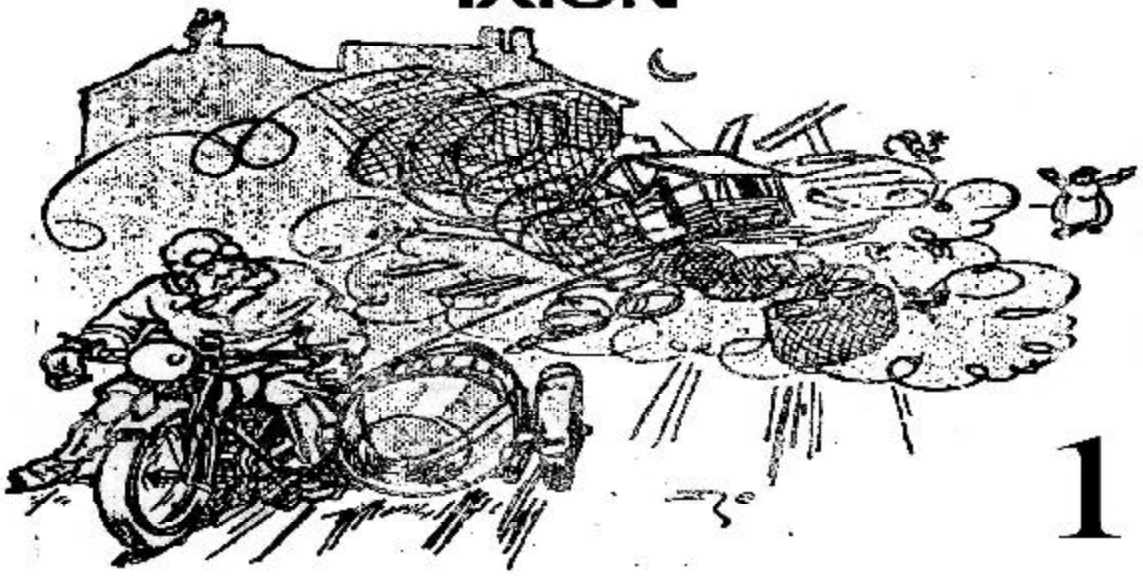
Reminiscences of Motor Cycling

'IXION'



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REMINISCENCES OF MOTOR CYCLING: 'IXION'
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Here reprinted are two small volumes *Motor Cycle Reminiscences* and *Further Motor Cycle Reminiscences* written by 'Ixion' of 'The Motor Cycle' who was one of the lead-ing motoring journalists.

The author recounts in these two titles, now reissued as a single volume, his impres-sions of 30 years and over 300,000 miles on the road. He was one of the first motor cyclists when the general public regarded the pioneers as incomprehensible lunatics, and no wonder, if one reads the problems they had to overcome.

In the early days even the pedal cycle tended to be faster, and the uplift beneath early motor cycling must have been equiva-lent to a religion, or they would never have borne its manifold disagreeables as they did. One could divide these pioneers into three kinds, the engi-neers, the adventurers and those gambling on the com-mercial possibilities.

However, things soon improved and especially in the second volume do the problems seem to become less important and the pleasures far greater.

The work includes many fascinating cartoon draw-ings and some photographs, and all those interested in early transport will find the works truly fascinating.

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REMINISCENCES OF MOTOR CYCLING

by

IXION

of

"The Motor Cycle"

Being the Impressions of
Thirty Years and 300,000
Miles on the Road

1973

This is a reprint of *Motor Cycle Reminiscences* and *Further Motor Cycle Reminiscences,* both originally published by Iliffe & Sons Ltd.

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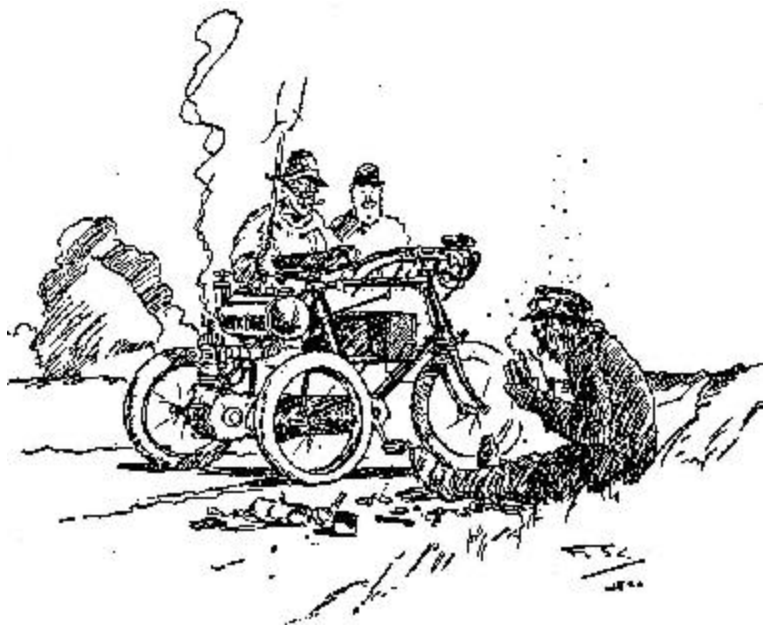
INTRODUCTION.

THE other day I saw a revival of The Belle of New York. Its cast includes a shabby lunatic who amongst other eccentricities strolls into a candy store, interrupts the lyrics of the spangled chorus, and orders a ton of coal. The assembled knuts and flappers receive him, with a bored, puzzled politeness. That is exactly how we pioneer motorcyclists were regarded by the general public twenty years ago-we were incompre-hensible lunatics. Our room was preferred to our company, and only persons with perfect manners forebore to tell us so.

Indeed, . unless we frightened people's horses, they were quite astoundingly polite to us. Our weird hobby seemed to be without excuse or justification : it veneered us with a permanent grime which, exceeded every known form of filth alike in squalor and in adhesiveness. The uncertainty of being able to start on a journey was only exceeded by the improbability of our ever reaching our des-tination in the saddle. We were unquestionably doomed to spend long hours by the roadside, under conditions that ranged from grilling sun to a frosty night, from desperate solitude to a seething mob.



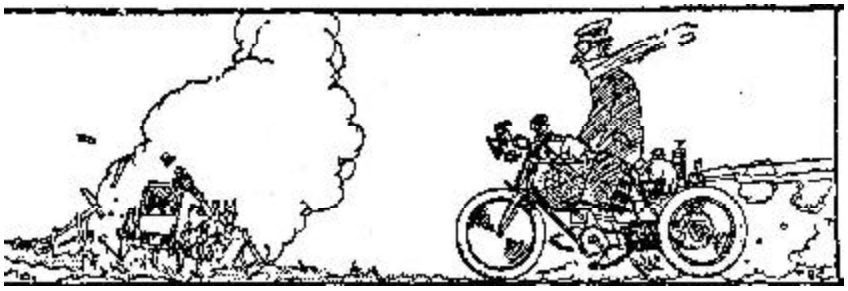
Such times of penance were usually devoted to the identification of some mystic ailment which afflicted our machines. The odds in the first place were heavily against our being able to trace the trouble; in the second place the betting was equally strong against our being able to remedy it, if found.

There were no garages; the longest push could only bring us to the door of some ambitious cycle repairer, more ignorant and less cautious than ourselves.

When it rained, we sideslipped and got drenched, for our machines were wofully top-heavy, and the modern dreadnought clothing was not dreamt of. In winter we suffered from frostbite. In summer our engines over-heated. Our belts slipped and broke and pulled through without partiality under all conditions ; the slip which they developed in wet weather was not more habitual than the glaze from which their leather suffered when roads were dry and dusty. Most of us were ex-cyclists; but such a hideous past was no palliation of our folly. We could not claim that motorcycles were faster than pushbikes; we often covered a few miles at a speed which was then regared as suicidal-say 24 miles an hour or so; but from" beginning to end of a cross-country journey the prehistoric motorcycle was generally slower than a scissors-grinder's handcart. We could not claim that we preferred the motorcycle for hillwork; for the main difference between it and the pushbike where gradients were concerned, was that the latter was very distinctly easier to push. Economy could be no factor in our inexplicable conduct. A new machine might easily cost £ 75 to buy. Its repair bill was long enough to stagger a munition magnate, and it was out-of-date soon after it had been delivered. The most sympathetic student of human nature might be pardoned for com-paring us to the gentleman who carried a slice of toast with him under the impression that he was a poached egg.

Now that the horse is all but extinct, I may inform the curious that it was an observant, suspicious and ignorant animal. When motorcycles first dawned on its vision, it took careful stock of them. Several disturbing points were immediately obvious. Motorcycles smelt abom-inably. The men who accompanied them on the roads were dreadful ruffians. Sometimes a motorcycle might be met travelling at inconceivable velocities. On other occasions, indeed more commonly, they were found station-ary by the roadside. This latter attitude was pure cunning, intended to entice unwary horses up to close range before the noise and smell began. The new monster was evidently a lethal projectile, a kind of bomb on wheels; when it was in motion, you could hear the clockwork whirring in its inside, and you would be half deafened by its repeated efforts to detonate. We pro-

duced some such impression on the horses of our day.



The consequence was that when they sighted us they immediately did an " about turn " and worked up to maximum revolutions in an amazingly few yards. The staidest old Dobbin would instantly become oblivious to the presence of kind mistress and the family barouche behind him. Many nasty accidents occurred as a result, and timid horse owners became afraid to venture on the roads.

In a somewhat different fashion we troubled human nerves to an almost equal degree. People habitually ignore any familiar noise - the roar of a night express 30 yards from their bedroom windows, or the grinding of municipal trams over worn points at 5 a.m. - but the instant they are subjected to some quite minor uproar of a novel character, they clamour for its suppression. An aero engine factory opened a testing shed two miles from a certain town during the war, and the town council was almost lynched as a result. The prehistoric motor-cycle did not really make a very tremendous noise. It usually had a small and feeble engine, a large silencer, and a silent transmission; if we except the geardriven tricycles which certainly scrunched abominably after a little wear, the early engines made less noise than some modern lightweight machines. But the pother we used to cause! Pedestrians twisted round in their tracks when we were half a mile away. People ran to their windows to stare. Only a very Prussian foreman could keep his hands at work when the unaccustomed " *tutta-tutta* " in slow time was audible in the road. Presently the public decided, as it always does, that a new noise was an intolerable nuisance. Jeers or scowls became our portion we knew what it was to have an elderly stranger shake his fist at us in front of an empurpled and twitching countenance. Even our nearest and dearest could furnish up no sort of defence for us. As far as was possible they hushed up our delinquencies, and spoke of our insane hobby behind closed doors and with bated

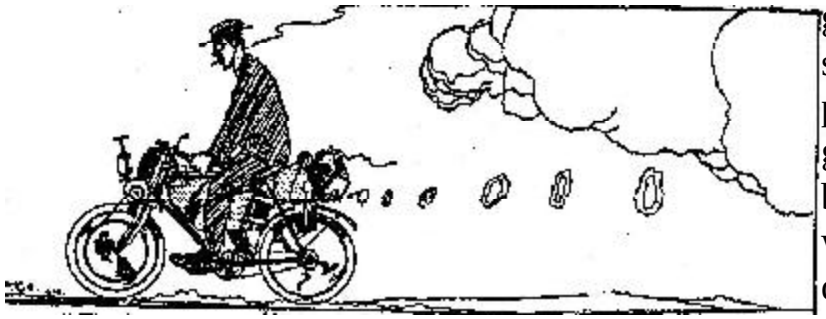
breath, much as if we had cheated at cards or made an unsuitable marriage.

The uplift beneath motorcycling in those early days must have been equivalent to a religion, or we should never have borne its manifold disagreeables as we did. It was derived from three motives. Some of us were engineers; we may hardly have believed in the ultimate road possibilities of a featherweight highspeed engine, but even if we privately regarded the machine as a product of Bedlam, it was certainly an amusing little toy. Others gambled on its commercial possibilities. Others, again, were adventurers, pure and simple. When there is no war on, no filibustering in South America, no uncharted islands to explore, this land of policemen and accurate maps and black coats on Sundays is apt to bore a certain type of temperament. The purchase of a motorcycle imported a spice of risk and uncertainty and Bohemianism into such a life.'

So we were not quite as mad as we seemed, though we were unquestionably odd. The proof of the pudding is in the eating. Somehow or other we stuck to our job or our hobby during the years which motorcycling spent in the " teething stage." We have reaped our several rewards. The men who came in because of technical interests have travelled farther than their dreams-many of them are leading lights in aviation nowadays. The cycle agent who hoped to double his annual turnover very probably owns acres of garages ere this. The sporting youngster has a cabinet full of medals, and what is worth more than ten sideboards full of cups-a memory richly packed with reminiscences of effort, peril and fun, which may serve to keep his heart young when his limbs are stiff with age and rheumatism. So I pass on to some assorted memories, linking the dim age of the pioneer motorcyclists to these times in which the machine threatens to become disgustingly utilitarian.

I. A RAGBAG OF RECOLLECTIONS

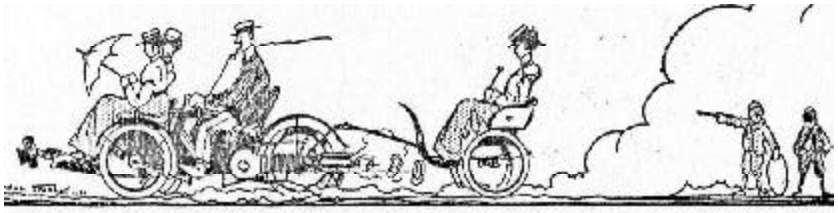
IN the early days I did not actually own a motor-cycle. For one thing I was too poor; for another I was too timid. Neither confession stirs any shame in me.



The first motor bicycle I ever rode had its engine insecurely perched on the top of the front mudguard; the carburetter resembled a 2 lb. biscuit box full of lamp wicks and petrol, and the ignition consisted of a platinum tube kept red-hot by means of a petrol burner.

The contraption cost about £50 to buy, and perhaps £1 a week to run. I was in at its death - it sideslipped on the grease in the Euston Road, leapt on top of its owner, pummelled him severely, and catching fire burnt itself to scrap-iron. I owed my first road experiences to rich and foolish friends, and they usually confirmed my decision not to own a machine.

Take the Bollee tandem for example. This ingenious three-wheeler had a large air-cooled engine placed horizontally in line with the rear chainstays. Amidships was a gigantic cavern, containing a three-speed sliding gear, the shafts of which were supported in bearings attached to a particularly buckly frame. The transmission from the gearbox to the back wheel was by means of a short flat belt, three inches wide; in lieu of a clutch the back wheel was levered forward in the frame to slacken the belt during gear changes.



A run on this monstrosity was a hideous experience.

At the outset the thing cajoled you by a twenty-mile nonstop. Then the gearshaft bearings got out of truth.

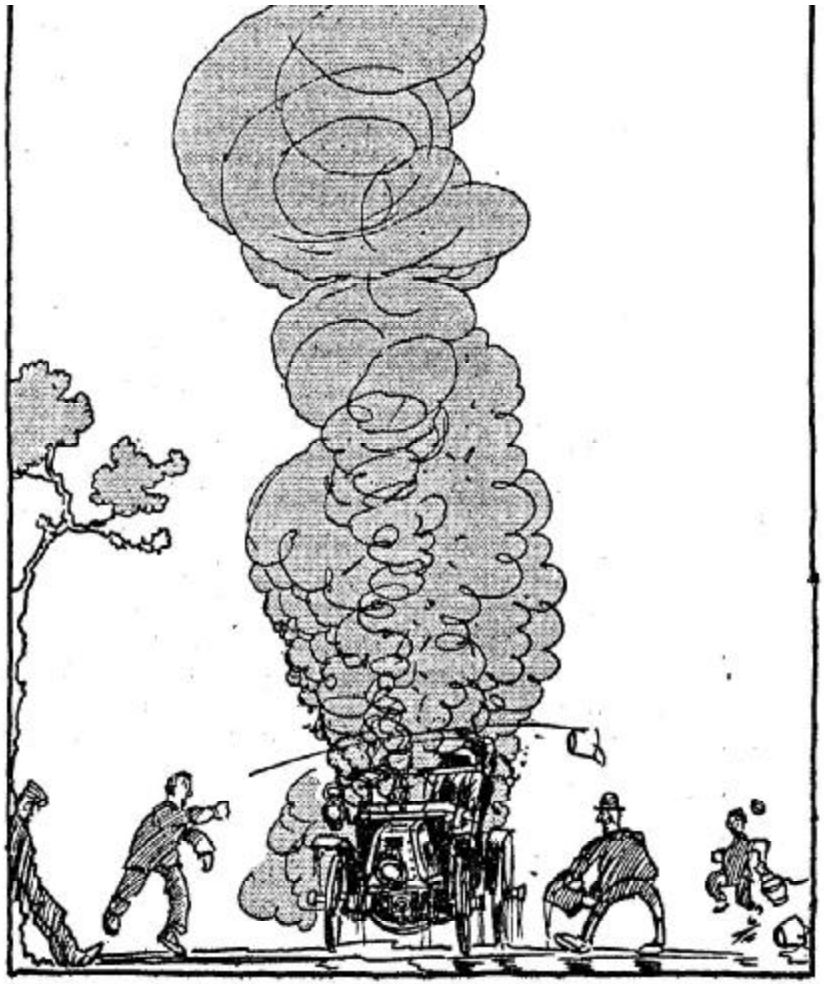
You uncovered the central cavern, and ladled in a hundredweight of grease with a large wooden spoon. Then the cylinder began to glow redly. You took it off and found the slots of all the piston rings in line. Then the belt slipped. Then the belt broke. And so on.

Motoring on such a Pegasus was lively, even when an expert accompanied the novice. Occasionally we ventured abroad without a tutor. A gilded youth of my acquaintance possessed a spider wheel machine, the make of which escapes me. He called it his "victoria" from the shape of its coachwork. He invited two of us to travel out from Oxford to Bicester to dinner one summer evening. The beastie did the outward journey nonstop. Two hours later, full of meat and wine, we emerged into the hotel yard to start the engine before an admiring crowd of ostlers. Four hours later three sweating, wearied men had exhausted every known expletive, and still the engine was mute. Finally she started. She ran rather badly for four miles, and came to a standstill. The crew disembarked, and wondered.

One of us struck some matches. By their fitful light we spotted a wet stain on the road behind the car - in fact, a wet trail leading Bicesterwards in the darkness. "The water's leaking," quoth the skipper. The first mate investigated the stain somewhat closely with a match. Over the smouldering ashes we decided that the leakage must have been petrol. See over....

With another novice I essayed a 50-mile trip on a weird fourwheeler, having two wheels in the centre, one in front, and one behind. I believe it was an Ariel tricycle, with the rear half of a ladies' bicycle attached to the back axle, trailerwise. Anyway, it went uncommonly well. We accomplished the outward journey without incident.

One mile back on the way home it stopped dead. We discussed and surveyed for hours; but as neither of us had the least notion as to the name of any part, or even as to how the engine worked, we got no forrarder. At last I discovered a small brass nut lying on the road behind the machine. It might have fallen off the machine; again, it might not. We decided to hunt for a vacant stud or bolt. After three-quarters of an hour we spotted an insignificant little thread projecting from a cone of white china behind the tricycle saddle. Triumphantly we screwed the brass nut back, and for the next half-hour we pedalled the outfit madly up and down the road in efforts to start the engine. Fate frowned on us. There



"One of us struck some matches.... must have been petrol"

1. A Ragbag of Recollections

was nothing doing. Another dismount. Further discussion. At last my companion drew my attention to a rather limp-looking wire, hanging down in rather detached fashion from a small black coil.

"That looks as if it ought to be tied up somehow," he opined. It was my brain that leapt to the idea of attaching the wire by the brass nut to the porcelain cone. Having thus unconsciously reconnected the ignition circuit we got a start, and should have reached home safely if the switch had not gone agley. Switches in those days consisted of a flimsy contact operated by revolving one of the handlebar grips.

Our switch had silently gone west, and Jehu failed to stop the engine on a right-angled corner. A quadricycle, upside down in a thorn- hedge with its up-turned wheels appealing to Heaven, is a fearsome spectacle. see over

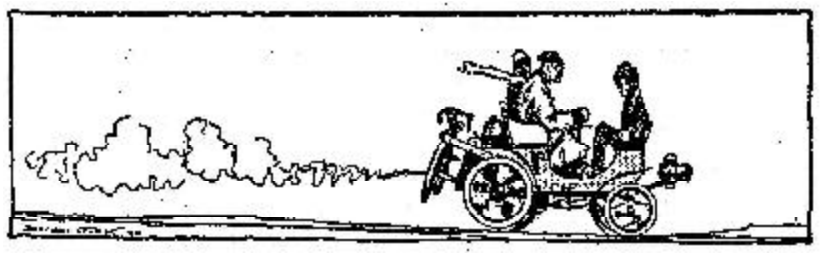
For some time after this I was promoted to the pukka automobile world. My boon companion of those days had a 3-1/2 h.p. car. It was a three-seater of sorts. In lieu of a bonnet it had a small hassock surrounded on three sides by a plated handrail.

Hereon sat the front passenger, facing backwards. Two normal stern seats completed the accommodation. The water-cooled engine was accessibly mounted just behind the nearside back wheel, which was thoughtfully provided with wire spokes, so that the owner could get at the contact breaker. Since the breaker required adjusting every ten miles, a special 2ft. screwdriver was wisely included in the maker's toolkit.

We made some special clips for attaching a push bicycle to the rear panel of the body, for summoning S.O.S. in the form of horses should emergencies arise.

This outfit really behaved tolerably well, and overcame my pristine distaste for motoring as a means of serious locomotion.

1. A Ragbag of Recollections



The next motorcycle which came my way was a bicycle with its power unit enclosed in a most colossal back wheel, which was heavily dished for the purpose, and had wide aluminium spokes. In two respects this machine was ahead of its time. Alone amongst motors of that day it had a reliable ignition, consisting of a low tension magneto with make and break inside the cylinder. Moreover it had a transmission devoid of belts, for the engine drove the back wheel direct by spur gears. That the noise of its progress would have put a worn-out threshing machine to the blush was no oddity in those days. I liked this mount much. It usually got there. But it passed from my ken when its owner snapped two or three of the back wheel spokes, and had to *carry* it three miles to his home.

(1) Anzani on one of the early Anzani pacing machines. The engines used in these were the forerunners of the Anzani aviation engines which enabled Bl6riot to make the first Channel flight, and were afterwards used in war machines.

(2) Marius The with a 1903 Buchet machine. Marius The commenced riding for the Peugeot firm in 1895, being mostly engaged in pacing cycle races.

(3) Oscar Hedstrom with one of the earliest Indian machines.

(4) J. Van Hooydonk on the 1903 2-3/4 h.p. Phoenix with Minerva engine. Mr. Hooydonk was one of the earliest trial riders in this country, and was the designer of the Phoenix Trimo, which was one of the first successful passenger machines. It is shown on the illustration on page .

My First Machine.

The net result of such experiences as were narrated in the last chapter was to imbue me with an enthusiasm for motoring. I admit the implication against my sanity, but there was no aviation in those days, and boys will be boys. About this time I went to live in an extremely dull country town, and for the first time my bank book revealed an idle £100. There was no garage or motor shop in the town, no motorist in the neighbourhood. One day I was passing one of the local cycle shops, when I pulled up dead in my tracks. I heard an irregular, stac-cato bark, such as oft sounded in my dreams. I dived through an open door into a murk of blue fumes, through which I dimly spied a pair of fat legs frenziedly pedalling. The staccato bark ceased. The engine was refusing to run without human assistance, and the cycle agent had bellows to mend. Perched on a little plated scaffold of steel legs I beheld the first Werner motor bicycle fitted with a vertical single-cylinder engine in the place still approved by modern design. I cut work for the afternoon. I let Dora pace moodily up and down the dim glades of the park till her patience evaporated till 9 p.m. I drank in technical knowledge by the bucketful. That agent had been well primed. He had never so much as seen a motor bicycle till the previous day, and he had brought her down by train. But he impressed on me the merits of a spray carburetter. He prated about coefficients of friction; showed me that the flat leather belt ran on an engine pulley built up of renewable leather discs; and almost coaxed my money out of the bank. In this virgin intoxication one reflection alone saved me from folly. That agent was compounded of fencing wire and indiarubber; had I not often striven to outpedal him on a pushbike? But his efforts to start the Werner had turned his bronzed face peagreen, and striped it with grey. Moreover, I was much taller than he was, and as he pedalled the engine round on the stand, he looked like a Guardsman jazzing on a rollerskate. I decided to sleep on the transaction.

The next morning brought cunning. The technical press (even in those days *The Autocar* was in being) had informed me that the new Ormonde machine was quite as taking as the Werner, and rather higher in the frame. Moreover, Jinks was not the only cycle dealer in Sleepington. Binks had surely heard of Jinks' bold effort to corner a new industry. I hied me to Binks, and was

closeted with him for a full hour. When I came out Binks held my cheque for a large sum. The covenant between us is worth setting out in detail; it may not be unique, but its like has assuredly not been signed any time in the last fifteen years.

i. Binks to supply me with a brand new it h.p. Ormonde, as advertised, for a named sum (with apologies to trade protection societies, I admit that this sum was rockbottom cost price).

ii. Binks to retain possession of the said machine for four full weeks after its arrival from the makers. (Binks wanted to keep it in his window, against which countless noses were consequently flattened on market days, and much trade resulted.)

iii. Binks to engage an experienced motor mechanic from Coventry without delay.

iv. Said mechanic to be at my prior disposal whenever required, at his union rate of pay, with no profit to Binks. (Actually, on long runs this mechanic often accompanied me. He only got 6d. an hour. He could ride a pushbike almost as fast as the Ormonde could be driven, and past experience suggested that his presence might represent a genuine economy.)

v. My machine to be garaged and kept clean by Binks. free of charge. (Whenever I wasn't riding it, it lived in his window, except when it required repairs. I rode down to Binks' shop on a pushbike when I intended to go motorcycling, and the small boys in the neighbourhood soon learnt to know me, so that I usually reached the shop attended by an excited guard of honour. - see below)

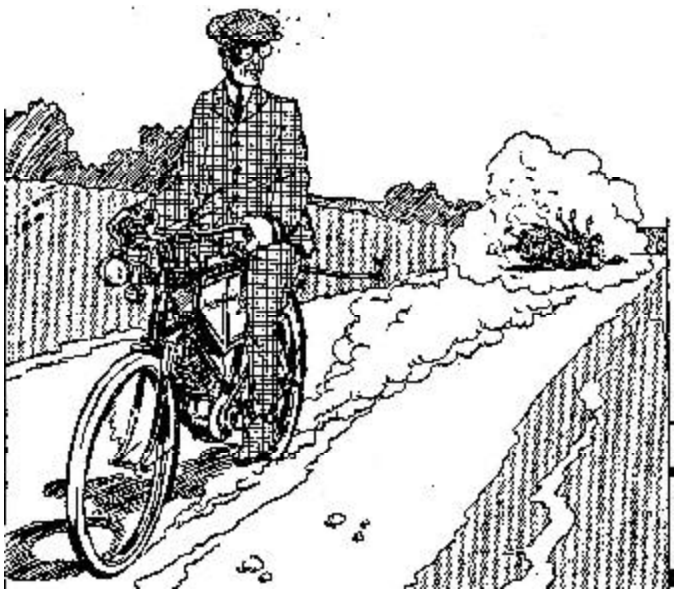
In due course the machine arrived. - So did the motor mechanic. I became a personage. For some weeks I reposed a childlike faith in that mechanic, which later experience has led me to revise. His panacea for all motoring troubles was to grind *in* the float needle of the carburetter, a job which no modern expert ever attempts. He it was too who after a long push home, thanks to an exhausted accumulator, led me to invest eighteen shillings in a spare cell in a leather case ; the acid leaked,

devoured the leather case, and destroyed the nearside half of my trousers. So far as I could recollect, the Ormonde gave very little trouble. Its steering was badly laid out, and the machine would lie down in the road when the first drops of rain moistened the surface. The sparking plug was located just under my right thigh, and gave me fearful shocks if I thoughtlessly gripped the tank with my knees in a bit of daring corner-work. The accumulator ran down at short intervals, and the contact breakers of those days reminded one of a watch made out ‘of putty. The Vee-shaped leather belt did not relish its job. Still we never came home by train. We were seldom punctual. In fact, we thought nothing of being two or three days late for an appointment. But we generally arrived in the end. Lamps were a nuisance. In those days motor-cycle lamps had spring backs of the pushbike type, and these springs. usually collapsed on the first ride. ‘You then jammed the hinges apart with bits of wood, cut from the hedge, converting the clip into a rigid attachment. Then the lampglass, burner, reflector and carbide chamber fell off in the order named. For this reason I usually took the mechanic with me on night jaunts. I carried an acetylene lamp on my bracket, and an oil lamp in a haversack. When my acetylene lamp collapsed, I borrowed his, and he took the oil lamp. When gaslamp No. 2 gave up the ghost, I took the oil lamp, and he hung on to my back wheel. It was arranged that I should pay his fines.

