PAPER No. 132.

THE PURCHASE OF CEMENT FOR GOVERNMENT WORKS.

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Object of the paper.—In the ordinary course of events there would be no object in writing a paper on the purchase of cement by Government. It makes its appearance because cement is not bought by Government under ordinary open market conditions. For a proportion of the amount bought cement is the subject of a financial deal between Government and Punjab Portland Cement Limited, intended to assist the company and to secure for Government an assured supply at favourable rates. Nor, at present, are open market conditions realised for the remainder of the cement bought owing to the control of prices by an association of cement companies in India.

Although purchase is controlled by the Government agreements and the "pool" price, scope remains for getting the more favourable rate for each indent, and by following closely the terms of the agreements indentors can help in bringing down the price.

The object of this paper is to interest indentors in getting the best value out of the contracts made. The subject is financially important because the quantity of cement bought annually by Government is large, and it is also important from a technical point of view because the cheaper cement is the more it is likely to be used where otherwise dependence would have to be placed on lime. Most engineers will agree that it is better to rely on a material manufactured to a standard specification.

2. *The Cement Industry in India.*—The manufacture of Portland cement in India was first started in Madras in 1904 by a company trading under the name "South India Industrials Limited." The output was however on a small scale, the capacity of the plant being not more than 10,000 tons.

During 1912-13 three new companies—the Indian Cement Company Limited at Porebunder in Kathiawar, the Katni Cement and Industrial Company Limited at Katni in the Central Provinces, and Bundi Portland Cement Limited in Bundi State, Rajputana—were formed for the manufacture of cement. Actual manufacture of cement by these companies did not however commence at once, the Indian Cement Company started work in October 1914, followed by the Katni Cement Company in January 1915 and Bundi Cement Limited in 1916 then known as the Bundi Cement and Hydraulic lime Co., Ltd. The total

annual output of these companies was 76,000 tons and the total annual import of cement into India in 1913 was approximately 1,80,000 tons.

The boom years immediately following the end of the war raised extravagant hopes of industrial expansion. The three companies mentioned increased their plant to the extent of doubling their original output and seven new cement factories were projected. Two of these were erected near Katni in the Central Provinces, one in Kathiawar, one in the Punjab, one in Chota Nagpur, one in Gwalior State and one in Hyderabad State.

By October 1923 all except the last named had started manufacturing.

The estimated aggregate capacity of the six new companies of 1923 was 3,86,000 tons annually, bringing the total capacity of the cement companies in India up to 5,50,000 tons annually. The total demand in India for cement was, at that time, not quite 3,90,000 tons.

3. *The Principal Agreement.*—Punjab Portland Cement Limited, was established on 21st April 1920 and in July 1923 the first batch of Portland cement made in the Punjab was issued for sale by the company from their works at Wah near Hasan Abdal in the Attock District. The method of manufacture adopted by the company has already been described in Punjab Engineering Congress Paper No. 113 "Portland Cement" by Mr. Campbell Gray, and particulars of the works are contained in the description supplied on the occasion of the visit of the Congress to Wah in 1927. In anticipation of the opening of the works a seven-year agreement had been made between the Company and the Secretary of State on 27th June 1922 for the supply of cement to Government at certain rates. For the purposes of this agreement, which is called "The Principal agreement," Government meant the Punjab Public Works Department, the Director of Industries, the North Western Railway, and the Military Engineer Services in the Northern Command. It is not necessary for the present purpose to detail the terms of the agreement but it may be noted that the price to be paid to the company during the first year of the operation of the agreement was Rs. 42-8-0 per ton of cement, free on rails at Wah, exclusive of bags. Thereafter the price was to be based upon the actual cost of manufacture to the company plus profit on a sliding scale but subject to a maximum of Rs. 50 per ton.

