

CHAPTER VII

PRINTING DEPARTMENT, ETC.

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INTRODUCTION.

War conditions may be said to have begun about a week before the actual declaration of War by Great Britain, for by the 31st July machinery had been transferred to the printing of Bank of England Notes and night work, which was to continue until the 23rd August, had begun. During these early weeks every machine capable of the work ran - with two breaks of 24 hours each - continuously day and night with a total output of about 4,000,000 Notes per week, mostly "fivers". With the adoption of reissue in November 1916 the demand for Bank Notes was appreciably reduced and stood in 1918 at only half the pre-War total.

From August 1914, when Postal Orders became legal tender, there was a continuous and ever-growing demand, the extent of which may be gauged from the annexed table, for documents of value of every kind, with the result that the establishment which was in 1914 confined within a fraction (24,000 sq.ft.) of the area covered by the Bank had extended by 1921 to St. Luke's Hospital covering an area of 156,500 square feet on six floors, reconstructed at a cost of many thousands of pounds, and perhaps the most up-to-date printing factory in London, while the Staff had grown from 285 in 1914 to 800 in 1919.

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	<u>July 1913 - July 1914</u>	<u>1918</u>
Bank Notes	20,050,000	11,150,000
India Notes	62,250,000	308,275,000
Postal Orders	174,405,000	132,010,000
Old Age Pension Orders	60,115,000	52,210,000
Postal Drafts	-	15,620,000
Dividend Warrants	975,000	5,025,000
Army, Navy & Air Force Drafts	-	316,335,000
	<u>317,795,000</u>	<u>840,625,000</u>

Other Security documents:-

	<u>1918</u>
Scrip Certificates	100,000
Bonds	3,500,000
Stock Certificates	17,000
Registered "	700,000
Treasury Bills	600,000
	<u>4,917,000</u>

In this year also (1918) about 2,000,000 prospectuses and 3,000,000 application forms were printed. Other documents printed were French, Roumanian, Greek, Russian and Congo Bills, British Government Treasury Bills

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drawn in dollars and florins, Exchequer Bonds drawn in florins, besides cheques, Egyptian Postal Orders, American Security Deposit Certificates, Currency Note Certificates, Metropolitan Water Board Bills in sterling and dollars and other Corporation Bills, Russian Exchequer Bonds, War Expenditure Certificates, Congo Bonds, West African Currency Notes, Rio Tinto Company Bonds and Secret Service documents.

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INCREASING DEMAND

Within a few days of the outbreak of War instructions were received from the Governor for the preparation of printing plates for a Bank of England £1 Note on the general lines of the Notes of higher denomination.* . Steps were taken at once and Messrs. Eyre & Spottiswoode, Ltd., were employed to build up plates under the supervision of a representative of the Department, who almost as soon as the work had begun discovered that other plates for a £1 Note were simultaneously being manufactured on the same premises for Messrs. Waterlow Bros. & Layton.† The Governor went to the Treasury, where it was found that the Stationery Office had called in this Firm, who had never printed anything in the nature of a Bank Note before, and, entirely ignoring all the recognised Bank Note Printers, had given an order for the Notes without even obtaining estimates. The paper used was postage stamp paper. The Notes when issued were so bad as to make it obvious that great risk of wholesale forgery would be run and that a change was imperative.

The Bank were strongly of opinion that a £1 Note, printed in a single colour only, could not be safely issued unless hand-made paper were employed:

*Unfortunately the Bank had no specimen ready, having always resisted proposals for the re-introduction of £1 Notes, partly perhaps owing to their originally having been associated with the period of the Bank's suspension of cash payments (1797/1821). Though the fact that the Bank had been saved in 1825 by the unexpected discovery of an unused box of £1 Notes pointed to the need of guarding against a danger which remained unchanged.

†Producers of the first Series of 10/- Notes also.

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but the quantity involved was so great that it was out of the question for Messrs. Portal to produce a sufficient amount. The Government did not share the Bank's view and for the second pattern of Note machine-made paper was used (later, mould-made paper was supplied for the ^s10/- Notes by Messrs. Spicer Brothers, Ltd.).

The Bank proceeded with their Note, engraving a miniature of the existing pattern; Messrs. Portal made specimen sheets of paper and the whole was submitted to the Governor and approved.

Whilst this was in progress, tenders for Notes of a new pattern were invited from the Trade (but not from the Bank) by the Stationery Office and whilst the ^s10/- Note Contract was retained by Messrs. Waterlow Bros. & Layton (who became in October 1919 Messrs. Waterlow & Sons, Ltd.) that for the £1 Notes was secured by Messrs. Thomas De La Rue & Co., Ltd. It was generally understood that this contract was not for any specified period but was for the supply of "letter-press notes" as long as that form of Note was required. And this was not for long: for when Messrs. Waterlow Bros. & Layton had taken over a photogravure printing plant at Watford, Somerset House formed the opinion that the only unforgeable Note was one printed by the Photogravure process! This was at the end of 1915. Neither Messrs. T. De La Rue & Co., Ltd., Waterlow & Sons, Ltd., nor Bradbury, Wilkinson & Co., Ltd., were equipped with this class of machine.

When specimens of the new photogravure Notes were submitted to the Treasury, the Chancellor (Mr. McKenna)

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refused to accept them and asked the Bank to submit a design. This they did and the Chancellor wrote (22nd August 1916) saying "I like your design. Nobody can "deny that it is a great improvement on ours". But Messrs. Waterlow Bros. & Layton were pressing for a decision and the Treasury suggested discussion between Somerset House and the Bank, as the Inland Revenue Authorities were "rather at a loss how to deal with "them" (Waterlows). The Chancellor also wrote on the 11th August 1916, "The original design of the George and Dragon and King's Head has not been approved and "no contract in respect of it has been entered into".

The interview at Somerset House (11th August) was brief. The Principal of the Printing Department was shown a letter from the Treasury of the previous February approving the Note (with specified alterations of detail) and instructing the Stationery Office to tell Messrs. Waterlow Bros. & Layton to make the necessary arrangements. Somerset House were, however, curious to know what the Bank's design would be like but warned the Bank that there were reasons why it should not take the form of a "letter-press" Note. After the interview, the Governor wrote to the Chancellor pointing out that there seemed to be some misunderstanding in the matter and stating his belief that Somerset House had been satisfied "as to the "competence of the Contractors to print our design "upon their machinery should you so desire". However,

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so far as the Bank were concerned, proposals for the Treasury Note then dropped although there were certain tentative enquiries made from time to time principally in the interest of Messrs. Portal to which reference will be found in the section devoted to them.

The increased demand for Postal Orders when made legal tender in August 1914 did not take the Bank by surprise and the large requirements were readily met, but in 1915 alteration in the poundage was very troublesome, as a large stock already cut into single Orders had to be overstamped.

There was no warning of this: an announcement in the House by the Postmaster General was the first intimation. In May 1918 the stock of all denominations below $5\frac{s}{d}{6}$ had to be doubled at short notice, for which the reason suggested was that this had become necessary owing to Sinn Feiners withdrawing silver from circulation. As a whole, however, the issue of Postal Orders steadily decreased during the War.

A sudden advertising campaign in connection with War Savings Certificates (Feb. 1917) was also unexpected, with the result that the Bank had to resort to day and night work on this section. War Savings Certificates Deliveries every two hours during both day and night of 100,000 at a time were made for some time, and for long after, deliveries every two hours by day.

The output of Books of Old Age Pension Forms

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was not affected by the War until 1917. In this year

several increases in amount were granted
 Old Age Pension Forms to Pensioners and necessitated the over-printing of stock bearing the old rates.

Owing to the fact that the forms bear a date of payment never very far in advance of printing, this process had to be completed in the shortest time.

Army and Navy Separation Allowance Drafts, bound in book form, were required also very suddenly, and perhaps the best achievement was in connection with them. There was great difficulty in reconciling the

wishes of the Admiralty and War Office as
 Army & Navy Separation Allowance Drafts to the form of the drafts, and much time was wasted on details. Eventually a com-

promise was reached as regards the face of the Orders, but neither Department would give way regarding the matter to be printed on the back; and there were therefore two entirely different sets of regulations covering exactly the same ground. The books contained Orders consecutively numbered and bearing a different date upon each. By the time the compromise was reached the date upon the first Order was fast approaching and the Bank, awaiting a decision as to size, had been unable to place an order for the paper. Further reference to this difficulty will be found below, but eventually delivery of 700,000 books was made in 10 days. Delivery at this time in the case of books for the War Office meant delivery to all the various Army Pay Offices in

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London.

