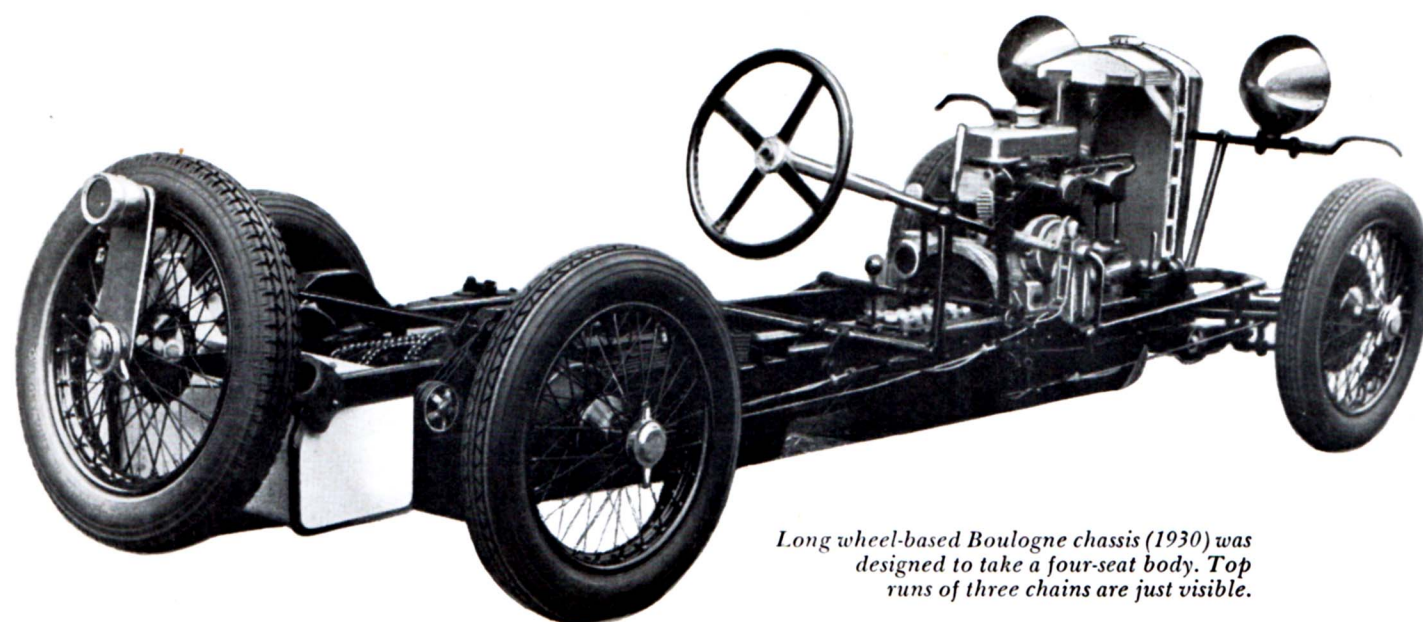
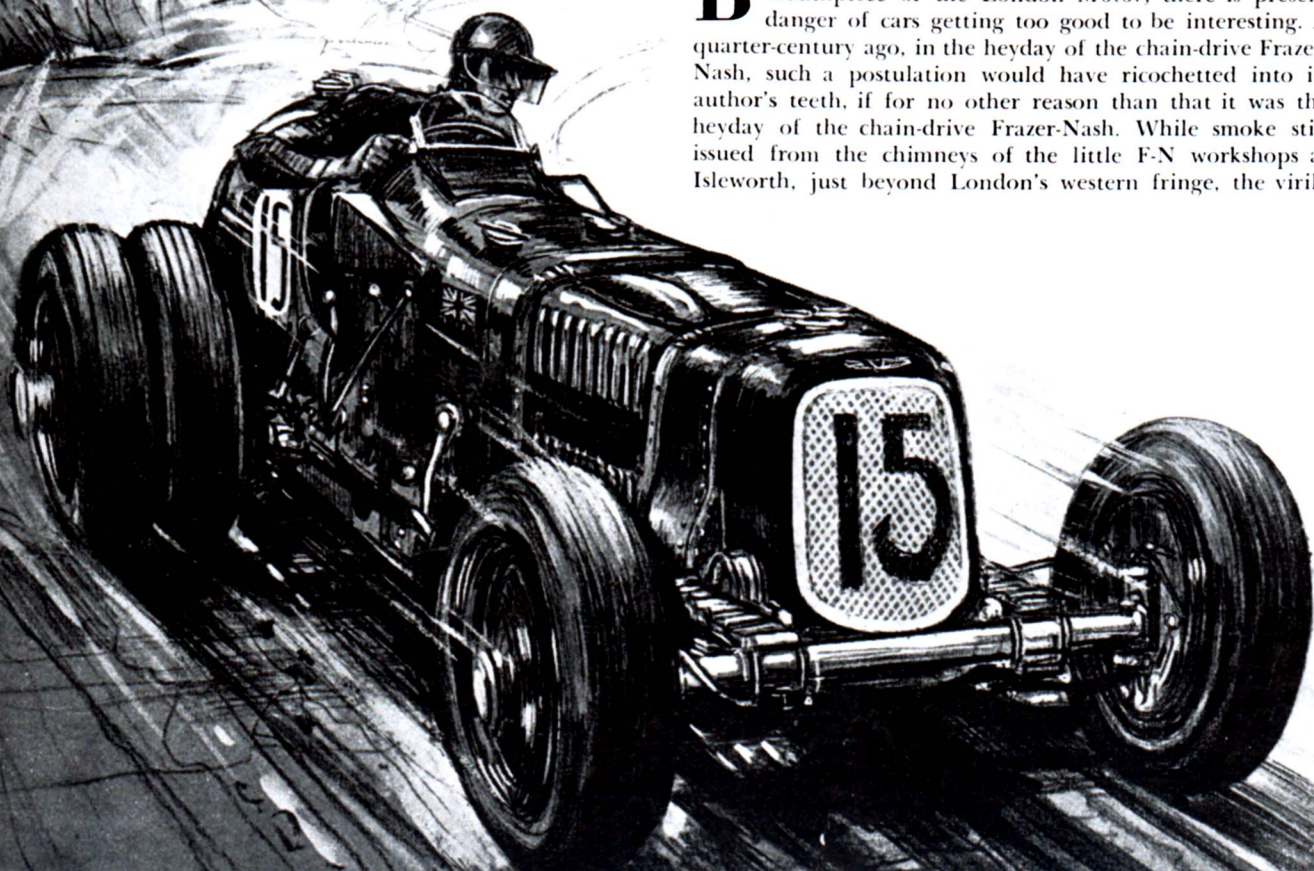