But I came to understand that I had put my money on the wrong horse. The Ormonde was grossly underpowered for the local hills, which were neither scarce nor easy. Jinks, the hated rival agent, soon got down a 2 h.p. Quadrant, which romped up our pet test-hill (half a mile of 1 in 17) *coram bopulo,* without light pedal assistance. I bade Binks order me a Quadrant. But Jinks had secured the exclusive agency. Then Jinks went one better, and procured a 2-3/4 h.p. Excelsior, about which Douglas Fawcett, the chess expert, philosopher, motor mountaineer, and novelist, was already publishing impassioned paeans. This powerful monster was obviously capable of pulling a trailer. By this time Dora’s successor had arrived. Binks dismally confessed that Jinks had collared the sole agency for Excelsiors. The die was cast. *A bas* Binks! I transferred my custom to Jinks, and ordered an Excelsior.

The 2-1/2 h.p - Excelsior.

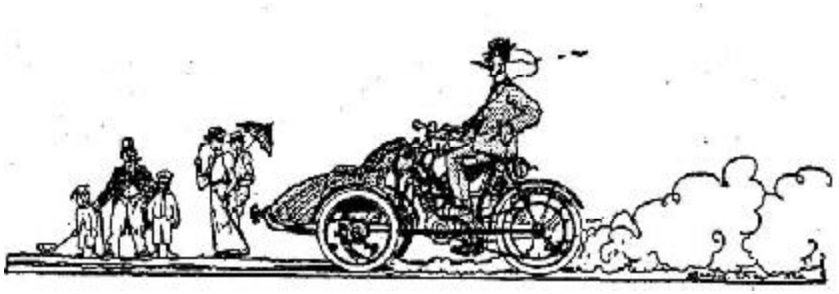
The Excelsior machine with M.M.C. engine temporarily saved the juvenile motorcycle industry from extinction. It scaled about 220 lbs., could easily romp up hills like Dashwood at high speed, and was capable of 45 miles an hour on the level. Of course, it was topheavy and prone to sideslip. Its V-shaped belt gave continual trouble in dusty or wet weather. Its ignition was disfigured by the usual unreliable contact-breaker and accumulator. Nevertheless mine carried me some 15,000 miles without undue delay and without a single recourse to the railway. Its debut was not encouraging. I was then at the impressionable age, and it seemed desirable to furnish accommodation for an occasional flapper. The makers rashly guaranteed that their 2-3/4 h.p. engine - a giant for those days and bigger than some modern 3-1/2 h.p.'s - would carry two people anywhere. The sidecar had not then been invented and the trailer was our custom. Now a trailer at the best does not lend itself to ardent affection in travel. Most of us used pushbike trailers, and their connections used to break. In dry weather we glanced astern every half mile or so to see that all was well. On greasy roads we dare not take our eyes off the going, and periodic shouts of "Are you there, darling ?" were the rule. One day I gave the code call, and there was no voice nor any that answered.



The trailer bar had snapped, and Arabella had turned a neat back somersault, chair and all, landing heavily on her bustle against the hard high road. This incident led to ultimatums. I must either give up the motor, or give up

Arabella. She would never again occupy a trailer. Neither would she trust me or spare me to career about the countryside alone; blue-eyed Devonshire maidens with creamy complexions were too numerous and too charming. I weighed my - *demarche,* don't the diplomatists call it? At this stage the Excelsior traveller came down to our burg. I confided in him piteously. With a flourish he produced a folder illustrating "Our new forecar." I denuded the bank coffers, and ordered one.

Presently the outfit arrived. The motor bicycle had been converted into a tricarriage by removing the front wheel, and attaching a two-wheeled axle with a basket chair slung upon it. The steering was coupled up to the bicycle front forks, and the front chassis was fixed to the front down tube of the cycle frame by a single clip resembling a human fist executed in metal. I tested the beast for the first time with the chair empty. It created a huge sensation on our boulevards, and I felt convinced that Arabella would surrender to it at sight; moreover there was every hope that I could occasionally lean forward and kiss her ear, at least on good roads. Steering it onehanded and sucking a big cigar I abandoned myself and my new purchase to the unstinted admiration of the populace.



Alas! That infernal clip slipped round the down tube of the cycle frame. The forecar did a half-left turn, the cycle frame remaining as you were, and the outfit capsized noisily against some iron railings at the foot of the hill. Arabella did not witness this catastrophe, but she heard of it, and we parted. I replaced the bicycle wheel, and rode solus for weeks.

As the times went, that machine served me nobly. I substituted a metallic wipe contact and a trembler coil for the original ignition, and so long as I kept the accumu-lator up to snuff, the belt remained the sole anxiety. She accomplished such formidable trips as the entire circuit of the county of Devon in a day; and on a blazing June day she travelled from Cornwall to London

between sunrise and sunset. But she certainly possessed an insatiate appetite for belts.

In those days most machines were propelled by what was vulgarly known as a "bootlace" - Anglice, a long nar-row strip of raw hide, twisted into rotundity, and jointed by a miniature meathook. They had their points. If they stretched, you unhooked them, and twisted them up a little tighter. If they pulled through at the hook, you unravelled them a few turns, and hey, presto I they became longer. On the other hand, a combination of a steep hill, a wet pulley, and a 2-3/4 h.p. engine caused them to roar idly over their pulleys with a charred sort of smell. Just then Dawson of Lincoln introduced a V belt with copper stitching. It was about as pliable as a crowbar, and it was a sheer miracle that it ever wrapped round our pulleys, which were about as big as a doll's saucer. After each spin we took them off, anointed them "with various glutinous and perfumed dopes, and somehow made them grip. Nevertheless I found it advisable to carry two spares on a long run. To climb a mile of 1 in 10 gradient demanded tactics in those days. You paused at the foot to cool the engine and overhaul the belt. Then you made a rush. If the belt held out, you usually got up, for the engine was by no means bad. As a rule the belt began to slip. The next phase consisted of standing on the pedals, and whirling your legs round in an invisible blur. After a hundred yards of such light exercise, you resembled a dugout colonel after being kissed in the Strand by an Australian private on Armistice Night. You dismounted, lay down at the roadside, and panted stertorously. Breath recovered, you surveyed the vicinity, and spotted a sideroad, entering the hill at an angle. After tightening the belt, you charged madly down this byroad, and so got a fresh run at the hill. By repeating this process you got to the top in penny numbers with your clothes soaked in perspiration, and a strained valve in your heart.

Lycett of Birmingham then entered the belt trade. He wooed our custom in judiciously phrased advertisements. It was bad enough, he said, to be stalled on a hill with a slipping belt. Yet the best belt - even a Lycett - must slip on occasions. How comforting, when such contretemps occurred, not to need a gimlet and penknife to refix the belthook. Buy a Lycett belt. It has a dozen metal-eyeletted holes at each end. Chop off one eyelet, and slip the hook in another hole. I took his advice.

Unfortunately the frequent perforations weakened the leather incredibly. After the patent belt had been in use a week, repeated fractures had shortened the main length incredibly, and the belt now consisted of innumerable tiny pieces joined together by countless hooks. I reverted to the Lincona.

I soon found consolation for Arabella's faithlessness, and reattached the forecar securely by means of a double clip which clasped the saddle pillar tube of the bicycle as well as the front down tube. Incredible as it may seem, two of us travelled over many hilly parts of England on this single geared 2-3/4 h.p. two-seater. We picked our roads with some discretion, avoiding Sutton Bank, and Sunrising. On a hill like Dashwood, we commenced operations by a furious rush, which lasted perhaps 300 yards. Then the passenger dismounted, and the pair of us pushed off again. One walked to the top, whilst the other ran alongside, pedalled, or enjoyed brief spells in the saddle where the grade eased for a few yards. We re-united at the summit. Small wonder that the surviving pioneers all suffer from heart trouble.

Finally let it be remembered that in those days a brand of petrol which was better than modern aviation spirit cost us about 9d. per gallon, plus carriage. Our only carburetter consisted of a small compartment in the tank, in which a few inches of petrol were allowed to slosh about, being fed with air through a tap. The engine sucked at the resultant vapour, and appeared to like it. Nothing ever went wrong with the carburation, except when a patch of rough road caused the petrol to slosh too freely, and temporarily made the mixture somewhat too rich. There was a brief scare in our garages when the Midland Railway took alarm over a consignment of petrol which caught fire en route. They demanded that consignees should sign an unlimited indemnity note, pledging themselves to rebuild St. Pancras Station if necessary. For a few weeks there was a petrol famine, and then the railways climbed down. Never again shall I buy such petrol at such a price.

A Speed King Quadricycle

After several years as a country cousin, and various interludes with different bikes and trikes (none of which equalled the Excelsior), I returned to London, where motors were by now mildly plentiful; the streets and show-rooms afforded a more comprehensive survey of

the industry than the press and the provinces had supplied. My next purchase demonstrates the whole philosophy of salesmanship. I was idling down the Euston Road when I beheld a secondhand Dennis quadricycle in one of the dealers' shops in that thoroughfare. I was still a novice, and need not conceal the fact that its gleaming aluminium mudguards drew me into the shop - so much do appearances count with motorists in their salad days. Once inside, the salesman grappled me to his soul with hooks of steel. What was I riding? A motor bicycle. Was its engine high up? Rather. Did it skid? I should say so. Had I prostrated myself beneath a bus yet? No? Well, one never knows. Had it a free engine? How did I like restarting it every half minute in a traffic block? "Now this 'ere quad. Cawn't sideslip-four wheels, y'know. A smart young feller like you's sure to have a sweetheart. Now trailers is orl right: but what they want is a two-speed gear. Ladies doesn't like 'avin' to walk up the 'ills. This 'ere quad 'as a two-speed gear. 'Ops up Sunrising, it does, like nothing on earth. Then motor-bikes hover'eats suthin' shocking. Put 'em at a 'ill, and yer 'ear their pistons a 'ammerin' and 'ammerin fit to bust theirselves. This quad engine is watercooled. Climbing she fair• revels hin."

My salad days were not yet ended, and I fell. £55 was the price. The bus had originally cost £130, and except for the tyres was in excellent order. The man was a liar of the first water, but considered as a profiteer, he was the merest amateur. I owe him no grudge.

This quad survived to transport me and a variety of fairies over many thousand miles. Its worst trick was a habit of shedding the fork which actuated the low gear. As this fork was situated at the extreme tail of the machine, its loss was never noticed, until a hill called for low gear, when the lever would be thrown over, and the machine would slowly conk out, still on top gear. As the gear was of French make, and the factory in Paris ignored every S.O.S., the only remedy was to haul the machine round and drive back, eyeing the road already traversed till the fork was found. The salesman had said she could not skid. Injudicious braking, especially on tramlines, caused her to do " wheels " worthy of a Guards battalion under inspection by the King. There are skids and skids. The most dangerous vehicle I ever owned was a 3-1/2 h.p. Renault car which resembled the Holy City in that the length and the breadth and the

height of it were equal. On a grassy road this voiturette would spin round like a Drury Lane columbine, being seen only as a faint blur. Second to it for skidding propensities came several high-powered tricars built about 1906, which would face about in their tracks like a soccer wing man of international class. But the old quad was capable of wheels and right-abouts which absolutely took one's breath away. On the other hand, her centre of gravity was so low that she never upset; and in the early days of motoring that was sufficient reason for thanksgiving.

She was convertible into a tricycle by the simple process of unbolting the long sidebars which held the fore-carriage, and sticking a spare wheel between her front forks. In this guise she was a perilous mount indeed. The engine and gearbox were slung at the extreme rear, behind the axle, like the bustle of a Victorian belle. Above them was a huge cylindrical plated tank, containing oil, water, and petrol, as big as the barrel of an eighteen-pounder field-gun, and nearly as heavy. To balance this bulky tail there was nothing in front but a pair of forks and a light wire wheel. If one stood behind the machine and hooked a forefinger under the saddle, it was possible to pull the whole contraption over backwards. I did not understand this till I gave a small boy a joyride on the bridge of the back axle. We came to a steepish hill, slowed down, and toppled slowly over backwards. If the trike front wheel hit a large stone in the road at speed, the front wheel would lift about a foot into the air, and we would career along like a racing hydroplane in the bay at Monaco poised on our extreme tail.

Uphill the quad was nominally a two-speeder. Normally she was a one-speeder, for the low gear fork was generally missing when wanted. (I got over this by commissioning a friend in Paris to visit the Dupont works with a revolver, and not to quit until he had extracted a dozen forks from the proprietor.) But in practice she might rely on six speeds, viz.

1. Top gear, crew on board.
2. Bottom gear, crew on board.
3. Bottom gear, driver - running alongside.
4. Bottom gear, crew running.
5. Bottom gear, driver pushing and crew running.
6. Bottom gear, entire crew pushing.

If we utilized all six speeds, we could climb any hill.

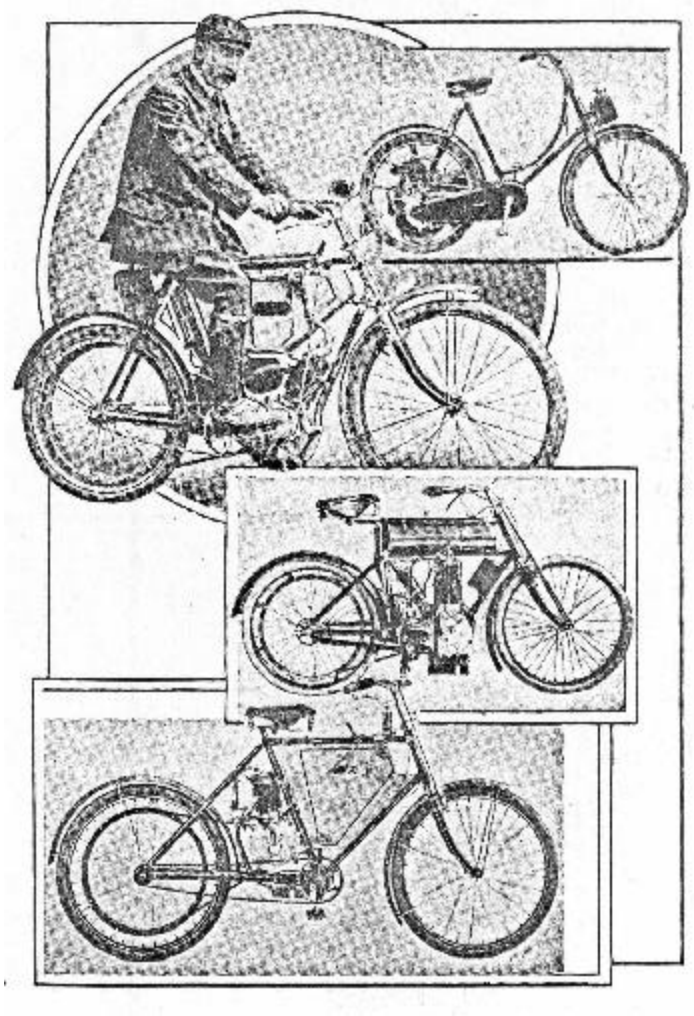
I use the word " running " above, but on sober reflection I must substitute the term " walking," for she was no flier at the best of times. She scaled a good quarter of a ton. Her engine was about 2-3/4 h.p. The epicyclic gear was a regular sponge for sopping up horsepower. On the level against a strong headwind, we had to force her hard if we wished to average twelve miles an hour, which, by the way, was the legal maximum in those days .

T. Silver on the 1904 Quadrant. Mr. Silver has been associated with Quadrant machines from the very earliest days. He made the End to End record of 1903, and in 1904 made a six thousand mile tour across South Africa. Note the silencer of the engine placed immediately under the tank to warm up the surface carburetter. The other machines are :- >>>>>>>>>>>>>>>>

(1) The 1903 Singer with complete power unit in the back wheel and open frame for ladies.

(2) The 1903 Bat, one of the earliest machines to employ spring suspension the saddle and footrests were bothh sprung so as to insulate the rider from road shocks.

(3) The 1903 Ormonde. M. Kelecom, who designed and built the engines for the Ormonde machines, afterwards designed all the F,N, machines.



II. THE MOTOR BICYCLE IMPROVES.

AFTER I sold the quad described in the last chapter the motor industry began to advance, and machines became comparatively reliable. British engines were still practically unknown, and such imported units as the Minerva, the Kelecom, and the Peugeot were still our favourites. If any ambitious trader wanted to start a motor business, he would scour France and Belgium in the hope of unearthing a promising engine of which no English firm had yet been granted the agency. During this period I owned a number of machines which I will bury in a generous oblivion. The 3-1/2 h.p. Ormonde stands out in memory as the true precursor of the splendid machines of to-day. Its Belgian engine gave out lashings of power, and its low, central mounting rendered the machine steady in grease. The frame was well-designed, and the spring handlebar afforded a comfort such as was rare ten years later. Such a machine had three main snags. The accumulator ignition was a source of constant trouble. As the battery was packed in a compartment of the metal tank, short circuits were always easy to come by, whilst vibration was apt to loosen the paste on the grids. The wiring was flimsy, and the contact-breaker beneath contempt. Secondly, the leather belt was bound to give trouble at short intervals. Dust glazed its sides, and rain robbed it of all pretence at a grip on steel pulleys. Lastly, the absence of a two-speed gear made hill-climbing a very chancy business.

Riders in those days never expected a no-trouble run; never hoped to climb really bad hills without considerable muscular exertion ; and never thought of complaining. The hobby was regarded in the same light as modern warfare. It was a laborious adventure, not without many compensations for a hardy spirit. Let me recount the sort of incident which befel.

Greatly daring, I adventured a 1,000 mile holiday tour. The casualties of the first two days were limited to contact-breaker adjustments and frequent tinkerings with the belt. On the third day the engine commenced to run hot, and the maximum speed fell to about 20 miles an hour, in lieu of the 35 to 40 which were ordinarily procurable. The ignorance of the average rider was so profound that it was our custom to plod along, puzzling things out as we rode. I probably covered 60 miles or so at an ever decreasing crawl before I noticed that the

exhaust valve was hardly lifting at all. Off came the timing gear cover, and I discovered that the tappet had eaten through the casehardening of the cam, the hump of which was rapidly disappearing. Fortunately I carried spare cams - think of it, ye modern riders - and in an hour I was speeding on again. The next day one of the timing pinions sheared the pin securing it to the shaft. I carried spare pins of silver steel, and this was soon remedied. The next day a valve snapped off at the neck and went clean through the piston. I telegraphed for spares, and spent the period of waiting in fitting a trap which should henceforth imprison fractured valves in the valve chest. The next day the rear wheel collapsed; this, of course, any cycle repairer could build.

Reconstruction.

At this era it was proverbial that soon after purchase you encountered a " trouble stage " with each new machine. The fool would lose patience, sell the machine, and repeat the experience with his new mount. The wise man entered into the causation of his troubles, redesigned or recon-structed the faulty detail, and found himself in possession of a motor which would henceforward cause him no trouble, except for belt and ignition stops which, like the poor, were always with us. So it was with my Ormonde. I fitted a stronger back wheel; interposed levers between the cams and the tappets; inserted pins of good steel in the timing gears; got some new valves made of different metal; and found myself the owner of the best machine in the country.

One humorous interlude followed. A certain inventor tried to grapple with our eternal belt troubles, and caught me in an idiotic mood. He designed a flat belt of leather, which was forbidden to stretch by steel plates stitched to its top side with copper rivets. He further proposed to eliminate slip by securing short crosspins of tough steel to the metal plates, and machining little nicks in the edges of both pulleys to engage the projecting ends of the crosspins. He induced me to let him fit this horrible transmission to my machine. Since it could neither stretch nor slip, and was too weak to stand the dig of the engine, it incontinently snapped asunder, and its flail-like end gashed a deep furrow in my calf.

This wound was *a greater catastrophe than appeared at the time. At this period at least two firms-Humber and Phelon and Moore-had constructed quite

sound chain-driven machines, which vastly reduced the frequency of transmission troubles. But the scar on my leg prejudiced me against rigid drives. Be it understood that it was impossible for manufacturers to tell the candid truth in those days. Not a single machine could ever have been sold if the trade had frankly informed customers of the exhausting and humiliating experiences which awaited them on the road. Consequently those of us who knew a little assumed a most cynical attitude towards advertise-ments and catalogues. I inspected the Humber chain system. I reflected that it would certainly neither stretch nor slip. Ergo, I deduced, it will break. Now I would rather play with a belt, a gimlet and a penknife, than tinker with a chain which has dissolved into its component bits. So I foolishly gave Humber machines a very wide berth, not realizing that in time to come chain drives might reign supreme.

A Regular Roarer.

Meanwhile various earnest men were trying to provide us with better hill-climbing. W. H. Wells, now of Indian fame, launched a most taking machine. His motto was that hill-climbing required horsepower. So he bought some 5 h.p. Peugeot twin-cylinder engines of the V type, and mounted them in excellent frames. He fitted a French spring fork, the Truffault, which if ugly was smoother than many, which survive to this day. Incidentally he reduced the belt troubles, because the big engine could stand a big pulley, and a big pulley gave a better grip. This machine was a regular roarer for those days. With a frenzied rush it could get up almost any main road hill. Its chief weakness was the automatic action of the inlet valves. When we learnt that they must both have equal springs of a certain strength, and open exactly 3/32 in. we were able to enjoy life. Speaking from memory, this very fast mount can hardly have weighed more than 170 lbs.

At the same time other enthusiasts were feeling after two-speed gears. J. Van Hooydonk evolved an epicyclic two-speed hub. Once again excessive caution betrayed me. Soured by six or eight years of continuous break-downs I took the line that every motor is bound to give trouble. He who would live long and see good days should select machines which admit of roadside repairs. Perhaps I was wise. Hooydonk’s gear has long been as extinct as the dodo; but he certainly got some good

work out of it ; maybe he produced a new hub every time he rode in competition-he is far too crafty to confess, even at this long last.

British Engines Forging Ahead.

About now, British engines were gradually coming into being, and heralding these modern days in which British aircooled engines are stupor mundi: I have already spoken of the Humber and P. and M. The Minerva engines from Antwerp were still the knuts' choice. But the little 2-1/2 h.p. J.A.P. engine, clipped beneath the front down tube of a light frame, pointed onwards to the day when a big overhead valved J.A.P. became every sportsman's dream. Then the Triumph people produced a little 3 h.p. of their own manufacture, built into the frame on modern lines. They will forgive my saying after all these years that the first engine of their make that I owned was un-commonly bad. Delightful when new, it rapidly weakened down to the power of a cat and a half. Its soft valves pitted and scaled and warped with incredible re.pidity. After 500 miles the compression became a minus quantity, and you could hardly get enough suck on the carburetter to start the engine up. But the firm realized these defects, and set their metallurgists to work. Year by year they have eliminated every possible cause for criticism, and to-day they enjoy such public confidence as few firms in any industry can command.

About this time our main tribulation was removed by the introduction of magneto ignition. None but veterans can realize how the magneto has transfigured motoring. Yards of wiring ; inconceivably vulnerable batteries ; contact-breakers as complex as a clock and as soft as butter ; such had been our ignition in the past. In its place we were suddenly furnished with a compact, workmanlike little device which would last a season with no more attention than a few drops of oil. We regarded the magneto with horrible suspicion for a full year. One trade magnate, who still survives, used angrily to strip it off all his motors, and fit up an accumulator and coil at considerable expense. But its obvious merit triumphed. The motorcycle was now waiting for a better transmission and a hill-climbing gear.

Propaganda Work.

Presently I left the London district, and in various hilly districts I learnt in my marrow and muscles that the

single-geared machine was practically useless in Wales and the west and the north. Further it was obvious that such districts opened a special field to the motorcycle if only it could climb hills. Railway services were either bad or non-existent. Horsed transport was slow. Pushbikes implied too much walking where steep gradients abounded. A knot of enthusiasts set ourselves to preach two-speed gears. The technical press assisted us eagerly. We got hold of various crude gears, and set ourselves to exploit them in all the trials. This missionary work bore rapid harvest. Nearly all the early gears were chain driven, and most of them were very bad. They were generally innocent of shock-absorbing devices, so that the chain transmission tore both engine and frame to pieces. In one season I destroyed three frames and bent four crankpins, but won plenty of gold medals in the intervals between smashes. Before long the designers were converted, and the future was assured.

III. HILL-CLIMBING COMPETITIONS.

IN the early days of motorcycling the blue riband of hill-climbing was organized by a cycling club (the Catford C.C.) and was run off at Westerham. In these days, when the winners of the 3-1/2 h.p. classes at hill-climbs ascend at a mile a minute (if the road permits) it is odd to remember that a Catford winner often pedalled hard most of the way up to assist his engine, and that trade riders sometimes stuck ingloriously half way up the hill. My most anxious moments occurred in the yard of the Crown Hotel at the foot of the hill. Number plates had just come in, and were regarded very seriously by the police. I rode my own bus to the venue, where the foreman of the running shed was to meet me with three different bicycles, on which I was entered in as many classes. My own private machine was numbered, let us say, XY999. When I arrived an interesting and enthusiastic crowd was assembling in the Crown yard. Pushing into it, I discovered the foreman trying to explain to the local constable the legality of having *three* machines all numbered XY999; XY999 No. 4, made itself scarce at some speed.

Pedalling in hill-climbs soon became unnecessary, but the speed was still far short of modern standards. For example, I once made the fastest time of the day on a hill which demanded my bottom gear for the bulk of the distance; and that gear was 9 to 1. Special racing machines were practically unknown. The entry usually consisted of genuinely standard engines, carefully if unintelligently tuned by their owners. As a proof of this I once bought a machine from an agent, entered it in a hill-climb, and beat the firm's three trade riders with consummate ease, the reason being that all of them imagined that they should use high gears, whereas I innocently rode on standard touring ratios, which happened to suit the grade. Before many years had passed hill-racing rose to a fine art. The man who wanted to win any climb except an obscure provincial club event had first of all to get the factory at his back and buy or borrow a picked engine. Secondly, he had to tune the machine to the limit of its efficiency. Thirdly, he had-if possible-to guess or wangle the whereabouts of the secret venue, and adjust his gear and carburetter setting to the hill. Fourthly, he had to practise lightning starts, thereby snatch-ing several fifths of a second from less clever competitors. Fifthly, he had to walk up and down the hill several times, study

the corners, and make careful mental notes of any ruts or rough places which might throw out his steering. Sixthly, he had to tuck his body up into the smallest possible compass, so as to reduce wind resistance. Seventhly he had to risk his neck as soon as his machine gathered pace. Victory was partly a matter of risking a bad crash through tackling a bend at dangerous speed. When the Auto-Cycle Union found a right-angled bend on a grade of 1 to 4 in Sir Philipson Stow's grounds at Haslemere, they thought they had unearthed a regular machine-stopper of a climb; but the very first year certain single-geared machines came up so fast that they could not take the corner at all; the daring jockeys plunged clean off the road, towered up between the pine stumps, and rejoined the twisty road higher up.

Falling with Safety.

Accidents became tolerably frequent, but seldom had any serious results. A racing motorcyclist usually falls as softly and as safely as a baby or a drunken man, and for similar reasons. The baby or the toper has not the wit to stiffen his limbs instinctively when a crash is imminent ; a motorcyclist has not the time. The finest "save" I ever witnessed was achieved by a sporting parson in a provincial event. The hill was easy, and the cleric was riding a big twin-cylinder Zenith. He streaked over the crest at a mile a minute, and then steered into a rut. His machine went over, and as he was flung clear, he curled his body up into a ball, with his head tucked well into his stomach. He bowled along the road for yards like a tennis ball, but took all the shock on his shoulders and sit-upon, so that he was not a penny the worse.