4. *Variations in the Price of Cement.*—The price of cement had varied widely. In 1912 and 1913 imported cement was selling in Bombay at from Rs. 45/- to Rs. 50/- a ton; in 1916 and 1918 it was between Rs. 125/- and Rs. 225/- a ton, and in 1921-22 between Rs. 150/- and 200/- a ton. It was in 1921-22 that Government was negotiating the terms of the Principal agreement and the prices then fixed by that agreement must have appeared very favourable.

During the war the Indian factories were under official control and the great bulk of their output was taken by the Munitions Board, at first

at Rs. 42/8/0 and subsequently at Rs. 55/- a ton ex-works, so for that period no useful comparison can be made with the prices of imported cement. Control ended in the middle of 1919 and the three factories then working were able to realize very remunerative prices though far below the prices of British cement.

The depression period of 1922-24 that followed the boom years brought about a considerable decrease in the consumption of cement in India with the result that production far exceeded the demand. This led to a price cutting war the results of which are shown by the sudden drop in the Calcutta market for cement:—

		Rs. a. p.	
June 1923	..	52 0 0	Per ton.
February 1924	.. ..	43 13 0	,,
May 1924	.. ..	36 12 0	,,

The companies were indeed selling cement at below cost price and some dropped their rate to as low as Rs. 25/- per ton f. o. r. works.

5. *The Sutlej Valley Agreement.*—Fortunately for Government the situation was understood and the opportunity seized by Mr. Foy the Chief Engineer, Sutlej Valley Project, Public Works Department, Irrigation Branch, to secure the cement required for the execution of the Sutlej Valley Irrigation Scheme at very favourable rates. On behalf of the Secretary of State he made an agreement with Punjab Portland Cement Limited supplemental to the Principal Agreement for the supply between 1st September 1923 and 31st August 1927 of 45,000 tons at a rate not exceeding 15,000 tons in any one year, at Rs. 33/- per ton f. o. r. Wah exclusive of bags. The use of the bags was to be paid for at Rs. 3/8/- per ton of cement if the bags were returned in good condition within 7 days of receipt.

On this subject the following remarks taken from the Report of the Indian Tariff Board regarding the grant of protection to the cement industry, issued in 1925, are of interest:—

> "As large quantities of cement were expected to be used on the Sutlej Valley Project, the contract was a valuable one for the Company. It was found, however, that cement purchased under this contract would be so expensive that the advisers of the Local Government had practically decided to dispense with the use of cement, and to use lime instead. This course was only averted by the execution of a special contract for the supply of cement to the Sutlej Valley Project at Rs. 33 a ton f. o. r. works. Had the Company stood out for the price originally fixed, they would have lost orders for cement amounting to 30,000 tons or more during a period of three years."

6. *The Silo Agreement.*—The Company's plant was designed to manufacture 35,000 to 40,000 tons of cement a year, but as it did not include any provision for the storage of cement to balance fluctuations in

demand the company experienced loss through inability to supply customers when the demand rose above the working capacity of the plant.

Because such loss had an effect on the cost of manufacture and therefore on the price of cement to Government, and also because the Government demand was the main factor in causing fluctuations, Government agreed in March 1926 to pay the company Rs. 1,25,000/- for the provision of silo accommodation at Wah for the storage of 6,000 to 8,000 tons of cement. In return the company agreed to reduce the maximum of Rs. 50/- per ton fixed by the Principal agreement to Rs. 45/- per ton, and to purchase the silo buildings and accessories on the expiry of the Principal agreement for Rs. 1,25,000/- less depreciation. This is called "the Silo Agreement."

7. *The Cement "Pool."*—In 1925 the principal manufacturers of cement in India formed "the Indian Cement Manufacturers Association" mainly with the object of controlling the selling price of cement throughout India, and the Association has since parcelled the country into areas within which they fix from time to time the price of cement supplied in full wagon loads inclusive of bags and railway freight.