The Rio Tinto Bonds, required in respect of a loan issued by the Company on behalf of the British Government were taken up in Spain and had to be sent

there secretly. Several plans were

Rio Tinto suggested, but ultimately the binders
Bonds

made numerous "hold-alls" each of which

accommodating a small number of Bonds was passed into

that country as the personal luggage of King's

Messengers.

It was in connection with the printing of

Nominative War Bonds that on the occasion of the

visit of the King and Queen to the Bank,

Nominative His Majesty set in motion the machine
War Bonds

which printed the first Bond for £5. sub-

sequently presented to him by the Governor. (18th Dec. 1917)

Before the establishment of the Loans

Office, despatch of prospectuses was undertaken by

the Printing Department. One of the Clerical Staff

Loans of four had been "called up" on the 4th

August and on the occasion of a big Loan

the remaining three were fully occupied with intricate

railway and postal details. The Warehouse Staff

working day and night at such times could at first

cope with the work; later it was quite beyond them.

On the occasion of the 4½% War Loan a possible break-

down was averted by volunteers from the Clerical

Staff of the Bank who for a whole day crowded about

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the Well-Yard filling sacks and sorting them according to railway routes. On this occasion thirty railway vans were required. Of these the Bullion Yard could only accommodate eight which stood loaded for hours until the Loan should be announced in the House of Commons, and this was not until 7 p.m. The last van did not leave the Bank until after 1 a.m. Later, in connection with this Loan the printing of prospectuses &c. grew beyond the Department's powers, although they had gradually worked up their output to 2,000 documents per minute, viz., 1,000 prospectuses and 1,000 application forms, by using Letterpress and Lithography, India (colour) and Postal Order machines.

For most of the period of the War all plant was fully engaged upon Security work; consequently the printing and binding of books Sub-Contractors and forms was put out to outside firms of whom about 20 were fairly regularly employed, among them Messrs. McCorquodale & Co., Ltd.; Waterlow & Sons, Ltd.; Blades, East & Blades; W. H. Smith & Son and Hudson & Kearns, Ltd.

In January 1917 when the issue of the 5% War Loan demanded between 25 and 30 million forms, it was clear that much of the printing and packing would have to be done outside the Bank. This was the first time that such work had ever been put out, and there was some anxiety lest a leakage of information should occur; but happily this was unfounded,

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although over a thousand persons handled the prospectuses during the ten days in course of which supplies were being printed. To deal with this enormous mass the several firms employed in printing had instructions to deliver to other firms, who packed the sacks and parcels and delivered them to the Bank. There, after labels had been attached, they were handed to thirty Post Office sorters, who took several days arranging them in sequence of despatch. At this time the Railways were under Government control, and only by the special knowledge of these men was it possible to decide by what line each consignment should go. On this occasion arrangements had to be made that nothing should be delivered until after the Prime Minister had spoken at the Guildhall. The Bank did not despatch the first Army Lorry - supplied by the Post Office, as also were a gang of loaders - until between 2 a.m. and 3 a.m. that morning; but, although every sorting office in the Kingdom had received instructions a few packages were delivered at 9 a.m. This happened in Liverpool and as soon as the fact was discovered the Post Office, to remedy their mistake as far as might be, isolated that city by allowing no telegram or telephone call to pass outwards until after the Premier's speech had been delivered at mid-day. After the date of this issue much of the packing and despatching of Loan matter was done by Messrs. Smith Dalby-Welch, Ltd., a firm specializing in this class of work.

CHAPTER VIIPRINTING DEPARTMENTPREMISES

The increase of work and particularly the issue of so many Loans soon made the Bank aware of the fact that an extension of premises for the Printing Department was absolutely necessary.

At the Head Office the total space occupied by the Department was about 24,000 sq.ft. When in August 1915 the premises of the Gramophone Co., Ltd., were taken in Tabernacle Street, providing a further

33,000 sq.ft., it seemed hardly possible

Tabernacle
Street

that so large a building would ever be filled. As a matter of fact Tabernacle

Street was soon filled to overflowing by

the Dividend Book, Warrant and Envelope work and this section by August 1921 occupied very nearly half of the total space afforded by St.Luke's. To give an idea of the volume of this work it may be mentioned that some 600,000 alterations occurred each year in 5½ War Stock alone. The premises had for some months previously been in the hands of Belgian refugees and were packed from basement to roof with clothing, much of it recovered from the battlefields, - indescribably dirty and evil-spelling.

St.Luke's Hospital* was offered to the Bank

*For the history of St.Luke's Hospital 1750/1904 vide the "Journal of Mental Science" Jan.1904, "A Short History of St.Luke's Hospital." By Wm Rawes, M.D., F.R.C.S., Medical Supt.

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by the Agents, John Learning & Sons. The price paid was £135,000 of which St. Bartholomew's Hospital took one-third in virtue of the fact that it was their freehold, although leased in perpetuity at £200 per annum to the Governors of St. Luke's Hospital. All the property abutting upon St. Luke's Hospital was also purchased, the exceptions being the City of London Lying-In Hospital and Leysian Mission on the East and the Almshouses of the St. Luke's Charities Committee on the West. The total area of land thus acquired was 140,000 sq. ft. To the £135,000 paid for the property was subsequently added £295,000 for alterations to the building making the total cost of the property £430,000. The purchase was completed in December 1916 when the Hospital consisted of 3 floors and a basement yielding 72,500 sq. ft. When reconstructed with 5 floors and a basement, machinery halls and boiler room, it yielded 156,500 sq. ft. and a period of 4 years and 4 months had elapsed. For these developments permission had to be sought from the Government, both for the purchase of materials and for the employment of men. As regards men, a licence to employ 50 was obtained fairly readily but when it came to the purchase of steel for stanchions, girders and joists the Ministry of Munitions refused permission. The architect, Mr. F.W. Troup, in his first set of plans scheduled 400 tons; in a modified scheme 250: and

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after further alterations in the scheme, he succeeded in obtaining 80 tons of "shell-discard" steel, for a construction carried out entirely in ferro-concrete. The grant of 50 men was gradually enlarged to 500 - none too many considering that, according to the calculations of Messrs. Holloway Bros., Ltd., the builders, their efficiency was only 60% of the pre-War standard.

In May 1917, before alterations were much advanced, the Indian Government decided to issue 1-Rupee Notes and part of the Hospital had to be used as it was.

Machines were erected on wooden floors, Removal shored up from below; bedrooms were converted into strong-rooms by bolting sheet iron to the doors. The delivery of 6/8,000,000 1-Rupee Notes weekly in 30/40 large packing cases was always a difficulty as the vans could not approach the same point of the building for many days consecutively. Throughout the conversion of the building, material was always difficult to obtain and delays occurred time after time. The cart-horses necessary for carting away many thousands of loads of soil excavated at the rear of the building were also hard at times to obtain.

The process of removal necessitated by the growth of the work had to be carried on during the War under the greatest pressure and without pause, and it frequently happened that the section which must be

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moved from the Bank could not occupy its permanent position in the new quarters. This was very wasteful and troublesome. Heavy machinery and motors are expensive things to move, and in temporary quarters electric power mains have to be laid almost as carefully as in permanent. There were few sections and few machines but had two moves; and one section, with every standing form in use for the whole Bank's stationery was moved five times. The move began in August 1919 and ended a year later.

Severe restrictions upon the distribution of coal and light, power and heat for which throughout the Bank and Printing Department were responsible further added to their difficulties. At St. Luke's the Department found themselves still in the district served by the County of London Electric Light Company which supplied Tabernacle Street, where they had been hampered by a new voltage or rather choice of voltages. As all the motors for driving the machines were "wound" to the practically universal '200' voltage, a choice of '100' or '530' was useless and the new Company appeared to be indifferent to the Department's needs. Eventually a converter was hired from a generating station at Peckham for the big machines; for the smaller machines motors were hired. For St. Luke's a second converter did not exist and as the attitude of the Company continued unchanged an

Power, Light
& Heat

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appeal was lodged with the Board of Trade. The Board took the question up, and finding the Bank's complaint justified, made an order under which the Shoreditch Corporation were empowered to run mains from their Generating Station into the rival Company's area. This accordingly was done and the Department thenceforward drew their supplies from Shoreditch.

CHAPTER VIIPRINTING DEPARTMENTLABOUR, MACHINERY & MATERIAL.

The supply of labour and material was also conditioned by the Government organisation for economising National resources. When it became necessary to engage a large staff in Labour connection with the printing of 1-Rupee Notes for India, with Dividend Book and Warrant work, special permission was necessary from the Ministry of National Service which had prohibited the employment of any man between 18 and 61 years of age. Between the time of the passing of the Military Service Acts and the Armistice, Registration Cards, Military Exemption Forms, &c., of all the male staff had to be examined from time to time and monthly returns made to the Military Authorities giving addresses, ages, medical classification, &c. And there was considerable correspondence with Local Tribunals. In addition, monthly returns were required by the Board of Trade shewing the composition of the staff, amount of overtime worked, &c. The number of persons employed increased from 285 to about 800 at the end of August 1921.