The A.C.U. had rather a penchant at one time for setting fast machines to race up dangerous hills. One year, when speeds were becoming rather furious, they picked Willersey Hill, which is not very steep, and has a nasty corner half-way up. Amongst the spectators there figured a veteran rider, who had been abroad for some years, and was quite unaware of the pace which he was about to witness. He stationed himself at the foot of the hedge on the outside of the bad corner. Neither friends nor officials could persuade him 'to change his position. He grew a little nervous after a few of the juniors had roared past, but pride forbade him to move. Presently the 7-9 h.p. riders began to come up. One of them tried to take the corner at 50 m.p.h. and charged clean

through the hedge just where Tom was seated. Tom disappeared backwards in a cloud of dust. We tore to the rescue. One of the footrests had just skimmed the skin off Tom's neck from front to back.

Now that the smallest passenger machines make light of shale-strewn goat tracks in the Welsh or Scottish mountains, it seems incredible that hills which a pushcyclist can ride used to puzzle all two-seated motorcycles. In 1904 teams of six riders from various clubs fought out a club championship over an easy course near Banbury. One machine in each team had to be of the passenger type. The worst hill on the route comprised 600 yards of 1 in 10 or so. Practically all the passenger outfits stuck on the hill. The Coventry Club secured the cup by the astute plan of entering a racing man on a powerful bicycle with a small passenger in a very light trailer; and this outfit 'iad precious little to spare on the hill.

So far as open hill-climbs are concerned, the old man and the amateur have had their day. A would-be winner must be absolutely devoid of nerves, and cannot hope to achieve much on standard machines. There is no dis-honesty in the preparation of special engines for the game. The machine which will streak up a mile climb at from 40 to 60 miles an hour is not of a type which will be pleasant for touring work; and if it were sold indiscriminately to the public, few men are fitted to'ride it. Road-racing has developed into a highly dangerous sport, demanding physical and mental qualities which are the property of the few, and which increasing years rapidly impair. The career of the road racer resembles that of the prize-fighter. New men flash into fame, stay a year or two at the top of the tree, and swiftly pass into the ranks of the has-beens. Some of them face the facts with a good grace. A few try to prolong their waning courage with whiskey, and only hasten the inevitable downfall. After the twenty-fifth birthday only one man in a thousand can continue to race on motorcycles and display any real skill. The strain is as great as that of flying a scout aeroplane over the lines.

IV. RACING ON ROAD AND TRACK.

M OTORCYCLE racing resembles the handling of a fighting scout aeroplane in that it is a game at which only youngsters can hope to excel. Until 1905 or thereabouts road-racing was practically non-existent in Great Britain, and track-racing was mainly confined to a small handful of professionals, amateurs showing little or no interest. The chief function of the racing motorcyclist in those days was to pace pushbikes on the track, mainly in France. The pedal cycle had not then degenerated into a purely utilitarian machine,. and vast sums were still being expended on advertising the various makes, whilst millions of people were genuinely interested in the sporting aspects.

The Parc des Princes track in Paris maintained a large programme of events, and men like Cissac thought nothing of evolving leviathan motorcycles, sometimes of 20 h.p. Large windshields were fitted at the back of these pacing monsters, behind which the pushcyclist pedalled furiously in a vacuum which almost sucked him along. Occasionally two or three of these monsters would visit England, but our tracks were too gently banked to hold them. A few trade riders, notably the brothers Collier, Harry Martin, the brothers Chase, Yates, Crundall and S. Wright used to contest events for small engines on the tracks at Canning Town and the Crystal Palace. Indeed, the race meetings of most cycling clubs used to sandwich one or two motorcycle events between their pedalling events, even when nothing better than a grass track roped off in a field was available. Needless to say, the sport was poor, and the effect on design nil. At this time the French manufac-turers and riders easily headed the industry.

Early Speed Trials.

The Irish Gordon-Bennett race for cars in 1903 was followed by speed trials in Phoenix Park, and the British makers began to realize that racing was both a first-class advertisement, and also an intensified method of developing good engines. From this event onwards a few enthusiasts commenced serious efforts to foster racing in the teeth of much inertia on the part of the trade and the public. In August, 1904, the Motor-Cycle Club of France offered a valuable cup for an international race at eight weeks' notice. France would have won in any case, but so brief an interval gave us no chance to prepare. A

course of 168 miles in five laps near Dourdan was selected, and the French club held eliminating trials on September 11 over the actual course. Thirteen riders contested the three places, which were all secured by Griffon machines, the winner averaging 46.5 miles an hour - a fine feat for those days. We selected Hodgkinson on a Jap, Rignold on a Lagonda, and Silver on a Quadrant, and all three firms found it very difficult to get down to the stipulated weight of 108.5 lbs. France, Austria, Great Britain, Denmark and Germany were represented in the race on September 26, though only eleven men started. Of our team Rignold was the only man with racing experience, and he was a track rather than a road man. None of the three threatened danger. Demester on a Griffon won comfortably in slow time, but Vondrick on an Austrian Laurin-Klement gave the Frenchmen a rare fright.

Choosing British Champions.

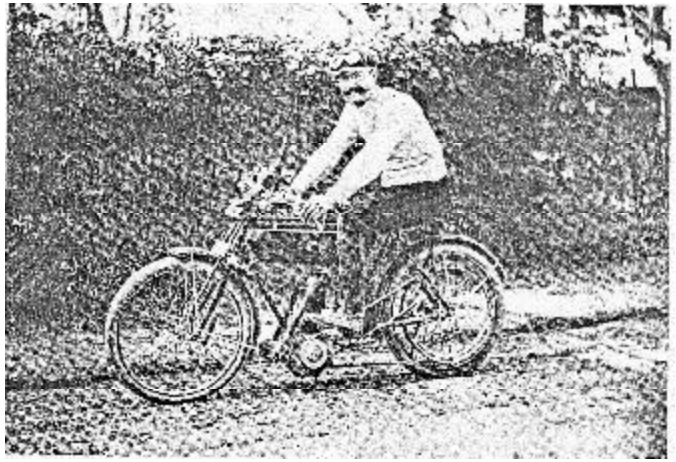
This humiliation did us good. In 1905 we began preparations in good time, and the eliminating trials to choose a team of three were run off in the Isle of Man on May 29. Nineteen machines were entered, most of which were big twins, despite the 108.5 lbs. weight limit imposed by the French. G. A. Barnes actually produced a V twin measuring 94 x 100 mm., but it was almost unstartable, and when it got going, generally split its pulley or tore the spokes out of its back wheel. Nobody realized that reliability is the first essential in racing; the machines were far too flimsy, and the engines much too big. Barnes even got a fretsaw and cut a lot of leather out of his tiny saddle. At the last moment the course was altered, as the machines could not manage the two hairpins on the climb from Ramsey up Snaefell. In the race a very poor standard of reliability was shown. Only two machines (Campbell's Ariel and H. A. Collier's Matchless) completed five laps before the roads were opened at 8 a.m. The speed was rather less than 30 m.p.h. Franklin and Rignold (reserve) on Japs were chosen to complete the team. Needless to say, we were completely outclassed in the International, which was won by the Austrian Vondrick at more than 50 m.p.h.

In 1906 five entries were secured for the eliminating trials, and at one time it seemed that no course would be available, but Lord Derby finally offered a five-mile course in Knowsley Park. C. R. Collier completed 27

laps at an average speed of 40 m.p.h. H. A. Collier and C. B. Franklin completed the team. We were again defeated, if not disgraced. The International was run off on Austrian soil at Patzau. Harry Collier finished third, nearly half an hour behind the winning Puch. It was rather a free-and-easy race, for though the rules stipulated that only competing machines were allowed on the course, the Austrian riders were assisted by racing sidecars full of spare parts and tyres! Our protest was naturally turned down.

Road Racing in The Isle of Man.

1907 shares with S. F. Edge's win in the Gordon-Bennett car race the honour of being a landmark in British motor racing, for it witnessed the opening of Brooklands track and the organization of the first Manx T.T. race for motor bicycles. The enthusiasts had triumphed after years of spadework.' The trade was at last convinced that nothing but racework could bring our machines up to the continental standard. Since 1907 our motorcycles have steadily improved, and since about igli they have probably been the best in the world.



HA Collier on the Matchless-Jap, after the race

The first T.T. race produced a curious regulation copied from the rules of the car event, and limiting the petrol supplies; single-cylinder machines were allowed one gallon per 90 miles, and twins one gallon per 75 miles. Seventeen singles and eight twins actually started, and despite the fuel allowance C. R. Collier won at 38.5 miles an hour. The fact that less than half the entrants were able to complete the course taught the trade what a searching test road-racing provides. Moreover, many people learnt in practice that engines which behave toler-

ably in touring work soon curl up when they are driven all out in a long race. By the close of the year several designers had formulated dreams of machines which should stand sustained speed on bad roads-a notable advance on current ideals.

On April 20, 1908, a fresh milestone was erected when the first motorcycle race was held on Brooklands track. Twenty-four machines, ranging from Cook's 9 h.p. Peugeot down to McMinnies' 3-1/2 h.p. Triumph, started level, and the big Peugeot, geared 2.625 to 1, won at 63 m.p.h. A handicap on the time start basis followed in May, and Brooklands continued to play an invaluable part in perfecting motorcycle engines until the European war. A single yarn will serve to show the usefulness of the track. A certain firm, which utilized hillclimbing competitions as its main advertising medium, found its policy hampered by a rival firm, who used the same proprietary engine, and employed a mechanic who could obtain even better results from the engine in question. So a commission was given to an outside engineer to design a still better engine. Presently the engineer brought down his first engine. It was tried on a favourite hill, and easily beat the previous best time. The managing director was on the brink of signing a contract for several thousand duplicate engines when his technical adviser asked for a week's delay. This was arranged, and the sample engine was tested on Brooklands. It showed no great speed, and after five laps it died away to nothing. For years afterwards the firm in question regarded Brooklands as their most precious asset; their testers lived on the track when any change of design was under consideration.

Pedalling Barred in 1908.

The 1908 T.T. race was organized on the fuel limitation system, the allowances being decreased to a gallon per 100 miles for singles and 80 miles for twins. It is comic to recall that pedalling assistance was prohibited, as some riders were thought to have gained an unfair advantage by using " l.p.a." in 1907. The race was once more run on the cheap, and since the trade would neither pay large entry fees nor offer donations, the meagre prizes were furnished by the subscriptions of enthusiasts. Silencers were compulsory, and a preliminary test of their efficiency was made. Marshall's Triumph was the fastest single at 38.7 m.p.h.; whilst Reed, on a Dot-

Peugeot, headed the twins at 37 m.p.h. As in 1907, most of the men averaged more than a hundred miles per gallon, and some of the cracks adjusted their fuel consumption so precisely that their tanks only contained an ounce or two of petrol at the finish.

For the 1909 race the niggling petrol allowance was wisely discarded, and singles and twins were set to race in one class, with capacity limits of 500 c.c. and 750 c.c. respectively. The mountain climb was also included for the first time. The race was one of the finest ever held in the island, and resolved itself into a double-barrelled duel. Lee-Evans on a 5 h.p. Indian waged a terrific battle with H. A. Collier on a Matchless twin. Collier did not think the Indian machine would stand the racket, and rode a waiting race for the first few laps. Gradually perceiving what he was up against, he began to put in all he knew after the half-distance, and won a very popular victory at just over 49 m.p.h. Simultaneously Jack Marshall on a Triumph and Godfrey on a Rex were trying to decide which single-cylinder was the fastest. Indeed for seven laps it was by no means certain that the big twins would beat Marshall. In the eighth lap he broke a valve, and the Triumph second string then took up the running, and finally got home a few seconds in front of the Rex. We little guessed that Indian racing machines were destined to prove very formidable in all our speed events for years to come, and that this vermillion racer was the vanguard of a great invasion of American motorcycles. This race satisfied poetic justice. The brothers Collier had done more for motorcycle racing in England than any other individuals; and everybody rejoiced to see one of them win outright and defeat the invader on a very thrilling occasion. The two-stroke engine was represented in racing for the first time, but accomplished nothing; the Scott entry interested the crowd chiefly because of its mechanical starter and pleasant exhaust.

The Brothers Collier Waltz Home.

By 1910 the T.T. had come to rank as at least the equal of a six days' reliability trial in public interest, and a huge entry automatically resulted. The twins again raced among the singles, but in view of their easy victory in 1909 their capacity was cut down to the odd figure of 680 c.c. After the more reckless men had been eliminated during the opening laps, the two Colliers waltzed home, steadily hunted by the slower Triumphs. This time it was

Charlie's turn to win, and his speed was 50.7 m.p.h. The Indian team were outed by a faulty consignment of inner tubes, and the race as a whole lacked interest, since the Matchless twin and the Triumph single were too fast for all their rivals, but too unequally handicapped to hustle each other.

The First Junior 'T.T.'

By 1911 the claims of small engines necessitated the foundation of a junior T.T., which was limited to 300 c.c for singles and 340 c.c. for twins. As the larger twins had always proved too big for the 500 c.c. single, they were now handicapped down to 585 c.c. The Senior race revived the thrills of igog, for at the end of the first lap the American crack, Jake de Rosier, was leading by half a minute on an Indian twin, there were three more Indians on his heels, with C. R. Collier's Matchless and Applebee's Scott completing the first six. The chances of a British *debacle* seemed serious, for the Triumph team threatened no danger. Harry Collier was slow and nobody expected the Scott to stay the distance. In the second lap Charlie Collier snatched a tiny lead, but was driven hard by the Indian braves. He kept ahead till the fourth lap, when he punctured, and Godfrey's Indian went in front and stayed there. Charlie Collier mended his tyre and rode like a demon, but was beaten by 73 seconds. Two more Indians 'finished third and fourth close behind him. To make matters worse, Collier was disqualified for taking petrol on board at an unofficial depot, which left American machines 1st, 2nd and 3rd on the list. The Junior T.T. excited little interest by comparison, and resulted in. a victory for the little Humber V twin with Armstrong gear. Later in the year C. R. Collier comforted our patriotic hearts a little by smashing all American track records he actually did a flying mile at Brooklands at the speed of 91.37 m.p.h.

In 1912 the British trade was naturally on its mettle to recover lost laurels, but no great confidence was felt, seeing that in the T.T. the man counts for quite as much as the machine, and men with a genius for road-racing are not easy to come by. Moreover, the Collier brothers were not growing younger, and the Triumph firm did not appear to have a jockey of the first class at their disposal. On the other hand, the Indian team had lost Moorhouse (killed at Brooklands) and de Rosier (smashed up in America), whilst the twin-cylinders were

now limited to 500 c.c. So far as public form went, the two Colliers were expected to fight out an international duel with the fastest Indians. However, the preliminary practising in the island showed that whoever wanted to win would have to beat the Scotts, which were very fast, held the road like postage stamps, cornered sensationally, and were in the hands of two brilliant riders in Applebee and Philipp. These’two riders actually led the field till within a few miles of the finish, when Philipp’s back tyre came off and cost him several places. Haswell on a Triumph was fractionally slower, ‘ and stepped into second place. Franklin (an Irish representative) had a bad fall on his fourth lap, but the Indian machines were not fast enough to win. The Junior Race was an easy victory for Douglas machines.

Meanwhile the ordinary racing proceeded at Brooklands, and considerable interest was taken in a series of attempts at record by various types of machine over various distances and periods. The trade found these standard records a useful mode of advertisement, especially when a new type . of machine required bringing before the public. Track experience was, of course, very largely respon-sible for the improvement in T.T. performances. By 1913 the track had developed an almost permanent activity. The Brooklands Motorcycle Racing Club held monthly meetings, and routine tests or record attempts by trade riders occupied the intervals.

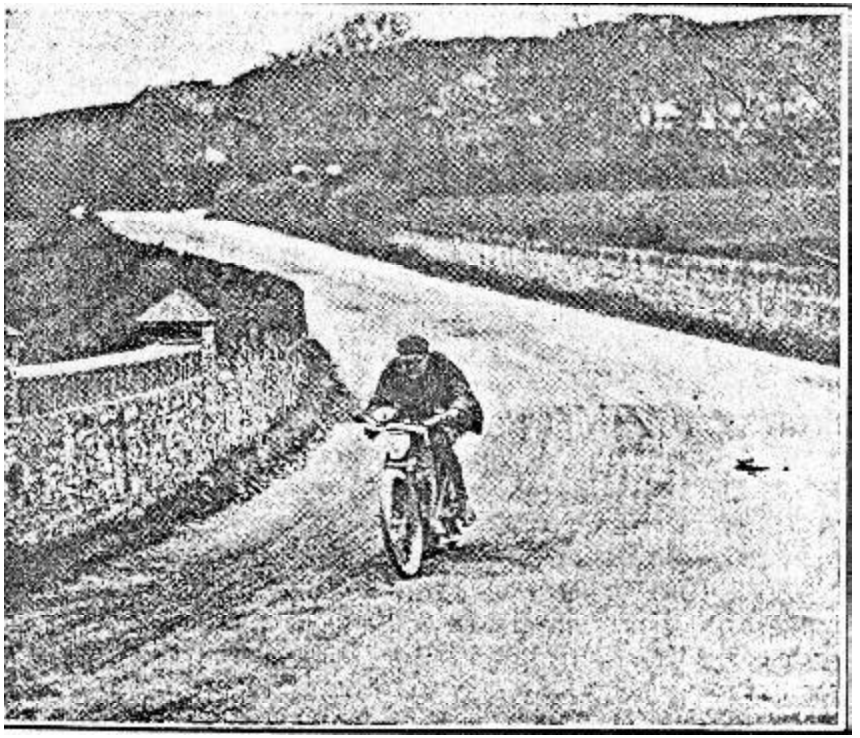
The 1913 T.T. was felt to be singularly open, as an entry of 96 machines for the Senior event alone suggested that the jockeys must include some genuine dark horses, whilst Brooklands had taught firms with little experience of racing how engines should be designed and built. If the Indian team were anxious to regain the trophy for America, a formidable army of Britishers were determined to retain it. The race was full of thrills. After the first lap four Rudges ridden by unknown men were leading, followed by two Indians and a Matchless ; but with seven laps to go, instead of five as in former years, there were sure to be casualties by the way. In the second lap two of the fastest Rudges dropped out, and Tim Wood on a Scott rushed up into second place. After three laps the. Scott was leading by four minutes, hunted by a medley of Rudges and Indians. The order continued to vary with kaleidoscopic rapidity as the long race wore on, and excitement was maintained at fever heat, as. Scott, Rudge, and Indian led in turn, with here and

there a fast man dropping out. The position at the end of the penultimate lap was really breath-catching, as the three leaders were

1. T. Wood (Scott) .. .. 4h. 40m. 23s.
2. A. R. Abbott (Rudge) .. .. 4h. 40m. 34s.
3. A. H. Alexander (Indian) 4h. 40m. 55s.

Abbott actually lost the trophy by overshooting a corner in his haste, whilst Wood finished like a tiger. Alexander was slowed by dirt in his carburetter during the last lap.

The Junior Race had proved only less exciting than the Senior, for Hugh Mason on a N.U.T., and Newsome on a Douglas finished within seconds of each other over a six-lap course. Enthusiasts with weak hearts began to doubt the wisdom of attending any more races contested with such ferocity. A gloom was cast over the race week by the death of a Rudge rider. He was leading the field in the fifth lap of the Senior Race, when an Indian passed him on the descent from the mountain. The Rudge rider opened out to regain the lead, and got on rough ground as he repassed the Indian. Several other accidents occurred, and there was much talk of limiting future races



Rounding the Devil's Elbow

to smaller engines. Eventually, it was perceived that the real danger arose from Brooklands experts who ventured upon tremendous speeds without sufficient road-racing experience ; and safety was thought to be attained by insisting upon the wearing of helmets and a considerable amount of preliminary practice.

The Last T.T. Before War I.

The 1914 race was dated for May, and the Rudge team were expected to be dangerous after their sensational showing of the previous year. First laps are never very safe guides, as men who are not stayers often put up a sensational sprint before they retire. The second lap showed Wood's Scott leading by three minutes from Harry Collier, with C. G. Pullin's Rudge coming up fast. Collier passed Wood on the third lap, and the pair changed places again on the fourth lap. In the fifth lap Collier broke his frame, and Wood was outed by his magneto. These misfortunes let Pullin in for the lead after five laps, with Collier's Matchless and Godfrey's Indian minutes behind him. In the sixth lap Pullin ran right away and won by seven minutes. Meanwhile a new aspirant to T.T. honours - a Sunbeam, ridden by H. R. Davies - passed the Matchless and dead-heated with the Indian for second place. In this race twenty men averaged over 44 m.p.h., on one of the hilliest and most dangerous courses ever utilized for motor-racing. Pullin's speed was 49.9 m.p.h., and it is significant that the A.J.S., which won the junior Race, averaged 45.6 m.p.h.

The men who organized the first T.T. race in the teeth of ridicule, opposition and indifference, may well feel proud when they reflect how the Manx event has transformed motorcycles, and especially their engines and gears. The same coterie of enthusiasts were largely responsible for maintaining our representation in the old International Cup Trials, and they must have felt inclined to despair when their best efforts only procured four or five entries for an eliminating trial, and a few miles of park roads for them to race over. In 1914 there were no fewer than 158 entries for the Manx races: everybody of importance in the trade crossed to the island, and thousands of amateurs arranged their holidays so as to be present. Moreover, the British-built machines can now more than hold their own with those of any other nation, and fear comparison with none in the world.

V. THE END TO END RECORD.

THE notion of setting up record times for a motorcycle ride between Lands End and John o' Groats was, of course, a heritage from the most sporting epoch of the pushbike, during which G. P. Mills had earned such fame on the classic route. E. H. Arnott, captain of the Motor Cycling Club, was the first man to complete a timed ride, covering the distance during July 1902 in 65 hrs. 45 min. on a 2 h.p. Werner. The French Werners were the crack machine of those days, though, like many of the best English pioneer cycles they failed to keep pace with the times, and gradually vanished from the market. These record rides were never recognized by the powers that be, to wit the Automobile Club and its successors, the A.C.C. and A.C.U. This boycott was originally accidental. The pushbike records were verified and guaranteed by one of the official timekeepers of the various cycling organizations; the chosen watch-holder trained down to Penzance, timed the record-breaker off on his long trip, caught and passed him on the railway, and waited up at John o' Groats to time him in. A similiar procedure was adopted when motorcycling records began, and continued until the pace got so hot that the motorcycle was much too fast for the train over such a long, cross country journey.

By this time the A.C.C. dare not handle the business, as the gross average speed from start to finish was wholly illegal, and it was thought wise to suspend.some of the later riders from competing in any A.C.U. events. Various methods of checking the records were then resorted to. A brace of timekeepers - one at each end - proved too expensive: journalists and garage proprietors were invited to officiate, and at times the run was so poorly authenticated that it came into disrepute. Accusations were made that more than one machine was utilized on certain attempts. The motives underlying a record attempt were naturally mixed. Sometimes an individual rider was seeking personal fame. Sometimes a firm of manufacturers desired advertisement. Occasionally a sportsman would start from sheer love of tackling a dangerous and difficult job. On the whole the rides tended to improve the breed of motorcycles, and to create enthusiasm for the hobby.

Difficulties of Early Attempts.

It would be invidious to select any given record for special honour. The first few runs were undoubtedly remarkably plucky. The roads north of Perth were frightfully bad, as the Highland tracks had not then been reconstructed to carry tourist motor traffic, and the Grampian road in particular had degenerated into a mere scar across the moors after the opening of the railway. The early motorcycles had rigid forks, small saddles, and ill-balanced engines, whilst it was exceptional for any of them to run 50 miles without giving trouble. Garages were few and far between. The supply of spare parts, and even of petrol, was problematical. The machine required pedal assistance on very moderate hills, and its speed on the level was so poor that a trip of some goo miles against the clock was a great weariness to the flesh. It was always on the cards that the rider's accumulators might give out in some lonely fastness many miles from a railway station.

From the outset the ride was conducted by schedule. To shorten the distance and give the rider a much needed rest, the ferries were utilized for crossing the Firth of Forth (Granton to Burntisland) and the Beauly Firth. As the time was cut down by successive record-holders, it became necessary to arrange for tugs to wait with steam up; the aspirant usually planned his ride for much faster time than he actually attained, and the bills for these boats became decidedly steep. The timekeeper charged £ 20 or so, inclusive of expenses, and the charges were swelled by arrangements for meals and petrol at all hours of the night. Arnott and Silver, the first two successful aspirants, both spent 2-1/2 nights on the road.

It was difficult for a tired man to carry details of 900 miles of route-finding in his head, and it was impracticable to carry large scale maps of the whole road. The usual plan was to obtain such roadbooks as the C.T.C. guides, and to type extracts from them of all the awkward turnings. This scheme served excellently so long as the rider kept to the proper route, but if he got sleepy and made a false turn, he often lost all sense of direction, and went miles out of his way.

Success due to a Minor Fitment.

Arnott's fine 1902 figures stood for eleven months, and in June, 1903, Tom Silver reduced the time to 64 hrs. 29 min. on a 3 h.p. Quadrant. He left Groats at midnight on a Wednesday, and reached the Lands End Hotel, at 4.29 p.m. on Saturday, in a state of physical exhaustion, partly ascribable to heavy falls along the Grampian road. He used a 5/8 in. leather V-belt, and surface carburetter. The unusual reliability of his machine was in no small degree due to a substantial contact-breaker of British design, for the common French contact-breakers of that era could hardly be trusted to work for 50 miles without adjustment, and dropped to pieces after they had been tool-handled a few times.

A year later (June, 1904) G. P. Mills tore lumps off Silver's time by covering the distance in 50 hrs. 46.5 min. It appears to have occurred to Mills that it was absurd for motorcycles to take 60 odd hours for a ride which he had covered on a pushbike in 77 hours ten years previously. At any rate he built a special Raleigh motorcycle for the job, and as this machine was never seriously marketed, his ride must be interpreted as the roar of a lion warning jackals away from his pet drinking-place. The Raleigh was of rather advanced design for those days. It had a spring handlebar, and a crude form of two-speed gear, embodying high and low speed chains from the counter-shaft to the rear wheel ; no pedals were fitted. Mills' schedule was planned for 421 hours, but he struck heaps of trouble. The spring handle-bar broke not far from Penzance, putting the switch and front brake out of commission. The southern roads were dry, and numerous punctures were sustained. Rubber solution and patches in 1904 were not of the quick-drying type, and each repair left a tiny leakage of air. From Bristol to Groats Mills was perpetually jumping off to blow up a tyre. The Scottish roads were simply frightful. They had been repaired after the winter snow had melted by the simple expedient of dumping down cartloads of broken stone and Highland surveyors did not insist on a 2 in. mesh in those days. Mills lost 8 hours with tyre trouble, and spent 41 hours upon meals. He rode through a heavy gale in the north of Scotland, and finished with his wheel-rims dinted like the edge of a piecrust, and his face mashed to rawness by the weather. A humorous detail of the ride was that Mills met at Groats a modest rider who had come up to contest

Silver's 64 hr. figures, and was now compelled to revise his schedule by telegraph to beat the new time of 50 odd hours.

Advantages of Starting the Record from the North.

For some time to come attempts on the record were frequent and free. When practicable, they were confined to the middle of summer for obvious reasons. Not only is the treacherous Scottish climate more trustworthy in June, but the nights are short. If there is no midnight sun at Groats in June, it is at least possible to read a newspaper out-of-doors at midnight; and it was becoming clear that if a really fast machine started from the northern end and met no trouble, Lands End could be reached after no more than one night on the road. In June that "night" might be limited to three hours of darkness somewhere about the region of Carlisle, where the roads were good. Given a full moon, fast time could be registered under these conditions.

However, as luck would have it, the next success came from a southern start, Harold Williamson's Rex snatching the record after Mills had held it for a month. His figures were 48 hrs. 36 min. His machine was far less suited to the job than the Raleigh, being single-geared and belt-driven, with pedals. Its success must be ascribed to good organization, fine riding, and an engine which held its tune well. Many further attempts were made over the course, but Williamson's figures stood for nearly four years, until Arthur Bentley, on a 3-1/2 h.p. Triumph, pared just over seven hours off them in June, 1908 (41 hrs. 28 min.).

