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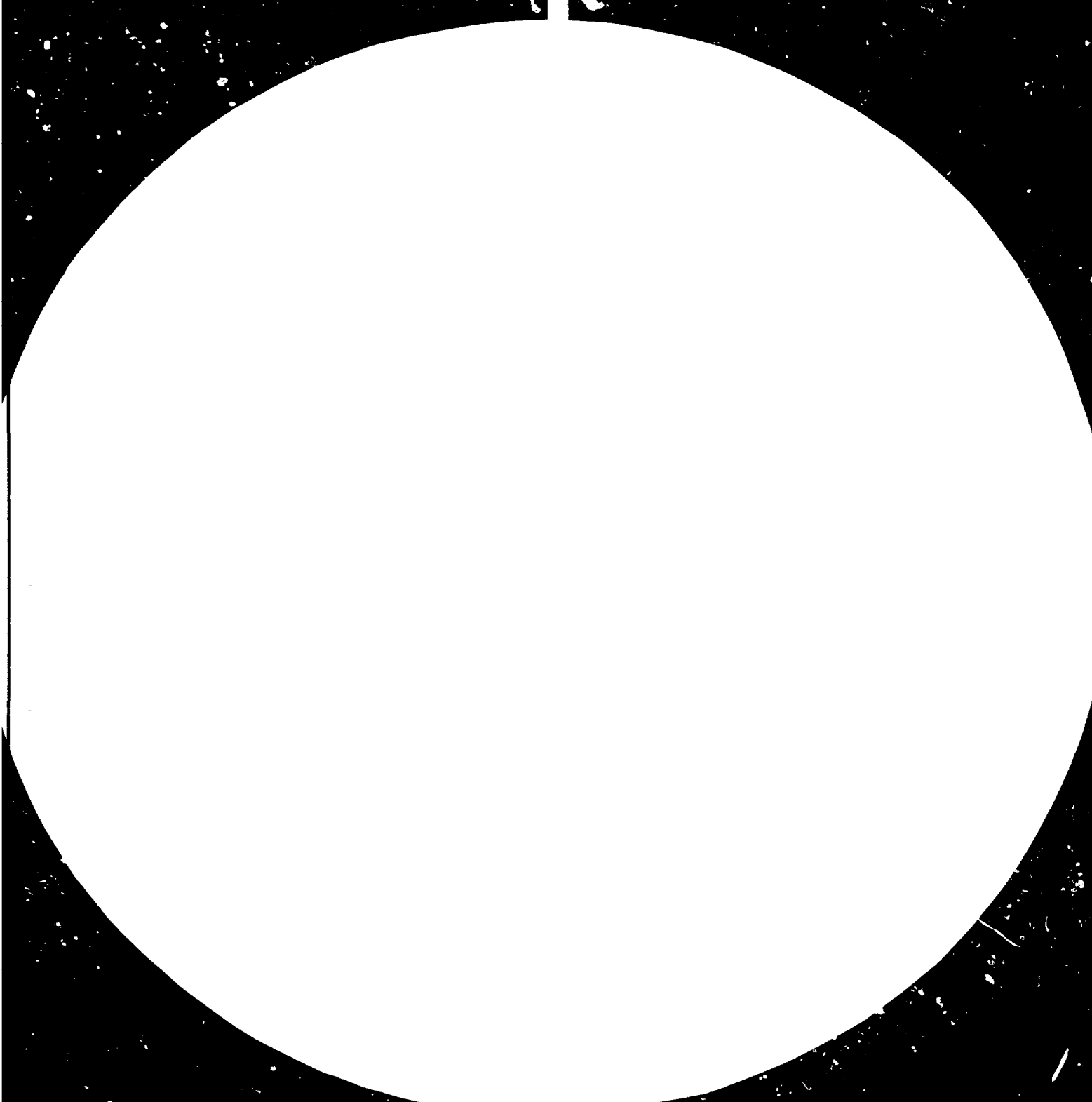
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THE READY MIXED CONCRETE INDUSTRY - AN OVERVIEW\*

by  
D. Trowse\*\*

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\*\* Regional General Manager, The Readymix Group (Qld.).