Before the War it might have been thought that a printing business could be carried on very comfortably - after adjustment upon parting with the staff called to the Colours - without unduly encroaching upon the needs of War; but this was far from the case, for practically everything wanted came within

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the jurisdiction of the Ministry of Munitions or its dependencies and no purchase was possible Priorities without a "Priority Certificate". Nor was a Certificate granted without proof of urgent need. Priority Certificates were of different values, but with much difficulty and after a first offer of Class C., Class A. was obtained; and although Class A. took priority above even such things as naval guns, it was sometimes necessary to overcome further obstruction by the naval or military officers supervising the works of the four firms employed with ideas of priority not always conforming to those of the Bank.

Amongst the organisations with which the Department had to deal were -

- | | | |
|------------------------------|---|--|
| Ministry of Munitions | - | Priority Branch
Repairs Permit Dept.
Explosives Dept.
Labour Supply Dept.
Overseas Transport Branch
Release of Machine Tools
Dept.
Release of Metal Dept. |
| Board of Trade | - | Import Restrictions
Coal Distribution Dept.
Lighting, Heating & Power |
| War Office | - | Salvage Dept. |
| Royal Commission on Paper | | |
| Ministry of National Service | | |
| Timber Control. | | |

It was necessary to obtain a certificate for the purchase of metal in whatsoever form, for the

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purchase for instance of a few bolts and nuts in order to repair a cancelling machine in the Currency Note Office, for screws even, electric lamps, switches and wire, a piece of vulcanite or a few yards of india-rubber. Copper was only procurable by surrender of an equal weight of old metal. The Bank were eventually granted permission to issue their own certificates for the purchase of certain materials required for repairs and maintenance, but subject of course to the greatest care in the exercise of this privilege. To illustrate the control which the Ministry of Munitions kept upon non-ferrous metals especially, confirmation was required of a certificate signed by an engineer sent to purchase a small brass rod.

That the privilege of issuing certificates for certain materials was a great advantage is certain but the difficulty of obtaining special concessions continued. A long correspondence was occasioned by a demand for no more than 1 quart of Glycerine every 3 months, a few pints of Rectified Spirit or some Acetic Acid: materials for which permits had to be obtained direct from the Explosives Department of the Ministry. Naturally enough, India Notes, at first shipped in cases lined with zinc, had perforce to be packed in boxes with sheet iron lining and inferior tin plates. The Bank of course were careful to make no unreasonable demands and were consequently always successful in obtaining eventually what they considered essential.

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When machinery was required only second-hand models could be obtained, and varied was the assortment that resulted. No permit for the building of machinery could be obtained from the Ministry of Munitions during the early days of its existence; but towards the close Priority Certificates were issued for the construction of some thirty machines with the necessary motors, all Machinery required in connection with Dividend Book, Warrant and Envelope work. An instance of the shifts to which the Department was put in order to secure delivery may be mentioned. A large motor was being constructed at Taunton by a firm from whom private advice was received that unless the Bank sent someone to stand over it during the final stages the Naval Authorities would certainly commandeer it. A man was sent down with instructions not to leave the Works without it, and the Great Western Railway helped considerably by furnishing the Department with an order to the Stationmaster at Taunton to stop, if necessary, the first express train due after arrival of the Bank's representative with the motor, which was then to be accepted as passenger's baggage, although only 100 lbs. of such luggage was allowed at the time; a programme in fact carried out.

The difficulty of importing machinery of any description into the country was only equalled by the difficulty of obtaining its release from the Customs

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Officials at the port of arrival; and before release the Import Restrictions Department of the Board of Trade, as well as the Overseas Transport Branch of the Ministry of Munitions, had to be convinced that the importation was absolutely necessary.

The purchase of paper was similarly restricted. That the Bank never wanted for paper great credit is due to Messrs. Portal. But accessory to this result was the cutting down in size of many forms in use, the buying of large stocks of paper well in advance of the shortage, and the seizing of every opportunity to secure anything that offered. On one occasion machines were on the point of stopping for lack of paper at 3 a.m. but even at that hour someone succeeded in unloading it from trucks in a railway siding at Somers Town so as to be forthcoming in time. On another night paper at a warehouse in Lower Thames Street had to be commandeered in the name of the Government. Army and Navy Separation Allowance Forms alone used $2\frac{1}{2}$ tons of paper daily.

It was not customary until May 1919 to place with Messrs. Portal orders for Trade paper but fortunately the Bank had in Messrs. John Dickinson & Co., Ltd., a firm capable of meeting the situation and on the occasion of the first orders for Separation Allowance Forms, ready with 14 hours' notice to make a first delivery of paper by 8 a.m. on any day. This undertaking was made good by the arrest, upon receipt of notice, of all other work at their Croxley Mill, where machines were immediately stripped for the Bank's work, and produced in the promised time supplies

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sufficient to start the printing machinery which had been in preparation during the night. This Firm also saved the situation in October 1916 when a sudden demand for 1,000,000 printed envelopes was made by the Chief Accountant. On that occasion the Department learned late on a Friday afternoon that a large staff was to be employed on Saturday addressing envelopes. Being unable to communicate by telephone, the Overseer went to Hemel Hempstead at once but found Messrs. Diokinson's Mill closed. But the Manager was at home and together they went round to the workmen's houses and collected a shift at the Mill. By this means 100,000 envelopes, completed during the night, were delivered on Saturday morning, and the whole million by the following Tuesday.

Among minor difficulties connected with paper was that of carrying out the order that all waste paper was to be removed from the premises every evening. It happened several times that the contractor failed, and at a late hour something had to be done with the thirty or forty sacks. On such occasions recourse was had to any conveyance that could be induced to take it, to Army Lorries and on occasion to a Red Cross Van or Motor Bus. Thus the danger of fire from air raids was shifted to any yard or mews where the vehicle could be left for the night.

A word may be added regarding the arrangements

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made at St. Luke's for the welfare of the Staff. One floor to the extent of half the length of Welfare the building was set aside for a kitchen, dining rooms and a recreation room. The kitchen and dining rooms were equipped by the Bank and were run by the employees as a Club, which was self-supporting. The recreation room (in which concerts, theatrical performances and art exhibitions were held) contains an organ; also a movable stage constructed by Holloways out of materials from the old building. Another room was used as a Museum for articles connected with the Bank and for War relics, while further rooms were appropriated to a Library and to the use of an orchestra. A part of the loading dock was used as a miniature rifle range.

A magazine entitled "The Britannia Quarterly" was first issued in June 1919 and later reached a circulation of about 1,000 copies.

In May 1921, the Bank purchased a sports ground for the Athletic Club of the Department at Preston Road, between Wembley and Harrow, at a cost of about £4,500, which included nearly seven acres of freehold land, the laying out of a cricket pitch, two tennis courts and a bowling ground, and the erection of a Club House.

In conclusion, it is only fitting to pay tribute to the efficiency of the Ministry of Munitions;

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to the consideration of the Home Office, extending even to waiver of the provision of the Factory Acts concerning Women; and, in spite of general industrial unrest, to the readiness of the staff, though Trade Unionists almost to a man, to perform at any time any work whatsoever required of them. To illustrate these demands, most of the re-erection of fittings and furniture at Tabernacle Street and subsequently at St. Luke's was done by men skilled in other trades, including Foremen. And when night watchmen for St. Luke's could not be found elsewhere the duty, involving a continuous stretch of 33 hours, was shared by all. For women, turns were limited to 24 hours but even girls of 14 to 16 years had unfortunately at times to be included.

A Memorial Window erected at St. Luke's and beds endowed at the Caxton Convalescent Home at Limpsfield and at the Lloyd Memorial Home at Deal do honour to those killed in the War.

CHAPTER VII

ST. LUKE'S REFINERY

The Bank's difficulties in endeavouring to maintain the gold supplies of this country were aggravated by the fact that there were only three* firms of refiners in London, namely -

N.M.Rothschild & Sons

Johnson Matthey & Co.Ltd.

R.Raphael & Sons

who were regarded as a close syndicate, and who, in February 1915, increased their charges for refining from 3d. to 4d. per ounce†. This rise in price gave dissatisfaction to the South African Producers and was one of the chief factors which caused the Bank to consider the desirability of having their own refinery where, if necessary, the gold could be dealt with at cost price‡. Another reason was that it was proposed to set up a refinery in South Africa, a project the Bank at this time did not wish to see realised.