The statement below gives the current association rates for the Punjab area :—

	F. C. R. destination Minimum selling prices Rs. a. p.
Delhi and Southern Punjab.—For the Delhi Province and also for any destination South of a line joining the following stations on the North Western Railway system, Simla (exclusive), Ambala (exclusive), Jagadhri (inclusive), Karnal (inclusive), Kaithal (inclusive), Patiala (exclusive), Dhuri (exclusive), Bhatinda (exclusive), McLeod Ganj (exclusive), Samasata (exclusive) and westward to the Indus	55 0 0
Central Punjab.—For all stations on the North Western Railway on a line Simla (exclusive), Ambala (inclusive), Jagadhri (exclusive), Karnal (exclusive), Kaithal (exclusive), Patiala (inclusive), Dhuri (inclusive), Bhatinda (inclusive), McLeod Ganj (inclusive), Samasata (inclusive) and westward to the Indus and northward thereof up to but excluding the line Mahmud Kot-Khanewal-Raewind-Lahore-Amritsar-Pathankot..	60 0 0
Northern Punjab—For all stations on the North-Western Railway line including Mahmud Kot-Khanewal-Raewind-Lahore-Amritsar-Pathankot and northwards	62 8 0
Simla and other stations on the Kalka-Simla Railway	65 0 0

Nothing done by the Association could of course affect the validity of the Principal and Silo agreement, but here it is necessary to explain that under the Principal Agreement Government was not bound to buy from the Company more than half its requirements of cement during any one financial year.

8. The fixing of rates by the Association apparently made it easy for purchasers to calculate whether it would be cheaper to buy under the terms of the Silo agreement or at the Association rates. Indeed it became possible to make a cement-rate map of the Punjab and North-West Frontier Province and to colour conventionally the areas where the respective sources of purchase were advantageous.

9. In reality the situation was not so simple as the map would have led one to suppose. Firstly the rate under the Silo agreement was calculated F. O. R. Wah and excluded bags, whereas the Association rate included bags and railway freight, the rate for bags was liable to vary annually and there were concession areas for railway freight rates and the freight rates in general have been subject to variation. Thus the map was by no means easy to make nor final when it was made. Secondly it was obligatory under the terms of the Silo agreement to purchase regardless of advantage in price half of Government requirements from the company at Wah and individual purchasers could never be sure during the course of the year what their total requirements for the year would be. The observance of this clause was complicated by the fact that "Government" consisted of diverse departments having no common head and therefore no pre-constituted authority for regulating purchases. Thus individual purchasers would have been hampered in their discretion to buy as the map indicated.

10. *The Bundi Agreement.*—Although the Association had fixed the prices of cement for sale in general they permitted their member companies to quote for large quantities at a discount below the "pool" price. To take advantage of this a four year agreement was made by the Chief Engineer, Buildings and Roads Branch, on the 15th November 1926 between Bundi Portland Cement Limited and the Secretary of State for the supply of cement *up to* 40 per cent. of Government's requirements at a price F. O. R. works which was equivalent to the Pool price (gross) according to the area of delivery, less full wagon load freight ex the supplying works to destination, and less a further 3% on the F. O.R. works price so obtained (nett). This agreement is called "the Bundi agreement." The terms of this agreement do not bind Government to buy more than 100 tons of cement annually from the Bundi Company, and if for any reason the Company is unable to deliver cement of its own manufacture it is permissible for it, subject to the sanction of Government, to supply cement manufactured at any of the factories of the Association at the same price and on the same terms as to quality and otherwise as for cement of its own manufacture.

11. With the making of the Bundi agreement it became obvious that in order to safeguard fulfilment of the clause in the Principal agreement under which Government undertook to take at least half of its requirements from the Company, and at the same to direct the indents for cement from the departments concerned to the cheapest source of supply it was necessary that all indents should be addressed to one office which would undertake to distribute them advantageously to Government subject

to the limitations of the Principal agreement. Fortunately Messrs. Bird and Co. are the selling agents for all the companies concerned and thanks to their courtesy and co-operation with the Chief Engineer, Buildings and Roads Branch, Public Works Department, who deals on behalf of Government with the subject of cement purchase, a business which might have proved very troublesome and difficult is handled smoothly. An engineer-officer from the Buildings and Roads Branch attends the offices of Messrs. Bird & Co., monthly and supervises the distribution of the indents.

