	173.1	167.9
March	108.7	153.6	173.1	158.4
April	109.6	152.3	170.1	162.3
May	111.2	149.0	170.9	166.5
June	111.2	143.7	171.3	162.5
July	112.0	139.8	167.8	163.0
August	111.7	145.6	173.8	162.6
September	128.6	166.5	188.7	189.4
October	145.5	180.5	208.0	233.2
November	163.7	205.3	204.7	248.4
December	161.7	189.1	191.4	232.4

Yearly Averages:	1935 (9 months)	119.6
	1936 (12 months)	123.2
	1937 "	162.2
	1938 "	181.2
	1939 "	185.7

Source: Bank of Canada, Statistical Summary

Graph I

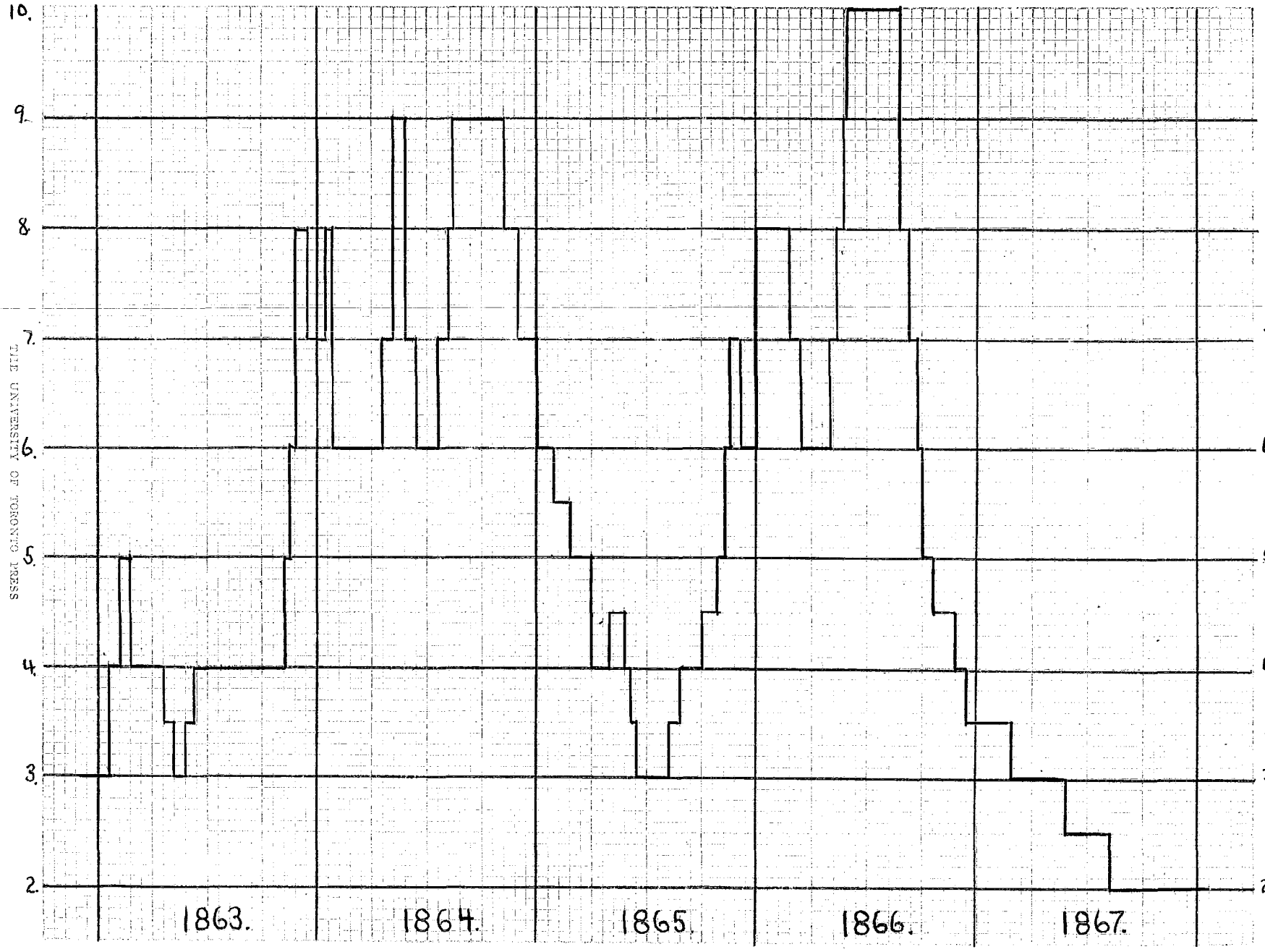




BANK OF ENGLAND DISCOUNT RATE, 1856-1859.