The question of a Bank of England refinery remained in abeyance for a long time, partly because the Bank did not wish to withhold men from military service. The refiners made application, in the spring of 1917, for the exemption of

*There was also the firm of Johnson & Sons, but they were doing very little business. Later the firm of R.Raphael & Sons ceased to exist.

†Reduced again to 3d. in October 1919.

‡Vide letters from Lord Cunliffe 11th August 1916 and March 1917 C.C.P.71A, folios 56, 196/202.

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certain of their employees from military service, a claim which the Bank of England did not support. Lord Cunliffe considered the calling up of men of military age need not delay the refining of the Government's gold if this were given precedence over all other work of the syndicate. The Bank were equally unsympathetic with an application made by Johnson Matthey & Co. in February 1917 to obtain priority certificates in respect of certain implements and utensils. (Vide C.C.O.493/87 fo.116/18.)

It was not, however, until the 6th February, 1919, that instructions were given to Mr.F.W.Troup, the Architect employed in connection with the rebuilding of St.Luke's, to prepare a plan for a refinery to be erected on the north side of the Bank's property in Old Street, with the entrance from Baldwin Street. At the same time Mr.Troup was requested to make full enquiries regarding the Factory Act and to see whether any objection could be raised to the use of chlorine gas; but,as the result of a consultation at the Home Office, it was learned that there were no difficulties in the way. Another point for enquiry was settled when it was ascertained that the Bank would not be acting contrary to their Charter, nor be likely to receive opposition from the Stockholders or from the Public.

The Bank were fortunate in securing the help of Sir Thomas Rose as adviser in connection with the construction of the building, which was to be suitable for melting and

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refining considerable quantities of gold. But it was obvious that in an undertaking of this character - an activity hitherto unknown to the Bank - it would be necessary to engage an expert, who would in the first place carry out the general superintendence and equipment, and subsequently act as Official in Charge until the future of the Refinery could be seen more clearly. After a consultation with the Deputy Master of the Mint and the Treasury, arrangements were made whereby Mr. Ralph G. J. Pearson, of the Royal Mint at Ottawa, was engaged to fill the position. Mr. Pearson had had considerable experience, as he was responsible for practically everything connected with the erection of the Canadian Government's new Ottawa Refinery, where, at the time of his engagement, he was in charge. Permission was granted him to leave temporarily to undertake the Bank's work, which he commenced on his arrival in this country in June 1919. For the following twelve months Mr. Pearson was wholly engaged upon superintending and equipping the new building. It had been decided that the work must be pushed forward with all possible speed, but the actual time occupied was some months in excess of that contemplated when operations were begun, as frequent delays occurred in obtaining supplies of building materials and progress was often handicapped owing to the shortage of labour.

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The construction of the building, which was carried out by Mr. F. G. Minter, a Contractor of Putney, was completed in the early days of September 1920, by which time most of the interior fittings were in a working condition, but the 1st September was fixed as the date for regarding the Refinery as in working order*.

The first occasion upon which gold was melted was the 15th November.

During the next few months great activity prevailed, as from the middle of November until early in the following February a large quantity of foreign bar gold and some foreign gold coin were converted into bars of the Bank's standard size. Altogether 2,040,338 ounces were dealt with, showing a weekly average of 162,723 ounces and a maximum output in one week of 214,096 ounces. In view of the small number of men employed, the performance was regarded as very satisfactory.

The Refinery was capable of dealing with 1,000,000 ounces of rough gold per month. Bars of rough gold (which, as received from the mines, contain approximately 90% of gold, 6% of silver and 4% of base metals) could be dealt with in the

*It appears from the Minutes of the Committee of Treasury of 14th July 1920 that the refiners were then considering the possibility of again raising their charges. "Johnson Matthey & Co. having suggested to the S. African producers an increased charge for refining, he (the Governor) had pointed out to the London refiners the probable effect, as the Bank's Refinery was beginning to melt and the S. African Refinery was expected to do so shortly".

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ST. LUKE'S REFINERY

20 refining furnaces on the basis of producing upwards of 40,000 ounces of fine gold in eight hours. The chlorine process was employed. Equipment also existed for refining the silver produced in this process. In addition there was a complete electrolytic installation for refining both gold and silver, which was used principally for such bullion as might contain metals of the platinum group. A unique feature of the Refinery was its system of ventilation, by which fresh air was forced into the melting room, subsequently passing through the washing apparatus and carrying away any noxious gases or fumes, so that the atmosphere was always fresh and clean.

A very small amount of work was carried on after the beginning in 1921*.

For the purpose of comparison with other refineries, the following information was furnished by Mr. Pearson, who considered that the St. Luke's Refinery was in every way thoroughly up-to-date.

*South Africa decided to open a Mint and Refinery of its own. The latter commenced operations at the beginning of 1922, and the Bank abandoned all idea of continuing St. Luke's Refinery. It was gradually dismantled, and was temporarily used by the In-Tellers' Office. The Mint and Refinery in S. Africa were conducted by Mr. Pearson, whose engagement with the Bank terminated on 1st December 1921 and who was subsequently appointed Deputy Master of the Mint, Pretoria.

CHAPTER VIIST. LUKE'S REFINERY

He stated that the new Refinery at Ottawa, built during the war, was equipped on very similar lines to that of St. Luke's but, although the same processes were installed, the apparatus was not so elaborate. The Refinery at the Melbourne Mint had no electrolytic installation. It was equipped for the chlorine process, but one slightly less effective owing to limitations in the arrangements for purifying the fumes.

Much of the business of most refineries appears to consist of making special alloys for jewellers and dentists, refining copper, &c., and the refining, &c., of platinum and its allied metals; all this requires special adaptations of plant.

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("Messrs Portal" until 26th February 1920, on which date the firm was incorporated as "Portals Ltd.")

Introduction

India Currency Paper
and New Designs

Manufacture for the Trade

War Claims

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INTRODUCTION

At the outbreak of War the Firm, then styled Messrs Portal, consisted of Sir William Wyndham Portal, Bart., who had been in the business since 1877 and his brothers, Mr. Spencer John Portal and Colonel Bertram Percy Portal. Sir William Portal's son, Lieut. Colonel Wyndham Raymond Portal, became Managing Director of the Limited Company formed 26th February 1920 with a Capital of £500,000 divided into 50,000 Shares of £10 each, held as follows:-

Sir W.W. Portal, Bt.,	3,573 Shares
Spencer J. Portal	7,143 "
Wyndham R. Portal	39,284 "
	50,000 Shares

The Mills had been at the exclusive service of the Bank of England since 1815 with the exception that the Bank of Scotland in 1882 and the Bank of Ireland in 1885 received permission for Bank Notes to be made at Laverstoke.

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In 1914 the papers made for the Bank were

Bank Note Paper	}	at Laverstoke Mill
Other Bank of England Papers		
India Rupee Note Paper		
Postal Orders	}	at Bramshott Mill
Old Age Pension Orders		

and the capacity of the Mills was equal to the demand.

The greater part of the paper manufactured was hand-made Security Paper. The only machine-made paper required was for Old Age Pension Orders and Postal Orders, but the output did not amount to more than 22% (measured in reams) of the total output, exclusive of paper for the Bank of Ireland and the Bank of Scotland, of which the Bank have no record.

For some months apparently only the demand for Bank Note Paper, easily met, was affected by the outbreak of War; but from June 1915, when a demand arose for delivery, on one occasion during Saturday and Sunday, of the stock of Postal Order Paper of certain denominations and for the whole of the General Security Paper, the demands were frequent and increasing as may be seen from diagrams in the pocket of the binding.

It soon became evident that Portals' capacity would be unequal to these demands.

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As a result of Government Issues the requirements of the Bank for General Security Paper increased considerably and steps taken by the Government of India to popularise their Notes had a similar result. A letter from the Governor to Sir Lionel Abrahams* in September 1916 was instrumental in causing as a temporary expedient the resumption of the practice of reissuing India Currency Notes and a little later the Bank themselves resorted to reissue: these measures afforded some relief to Portals. But when the financial crisis in India and the failure of the Indian Government to obtain sufficient supplies of silver compelled them to introduce a small paper unit (Rs. 1 & 2½), the use of machine-made paper of some kind, which had been discussed at the time of India's previous shortage, became absolutely necessary.

To increase the supply, Portals, whilst equipping themselves with the most up-to-date machinery, purchased a mill, known as Turkey Mill, at Keighley, for the manufacture of machine-made papers, the use of which in India was gradually extended as is subsequently described. By November 1920 their capacity for manufacturing machine-made paper

*Financial Secretary to the India Office.