12. *The Kiln Agreement.*—A further agreement supplemental to the Principal and Silo agreements was made between Punjab Portland Cement Limited and the Secretary of State on 8th March 1927. This is called "the Kiln agreement" because Government agreed to provide the Company with six lakhs of rupees to meet the cost of installing a second kiln with accessories enabling the plant to increase its annual output to at least 50,000 tons. Government also agreed to indent on the Company for three-fourths of its requirements instead of one-half as formerly. In return the Company reduced the price for cement F. O. R. Wah exclusvie of bags from a maximum of Rs. 45/- per ton to Rs. 38/- per ton for the first year and thereafter to a rate dependent on—

(*a*) the cost of manufacture,
(*b*) the amount of cement indented for by Government in the previous financial year,
(*c*) the average price of coal.

If the cost of manufacture is less than Rs. 35/- per ton in any Company's year (October 1st to September 30th) the price to be paid by Government for cement supplied against Government indents during the ensuing financial year will be reduced from Rs. 38/- per ton by one anna for every two annas by which the cost of manufacture is less than Rs. 35/- per ton. The rate of Rs. 38/- per ton was actually brought into force from 1st April 1928.

There is nothing in the "Kiln" agreement to prevent the operation of the Bundi agreement and the working arrangement with Messrs. Bird & Co., but the scope of the Bundi agreement is lessened by the increase in the Kiln agreement of compulsory purchase from one-half to three quarters.

13. *Quantity of cement bought by Government.*—In the first paragraph of this paper it was said that the quantity of cement bought annually by Government was large. The following statement, kindly supplied by Messrs. Bird & Co., shows the approximate tonnage of cement supplied in the years 1925 to 1927 by the three companies mainly concerned to the various departments of Government and to the public, in the North-West Frontier Province and in the Punjab on and north of the line from the Indus to Samasata, Bhatinda-Rajpura-Ambala and Simla. The figures in the statement show that in this three year period Government has bought about 1,32,650 tons of cement, which at Rs. 60/- per ton inclusive of bags and railway freight comes to nearly 80 lakhs of rupees.

Analysis of Cement Supplies 1925-1926-1927.

Indentors.	Brands.	1925.	1926.	1927.
Buildings and Roads ..	P. P. C.	1,727·90	3,329·35	4,690·25
	B.B.B.	146·00	297·00	161·00
	"SUN"	..	189·80	1,846·00
Irrigation Main ..	P.P.C.	4,144·95	2,367·40	2,321·60
	B.B.B.	..	99·00	16·00
	"SUN"	..	780·90	1,449·20
Irrigation S. V. P. ..	P.P.C.	13,281·75	17,189·50	5,155·85
	B.B.B.	3,060·50	2,894·50	663·00
	"SUN"	2,353·75	18·50	7,341·60
Military ..	P.P.C.	6,455·50	4,229·75	6,511·05
	B.B.B.	..	419·75	..
	"SUN"	..	34·25	402·30
Railway ..	P.P.B.	4,203·75	9,573·95	18,777·25
	B.B.B.	..	117·75	..
	"SUN"	..	..	5,963·25
Indian Stores Deptt. ..	P.P.C.	..	14·20	..
	B.B.B.	..	..	187·00
	"SUN"	..	94·00	..
Hydro Electric Branch ..	P.P.C.	5·00	136·25	..
	B.B.B.	..	..	..
	"SUN"	..	..	..
Total Government ..		35,379·10	41,785·85	55,485·35

14. *Bags.*—Under the terms of the "Kiln" agreement the cement supplied by the company has to be packed in first class close woven jute bags with patent wire tiers. It is open to Government to supply its own bags for the purpose but up to the present it has appeared to be more advantageous to adopt the alternative by which the company supplies the bags to Government during a financial year at a rate equal to the average price paid by the company during the previous 12 months—October 1st to September 30th. Coupled with this alternative is the condition that the company allows to Government a

rebate of 50 per cent. of the price charged per bag returned by Government to Wah freight paid and in good condition.

