ready for dumping, and Slide No. 19 shews the same four bales dumped and made into two double dumps. At the back of press can be seen a stack of dumped bales.

After dumping the bales they are wheeled to different parts of the shed floor to inclined chutes. (See Slide No. 19, which shews one of these shoots with bales of wool at different stages during the transit to wharf, edge ready for the lighter.)

Description of Four Wool-Dumping Plants.

No. 1 Plant using low pressure from Hydraulic Power Co.'s main, and intensifiers.

No. 2 Plant having an independent low pressure pumping plant, with accumulator and intensifiers. (Using Council's electric motor and power.)

No. 3 Plant having an independent low pressure pumping plant, with accumulators and intensifiers (making their own electric power).

No. 4 Plant having an independent low and high pressure plant, with accumulators.

No. 1 Plant.

Power: The power is supplied by means of a 3in. branch from the Hydraulic Power Co.'s 4in. main (the pressure being 700 lbs. per sq. inch) to six single pressers and intensifiers.

Power Users: The press rams are 8in. diameter and 5ft 6in. stroke, and the intensifiers are 7in. and 3in. diameter and 3ft. stroke.

The Wool-Bale Handling Appliances comprise the following:—

Four hydraulic whips; rams 4in. diameter by 6ft. stroke, each of 10cwt. capacity.

Three finger tray wool-elevators with a speed of 60 feet per min., delivering approximately 280 bales per hour, driven by an 8 h.p. motor.

Five vertical wool-shoots with adjustable spring slides, can take any size bale from the dumping floor to the wharf deck.

This plant averages approximately 24 bales per press per hour, which is very fair, considering that the presses are not suited for the existing dumping conditions, and also that the plant in question draws its power from the tail end of the Power Co.'s supply main, approximately 2½ miles from the power house. The pressure when it leaves the power house is 750 lbs., being transmitted through a 6in. diameter main, then through a 4in. from which a 3in. diameter branch goes to feed the press main in the above plant. There the pressure is barely 700 lbs., although the presses are designed for 800 lbs. So this is another set back to efficiency of plant.

If all presses are working full at one time they would consume approximately 9.5 gallons of water per minute or 750 gallons per hour.

No. 2 Plant.

Power: The power is supplied by a duplicate set of electric belt driven three throw (Austral Otis type) pumps, plungers 5in. diameter x 5in. stroke, revolutions 45 per min. Capacity 100 gallons per minute. The motors are 28 h.p.

The auxiliary power is supplied by:—

One duplex double-acting pump. Plunger 3in. dia. x 9in. stroke, driven by belt from a 25 h.p. motor, and

One set of three throw pumps. Plungers 2½in. dia. x 4½in. stroke, driven by belt from a 12 h.p. motor.

This plant also has an 18 h.p. Hornsby gas engine, kept as a stand-by in the event of a strike.

These pumps supply pressure through pipes 4in. and 6in. dia. to an accumulator 13⅜in. dia. x 10ft. stroke, loaded to 750 lbs. per sq. inch. Capacity is approximately 9,000 gallons.

The suction and exhaust tank is 7ft. x 5ft. x 6in., or approximately 1,500 gallons when full.

Power Users: The pressure is drawn off from this accumulator through pipes 4in. and 3in. diameter mains, as required by the following:—

Six Presses	Six Intensifiers.
4 Austral Otis Type Vertical two-bale Rams, 8¼in. diameter x 9ft. stroke.	Rams 11in. and 5¼in. diameter x 3ft. stroke.
1 One-bale, Ram 8in. diameter x 5ft. 10½in. stroke.	Rams 8in. and 3⅝in. diameter x ft. stroke.
1 Four-bale, Ram 10¾in. diameter x 9ft. 6in. stroke.	Rams 7in. and 3½in diameter x stroke.

Another four-bale press now being added.

On the 4 vertical two-bale presses there is side operating gear, hydraulicly controlled, to keep the sides of bales straight when being dumped. The rame are 2¼in. dia. x 3½in. stroke, and exert a press of about 1 1-3 tons.