The chain-drive Frazer-Nash was practically indestructible and a mortgage on the manor was the price of ownership. Among a host of charms was one great advantage — it was virtually wife-proof.

the fabulous CHAIN GANG

By DENNIS MAY

BY the gospel according to Laurence Pomeroy, technical mouthpiece of the *London Motor*, there is present danger of cars getting too good to be interesting. A quarter-century ago, in the heyday of the chain-drive Frazer-Nash, such a postulation would have ricocheted into its author's teeth, if for no other reason than that it was the heyday of the chain-drive Frazer-Nash. While smoke still issued from the chimneys of the little F-N workshops at Isleworth, just beyond London's western fringe, the virile



Long wheel-based Boulogne chassis (1930) was designed to take a four-seat body. Top runs of three chains are just visible.

and rumbustious character of English sports cars seemed soundly proofed against the caponising influences now feared by Pomeroy.

To the microscopic minority of the world's roadfarers who owned and drove 'Nashes of the vintage strain—known collectively as the Chain Gang—there was, quite simply, no other motoring. Most of them would admit, on the other hand, that the successful handling of a 'Nash called for a kind of judo. You either mastered it or you didn't. If you did, and the hock potential of your wife's jewelry was sufficient for the purpose, you probably bought one and allayed the itch forthwith. If you didn't, it behooved you to get out from behind that spring-spoked wheel before you made a clown of yourself, and admit that, by your humdrum scale of values, the critter was too interesting to be good.