(From J. H. Clapham, An Economic History of Modern Britain, P. 363)

(From J. H. Clapham, An Economic History of Modern Britain, P. 363.)

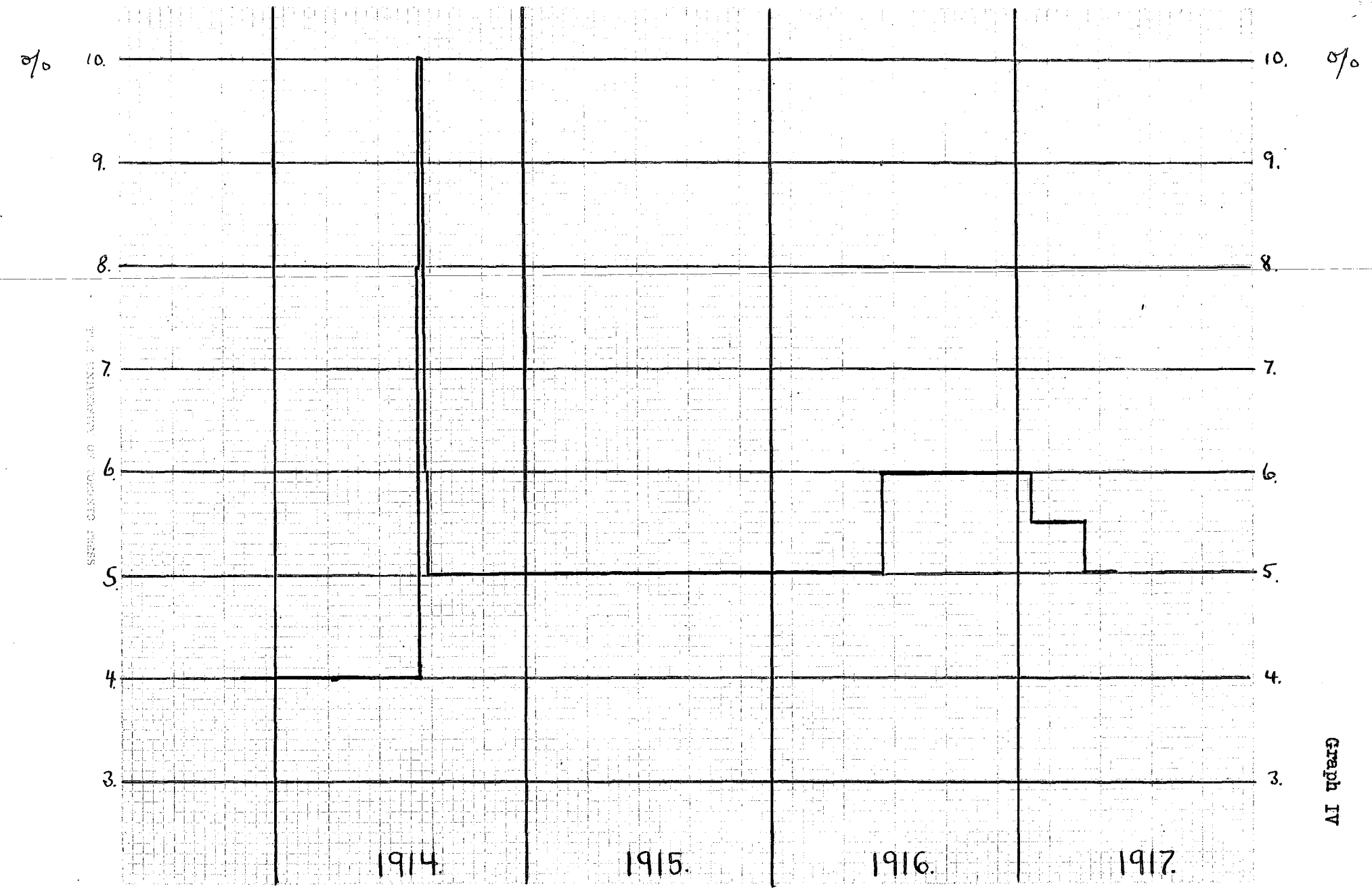


Graph III

BANK OF ENGLAND DISCOUNT RATE, 1863-1867.