The Wool-Bale Handling Appliances at present comprise the following:—

Four 7cwt. hydraulic whips with rams, 3¾in. dia. x 2ft. 8in. stroke, travelling 16ft. high with a bale, at the rate of 150ft. per min.

Six vertical wool-shoots, with adjustable spring slides, can take any size bale and runs from dumping floor to wharf deck. The chutes have also at the bottom a movable table, by which a bale can be deposited in the shed or on the wharf deck.

And (1) portable hoist and stacker driven by a 2 h.p. motor, which lifts a bale about 16ft. high at a speed of 40 feet per minute.

No. 3 Plant.

Power: The power is supplied by a suction gas producer plant to six internal combustion engines, which includes the following:—

Two 11in. dia. x 18½in. stroke (drives electric generators).

One 13¾ dia. x 20in. stroke (drives electric generators).

One 15½ dia. x 20in. stroke (drives two sets of three throw pumps).

One 14½ dia. x 20in. stroke (drives one set of three throw pumps).

One 3-cylinder, 15½in. diameter x 20in. stroke (coupled to generator which supplies current for motor and lights in store, etc.).

The whole developing approximately 450 b.h.p., and two auxiliary air compressors producing 150 lbs. per sq. inch, for starting requirements of the above engines.

The pumping plant consists of five sets of three throw pumps, belt driven, two by motor and three by engines, with a total pumping capacity of 125 gallons per minute and a pump efficiency of about 94 per cent. The working pressure is 750 lbs. per sq. inch. (See Slide No. 20 which shews a similar belt driven pump.)

The pressure is supplied by two accumulators by means of a 4in. diameter main pipe.

No. 1 is 14in. dia. x 12ft. stroke, and close to pumps.

No. 2 is 15in. dia. and 12ft. stroke, and about 350ft. from No. 1. No. 2 is loaded 5 lbs. per sq. inch less than No. 1.

Power Users:—The wool presses and intensifiers draw their feed from the accumulators by means of a 4in. main pipe, and include the following:—

Six Wool Presses	Intensifiers.
3 Single bale presses, Rams 8in. diameter x 6ft. stroke	Rams 10⅝in. and 3¾in. diameter x 3ft. 6in. stroke.
2 Vertical two-bale press, Ram 8in. diameter x 10ft 4in. stroke	Rams 18¾in. and 6½in. diameter x 4ft. stroke.
1 Single bale press, Ram 8in. diameter x 8ft. 2in stroke.	Rams 10⅝in. and 3¾in. diameter x 5ft. stroke.

The presses in columns 3 and 4 have side operating gear, hydraulicly controlled for keeping sides of bales straight when being dumped.

The average number of gallons per minute on each press is approximately 10.6, or an average of 20 gallons per bale of wool dumped.

The presses have a special design of supply and relief valves, quite out of the ordinary.

The first valve supplies high and low pressure to the press, and the second valve releases both at once.

The inlet and exhaust pipes are both 2in. diameter. The exhaust tank has a capacity of 800 gallons, and the suction tank a head of 8ft.

The number of feet of piping to and from the plant is 1,300 feet.

The Wool-Bale Handling Appliances comprise the following:—

13 hydraulic wool lifts, capacity 25 cwt.

3 hydraulic whips, capacity 10 cwt.

2 wool apron conveyors, namely:—

One, 250ft. long, speed 88ft. per min.

One, 300ft. long, speed 88ft. per min.

3 wool-shoots which run from store to wharf deck, all steel, which include the following:—

One, 100ft. long, in centre of store, 4ft. 5½in. diameter, grade, 1 in 2.6.

One, 200ft. long, at end of store, 4ft. 5½in. diameter, grade, 1 in 3.3.

One, 200ft. long, at end of store, 4ft. 5½in. diameter, grade, 1 in 3.7.

(See Slide No. 21, shewing one of these shoots.)

The plant is equipped with a Little's mechanical water cooler, and the gallons of water dealt with per hour is 3,000.