Nothing else on wheels quite resembled a vintage 'Nash, either in construction, behavior or appearance. Design trends which the competition interpreted so timidly as to be scarcely discernible, received an emphasis bordering on caricature in the Isleworth product. F-N far outstripped prevailing fashion, for instance, in such features as crabbed treads, way-back engine mounting relative to the front axle, high-ratio steering and suspension hardness. Crab effect was taken to the extreme of a seven-inch difference between front and rear treads, the respective spans on a 108-inch wheelbase chassis being 48 and 41 inches. Engine location was such that a distance of about eight inches yawned between the base of the radiator and the axle centerline. At a time when most sports cars of comparable size and weight had their steering geared for a turn and three-quarters or two turns from lock to lock, Isleworth settled for three-quarters of a turn, and sometimes even less. Deflection range of typical F-N suspension was almost nugatory, and it needed massive impacts to produce curtsies of an amplitude visible to the naked eye.

But in these matters, of course, the difference between F-N thinking and other people's was merely one of degree. It was in the transmission department that the *marque* really thumbed its nose at convention. Final drive, from an exposed countershaft to a live back axle, was through multiple chains—four of them (counting reverse) on the three-speeders and five on later models with four forward ratios. By

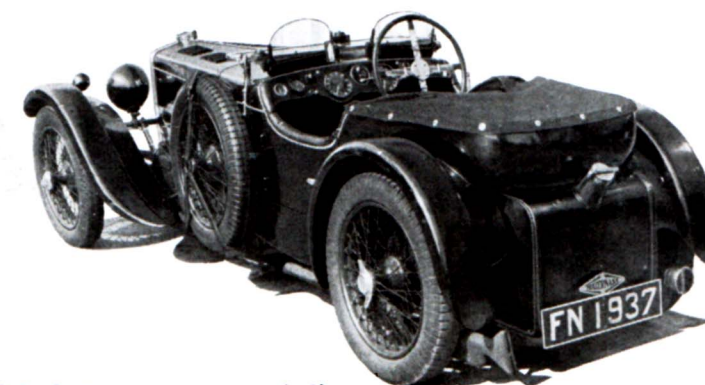
means of dog clutches mounted on the countershaft and operated by an outside shift lever, the drive could be routed through any chosen pair of sprockets, each set giving a different gearing.

More than any other feature, it was this sibilant family of chains, and its concomitant lack of a gearbox and differential, that lent the 'Nash its legendary character. If you liked chains you were a sitting duck for F-N sales talk, and if you didn't you wouldn't take a 'Nash as a gift.

The chassis itself was a simple piece of crochetwork, based upon two parallel side girders of a depth that varied according to date and the power of the engine to be installed. The aft sections of these longitudinals, which passed under the back axle, were detachable on the early models and afterwards integral. Cross rungs braced the frame at suitable intervals. Both pairs of springs were quarter elliptic up until about 1935, when cantilever springs were substituted at the front. (This suspension medium, it may be remembered, enjoyed a long vogue on the Rolls Royces of the classic era, though RR applied it at the back end. Jaguar has revived it on their current 2.4 litre car, also at the back.)

Fore and aft, the axles were located by tubular radius arms. The traditional front axle dipped amidships slightly, but some of the hotter models in the late thirties had a perfectly straight beam. Front axles at all dates were made from round-section tube.

With the possible exception of a handful of single-seat racing cars, all F-Ns had cable operated brakes. In good con-



Hipbath stern contours were indigenously to the 'Nash as shown on this 1937 TT Replica.



The Conan Doyle brothers, kin of Sherlock Holmes' creator, were enthusiastic Chain Gang members. Here they are in a special sprint F-N called the Spook running in timed speed trials.



dition and optimum adjustment, these brakes had remarkable powers of detention. In 1934 a credible road test reporter pulled a Colmore model onto its haunches in twenty-five feet from 30 mph. By an arbitrary scale that was generally accepted in Britain at that time, a stop in thirty feet from 30 mph represented 100 percent brake efficiency—a theoretically unbeatable result.