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1. INTRODUCTION

FEW INDUSTRIES CAN CLAIM TO BE MORE IMPORTANT TO THE ECONOMIC DEVELOPMENT OF A COUNTRY, OR A REGION, THAN THE READY MIXED CONCRETE INDUSTRY. AFTER WORLD WAR II, THE ECONOMIC ADVANTAGE OF READY MIXED CONCRETE WAS QUICKLY RECOGNISED. THE SAVINGS IN LABOUR, CEMENT USAGE AND TRUCK TURNAROUND QUICKLY PUSHED THE INDUSTRY TO THE FOREFRONT OF THE CONSTRUCTION AND ALLIED TRADES.

THE PURPOSE OF MY TALK THIS MORNING IS TO PROVIDE YOU WITH AN OVERVIEW OF THE INDUSTRY. I WILL ADDRESS MYSELF TO THE IMPORTANT

AREAS OF:

- . INDUSTRY BACKGROUND
- . PRODUCTION
- . THE MARKET PLACE
- . PLANT LOCATION AND DEMAND

IN ADDITION, I PROPOSE TO MAKE SOME OBSERVATIONS AS TO INDUSTRY STRUCTURE AND TO FINALLY PUT FORWARD A FEW THOUGHTS ABOUT THE FUTURE.

CONCRETE IS A MIXTURE OF CEMENT, SAND, COARSE AGGREGATES, WATER AND OTHER ADDITIVES MIXED TO FORM A PLASTIC MATERIAL READY FOR PLACING. IT IS A PERISHABLE COMMODITY WITH ONLY 2 TO 3 HOURS IN WHICH TO BE COMPACTED INTO PLACE BEFORE HARDENING. IT IS AROUND THIS CONSTRAINT THAT THE READY MIXED CONCRETE INDUSTRY HAS DEVELOPED. THE WORD "CONCRETE" IS MISUNDERSTOOD UNIVERSALLY - IT IS REFERRED TO AS "CEMFNT" BY MANY PEOPLE WHO SHOULD KNOW BETTER.

## 2. INDUSTRY BACKGROUND

FORTY-TWO YEARS AGO IN AUSTRALIA, MIXING ON SITE WAS THE COMMON PRACTICE. BUILDERS WOULD MIX UP A QUANTITY AS AND WHEN REQUIRED FROM PILES OF SAND, AGGREGATE AND BAGS OF CEMENT. HOWEVER, AS THE QUANTITIES REQUIRED IN EACH JOB GREW LARGER, THE NEED FOR A LESS LABOUR INTENSIVE APPROACH BECAME APPARENT. THIS LED TO THE DEVELOPMENT OF READY MIXED CONCRETE. READY MIXED CONCRETE LIMITED BUILT THE FIRST CENTRAL BATCHING PLANT AT GLEBE, SYDNEY IN 1939.

READY MIXED CONCRETE IS MIXED AT A CENTRAL POINT IN A BATCH PLANT, LOADED INTO SPECIAL VEHICLES, AND THEN TRANSPORTED TO THE JOB SITE. ITS SHORT "SHELF LIFE" MEANS THAT READY MIXED CONCRETE IS VERY MUCH A LOCAL DELIVERY SERVICE WITH PREFERABLY NOT MORE THAN A HALF-HOUR JOURNEY TO SITES.

ORIGINALLY, THE READY MIXED FACTORY COMPRISED MATERIAL STORAGE AND WEIGHING AND BATCHING EQUIPMENT WHICH FED MATERIALS INTO A WET BATCH MIXER AND THE MIXED CONCRETE WAS THEN DISCHARGED INTO THE TRANSPORT VEHICLE. DUE TO THE SHORT "SHELF LIFE", MOST USERS OF READY MIXED CONCRETE CONSIDER THAT AGITATION OF THE MATERIAL DURING THE JOURNEY IS ESSENTIAL. THIS HAS LED TO THE DEVELOPMENT OF SPECIAL AGITATION VEHICLES WHICH THOROUGHLY MIX THE CONCRETE DURING THE JOURNEY TO SITE. AUSTRALIAN TAXATION AUTHORITIES ACCEPT MOUNTED AGITATORS AS PART OF THE PRODUCTION PROCESS.