The storage reservoir is under the engine room floor, with a capacity of 7,000 gallons. A centrifugal pump draws from this reserve to two tanks of 400 gallons, each 22ft. above ground level. It then gravitates from the tanks through the jackets of the various gas engines, and then back to the cooler, returning to the underground reservoir for use over again.

The engine-room is ventilated with a 48in. fan, and it changes the air in same every 12 minutes.

The plant above has a connection to the town gas supply, if required, and also a connection to the City Council power for lighting, office, street and wharf.

The above plant is a very modern and elaborate one, and turns out good work. Bales have come to the store and been passed through it, dumped, and all passing through the chutes to the wharf in about four minutes.

With the vertical two-bale press they can dump about 46 bales per hour, and when the whole of the dumping plant is in use, it can turn out 1,100 bales in $8\frac{3}{4}$ hours.

No. 4 Plant.

Power.—The steam is supplied to a duplicate set of low and high pressure pumps, by means of two multitubular boilers, each 5ft. 6in. diameter x 12in. long, steam pressure 120lbs. per sq. inch, and the horse-power of each boiler is approximately 50. The low pressure pumps include 1 Blake 18in. diameter steam x 24in. stroke, with plunger $4\frac{1}{2}$in. diameter; 1 compound 9in. and 18in. diameter steam x 18in. stroke, with plunger $4\frac{1}{2}$in. diameter, which raise the pressure from zero to 800lbs. per sq. inch. The two high pressure pumps include 2 singles, each 18in. diameter steam x 18in. stroke, with plungers $2\frac{1}{4}$in. diameter, which raise the pressure from 800 to 2500lbs. per sq. inch. The pumps draw their water from a suction tank which holds approximately 1200 gallons.

The above pumps supply the pressure to three accumulators (two of which are low and one high pressure) by means of 1½in. and ⅝in. diameter bore pipes. The low pressure accumulators include one 11in. diameter ram x 9ft. 4in. stroke, and one 11in. diameter x 12ft. 6in. stroke, which are loaded to 800lbs. per sq. inch. The high pressure accumulator ram is 5½in. diameter ram x 12ft. stroke, loaded to 2500lbs. per sq. inch. All the above plant is situated on the ground floor, on reinforced concrete beds, supported on piles. (See Slide No. 22, which shows the engine-room.)

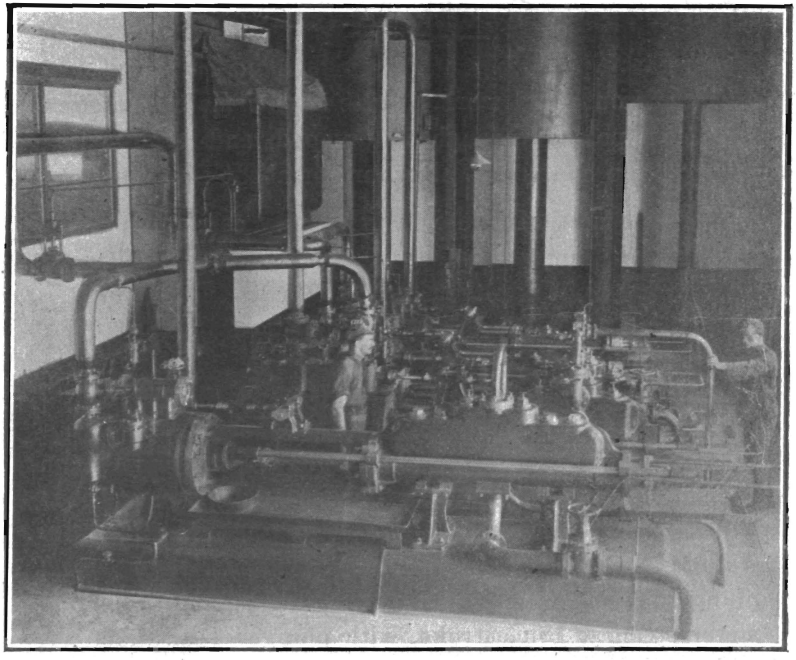

Fig 7 (Slide 22).