Bentley wisely started from the northern end at two o'clock in the morning, and if his organization had been better he might have set up figures which would have proved invincible. As it was, most of his feeding arrangements broke down; he intended to stop for one square meal only (at Whitchurch), and this was not ready for him, so that he rode right through to Launceston without any proper food. Along the southern portion below Gloucester he became lightheaded, and lost a good deal of time from various causes. However, despite all these handicaps his figures stood for a year.

In 1909 Tom Peck on a 3-1/2 h.p. Rex tackled the ride in the northerly direction, and his single-geared belt-driver went through in fine form, barring a few tyre

stoppages. His time was 40-1/2 hours. Peck had only been a motorcyclist for twelve months, and his performance owed much to his intimate knowledge of the roads, an invaluable asset where time-saving is concerned.

Hart-Davies' Record Rides.

The next ride came two months later, and effectually frightened away aspirants for some time to come. The late Ivan B. Hart-Davies, killed in a flying crash at Northolt during the war, was an extraordinary rider. As a speedster he was not in the first class, and could never have accomplished great things in the T.T. or on the track. But his physical stamina was colossal, and he could probably make hacks of most racing men in sustained speed-work on the road. He liked nothing better than an all-day scrap with two or three fast men who fancied their corner-work. He might be beaten when the party were fresh, but towards the end of such an outing he would generally be miles an hour faster than the rest of the crowd, for he never tired. He relied on amateur assistance, and had plenty of sporting friends who provided him with first-class organization on his record rides. By this time it had become customary for a record-breaker to employ guides and followers. The rider no longer troubled to learn the whole of the route, whilst time did not permit him to consult maps. Over every tricky section the rider would be guided by fast men who knew the roads of the locality perfectly; and behind him would be two or three others, ready to lend a hand in tyre repairs, or to go in front if the guide tired or had trouble with his machine. The guide would wear a white coat to facilitate following in the dark.

Hart-Davies left Groats at 3 a.m. on a Monday, and checked into Lands End at 12.22 p.m. on Tuesday - a total of 33 hrs. 22 min. His single-geared Triumph weighed 196 lbs., with pedalling gear and a specially large fuel tank. He used magneto ignition, and a Stanley rubber belt.

The A.C.U. and Road Records.

For some time to come Peck and others pluckily attempted to surpass the Triumph figures, but the pace was now growing too hot, and bad weather or a few tyre stoppages wrecked many a promising performance,

whilst several riders sustained bad falls in attempting to ride at speed when they were tired out. The Auto-Cycle Union not unjustifiably frowned on these efforts, and threatened all manner of penalties, dreading lest a bunch of speedsters should crash into some vehicle or pedestrian when taking risks round a corner. Davies' figures stood for a year, and when September, 1910 was drawing to a close and the days were shortening, it seemed certain to live for a second year. Great was the astonishment when it became known that the late Arthur Moorhouse, who had previously failed over the course, had left Groats early in the morning of September 20, and got down to Lands End in 32 hrs. 13 min. This was a tremendous feat, considering that the darkness lasted eleven hours, and that the rider held on through frost, rain and fog along various sections of the road. His single-geared Rex scaled 218 lbs., including two big lamps and a heavy kit of spares.

Nobody expected Hart-Davies to take this defeat lying down, but the season was far too late for an impromptu retort, and it was not until June, 1911, that the burly specialist regained his record with the astounding time of 29 hrs. 12 min. He refused to employ a variable gear, since the hills on the classic course are well within the compass of a single gear, and the retention of a drop-out back wheel facilitated the inevitable tyre repairs. Both Davies and Moorhouse considered that a first-class man on a first-class machine, with first-class luck, could cut the figures down to 28 hours, but nobody has yet succeeded in doing so, nor are the prospects particularly enticing.

A series of less important records have been put up over the same course, the period from 1909-1811 being a period of great activity. Though the 3-1/2 h.p. type of machine attracted the keenest interest, similar advertisements were also sought for light and medium weight motor bicycles, and for sidecar outfits.

In July, 1910, Harold Cox put a 1-1/4 h.p. Singer, weighing no more than 93 lbs., over the classic route in 57 hrs. 26 min., and Eli Clark promptly reduced this "light-weight" time to 39 hrs. 40 min., with the aid of a 2-3/4 h.p. single-geared Douglas, both riders using their pedals freely. A controversy arose as to whether the Douglas should rank as a light or a medium weight.

Sidecar Honours.

From 1909 onwards a regular procession of sidecar outfits essayed similar honours. The first was a 7 h.p. Vindec Special with Peugeot engine, Vivian Olsson's time being 65 hrs. 14 min. This poor time naturally invited attack, though the gross unreliability of sidecars in those days made the feat far better than it looks on paper. The brothers A. W. and H. M. Bentley accepted the challenge in the same month with a Rex twin and sidecar, but only lowered the time by 6 hrs. 7 min. Three months later Martin Gaiger brought out another big Vindec, and reduced the sidecar record to 51 hrs. 45 min. Not until June, igio, were satisfactory sidecar times registered, when Hugh Gibson drove a 3-1/2 h.p. Triumph outfit over the course in 46 hrs. 47 min. - perhaps the finest feat which a motor has yet achieved over the course, for sidecars take some handling at speed, and are very tiring to drive continuously. The outfit was single-geared, and weighed 300 lbs. complete with all load excepting the two passengers, who scaled 18 st. George Wray, the occupant of the sidecar, had a busy time, as he had to nip overboard on some of the more severe hills.

5. The End to End Record

Hart-Davies subsequently set up a light car record on a 10 h.p. Singer, and finally learnt to fly with the idea of attempting an aeroplane record; but the unreliability of current machines, combined with the scarcity of landing-grounds and the expense of the enterprise, prevented this supreme ideal from materializing.

VI. TRICARS.

F OR a few' years commencing in 1905 or thereabouts, the problem of a passenger motorcycle seemed likely to be solved by the three-wheelers known as tricars, of which an immense variety of types were built, though none of them were ever produced in large numbers. The craze originated with Hooydonk's famous Phoenix Trimo - a 3-1/2 h.p. bicycle with the front wheel removed, and a two-wheeled forecarriage fitted in its place with a basket chair, utilizing the bicycle steering. It was attached by headclips and two long sidestays extending from the rear wheel spindle ends. A 3-1/2 h.p. engine in conjunction with a two-speed epicyclic hub enabled this outfit to climb ordinary main road hills slowly but surely; indeed the pioneer machine had a comparatively small engine and a single-geared belt drive. Numerous imitations promptly appeared. Wilbur Gunn evolved a very pretty little Lagonda tricar, with a 4 h.p. air-cooled engine and a counter-shaft two-speed gearbox, which won many honours in competition. The Humber Company produced a somewhat similar machine, and every motorcyclist who could afford the outlay became keenly interested. Within a year or so some twenty or thirty tricars made their debut.

A Powerful Trio.

The public eye was mainly taken by a powerful trio consisting of an enlarged Lagonda, rated at 10 h.p., and two other machines fitted with 9 h.p. Riley engines, and made by the Riley and Singer firms respectively. All of them had three-speed gearboxes on car lines, and retailed at about £125 with handsome coachbuilt seating fore and aft. It is rather difficult to say why they died an early death, for none of them were really bad, and the big Lagonda was uncommonly good. It must be remembered that motorcycling had not yet become utilitarian, and was fundamentally a hobby for comparatively well-to-do young men. From this standpoint the dominant type of tricar was rather costly, and not too reliable. On the other hand, the sidecar was already coming into vogue. It was considerably cheaper in those days than a big tricar, whilst the little tricars were thrown into obscurity by the speed performances of their high-powered sisters. Moreover, the sidecar could be bought as an afterthought, and could be detached at will when the bicycle was required for solo use-a feature of real value in days when even solo machines were not invincible on hills. Anyhow, the big tricars slowly but surely deceased.

One small tricar - the A.C. runabout-lingered on for several years: gradually the bulk of the market fell to a much lighter and simpler design with excellent cooling - the Morgan run-about.

My First Tricar Investment.

Taking up tricars with enthusiasm, I passed through a fresh gamut of tribulations, for the early types were as crude and raw as primitive motor bicycles had been six or seven years previously. My first investment in this line was a 4-1/2 h.p. Riley. Its ignition coil was thoughtlessly mounted in a wooden box clipped to the rear of the water-cooler. Needless to say, the water frequently boiled, and on such occasions the internal insulation of the coil naturally melted. The engine was a thumping single-cylinder, and there was no shock absorber of any kind in the all-chain transmission. That the chains, sprockets, gears and back wheel lasted as long as they did is a great tribute to British material and workmanship.

Its successor was a 9 h.p. Riley. For its day and on its day this machine was a revelation. Its accumulator ignition was of a quality previously unequalled. Its car type transmission promised freedom from trouble. A speed of 45 m.p.h. on the flat was easily attainable, and hills could not be climbed with more certainty on a 1920 Rolls-Royce (as long ago as 1906 a big tricar would ascend a grade of 1 in 4 very comfortably). Her faults were yet to be learnt. The original brakes were very feeble. Before they had been replaced by larger drums, several humorous incidents occurred. For example, the water-cooling of the early models was grossly inefficient, and the radiator always steamed freely on a fast climb. One day we were descending the reverse side of a hill, when a pinhole leak opened in the top of the watertank, and a geyser of scalding water played gracefully over my passenger and myself; the brakes refused to act, and our yells were piteous to hear. A few weeks later we were returning from Sevenoaks to town in a great hurry on Saturday evening, and the water as usual was boiling furiously. On this occasion a pinhole leak developed in the near side of the watertank, and a jet of boiling water spat upon the crowds collected at all the tram-stops in the Walworth Road. Nevertheless we reached Piccadilly without being lynched.

The Engine Buckled the Rear Frame.

Another day a kindly friend misadjusted the radius rods which set the tension of the driving-chain. Miles from anywhere a scrunch was heard, and the liberated engine roared madly as the chain fell off. I stopped, and began to thread the chain back into place. It seemed to have lengthened wondrously. I mused to myself that though I had heard of chains stretching, I never guessed they could stretch a foot in a hundred miles. Horror and despair! The enraged engine had buckled up the rear forks, and the back wheel was six inches farther forward than it ought to be.

Brakes were a weak point on most of the early tricars. Principle suggested that all three wheels ought to be braked. But the average front wheel brake drums were little larger than a crownpiece, and the brakes were not balanced. They exerted no force worthy of mention, and if painstaking adjustment endued them with a suggestion of stopping power, they went on unevenly, and made the machine skid. So most of us made a habit of adjusting the front brakes so that they could not rub and squeak ; ever after we depended solely on the one rear bandbrake and if it went amiss, we were done.

An Honest Deal.

My own big tricars did not reveal their gravest defect for two or three thousand miles. If the tyre became deflated from any cause, the rear springing caused the rear wheel to be forced over out of the vertical. This immediately deranged the steering. The manufacturers were probably aware of this, as they fitted enormous tyres to the back wheel; on the other hand these colossal tyres may have been adopted because it was generally a two-hour job to take the wheel out and put it back again. Anyhow, when such a machine punctured, the unfortunate driver had two alternatives. One was to hold the machine straight, when it promptly turned turtle. The other was to choose the softest spot in the adjacent hedge. I oscillated between both alternatives. At last, finding them equally undesirable, I sold the machine. I was perfectly honest about it. I told my customer why I was selling her. I asked a low price, and I advised him to fit a new back tyre every 1,000 miles. But he thought he knew something. He had been converted by an inventor who had compounded a new tyre filling, which looked like bright green sausage meat and smelt like a dead Hun.

Years afterwards I met this daring buyer, looking grizzled and old. The green sausage meat had not proved an unqualified success. It began by corroding the tube. Then it corroded the cover. Having eaten its way through to the open air, it deposited itself on the road in the form of a slimy trail. As the slow leakages totted up, the conditions of a deflating tyre were faithfully reproduced. A race against time began. Could a railway station be reached before enough sausage meat had escaped to create the familiar dilemma of "Capsize, or charge the hedge"? Finally, the insurance company had exhausted their patience; they refused to renew so expensive a policy; the engine was taken out and utilized to drive a chaffcutter, and the body work was bisected, mounted on castors, and converted into a brace of cosy armchairs. *Sic transit gloria mundi.*

The Tale of a Starting Handle.

One of the most hectic episodes of my chequered career had reference to the starting handle of a tricar. Let me explain that these handles were generally of the detachable pattern, mainly because the engine was set across the chassis, and a fixed handle would have mowed down pedestrians after the fashion of the scythe blades on the hubs of Boadicea's chariot. It follows that such handles were usually lilliputian, for there was no storage space adequate for a good sensible crank. One of my tricars was afflicted with a handle of this type, and its operation was not unattended by excitement and risk. As the handle was little larger than that of a sewing machine, and the engine was of 9 h.p., a start could only be effected by putting all one's weight into whirling the handle. When the engine fired, the handle did not disengage as a good handle should. It clung firmly to the crankshaft, and revolved with it at umpteen r.p.m. in an invisible blur. The first time this happened, I chocked the handle with the sole of my boot; it promptly raised a purple streak right across my instep (which made me limp for days), and then flew off in a graceful parabola into a hayfield. After a long search I recovered it, and restarted the engine - if it had been allowed to run during the search for the handle, it would have boiled all its water away. After several attempts the engine fired, and the handle again clung to the shaft. This time I knocked it off with the loose cushion of the driver's seat, and a flurry of horsehair and coiled springs filled the air, as the

handle ripped the pegamoid off the frame of the cushion. My next stop was in the narrow streets of a small market town, where a regular fracas awaited me. When I re-started the engine, the handle once more endeavoured to usurp the functions of a flywheel. My cushion had ceased to exist, and my foot was sore. I eyed the blur which represented the whereabouts of the handle, and went into an adjacent inn yard to borrow a bit of board.

During my temporary absence an incautious member of the inevitable crowd walked into my invisible handle, and got an awful whonk on his shin. Unfortunately the handle did not come off. Returning with my bit of board from the inn yard I foolishly attempted to do two things simultaneously. Whilst I endeavoured to pacify the angry gentleman with the injured shin, I rather carelessly battered the whirling handle with the bit of board. The handle flew off, soared across the street, and collided forcibly with a milkboy who was hurrying up to swell the crowd. I nearly got lynched. Worse still, the impact with the milkboy bent my starting-handle, and I had to engage casual labour to push the machine off until a new handle arrived from the factory. I then made my debut as a designing engineer, and made an improved starter.

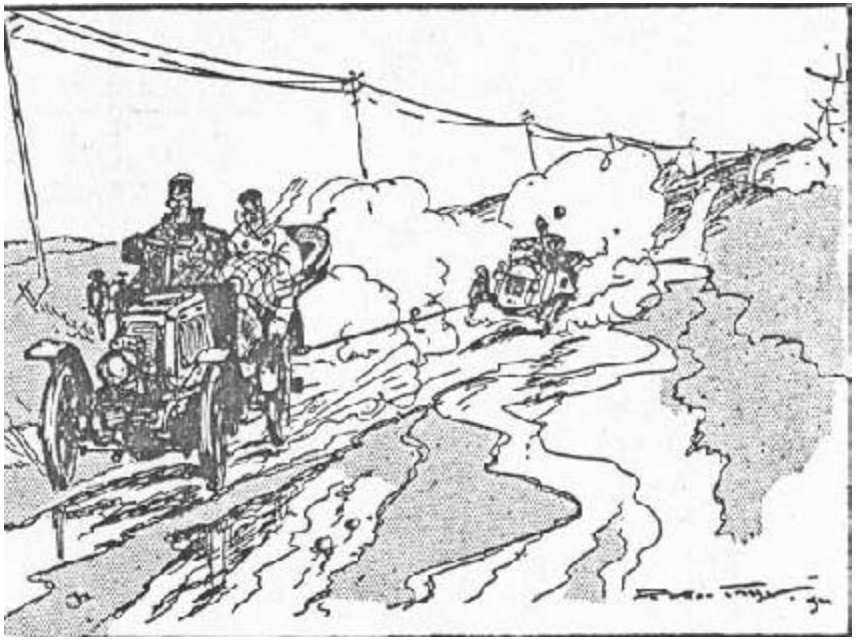
An Early Advertising Stunt.

In those days manufacturers were in the habit of organizing unofficial advertising stunts, which were usually put forward as " records." I was engaged to set up a tricar record of this character, by covering the distance between two towns, 100 miles apart, at a projected speed of 40 m.p.h. I received a brand new projectile from the hands of the advertising manager, and began my hectic journey before the milkmen were up. I covered nearly 40 miles in the first hour, and got rather sleepy. Presently as I negotiated a greasy bend, I found myself and the tricar careering by some miracle along the top of a broad, low bank which bordered the road. Somewhat mazed, I eyed the road in wonderment, scheming how I might regain the lower level. Before I had formulated plans, the bows of the tricar fetched up uncommonly short against a large heap of road metal which adorned the bank. The fore springs were buckled.

I got a tow behind a rescuing car, and the most alarming drive of my life began. The road was a greasy switchback, and I had no brakes. Down every hill I commenced to overhaul the car rapidly, and saw the tow rope festooning along the road beneath my front wheels,

with every prospect of yanking me into eternity when the car hauled the rope tight again. Fusillades of hoots acquainted the car driver of my peril, and he accelerated. Then the greasy surface had its effect on his car, and he began a series of skids at 40 m.p.h. Each skid was faithfully transmitted by the rope to my tricar, and I duplicated his gyrations. Presently we reached a town, where an agricultural show was in progress. The driver of the car was not accustomed to towing, and accelerated when a flock of piglets dived between us. This proved expensive. Finally we neared the garage. The car turned sharply in at speed and also at right angles. Having no brakes I dared not attempt the corner, and I shot straight on till the rope tightened, when I capsized with a crash. It is hardly surprising that I still regard three-wheelers with instinctive suspicion.

6. Tricars



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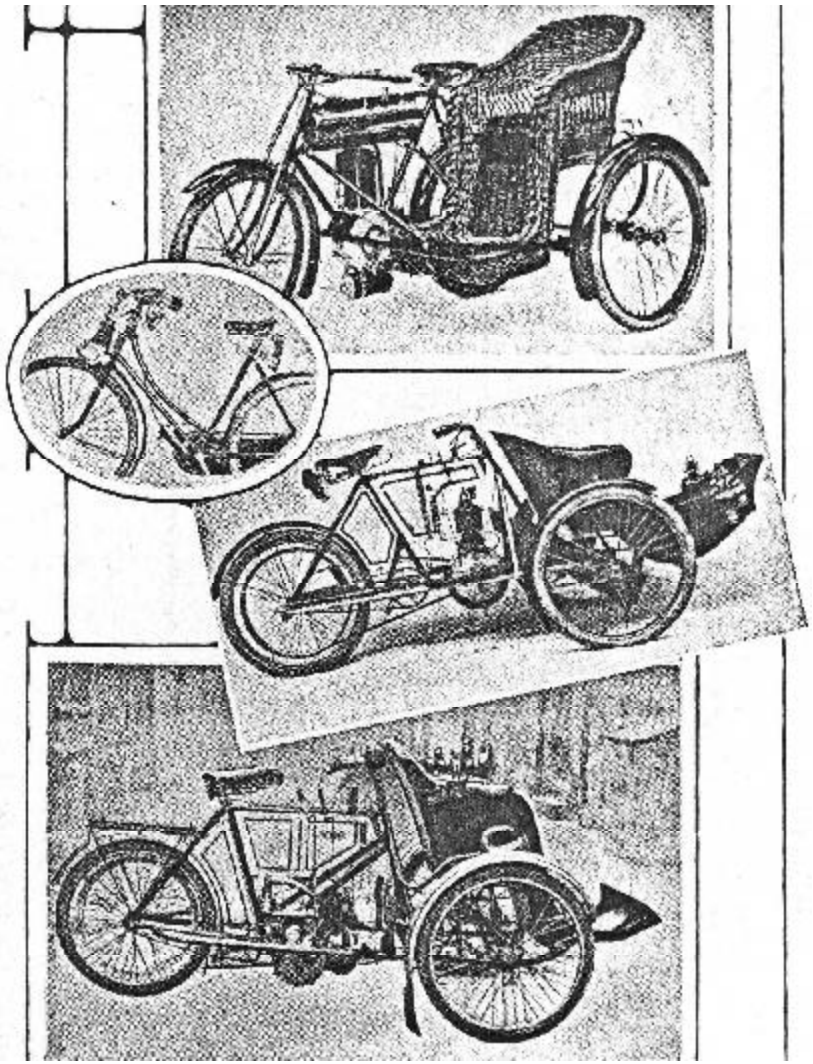
6. Tricars

(1) This Mills-Fulford “sociable attachment“ fitted to a 1903 Bat was quite one of the earliest sidecars.

(2) A very early two-stroke attachment for fitting to ordinary bicycles. It drove by friction on the front tyre.

(3) The 1903 Rex tricar, a type which remained famous for several years. Note the wind scoop to direct air from under the passenger seat on to the cylinder.

(4) The 1903 Phoenix “Trimow“ with 2-3/4 h.p. Minerva engine. Wonderful work was done by these early passenger machines when one considers that they were single-geared 2-3/4 h.p. machines.



VII. RELIABILITY TRIALS.
1903.

IN the very early days motor bicycles were tested for reliability in company with cars, a motor bicycle class being usually tagged on at the tail of an Automobile Club programme. Then a special autocycle sub-committee was formed by the A.C. (it had not then become "Royal"), and our machines ceased to be over-shadowed by their more imposing sisters. Thus in 1903 the first great reliability trial confined to motorcycles was held, and attracted no less than 43 entries. It was a truly extraordinary affair. The regulations were in many respects superior to those of the 1919 Six Days; the organization and management were disgraceful, as might perhaps be expected of a first attempt; from a rider's point of view it was exhausting to the pitch of despair; and as one looks back upon it, it appears as a gigantic rag.

One Hundred Miles a Day.

The regulations were both wise and ambitious. The distance was to be 1,000 miles, aping a famous A.C. car trial, which had touched the public imagination. As engines were small, variable gears unknown, and loss of tune a regular occurrence, we might have to pedal up quite moderate hills, so that 100 miles per day was our limit. Consequently the 1,000 miles was split up into ten instalments, and spread over a fortnight, so as to give the men Saturday and Sunday to recoup their calf and ankle muscles at the half distance. The routes were from London to such places as Brighton, Canterbury, etc., and back again. Condition at the finish of the 1,000 miles was tested by a 5-mile race on the Crystal Palace track. No entry was allowed to exceed 170 lbs. in weight. The test hill of the great event was-the Hog's Back, if you please, failure on which implied a loss of ten marks. All this sounded very promising, and when 43 entries were secured the motorcycling committee of the A.C. purred with glee, for half a dozen entries had been regarded as magnificent in the two-wheeled classes of the car trials.

The great trial opened with a certain amount of friction. The official garage took the form of a lilliputian marquee pitched in the centre of a large morass in the' Crystal Palace grounds.

Grouse No. 1: The Palace regulations forbade engines to be run within its sacred precincts, and the exit was up a long steep hill. Flanders mud never wrung such curses from a British army as the gallant riders produced as they pushed their perspiring way to the formal start.

Grouse No. 2: Incidentally, the judges' chosen method of identifying competitors took the form of stencilling colossal figures on the petrol tanks, which did not please any private owner who took a pride in his machine.

Grouse No. 3: Mr. Basil joy dispatched the crowd with an eloquent appeal that they would not alienate public sympathy by exceeding the legal speed limit of twelve miles an hour. Before the gruelling fortnight was over, some machines were mechanically incapable of such breaches of the law.

Confetti Versus Arrows.

The road management of the trial was patchy. A.C.U. arrows had not been invented, and the route was theoretic-ally marked by confetti sprinkled at the corners. Some of the volunteer confetti sowers failed to materialize, and men often lost their way. If a rider loses his way in a modern trial he can put on speed and recover the precious minutes he has lost. In those days our speed on hills was a mere crawl, even with heavy pedal assistance ; and it was impossible to make up time. The control stations were supposed to be manned by local volunteers, the parson, the postmistress, the village chandler, or the rustic pushbike champion on his speediron. Some of these gentlemen failed to keep their engagements, and the watches of the faithful were never above grievous suspicion. These difficulties were not smoothed over by some of the cannier competitors, who were all out to advertise the machines they rode. Before half the distance had been covered, the officials discovered that sundry riders were followed by mechanics bestriding spare mounts heavily laden with spare parts. Threats of disqualification partially dealt with this situation. As the mileage totted up, the riders' legs grew weary of "light pedal assistance," and the engines also grew a thought tired. So it occurred to one or two firms that the rules did not stipulate that the same jockey should ride throughout, and they coolly proposed to put up fresh riders of light weight with hugely-developed calves for

the second 500 miles. The officials met in solemn conclave, and decided to allow a change of rider in view of the gruelling nature of the trial; but they insisted that the spare rider should not be a lighter man than the original entrant.

A Gorgeous Spectacle for Enthusiasts.

The contemporary press notices waxed eloquent on the gorgeous spectacle provided by over forty motorcycles pop-ping down a suburban road in procession ; and applauded the wisdom of the A.C. in giving the exhausted men two days' complete rest at half time. Twenty of the original forty-three entrants survived to compete in the race on the Crystal Palace track at the end of the 1,000 miles. Time for re-tuning the engines was granted, and an average speed of 28 m.p.h. was attained. Strangely as it reads, no road trouble was commoner than faulty brakes, for most of the machines had coaster hubs or Bowden rim brakes. The standard of mechanical knowledge among the riders is shown by the fact that a friend of mine retired in the wilds of Kent simply because a blob of mud had sealed the gauze on the air intake of his spray carburetter, and he spent several hours in vain efforts to get his engine to work properly.

1904.

The above trial is a landmark in the history of motor-cycling, and produced a regular glut of competitions in the succeeding years. By 1904 every keen Metropolitan rider had engagements most Saturday afternoons, though provincial trials could hardly be said to exist. The Motorcycling Club did more than any other body to foster competitions for some time to come. The same little coterie of about twenty men kept the ball rolling. S. F. Edge presented a handsome trophy, which was offered for a hundred mile non-stop. The usual plan was to appoint a 25-mile course on the Holyhead road, starting from the Bull Hotel at Redbourne. We went 12.5 miles north, turned round at a wide place in the road (or spoilt our non-stops by falling off in the attempt, for we had no free engines), and came back again. After four of these laps, there were seldom more than two survivors, the non-stops being verified by fellow-competitors and by a handful of officials who rode up and down amongst us. These events finally became a weariness to the flesh.

For instance, on one occasion Leonard Jones on a tricycle of his own construction and Milligan on a Bradbury got through eight of these 100 mile non-stops, as was not unnatural when each man had a week to tune up after each 100 miles. Saturday after Saturday the indomitable pair proceeded to some venue or other to ride off their tie, and Saturday after Saturday each man relentlessly put up a fresh non-stop. How the Club officials cursed when the treadmill lasted on into the bad weather, and how pleased the committee were when at last one of the men punctured on a patch of new road metal.

The Tricar Attracted Interest.

In 1904 the A.C.C. endeavoured to spread its fostering wing over the tricar, which had just begun to attract much interest. The sidecar had not yet been born, or-as some prejudiced engineers would put it-misbegotten. Our standard passenger attachment was the trailer, which was always unsociable and frequently unsafe, since no warnings could prevent amorous motorcyclists from transporting their ladyloves in shoddy gaspipe trailers built for pushbike work. Anyhow the A.C.C. smelt a tricar boom, and endeavoured to nurse the new bantling by organizing a 100-mile trial on the eve of the shows. The month was November, and the course from Hatfield to Newmarket and back. Ten quaint and hastily-constructed machines fought out the issue. Nobody scored a non-stop, but six machines got home in schedule time. One of the four medal winners was Tom Sopwith, then a mere boy. The tricars averaged 12 m.p.h. up an easy hill in the climbing test; their speed would have been better if the callous officials had not cruelly removed all our pedalling chains at the start.

Inauguration of the London. Edinburgh.

This same year witnessed the genesis of a ride which has become a classic - the Whitsuntide London-Edinburgh ride of the Motorcycling Club. It has long since become contemptible as a test of riding skill or mechanical reliability, and today men enter for it either as oldsters for the sake of “auld lang syne,” or as novices seeking to earn their spurs in competition work. But in those days many authorities criticized the organizers for subjecting motor-cycles to an incredible task. It was easy to find heavy layers that not a solitary machine

would reach Edinburgh at all, much less within the stipulated twenty-four hours.