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had not only been developed to an output of 540 million Notes per year, but they were also equipped with machinery more than sufficient to manufacture mould-made paper for all denominations of India Currency Notes in comparatively vast quantities as well as British Currency Notes, if called upon.

In 1921 hand-made paper was still manufactured at Laverstoke for Bank of England Notes, the higher denominations of India Currency Notes and some Bank of England papers; but the principal output was, or would be as soon as the new design for India Notes was settled, paper of the two kinds made by machinery, viz., "machine-made" and "mould-made". Of the output of hand-made paper which had increased from 71 millions to 108 millions of pieces, 50 millions at least for India Notes of Rs.10 and upwards were already destined for the mould machine; and of the machine-made paper which had increased from 294 millions to 540 millions, 50 millions of Rs.5 if not also 160 millions of Rs.1 were liable to a similar transformation.

This development was accompanied by an increase in the annual payment to Portals from £96,000 in 1913 to £346,000 in 1921, of which over £100,000 represented payment of War claims for adjustment of the contract prices to meet the rise in wages and in the cost of materials.

In thus equipping themselves Portals became over-developed and with falling demands for Postal Order and

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India Papers it became necessary for them to apply to the Bank for permission to use the Mills for Trade orders. To a certain extent and with certain safeguards this was conceded, and immediately drew from other Manufacturers a protest against alleged unfair competition. This question of manufacture for the Trade was thenceforward predominant in Portals' relationship to the Bank.

Concurrently the Bank were in passive competition for the issue of British Currency Notes but not only had they failed to secure these at the close of August 1921 but they were becoming increasingly aware of competition that would not in future leave them without serious rivals for such contracts as they already held, including the contract for the manufacture of India Papers which had been theirs for 55 years.*

*On the 20th October 1921 a Committee was appointed to consider and advise upon questions connected with the Bank of England Printing Department, and the relations with Portals were in due course to fall within the scope of this enquiry. Whether the result would be reversion to a policy dating back to 1815, of which the guiding principle was a reciprocal monopoly, or whether this would be finally abandoned remained to be decided.

A compromise was eventually arrived at, vide Agreement of December 1922 and Memorandum of 17th April 1923.

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INDIA CURRENCY PAPER & NEW DESIGNS.

In June 1914, after protracted and difficult negotiations, the Bank had agreed to a scale of reduced prices for India Currency Rupee Notes which were to be inclusive of paper and printing. The contract was to operate until 30th June 1929 and to be terminable thereafter by 12 months' notice from either side. As the India Office were no longer concerned with the price of paper it was intimated to Portals that the Governor wished all correspondence to be conducted through the Bank.

The paper at that time was hand-made. Major Willis, however, the emissary of the Government of India investigating the question of designs, had recently expressed a preference for mould-made paper, so that the decision to use this type of paper cannot be attributed directly to the War.

It was anticipated by the Government of India that the new designs prepared by Major Willis, an important feature of which was the portrayal of the Star of India in the watermark, would be introduced after the completion of the 1914/1915 Indent, but the outbreak of War caused them to be postponed, first until the end of 1915 and subsequently until after the termination of the War. The question was re-opened at the end of 1918 when a discussion took place between the Government of India and local authorities in the

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light of experience gained during the War. The use of mould-made paper was approved in February 1919 and the "Howard" Specification, so called after the Hon. H. F. Howard, Secretary to the Government of India, giving the full details, was sent to London in the following April. Notwithstanding the rapidity of these early decisions the printing of the first of the new Notes had not commenced by the end of August 1921.

Increasing demand for Currency.

During the early months of the War the Bank received little warning of the heavy demands for Notes that would shortly be made, for in 1915. January 1915, when advised of the decision to postpone the introduction of the new design, they were informed that owing to the unsettled state of affairs the annual Indent, usually received about June, would be deferred until December when it was hoped to be possible to speak with more certainty.

The Indent in hand, which had been received prior to the outbreak of War, had provided Portals with sufficient work to occupy half their Mills for some months and the Bank, struggling with arrears after the recent heavy demand for Bank Notes and anxious not to have large stocks of paper in case of a sudden decision to introduce the new design, instructed the papermakers not to produce more than sufficient for

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the capacity of the printing machines.

As late as September 1915 the provisional Indent, cabled from India in response to an enquiry by the Bank regarding the probable future requirements of the Government of India, was for 41 million Notes only, a reduction of 20 millions upon the last pre-War Indent. Four months later however, finding that the effect of the discontinuance of reissue had been misjudged and that recent measures for enhancing the popularity of the Notes had increased the circulation, the Government of India definitely ordered 78 million Notes, whilst a supplementary order for 16 million Notes, received in August 1916, brought the percentage increase of the first War Indent (42) over the last pre-War Indent (41) up to 50%. These increased demands reacted on Portals who could not supply paper as fast as the Bank could print Notes. But mould-made paper machines were already on order.

Demand in-
creases with
cessation of
Reissue.
1916.

Notwithstanding these heavy demands the Government of India expressed a wish that their stock in hand should be maintained at the equivalent of 12 months' consumption of every denomination. The India Office were informed that this was impossible, as with merely moderate demands for Bank Note Paper and British Government Paper the maximum output of Rupee Notes at the Mills was 68 millions per annum. At a conference called

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between the Bank, the India Office and Portals in June 1916, the introduction of mould-made paper with a view to meeting the wishes of the Government of India was fully discussed, and subject to certain improvements the paper was approved by the Secretary of State. But the arrival of the supplementary Indent above-mentioned, following a demand for Notes to replace some lost at sea, made drastic action necessary. The Governor wrote to the Financial Secretary of the India Office, asking

Use of machine-made paper. not only that favourable consideration should be given to the introduction of machine-made paper, a suggestion submitted by Portals because machinery for mould-made paper ordered months before was not forthcoming, but that the Government of India should again reissue their Notes: a practice that had only recently ceased. The Governor mentioned that the large amount of overtime that would be necessary to meet the demand for Rupee Notes would consume nearly all the small profit left to the Bank under the new contract, and Portals were in a similar position. The Government of India thereupon agreed to reissue Notes and to use machine-made paper simultaneously with hand-made paper, and Indent 42 was accordingly reduced to 67 millions.

A suggestion subsequently made by the Bank that owing to the reduced demand machine-made paper was no longer necessary brought a protest from the India

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Office but nothing further until July 1917 when the Bank were advised that machine-made paper, to be introduced as soon as existing stocks had been exhausted, had been approved by the Government of India. It was not, however, until April 1918 that Portals were in a position to deliver Five Rupee paper machine-made.

The introduction of Rupees 1 and 2½ Notes was the cause of this delay. The use of these Notes as a means of counter-acting the shortage of silver in India was first discussed in December 1916, and the India Office, instructed by the Indian Government to consider the advisability of employing other firms out of consideration for cost and urgency, consulted the Bank as to firms who could be relied upon, though unofficially expressing a desire, when sending the first order, to entrust the work to the Bank, who in fact secured the contract.

The design for the new Notes, which was sent from India in 1916, followed those taken to India by Captain Willis in 1914. The Note was to be printed by surface printing with offset lithography on machine-made paper with a Star of India and Imperial Cypher G.R.I. in watermark. One of the devices introduced to increase the popularity of the Note with a section of the population hitherto unacquainted with paper money was the printed representation, on both sides, of the Rupee.

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55 million Notes of each denomination were required by the end of November 1916 but, owing to joint recommendations by the Bank and Portals for the use of the wave line watermark, and of a superimposed panel of colour, it was not until August 1917 that the final details of both design and printing were settled. It is interesting to note, in view of the subsequent attitude of the India Office, that the Government of India, though agreeable to the suggestion of colour printing, did not actually attach much importance to it, as they understood that the colour of similar Notes printed by Messrs. T. De La Rue & Co., Ltd., for the Ceylon Government had not withstood the climatic conditions. The Bank thought that too much reliance should not be placed on the protection afforded by the watermark in machine-made paper.

Owing to this delay, the Bank were left with only 10 weeks in which to deliver 110 million Notes, and although the use of machine-made paper enabled 40 Notes to be printed on one sheet the manufacture of that sheet presented considerable difficulties to the papermakers. The Bank were now equipped; everything depended on Portals. In June 1917 Portals had applied for exemption from the Factory Act and again in September for a further extension of hours, but the difficulties of obtaining "exceptional and unprecedented accuracy of register" so retarded progress as to make it necessary for them to take advantage of permission to employ outside help.

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This question of permission was one of the points raised by the Bank on their own account when undertaking the work: the final numbering and packing of course to take place at the Bank.