Power Users.—The wool presses are on the second floor of building, and draw their feed from the accumulators by means of a 3in. main pipe, as required, and include the following;—

3 four-bale presses, 11in. diameter x 10ft. 6in. stroke.

2 horizontal two-bale presses, 11in. diameter x 5ft. 6in. stroke.

These presses have side operating gear, hydraulicly controlled, to keep sides of bales straight when being dumped, the power being supplied by 2 rams 4½in. diameter x 6in. stroke, situated on top of cap, and exert a pressure of about 5 tons. The presses exhaust back by means of a 2in. bore pipe to the supply tank, which holds approximately 1200 gallons.

The Wool-bale Handling Appliances comprise the following:—

Two 10-cwt. hydraulic whips, rams 3in. diameter x 6in. stroke, travelling 13ft. high with a bale at the rate of approximately 150ft. per minute, working pressure 750 lbs. per sq. inch.

Three electrically-driven finger tray elevators, with a speed of 60ft. per minute, delivering 280 bales per hour, H.P. of motor being 8.

Four inclined wood chutes, grade approximately 1 in 2.13, and

Nine inclined tubular chutes, grade 1 in 3, arranged roughly to represent the different hatches of the ships.

This plant (although it is a very old one, parts of which have been renewed and improvements added) is one of the best dumping plants in Sydney, judging by results achieved, and has been known to stow wool on board taking less room than other dumpers. It can dump 50 bales per hour in each horizontal two-bale press, and 120 bales per hour in each four-bale press, totalling approximately 450 bales per hour, if all five presses were used at one time to their full capacity.

Packing for Dumping Machinery.

This is a very important factor in dumping plants.

The packing used in dumping machinery is either

ordinary leathers or Walker's lion. The leather is used generally on low pressure accumulators and press rams.

The lion packing is always used on the high pressure accumulators and intensifiers, and also on a few of the latest presses. Some of the presses in old plants have had glands fitted to cylinders so as to take three turns of this packing. I heard one person say that a leather on a ram from Germany before the war lasted two years before it required renewing. In another plant Lion Brand packed glands on low pressure accumulators have not required re-packing for over four years. A lot of delay from time to time has been caused through faulty packing. One firm has copper-covered rams, and the engineer said they give no trouble. Where plants have their own power-water there is less trouble, as they can add soap periodically, which helps to lubricate the rams, preventing them from getting dry. Whereas water from a public supply is being continually changed in the service, so rendering impossible the addition of a lubricant of this nature, also grit which occasionally, notwithstanding care, is found in the water. Therefore the leathers wear rapidly and require frequent renewal. Of course, a good deal of the trouble could be got over with a system of proper filtration, involving an initial expense only of comparatively small amount.

Table of Tests Showing Quantity of Water used in Pressing Wool-bales.