The present price paid by Government to the company for bags is Rs. 7/2 for twenty bags. Although the cost of bags is a considerable item in the cost of cement at site of works it is not altogether a simple matter to bring down this cost by returning empties.

Jute is particularly susceptible to damp and a jute bag which has once been allowed to get wet is useless for packing cement. It is also easily torn. It requires a practised eye to say whether a bag is sound or not and under the terms of the "Kiln" agreement the company's works manager is the deciding authority. Then the freight on bags is high unless sent in lots of full wagon loads and they should be sent tied in bundles of 25 each so that they can be easily counted. (See footnote).

On the other hand jute bags are useful on works for keeping cemen. concrete damp, or as sand bags or for laying concrete under watert Moreover the bags can generally be sold locally in the bazar and fetch from two to three annas each.

Probably the best and simplest procedure when the work is being done by contract is for Government to supply cement to the contractor at a rate which includes bags.

15. *Railway freight on cement.*—On the North Western Railway cement is classified for carriage as under (*vide* N. W. R. Goods Tariff Pamphlet—I).

(*a*) Schedule C/N Rates. (For full wagon loads).
(*b*) Class II Rates. (For less than full wagon loads).

In order to assist indentors in ascertaining the railway freight on cement per maund or per ton, calculated in full wagon loads ex-different works to various stations in the Punjab and North-West Frontier Province, Messrs. Bird and Co., have published a table giving these particulars for—

Punjab Portland Cement, Limited.
Bundi Portland Cement, Limited.
Gwalior Cement Co., Limited.
Central Provinces Portland Cement Co., Limited.

A full wagon load contains 400 to 500 bags of cement. If empty bags are returned they are classified at Railway Risk (Class II Rates).

In July 1923 the North-Western Railway conceded a special rate of 4 annas 9 pies per maund for cement in full wagon loads carried for the Sutlej Valley Project to three particular stations and in 1925 extended this concession to all stations with which the project was concerned. This valuable concession has assisted to promote the use of portland cement on irrigation works.

NOTE :—For packing, when sent in less than full wagon loads see N. W. R. Goods Pamphlet 1928, page 203 under P/18.

16. *The working of the agreements*—It remains to show how indenting officers may assist in the good work of bringing down the price of cement.

(*a*). Punjab Portland Cement limited having agreed to sell cement to Government at a rate fixed by a sliding scale, broadly speaking, the more cement Government buys in one year the lower will be the rate in the following year. The Company is bound to supply cement to Government only if the indent gives sufficient notice, and if an indent does not give the prescribed notice there is nothing in the contracts to prevent the cement being supplied from some other company at a higher rate and thereby failing to swell the quantity which fixes the future rate.

The necessity for submitting indents by the prescribed date is obvious, but if the matter does not receive full attention there is a risk that Government will in the next financial year have to pay a higher price for cement than the present rate of Rs. 38 per ton F. O. R. Wah exclusive of bags.

It has been prescribed that an indent for cement to be supplied in a particular month shall reach Messrs. Bird and Co., Lahore (the Selling Agents of the Company) by the 20th of the preceding month.

Between April and September of 1928 indents from Government officers for cement totalling nearly 6,500 tons representing about $\frac{1}{3}$rd of the total quantity indented for were received by Messrs. Bird & Co., after the 20th of the month, asking for cement to be supplied in the following month. An examination of the Company's books showed that late indents were on the increase.

(*b*). The contracts provide that delivery of cement from Punjab Portland Cement, Limited, is taken F. O. R. Wah, and that railway weights shall be accepted by Government and the Company as final and conclusive. It is, therefore, not permissible for an officer to alter the weight in the Company's bill if the weight of cement in the bill corresponds in tons to two places of decimals to the weight in maunds on the railway receipt after due allowance has been made for the weight of bags.