(From J. H. Clapham, An Economic History of Modern Britain, P. 363)

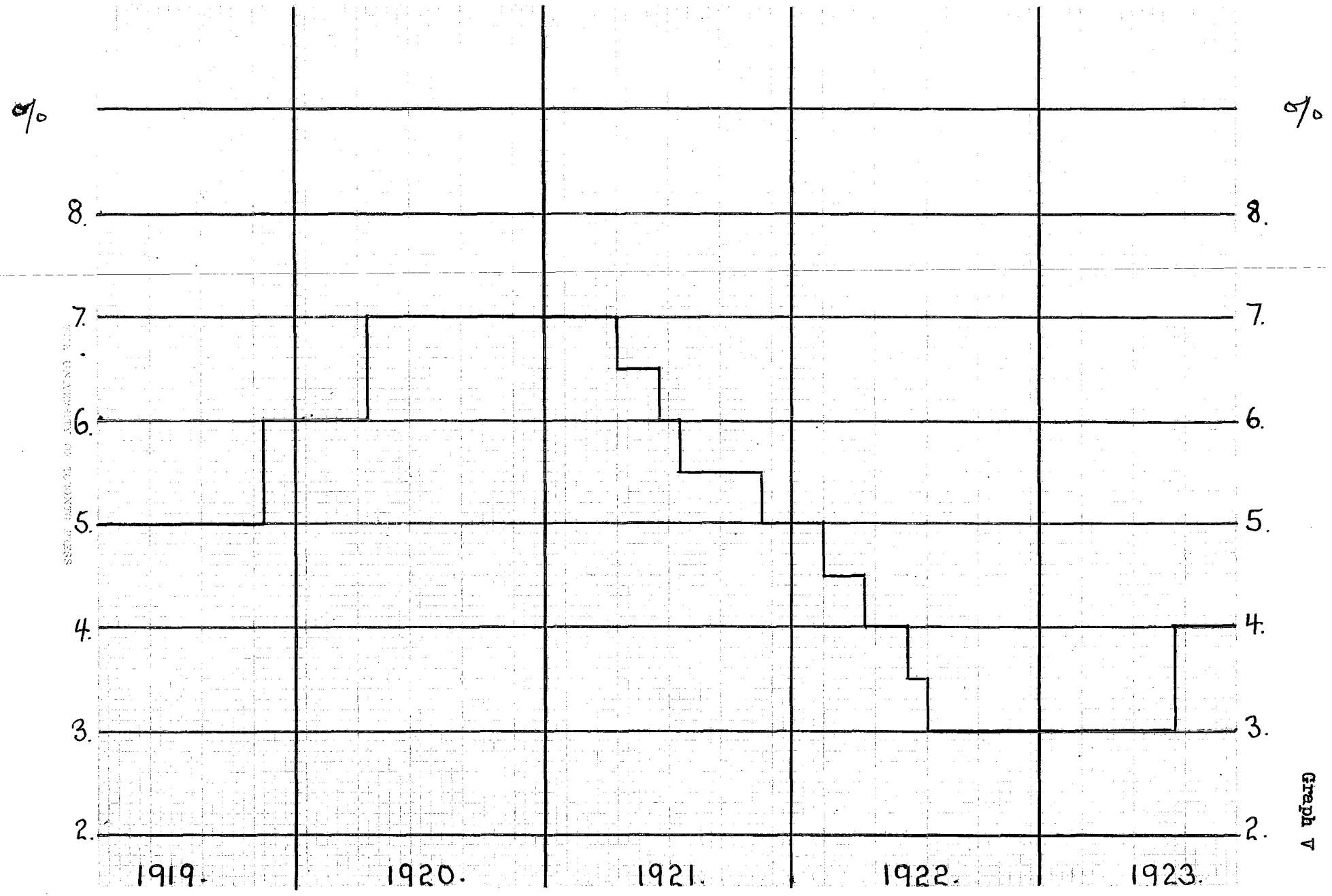
(from G. Cassel, Money and Foreign Exchange after 1914.)