Outside assistance for Portals was not, however, easily obtained. Out of 14 firms only 4 were agreeable to assist; two of these are mentioned as being the St. Neots Paper Mill Co., Ltd., and Messrs. John Dickinson & Co., Ltd. To add to Portals' difficulties a strike of the Scottish Moulders delayed the extension of Laverstoke Mill where a second machine was to be installed, and the Dandy Roll Manufacturers pleaded technical difficulties in the work given to them.

Nevertheless by the end of November Portals had delivered 14 million Rs.1 Notes besides Ra.2½ Notes and other firms 42 million Rs.1. The Bank had for their part delivered the whole 55 million Rs.1 Notes required by that date but an extension of time was granted for the delivery of the 2½ Rupee Notes. It was at this time that mention was first made of the purchase by Portals of

Purchase of Turkey Mill at Keighley, afterwards admitted to be somewhat speculative but Turkey Mill. without doubt encouraged by the Bank.

To meet immediate demands for machine-made Rupee Note Paper, Laverstoke Mill had been extended, but before the manufacture of machine-made paper for the higher denominations could have been undertaken, very extensive alterations would have been necessary also to the Mill at

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Bramshott where new machinery, difficult to obtain at this time, would have had to be installed. The requisite machinery was in place at Turkey Mill and with little adjustment was expected to enable Portals to manufacture all the machine-made paper required by the Government of India. At any rate "for the more efficient discharge of India Currency requirements" this Mill was bought, with a Fourdrinier machine costing £30,000.

1918. To return to the question of demand, the Bank were asked in January 1918 to supply another 50 million Rs. 1 Notes and in February a further 8 million on account of the East African Government. The extent of future demands could not at this time be foreseen and it was impossible to say whether the new Note had come to stay. So far, the Government of India could only say that their requirements were 4 million Notes per month. The new Indent of 50 million would however have taken Portals twelve months to execute and the Bank thought it advisable, when a further Indent for 50 million was received (April), to recommend the manufacture of Rs. 1 by outside firms whilst concentrating Portals' energies on the manufacture of machine-made paper about to be introduced for Rs. 5 Notes.

1919. From the beginning of 1918 until June 1919 at least, when Turkey Mill began to work, the manufacture of Rs. 1 Note Paper was entrusted to outside firms of whom are mentioned Messrs. W. Joynson & Sons, then

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manufacturers of machine-made paper for Treasury Notes, Messrs.W.Howard & Son, Ltd., and Messrs.John Dickinson & Co., Ltd.* In May the Bank again obtained permission to employ outside assistance for printing. With the help of these papermakers, especially Messrs.Joynson & Sons - who, although not anxious to undertake intermittent orders from Portals, delivered 18 million over one period of three weeks in response to a special appeal from the Bank - the output of printed Notes gradually increased to 7,500,000 Notes per week. The Bank's stock had also increased and, Portals now producing, the Government of India did not again complain of shortage although two Indents each for 250 million Notes were received by the Bank in December 1918 and June 1919.

That the India Office were not unappreciative of these efforts there are letters of thanks, official and unofficial received on more than one occasion, to testify.

Before explaining the unsatisfactory state into which production had drifted by the end of 1920,

it is of interest to mention that at an early stage the India Office had suggested that if some device could be adopted for binding the Notes into small

Booklets
1919.

*The paper that was supplied by John Dickinson & Co., Ltd., and also by another firm, Spicer Bros., had to be rejected as defective.

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books it would add to their popularity. The Bank explained that the margin of paper was such that 25% of the total output could be treated in this way, but that the temporary loss of output which the innovation would entail suggested postponement until a more opportune moment. The regular manufacture of booklets eventually commenced in January 1919.

Falling Demand

1920. The position towards the end of 1920 now demands attention. After the printers and paper-makers had developed sufficient output to keep India supplied with small Notes, little consideration appears to have been given to probable future requirements. The withdrawal of War garrisons and the increase in supplies of silver in India reacted on the circulation of Rs.1 Notes so that in September 1920 the Government of India found it necessary to reduce to 180 million the Indent for 250 million which they had made as recently as June. An examination of the position at this time suggested that Portals, basing their calculations on the period when the demand was heaviest, had overdeveloped their capacity. The Bank, whose output had never exceeded 1,600 reams per month, while Portals' maximum was 2,100 reams, had accumulated a stock of 4,100 reams, or 80 million Notes.

The result of the reduction was that, pending the arrival of a new Indent, production which was

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1921. reduced in January 1921 ceased altogether in April. A letter from Portals dated the 5th November 1920 complaining of the fluctuations in the demand led to a full enquiry which, though failing to confirm in all respects the allegations of Portals justified the Bank in relieving them of their stock of 3,100 reams of paper at a cost at current rates of £17,566:13: 4. Thus the loss to Portals was confined to temporary reduction of output and concurrent unproductiveness of capital.

The position was somewhat alleviated by the arrival in July 1921 of an Indent for 160 million Notes which were to be delivered by March 1922. The circulation of the small Notes had increased steadily throughout the year and to meet the demand for booklets, which were growing more popular, the Government of India requested that a larger proportion of the total output should be in this form. Finally, after the rejection of various devices suggested by the Bank with a view to utilising their surplus stock of paper, it was decided to introduce a larger sheet which would enable the whole output of Rs.1 Notes to be bound into booklets if desired. The Government of India however agreed to take in due course the surplus of 30 million Notes.

(There is no evidence whether or no the Rs.1 Note is likely to be displaced by silver currency, in which event the issue would presumably take the form

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of booklets only, but were such to occur the India Office could, if necessary, be called upon to fulfil their agreement of August 1917 to give reasonable compensation in the event of work being abandoned or taken away from the Bank before initial expenses had been recovered in the ordinary way.)

During the period June 1917 - July 1921 the orders from the India Office for the Rs.1 denomination amounted to 1,071 million Notes. The Rs.2½ Note was abolished in January 1920.

Continued demand for High Denominations.

It is now convenient to return to the account of the manufacture of Notes of higher denominations, in connection with which it was 1917. explained that in 1917, owing to increases in the circulation, the Government of India had decided upon the reissue of all denominations and the use of machine-made paper for the Rs.5 Note instead of hand-made paper in sheets of 8 Notes.

The Indent (No. 43) received in February 1917 was for only half the quantity ordered in the previous year but was followed in three months by a request for an increase in output and in the following year by an Indent for double the quantity. Coupled with anxiety

1918. caused by the shortage of Notes in
Hesitation to adopt machine- India this led to a conference with
made paper. the India Office and Portals held in

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May 1918. The apparent solution of the problem, namely, the introduction of machine-made paper for Rs. 10 also, as had been approved by the Government of India and was within Portals' capacity, was not feasible owing to the inability of the Bank to print Rs. 5 as well as Rs. 10 on large sheets without the purchase of further machinery, and this would probably have been second-hand, whilst otherwise open to objection on account of the introduction of new designs involving different machinery at an early date.

Adoption
for Rs. 5

As the result of the conference, lithographic printing upon machine-made paper was eventually introduced for Rs. 5 Notes.

If surface-printing had been retained a sheet of 8 Notes would have been the largest which the Bank could print, whereas with lithography a sheet of 24 could be used. To guard against loss of time in the event of the Government of India refusing to approve lithography, Portals made preparations for the manufacture of machine-made Rs. 5 paper "8 on" but the process was stopped by the arrival on the 18th August of the desired authority. As the stocks of hand-made paper were low, the new paper was speedily introduced, the last delivery of hand-made paper being made on the 15th November 1918, from which date the arrears of Indents were gradually overtaken.

Excess productive power at the Paper Mills
1920. brought about in 1920, in this denomination

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of Notes, a similar state of affairs to that which existed in the case of Rs. 1 Notes. The Bank had accumulated a stock far in excess of their requirements, but to assist Portals payment in advance was made to the extent of the Bank's probable output for the ensuing year.

Incidentally, the introduction of machine-made paper for Rupees 5 invalidated the contract prices so far as this Note was concerned and reductions ranging between $1\frac{1}{9}$ and $1\frac{1}{2}$ per 1,000 were made.

New Designs: Procrastination and the situation arising therefrom.

The signing of the Armistice brought a supplementary order for 115 million Notes with which it was intended to cease reissue.