The net weight of cement supplied is $110\frac{3}{4}$ pounds for a gross-packed weight, inclusive of bags and the wire fastening of 112 pounds. The gross weight shown on the railway receipt should be equal to the carrying capacity of the wagon, since the Company's practice is to supply cement sufficient to bring the gross weight of the consignment up to the carrying capacity of the wagon, neglecting variations between the amount on the indent and the wagon capacity. The conversion of maunds to tons can readily be effected by the table on page 41 of Goods Tariff, North-Western Railway, Pamphlet, I (1928 Edition).

Since the contract places on Government the onus of acceptance of quantity at time of delivery free on rails at the Company's works, it is unnecessary for a disbursing officer to do more than satisfy himself

that there is the necessary correspondence between the weight charged in the bill and the weight on the railway receipt. Having satisfied himself as to this correspondence he may pass the bill for payment irrespective of any check of the cement itself on arrival at destination which he may exercise for stock or other purposes.

If an officer is satisfied that a particular consignment has been received short of the weight noted in the railway receipt, he should at once take the matter up with the railway authorities.

The weighing of cement at the works is done by machines which automatically fill the bags with the required weight of cement at the rate of 4 bags a minute against a head of 1000 tons. Two machines have been in use since 1923 and a third has been added in connection with the extension of the plant. There is an indicator on the bagging machine to show the weight of cement in the bags and it is possible to adjust the machine so that any discrepancy between the actual and indicated weights may be eliminated. Check weighments are made on a separate Avery platform weighing machine.

The contracts also provide that unless prevented by exceptional circumstances, all bills of the Company for cement shall be paid within 45 days of the delivery of the cement on rail at the Company's works and the date of the railway receipt is to be taken to be the date of delivery.

In this connection it should be remembered that in certain circumstances the cost of cement to Government may be determined by the cost of manufacture. If the payment of bills is delayed, the cost of manufacture rises because of interest and thus Government may stand to lose by having to pay more for cement. At the time of writing there is a sum of about 1½ lakhs of rupees overdue on bills not paid within the time agreed upon.

(*c*). The benefit which Government should get in a reduction in the price of cement is discounted if the rates of work which involve the use of cement are not correspondingly reduced. To do this it is necessary to know the amount of cement required per unit of the work in question which requires reliable analyses of the quantities of materials. For this purpose Punjab P. W. D. Paper No. 75 "Simplified methods of controlling concrete and mortar mixes" by Mr. C. E. Blaker is recommended. When reliable analyses are available there should be no difficulty in adjusting rates to correspond with alterations in the price of cement.

(*d*). Although the price of cement F.O.R. Wah under the kiln agreement remains the same whether full wagon loads or less are ordered, the delivered rate for less than full wagon loads is higher because freight then becomes payable at the Class II R/F rate. The Bundi agreement does not contemplate business in less than full wagon loads.

(*e*). As cement is liable to deterioration if improperly stored it is important to make sure that adequate storage exists for full wagon loads,

that indents do not exceed contemporary needs and that old stock is not overlooked when issuing cement.

(*f*). Finally when inviting tenders or framing contracts care should be taken (P.W. D. Code 246) to retain in the hands of Government the supply of cement and to arrange the terms of the tender and contract as laid down in P. W. Account Code 308 (*b*). This procedure enables a tenderer to calculate his costs on a firm basis and ensures that any reduction in the price of cement will be a direct gain to Government.

17. *Conclusion.*—In conclusion the writer asks the indulgence of the Congress for bringing before it a paper which quotes Code rules and contains no engineering features. It is more than probable that indenting officers have from time to time been irritated by complications attending the purchase of cement and have felt that some explanation was due. The writer hopes that the paper will afford a clue to the complications and that in the discussion indentors will give their point of view and so help towards the improvement of the system.

The author acknowledges the great assistance rendered to him by Mr. Teasdale, Lahore representative of Messrs. Bird & Co.

APPENDIX A.

Statement I, shows the quantity sold by Punjab Portland Cement Limited to Government since June 1923 when the first batch of cement was issued from their factory at Wah in the Attock District, and the price of cement to the public and to Government unless bought under the terms of the Bundi agreement.