The man who gave the *marque* its name, Captain Archie Frazier-Nash, severed himself from it soon after production started in the summer of 1924. His mantle then descended upon the brothers Aldington, H.J. and W.H., who formed a two-man band known formally as Frazier-Nash Cars Limited and later by the title of A.F.N. Ltd. This brotherhood devoted itself solely and with evangelistic ardor to the chain-drive 'Nash up until 1935, at which date Isleworth's native product acquired a strange bedfellow in the Frazier-Nash-B.M.W. In everything except the name on the badge and the fact that it had right-hand instead of left-hand steering, the newcomer was indistinguishable from the regular B.M.W. built in Munich by the Bayerische Motoren Werke. It was thus the direct antithesis of the old chain-and-sprocket

Even on this obtuse Trials turn, the old F-N used all its lock. If more was needed, back wheels were steered with throttle.



breadwinner in both looks and its manner of going. The British market was nevertheless ripe for a sports car of ultramodern design, and the Aldingtons, having made a smart and timely business deal, were able to perform their tacit disavowal of faith without apparent anguish. In the period 1935 to '39, as sales of the vintage 'Nash progressively dwindled, the German parvenus just naturally shouldered its way into the resulting vacuum.

Archie Frazier-Nash was a swashbuckling, fun-loving figure in his younger days, and even now, as an elder statesman of motor sport in England, he stands out for joviality. In association with a man named Godfrey, he first broke into the automotive field as the designer and builder of a rude two-cylinder cyclecar, the G.N. The earliest G.N.s, back in pre-WWI days, featured a mechanical beastliness known as wire and bobbin steering. Best of the many Nash and Godfrey anecdotes concerns an occasion when a selected cyclecar, scheduled for collection from the factory by a new owner of notorious pomposity, was covertly rigged with reversed steering. Warping 'er onto left-hand lock as he motored out through the G.N. portals, the astonished cyclecarist took a turning that wasn't there—to the right—and demolished a wall.

The general mechanical arrangement of the chain-drive 'Nash, including its unique transmission, was a direct hand-down from the G.N., the conjunction of the two lines being identifiable in a sort of pre-natal F-N called the Frazer

Nash-G.N. This one was produced in 1923 under the amiable Archie's aegis, and it is a purely academic question whether it marked the beginning of one epoch or the end of the other. Unlike the earlier brainchildren of Capt. Frazier-Nash, which had wooden chassis, the transition model was as ferrous as the best; also, it broke with tradition in having four cylinders instead of two. The only two-cylinder cars bearing the name Frazer-Nash have been special hill-

climbers, adapted by their owners.

To infidels who murmured against the boneshaker ride and self-opinionated cornering of the chain-drive 'Nash, Bill Aldington, as the cult's anointed prophet, had an unfailing answer. Or rather two answers. One, try and lick the Chain Gang in practically any form of competition work they put their horny hands to. Two, read what the technical press have to say.

And you couldn't refute him on either count. Power for power, and even under the handicap of substantial power deficits, the oldtime F-N was more than a match for conventional rivals in hillclimbs, straightaway sprints, short-length circuit races and, above all, the peculiarly English exercise called Trials. Maybe it did take a titan to deflect a beelining 'Nash to port or starboard when once it was on the shortest groove between two points (not that Bill Aldington, alias "Mr. W.H.," was admitting anything of the sort), but if the art of driving these tumbrels was *that* exciting, how come a mere thirty-five F-N owners aggregated more than 300 first-class competition awards during the first few months of 1926? This, moreover, was only a random page out of the bulging book of the *marque's* successes in speed and reliability events, which thereafter mounted rapidly into four figures and finally left even the assiduous Bill in arrears with his statesmanship.