Some of the entrants made a number of trial trips over the section to Grantham, which had to be covered in the dark. When S. F. Edge took the chair at the official dinner prior to the start in Paternoster Square, the pro-ceedings wore an air of “Ave, Caesar, to morituri salutamus.” London turned out *en masse* to speed the parting heroes. The men rode off with palpitating hearts into the bottle-neck of a huge crowd. All these forebodings were shattered. Twenty-two machines out of forty-six starters won gold medals.

To this day a “first“ London-Edinburgh medal remains a dearly-treasured possession. I remember that one rider carried no less than four 20 ampere-hour accumulators. Most machines carried two or three lamps; as a lamp used up its charge of carbide it was pitched into the ditch, for its spring bracket was pretty certain to be a wreck by this time. Several men rode for miles lampless, steering by the glow thrown on the road from the lamp of the next man ahead.

1905.

The next year was equally busy and even more successful. The introduction of the high tension magneto had practically scotched ignition trouble, which previously accounted for over 90 per cent. of our very frequent stoppages on the road. Transmission was now the main surviving weakness of the motorcycle. Belts were none too good. clutches and variable gears were practically non-existent. The best engines were designed to give plenty of power at low speeds of revolution. Some of them were extra-ordinarily good in this respect; when their rush at a steep hill had died away, they settled down to a plodding burble and pulled away incredibly; meanwhile the rider pedalled hard, with his eyes starting from his head and his heart thumping like a steamhammer-to pedal at 15 m.p.h. with a 60 in. gear and a low saddle is no child’s play.

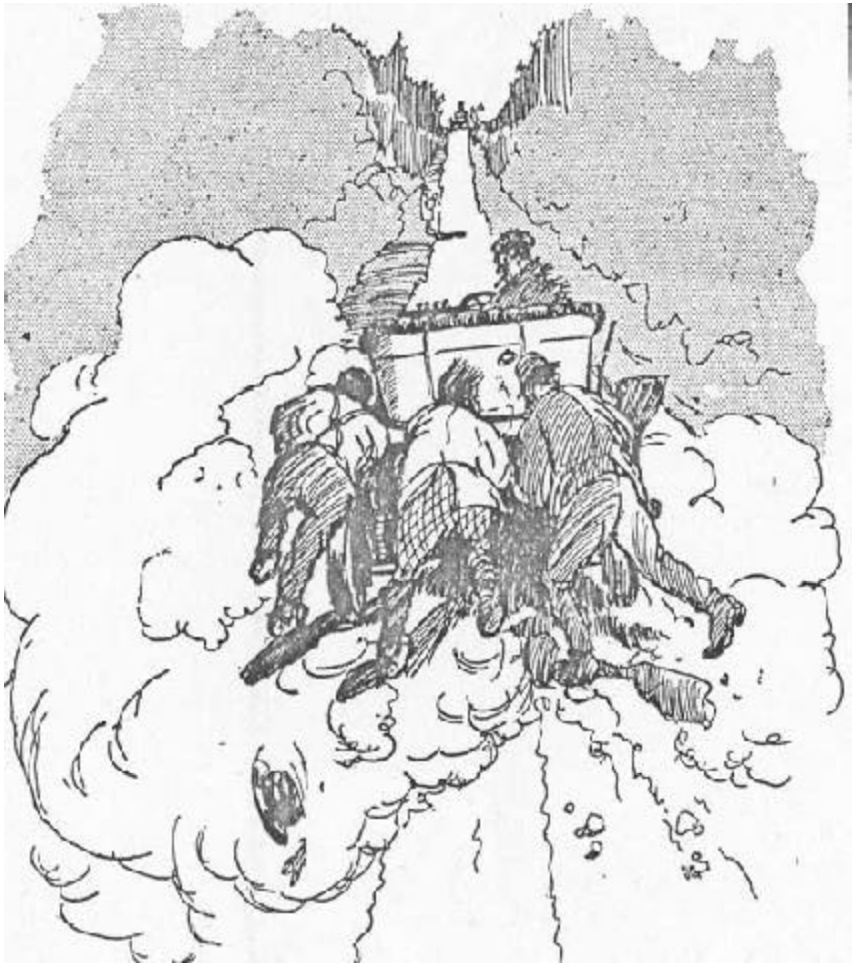
Furthermore, the wearing surfaces of the average engine did not last long; quite a short mileage took the bloom off such parts as valve faces, piston rings, and cylinder bores. On the whole it is not surprising that in the chief hill-climb of the summer quite half the machines failed on the gradient.

During the summer the Triumph Co. broke all hard-riding records by setting one of their new 3 h.p. machines to cover 200 miles a day for six consecutive days. The rider broke his frame towards the end of his first attempt, but succeeded in a second venture. Naturally he had to pedal up most of the hills, and a low average speed converted this formidable ride into a sunrise-to-sunset affair.

The A.C.C. organized a Six Days' trial of some 750 miles, carefully routed to dodge an excess of climbing, but pluckily included Birdlip, which was then regarded as a super-precipice. It is not easy to recapture the atmosphere of these bygone rides, but the dominant sensation from start to finish was an overpowering anxiety about the hills. If all went well, a steep hill meant a bout of hard pedalling, which actually shortened the lives of the riders concerned. *Moi, qui vous parle,* can show a heart strain dating back indubitably to those frenzied struggles with long legs on a low frame. Let it not be thought that failure on a hill deprived a man of his gold medal, as it does to-day. Far from it. The judges were surprised and pleased if more than one or two men got up the hills without a dismount; for example in the Birdlip climb of the 1905 trial only three solo machines (the two-speeded P. and M. and a 5 h.p. single-geared Ariel) were successful.

No! If your engine began to labour, and you showed by stertorous breathing and purple cheeks that no more wind was available for " l.p.a." ("light" pedal assistance), the nearest official would do a football sprint out from the hedgerow, jam his hands on the back of your saddle, and gallop along behind you, pushing as well as he could until he also called "bellows to mend." By this time you had probably got your second wind, and after another spell of l.p.a. you conked out. The rest of the ascent was the business of the marshals - selected for their brawn and kindness of heart. They produced flasks and invigorated you. Then half a dozen of them propped you up in the saddle, and pushed you off. If the worst happened, two or three of them very possibly manhandled your accursed machine to the summit, whilst you tottered alongside, and expressed your opinion of manufacturers in general, and of the manufacturer of your own mount in particular. Despite the bowels of the officials and the spectators, such a struggle as I have described was not an inviting prospect; and the fate of a late arrival was, of

course, infinitely worse. Having previously encountered trouble, he faced the hill in a debilitated condition. The road may by this time have been deserted; if any observers still lingered, they were probably lying exhausted on the banks by the roadside, and physically unequal to any more pushing. Under such distressing conditions I have before now availed myself of a friendly cart, and yet secured my gold medal at the end of the week. In other words we were allowed to get up the hills *anyhow*, and from a competition standpoint the only penalty inflicted was if we were, late at the next timekeeping station. Sometimes there was only one control per halfday. The 1905 Six Days showed a fair percentage of successes under these generous regulations. Thirty-one machines started, and twenty-one finished, though no more than six earned their golds.



we were allowed to get up the hills *anyhow*

1906.

By the next year the average motor bicycle had developed into a fair timekeeper, provided it met with decent weather and was not put at very hilly roads. The tricars were still great trouble-mongers. For example, thirty-four bicycles out of fifty-two won gold medals in the M.C.C. London-Edinburgh run, and inefficient riders were to blame for most of the failures; but only four out of fifteen tricars got through. Greatly daring, the Club offered the Schulte Trophy for the double journey - 800 miles in 48 hours' riding time. Eleven out of twelve starters completed the task, indicating that experienced men could at last obtain decent results on really easy roads.

There are no genuinely severe hills on the classic Lands' End to John O'Groats course, but when the A.C.C. selected this route for their six days' trial, a great slaughter of the innocents occurred, and the party dwindled sadly on its long trek north. The entry of seventy-three machines was considered gigantic, and included sixteen tricars, as the sidecar had not yet made its appearance. Great public interest was excited. Every town, village, and road junction had its crowd of spectators, and the men were kept busy acknowledging salutes and plaudits all along the course. Alas, only thirteen riders managed to maintain an average speed of 15 m.p.h. between controls, and about half the entry dropped out at various points.

The hill-climbing showed a marked improvement on previous years, for most of the entry got up Red Hill just south of Bristol, and some of them roared over Shap Fell in the teeth of a stiff nor'easter. The want of variable gears was strongly felt on awkward little hills in thick traffic (as at Redruth, Cornwall) and on pitches containing sharpish comers (such as Berriedale, N.B.).

The Need of a Change Speed Gear,

The advance in climbing was due-to three factors better belts, bigger engines, and improved maintenance of tune. None of these factors solved the hill-climbing problem; it was significant that the tricars laughed at the hills with the aid of their car-type gearboxes. Variable gears for motor bicycles were obviously needed. The trouble was that designers could not evolve a feather-weight gear, and were not prepared to accept the

tremendous increase in weights necessitated by fitting a miniature automobile type of gearbox. In the neighbourhood of Inverness a certain amount of greasy going was encountered, and nearly all the solo machines took bad tosses, suggesting that machines were still ill-balanced.

1907.

The next year proved rather a blank, so far as evident progress was concerned. The 1906 End to End had been criticized as excessively severe. As Mr. Lloyd George is said to govern by listening to public opinion, so the A.C.U. governs with a sensitive ear cocked towards the trade. If the trade dislike the policy of a trial, they withhold entries. The 1907 Six Days took the form of a timid tour from town into the milder part of Wales. Perhaps this was just as well, seeing that only six entrants possessed variable gears. The main incident of the event was an illustration of the motorphobia which still lingered in the horsey districts; a Welsh farmer fired two shots from a revolver at a rider who had startled his horse. It is interesting to notice that the horsepower of roadster machines continued to rise, the increase being intended as a substitute for variable gears. Weights remained sur-prisingly prisingly low; for example, the trade-entered Triumphs of 3-1/2 h.p. scaled 160 lbs., which is less than the weight of some typical 1920 light-weight mounts.

1908.

1908 witnessed continued stagnation in the all-important matter of transmission. The year is chiefly interesting because' it brought the debut of two machines which may be ranked as epoch-making, both of them exerting a profound influence on future developments. One of them was the Douglas - the real parent of the modern "flat twin." A similar engine had already seen a struggling existence under the names of Barter and Fairy. Then the Douglas Co. took over the patents, and entered a trio for the A.C.U. Six Days, which as in 1906 was contested over the End to End route. All three machines were destined to disaster, for they broke their frames before reaching the far north. But they survived long enough to create a great impression. Their low weight, vibrationless running, and confident hill-climbing won all hearts. Frame weaknesses were easily remedied,

and even in the days when they were beltdriven and lacked a gearbox, they stirred up a regular furore. Bad weather and more stringent regulations combined to render this trial more exacting than the 1906 event over the same course; but better and bigger engines enabled the machines to camouflage their intrinsic climbing weaknesses, and the easy hills of the classic road proved less formidable than formerly.

The Scott Bow to the Public.

In the same summer the annual hill-climb of the Coventry and Warwickshire M.O. at Newnham, near Daventry, witnessed the debut of the Scott two-stroke bicycle. It was entered in three classes, and its easy triple victory on formula was a tremendous facer for the local experts, who were soundly thrashed on their own dunghill, by a quiet little stranger from Yorkshire. But it was not the efficiency of the Scott which was the main element in this debacle. Alfred Scott had clearly cleansed a sound engineering brain of all pushbike memories, and tackled the motorcycle as a distinct proposition. His machine could be ridden in an ordinary overcoat without soiling the rider. It had a proper kickstarter in lieu of the absurd pedalling gear or the undignified " run and push." A two-speed gear was built into the frame, and served both to start the outfit from rest and to ascend almost any hill, nor did the gear render the machine more difficult to ride. Last, but not least, the engine had a pleasant sound, and differed from every known power unit—except the Douglas in that it was practically vibrationless. The Coventry and Birmingham magnates went home to sleepless pillows, and not without due reason.

1909.

1909 is a golden year in the annals of motorcycling, for it heralded the solution of transmission problems. It saw the first break with the timorous policy in which the inherent defect of motorcycles was camouflaged by a deceitful avoidance of really steep hills. Unfortunately the credit of the innovation must be awarded to some amateur sportsmen who formed the committee of the Edinburgh M.C.C., and who cannily forced the hands of the A.C.U. and of the British trade. All the cognoscenti knew that hill-climbing was the Achilles' heel of the motor bicycle. The trade could find no remedy. British clubs dared not offend the trade. British riders could

generally invent detours by which unclimbable hills could be avoided. But the Scottish clubs were not under the trade thumb, and knew that the Scottish riders required powerful hill-climbing machines, since the Highland precipices cannot always be circumvented. Consequently, in the first Scottish Six Days the riders were sent up some formidable hills, commencing with Amulree on the first day. This sturdy example reacted on the sportsmanship of the English clubs, and by the end of the year the chief surviving defect of motorcycles had been thrown into high relief. The trade bowed its head, and began to scheme and plan.

An Arduous Test Now a Hardy Annual.

The twenty-six unfortunates who entered for the first Scottish Six Days little knew what was in front of them. The official cars could neither keep up the required average speed nor surmount the terrific gradients; they covered the course by dint of dodging all the more difficult portions, and the ‘struggles of the single-geared motor bicycles are easier to imagine than describe. Not a single entrant was able to ride up Amulree Hill. The horrors of the hills were accentuated by the fact that spectators were not numerous in remote regions, and that riders received very little assistance in pushing to the summits. It was recorded that three men arrived at a certain mountain after dark with but one serviceable lamp between them. This lamp was placed at the disposal of the one machine which hoped to clamber up the ascent somehow. Finally the three men half-pushed and half-carried the other two machines up the gradient. Riding in Indian file they reached the destination for the night at breakfast time next morning, and started punctually with the rest of the riders. Still, the week was exceptionally exhausting. Some of the less sporting riders vowed that they would never compete in another Scottish event. The trade, who had-received no advertisement and much criticism as the result of the trial, determined to boycott it in future. Yet these trials have become a hardy annual, and played an influential part in the propaganda on behalf of variable gears.

The A.C.U. Picnic of 1909.

The A.G.U. Six Days of the same year was a picnic by comparison. Three test hills were listed ; if Dinas

Mawddy and Birdlip were of satisfactory calibre, the climb up to the Cat and Fiddle at Buxton could only be described as contemptible. Twenty-five marks were offered for a clean ascent of each hill, but only one rider in ten earned seventy-five hill-climbing marks during the week. As in previous years, most of the machines were single-geared; to enter a variable gear was regarded as the sign of being an old woman and no sportsman. The improvement in the climbing was by this time largely ascribable to adjustable pulleys, in which a remunerative trade was done. The entire entry made a long pause at the foot of any threatening ascent, whilst engine pulleys were screwed down, and narrow belts, bedding deep in the small pulleys, were fitted.

Many of these pulleys were of ingenious design, operable without tools; with the aid of a patent belt fastener, itself adjustable for length, only a few minutes were occupied in lowering the gear from 4 to 6 to 1. This was the equivalent of a variable gear, but prevented a rider from taking a steep ascent in his stride.

The tricar was by this time temporarily extinct, and a 4 h.p. Zenith with sidecar was the solitary representative of passengerr machines; it completed the course, but lost too many marks to qualify for an award. This trial finally sounded the knell of the policy of relying upon local volunteers for checking purposes. A party of competitors were due at a certain check by, let us say, 3 p.m. Encountering various troubles en route, they checked in at 3.30 p.m. Discovering that the checker was a half-witted boy, capable of being intimidated, they persuaded him to sign them in at 3 p.m. Presently it dawned upon them that they were due at another check 20 miles away at 4 p.m. and had about twenty minutes in which to cover the distance. A few incidents of this character suggested that it was essential to employ experienced men as control clerks in future.

1910.

According to expectation, the next Scottish trials secured few entrants. The trade shrank from heavy expense without prospects of good advertisement ; amateur riders fought shy of the Highland climbs. Nevertheless nineteen entries were secured, and it is significant that seven of them were fitted with variable gears - by far the highest percentage in any major trial up to date. These gears produced evidence of a fresh alarming

defect. The engines had no safety cooling margin adequate for long grinds on a ratio of 8 to 1, or so. In several cases the two-speeded machines climbed less successfully than the older patterns.

Encouraged by the lead which Scotland had given them, the A.C.U. actually announced that the classic End to End route was too flat for the premier trial of the year, and incorporated detours to stiffen up the hill-climbing tests. *Mirabile dicta,* they sent the men up Cheddar Gorge and Amulree. In spite of these additions the course was childishly easy as compared with the Scottish routes. On the other hand, the English regulations were far more stringent. The Edinburgh M.C.C. in those days regarded their trial as a free and easy joyride for sportsmen, and the competitor who got into difficulties was not hampered if he chose to visit a local agent, and procure a new cylinder of two-speed gear. In the southern event the regulations were stringent, and were enforced with as much Prussianism as the officials could command. Seventy-one riders entered for the A.C.U. trials, of whom twenty-one possessed variable gears. This was a tremendous per-centage for zgio, but its significance is shown by a com-parison with zg1g, when every competitor had two gears, many had three, and some had four. Out of this large entry eight men made clean ascents of Amulree Hill. This was a better show than the Scottish riders had put up. But a record of sixty-three failures on one hill disposed of the trade contention that the hill-climbing debacles in Scotland were mainly ascribable to bad riding.

1911.

The end of the long struggle for the recognition and adoption of the variable gear arrived in 1911, and, oddly enough, it was a race rather than a reliability trial which finally exposed the stupidity of the single gear. The beginning of the end came when the A.C.U. with distinct virility forced a race for small-engined machines upon a reluctant trade; in this business there were wheels within wheels, as a few firms (e.g. the Douglas Co.) had concentrated upon small engines, whilst the majority believed in 3-1/2 h.p. When the holding of a “Junior T.T. Race “was determined upon, it was clear that such wee engines could not race up Snaefell against a wind without extraneous assistance of some sort. The people who disbelieved in change gears attempted to allow the racers

to use pedalling gears. The opposition, aided by *The Motor Cycle,* fought tooth and nail to forbid pedals : and the opposition won. Thirty-four lightweights started in the race, and only four of them had single gears, more than half the remainder being fitted with the Armstrong-Triplex three-speed hub. Moreover, these baby machines did astounding feats in practice, lapping the hilly course at 42 m.p.h. and touching 55 m.p.h. along the straight sections. These gears had only been adopted under protest by the more conservative manufacturers, and hardly any English makers had any intention of including variable gears in 'their 31 h.p. specification. In fact, when the Senior race was first arranged, only two British makers - Scott and P. and M. - intended to race with change gears. The shrewd Collier Brothers thought the matter out, and heard what some of the junior machines were. doing in preliminary practice on British roads, so they hastily got out a variable pulley type of gear, and tests taught them that the innovation would pay. Two or three other makers hastily faked up gears of some kind at the eleventh hour-one firm, indeed, at the fifty-ninth minute of the eleventh hour, for they were not able to finish enough gears to supply all their team. The Indian machines had a countershaft two-speed gearbox as a standard fitting. The race was finally fought out by change gear machines, the fastest single gear being twenty minutes slower than the winning Indian. Incidentally, most of the single-geared 3-h.p. machines were defeated for speed by many of the variably geared lightweights in the junior race. The long battle was over at last, and as the crowds streamed back to Douglas after the race, the variable gear enthusiasts chanted their *Nunc Dimittis (i.e.,* remarked with savage triumph, " I told you so.").

Change Gears in Scotland.

The Edinburgh M.G.C., realizing that the new trans-missions would stand the test, plotted an even crazier course than usual for their Six Days. Fifteen single-geared machines rode against twenty variable gears; the new transmissions raked in ten of the fifteen gold medals awarded, and what was far more vital, the disgruntled conventionalists who pedalled and pushed and panted had the mortification of watching the easy and effortless climbs made by the machines which possessed the new fitments. They took their medicine like

men : but they secretly vowed that they would never again go pothunting on single gears. At the end of this trial a competitor celebrated the finish so successfully that when he was put to bed in company with a hedgehog, he slept peacefully for nine hours in blissful unconsciousness of his pricklesome bedfellow.

Gears were now booming, and the whole atmosphere of motorcycling had become transformed. Instead of dreading hills, and plotting our tours with contour maps in order to avoid unpleasant acclivities, everybody went about looking for unclimbable hills, and failing to find them. It cannot be pretended that our gears were road-worthy, as judged by later standards. During 1911 I chiefly rode an Armstrong hub and an N.S.U. engine shaft gear. The hub required oiling every loo miles, demanded frequent adjustment, and benefited by professional attention after 3,000 miles at the latest. The engine shaft gear did not afford a lower emergency ratio than 7 to 1, even with a small engine pulley and narrow belt. Most of the con-temporary gears suffered from equally serious faults. But after fifteen years of " l.p.a." and worse, we naturally fancied the millennium was upon us, and our lust for hills was unappeasable.

The Harrogate Trial.

The A.C.U. rode to triumph on the top of the movement. In 1910, as already stated the Six Days secured seventy-one entries with twenty-one change gears.; in 1911 there were eighty-three entries, including no less than *sixty-five* variably geared machines! Four sidecars and a Morgan runabout composed the passenger class. The trial was of the hub-and-spoke variety from Harrogate as a centre.

The modern policy of trying to break the machines up on disused goat tracks, or of setting them to baulk and slither on shale slides with a gradient of 30 per cent. had not yet been initiated. There were hills in plenty, but they were not of the freak type. There were no boulders to twist your wheels at right angles to the frame, no morasses which might set a back tyre trying to excavate the Antipodes. It was fair, steep gradient on a hard surface, with nothing more alarming than Sutton Bank. Compared with a modern Six Days, the week was doubtless trivial, but at the time we thought it heroic. Sixty-five machines finished, of whom more than half climbed every hill on the route with certainty and ease. Well might one of the veteran pioneers remark in pro-

found disgust at the finish that the whole raison d'etre of trials had now vanished. If we had but known it, there was still a very long furrow to hoe. For example, the bulk of the machines were still belt-driven, and many of the current change gears embodied small engine pulleys. The weather during the 1911 Scottish trials had been very rainy, and incessant belt slip bothered most of the men. In the Harrogate trials the weather was good, but belt stoppages were far too common. We did not visualize the coming of the heavy sidecar outfits, and the future yearning after a transmission which should be weather-proof, and as generally reliable as a magneto.

1912.

From now onward each year's reliability trials assumed a wholly different interest. In the old days we had thirsted for a machine which should be equal to its job. After 1911 we took it for granted that with average luck most of the entrants would secure a gold medal, and the technical interest was reduced to the Athenian habit of hoping to encounter some novelty. On the other hand, the trials witnessed keen trade competition, for each maker sought to reap a better advertisement than his rivals. Then the passenger entries grew in number. Finally a comic element was imported by the financial anxieties of the promoters. It was always on the cards that the bulk of the starters would secure gold medals. Eighty or a hundred gold medals make a formidable item in the balance sheets of such an event , on more than one occasion the organizers under-estimated the capabilities of the machines, and were hard pressed to weed out a few non-stoppers towards the end of the week. In fact, sundry aggrieved riders still talk of torn scraps of paper in this connection. In other respects the trials tended to be spoilt by the unmanageable size of the entries. So long as the number of starters kept within modest limits, the riders were all chums, the officials could handle them easily, there was no scrimmaging at garages to obtain supplies, and no discomfort at the hotels. Indeed, under the old regime of small entries a Six Days' trial constituted the pleasantest summer holiday imaginable. Variable gears stripped the week of its old terrors, since the hills no longer connoted losing a stone in weight and contracting valvular disease of the heart. But the entries became too bulky. The men no longer formed a snug coterie of pals. The officials had to behave like con-

stables on duty at a Cup Final. To obtain lunch, petrol, or oil resembled catching a tube train at Piccadilly Circus after the theatre. The hotels were crowded out, and late comers had to bribe the local scavenger to let them sleep in his front parlour. One or two such experiences satisfied most amateurs, and the trials riders soon became composed of a crowd of professionals, swollen by a few stray amateurs who seldom repeated the experiment after once sampling its frenzies. If the trials more than retained their interest, they rapidly ceased to be enjoyable in the old sense.

Introduction of the Cycle Car in Trials.

Thus in 1912 no less than seventy machines started in the Scottish trials, including three sidecars and two G.W.K. cycle cars. For once in a way the machines mocked at the hills, over which three-speed hubs afforded a complete mastery, except when a belt gave trouble, or an outraged engine overheated, or the rider fell off as the result of a mud-and-boulder surface. Towards the end of the week a pretty pother arose. Several special prizes had been offered, and some thirty riders all possessed clean sheets. In order to find winners the judges proposed to dispatch the entry up the Kenmore side of Amulree Hill. This climb had never been included in a car trial, and though a few of us had tried it, it was reputed to be insuperable. The wilder spirits jumped to the conclusion that the Club meant to deprive them of their gold medals in the interests of economy. Finally the officials astutely offered some more special prizes as a bribe, and gave riders the choice of an easier detour, should they wish to retire from the special awards. A smoking-room was wrecked, and fireworks were exploded in the dining-room of a first-class hotel, but peace reigned at last. Not so next morning. Rain fell in torrents, and we all felt extremely depressed. My heart ached for one gallant fellow who had backed himself to earn a gold medal with a single-geared 3-1/2 h.p. racer. He stripped his person and his machine of all dispensable weight, posting on the kit to Edinburgh, prepared to finish the run clad in little more than shorts, jersey and stockings, presenting a truly pitiable spectacle after a few miles in the plenteous mud. Kenmore was not so terrible as we expected, most of the failures being due to a projecting reef of rock, which disturbs the steering and induces tyre slip on the worst bend where the grade is also most severe.

Hill-Climbing in Devon.

The new atmosphere was, of course, faithfully reflected in the 1912 Six Days trial organized by the A.C.U., which was planned on the hub and spoke system from Taunton as a centre, in order to utilize the infamous precipices of North Devon for hill tests. Nothing was excluded; we had to scramble up the stony slough of Beggar's Roost, which has a grade of 1 in 3; Countisbury Hill, so recently regarded as unclimbable, now figured as a slow climb. On the fourth day a "secret route," laid out by the local experts was followed. This innovation has determined the main features of an A.C.U. trial from that day to this. It made no pretence of following hard roads, but wandered wherever a fearsome gradient, an unspeakable surface, or a crazy corner could be discovered. In sober fact, the "hush-hush" day at Taunton did not unearth any very frightful ordeals ; if memory serves aright, sudden corners plastered with wet farmyard manure were its most awk-ward features. But it inspired the famous "freak hill" policy. Since that date club secretaries exhaust their ingenuity in discovering tortuous lanes, surfaced with shale or naked rock or mother earth (as the herds have left it), and towering up skywards in a course which would be a spiral if it had not been struck by forked lightning. Upwards of a hundred machines, including many sidecar combinations, are injected into these rough and precipitous funnels. The least clumsiness in driving, the tiniest imperfection in engine-cooling, the faintest tendency of a back tyre to lose its driving grip, and the rider is officially credited with a hill failure, and probably misses his chance of a first-class award.

Pro Bono Publico.

On the surface this policy appears foolish, for motor-cycling is supposed to be a pleasurable hobby, not a purgatory for acrobats. On the other hand, it is expedient that one man should die for the people, or in modern phrase, that a few madmen should immolate themselves to subject motorcycles to the extremest test. The trials rider of to-day is a martyr. He suffers in order that milder persons may be provided with good machines. Indirectly the freak hill has done much good. Its strongest point is that it is always approached and quitted by miles of rough going. Since the pundits do not

permit any reduction of average speed over these bad sections, the crowd emerges from them considerably behind the appointed time, and has to “blind“ or “teetee“ in order to recapture lost minutes. By this simple expedient everybody is pleased. The organizers secure the fierce test which they have promised themselves. The police are truthfully assured that the contest is run on a basis of 20 m.p.h. (nothing being said about these “catch-up “ sprints). The riders are encouraged-nay, compelled-to speed at about 40 m.p.h..over the scanty patches of good road which occasionally confront them. The bad machines are shivered to pieces, as they deserve to be. The good machines go home with the spoil in the shape of medals and prizes. And the breed of motorcycles is steadily improved. Nevertheless the words “ reliability trial “ convey an impression of leisureliness which is quite illusive. My sensations in modern trials riding may be summed up somewhat as follows: Acute discomfort in overcrowded hotels; baiting by jacks-in-office at the official garages; slithering, plunging, balancing, wrenching, and biting my tongue in half over Heath Robinson caricatures of the Somme area; trying to average 50 m.p.h. over rare stretches of hard going, full of corners, and either smeared with grease or blotted out by whirlwinds of thick, gritty dust; and finally competing in a frenzied crowd which is attempting to bulldoze the judges. Let nobody fancy that a Six Days trial is not a strenuous week.