3. PRODUCTION

A CUBIC METRE OF 20 MPa CONCRETE DELIVERED LOCALLY (SAY WITHIN 5 KMS) SHOULD COST ABOUT A\$50 DEPENDING ON THE PROXIMITY OF RAW MATERIAL SUPPLIERS. CONCRETE SUPPLIED TO MEET LARGE DEMAND TENDERS WOULD, OF COURSE, VARY WITH THE TENDER.

THE NATURE AND SIZE OF CONCRETE PLANTS HAS CHANGED SIGNIFICANTLY OVER THE LAST 40 YEARS. IN THE EARLY YEARS, SOME VERY LARGE WET BATCH PLANTS WERE BUILT AND SOMETIMES AFTER THE MARKET MOVED AWAY FROM THEM, THEY BECAME "WHITE ELEPHANTS". NOW MOST PLANTS ARE OF THE DRY BATCH VARIETY AND SMALLER. DOUG REA WHO FOLLOWS ME, WILL GIVE YOU GIVE YOU THE BENEFIT OF HIS EXPERT KNOWLEDGE IN THIS FIELD.

THE TRANSIT MIXER CONSISTS OF TWO UNITS - THE PRIME MOVER, USUALLY IN AUSTRALIA, OWNED BY THE CARTAGE CONTRACTOR, AND THE CONCRETE AGITATOR ITSELF WHICH IS OWNED BY THE COMPANY. A PRIME MOVER SUITABLE FOR TRANSPORTING CONCRETE WOULD COST IN THE VICINITY OF \$50,000 WHILE THE MIXER WOULD COST IN THE VICINITY OF \$15,000.

THE AVERAGE LOAD IS AROUND 4 CUBIC METRES ALTHOUGH THE AVERAGE MIXER CAPACITY IS CLOSER TO 5 CUBIC METRES, BUT BECAUSE OF ROAD GRADES, IT IS OFTEN LOADED BELOW CAPACITY.

4. THE MARKET PLACE

UNLIKE THE U.S.A. WHERE THERE ARE FEW, IF ANY, NATIONAL READY MIXED CONCRETE COMPANIES, AUSTRALIA HAS THREE LARGE NATIONAL COMPANIES AND SEVERAL OTHER BIG COMPANIES WHICH ARE ACTIVE ONLY IN THE EASTERN STATES. THE INDUSTRY IS VERY COMPETITIVE AND SEVERE PRICE WARS ARE NOT UNCOMMON.

FURTHER, BECAUSE OF GREAT EXCESS OF PRODUCTION CAPACITY IN MAJOR CITIES, CUSTOMERS DEMAND DELIVERY AT VERY SHORT NOTICE. IN BRISBANE, BECAUSE OF THE WARMER CLIMATE, MANY CUSTOMERS WANT CONCRETE EARLY IN THE MORNING TO ALLOW PLACEMENT BEFORE THE HEAT OF THE DAY. (7.30 A.M. IS A POPULAR STARTING TIME WITH MANY CUSTOMERS.)

THE AUSTRALIAN CONCRETE PRODUCER GUARANTEES THE STRENGTH OF HIS PRODUCT AND MUST STAND BY THAT GUARANTEE. QUALITY CONTROL IS MONITORED BY TESTS CARRIED OUT AT NATIONAL ASSOCIATION TESTING AUTHORITY (N.A.T.A.) REGISTERED LABORATORIES.

BECAUSE OF THE EASE OF ENTRY INTO THE INDUSTRY - LIKE THE CAR INDUSTRY - MAJOR PRODUCERS ARE CONSTANTLY UNDER THE THREAT OF EROSION OF THEIR MARKET SHARE.