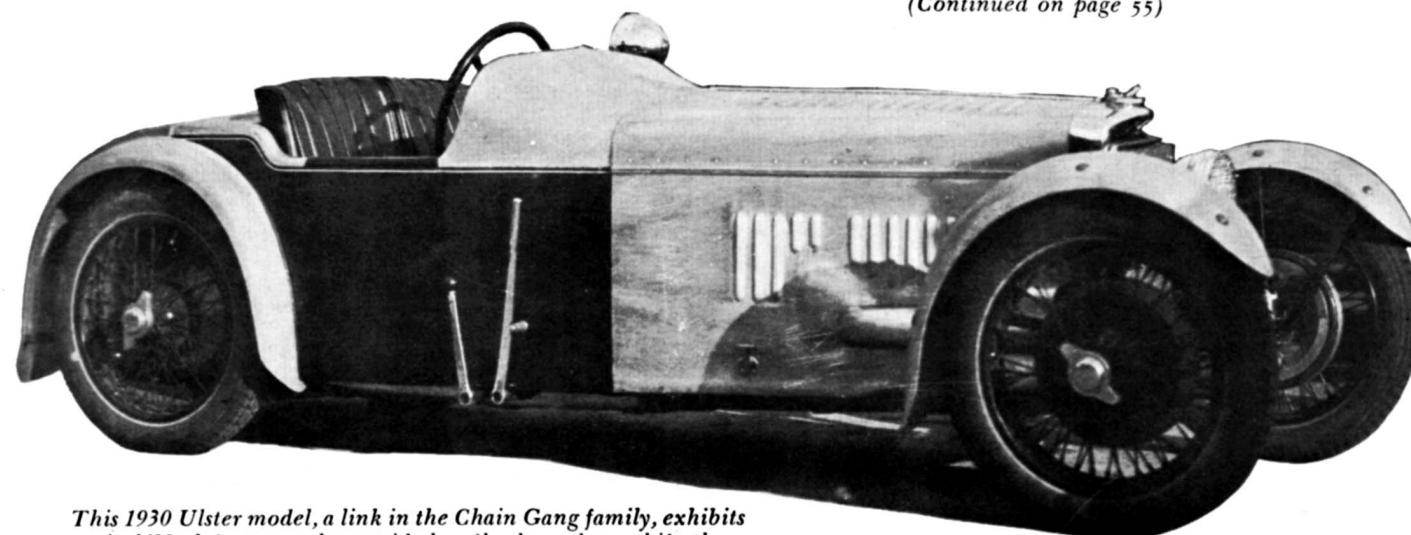
Indeed, once the requisite judo was mastered the owner of a chain-drive 'Nash had the wherewithal to run tight rings around almost any opposition. Its handling was so totally different from a modern sports car that it is difficult to interpret in current terminology. The words understeer and oversteer hadn't been coined in the interwar period but the fact is that an F-N, due to its diffless back end and rearward weight, bias, developed a lively oversteer the moment you half-nelson'd it off its favorite course, viz, straight on. (I say this without fear of confirmation from fanatics who could see no wrong in the breed on any score.) The sinister aspect of oversteer, on the other hand, has latterly been exaggerated: knowingly jollied, it is a form of back-answer that can operate to the driver's advantages, and the practised Chain Gangster certainly knew how to put it to work for him.

Autocar was right, too, about that "instant response to all controls." The response to the helm—to single out one of

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Frazer-Nash averaged 20 mph over a nine mile course with 120 gullies—some 2 to 3 feet across—at the Scottish 6 days Trial in 1925. This car was one of the very few Gold Medal winners.



This 1930 Ulster model, a link in the Chain Gang family, exhibits typical 'Nash features: the outside handbrake and gearshift, the receding radiator, the much lowered hood, and the knock-off wheels.

Chain Gang

(Continued from page 21)

the more important of a car's controls—was indeed instant, just so you took the wheel in a garrotter's grip and really sawed at it. High geared the steering admittedly was, but there were factors which partly compensated for the lack of leverage: one, the narrow-section, high-pressure tires generated about as much slip angle as the wheels of a freight train; two, all steering pivots were metal bushed and hand-fitted with an accuracy that precluded the smallest trace of lost motion; three, the front wheels, as already noted, carried a relatively small proportion of the total car weight.

While the lack of a differential had its disadvantages on pavement, it was an unalloyed blessing in the rough and tumble of Trials, with their alternating ordeals by mud, rocks and gradient. Here, by the sainted sprockets, was an environment where a man could use Isleworth's double ration of traction, to say nothing of the additional boon of the easiest, fastest, slickest gearshift ever devised. At one time, as a matter of fact, the Chain Gang were denied an otherwise assured supremacy in this sport by a rule permitting (or more exactly, the absence of a rule forbidding) differentials to be locked on makes that did possess them. But when, by a later governance, this loophole was plugged, 'Nash people became practically unbeatable in the ooze, and it was far from uncommon for the hairiest hill of the day to halt everything but the F-Ns.

