

'The innovators' of builders' mechanical equipment

by C. P. READ

At the peak of the Industrial Revolution, and in Manchester, one of its geographically-situated hot-spots, a small firm of engineers, **Johnson and Hobbs**, began making hand-woven wire cloth for use in the then rocketing mass-produced paper industry. They employed a few workers, of varying skills, who had joined the rush from the farms to the factories, in their tiny workshop on the banks of the River Irk, just north of the fast-growing city in what is now known as Cheetham Hill. That was in 1790.

With endless modifications and extensions, these pioneer premises continued to serve the firm, and its successors, in this type of production until the end of the 18th century, right through the whole of the 19th, and well into the second decade of the 20th century.

Then, in 1913, the head



The Model D3 diesel pile-driver of 1937. The need for precision manufacture is indicated by the exposed, vertical piston, seen at the base of the guide bars along which, with the open cylinder formed in it, the 610kg hammer is descending.

Seek a concise, definitive name for Johnson Machinery in the modern, evocative idiom, and you could well come up with "the innovators".

The Stockport-based manufacturers of a remarkably comprehensive range of builders' and contractors' mechanical equipment, with roots set down in Manchester 186 years ago, must be among the oldest in the industry in which they have become so well known for introducing a considerable number of, often startling, but usually highly successful, new ideas to increase construction efficiency, reduce costs and cut down much of the time-consuming and back-breaking toil involved in many building practices but, previously, accepted as inevitable.

As Brian Dearden, the group chairman and managing director puts it: "Building and construction generally, is far too labour intensive; we aim to change this, in view of what we believe will be future conditions, and from our past experience we know that we are on the right course to meet this objective".

of the company, as it was, the late **Alfred Johnson**, started up the manufacture of mobile conveyors, initially for the coal-mining industry, and, thereby, set the name of Johnson squarely into the field of mechanical materials handling with which it was to become so closely identified in later years.

This destiny was largely influenced by **John Hartley**, a dynamic young man recruited on to the business side by Johnson and who rose to become the managing director for the 10 years which preceded his death, in 1955.

The period immediately after World War One was a very formative one for the company. With foresight, courage and enterprise, rare at the time, during the great depression of the early 1930s, Johnsons, sensing the almost certain renaissance of

building when the economy recovered, made their first diversification from coal-mining equipment into that for the construction contractor with the introduction of a power rammer, said to be the first of its kind to be sold in the UK.

The petrol engine which powered this novel machine had coil ignition, served by a weighty battery carried by the operator in a knapsack.

Output of building and construction machinery developed to the point when the much-expanded Cheetham Hill works were, obviously, becoming "too tight under the arms" and pastures new were sought, and found, at **Stockport**, a few miles south, in 1935; these new premises, measuring only about 10m by 30m, could have been put into the present apprentices' training school, with room to spare,

but there was plenty of scope for expansion — some 3 acres of it, in fact.

Shortly after the move, the post of research and development engineer was filled by an energetic and highly qualified young man named **Brian Dearden**; underlining the company's on-going policy of promotion from within, he was to become chairman and managing director of the Group, the position he holds today.

Some of the innovations which were to mark the progress of Johnsons between the wars were added to their products during the 1930s. The year 1937 could be called "a vintage year" for the company. It saw the advent of an interesting, non-rotary-engined, diesel pile driver, the Model D3, in which an open-ended cylinder, formed in the 610 kg hammer, dropped, on guides, over a rigidly-fixed piston.

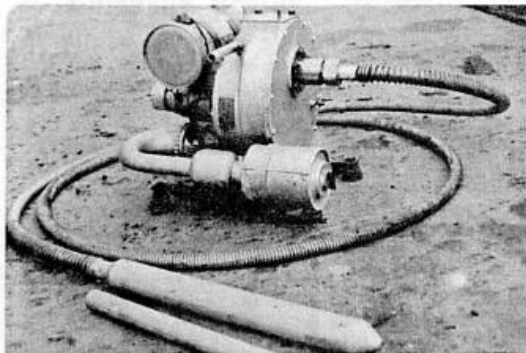
Air, trapped in the cylinder, was compressed



Soon after the end of World War Two this massive 508 and 1,016kg "Frog" rammer (so called because of its leaping forward motion) made its appearance.



In the late 'thirties, this pioneer, rigid-shaft electric vibrating poker was a Johnson innovation, soon followed by another, the flexible-shaft version, claimed to be the first in the UK.



Johnson's flexible-shaft electric vibrating poker, a novelty in Britain.

stantly and a critically-timed injection of fuel set up the familiar diesel process, shooting the heavy hammer smartly upwards to recommence the pile-driving cycle. A glance at the accompanying on-site photograph will support the view that manufacture demanded remarkably precise machining and accurate assembly.

