HISTORY-MAKERS

THE 62 years of TT history are studded with scintillating designs —bikes which have marked a technical breakthrough, set a pattern for the future, shown outstanding technical enterprise or engineering excellence. In a word, bikes that are unforgettable.

Week by week we shall bring you a selection of these history-making super-bikes. We start today with the very first overhead-camshaft Norton, sire of the most successful line of TT winners ever.

The TT camshaft Norton

WHEN Norton abandoned pushrods for an overhead camshaft in the 1927 Senior race, they established one of the biggest milestones in TT history. Not only did Alec Bennett win the race at a record 68.41 mph and Stanley Woods hoist the lap record to 70.9 mph; but Bennett's victory was the first of 17 Senior wins by overhead-camshaft Nortons. (The factory's 1924 and 1926 Senior-winning bikes had pushrod engines, and the 1907 twin-cylinder winner — which averaged 87 mpg! — had automatic inlet and side exhaust valves.

Besides Bennett and Woods in the team was Joe Craig, later to become world-famous for developing the TT Norton which progressed from one camshaft to two, long stroke to short, three speeds to four, solid frame to springer, girder fork to telescopic and so on up to what is now the established Manx specification.

One camshaft

Though the 1927 engine had but one camshaft, the inlet and exhaust cams were separate for individual timing adjustment. Separate, too, were the arms of each rocker — the outer one being a taper fit and the inner having a hard heel to bear on the cam.

As today, the ohc drive comprised two pairs of bevel gears and a vertical shaft, but the detailed arrangement was different, especially at the bottom.

The lower vertical bevel was threaded at the top of its short integral shaft and clamped by a large nut into the inner race of a ball bearing. A ring nut clamped the outer race in a light-alloy housing which was attached to the crankcase by two bolts.

Splined into the lower vertical bevel, the coupling shaft was hollow. The 2-to-1 speed reduction was shared between the two pairs of bevels, so distributing the wear among the vertical-bevel teeth.

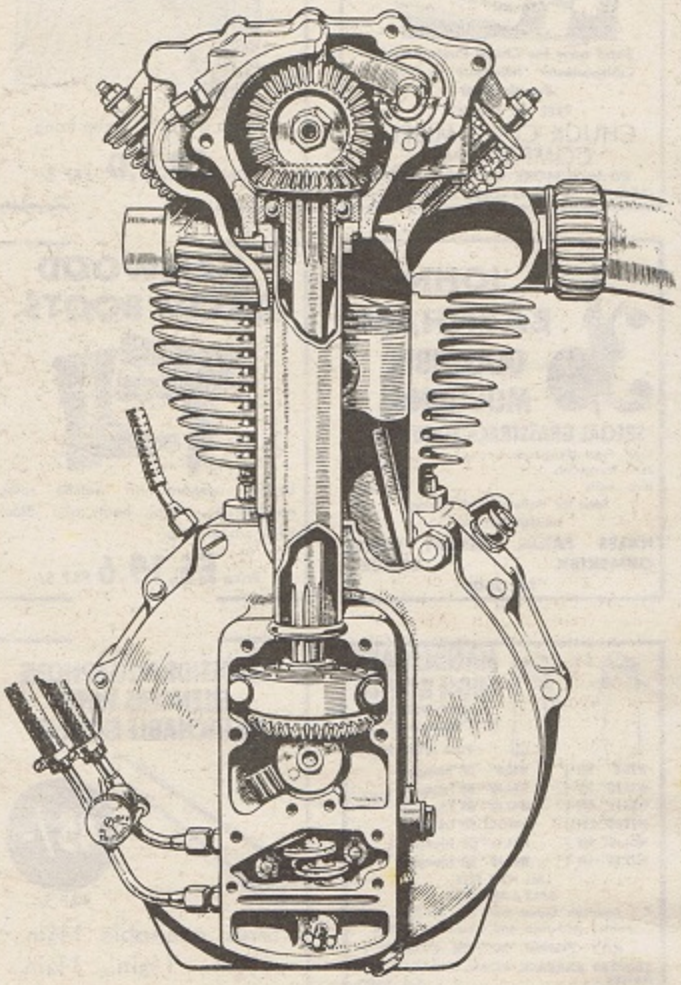
To oil the ohc mechanism, a separate feed was taken from the double rotary plunger pump; drainage was through the sealed vertical-shaft tube.

When it was found that the engine ran very cool, compression ratio was raised from 6.4 to 7 to 1. Low, anyway? Not when you consider that the cylinder head was cast in iron and that the 50-50 petrol-benzole fuel had an octane rating little higher than 80.

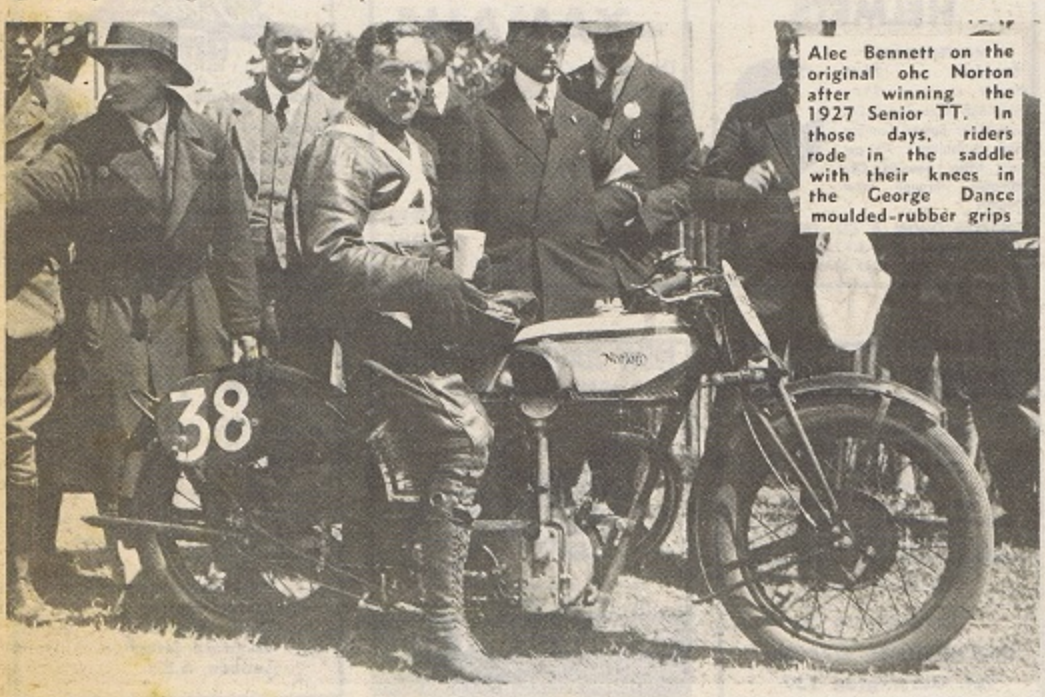
Gear box was a three-speed Sturmey-Archer with foot change but not positive-stop.

For the new engine, a cradle frame was designed to supersede the diamond pattern. Brake diameter was increased to 8in but it was the rear drum, not the front, that was heavily ribbed.

VIC WILLOUGHBY



Section of the 490 cc (79 x 100mm) engine. Note the worm drive to the oil pump and the tap in the supply pipe. The magneto was mounted on the rear engine plates and chain-driven on the left-hand side



Alec Bennett on the original ohc Norton after winning the 1927 Senior TT. In those days, riders rode in the saddle with their knees in the George Dance moulded-rubber grips