The Bank were able to supply the desired number of Rs. 5 (38 million) but Portals' inability to supply sufficient Rs. 10 Paper (77 million) by the hand-made process re-opened the question of a new design which, if introduced with despatch, would enable the Bank by using a large sheet of paper to supply Notes in the required numbers. Owing, however, to delay on the part of the India Office, Pressure for Rs. 10 it was only by resorting to overtime periodically and against their wishes that

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the Bank were able to secure the Government of India from running out of Notes of Rs. 10 and upwards altogether. The India Office suggested that Messrs. Saunders, and Arnold & Foster & Co., Ltd., manufacturers of mould-made British Currency Note Paper, should be instructed to make the mould-made paper pending installation by Portals of the necessary machinery. The Bank doubted the ability of the firms named to produce at the same time both British and India Currency Notes; they also again opposed, for the reasons already stated, the introduction of machine-made paper and lithography for Rs. 10 Notes.

1919. Mould-made paper was decided upon for all denominations in February 1919.* In March the Bank were furnished with an advance copy of a telegram from India confirming the decision to use mould-made paper with offset lithography and to leave the design to home experts within limits imposed by a specification that was to be mailed shortly. Coloured paper had been abandoned in favour of a colour overprint.

Upon receipt of the specification the Bank and Portals would have been in a position to prepare specimen Notes. By May 1919 Portals had half the necessary mould machinery installed. Nevertheless in

*Rs. 1 Notes were to remain machine-made, having been found satisfactory.

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spite of these early decisions, in spite of the need for the utmost urgency which had repeatedly been impressed upon the Bank and in spite of the express desire of the Government of India that the matter should be brought to an early conclusion, not a single Note of the new design had been printed by the date fixed for the termination of the history.

The period March 1919 - August 1921 is conveniently divided into two periods, viz:-

- | | |
|------------------------------------|---|
| Introduction
of new
designs. | (1) From March 1919 - July 1920 spent in discussions on printing processes. |
| | (2) From July 1920 - August 1921 spent in discussions on designs. |

Whilst the whole period is important as evidence of the delay responsible for the deplorable position into which the Rs. 10 Currency drifted, certain incidents prejudicial to the Bank's interests and believed to be traceable to members of the printing trade lend particular interest to the first period.

It has been mentioned that everything now depended on the receipt of the specification from the Government of India but repeated enquiry of the India Office regarding the designs did not even receive acknowledgment, although the India Office were complaining that the Bank's output had been less than promised.

On the 5th July 1919 Mr. Robinson, then Financial Secretary of the India Office, mentioned that the

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question had been referred to the Treasury and that the Bank would be consulted later, but it was not until August 16th that the "Howard" specification, dated April 22nd, and the relative designs were sent to the Bank, and then only with a request for their immediate return. It transpired that between March and August the India Office, at whose suggestion is not known, had consulted the Treasury, and upon the strength of their opinion (derived it is believed from Somerset House, whose Official, Mr. Stonestreet, was reported to be "hand in glove" with Messrs. Waterlow Brothers & Layton) had decided to introduce, in conjunction with two antiphotographic surface printings, the rotary photogravure printing process, for which the Bank had no machinery. Messrs. Waterlow Brothers & Layton on the other hand were fully equipped with rotary photogravure machinery and had already been successful in depriving Messrs. T. De La Rue & Co., Ltd., of the contract for British £1 Notes. Waterlows, although not Bank Note printers, had printed the first issue of Notes, but when the second issue was put out to tender the contract for £1 Notes printed by letterpress fell to De La Rue & Co. About a year later - at the end of 1915 - Waterlows alone of Note printers having in the meantime secured photogravure plant, Somerset House had arrived at the conclusion that a photogravure Note

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was the only safe one, and they regained the contract. Further reference to this will be found in "Printing Department" Section.

The Bank were not consulted during these negotiations nor were they informed of the decision to adopt the rotary process, of which they had no experience, until after specimen Notes printed by that process had been sent to India unknown to them and unaccompanied by their own specimens prepared according to the "Howard" specification. Mr. Bull, Principal of the L. C. C. School of Photo-Engraving and Lithography, appears to have been one of those consulted, and afterwards proved of great assistance to the Bank.

The Government of India did not approve of the "Stonestreet" Notes and asked for specimens prepared according to their own specification. In 1920 addition to these the India Office however requested the Bank to prepare further "Stonestreet" Notes, but three enquiries whether photogravure was to be used for the "Howard" Note received no reply.

Mr. Robinson hearing that the Bank were not appreciative of the way in which the matter was being conducted apologised for the delay and attributed it to extreme pressure of work. The Bank could only regret that the pressure of work should have coincided with the introduction of designs in which they had long been interested.

Specimens were then prepared by the Bank in

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accordance with decisions arrived at during a conference between the Bank, Portals, the India Office (represented by Mr. Robinson and Mr. Gubbay, Controller of Currency, who had previously had interviews with Mr. Stonestreet) Mr. Bull and Mr. Stonestreet. The specimens were sent to India on 22nd April 1920.

The Government of India gave their general approval of the designs and left the details to the India Office, for whose benefit they outlined their ideas.

On the 5th July 1920 another conference was held at which the Bank were instructed to obtain the assistance of an artist of repute to design the King's Head. On the 25th August the Bank were authorised to obtain machinery. Now that it seemed possible that production would soon commence, the difficulty of obtaining the service of an artist again delayed matters. No artist of repute would consent to design one part of the Note alone. The suggestion of Sir A.S. Cope, R.A., who declined the work, that two artists should collaborate was ultimately adopted; Mr. Simpson, F.R. I. B. A., was to be responsible for the main design and Sir Bertram Mackennal, K.C.V.O., A.R.A., for the design of the head of H.M. King George V, which was to be an adaptation of the Coronation Medal. The watermark was approved on the 14th December 1920 and Portals

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were instructed to prepare sufficient paper to enable the Bank to supply the India Office with 30 million Rs.10 Notes by January 1922. Mr.Simpson's designs were not approved until May 1921.

Difficulties connected with the design of the King's Head, reduced for photogravure by Emery Walker Ltd., then caused further delay, and the first of the Notes had not been printed on the date fixed for the termination of this history. Meanwhile the paper had been made, and paid for by the Bank.

Thus over two years of negotiations which cannot be said to have improved the relationship between the Bank and the India Office had not resulted in the printing of a single Note of the new design, but whilst there would have been little difficulty in advancing a claim against the India Office for compensation in respect of loss of interest on capital both on behalf of Portals and to a lesser degree on the Bank's own account, the opinion was held that to do so might be prejudicial to the contract.

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MANUFACTURE FOR THE TRADE

It is necessary to refer to the events of the years 1815 to 1821 in order to obtain an introduction to the subject of Portals' application for permission to use their Mills for manufacture for the Trade.

In the early years of the 19th century the number of forgeries of Bank Notes increased considerably.* In 1815, just prior to an investigation into the means of protection and to the introduction of a new Note, Portals were instructed not to make paper for anyone but the Bank. Thinner paper was also introduced. (The wave-line watermark was of earlier origin.)

The protection of the Note was further assisted by the withdrawal in 1821 of £1 and £2 Bank of England Notes.

The statutory penalties connected with the infringement of the wave-line watermark and the special skill which the manufacture of thin paper demanded tended to create a monopoly for the firm entrusted with the manufacture, and it may have been to safeguard themselves as much as to protect the Note that the Bank monopolised the Mills, which then became as dependent upon the Bank as the Bank were upon them.

It was not until 1862, when the manufacture of

*29,000 forged Notes were presented in 1821; in 1911 the value of the forged Notes presented was only £40.

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Currency Note paper for the Government of India began, that any departure was made from the conditions of 1815. The Indian Government were given permission to use the wave line, but their Notes do not enjoy the same freedom from forgery as Bank of England Notes owing to the use of a thicker paper introduced in 1909.

It was through the India papers again that the question of manufacture for the Trade was reopened. When Major Willis came from India in 1913 in connection with India Notes he was given permission by the Bank to visit the Mills. As a result of his visit Portals apparently became sufficiently confident of the introduction of mould-made paper for India

1914. Notes to order mould-made paper machinery. The Government of India subsequently pledged themselves to this paper and machinery was installed early in 1919. In the meantime between the ordering of the machinery and the adoption of this class of paper Portals had purchased the Turkey Mill at Keighley for the manufacture of machine-made paper for Rs. 1, 2½ and 5. Permission to use this Mill for Trade orders is stated by Portals to have been given by Lord Cunliffe in 1917; anyhow it was confirmed by Committee of Treasury of 27th March 1918.

Subsequently there were developments connected with British Currency Notes. These Notes originally printed on machine-made paper manufactured by Messrs. W. Joynson & Sons were afterwards printed on mould-made

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paper manufactured by Messrs. T. H. Saunders & Co., Ltd., and Arnold & Foster & Co., Ltd. But circumstances led the Bank to believe that it would not be long before the Government would invite them to assume the issue, as was known to accord with the views of Mr. Warren Fisher, then Chairman of Inland Revenue; and in anticipation special plate-printing machinery was installed, at a cost of £150,000, and Portals were induced to equip themselves with still more mould machines* rather than risk the charge of being out-of-date which had been made against them during the War. The effect of the installation of all this machinery was largely to increase the margin of probable unproductiveness, which had been negligible with hand-made paper. Also eventually to require a profit of 30% to pay interest on capital at greatly reduced sale prices.