1913.

In the summer of 1913 the Scottish trial demonstrated the tendencies referred to above, and was otherwise remarkable for a marked increase in the entry of passenger machines, seven sidecars and two G.W.K. four-wheelers securing gold medals. The two worst hills were Applecross and Kenmore. Applecross consists of 5 miles up and 5 miles down, with the usual there-and-back corners and occasional knuckles of frightful gradient; as a test hill its most objectionable feature is the surface-it is far more tiring to ride down Applecross than to ride up any English trials hill. Kenmore is 2-1/2 miles long, and contains four acute hairpins with very bad surface. The A.C.U. adopted Carlisle as a venue, and attracted 161 starters, in-cluding no less than forty-one passenger machines. The severity of the conditions had been overdone; most of the men were thoroughly

saddlesore at the end of the second day, and a mutiny was threatened, but averted by sundry concessions. The popular fallacy that the event might be regarded as a picnic tour for easygoing amateurs was rudely shattered.

1914.

The year of the war dawned without many people suspecting that the cream of our competition riders would be transformed into dispatch riders or R.F.O. pilots before they were much older. The usual programme was mapped out, and the Scottish trials were dated for June 15-20. Some 120 entries were obtained, and the hills were much as in the previous year, for it was impossible to find any which were worse. The machines, on the whole, made light of the trials. Most of the contretemps were due to bad driving, as the event is treated as a conducted tour by amateurs who wish to see all the finest Scottish scenery, and few of these gentry can tackle the Scottish corners until their week's practice is almost completed.

International affairs had assumed an ominous appear-ance when the A.O.U. trials opened from Sheffield as a centre on July 5; but motorcyclists are seldom politicians, and few forebodings were expressed, the 132 starters being intent on the very arduous work in hand. The chosen routes were more " colonial " than ever. Moreover, the regulations had been stiffened up, and all manner of technical tests had been embodied.

Early on the first morning the riders talked of striking, and a hill called Litton Slack led to extraordinary scenes. When the officials selected the hill, it was dry; when the trials competitors reached it, it was wet. Heavy rain robbed tyres of their grip, and the men who stuck or fell off soon blocked the narrow road. In a few minutes the track was jammed with angry men, smothered in clouds of blue smoke, as each rider struggled to get his sweltering engine up the slithery climb. Everybody lost so much time that when the summit had been reached, a mad race to the next control station was necessary, and machines were knocked out by colliding with gulleys or boulders at speed. The roads did not improve as the week wore on, and the judges relaxed many of their regulation's under protests from the riders. Such indignation was felt both by the trade and by sporting amateurs that the whole policy of selecting freak hills and "colonial" surfaces was a matter of controversy when war was declared, and competitions were practically suspended for four long years.

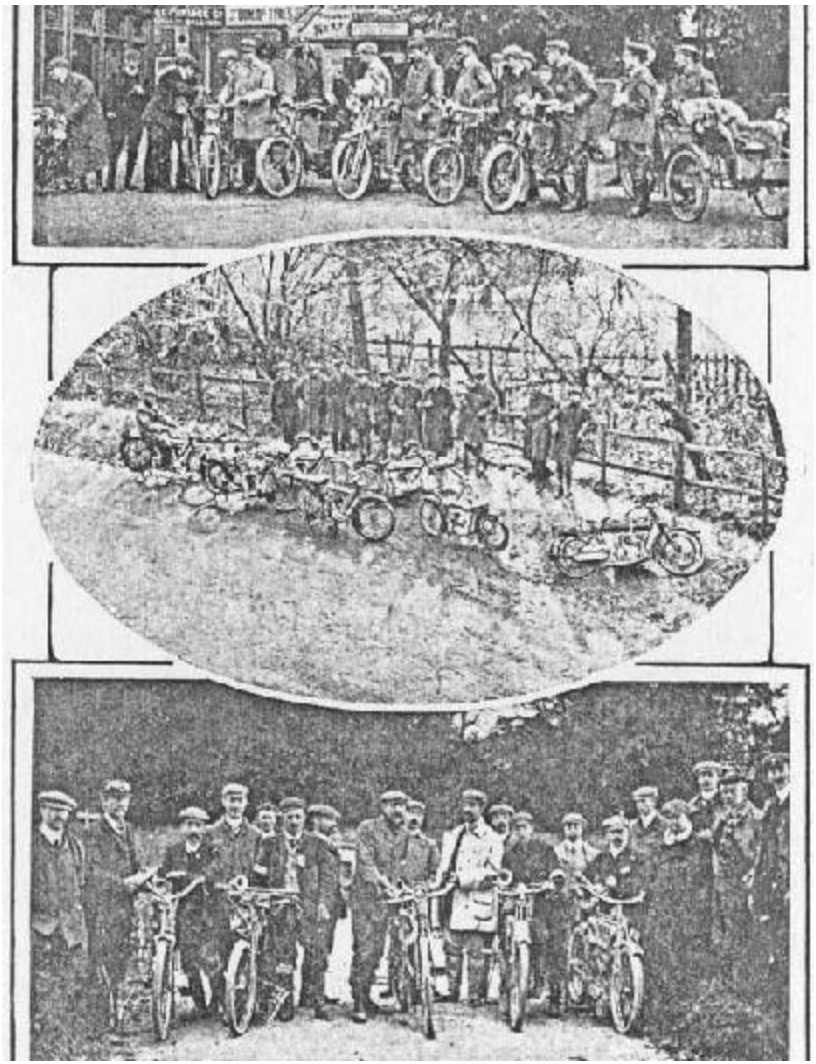
(1) The start of the A.C.C. Consumption Trials of 1905.

(2) Machines on test at Stoneleigh Hill near Coventry in 1919, showing 4 h.p. and Baby Triumphs, and Rover and Lea-Francis machines.

(3) The five machines left in at the end of the 1905 Two Hundred Miles Reliability Trial.

The riders are Messrs. Hall, Ilsley, Price, Lowe and Hulbert.

Second from the left, with the goggles on his cap, is Mr. C. W. Brown; between the two left-hand machines, Mr. Hunt - in the middle in the white oilskin, Mr. Chester Fox - standing next to Mr. Huibert, Mr. F. Jenkins; on the extreme right, Mr. W. H. Wells.



VIII. SIDECARS.

I CANNOT pretend that I have ever been a sidecar devotee. In the early days of their history we all took to them because there was no alternative, and in company with other victims I suffered many things at their hands. Later on they were perfected, but their appeal was limited. At the outset the charm of the sidecar was that it enabled the owner of a motor bicycle to accommodate another passenger at will; the typical sidecar of those days was detachable, and a conversion could be performed in two or three minutes. Presently the idea of a detachable sidecar was dropped, and the modern conception of a permanent three-wheeled chassis with a powerful engine, detachable wheels, and other luxuries replaced the old simplicity. Like many other riders, I prefer a two wheeler to any vehicle on earth for solo riding. But if circumstances compel me to take a companion, I prefer a vehicle which affords more comfort and protection for the driver than any sidecar can supply. It so happens that both the three-wheeled and four-wheeled cyclecars fulfil this ideal, while their running costs are not higher than those of the sidecar. For some mystic reason the sidecar makes a profound appeal to certain temperaments. There are skilled and sensible men who infinitely prefer it to a Morgan or a quad. For me it was never more than a temporary expedient, until such time as cyclecars should become roadworthy. I sometimes fancy that chivalry is the basis of its popularity. The sidecar chair is probably the best sprung seat afforded by any vehicle on the road, not excluding a Barker body on a Rolls-Royce car; devout lovers bestow their ladies in its comfort, while they sit aloft on mere saddles like a parrot on a perch.

When I bought my first sidecar, the chair was made of cane or wicker; it was a chair, and not a canoe or a coffin. There was nothing in front of the seat save a shallow trough for one’s feet with a tiny sill in front. In windy weather a sidecar was the coldest place on earth; and if the outfit pulled up suddenly, the passenger ran grave risks of being precipitated forwards. The sidecar was fitted on the off or near side of the bicycle indifferently. I well remember my first attempt to mount the saddle of a combination with a lefthand chair. As the bicycle was singlegeared, I pushed off and ran alongside. The impending jump for the saddle threatened to be awkward, as I always mounted bikes from the near side

but who could guess that my clumsy muscles would find it impossible? I tiptoed beside the bike on my left foot, waving my right leg desperately in the air; but saddles were high in those days, and pluck to make the unaccustomed spring was lacking. Finally the engine gathered pace and dragged the outfit out of my hands. The passenger emitted wild shrieks and made inexpert twitches at the handlebar. For a few yards the machine made serpentine tracks along the road centre: then the front wheel took command, and the combination made a lightning wheel into the nearside ditch. I lay on my stomach in the road, watching the catastrophe with mute horror.

The Flexible Type.

In the matter of sidecar attachments there were at least three schools of design. For a year or two the Montgomery flexible type was the popular favourite; and - given proper fittings - it was not at all bad. The first sample which came my way was not a success. Its previous owner had run it into a wall, and biffed the chassis so that the steering " wanted knowing," as he naively confessed. Its first trip measured 150 miles, and was the very windiest journey (metaphorically speaking) that I ever made. Ignorant of the machine's history, I took its vagaries as part of the nature of the beast, and endeavoured to combat them by guile. The sidecar was on the right-hand side, and on the first sharp corner towards that side the bicycle suddenly lay steeply over towards the sidecar, and pinched my thigh excruciatingly between the tank and the chair. Rather abashed, I countered this evil trick by cocking my leg out of harm's way at righthand corners; that is, when I remembered, which was not always. Presently the outfit got well down on the camber of a wide road, and absolutely refused to climb back on to the crown. We stopped, and solemnly lifted it up on to the middle of the road. Then we talked. Then the passenger and myself exchanged places, drove down on to the camber again, and he took his turn at coaxing her up again. Nothing doing. Eventually we tested the alignment of the chasis, and found that half the tubes in both the sidecar and the cycle frame were out of truth. We rebuilt them both, and started all over again. The engine concerned was a 7-9 h.p. Peugeot, and a few months showed that the whole structure was too light for such a speedy mount, driven as he and I used to drive it.

Either the sidecar shifted on the bicycle frame; or the tyres tore their valves out; or the frames buckled. More than once all three catastrophes occurred on one and the same ride.

The Rigid Type.

The rigid type of sidecar existed from the outset, but was regarded by many drivers as a dangerous beastie, and by others as unmechanical. Such notions sound absurd in these days; but it is necessary to remember that we were all tolerably ignorant, and that some quaint abortions were foisted on us from time to time by the minnows of the engineering trade. The courage of the first man to eat an oyster was no greater than that of the first wight who clambered on the unsprung saddle of the first high pushbike; and he in turn was very little pluckier than the pioneers of the tricar and the sidecar. The only miracle is that any of us still survive. Primitive prejudice against rigid sidecars was due to the fact that the front wheel is chiefly used to steer, whereas on a bicycle it is also used to balance. At corners or on a cambered road the tyro would instinctively use his front wheel for balanc-ing purposes, and forget all about steering. So he generally took the ditch, picked himself up angrily, and foamed out remarks of a regrettable and actionable character.

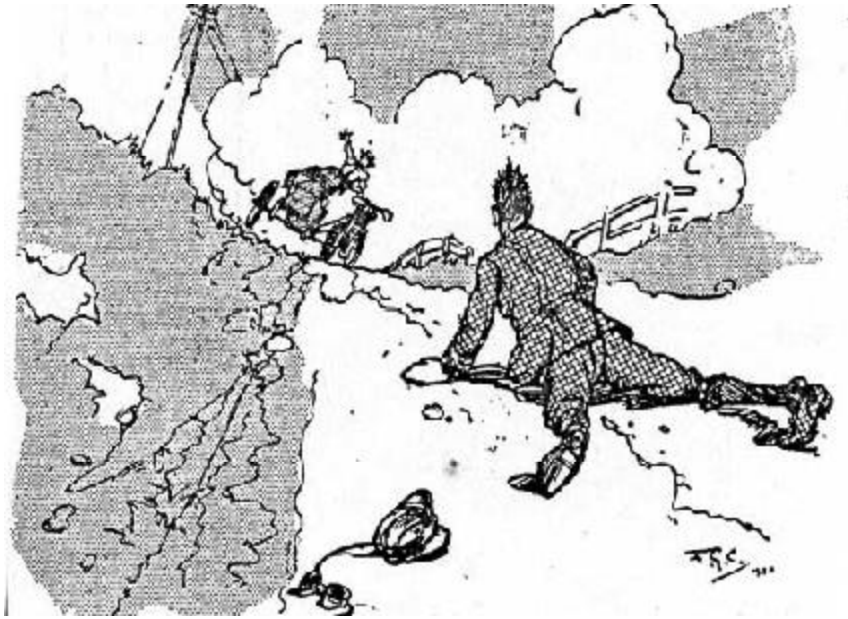
The Trailing or Castor-Wheel Type.

Thus it came about that Mills and Fulford intro-duced a patent castor-wheel sidecar, of which the sidewheel trailed freely after the bicycle. For a time it was fancied that the super-sidecar had at last been born. Previous experience of sidecars had led me to eschew feminine passengers on this type of vehicle. But my first castor-wheel, being low-powered and thoroughly well built, encouraged me to offer Amaryllis a lift. All went well till we conked out on a hill, and while I recovered my breath after the usual " l.p.a," Amaryllis suggested I should climb the hedge and pick her some honeysuckle. Unfortunately I had chocked the machine on the gradient with insufficient care, and as I struggled to extricate myself from some brambles screams split the air. The sidecar was careering backwards down the hill and gathering speed. Amaryllis was standing up in the chair, screaming like a stuck pig, with her eyes fixed on the castor-wheel. This wheel, obeying the laws of its nature,

was slowly turning on its pivot, and was already sticking out at right angles to the bicycle frame. Amaryllis decided not to await the unknown calamities which she foresaw might happen when the castor-wheel had finished castoring. She dived overboard, and landed heavily. Time heals all wounds, and looking back from the summits of calm middle age this incident was less regrettable than it sounds. She would not have made me a good wife.

The Special Merits of a Sidecar.

Nowadays the sidecar is a vastly different proposition. It has two main merits as contrasted with the cyclecars which are its most threatening rivals. The first is the magnificent steering lock which it affords. No other two-seater can be swung right round in its own length, and in steering handiness the sidecar thus surpasses every other motor except the motor bicycle : this docility is a great asset in freak hill work. Its second advantage is that its main component is a motor bicycle ; and the motor bicycle is far more developed than any existing cyclecar, whilst users as a class are thoroughly familiar with the management and upkeep of such mechanism. Nevertheless it is obvious that cyclecars are overhauling sidecars fast in general quality ; and as the price standards approach each other, the sidecar may find it hard to survive, so far as *éditions de luxe* are concerned.



...screams split the air. The sidecar was careering backwards down the hill and gathering speed. Amaryllis was standing up in the chair, screaming like a stuck pig...

IX. ROADSIDE TROUBLES.

THE cynical pedestrian who passes a motorcyclist tinkering with his machine by the roadside seldom pauses to reflect that such moments are not sheer misery, but have very distinct consolations of a peculiar character: When a tyre bursts or an engine seizes or a chain snaps, no Anglo-Saxon expletive is adequate to express one's first impulses. But ripe experience teaches us wisdom. Each stoppage assures the rider of at least two compensations. Relief of some sort is inevitable; whether it be relief at continuing one's journey or at completing the exhausting push to the nearest railway station, time alone can show. Secondly, when the mortification and labour are over, there will be a tale to be told. Aye, and retold, for motorcyclists are inveterate reminiscerators (I am not sure that this world is in the dictionary; if it isn't, it ought to be). The tale may require adorning with a few deftly invented embellishments, but as a rule the motorcycle is such an ingenious trouble-maker that the sufferer must be a raconteur of more than average merit if he is to do bald justice to the plain facts.

In the earlier days of the pastime riders were assured very special rewards for each road stop.

According to Kipling, there are nine and ninety ways of composing tribal lays. Even at this late hour in the story of our hobby there remain something like a billion ways in which a motorcycle can go wrong. The knowledge of them is as inexhaustible as that of women; and of the two creatures the motorcycle is ineffably the more capricious and whimsical. Even now I am awaiting delivery of a new machine; and a delirious tremor possesses me as I realize that the charming toy will stall me by the roadside in sundry fashions as yet unexperienced in perhaps 200,000 miles of roadwork. Still for veterans like myself, eleven stops out of twelve have ceased to be fundamentally novel. In the early days it was not so. We were abysmally ignorant of the machines we rode. Incredible to relate, many of us ventured afield upon them without the gloomiest notion as to what the exhaust valve was for. When we gingerly handled some strange fitting which we found hanging loose, we emulated the sensations of an island cannibal whose teeth have gritted on the missionary's watchkey. Probably we did not succeed in getting the mysterious steed to go any farther; but if we did, we had made a definite advance in knowledge, and rejoiced accordingly. Even now the lingering savour

of these ancient joys occasionally returns to us. For example, my 1920 mount is to have a lighting dynamo - a *terra incognita* to me. Already I picture myself plunged into sudden darkness when careering down a curly lane at 40 miles an hour. I see myself jamming on all the brakes and the low gear; pulling up in a few yards; and dissecting the entrails of the latest jigsaw by the fitful gleam of matches.

Service.

As I ransack memory, 'I note with surprise that the troubles of the prehistoric days were generally soluble, in spite of a crude machine, an ignorant rider, and the utter absence of skilled assistance or that modem profiteering in replacements which is euphemistically termed "service " by trade magnates. The explanation of this puzzle is not far to seek. Engines in those days were heavy and inefficient. They did not develop enough power to stress themselves at all severely, and they did not run reliably enough to be driven distances which would wear, them out. Consequently, most of our stops were due to some rubbishy little fitting. The belt broke, or a valve cotter jarred out, or a wire came adrift. Today all these obvious little faults have been exorcised. But the engine, the magneto, the carburetter, the gearbox, and other vital elements are extremely complex and subjected to very high strains. They seldom give any trouble at all; but when they do, a skilled mechanic with special plant may be required to restore them to working order.

During my own salad days a roadside stoppage was almost invariably occasioned by one of three causes. The commonest was failure to climb a hill. The most baffling was an ignition fault. The most monotonous was a broken or slipping belt. All three figured in absolutely every single ride. "Tut, tut," objects the reader, "you don't mean to tell me that a five mile spin to the golf links . . . 'Pardon me, sir, but no man was hardy enough in those days to take out a motorcycle unless serious business was afoot. A road stop might easily last half a day, when even the sparking plug might be well represented by the mathematical symbol x. If we meant to play tennis with our best girl at 2.30 p.m., we did not set out per motorbike. In all human probability we should not arrive until next day.

Hill-Climbing in 1900.

Of the abovementioned troubles, hill stoppages evoked a species of exhaustion unknown in any other sport except rowing. When I see the stroke of an eight collapse in the boat after a manful effort to avoid defeat over four miles of water, I know exactly what he feels. The spectacle takes me back twenty years. Once more in spirit I am trying to get a 1-1/2 h.p. (nominal, *bien ennendu)* motor bicycle up a milelong hill. I am lying breathless and purple by the roadside after a desperate effort to restart the engine or push the quiescent and incredibly weighty monstrosity up the last fifty yards which separate me from ease and triumph. My coats are secured to the carrier by the knotted belt. I put in many yards of infuriated pedalling three-quarters of a mile lower down, when the labouring engine was doing 100 pops a minute, and my legs were reciprocating at 2,000 revolutions a minute on a 56 in. pedalling gear. I dismounted and ran alongside until my eyes started from my head, and my heart or some other bulky internal organ clambered up my gullet and stuck in my larynx. Then I flopped on the road, and panted like the exhaust of a 50 h.p. gas engine, eke perspiring until my tissues must have been like sunbaked sheet iron. Then I shoved the uncouth projectile up a byroad and charged down at a tangent into the road once more. After repeating all these herculean struggles *ad lib*. I began to feel as the stroke of that eightoar feels. And I got up the last fifty yards of the hill in some such unconscious stupor as that which descended on the Old Contemptibles in the concluding stages of their epic retreat from Mons.

Stops Chiefly a Question of Minute Inspection.

Ignition stops were encouraging. Sooner or later we generally discovered what was wrong; and at the worst, there was no lethal physical effort involved. The toil was chiefly visual. If a companion was handy, each of you took one side of the machine for inspection. Jones uncovered the contact breaker, saw that the wire was tight and not shorting, that platinum was well and truly present in both blade and screw, twanged the blade to test its spring, and verified the adjustment of the points. I, as the responsible owner, undertook the battery side; because an incautiously shorted battery spelt genuine disaster. Batteries were carried in cupboards curiously arranged inside the petrol tank. The reason of the stop-page was

twofold; since the tank was of metal, it was prone to shortcircuit the battery terminals; further, the wires had to emerge through holes punched in the metal, and the sharp edges of the hole were well calculated ‘to slice the wires in half or chafe them through.

Thus were the elementary principles of electricity imparted to thousands of youngsters who would otherwise never have learnt them. As a rule I should find that an old glove had slipped down behind the battery, so that a terminal was earthing against the tank top; a few wooden wedges cut from the hedgerow might set this straight.

If a diagnosis was not reached so early, we extended the inquiry. There was a microscopic and watchlike switch, inside one of the handlebar grips-inaccessible, flimsy, and invisible. There was usually an interrupter plug block on the top tube-a frank, substantial, John Bull sort of gadget, incapable of deceit, but guileful in the dark. Did I not once push a 200-lb. machine from the front at Ilfracombe to the summit of the mountain behind the town, because in the darkness I fancied the interrupter plug was in its block, and not, as events proved, in my waistcoat pocket? Then the coil had to be examined, but was usually innocent. Cheap French sparking plugs, with porcelain of inconceivable fragility and electrodes of florist’s wire could not be expected to last long; but what matter when 12s. 6d. was their outside price?

Plain and Trembler Coils.

I shall always regret the demise of the trembler coil. I should explain for the benefit of any ignorant reader that such coils emit a low, hoarse buzz when contact is made and the circuit is in order. I graduated on to them from the plain coil. I had spent hours tracking a departed current, which was always inaudible and temporarily invisible; such currents can play hide-and-seek with a novice, as a dryad does with a satyr. Joyful was the change to a coil which gruffly reported “All right“ when one repaired the circuit.

Ancient and Modern Transmissions.

The prehistoric transmission had one merit lacked by its modern successors-it was always repairable. The “ boot-lace “ belt with its miniature meathook could

always be faked up to propel a machine along the level. If the modern transmissions let a rider down, which seldom happens, he is in for a stormy time. Later on, during a transition period, we suffered far more acutely. The early Vee belts slipped and snapped in the most amazing fashion. More than once I have struggled home with a jangling belt consisting mostly of assorted fasteners united by odd inches of belting. When the first clutches and two-speed gears arrived on the scene, our fate was even more tragic. The chief talking point of these clutches was that they enabled us to save petrol and cool our engines by coasting downhill. Some of them in angle and diameter bore a not too distant resemblance to the business end of a wax candle. If they went in at all, they stuck closer than a brother; and the machine leapt a foot off the ground. One day the inventor of a superclutch lent me his own machine, on condition that I returned it without fail that night. The clutch was in the rear hub, and the rear spindle was solid with the wheel and revolved in bearings mounted - in the fork ends. That spindle seized up solid. I could not ride the machine. I could not push the machine. I actually carried it to the railway station; at least, I carried the rear half of it, pushing the front wheel along the road, perambulator-wise.

An Early Two-Speed Gear.

Gears, of course, presented more prospects of trouble than clutches, which was saying much. The first two-speed gear on which I ventured a long ride, was capable of de-veloping slip at three points ; and was thus far more exacting than a belt, which only slips on the engine pulley. That gear suffered from chronic slip at all the appointed places. Moreover it was secured to the. crankshaft by a nut of, weird contours, and when I was halfway through the premier trial of the year, it elected to spit that nut into a pheasant covert when I was travelling at 40 miles an hour. I found the nut in time, but my gold medal had long since evaporated.

Another of the early gears was well spoken of, because it had a complete drive from engine to back wheel on each gear. So, quoth the inventor, if top gear fails, you finish the ride on bottom gear. I obeyed this maxim next day, but the nett effect was that my engine literally welded its piston to the cylinder twelve miles

from my destination. I say “welded,” because we first broke the parts in the effort to unseize them, and then sawed the seize across, to see what it looked like. “Weld “ was the right term.

Epicyclic hubs added yet another terror to motorcycling. The early ones were very heavy, very expensive, and very full of friction; inserting low gear felt like jamming on all brakes and nearly jerked one over the handlebar. The behaviour of all the primitive examples was similar. They functioned fairly well for a week or two, except that the friction on low gear just about balanced the utility of the low ratio. Then the gear suddenly began to make a noise like a lawnmower on both gears. Finally, a fearsome metallic scrunch was heard in the land, and all the small internal parts, whose name was certainly Legion, were violently ejected. To be precise, the latter end of these gears varied in one respect. Some of them ejected their entrails through the end of the hub, and others through the side. Finally the Armstrong Triplex hub came along, followed by the Sturmey-Archer, and compensated for the untold horrors of the past.

Shedding the Smaller Accessories.

I am not at all sure that the whole of the present chapter up to this point is not grossly untrue. Now that memory has begun to bubble, I wonder whether a general shaking loose of all fittings and accessories may not have been the most persistent trouble in the early days. Let me quote examples. In the first place, the hooter would of course strip the threads of its bolts, and commence a jazz along the handlebar. That was a trifle, curable by insulating tape and straps. Then the spring back hinge of the acetylene lamp would suddenly collapse, so that the carbide well played the devil’s tattoo on the steering head. The standard remedy for a broken lamp spring back hinge consisted of carving a rectangular piece of timber from the nearest fence, and stuffing it between the upper and lower portions of the hinge as a distance piece. This was a temporary cure : but the next phases consisted of shedding the lamp glass, lamp door, carbide chamber, reflector and burner seriatim upon the highway. Ridiculous as it sounds, I have more than once returned home with no more of a new lamp than the water chamber and part of the bracket. This too was trivial, the remedy being a new lamp. You opine that our

lamp bills must have been excessive ? Not at all. One night-ride a year sufficed for most of us. And no wonder.

The process of disintegration proceeded slowly, but surely. The rear stand was an aggravating culprit in this respect. Let me premise that a stand is a luxury to-day, but was then a necessity. Our machines were lofty, topheavy and minus foot-rests. They were not too easily propped up, and troubles were so frequent that a prop was a vital accessory. One pattern took the form of a double cast-iron tripod, pivoted at the rear spindle ends, and secured by straps to the back of the saddle when out of action. When the strap broke, the rear crossbar of this stand hit the road, whop. The stand then dissolved into its component parts. Another favourite type con-sisted of two separate legs, each secured to spring quadrants on the chain stays by means of four small bolts. These bolts naturally vibrated loose, when the leg and quadrant would waltz gaily along the chain stays till they kissed the revolving spokes and wrenched them out of the hub, or rim, or both.

Insecure Tank Attachments.

This catalogue by no means exhausts the possibilities of vibration. I seldom essayed a long ride without verifying my tank attachments; and on a aoo mile run the tank would quite commonly work adrift. Lucky was the rider who detected its tremors before his oil and petrol pipes or electric wires had reflected the consequences. Of dancing batteries, adrift inside metal containers, the less said the better. After a plethora of such tragedies I made a rule of carrying a small 8-ampere hour cell in reserve. This wise plan coincided with the purchase of a very fancy motorcycling suit, for which Dunhill charged me many shekels. Innocent as to the properties of sulphuric acid, I stored the spare battery in a pocket of the said suit, of which one side wilted to flinders in less than an hour. Then I paid a lordly sum to Gamage for a metal-lined leather battery case. Gamage had under-estimated the malice of the acid. As it could not destroy his armoured case, it leaked out at the four corners, and ate through the unarmoured straps by which the case was attached to the machine. The battery then dived heavily into the road, and the resultant shock shook all the paste off its grids.