STATEMENT I.

Period.	Quantity sold to Government.	Price to Government per ton f. o. r. Wah exclusive of bags.	Price to the public per ton f.o. r. Wah inclusive of bags.
	Tons.	Rs. a.	Rs.
1923. June-December ..	5,202	42 8 (P.A.)	49—60
September-December (S. V. P. only) ..		33 0 (S.V.P.)	
1924 ..	23,118	42 8 (P.A.) 33 0 (S.V.P.)	32—50
1925 ..	29,819	55 0 (P.A.) 33 0 (S.V.P.)	40—60
1926 January-June-July-December.	36,840	45 0 (S.A). 33 0 (S.V.P.)	40—60 Association rates.
1927 January-December..	37,643	45 0 (S. A.)	
January-August (S.V. P only). ..		33 0 (S.V.P.)	Association rates.
1928 January-March-April-December	43,879	45 0 (S.A.) 38 0 (K. A.)	Do.

Explanation :— P. A.=Principal Agreement.
S. V. P. =Sutlej Valley Project agreement.
S. A. =Silo agreement.
K. A. =Kiln agreement.

APPENDIX B.

The following companies are members of the Indian Cement Manufacturers Association :—

1. Bundi Portland Cement, Limited.
2. Katni Cement and Industiral Co., Ltd.
3. Central Provinces Portland Cement Co., Ltd.
4. Punjab Portland Cement, Ltd.
5. Gwalior Cement Co., Ltd.
6. Indian Cement Co., Ltd.
7. United Provinces Cement Co., Ltd. (Trustee for the debenture holders.)

The Sone Valley Portland Cement Co., Ltd., and the Shahabad Cement Co., Ltd., are not members but are bound by agreement in regard to price. The Okha Cement Co., Ltd., formerly called the Dwarka Cement Co., Ltd., and recently re-started has not yet joined the Association but is negotiating.

APPENDIX C.

List of References Consulted.

Report of the Indian Tariff Board regarding the grant of protection to the cement industry, 1925.

DISCUSSION.

MR. ASTBURY in introducing his paper said that cement like steel was one of the most important manufactured materials used by engineers and that was the reason why Government had spared no pains to secure for its works an unfailing supply of reliable quality at a cheap rate. The matter was complicated but the complications were beyond Government's control. For instance, the trade deals in tons whereas the railways charge freight by the maund. Owing to late receipt of his paper by members it was perhaps not possible even for the most persevering to go through it and he, therefore, drew attention to certain points. Since writing he had heard from Messrs. Killick Nixon & Company, the Managing Agents of Punjab Portland Cement, Limited, that prices of bags would be reduced next financial year from Rs. 7-2-0 to Rs. 6-12-0 per 20 bags. Referring to the announcement just made in the Legislative Assembly regarding reduction of railway freight on coal for long distances he pointed out the consequent reduction in the price of cement, which required approximately half a ton of coal per ton of cement. He emphasized para. 16 of the paper and stressed its effect on the price of cement for Government works. The rate at which cement was intended to be issued for works should be definitely mentioned in a contract agreement and vague phrases like "stock rates" should be avoided.

MR. NICHOLSON said that Mr. Astbury's paper showed the extent to which Government had benefitted by these arrangements. He suggested that the various agreements might be consolidated into one simple agreement and thought that negotiations for the large requirements for the projected Bakhra Dam would afford a suitable opportunity in this direction. He pointed out that in the Buildings and Roads Branch contracts were given on through rates and if a contractor received cement in excess of his requirements there was the possibility of his using the surplus on other than Government works and thus making a profit. Some check on this was desirable.

MR. HADOW expressed his gratitude to Mr. Astbury for publishing in a small pamphlet form a complete precis of all the agreements entered into by Government for the purchase of cement. This would enable anyone to understand the position with the minimum amount of reading up.