Graph IV

BANK OF ENGLAND DISCOUNT RATE, 1914-1917

(figures from G. Cassel, Money and Foreign Exchange after 1914)

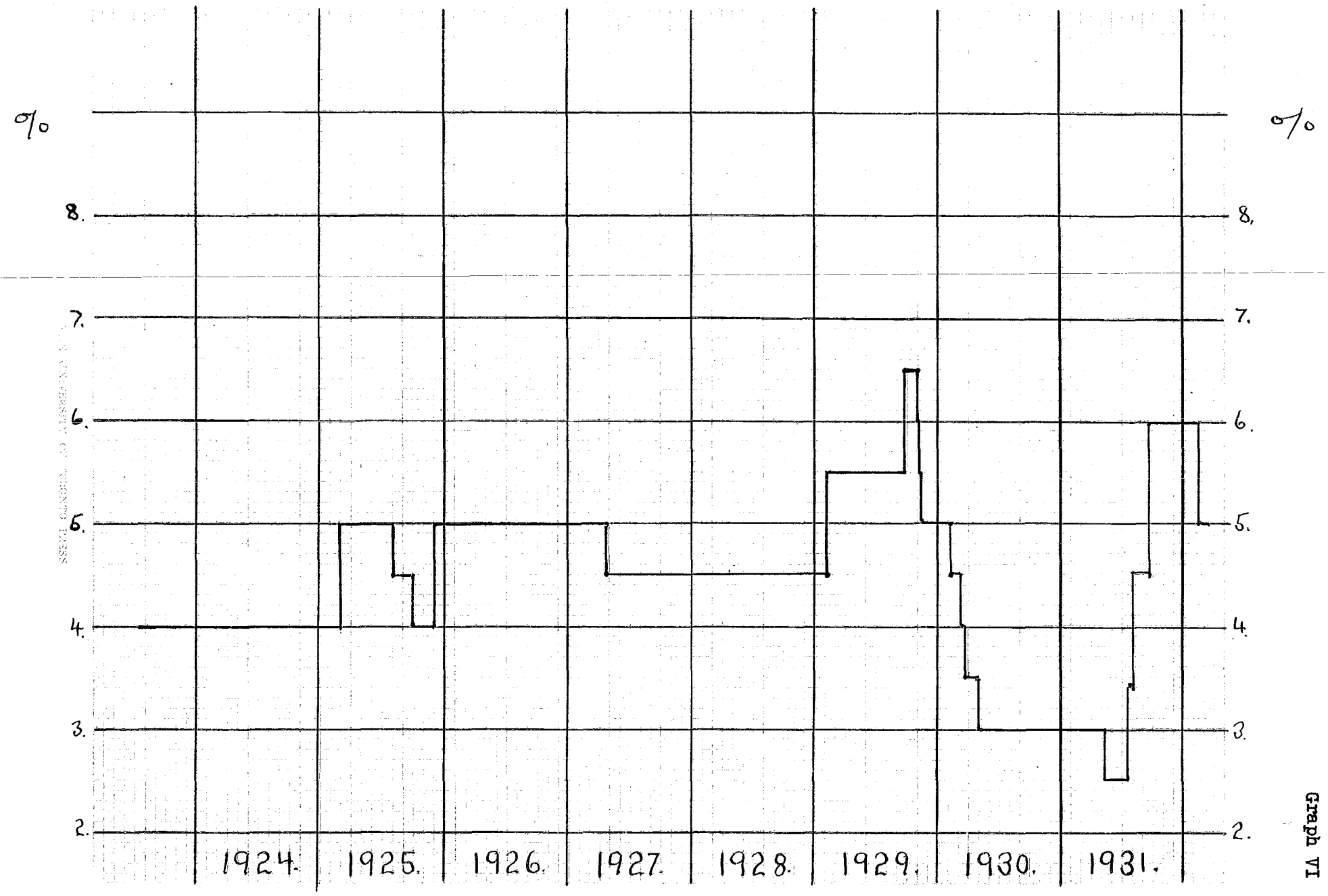


Graph V

BANK OF ENGLAND DISCOUNT RATE, 1919-1923.