5. PLANT LOCATION

CONCRETE BATCHING PLANTS ARE NOT OVERLY CAPITAL INTENSIVE, MOST COMPANIES IN THE METROPOLITAN AREAS LOCATE PLANTS WITHIN 10 KMS OF EACH OTHER. HOWEVER, IN COUNTRY AREAS, MOST CONCRETE PLANTS SERVICE A LARGE GEOGRAPHICAL AREA, AND TRANSPORT COSTS CAN BE CONSIDERABLE WHERE HAUL DISTANCES OF UP TO 950 KMS HAVE BEEN KNOWN. USUALLY CONCRETE COMPANIES ARE CONTENT TO BREAK EVEN ON THEIR TRANSPORT COSTS.

THE ESTABLISHMENT OF NEW PLANTS IN BUILT-UP AREAS IS BECOMING MORE DIFFICULT DUE TO ENVIRONMENTAL PRESSURES. THE CLEAN WATER ACT REQUIRES WASTE WATER TO BE RETAINED ON SITE AND USUALLY THIS IS RE-CYCLED. EXCESSIVE DUST IS CONTROLLED BY WATER SPRAYS OR DUST EXTRACTION SYSTEMS WHICH COST IN THE REGION OF \$20,000. NOISE ABATEMENT AUTHORITIES ALSO HAVE TO BE SATISFIED THAT THE PLANT WILL NOT UNDULY AFFECT LOCAL RESIDENTS.

IN SOME CASES, OVER-RIDING THESE CONSIDERATIONS, IS THE PROBLEM OF TRANSPORTATION IN THE AREA. ROAD SYSTEMS ARE OFTEN INADEQUATE TO SUPPORT THE HEAVY TRUCKS USED TO BRING IN RAW MATERIALS AND THE CONCRETE DELIVERY VEHICLES.

6. THE DEMAND FOR READY MIXED CONCRETE

DEMAND FOR READY MIXED CONCRETE IN AUSTRALIA HAS GROWN AT 2.5% A YEAR OVER THE LAST DECADE. THE CONSUMPTION PER HEAD OF POPULATION IS RUNNING AT 0.85 CUBIC METRES WHICH IS AMONG THE HIGHEST IN THE WORLD.

ALTHOUGH THE OVERALL DEMAND GROWTH RATE FOR AUSTRALIA IS 2.5% PER ANNUM, THE DEMAND GROWTH WITHIN INDIVIDUAL STATES AND FROM CITY TO CITY VARIES GREATLY. QUEENSLAND, IN PARTICULAR, HAS HAD EXCEPTIONAL GROWTH FROM 1,000,000 CUBIC METRES IN 1970/71 TO 2,400,000 IN 1979/80 WHICH REPRESENTS A GROWTH RATE OF 10% PER ANNUM. ONE RESULT OF THIS GROWTH HAS BEEN THAT QUEENSLAND'S SHARE OF THE TOTAL AUSTRALIAN MARKET HAS GROWN FROM 11% TO 23% OVER THE LAST DECADE.

CORRESPONDING WITH THIS GROWTH IN DEMAND FOR CONCRETE HAS BEEN THE PROLIFERATION OF CONCRETE BATCHING PLANTS THROUGHOUT AUSTRALIA. FOR EXAMPLE, PLANTS IN THE BRISBANE AREA HAVE INCREASED IN NUMBER FROM 3 IN 1946 TO 60 IN 1981 REPRESENTING A GROWTH RATE OF 9% PER ANNUM.

THE STRONG GROWTH IN DEMAND FOR READY MIXED CONCRETE IN QUEENSLAND HAS BEEN BROUGHT ABOUT LARGELY BY THE UPSURGE IN RESOURCE DEVELOPMENT PROJECTS AND THE BOOMING TOURIST INDUSTRIES ON THE GOLD COAST AND SUNSHINE COAST IN SOUTH-EAST QUEENSLAND. ALL STATES HAVE CYCLES OF HIGH ACTIVITY IN PARALLEL WITH THE VARYING FORTUNES OF THE BUILDING INDUSTRY. RECENTLY, NUMEROUS LARGE PROJECTS IN WESTERN AUSTRALIA, NEW SOUTH WALES AND QUEENSLAND HAVE MAINTAINED A HIGH DEMAND IN THESE STATES.