Other claimed construction equipment "firsts" brought on to the UK market by Johnsons about this time include lightweight, self-priming and self-powered contractors' centrifugal pumps; concrete vibrating tables and electric, rigid-shaft, concrete vibrating pokers. Two years before the outbreak of World War Two, these pokers were augmented by Johnson-made, flexibly-shafted versions, previously said only to have been used in the USA.

Accustomed, as contractors now are, to the use of a few familiar, proprietary engines in plant, it may come as a surprise to learn that, in 1939, Johnson's pumps were actually powered by an air-cooled "inverted" 200 cc 2-stroke, petrol engine of their own manufacture.

Like most British engineering concerns, Johnsons "went to war" between 1939 and 1945 and, among other equipment for the armed forces, contributed notably to the finally successful allied war effort by supplying the vital pumps employed in the famous Mulberry Harbour operations which led to the

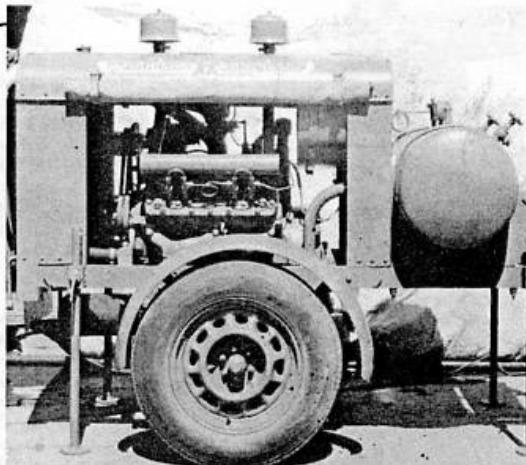
victorious D-Day landings in Europe.

By the end of hostilities when the machine-making activities greatly outpaced wire weaving, a new, separate company was formed to continue the major operations, and was styled C. H. Johnson (Machinery) Ltd., with Alfred Johnson and John Hartley as founding fathers.



With reversible seat and twin steering wheels, this early Johnson site dumper, with one of the first small Petters diesels, is seen at work on the 1951 Festival of Britain construction in South London.

There followed another spate of innovations, many of which have continued in production with few or no modifications, although updated from time to time to equate with advancing technology and demand.



A standard, automotive, V-8 Ford petrol engine did duty as both power pack and compressor unit on this Johnson, one, or two, tool, mobile, compressed air producer, introduced following the Hitler war.

Early among these newcomers was the "Frog", 508 and 1,016kg, pedestrian-operated, petrol-powered, heavy-duty rammers, and a

water-cooled, Ford V-8 automotive petrol engine was converted to form both power-plant and compressor unit.

One bank of cylinders provided the power, while the other bank served as a compressor to operate one, or two breakers or other pneumatic tools. There was also a battery-powered, self-propelled, 508kg - capacity, strut-jib, mobile electric crane and a very simple and cheap to make road line marker called the "Mark-Rite" which is still produced by Johnsons, as original output, and, as the "Lawco", by a Liverpool company.

It is just the sort of thing which would appeal today to cash-starved local authorities and embodies minimal mechanism. Post-war developments of particular interest to industry generally were the "Loband" loader and the "Hylo-veyor" machines, said to be the first mobile conveyors capable of receiving feed from tail-end tippers, and of high-rate discharge to stockpiles, *et al.* Lift-and-force pumping units for building sites, which had been pioneered some years earlier, were further developed to match heavier post-war demand.

Johnsons were among the

new generation of petrol and diesel pile drivers. Then came more "first" introductions, such as a petrol-engined, vibrating concrete screed unit and an ingenious, small mobile compressor in which a standard side-valve,

Company profile

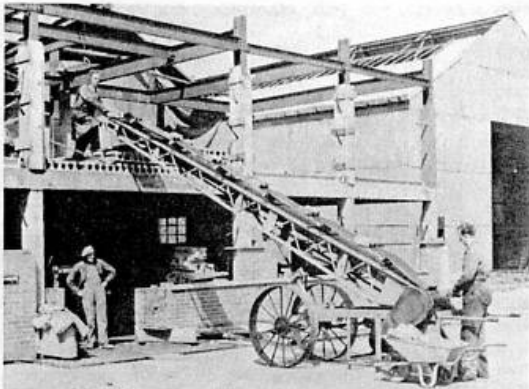
first to choose the newly-introduced **Petters** air-cooled, small diesel engine to power what was to prove one of their most successful innovations — the lightweight diesel site dumper of the 1950s, designed specifically for builders and, since, occupying a prominent position in



An "off-beat" production—the simple, cheap and very useful "Mark-Rite" road line marker with uncomplicated mechanism.

the company's production programme.