Engine Failures.

While I am summarizing the caprices of many machines which I owned during a long period of years, I must not pretend that the early engines were absolutely unreliable. Serious fractures were quite extraordinarily rare. Perhaps the commonest was the descent of a gudgeon pin set-screw into the crankcase, which might have serious results. Sheared pins in timing gears were by no means unknown, but were easily mended by the roadside : at a pinch a French nail, duly filed to fit, would meet the case. Broken valves were rarities, though broken cotters were common enough. On one occasion my engine stopped, and not until next morning did I discover that the stem of the inlet valve was only attached to the head by a single thin flake of metal, so that all compression was lost. *Sunt lacrinu rerum,* when I think of one lovely engine which came into my possession about 1905. It more than realized all my dreams for a month. Then one night in Scotland it commenced to pull somewhat feebly. It grew worse and worse, and at 2 a.m. on the lonely summit of the Grampians I discovered that the tappets had eaten through the case-hardening of the cams, and had ploughed them as round as cheeses. Yet even then fortune smiled, for a machine miraculously appeared from nowhere, and towed me to a hotel.

Adjustable Tappets.

The first adjustable tappets flummoxed a good many of us. They used to elongate themselves on the road, as the result of vibration; and presently the inlet valve could not open to admit a charge of gas, nor the exhaust valve lift enough to dispose of the fumes. A modern rider would tumble to such a happening in a few seconds. He has been educated by the technical press, by intercourse with experts, and by reading clever little handbooks. I do not think I was ever baulked by a plain case of a self-adjusting tappet. But I was ingeniously swindled by such a fitting in indirect fashion. I grew tired of these new patent tappets, and employed a varlet to turn me up a brace of plain, solid tappets. Then I took the machine out on the road at midnight, and presently it grew weary. I suspected everything except the tappets till dawn came, when, lo! it proved that the varlet had left one solid tappet on the bench and fitted a self-adjusting tappet to my exhaust valve.

The Prehistoric Brake.

My Odyssey would be grossly incomplete if I said nothing about brakes. The prehistoric brake was separated from those of to-day by a veritable chasm. I have ridden a motor bicycle with a spoon brake which operated on the tread of the front tyre; and this atrocity was mild compared with some of the crimes against mechanical laws which once disfigured our roads - did I not once bestride a bicycle alleged to be driven by a rubber wheel on the crankshaft, which was pressed against the tread of the rear tyre? Still I cannot remember an epoch in which spoon brakes were standard. Most of my early mounts had two rim brakes. The front sample was constructed wholly of steel, and operated by a plated lever about 15 in. long beneath the left handlebar grip, its pivot being on the righthand side of the steering head. Crude as such brakes were, they were better than those on our rear wheels, which took the form of a gigantic horseshoe, controlled by a Bowden wire. I am well aware that Bowden wires are made to withstand strains running into hundreds of tons. The fact that they broke so regularly must be ascribed to bad fitting. Of course, the shoes dropped off, and the adjusters slacked back, and all the little plated clips by which the pulloff springs and the horseshoe and the stopbridge were assembled used to litter the roads.

Coaster Hub Brakes.

There were even worse brakes in the prehistoric period. For example, some machines had coaster hubs, which were once the standard brake of all American motorcycles. Few swerves compare in terror with that produced by the sudden seizure of a coaster hub brake on a motorcycle travelling at speed. Others had external band brakes, usually of about 4 inches - diameter. These were always on or always off. ‘In the former instance their chief function was to emit an extremely noxious smell until the leather had been charred away, after which they rattled. ‘For myself, I wore large nailed boots, and jammed my feet hard down on the road when I wanted to stop. Instinct dies hard, and even now an emergency sometimes makes me forget that the modern brake possesses real stopping power-down go my feet with a bang when an old lady in the middle of the road drops her umbrella and hesitates.

Unreliability Beaten at Last.

An altogether unprecedented type of motorcycle began to appear about 1907 when the single-geared Triumph was developed, and inspired other designers. Substantial designs built from really good materials became common, and our old struggles ended for ever. These machines did not shed parts along the road. Their engines de-veloped plenty of power, and did not fade away to nothing after a little work. Magneto ignition proved extra-ordinarily reliable, and cut down the catalogue of trouble by 50 per cent. at one swoop. Adjustable pulleys and rubber belts transformed our transmissions, and endowed us with reasonable hill-climbing capacity. In fact, motor-cycling became rather dull, and we could only recapture the lost atmosphere of adventure and effort by going out of our way to discover freak hills. Once a hobby for maniacs, motorcycling showed signs of degenerating into a utilitarian locomotion ; and this process has been steadily intensified ever since. Even the tyre bogey has lost its threats. The tyres of my first machines were no thicker than those of a tandem pushbike, and were apt to deflate if one ran over some hedgecuttings. The modern tyre fears nothing much less formidable than a shivered champagne magnum; and if it should puncture, you insert a new tube, or change a wheel, or mend the hole with a modernized patch which adheres as closely as a dun. In fact, my sole really grievous experiences with tyres during the last few years have all occurred in competition, where the time factor complicates matters. I once com-peted in a Scottish trial, and knowing the “gashly“ qualities of the Highland tracks, I fitted an enormous Dreadnought cover with a tread like a teak plank. Woe is me, my carrier came adrift on the first day, and slit the cover to the bone. By some miracle I completed the day’s run with the flap of my toolbag inserted inside the cover as a gaiter. At nightfall I commenced a frenzied search for a spare cover. No local trader stocked tyres, but it so happened that a new firm had entered several machines for the trial, and that each hotel was supplied with spare covers for these men. I begged one. It was of the light path-racing variety. Each of the remaining five days brought me punctures galore, and every morning in the fifteen minutes allowed by the rules for repairs I fitted a new wafer-thin cover.

Wired on Cover in the T.T.

Or again during T.T. practice in the Isle of Man I ascended the mountain breakfastless at 3 a.m. to practise highspeed cornering. My tyres were of the wire-edged variety. Presently as I hummed down a brief straight at 60 m.p.h. the back wheel picked up a nail, and went flat. Racing men are familiar with the fight for balance which occurs under such circumstances. When the mad minute was over, I surveyed my back wheel. Since nothing but the inflation pressure locates such covers on the rim, the tire had “spun“ round in the rim, and ripped the valve out of the tube. I had no spare tube, no patches, no solu-tion. My pals were busy trying to put up record lap times, and had no eyes for the forlorn little figure squat-ting on wet moss in the mist. Towards 8 a.m. a Good Samari-tan of a pressman paused to inquire why I was weeping by the roadside, and engaged to send some-body out from, Ramsey with a spare tube. The messen-ger arrived by 9 a.m. and by 9.30 my chilled fingers had effected a repair. Thoughts of ham and eggs put new life into me, and I dropped off the summit of Snaefell at 70 m.p.h. Bang went the back tyre again, and the previous tragedy was re-enacted on another patch of road. To-wards noon a pathetic figure pottered up to his hotel at about io miles an hour, vociferating freely on the subject of wire-edged covers. A professor of English Literature once asserted that the average Briton has a vocabulary of about 3,000 words. Mine is much, *much* larger, and I owe this gift of fluency mainly to the inspirations of the motor bicycle.

As Reliable as the Train.

By the time war broke out roadside troubles had become rare occurrences. We start out on our machines, and are considerably surprised if they do not register a nonstop, be the journey in question a gentle potter of a few miles or a prolonged summer tour. The man who desires a spice of trouble to figure in his riding may still provoke or procure it by devious means. For example, he may purchase a thoroughly bad make of machine, of which a few samples still inexplicably survive.. Or he may habitu-ally drive a good machine very much faster than is whole-some for it. Or he may treat a complicated assembly of machinery like a doorscraper, when sheer neglect will sooner or later breed annoyances. Or he may enter his mount for a Six Days Trial, in which case the

combina-tion of appalling surfaces, freak gradients, and high speed will probably confront him with an urgent problem or two. But ordinary riding has lost its old savour of ex-citement and uncertainty. The modem machine is almost as reliable as a train, and if it ran upon a steel track might be equally dull.

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(1) F. W. Applebee with a 1903 Rex. Mr. Applebee, although not a young man seventeen years ago when this photograph was taken, has been a famous rider from that day to this, and in the 1920 T.T. was awarded the Nesbit prize for pluck and endurance.

(2) Mrs. Turner, one of the earliest lady riders, on a Norton machine with Clement-Garrard engine of 1903.

(3) C. R. Collier, the brother of H. A. Collier, on a 1904 Rac-ing Matchless. The Collier Brothers have been the producers of the Matchless machines since 1903.

X. INNS.

H OTELS are responsible for a formidable item in the annual budget of the average motorist, and that an item which is seldom taken into account when the first purchase of a machine is planned. An aunt dies, and leaves us £zoo. We can at last afford to buy a motor-cycle, but can we afford to run it ? We estimate an annual mileage, and put down certain sums for petrol, oil, replacements, and the like. Yes, the income will just run to it. Twelve months later we sit gloomily over a heap of unpaid bills and contemplate embezzlement. There was only one error in the spring estimates. We completely omitted hotels. To feed or sleep at a hotel is infinitely more expensive than to perform these natural functions at home ; and since the motorcycle is an irresist-tible incitement to travel, it simply compels its owner to frequent hotels. I shudder to think what sum I have transferred to the pockets of hotel keepers in twenty years of motorcycling.

Stranded in Scotland.

Memories of hotels range from the tragic to the ridiculous. Many years ago circumstances compelled me to make an onslaught on the Lands' End-John o' Groats record somewhat late in the season, when the nights were turning cold. I arrayed myself for this arctic jaunt in the sort of suit which Shackleton wears when he trie to reach the Pole. I smashed my piston within reach of an extremely fashionable Scotch caravanserai, and determined to wait for spares and renew my efforts from the northern end. As luck would have it, a St. Luke's summer set in. I had only the one suit, which was lined with thick sheet rubber. The local tailor had no reach-me-downs which would suit my proportions. The spares were long in coming. I spent five days in my bedroom, reading fifth-rate novels selected by the boots at the railway bookstall, for I could not venture forth in shirt sleeves, nor bear the heat of my one jacket till the sun had set. The bill was at the rate of two guineas per diem.

A Hotel Adventure in the Midlands.

On another occasion I set out to ride from Penzance to London on a Bank Holiday, and left my sovereign purse on the dressing-table in Cornwall. The loose coppers and silver in my pocket lasted me up as far as Gloucester-shire, but by the late afternoon my petrol

supplies were getting low, and I was mad with thirst and hunger. I called on various friends, all of whom had gone away for August. At last, I staggered into an inn, half mazed with exhaustion, and addressed the proprietress : " Look here, I have no money : can I have dinner and a bed?" She not unnaturally had me thrown out, my appearance being the reverse of prepossessing after two or three hundred miles in clouds of dust. In my rage I was sobered to wisdom. I selected a smart hotel, handed my machine to the ostler, chartered a good bedroom, enjoyed a hot bath, enjoyed a splendid dinner, with beverages to suit, slept well, breakfasted better, and sent for the manager. "I have no money," I began, lamely enough. " Certainly, sir," he interrupted briskly, "how much do you want ?" I have a bad memory for faces, but he happened to know who I was.

Hotels possess few pleasant associations for motorists. It is true that we generally arrive with perfectly wolfish appetites after a day at speed in the open air, and that almost any sort of dinner goes down well, provided there is plenty of it ; but what is there to be done after dinner, unless one is of the type that goes out to philander with promenading shopgirls or is content to linger for a couple of hours at the bar? The tourist is possibly alone, knows nobody in the town, has no passion for the cinema, and is not a billiard player. There is nowhere to sit in the average English inn (except the bar); nothing to read (except a few farming publications and a Bible provided by a commercial travellers' association); and it is too dark to inspect the neighbourhood.

The Motorcyclists' Revenge.

At a swagger hotel one is even less comfortable, for oil-stained breeches and fingers marked with rubber solution are out of place at the Grand Babylon Hotel, and both the staff and the guests let you know it. Occasionally the motorcyclist retorts. On one occasion a horde of rather wild spirits competing in a trial put up for the night at a hotel which was just not firstclass. It was run by a rather tactless manager, who told the motorcyclists quite plainly that they were only half-welcome, and segregated them from his usual customers in indifferent rooms, besides giving them second-rate fare and second-rate attention. Before midnight the gang were in entire possession of the premise. The lounge looked as if it had been shelled, and much of its furniture was se-

curely wired to the summits of some very tall elms in the grounds. There was no real excuse for such conduct. It cannot be denied that motorcyclists are a nuisance to hotelkeepers. They only stay for one night, and they import an amazing quantity of dirt in that time; I have often been thoroughly ashamed at the state of my bedroom when I left it after scraping myself down for dinner.

A Lift Adventure.

When we are entertained in large numbers, we are apt to be racketty, and there are certain towns in England, Wales and Scotland where the bigger establishments have no wish to receive us again. On the eve of another trial some fifty of us were staying in a quiet family hotel, and the officials contrived to restrain the "boys" until a fairly late hour, when the premises were left in charge of the night porter. Six or eight of the riders then proceeded to award a large prize for whosoever should drive the electric lift from the top to the bottom of the liftwell in the shortest time. None of them had ever managed a lift before, and nothing but mechanical genius prevented a serious accident. The event was run off without much incident, except that the roar of that hurtling lift must have given some of the guests a wakeful night. However, the least sober member of the party, who had been sadly beaten for speed, refused to go to bed unless he was allowed one more chance to show what he could do. He took the lift up to the top at such a speed that it jammed well above the highest landing. When he realized that it was impossible to extricate him, his panic-stricken screams resounded down the corridors. Finally he blubbered himself to sleep, and gave no more trouble till an electrician extricated him next *morning*.

In the early days an hotel, even if it was five miles away, often appeared to us much as a lifeboat must figure to sailors clinging to the rigging of a wrecked ship. Many years ago three of us trudged miles from an abandoned car on a winter's night, and at last sighted an inconceivably friendly light in the distance at 2 a.m. It put new life into us, and we padded hopefully on. As we drew near, we saw the glint of a signboard, and became assured that the light was downstairs. Dreams of food arose. As soon as we knocked the lamp was extin-

guished; and we had almost battered the door down before a surly figure threw up a bedroom window and refused admit-tance. What had been happening down-stairs?

The Ferryman.

Fate can be very cruel at times. A prehistoric motor once failed me at midnight in strange country, and as the night was balmy I decided to sleep by the roadside, and did so. When the sun rose, I consulted an indifferent map, and found that the nearest village was apparently some four miles away, and on the opposite side of a good-sized river. I staggered off, and in due time arrived at the river bank. There were no signs of a village. I cast up and down the shore, and at last spotted a small house on the further bank. When I got opposite to it, it appeared to be an inn, and I ahoyed and shouted in vain. I tried to swim across, but got cramp a few yards out, and returned. By this time I was very cold, hungry and cross. After a lot more shouting, a blind went up, and a man peered through the window. With maddening deliberation he shaved, dressed, and at last emerged. He embarked in a punt and poled over towards me, whilst I blessed whatever gods there be. Ten yards from my bank he stopped. “Did you want to get across?” I replied eloquently. “Because this isn’t a public ferry,” he remarked as he poled back.

Welcome at an Inn.

Certain inns are always pleasant places to visit, and glow with a special glamour for all good motorcyclists. Some of them may be named-John o’ Groats House, the Lands’ End Hotel, and the Blue Bird, where the Brooklands experts foregathered. Others are the secret of the elect-those rare houses on each long trek where the motorcyclist is assured of a warm welcome, good food, cosy accommodation, and a reasonable bill, despite his dirtiness. Such hostelries deserve advertisement, but we do not recommend them indiscriminately lest they should become crowded with unworthy guests. There is one of them between London and the West Country, where you may arrive at 9 p.m. with your back hair full of dust or your face plastered with mud, or your overalls dripping with lubricant, and be sure of a first-class six-course dinner as soon as you have scraped the surface filth off your person. Down in Devon, too, I

know a village inn .where trout, ham and eggs, quince jam and clotted cream form the menu, where village worthies in the smoking room dispense Hodge's shrewdness with plenty of "oop aroun' "and "you'm mazed," and where the bill for supper, bed and breakfast was only 4s. 6d. in 1914.

Riding Companions.

Still, those lonesome evenings in strange pubs stick in one's gizzard on solitary tours. Was Kipling the cynic who sang " He travels the fastest who travels alone?" He was certainly right where motorcyclists are concerned, for I never yet discovered the pal of one's dreams, whose engine runs beat for beat with one's own, whose thirst always becomes imperious at the divine moment and at no other, whose ideas of the right distance for a day's run fit mine, and who likes to stop for a pipe and a stare at the view just where I consider men should. Nor, if such a pal be discovered, can you trust either his machine or his route-finding. Sooner or later, just when your engine has insisted on being given the last notch of throttle for ten miles, his back tyre will puncture. Or, worse still, he will blithely shoot off ten miles down a false turning, and it may take you half a day to recover touch again. But there is this to be said of a tiresome riding companion. He may indeed go fast when he should go slow, He may miss his way ten times a day, or encounter a wholly illegitimate series of troubles with his machine. He may want to put up for the night just when you have really begun to enjoy the road. But at least he is there for company in the shabby pub or the gorgeous, garish hotel when dinner is over, Methinks the cult of the sidecar owes much to the shortcomings of English inns. My thoughts always stray towards a possible sidecar and a possible flapper when night sets in and finds me fingering a month old "Tatler" in the lounge of some gilded seaside palace or gazing despondently at the yellowy-brown paint and paper in the fusty coffee room of some Victorian Plantagenet Arms.

Hotel Accommodation at Trials.

In Six Days trials, accommodation for the night assumes fresh terrors. In the old days such events were carefully dated just before or just after the "season" in any popu-lous places which we might be visiting, and entries were so limited that little serious trouble arose. In

the first End-to-End trial of the A.C.C. beds were hard to find in some of the Scottish towns, and some of us slept in baths or on sofas, or even on billiard tables (I have slept under one before now). Growing canny after several experiences of the kind, I developed a habit of booking rooms at each stopping place in advance - i.e. about three months ahead. This is quite useless. You receive a polite, typed acknowledgment from the manageress. On the great day you arrive foist at the hotel, perhaps through being late in the official starting order for the day, perhaps through troubles encountered en route, perhaps through pressure of professional duties as a journalist. The hotel is comparable to Bedlam. Two or three hundred men are shrieking for food. The female staff are in hysterics. The male staff have been suddenly converted to Bolshevism. Nobody knows or cares anything about the rooms which you ordered. No, there are no other hotels in the place. No, they do not know of anybody who has a bedroom to let. Finally, the wife of the local scavenger takes compassion on you. She leases you her spare room, and wakes you at 5 a.m. next morning with a pint mug of steaming tea, which is more than any guest at the official hotel will get. You never know your luck. Catering has indeed become one of the many! drawbacks of these swollen events, and lunch at midday is usually the scene of a far worse scrimmage than the night stopping place. At night delays are comparatively immaterial. At midday you have an hour for lunch. You arrive on time, and cannily get your tanks replenished there and then, aware of the free fight which will occur for funnels after the meal. You then repair to the official hotel some distance away, and cleanse yourself a lengthy process after 200 miles in the dust of a big trial. By this time half your precious hour is gone. You then enter a huge saloon where two or three dress-coated foreigners and as many frightened maids are trying to minister to upwards of 200 hungry and impatient men : probably a single “drinks waiter” is nearly distracted by the effort of keeping tag on so many huge and varied thirsts. In twenty minutes you have secured some lukewarm fish, and have desperately ac-cepted somebody else’s “ small lemon” in lieu of the “long shandy” which you had ordered, and which some-body strategically located nearer to the door has already consumed. On perhaps one day in the week you will fare much better than I have described: but there are six of these luncheons at six differ-

ent places : and no county contains six hotels which can cater efficiently for a quick lunch for 200 or more uproarious men. If a pressman is too conscientious to “cut corners” and content himself with covering half the route, it pays him to carry sandwiches and wash them down with liquor procured at unofficial stopping places.

Picnicing by the Roadside.

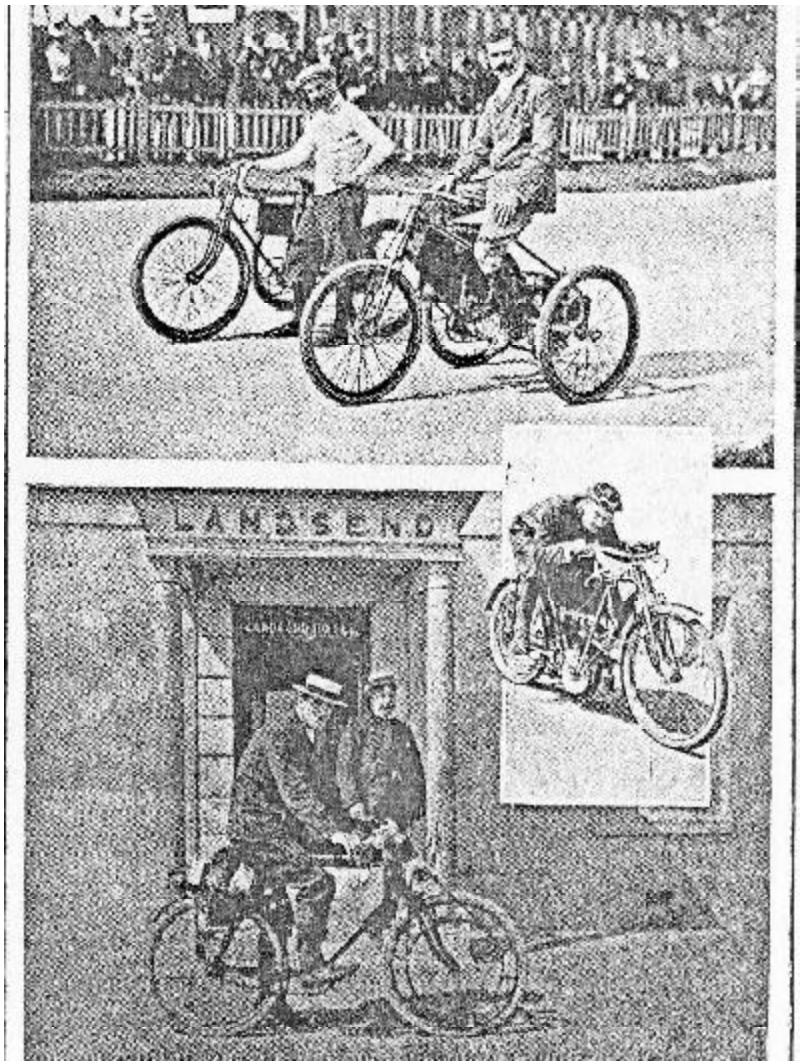
In summer touring the wise motorcyclist employs no midday hostess but Dame Nature herself. A motorcyclist may find it inconvenient to carry a picnic-basket, but he can wear a haversack. A quarter of an hour’s marketing - say, in Tavistock-and finally a stoppage somewhere out on the bosom of Dartmoor; pasties, strawberries, saffron buns, and a pint of cider; what could man ask better ?

There are men who go camping on motorcycles. Person-ally I am not in love with camping. I must admit that the average British inn is enough to drive a man to any lengths. I have two main objections to motorcycle camping. The first is that on tour one spends quite enough time in seeing that things do not drop off the machine, without adding unnecessarily to the tale of articles which must be strapped into position. The second is that motorcycling is already a sufficiently greasy habit, without importing the added task of scraping cold bacon fat off tin plates at least once a day.

(1) B. Beconnais (left) and S. F. Edge (right), before starting for the one-hour tricycle record in 1902.

(2) Harry Martin, who started riding in 1901 and joined Messrs. Bayliss and Thomas, makers of the Excelsior machines, in 1902. Has since been responsible for the reproduction of the Martin-Jap machines.

(3) Mr. Egerton starting for his successful Lands End to John O'Groats run on a front driven Werner in 1901. This was the first End-to-End run on a motor cycle.



XI. ROADS.

IN spite of the huge sums which are expended on roads nowadays, they are certainly worse-probably much worse-than they were twenty years ago. The impressions of oldtimers like myself cannot, of course, be wholly trustworthy. The prehistoric motor demanded one's entire attention, and no surplus faculties were available to criticize the road surface. Moreover, a youthful body is composed of fencing wire and indiarubber, so that it sustains lightly tribulations which would be torture to a forty-year-old. Again, the primitive machines were decidedly slow, nor did they grant us such long spells in the saddle that there was time to get cramped, for we were perennially hopping off to effect some small repair or to run alongside the labouring engine up some mild hill. Nevertheless, when all these allowances have been scrupulously made, I am convinced that the national road system has steadily deteriorated since igoo or thereabouts. At that era I made nothing of certain physical feats which would appal me to-day, such as pedalling a pushbike ioo miles in a day, riding a motor-bicycle with rigid forks 20o miles between sunrise and sunset, or a similarly springless motor tricycle 150 miles in the same period. Today few main roads are smooth enough to induce any pushcyclist to ride long distances on them for pleasure; the motorcyclist maintains the hobby, but he demands at the very least spring forks and a specially suspended saddle, whilst there is a keen enthusiasm for spring frames.

Revisiting Old Spots.

Recently, I made the experiment of revisiting the roads over which the bulk of my motoring novitiate was served, and, there is no doubt that they have deteriorated abom-inably. Many of the more perilous corners have indeed been shaved off. Roadscraping is certainly performed more frequently and more thoroughly : in 1919 I lived on an important highway, which was not scraped more than once a year, whilst the local by-ways were never freed from their primeval conglomeration of churned up mire; when the mud got too deep, somebody tipped a few loads of stone into the deeper holes, and left the traffic to roll it in-a slow process. In igig I find myself residing on a byelane so insignificant that it fails to figure on most maps; but when the loose mud upon it is more than an inch deep, I upbraid the local member of

the Council, and he blushes : if the steam roller does not appear within a week of stone being tipped, we hold an indignation meeting in the village reading-room, and our member trembles for his seat. But this modern interest in the roads is pure camouflage, for two principal reasons.

The first is that invention of the Evil One commonly called a pothole. I have no recollections of potholes in 1900, and I doubt whether any existed at that era. At present the history of all roads is alike. The roadmen come along and tear them up. After a brief revel of red flags and stonecarts and tar engines, we have a smooth carpety surface to drive over for a few weeks. Gradually the deceptive billiard table surface is corrugated into a series of gentle wavings. As the troughs between the waves deepen, the crust commences to break up, and potholes form. The potholes enlarge in dimensions and increase in number until the surveyor sends along a man with a barrowful of stones and a bucket of tar who converts each pothole into a hump. The crests of the original waves are then converted into fresh potholes as the wheels of the fast, heavy traffic wallop off the summit of the humps which now disguise the original potholes, By the time that the secondary potholes have been well and truly excavated, the tarred stone plasters have been scooped out of the primary potholes, and the road is now *all* potholes. The red flags and the tar engines return after a period which varies with the generosity of the Council, the importunities and incomes of local motorists, and the efficiency of the surveyor. But the history of the road resembles that of the local toper, who gets converted whenever a red-hot gospeller visits the local chapel, but inevitably arrives at a last state which is worse than his first. I am no road engineer, but the crying need of our transport system is an inventor who shall eliminate the pothole by redesigning our roads or by redesigning the vehicles which pound roads into potholes. Of late years the evil grows more pronounced, as the number of heavy lorries increases by leaps and bounds. Wherever a motorbus service or heavy lorries exist, the interval between a virgin billiard table surface and the “devastated area” network of potholes is liable to become a mere matter of weeks.

The second fatal factor is our penny wise and pound foolish road policy. The stupidest bride hesitates before she lays down a new Axminster carpet on wormeaten flooring, dotted with protruding nailheads.

But over large areas of England we continue to trust the weak, infirm road foundations laid down a century or more ago to carry vehicles which were far lighter and far slower than the traffic of today. On these flimsy foundations we deposit annually the most expensive carpets of tarred stone. The foundation obviously quivers whenever a light car passes by; and the rigid carpet immediately cracks. One might as well lay cream crackers in a hammock, run a garden roller along it, and be surprised at seeing a shower of crumbs.

Scottish Potholes.