This margin of unproductiveness soon became serious from the following causes -

1. Reduced demand for Rs. 1 Notes (machine-made) affecting Turkey Mill, where however there was permission to accept Trade orders.
2. Delay in the introduction of mould-made paper for India Currency Notes, affecting Laverstoke Mill.
3. Decreased demand for Post Office papers, affecting Bramshott Mill.

*The Overton Mill was equipped at a cost of £250,000.

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4. Failure of expectations of the Currency Note Issue, leaving Overton Mill idle.

Consequently, in June 1920 Portals applied for an extension to all their Mills of the permission to manufacture for the Trade. After considerable 1920. correspondence the matter was placed before the Treasury Committee on the 21st July 1920 and conditional permission was granted.

It was not long before this decision brought a protest against unfair competition from T.H.Saunders & Co., Ltd., who had hitherto enjoyed a considerable share of the mould-made paper trade.

1921. Early in 1921 the subject was reopened owing to Portals being approached by Messrs.Waterlow & Sons, Ltd., (incorporating Messrs.Waterlow Bros.& Layton) with a view to the manufacture of paper for the British Currency Note. This led to the question how far permission would prejudice the Bank's chance of securing this issue, a question most difficult of solution and complicated by circumstances not altogether calculated to inspire confidence in Messrs.Waterlow. On general grounds it appeared wiser to withhold consent, but this course would fail in its object to secure the Currency Note Issue for the Bank unless the Bank and the Mill could throw their united weight into the scale at a fairly early date: otherwise resources, equivalent to their own, would be developed elsewhere. Dissent however

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practically involved compensation for Portals, who naturally recoiled from a policy that would leave at their doors a derelict Mill.

The Treasury Committee of the 25th May 1921 gave Portals conditional permission to tender within the next few weeks to Waterlows for £1 Currency Notes to be made at Turkey Mill and for 10^s/- Notes at Overton Mill.*

*In September 1921 application for permission to manufacture 10/- Notes was renewed, with a request for permission to use Laverstoke Mill until Overton Mill was completed. To this the Bank agreed.

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WAR CLAIMS.

It was mentioned in introduction that owing to the rise in wages and in the cost of materials Portals, being bound by contract prices, experienced considerable financial difficulties.

No claim was made in this respect until the 6th December 1915 when Portals stated that during the 1915. period 1st August 1914 to 31st July 1915 their loss amounted to approximately £6,000, or 6% on the cost of the hand-and machine-made paper manufactured. Thereafter the rate of increase rose progressively to as much as 141% on Claims. hand-made paper and 133% on machine-made paper and the total claims to the 30th June 1921 had amounted to £350,000.

When applied to in 1915, the Bank were willing to refund half the loss on their own papers, as also were the India Office and Post Office after reference to the Treasury and provided that the Bank were satisfied.

1916/17. Similar though larger claims were made and met in August 1916 and August 1917* when the Bank paid in full in anticipation of settlement by their Principals, but permission to claim half-yearly was Advances. refused. An alternative suggestion of 1918. an Advance on account was made in April 1918, when Portals' financial position was serious, as the increased turnover made unusual demands for

*It was a condition of the Bank's acquiescence that the accounts should be certified by Messrs. W. B. Peat & Co., the Chartered Accountants employed by Portals.

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working capital. Pending the adjustment of War claims, they were out of pocket to the extent of £5,000 per month and were frequently obliged to obtain loans from their private Bankers. Practically they had distributed no profits during the War and they stated that their prices were lower than could be obtained elsewhere.

An arrangement was accordingly introduced by which Portals received an Advance of £20,000 free of interest on account of their War costs for the six months ended 31st January 1918 as certified by Sir W.B. Peat and subject to a condition, subsequently removed, that they were not assessable to Excess Profits Duty; but six months later this facility was exchanged for a monthly Advance of £3,000 commencing the 1st July 1918, with a half-yearly settlement of the balance. The monthly Advance was afterwards increased to £4,000 in January 1920, provided the amount so advanced did not exceed 75% of the certified total, and to £6,000 in January 1921. Hitherto the Bank had made no claim on their own account but when, at the end of 1918, expenses reached an increase of 40% they presented a joint claim on behalf of themselves and Portals for the eleven months ended 30th June 1918. This was not paid until May 1919.

Increase in prices rejected.	It was considered impracticable in July 1919 to obtain a permanent increase of price for the paper, as
1919.	

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was the desire of Portals, principally for the reason that as no settled price could be quoted there would still be risk of a claim by either party, and for the added reasons, in the case of India, that mould-made paper was expected shortly, and in the case of the Post Office, that it was considered injudicious to disturb a contract having only four years to run; thus the method of recovery from the India Office and the Post Office by means of an annual claim became stereotyped so long as War conditions lasted and so did the arrangement with Portals for monthly Advances and half-yearly settlement.

This method was continued until December 1920 when the combined War costs of the Bank and Portals had reached 100%, a figure that was considered to justify the Bank in suggesting to the India Office and the Post Office the presentation of claims half-yearly. The India Office then made an Advance on account of almost the whole of the half-Year's loss, whilst the Post Office agreed to payment of $\frac{5}{6}$ ths of the half-yearly bills on account.

Certain papers introduced during the War, such as mould-made Security Paper and Rs.1 Note Paper, were supplied at prices appropriate to the cost of production, and for other paper with which the Bank alone were concerned, such as Bank Note Paper, a revised price was introduced on the 1st July 1919, although a supplementary claim had to be conceded at the end of that year.

One of the results of charging by this

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dual method was that comparison was invited between the price of paper supplied at a pre-War price plus War costs and of that supplied at an inclusive post-War price.

In addition to the financial difficulties inseparable from a system of periodical claims for War costs, others arose as the quantities indented for passed beyond all limits contemplated by the sliding scale that formed part of the Indian contract. This was found in 1920 to necessitate adjustment of the price paid to Portals to the minimum scale price and placed them under liability to refund ^s ^d 1/6 per thousand. Of this liability the Bank relieved them to the extent of ^s 1/- at a cost of £2,000 and agreed to assist them to a like extent on future Indents.

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BANK PAPERS

Delivered 1913/1920

000s omitted

Description	1913	1914	1915	1916	1917	1918	1919	1920	Total
			Numbers of pieces						
Bank Notes	19,378	25,723	15,497	13,547	6,319	7,142	24,431	36,789	148,826
Dividend Warrants	972	1,002	1,592	1,902	4,296	5,952	5,236	5,312	26,264
General Security	323	291	1,547	923	2,975	1,423	1,683	772	9,937
Public Revenue	-	50	20	70	20	45	10	72	287
Local Interest Bill	5	10	12	23	10	5	111	-	176
Treasury Bill	-	66	248	780	482	576	758	434	3,344
Govt. Stock Certs.	-	-	-	-	-	9	5	32	46
	20,678	27,142	18,916	17,245	14,102	15,152	32,234	43,411	188,880

See also graphs placed in pocket of binding.

CHAPTER VIIPORTALSGENERAL POST OFFICE PAPERSDelivered 1913/1920

000s omitted

Description	1913	1914	1915	1916	1917	1918	1919	1920	Total
			Numbers of pieces						
Postal Orders	240,370	199,420	165,970	146,860	136,605	122,020	107,025	120,485	1,238,755
Old Age Pension Orders	52,795	56,315	60,325	55,455	59,100	57,165	41,980	63,490	446,625
Postal Drafts	-	6,365	-	700	9,540	18,265	22,020	3,245	60,135
Salmon Postal Drafts	-	-	-	-	-	4,620	23,140	20,080	47,840
Egyptian Postal Orders	-	-	1,270	200	535	465	750	50	3,270
	293,165	262,100	227,565	203,215	205,780	202,535	194,915	207,350	1,796,625

1.E. See also graphs placed in pocket of binding.

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PORTALSINDENTS FOR INDIA CURRENCY PAPERS

000,000s omitted

	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
January					78*		50			
February						40	8			
March						2	81	115		
April							50			
May	46	47							250	
June						10				
July			63			100	9			160
August					16		2			
September						8	4	100	180 ⁺ 158	166
October							65			
November										
December							250			

*Reduced to 67

⁺Reduced from 250

The red figures denote the quantities of Rs.1 and 2½.