He said that the price of cement could be brought down considerably if bags were eliminated and enquired if there was no way doing it. He referred to a suggestion made some time ago that in the case of big works, clinker might be brought to the site of work and ground in such quantity as required from time to time. Clinker did not deteriorate even when exposed to rain and, if it were used on big works, like the Bakhra Dam the cost of the cement used would be appreciately lessened. He urged members of the congress to examine Mr. Astbury's paper very carefully as it would save them many disappointments and mistakes in their indents.

He opined that if the instructions in the paper were followed carefully things would be much easier not only for the company but also for those who have to bear reponsibility for delays in works.

MR. DORMAN enquired whether the question of using paper bags had been investigated with a view to bringing down the price of cement. He referred to the practice in vogue in England and of packing certain quick setting cements in paper bags and suggested that as their use had been found satisfactory in a moist climate there was no reason why they should not be used in India provided they were cheaper than the gunny bags now used.

MR. MUSTO said that he had had no time to study the paper owing to its late receipt, but there was one important point the question of prompt payment. He had himself instituted in his Circle a monthly return showing all bills outstanding for more than a month, the date of receipt and the reason for non-payment. There was nothing in the account rules, however, to prevent part payment, and he had instructed officers under him to deduct, in case of shortage or dispute, twice the disputed amount and to pay the balance at once. The remainder of the bill to be paid as soon as the disputed items were settled. Mr. Musto pointed out that suppliers and contractors could not quote low rates if they had to wait months for payment, when their own capital was probably borrowed at interest.

COLONEL WALTON while asking Mr. Astbury to answer the various questions raised in the discussion on his paper enquired what arrangement had been made at Wah for testing the cement. He considered this matter a most important factor in connection with purchase of cement.

MR. ASTBURY replying said that when he first stood up to introduce his paper he was feeling nervous as he expected a rush of dissatisfied indentors to the platform. The fact that the platform was not rushed he took to be a compliment to the arrangements made for the supply of cement.

Regarding Mr. Nicholson's remarks about the consolidation of various agreements into one agreement he said that in a way that had already been done. The Principal Agreement which was the first entered into with Punjab Portland Cement, Limited, remained fast as the Principal agreement, the subsequent agreements being merely supplementary. The Bundi agreement however must remain a separate agreement as it was with a different party.

Referring to para. 5 of his paper Mr. Astbury said that the gist of the matter was that when prices fell and cement was required for the Sutlej Valley Project Mr. Foy had foresight and seized the opportunity to secure it at a very cheap rate and by a simple stroke of business probably saved Government his pay for 2 or 3 years.

With regard to Mr. Nicholson's point about sale of cement by contractors he pointed out that this was strictly prohibited in the contract agreements and if a contractor sold material issued for a government work outside that work he ran very near the criminal law. The only way of preventing this was to see that cement brought to the work was not carried away again, and it was for the Executive Engineers to watch the materials issued to contractors.

Regarding Mr. Hadow's suggestions to grind slag or clinker at site, Mr. Astbury pointed out that although clinker was not susceptible to damage by moisture elaborate machinery would be necessary at the site of work if it was intended to grind it there and the proper grinding of cement was a vital stage in manufacture.

Turning to Mr. Dorman's question regarding the use of paper bags, he said that the price of paper bags was higher than that of jute bags. Paper bags would have to be imported while jute bags were made in India and the policy of Government was to use indigenous material. Another reason against the use of paper bags was that the heat of the fresh cement made the paper brittle and caused thet bags to burst in transit. Cotton bags were used in America and their use here would be looked into.

Regarding the testing of cement mentioned by Colonel Walton, Mr. Astbury said that it was covered by the terms of the agreement and the company maintained a fully equipped laboratory under a qualified European Chemist to test cement. The company undertook to supply a test certificate if any officers asked for it.

Mr. Astbury invited attention to the last paragraph on page 153 of his paper and said it read rather boldly but he had submitted it to the Accountant-General before it appeared in print and the latter assured him that it was correct as it stood. Officers might therefore rely on this simple and direct method of payment.