7. INDUSTRY STRUCTURE

SINCE WORLD WAR II, AUSTRALIA HAS BUILT AN ENVIABLE REPUTATION IN THE READY MIXED CONCRETE INDUSTRY.

AUSTRALIAN COMPANIES' EXPERIENCE IN CONCRETE APPLICATIONS GREW VERY QUICKLY DURING THE 1950'S AND 1960'S TO SUCH AN EXTENT THAT A NUMBER OF LEADING COMPANIES INCLUDING READY MIXED CONCRETE LIMITED, PIONEER CONCRETE SERVICES LIMITED AND B.M.I. LIMITED, HAVE SUCCESSFULLY EXPORTED THEIR CONSIDERABLE KNOW-HOW IN THE INDUSTRY TO BOTH DEVELOPED AND UNDER-DEVELOPED COUNTRIES.

TODAY, FOR INSTANCE, READY MIXED CONCRETE LIMITED AND PIONEER CONCRETE SERVICES OPERATE IN SEVERAL COUNTRIES OVERSEAS INCLUDING THE U.S.A., GREAT BRITAIN AND HONG KONG.

THERE HAS BEEN A GREAT DEAL OF VERTICAL, HORIZONTAL AND GEOGRAPHICAL DIVERSIFICATION IN THE CONCRETE BUSINESS. MOST CONCRETE COMPANIES NOW HAVE FULLY INTEGRATED QUARRY AND READY MIXED CONCRETE OPERATIONS AND HAVE BENEFITED FROM LARGE SCALE ACTIVITIES. VERTICAL INTEGRATION INTO CEMENT PRODUCTION HAS NOT OCCURRED.

THE ACQUISITION OF RAW MATERIALS MAINLY FOR READY MIXED CONCRETE MANUFACTURE HAS BEEN RESPONSIBLE FOR A NUMBER OF COMPANIES MOVING INTO OTHER RELATED ACTIVITIES SUCH AS ROAD MAKING.

8. OUTLOOK

DEMAND FOR CONCRETE IS PRINCIPALLY LINKED TO GROWTH FACTORS SUCH AS POPULATION, EMPLOYMENT, TOTAL INDUSTRY PRODUCTION AND SPECIAL FACTORS SUCH AS AGRICULTURE, MINERAL DEVELOPMENT PROJECTS AND URBANISATION.

TRADITIONAL USAGE IN HOUSE BUILDING AND CIVIL ENGINEERING PROJECTS IS STILL VERY IMPORTANT. HOWEVER, CONSIDERABLE QUANTITIES OF READY MIXED CONCRETE ARE USED OTHER THAN IN BUILDING, - FOR EXAMPLE - ROADS, BRIDGES, RESERVOIRS, DAMS, SILOS AND EQUIPMENT FOUNDATIONS.

IT IS DEMONSTRABLE THAT A STEADILY GROWING SHARE OF THE BUILDING DOLLAR IS ACCRUING TO CONCRETE. AS PRICES OF STEEL, TIMBER, CLAY BRICKS AND OTHER COMPETING MATERIALS INCREASE RELATIVE TO CONCRETE, CONCRETE CONSTRUCTION IS BEING CHOSEN EVER MORE FREQUENTLY ON THE GROUNDS OF ECONOMY AND VERSATILITY.

THE OUTLOOK FOR THE INDUSTRY IN AUSTRALIA IS GOOD AND PARTICULARLY SO IN QUEENSLAND. IN QUEENSLAND, POPULATION GROWTH, MINERAL DEVELOPMENT PROJECTS, INFRASTRUCTURE DEVELOPMENT AND TOURISM WILL ALL CONTINUE TO CONTRIBUTE TO A STRONG GROWTH IN DEMAND.