In fact, many Johnson ideas have been aimed at improving dumper performance and versatility with safety. These include the "Trip-Skip", multi-skip handling system; the "Rotaplacer", all-round, high-level, tipping unit and the "Hi-placer", which is self-



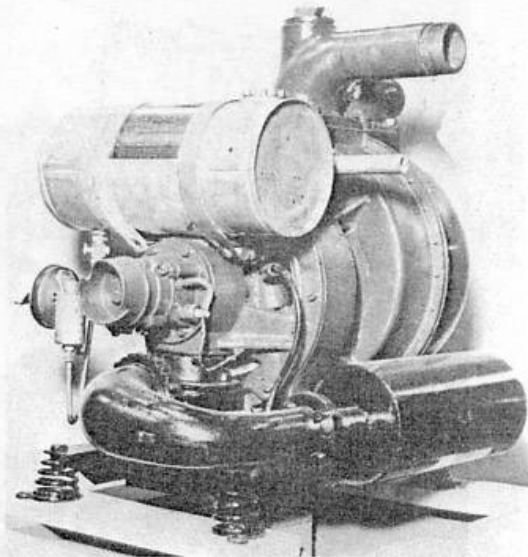
One of Johnson's earlier pieces of building contractors' plant—a powered belt conveyor doing the job now handled more efficiently by the rough terrain forklift, such as is manufactured by the company.

explanatory. Possibly, the best known is the "Humper", circa 1962, which Johnsons with, seemingly, every justification, claim to be "the first, completely versatile, mobile mechanical handling machine which included a forklift in its specification". In other words, the first—in the UK at any rate—rough terrain forklift truck, with all that that implies.

This machine was developed from concepts of the **Building Research Station**, and set a far-reaching trend. Today, there are more than 30 different makes of rough terrain forklift on the UK market, including, of course, the latest "humper", seen on Johnson's stand at the recent Public Works Exhibition and which incorporates all the most up-to-date specification details and embodying inboard, internal, multiplate disc brakes, built into the axle drive housings and, in the case of the two-wheel-drive, INF18 machine, an automatic, hydraulic, steering axle lock to augment stability when lifting on extremes of uneven ground.

Also seen on their stand was Johnson's most recent innovation, the "Motil", general purpose, diesel-powered, utility truck.

During my visit to the Stockport Works, and to those at Whaley Bridge, **Derbyshire** (the latter converted from a Victorian



Built by Johnsons, the 200 cc inverted cylinder, two-stroke petrol engine powered this 76mm centrifugal pump produced by the Stockport factory in 1939.

textiles printing works), it became abundantly clear to me that Johnson's penchant for innovation has, by no means, been satiated and that further, future, interesting developments may not be unlikely.

Just over 10 years ago, the Johnson operation was organised into its present group-holding basis and "went public". The **JCEG Ltd.**, as the group is now known, consists of Johnson Machinery, at Stockport and Whaley Bridge; **Johnson Machinery (Scotland)**, with depots at **Kirkintilloch** and **Galston (Strathclyde)** and **Ladybank (Fife)**; **Johnson Machinery (Northern)**, based at **Wetherby, Yorkshire**, and also at **Whaley Bridge**, and **Trinity Plant Hire**, whose HQ is at **Cassington, Oxon**, but who have depots at **Burntwood, Staffs**; **Witham, Essex** and **Bridgend, Glamorgan**.

Within the past few weeks, **Trinity Plant** have taken over the sole representation, sales and service in respect of the range of Johnson contractors' plant in the counties of **Oxford, Bucks, Berks, Wilts, Avon, Gloucester, Warks, W. Midlands, Leicester, Staffs, Salop, Hereford, Worcester, Essex, Beds, Herts, Cambridge,**

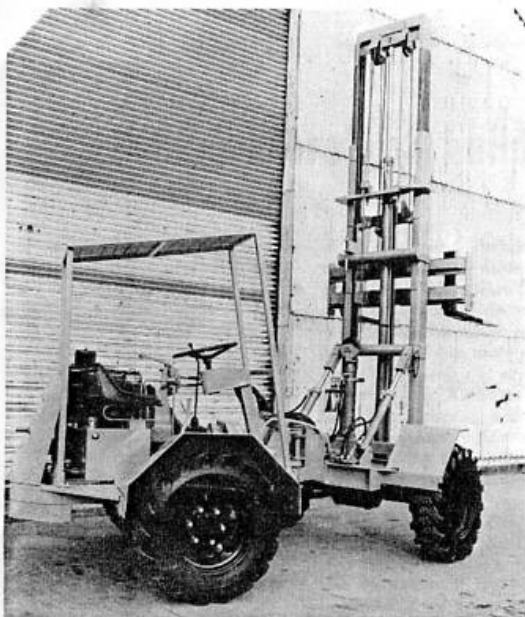
Norfolk, Suffolk and parts of **Wales**.