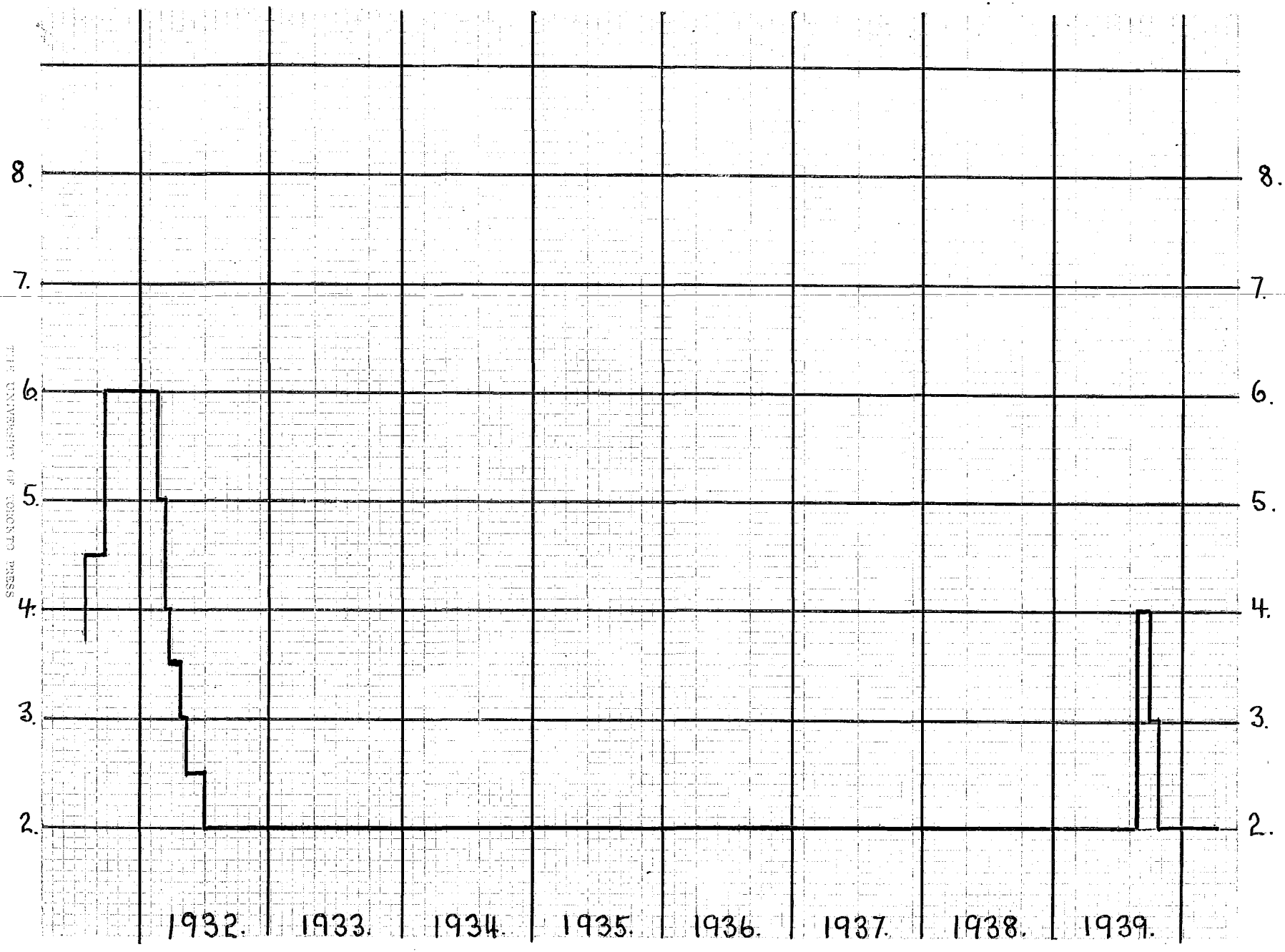
(figures from K. Kock, A Study of Interest Rates, App. II, ii)

(from Federal Reserve Bulletin.)