On the tight climbing turns that punctuated typical Trials courses, certain 'Nash models were under a theoretical handicap by virtue of a turning circle as large as 51 feet in diameter. In practice, though, this didn't bother Gang members; they simply shared out the steering between both pairs of wheels, simultaneously helming over to the meager limit of lock and slamming the throttle open. Incidentally, as accompanying photos show, the standard location for the gear lever was outside the body, adjacent to the place where the right-hand door would have been if there was one, and there usually wasn't. In ordinary roadfaring the proximity of the gear and handbrake levers was no disadvantage, but during the tricky manoeuvring tests featured in Trials it sometimes was, because one and the same hand obviously couldn't manipulate both wands at the same time. The

trick therefore was to mount an auxiliary shift lever inboard on the existing cross shaft. Then, in capers of a kind that permitted the steering wheel to be momentarily released altogether, some really sharp displays of prestidigitation would be witnessed. In this situation an upraised knee could be used to regulate spin-back of the wheel under caster action.

Apropos, it can reasonably be conjectured that the chain-drive 'Nash was the only car in the history of motoring (apart from instructional rigs) on which the accelerator, as well as the gearshift, was sometimes duplicated. I quote from an Isleworth catalog of the middle thirties: "The accelerator pedal may be fitted either on the right or on the left of the brake pedal, or, if desired, two accelerator pedals may be fitted, a feature which some drivers prefer."

Could it be that this curious preference had some connection with the Aldington's policy of deliberately overgearing their products, even to the point where some models were as fast on the level in third gear as in high? For an owner frustratedly striving to wind up his car to elusive rpm summits, on a ratio better suited to three litres than the F-N's one and a half, the ability to stick both feet into the carburetors at once may have afforded him a certain satisfaction.

This intentional overgearing, particularly as applied to the four-speed models that made up the bulk of the Isleworth output, could be justified on practical grounds. The multi-chain transmission, of course, gave a direct drive on every ratio, so that the friction loss was no greater in third gear, or for that matter second or low, than in high. Stock objections to frequent downshifts were therefore not valid, and a rev-happy driver was perfectly entitled to regard fourth as an overdrive. Furthermore, although the makers provided a very high top gear unless otherwise instructed, in this department, like any other, the buyer was at liberty to write his own specification. It was almost an article of faith with the Aldingtons that their customers had *ad lib* latitude in superimposing variations on the basic blueprint, and Aldy was once quoted in print as saying that most of the 'Nashes in circulation were hybrids embodying features from two or more "standard" offerings.

A litre and a half was the displacement norm for oldtime F-Ns, although minority types were also built in 1657 and 1911 cc capacities. They didn't build engines of their own at Isleworth, but the Aldingtons were prolific with ideas for the radical modification of ones produced to their order by such specialists as Anzani, Blackburne and

Meadows. These re-works were in the main so drastic that there was some justification for the 'Nash policy of not mentioning the engine makers' name in descriptive blurbs and just letting the uninitiated assume the mills had originated in the Aldington intellects. And when it is added that a 1½ litre Meadows, to Meadows' great trepidation, was rigged to run on a 14 to one compression ratio back before the war, it will be understood why the engine suppliers apparently were content to remain anonymous.

The first authentic Frazer-Nash ever marketed—1924 successor to the Frazer-Nash-G.N. halfbreed recalled earlier—was offered in a hopped-up version with 85 mph guaranteed. This was a three-speeder with a four-cylinder engine of 1496 cc and pushrod overhead valves. By 1931, 100 mph was being claimed for the hot Ulster job with roller bearings big-ends. Two years later again a supercharged F-N was catalogued—the Nurburg Special—developing 105 horsepower from a litre and a half and capable of around 115. Then in 1934 the even faster Shelsley model came up, boosted by dual Roots type superchargers operating in parallel and featuring water-cooled main bearings. It was around this time that Isleworth launched the fastest 'Nash ever projected—the racing single-seater generating 160 bhp from the usual displacement of 1496 cc. Among many outstanding race performances, this car held the all-powers record for Shelsley Walsh, England's top hillclimb venue, and also the 1½ litre class record for the Brooklands mountain circuit.

