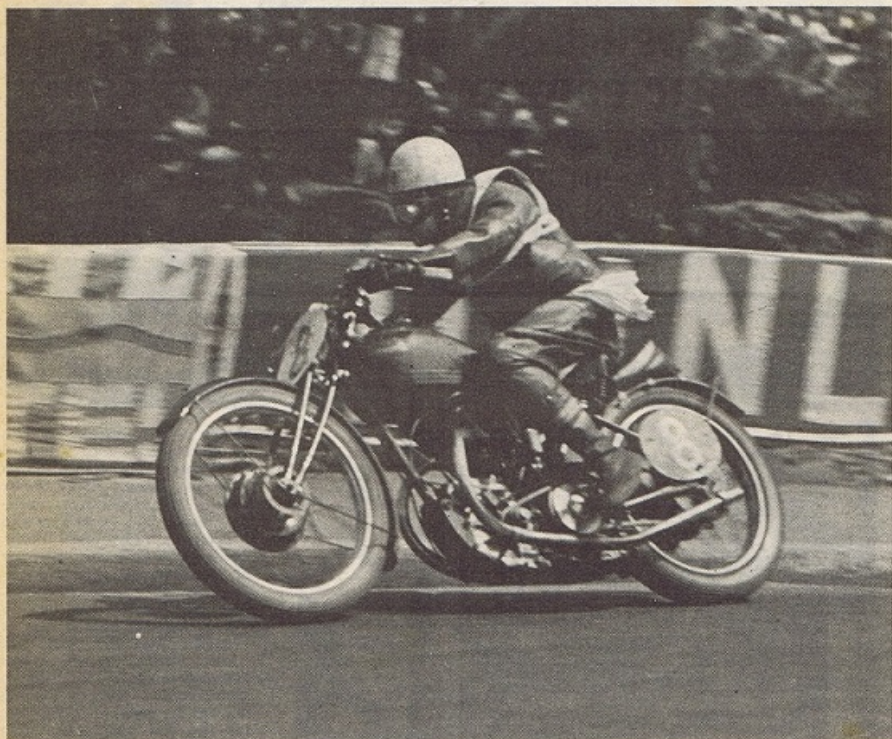


HISTORY-MAKERS



Tyrell Smith rounds Quarter Bridge on his radial Rudge during his winning ride in the 1930 Junior TT. Note the fluttering handkerchief. Secured on a string, it was handy for goggle cleaning; nowadays, riders use chamois-backed gloves or pieces of sponge

STRAI**G**H**T** from the drawing board via the test bench to a record-splintering one-two-three victory. No matter how long TTs are run, no design is ever likely to eclipse the success of the radial-valve Rudge on its debut in the 1930 Junior race.

On machines that were experimental and completed only just in the nick of time, Tyrell Smith won at a record 71.08 mph, runner-up Ernie Nott hoisted the lap record to 72.22 mph and burly Graham Walker finished third to help snaffle the manufacturers' team prize.

No TT fairy tale could have a more glamorous ending. And the Rudge triumph was all the more remarkable for being achieved when technical and inter-marque rivalries were at their keenest.

The following year, a two-fifty was built on similar lines. It

carried Walker to victory in the Lightweight TT, with Tyrell Smith runner-up and Nott again setting a lap record.

Ingenious

And though the inevitable dominance of overhead camshafts was then clear, radial Rudes kept the pushrod flag flying for several years, with second and third places in both Junior and Lightweight races in 1932, another one-two-three with lap record and team prize in the 1934 Lightweight, and second and third places in the 1935 Lightweight.

Essence of the ingenious design, by George Hack, was the radial disposition of the four valves (to achieve a true part-spherical combustion chamber) and their operation by six roller-bearing overhead rockers.

More than 30 years before Honda, Rudge were already famous for four-valve racers with two pairs of parallel valves in a pent-roof cylinder head. Indeed, four days after the radial's glorious debut in 1930, Wal Handley won the Senior TT with the earlier valve layout.

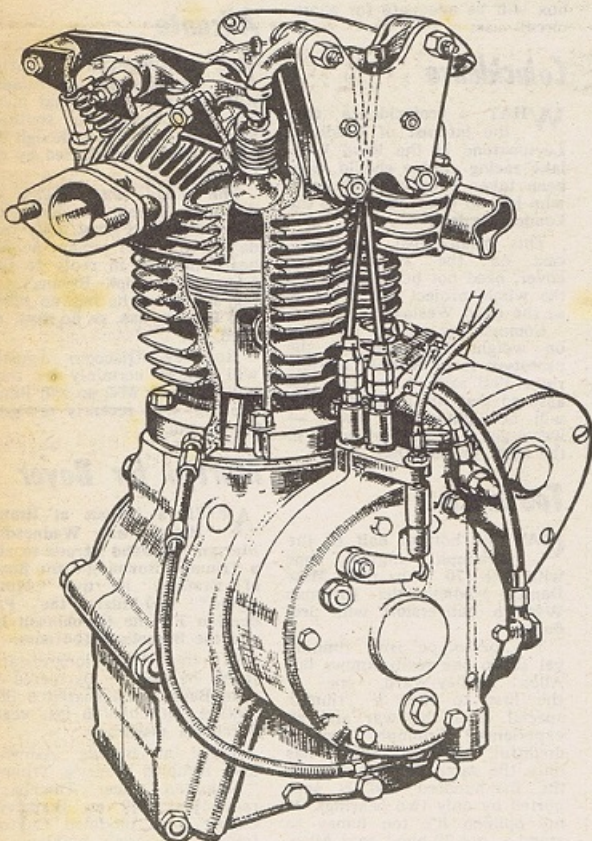
Pressing problem

Final development of the five-hundred was a semi-radial arrangement with parallel inlet valves and splayed exhausts.

Basic claims for the pent-roof four-valver — and equally applicable to the radial and semi-radial engines — were the large total port areas and the reliability of the small valves. In those days valve fracture was a more pressing problem than valve float.

Further examples of independence in Rudge thinking were progressively coupled brakes and the use of four speeds long before their rivals, with all free gears in the box spinning on roller bearings to reduce friction.

VIC WILLOUGHBY



Section drawing of the 349 cc (70 x 90.5mm) Rudge radial engine. In each train, the second rocker not only opens the right-hand valve but also actuates the rocker for the left-hand valve. Domed piston has only two (plain) rings and gives a compression ratio of 8 to 1. The carburettor distance tube was a novelty in 1930, to improve low-rpm pulling