Press.	Dia. of Ram.	With accumulator or first pressure.		With intensifier or second pressure.		Total Press movement	Average gallons per bale.	Ratio.
		Press movement	Galls. used.	Press movement	Gals. used.			
Singles.	Inches	ft. ins.		inches		ft. ins.		
No. 1 Press	$7\frac{13}{16}$	4 $0\frac{13}{16}$	8·78	$3\frac{15}{16}$	2·812	4 $5\frac{1}{8}$		
No. 2 ,,	,,	3 $11\frac{5}{16}$	8·5	$5\frac{3}{4}$	4·107	4 $5\frac{1}{16}$		
,, ,,	,,	4 $0\frac{3}{8}$	8·68	$4\frac{1}{2}$	3·214	4 $5\frac{1}{8}$	11·863	4
,, ,,	,,	3 $9\frac{13}{16}$	8·18	$5\frac{1}{2}$	3·929	4 $3\frac{5}{16}$		
,, ,,	,,	3 $3\frac{5}{8}$	7·0	$5\frac{11}{16}$	4·063	3 $9\frac{5}{16}$		
No. 3 Press	8	4 $4\frac{1}{2}$	9·52	$1\frac{7}{8}$	2·28	4 $6\frac{3}{8}$		
,, ,,	,,	3 $11\frac{3}{4}$	8·66	$5\frac{13}{16}$	7·378	4 $5\frac{9}{16}$		
,, ,,	,,	3 $7\frac{1}{2}$	7·88	$8\frac{5}{8}$	10·630	4 $3\frac{5}{8}$	15·359	7
,, ,,	,,	4 $2\frac{5}{8}$	9·18	$3\frac{3}{4}$	4·76	4 $6\frac{3}{8}$		
No. 4 Press	,,	4 $1\frac{1}{4}$	8·95	$5\frac{7}{8}$	7·457	4 $7\frac{1}{4}$		
Horizontal.								
2 Bale	11	3 6	14·4	$5\frac{5}{8}$	7·025	3 $11\frac{5}{8}$	20·540	
,,	11	3 $5\frac{1}{2}$	14·28	9	6·425	3 $11\frac{1}{2}$	10 270	3·125

Average galls. per bale for all tests—12·494.

The first ten tests were taken at No. 5 Plant, November 11th, 1911, and the last two at No. 4 Plant, May 21st, 1915.

Gallons per foot of 7 15/16in. ram = 2.143
„ „ 8in. „ = 2.176
„ „ 11in. „ = 4.114

Gallons used with intensified pressure = gallons per foot of press ram x ratio.

By the above table it will be seen that the average gallons per bale for the first five tests is 11.853, and the next five 15.359, all belonging to No. 5 Plant; the last two, which belong to No. 4 Plant, being 10.270 gallons, or the whole twelve tests averaging 12.494 gallons.

From these investigations one can safely allow from 11 to 12 gallons on the average bale dumped, and not be far wrong.

The marked variations in some of the above tests are due to:—

(1) Hard and soft bales.
(2) The fault of the operator opening the high pressure valve before the low pressure has done its work.

Independent Low Pressure Wool-dumping Plant against a Plant which draws its Low Pressure Power from the Hydraulic Company's Main.

The following is a comparison from actual results:—

The output of a Sydney firm during season 1909-10 was 200,000 bales of all kinds. The plant is an independent one, capable of dumping 400 bales per hour, and the cost set down at £2240, and working expenses for that year amounted to £900 17s. 8d.

The annual expenditure would be:—

Interest at 10 per cent on capital cost	£224	
Depreciation, 3½ per cent.	78	
Working Expenses	901	
Total	——	£1203

The cost per bale would therefore be:—

$$\frac{(1203 \times 20 \times 12)}{200{,}000} = 1.443 \text{ pence.}$$

Now, regarding the plant which draws its low pressure from Power Company's main, the only annual cost is that of water. The dumping taking 11 gallons to a bale, of 200,000 bales, would entail a consumption of 2,200,000 gallons during about six months of that year, and would cost, rating the water at 5/- per 1000 per quarter = £550 for the year. The cost per bale would be:—

$$\frac{(550 \times 20 \times 12)}{200{,}000} = 0.66 \text{ pence.}$$

The difference between the costs per bale (1.443 — 0.66) is .783 pence, and represents an annual saving of

$$\frac{200{,}000 \times 0.783}{12 \times 20} = £652/10/-.$$

There is also the saving space occupied by the power portions of an independent plant. This saving will readily be appreciated. In one instance it amounted to 2511 square feet, or 43,900 cubic feet = 2000 bales; and in another instance amouning to 3844 square feet, or 48,960 cubic feet = 2400 bales.

Besides, there is no engine-room trouble like some have had in the past.

Notes Showing why a Standard Pressure should be Adopted for Dumping Plants.

The natural tendency, in these times of excessive competition, is towards maximum economy; but there are vital limits which are reached when the object for which the industry is established receives injury thereby.

In the wool industry, the maximum economy in transport space is the end which the wool grower and the

agent ever seek, and engineering science has served this end to the extent that now two bales are stored in a space which previously one occupied.