The all-time yield of chain-drive 'Nashes, although impossible to assess with any accuracy, due to the wartime destruction of the makers' records by Nazi bombing, certainly placed A.F.N. Ltd. in the ranks of the small-scale producers, even in British terms. But if this little family outfit, by the vulgar criterion of sheer output, was naturally no match for contemporaries such as MG, it could at least excel in multiplying its models and thinking up new names to bestow on them. It is possible that a few of the more obscure and short-lived designations are lost to posterity, but the following batch will put anyway eleven on the permanent record: 1. Boulogne. 2. Interceptor. 3. Falcon. 4. T.T. Replica. 5. Ulster. 6. Ulster 100. 7. Colmore. 8. Exeter. 9. Nurburg. 10. Shelsley. 11. Single-seater. Most of these titles commemorated racing and competition conquests, the famous Boulogne model, for instance, being built in the image of the 'Nash which won the Light Car Grand Prix at Boulogne in 1925.

"Styling" is a verb that hadn't been

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spawned when all the world was young and 'Nashes went by chains; but in any case, conscious prettifying of their lean and purposeful machines would have been repugnant to the natures of the Aldingtons. The nearest approach to styling ever essayed on an Isleworth drawingboard consisted of adding fresh rafts of louvers to the top and flanks of the hood. F-N body types were three in number. Probably the most popular was the two-three seater with a rounded stern recalling an old-fashioned hip-bath. Then there were the sundry variants on the straight two-seater theme, with a big fuel tank immediately behind the cockpit and, astern of that, a tapered tail aspiring to streamline form. Thirdly, there was a series of open four-seaters, of a shape typifying the trends of the twenties, in which period most of them were made.

On the well-known Aldington principle of "You name it, we'll build it," H. J. publicly offered to mount sedan bodywork on any chassis in his range. It is not recorded whether there were any takers but I certainly never saw a chain-drive 'Nash with a solid roof. Weather protection of any sort, in fact, was disdained by most owners—not once in a month of Mother's Days would you see a Colmore or a T.T. Replica with its top up. I knew a man who ran a Boulogne for six years without spread-

ing his canvas. And when he did, to get in out of a cloudburst, the top fell forward over his eyes and he drove smack into a butcher shop.

Chains, a form of transmission that the vintage F-N shared with pedal bikes, domestic lawnmowers and the less polite types of freighter vehicle, perhaps contributed more than any other feature to that "extraordinary and peculiar fascination" which *Light Car's* tester noted a quarter of a century ago. The direct benefits of a chain drive were few and simply stated: they conveyed the power over the final stage of its itinerary with maximum efficiency and minimum frictional loss, just so the sprockets were kept properly aligned and the whole apparatus well lubricated. But it was probably the indirect dividends that counted most with the men of the Chain Gang. Simply by an appropriate switch of sprockets, a rapid operation well within the scope of any reasonably competent owner, he could effect an overnight change of gear ratios and thereby gain possibly a decisive edge on competition with buttoned-in transmission.

If and when a chain broke under the stress of Trials or hillclimb medicine—it shouldn't, if considerately maintained, below a mileage of 30,000 or more—a replacement would cost maybe the equivalent of \$5. Compare that with the price of a professional tear-

down for a back axle if the final drive gears stripped on a car of regular design. Chains and sprockets were light, too, as well as cheap. And weight in this department was a debit in the road-holding ledger, being mostly unsprung.

Were chains noisy and dirty, or was this just a sourgrapes rumor spread around by people who were all the time eating the Chain Gang's dust, and hating it? Such canards certainly drove a nail or two into the coffin. For at least half the cars' production lifetime they were fitted with a semiautomatic oil feed with separate lines to each sprocket, and so designed that the teeth and the bearing surfaces of the chains received their ration *before* centrifugal action could distribute it over the undershield and the nether surface of the floorboards. Slaked this way, and kept in conscientious alignment, the system was by no means the hurdy-gurdy its detractors alleged. Vocally, too, all ratios were alike, assuming the whole battery to be in an equal state of preservation or neglect, which is more than could be said of ordinary gearboxes.

But these and other endearing characteristics of the type weren't enough, alas! to ensure its survival. When the Aldingtons themselves, for years the embodiment of that *insania amiabilis* on which the cult was founded, at last heeded "the voice of busy common sense," the end was in sight. #

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