There is a further Johnson depot in South-West London, in **Battersea**. Heading the Group is, as mentioned, **Brian Dearden**, other Johnson Machinery directors being **George S. Inglis, O/C** works; **Rodney A. Isherwood**, the company secretary; **M. J. Lynch**, the chief engineer and **Stan Sykes**, in charge of marketing.

Current annual group turnover is given as approaching £3 million, with excellent prospects of an increased future budget supported by encouraging returns so far.

Because of the general shift towards greater degrees of mechanisation in the building and construction industries, resulting from likely labour shortage, following dissipation of work forces in the present depressed economic climate, and because of envisaged high cost of what labour will be available, Johnson's targets include maintaining and extending dumper production and dumper-orientated equipment with, of course, heavy concentration upon exports which, already, account for 60 per cent of annual sales.

Johnsons are particularly



Among Johnson's latest productions is this four-wheel-drive, centre pivot steer, 1,270kg to 4.8m lift, Model 3KF16 "Humper" rough terrain forklift.

well-established in this most important field. Well before the oil boom, they had valuable connections with the construction industries operating in the Middle East, specially in Kuwait, Bahrain and Jordan. These areas, in which the potential has so greatly increased of late, are being nurtured and maintained. Exports also appear promising, in the Far East, at Singapore, Hong Kong, Indonesia and Malaysia.

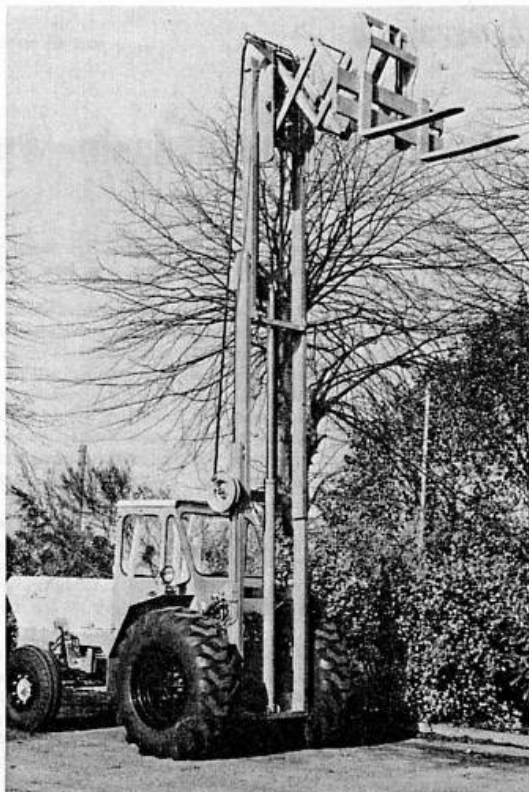
Across the world, the Caribbean and South American markets are being closely studied, while

Johnson products sell well, it is stated, in most of Western Europe and Scandinavia. A new market which is opening up, is that of Nigeria, and the sales possibilities of other developing countries are not being overlooked.

Johnsons have always looked "up-market" for customers and have consistently used "fitness for purpose" as a criterion, having steadfastly declined to depress specifications and quality in search of lower-priced, bulk sales. Their best customers, they say, are at



With a 7.5 hp single-cylinder air-cooled diesel engine, this Johnson "Motil" lightweight utility truck has a top speed of 14.3 kph and can carry a 1,334kg, 1.9m³ load and represents Johnson's most recent innovation.



The 1977, lineal descendant of the original "Humper", believed to be Britain's first rough-terrain forklift truck. It is the two-wheel-drive, tractor-based, 62 hp, 2,000kg to 5.5m lift height, Model INF18 forklift, shown with hydraulic forward extension unit.

the larger end of the construction and building industry but — and this is an important reservation — their products penetrate the market at all levels via the plant-hire industry. Hence their popularity with small-to-medium building contractors and local authorities.

In the light of current industrial conditions two important points about the Johnson operation emerge: thanks, very largely, to the close involvement of all ranks in social, sporting and welfare as well as occupational activities — they even have a women's football team — labour relations between management and the 300-strong group work force are unusually good

and a most successful. Construction Industry Training Board-supervised apprentices' training school has been set up.

The school, following precepts publicly recommended nationally in the highest and best informed circles, is making a priceless contribution towards the future of local youth by helping the youngsters towards interesting and well-paid skills and by steering them away from the often anti-social behaviour pattern which results from lack of prospects due to inadequate industrial training. The Johnson School, staffed by qualified instructors, is well-equipped with up-to-date machine tools upon which, at any one time, a dozen keen school-leavers are learning the most important facts of practical engineering.

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