It is just here where the interests of the wool-grower and agent may collide with those of the manufacturer, who desires to produce the best material for the general public. And there is no doubt that this end would best be obtained if the wool could be taken direct from the sheep's back to the manufacturer. This, however, is not possible, owing to the great distances which separate the broad pasture lands of Australia from the manufacturers of Europe and America.

It would be interesting to know precisely at what statical or absolute load wool commences to receive permanent injury. The author has, so far, failed to ascertain this knowledge. No doubt, if the woollen manufacturers of Europe or America were enquired of, the knowledge could be ascertained. It cannot be obtained from local manufacturers, for the material they make is of wool undumped.

In this connection it may interest members of the Association to hear some brief particulars respecting absolute pressures applied to wool bales. They will doubtless be surprised at the great variety shewn on Slide No. 23. The author obtained particulars of the wool-pressing plants owned by ten Sydney firms, and has been surprised to find that the statical pressure on a bale ranges from 53 to 140 tons. The firm which uses the lowest pressure had been working at one slightly higher, but has reduced it to what it now is, and turns out perfect bales to suit all requirements of the shipper. Why, then, should higher pressures be applied, and especially such a pressure as 140 tons? The lowest pressure which the firm who uses 140 tons works at is, in the ultimate dumping, 135 tons. It is reasonable to conclude that if 53 tons are sufficient to properly dump a bale of wool, the extra 87 tons are

DATA RELATING TO WOOL PRESSES.

COMPILED FROM 10 DIFFERENT PLANTS.

NUMBER OF PLANT	Nº OFF	PRESS RAM DIAM.	PRESS RAM STR^G.	INTENSIFIER RAMS DIAM^S.	INTENSIFIER RAMS STR^G.	RATIO	PRESSURE LBS. PER SQ.IN	LOAD ON BALE IN TONS	REMARKS.
Nº1	6	8"	66"	7" AND 3"	36"	5·444	700 AND 3800	85·5	SINGLES.
Nº2	4	8¾"	108"	11" " 5¼"		4·390	700 " 3073	73·33 (113·45)	VERTICAL TWO-BALE.
	1	10⅜"	114"	7" " 3½"		4·000	" " 2800	56·72	FOUR-BALE.
	1	8"	70½"	8" " 3⅜"		4·870	" " 3409	76·50	SINGLE.
Nº3	1	11"	66"	14⅞" " 5¾"	36"	8·027	750 " 6020	(285·46) 127·70	HORIZONTAL TWO-BALE.
	3	8"	72"	10⅜" " 3¾"	42"	"	" " "	135·09	SINGLES.
	1	8"	124"	18¾" " 6½"	48"	8·321	" " 6241	140·00	VERTICAL TWO-BALE.
	1	8"	62"	10⅜" " 3¾"	60"	8·027	" " 6020	135·09	SINGLE.
Nº4	2	11"	126"	THIS PLANT HAS		3·125	800 " 2500	(264·98) 53·66	FOUR-BALE.
	1	11"	123"	HIGH AND LOW		"	" " "	" "	" "
	2	11"	66"	PRESSURE PUMPS		"	" " "	" "	HORIZONTAL TWO-BALE.
Nº5	2	8"	66"	7¼" AND 3⅜"		4·000	760 " 3040	68·21	SINGLES.
	2	8"	66"	12¼" " 4⅜"		7·010	" " 5328	119·55	"
Nº6	5	8"		12¼" " 5"		6·000	700 " 4200	94·24	"
	2	9½"		12" " 6"		4·001	" " 2800	88·60	"
	1	13"		15¾" " 7"		5·062	" " 3543	(209·96) 104·98	HORIZONTAL TWO-BALE.
Nº7	2	14⅞"	66"	14⅞" " 10½"	28"	1·923	1000 " 1923	(147·939) 73·97	" " "
	2	10⅜"	72"	8⅜" " 5⅜"	24"	2·054	" " 2054	80·35	SINGLES.
Nº8	2	8"	66"	14" " 6"	19"	5·444	700 " 3800	94·24	"
	1	8"	66"	9½" " 4"	34½"	5·640	" " 3948	88·59	"
	1	11"	84"	14" " 6"	30"	5·444	" " 3800	(161·67) 80·83	HORIZONTAL TWO-BALE.
	1	8"	66"	12¼" " 5"	22"	6·002	" " 4200	94·24	SINGLE.
	1	10"	70"	14" " 6"	30"	5·444	" " 3800	133·61	HORIZONTAL TWO-BALE.
Nº9	1	10½"	108"	THIS PLANT HAS		4·000	1120 TO 4480	(175·18) 86·59	FOUR-BALE.
	2	"	72"	HIGH AND LOW		"	" " "	"	HORIZONTAL TWO-BALE.
	1	8"	65"	PRESSURE PUMP		"	" " "	100·53	SINGLE.
Nº10	1	10½"	84"	SAME AS		"	" " "	(175·18) 86·59	HORIZONTAL TWO-BALE.
	5	8"	66"	Nº9 PLANT		"	" " "	100·53	SINGLES.