Graph VI

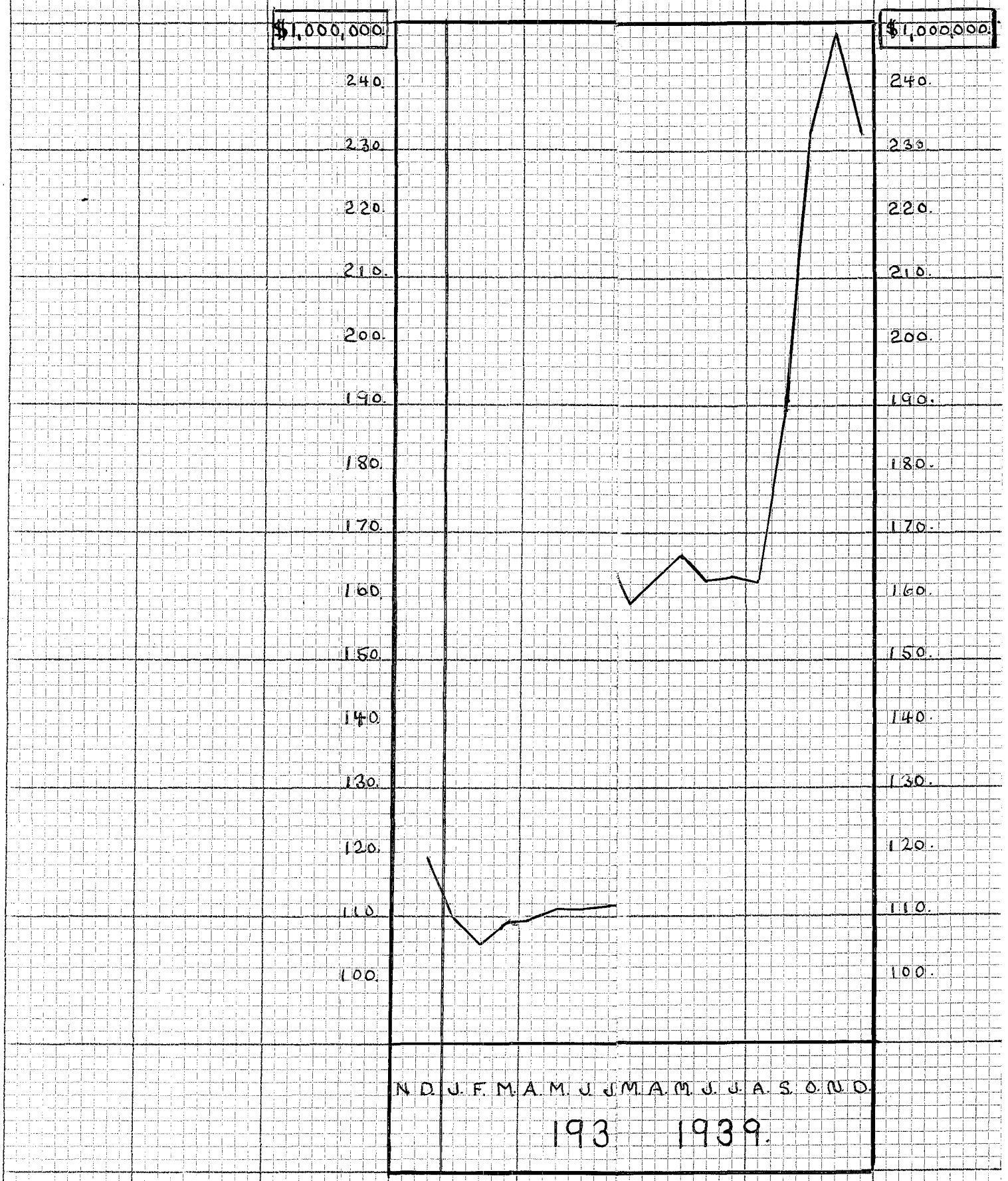
BANK OF ENGLAND DISCOUNT RATE, 1924-1931.
(figures from Federal Reserve Bulletin)



BANK OF ENGLAND DISCOUNT RATE, 1932-1939.
(figures from Economist.)

Graph VII

Graph VIII



(Dom.-Prov. Long[illegible] Wednesday figures.

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