Fig. 8 (Slide 23.)

superfluous, entailing extravagance, and possible injury to the wool. Of course, the plants with the big pressures have a little more room to work on their bands, and perhaps make a neater-looking bale. The author is of the opinion that there ought to be a standard statical pressure adopted, and it seems that 50 tons should be that standard. On an ordinary double-dumped bale, this pres-

sure would be equivalent to about 105lbs. per sq. inch on the wool fibre, and about 143lbs. per sq. inch in the case of single dumps.

Attached are Some Arguments For and Against Wool-dumping.

Arguments against Dumping, according to opinions of an expert woollen mill manufacturer, also an expert wool broker:—

1. It does injure the fibre slightly, and more so when excessively dumped.

2. The wool never looks so attractive when it has been dumped and offered in London.

3. Before the war provision was made by merchants for shipping of wool undumped, who intended re-offering the wool for sale in London.

4. Sometimes bales, when dumped and of long standing, have had to be steamed to get the fibre apart.

5. In dumping greasy bales, it often sends the yoke through the fibre, and discolours the wool, and is very hard to get white again. (Of course, some wool is of a creamy colour.)

6. When wool that is a little damp has been dumped and allowed to stand for a long time, it sets up a sort of combustion that is likely to rot the wool, as the air cannot get through the bale freely.

7. The temptation presents itself to reach extreme limits by freight saving.

Arguments for Dumping, according to leading shippers:—

1. In these commercial times dumping is almost a necessity, on account of shipping space, and even more now on account of the shortage of tonnage caused through the war.

2. A lot of labour is saved in ships by stevedores using their dumping plants to the best advantage in stowing wool. On board the same amount of space is not necessary. In olden days the wool had to be screw-jacked into the holds.

3. Regular shippers have experimented, when shipping a clip of 1000 bales, by having the clip dumped, picking out every alternate bale (the rest remaining undumped), that, when the wool was offered together at one particular sale, the result was, there was no material advantage to be gained by shipping the wool undumped, as saving of freight fully justified it.

4. When wool is dumped, it is easier to handle for transport, and takes up less storage space, equalling practically $2\frac{1}{4}$ to 1.

5. If dumping had made any material difference to the wool in pre-war times, many manufacturers would have been quite inclined to pay the extra freight for undumped bales.

It will be interesting to know what this wool (that has been double-dumped and left stored for long on account of shortage of shipping) looks like when it arrives at its destination and is opened up, as we are at present in the dark as to whether this extra squeezing up of the bales will cause any severe injury to the wool.

For various reasons the author was unable to obtain particulars of plants operating in Melbourne and Brisbane, and hopes that the subject matter of the paper has been interesting to members, it being one upon which a great deal more time could profitably have been spent.

In conclusion, the author has to thank all those gentlemen who have been so ready to help him in gaining information and securing suitable photos.