The pothole *Par excellence* is still to be found in Scotland. A journalist who is reporting a big reliability trial has to average as nearly as possible 40 miles an hour. The competing motorcycles are travelling at 20 miles an hour between controls, and it is his business to accompany them throughout and especially to watch their behaviour on the test hills. By the time the last machine has climbed a hill, the leading man is probably 2o or 30 miles ahead, and - the poor scribe must race right through the crowd up to the front again, seek ing material for his pen or camera. These duties entail lurid corner work, and lurid corner work implies steering to a very precise line round a sharp bend. As I dash up to such a corner at speed, I cock my eye at its severity, and lay out a projected steering line. At the critical moment the wheels strike a pothole, the machine bumps clean off the ground, and centrifugal force flings it outwards, a foot off the projected line. Down she comes with a bang, strikes more potholes, and repeats the sideways hop. By the time she is level with the angle of the corner, it is either impossible to get round at all, or else a convulsive wrench of the steering must revise the direction while the machine is in mid air. It is exciting work.

The Highland Cart Tracks of igoo.

Still this lurid cornerwork is preferable to our earlier experiences in Scotland. There was a time when motors were comparatively unknown and certainly unwanted north of Perth. I have driven for a whole day in the Highlands, and seen no car except the old high-beaked Arrol-Johnston dogcarts with their huge back wheels, natural wood-finished bodies, and solid tyres. In those days many of the Highland roads were mere cart tracks, and in early summer a wary eye had to be kept open for

the boulders which spring avalanches had rolled down the mountain sides. Such repairs as were executed were planned solely with an eye to farm cart traffic. Thus in essaying the ascent of Cairn o' Mount one might force a single-geared motorcycle halfway up the climb by dint of expert tuning, demon riding, and furious pedal assistance. Premature complacency might set in-I am up the worst of it, and with a little luck and a lot of pedal-ling may reach the summit in another quarter of an hour.

Just at the base of the steepest pitch an awesome sight would salute us. Ten yards of the road for its full width might have sunk into some secret bog. A massed levy of the local farmers would have filled up the resultant hole with a knobbly mass of heather, dirt, boulders and tree trunks. Subsequent traffic had scarred a couple of deep, narrow ruts across the centre of the medley. Nothing for it but to brace one's body into the semblance of a steel girder construction, and try to hold the front wheel true to the axis of a rut. Then a fearful thud as the footrests stubbed themselves into the sides of the rut, and the affrighted rider described a graceful parabola over his handlebars. I have known it take three men to carry a motor bicycle through such a road repair, whilst "the single-geared machine proved absolutely unstartable on the long, steep pitch just beyond the ruts.

Roads and Trials Rules.

Those glories have now departed. Extreme discomfort is the worst feature of those roads over which a man must travel ; and the ancient ardours of grappling with the almost unrideable are reserved for the freak going which club secretaries love to provide for reliability trials. Even these excitements tend to become stale if one is riding a first-class machine. In ig1g, for example, I carried out my press duties on a four-speeded motor bicycle which could climb any hill road on its second gear. In the numerous trials of the season the various secretaries aimed at dismounting us in two principal ways (a dismount, of course, spoilt one's prospects of earning a gold medal). The first, and perhaps the wiliest, consisted of setting us to traverse miles of lanes sufficiently dangerous to reduce our speed to a.figure below the average demanded by the rules. Just when we began to grow really anxious about timekeeping, we should be presented with a tempt-ing stretch of road, perfectly straight and mildly down-hill. We should naturally bang

our throttles open, and "blind." Halfway down this stretch a perfectly unos-tentatious lane would streak sharply backwards by means of a Vee bend, and the directing arrow would be neatly secreted out of sight up the Vee. To such measly shifts are stingy committees reduced to wring stoppages out of a modern machine. Alternatively, club secretaries love the following *combination* of horrors; a watersplash (as deep as may be); an S bend on a 6 ft. road, smeared with wet mud, deeply rutted, and sprinkled with large stones, the whole ascending as stiffly as may be - if at a grade of 1 in 3, so much the better. The watersplash sets all the belts slipping, and with any luck may dowse a few sparking plugs and magnetos; the fierce gradient will tempt all the riders to drive rather too fast; the grease and the stones will cause front wheels to develop uncontrollable aberrations; and the narrowness of the lane creates good hopes of a regular jam, which may be cunningly augmented by scattering a few sidecars amongst the motor bicycles. The most hardened rider is doomed to a few anxious seconds when he strikes such an impasse as the above.

Skids.

Sideslip has practically ceased to be alarming, for the lowbuilt modern machine is beautifully balanced, and with a corrugated tread on each wheel will seldom do more than skate a trifle. Nevertheless there area few parts of the country where no man may defy the *conditions.* Porlock after heavy rain is still something· of a lottery. A cowboy on an unbroken broncho is not more helpless than a crack rider on a first-class machine may be upon Porlock under suitable road conditions. A famous rough-rider, who was new to the peculiar brand of grease which occurs in that corner of Somerset, once tried to ascend the hill in the middle of a big trial. He came up to the straight piece below the S bend, surveying with a shocked surprise his fellow-riders who were slithering about in the most ridiculous fashion. His own machine registered a beautiful line right up the road centre, and the calm disdain of his glance positively blistered the fallen warriors who strewed the roadside. Suddenly his expression changed to one of abject terror as his machine quietly turned off at right-angles, endeavoured to climb a moorland bank with a grade of i in a, and finally tumbled backwards on top of him.

Road Reconstruction Long Overdue.

Great transformations in our roadways seem practically inevitable. It is notorious that existing highways are grossly unsuited to the traffic which they have to bear, a traffic which annually increases in weight and speed. Radical reconstruction of all the leading roads is long overdue, whether reinforced concrete or steel be adopted. The expenses of motoring will be vastly curtailed as soon as smooth surfaces are provided. Quite apart from the damage due to violent and incessant vibration, the tyre bill is a principal item in motoring expenditure whether for pleasurable or commercial purposes. Tyres are inces-santly off the ground, and the impact of return to the road administers frightful blows to them, and grinds rubber off their treads. Good roads may reduce the cost of motor transport by at least 25 per cent., and will pay for them-selves in a few years.

Alterations in another direction are also foreshadowed. The present high wages do not permit every artisan to own a cheap motor vehicle for the simple reason that the price of motors is artificially and accidentally inflated to absurd figures. When this *inflation* ceases, prices will fall, and the number of cars and cycles on the road will vastly exceed all past records. Our roads are at present unsafe for any large increase in the traffic. They will have to be widened and straightened. Only recently I was driving down towards a certain bridge set rather askew against a first-class road. Down the slope on the far side two cars were racing alongside towards the bridge. If I had not *known* this danger spot of old, I should have held on, and a tremendous smash would have resulted. As it was, I stopped, and the two cars barely cleared the bridge, one of them bashing in a wing as it skidded over. The country abounds with similar danger points, which only fail to produce an annual crop of casualties because our motor traffic is still comparatively thin.

XII. ACCIDENTS.

IT says much for the safety of the motorcycle that in twenty years' driving with an approximate mileage of 2oo,ooo I have never hurt either myself or anybody else at all seriously. If there is a little cherub who sits up aloft and watches over poor Jack, there must certainly be a twin seraph who protects motorcyclists. The motor-cycle is unquestionably a lethal projectile, for its weight averages perhaps 3 cwt. and many examples are capable of express train speeds. The majority of riders are young, with the recklessness which belongs to their years. We all serve a somewhat protracted novitiate, and veterans like myself were apprentices in the days of universal ignorance, when machines were extremely badly made. British roads were not constructed for high speed traffic and neither the A.A. nor the Road Board has succeeded in eliminating all their perilousness. Nevertheless, despite all these potential elements of danger, serious accidents are quite exceptional.

A Collision on Sutton Bank.

If I have encountered few personal accidents, I have witnessed many, and it is the humorous aspects which most easily survive in the memory. No motorcycling accident can compete in humour with the spectacle of the bottom falling out of an ancient four-wheeled cab whilst fares are inside ; but a few incidents of the road can still revive imperishable smiles. One of the most comic occurred on Sutton Bank. We arrived at that fearsome acclivity on a 9 h.p. tricar-one of the few vehicles of that era which could climb the Trough with ease and certainty. Just below the Trough was a small car which could neither advance forwards nor let itself down backwards under brake control. The wise owner had therefore swung his steering across the road, and was dismally employing the bank to chock his back wheels. We stopped, and proffered assistance, but his -engine was so feeble that two pushers could not get the car over the Trough. Presently a very splendid car indeed hove in sight, sliding cautiously down the hill: it had a brand new landaulette body, picked out in vertical stripes of light and dark blue, and the coachwork alone had probably cost £750. We hailed its occupants. It pulled up just below the rusty, shabby little voiturette, and two of the men came to our aid. With four stalwart pushers available, we got the voiturette well out into the road, and

about halfway up the Trough. At this point the pushers became exhausted, and the engine finally conked out. The voiturette slid backwards down the hill, gather-ing speed on the grade of i in A and presently hit the back panel of the lordly landaulet with a fearful wump, reducing it to splintered white matchwood, and provoking shrieks from the be-diamonded ladies inside. A tremendous fracas ensued, during which we sneaked quietly off on our tricar.

The Discomfited Flappers.

On another occasion two of us had halted in sheer despair on a slight rise in the Highlands. The roads were drying up after a week's rain, and the surface was so disgustingly slippery that we simply could not keep our topheavy machines upright. We sat on our saddles, half laughing and half cursing, because we ached all over after numerous falls, and looked so forlorn in our mud-smeared overalls. Suddenly there was an imperious toot, and a tremendous car swept past us, whilst the aristocratic flappers in the tonneau bestowed contemptuous glances on a pair of vulgar, dirty motorcyclists. The car sailed some thirty yards up the hill, skidded suddenly right round, and toppled gently over into a shallow ravine on the left of the road, tipping out the proud flappers in a smother of frills and squeaks. Nobody was hurt, and we vastly enjoyed helping an improvised gang of men to lever the damaged monster back on to the road again, whilst the flappers sat on wet stones and sulked.

"Getting My Own Back."

Towards the end of a certain 1,000 miles trial, I found myself the victim of a good deal of chaff. The rules said nothing about the condition in which machines finished, gold medals being awarded if one completed the distance on time. This was just as well, as my machine was held together by copper wire and string, except for sundry parts of minor importance which were tied round my neck. My principal persecutor was a rival on a cyclecar : his machine had been cannily driven and polished with Brasso whenever a chance occurred, so that it looked as if it had just come out of a crate. After the finish, we all made tracks for the station. I begged a lift on a car, as my machine was mechanically incapable of travelling another mile, though it had just earned a gold medal. The car spun down the road just behind the

spotless cycle-car. Suddenly to my infinite glee I noticed that the back wheels of the cycle-car were inclining inwards at the top. In a yard or two the driver seemed to be worried about something, and peered anxiously downwards under his armpit. Ten yards more, and his axle snapped asunder, both wheels flattening out on the road. He kept on advertising his gold medal in the press for a full year, and whenever he met me I was able to get my own back.

Riding on a Flock of Sheep.

One of my very earliest rides was in the front seat of a somewhat gigantic tricar known as an Eagle tandem, of which I recall little beyond the fact that it had an 8 h.p. water-cooled single-cylinder engine and was very comfortable. Darkness came on, and I fell asleep, to wake in sheer terror, as the lamps were out, and the tricar was longitudinally stationary, but heaving restlessly up and down. “Wherever are we? “ I yelled. My imperturbable driver remarked coolly, “ I think we must be on top of a flock of sheep.” And we were!

It was along the very same road that I was compelled to drive a lampless motor bicycle on a dark night, and suddenly I flushed a colt which had got out of its field. I have never been so badly frightened in my life - to have a horse kicking and rearing within a yard or two in the dark is not aa pleasant experience. Luckily he missed me, and galloped off in the opposite direction, or I should never have dared to go any further.

Even a sideslip can be fraught with humour. A crowd of us were massed by the roadside, waiting for the start of a trial, when a rider swanked up on a brandnew 4-cylinder bicycle, which was then a novelty. He pretended to be unconscious of our admiration, but every line in his body was eloquent of pride and contempt. He was halfway down the serried ranks of envious men when his mount sideslipped so suddenly it absolutely lay down underneath him. The crash of the machine and the very bad word with which he relieved his feelings reached our ears simultaneously, and a great shout of Homeric laughter arose. Not long after a similar machine was showing off before a similar crowd, when either the engine or the drive seized without warning. The tail of the machine swung round broadside, and the rider pitched ignomin-iously into the road. Not without reason did the Greeks believe in Nemesis.

One of the most comic spectacles I ever beheld greeted me without warning after rounding a bend in the road. There lay a Ford car upside down at an angle across the fairway. In those days the belly of a Ford car was con-structed of unpainted tin, and soon became stained by oil leakages. The car somehow presented an extraor-dinarily indecent appearance as it lay there with its futile wheels pointing skywards. Unfortunately trag-edy developed when I got closer, for there was blood oozing from beneath the overturned vehicle.

A Daring Performance.

One of the big motorcycle trials provided much comic relief with another Ford car, in which some of the officials were travelling. Towards the close of one day's run the car ran over a dog, which had results undreamt of by the occupants. They reached the official garage without incident, and put the car up for the night. This vast garage was a disused drill hall, and instead of turn-ing on the reverse next morning to get the car out, the driver steered forwards, intending to make a wide sweep and turn without using the reverse. The harder he steered to the left, the more obstinately the car went to the right. He did not possess enough presence of mind to stop his engine and examine the damaged steering gear, but stared solemnly and incredulously at his wayward front wheels, and then back at the steering wheel which he was tugging in the opposite direction. Meanwhile his three passengers half-rose in their seats, and gazed in breathless astonish-ment. We patched up the steering for them, but the day's route was precipitous and full of corners; we made a point of stopping to watch the faces of those four men 'when their car approached a really dangerous corner. But the lightheartedness of motorcyclists is proverbial. The Ford car was then a complete novelty-probably there were not more than half a dozen in the country. Twenty-four hours later the quartette accepted a heavy bet that their Ford could do 6o m.p.h. Finding it could only just touch 40 m.p.h. on the flat, they drove it all out down a steep hill, and won their bet with the light chassis bouncing high into the air and touching the road once every ten yards or so. Considering that a collie had .knocked its main steering arm cockeyed two days before, 'this was rather a daring performance.

Accidents in the Island.

In the Isle of Man the word “accident” has sadder connotations. Anybody who knows the Manx racing course and has driven fast cars or cycles round it will marvel that the catalogue of fatalities is so small. The corners are acute, the highways rough, the mountain road little more than a pair of ruts scarred across the moor, and the pace demanded for victory is nowadays pared down to such a fine point that success is chiefly a matter of who dares take the greatest risks at corners. Moreover, the Manx roads are dangerously greasy when they are drying after a shower, and mist is by no means unknown on Snaefell. Nevertheless there are remarkably few accidents in the Island, and the majority have occurred to quite inexperienced men. Brooklands has an astonishingly clean record in this respect, considering that a deflated tyre during a race creates frightful steering difficulties at very brief notice, and that if a man goes over on a wide cement track, the impact of the fall is bound to be tremendous. Few Brooklands habitues will easily forget the ill-starred race for a ioo-mile trophy a few years ago. Newton on a Napier car decided that the canniest plan was to strike a medium speed of say 8o m.p.h. and cover the distance without a tyre stop. Other drivers less prudently opened out their powerful engines to the maxi-mum, and wore down their tyres with astounding rapidity. After a few miles they would pull in at the repair bays, and the scrapped covers were so hot that they charred the planking of the bays. Presently the inevitable occurred, and a fast car burst its front tyres at speed. The unwieldy monster turned turtle on the banking, tossed its occupants out to death, rolled down into the fencing, and caught fire.

Sidecar Smashes.

Sidecars have been responsible for some nasty crashes, ‘especially when big engines were first fitted to combinations without suitable strengthening of the chassis. It is re-corded that an agile driver was scrapping along on such an outfit when his side wheel came off, and purled off down the road ahead of him. He dexterously tilted the machine to balance on the two bicycle wheels, and brought it safely to rest. On the other hand I have seen a sidecar wheel come off just ahead of me, and cause the machine to slew right round and crash into a fence.

Pillion riding is also prone to lead to accident, if the devotees are reckless or careless, but its cheapness and the fact that it is not good for man to be alone result in its survival. One day I was riding hard to catch a car which had been bothering me with its dust, when a powerful twin roared past me, carrying a second man on the carrier. They caught and passed the car, and immediately their back tyre burst. Down they went in the centre of the road : both the car and myself had bare room to steer out past them, and avoid adding to the unpleasant injuries which they had already received.

Bad Cornering and Road Hogging.

A sensible driver soon learns to identify two special risks in roadwork from which no caution can absolutely protect him. One arises from the presence of idiots on the road, the other from the presence of cattle. Many motorists habitually corner in the most disgraceful fashion. Round blind corners they take it for granted that they will find the road untenanted. They " cut " every sharp corner. They sail cheerily across blind road junctions as if they enjoyed an assured right of way. I have heard one idiot of some eminence remark that he is perfectly safe in " blinding " across road junctions, because there cannot be more than three other fools with similar habits in the country, arid it is long odds against two of the quartette arriving at the same cross roads simultaneously. It would be an excellent thing if the police employed a few traffic experts with large powers to educate and punish the offenders against road sense and road manners, 'instead of persecuting people who slightly exceed an absurd speed limit in a safe locality.

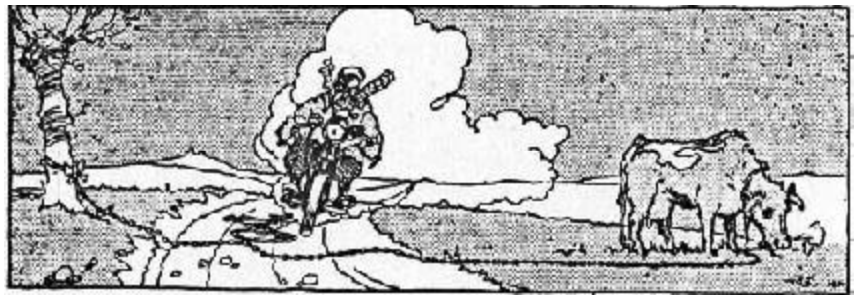
Night Driving.

Cattle are still a constant source of-danger at night. On a white dry road sheep are all but invisible, and cattle are equally difficult to see on a road which has been dark-ened by rain. A tired or shortsighted rider may easily charge a herd, and it is hardly surprising that motorists use lamps of a dazzling brightness when so many road obstacles are permitted to dispense with warning signals of any kind. More than once I have been saved from a smash by seeing the reflection of my lamps in the eyes of a herd of cattle, or by noticing that the black or white road ahead contained some suggestion of motion in its colour. It is easy to argue that a careful driver

should be able to sight any obstacle with lamps of medium power. This is probably true; but a chauffeur who has been driving a doctor about all day, or a lorry driver employed on night work are quite likely to suffer from a moment's carelessness. Given modern lamps and modern road law, prolonged nightdriving still demands the most concentrated attention.

A Close Shave.

Oddly enough, the narrowest squeak in my history was due to a cow in broad daylight. I was attempting to break the End-to-End record, and was keeping a fine machine at its maximum speed along a broad and deserted road. When I say "deserted," there was the solitary cow in view, grazing by the roadside a few hundred yards ahead ; but experience teaches one to size up the probable character of domestic animals, and the hinder end of this animal appeared quite sedate. So it proved, but the cow was tethered by a long chain to a stake on the *opposite* side of the road. I crossed the slack chain at some 60 miles an hour, and if Daisy had grown nervous and kicked up her heels ten seconds earlier, I might not have lived to pen this page. Still, one never knows.



On the same ride I drove full tilt into a few sheep, huddled asleep on a Scottish road in the moonlight. Seeing that the road was downhill, and that the engine was all out at the time, the speed probably approached 70 m.p.h. Mercifully I pitched clear of the road on some heather and beyond knocking all the wind out of my body was not appreciably the worse for a very heavy fall. By contrast I have known a rider break his leg in sideslipping at 8 miles an hour, probably because he had time to stiffen his limbs in the effort to save himself.

Tyre Bursts.

When all is said and done, tyres are the speedman's worst hoodoo. The gradual deflation of a tyre at touring speeds is such a common occurrence that few men

realise what a sudden deflation at racing speed can mean. One instant. you are travelling like a shell from a gun, revelling in the pleasant roar of the engine and the rush of wind past your cheeks, rejoicing in the obedience of the metal steed beneath you. The next instant she is all over the road, and you are fighting like a tiger to regain partial mastery of a vindictive rebel which is thirsting for your blood. In the Manx races I have breathlessly watched such a duel maintained for 200 yards down the mountain road, and end in the death of the rider. None ‘but an expert should ever let a motorcycle attain its maximum speed on road or track.

Some of our machines occasionally display a curious phenomenon, of which there is a simple mechanical explanation, though comparatively few designers understand it. A machine will answer its steering very obediently until a really high speed is attained, say 50 m.p.h. or more. The front wheel may then begin to oscillate violently, somewhat after the fashion of a terrier shaking a rat. No effort will steady it, and slowing down often makes the oscillations of the wheel even more pronounced. This “speedman’s wobble,” as it is often called, has brought many a man over. Fortunately most good machines are immune from it, though I have taken one or two bad tosses from this cause.

Side Slipping.

Sideslip was a constant terror to skilled riders until ten years ago. Single-geared machines were necessarily driven rather fast in hilly country, as hills could only be climbed if the speed was kept high. A topheavy machine driven rather fast round a greasy corner was naturally prone to skid. In certain parts, of England, notably Derbyshire and South Devon, the soil renders the grease peculiarly treacherous, and on a primitive type of machine riders would suffer so many tumbles that their nerves would collapse, and they would be literally afraid to re-mount. The lowbuilt modern machines can be driven on almost any surface without anxiety. Nowadays I seldom take the risk of a sideslip into calculation except in one or two counties which abound in treacherous oolite surfaced roads or in London traffic where the combination of grease, frequent applications of the brakes, and the proximity of motorbuses is enough to make anybody careful.

(1) T. H. Tessier : started motor cycling 1899, rode in the first English motor cycle race at Brighton 1901, joined the Bat Company in 1903 and is still associated with them. He is shown riding on the Crystal Palace track on a 1903 Bat.

(2) Another early Bat rider, George A. Barnes, who started racing in 1902 and joined the Bat Company in 1903.

(3) Ernest H. Amott on the 1903-racing Werner. Mr. Arnott rode in many races at home and abroad, and was captain of the Motor Cycling Club in 1903.

12. Accidents

XIII. LAMPS.

I have alluded elsewhere to the terrors of a night ride in the early days of motorcycling. They were of a two-fold character. In the first place the machine itself could absolutely be trusted to give trouble. In the second place the lamp could not be trusted to give light whilst the machine was being repaired. In those days our acetylene lamps were very similar to those still used on pushbikes, though they were not so well made : their general flimsiness can be guessed from the fact that for a whole season (possibly 1901) I preferred to use a Lucas pushbike " King of the Road " oil lamp with a 1 in. wick : its light was wholly inadequate for motor-cycling purposes, but the lamp was so well made that it generally hung together for a run. By contrast the typical acetylene lamp of that era began by smashing the springs of its hinged spring back. The hinge was then blocked up horizontally with a bit of wood, after which the outraged bracket snapped. On more than one occasion I have finished a ride holding the lamp in my right hand and steering with the left hand, occasionally riding hands off for a fraction of a minute while the steering hand was removed from the bar to make lightning dabs at the control levers. What this meant with a topheavy, single-geared machine of less than 2 h.p. on greasy roads can better be imagined than described.

The Prehistoric Gas Lamps.

The primitive acetylene lamps naturally dissolved into their component parts soon after the inevitable fracture of the spring hinge had occurred. Glass, reflector, burner - holder - everything would come adrift and drop off in the road. The most insidious trick of all was that the needle control of the watervalve would vibrate open, and when night came on, the charge of carbide would prove to be sodden and useless. Pushcyclists fought rather shy of carbide lamps in those days, and motorcyclists were very rare birds indeed; consequently it was difficult to purchase supplies of any sort along the road. After a few experiences of the kind I made it a rule to carry two lamps and not less than 2 lb. of carbide : I can even recall constructing a substantial wooden box to fit my carrier and contain the spare lamp; indeed I once received half a guinea from a technical journal for an article dealing with this invaluable tip. The one merit of the early lamps was that they were cheap. I forget what

the “tumble-to-bits “ pattern used to cost; but I paid no more than 8s. 6d. for the first serviceable gaslamp I ever owned, which was a German article known as the Schmidt. It was substantially constructed, devoid of springs, and fitted on a rigid two-prong bracket which bolted round the steering head. Not long after this the Lucas people brought out a beautifully finished article, which was tolerably reliable, though its lightgiving powers would be considered contemptible in these days.

Introduction of Separate Generators.

The genesis of the £3 1,000ft.-beam lamps with separate generators was due to the twenty-four reliability trials organised by various clubs, and especially by the M.C.C. In my first London-Edinburgh ride I relied on a small lamp with a 3-inch reflector fed with gas by three tiny generators no larger than claret tumblers, clipped to various parts of the machine. When illuminated number-plates became compulsory after dark, a fresh problem was imported. For one thing, a feeble light by which the long-enduring riders of that epoch might be content to travel, did not illuminate the number sufficiently to please the police ; or if the lamp happened to burn properly, the cowl which deflected the rays down on to the number, would fall off, and precarious erections of paper and string had to be substituted.

Riding in Company.

Whenever possible, we preferred to perform our night ourneys in company. On one occasion three of us, greatly daring, essayed a 100-mile trip in the dark. We car-ried two spare tins of carbide and plenty of burners. For an hour or so everything went very merrily indeed. Then one of the party commenced an exasperating series of tyre troubles, and we used most of our carbide in illuminating the subsequent repairs. When his tyre was at last passed as sound, there was little carbide remaining. Our route lay over a lonely moor, and as the police were long since in bed, we determined that only one lamp should fill the bill. Jones, who was supposed to know the route, was appointed leader, whilst the other man and I steered by the glow from his lamp. Presently the water chamber of Jones’ lamp ran dry, and water is hard to come by on hard ground at midsummer. Ingenuity surmounted this *difficulty,* and the run proceeded. As we descended from the moor, we entered very curly lanes. I

was rearguard, and Jones was generally two corners, ahead of me, so it was not long before I took the ditch and heard the other two engines sounding more and more faintly in the depths of the inky gloom ahead. I went to sleep till dawn. Some hours later, as I scorched along, in the dim sunrise I encountered No. 2 fast asleep beside his machine on a grassy bank. He had shared my fate, Jones having disappeared round a V bend, leaving him to cannon into a wall in the pitchy darkness.

Lamp Tragedies.

The same trio shared several long night rides, usually with rather better success, but not without occasional tragedies. On another occasion and in much colder weather Jones' machine gave us frantic trouble on a lonesome road just as night came on. Four hours later we got it running satisfactorily. We were very cold, very cross, very hungry, and our carbide as usual was almost exhausted. Once more we appointed Jones as routefinder : he knew of a cosy little inn in a village not far away, and we promised ourselves ham and eggs and a warm bed, deferring the completion of our run till the morrow. Jones went ahead with our precious reserve of carbide in his lamp, whilst I and the other man groped agonizedly through the dark lanes, rejoicing when we sighted the yellow blob of Jones' lamplight on the road. Presently we sighted lamps in cottage windows, and at last the joyful gleam from the open doors of a hostelry. Horrors! Right outside the door stood the hideous form of the village policeman; and we were in a horsey area where motorists were extremely unpopular and treated with the utmost rigour of the law. As Jones burbled up to the inn, Robinson and I dropped our feet and switched off. We dared not enter the village, and we were so cold and so hungry. We stood there shivering and aching in the dark, wondering whether Jones would evolve a suitable stunt. Jones stopped his engine, and appeared to be chatting pleasantly with Robert in the lamplight. Presently the ineffable traitor went inside the inn, and after an interminable interval reappeared wiping his lips. It was more than flesh and blood could stand. Robinson and I resolved to face the music and compel Jones to pool the resultant fines. Just as we prepared to ride in, Jones began to wrestle with his machine. We paused. Jones appeared to be finding his machine unstartable. He appealed to Robert. Robert bent down and helped to push.

The pair disappeared round the corner. Stealthily Robinson and I slipped off our belts, and wheeled our machines rapidly into the yard of the inn. In half an hour all three of us were seated at a steaming meal, and poor innocent Robert had clearly failed to distinguish the blended noise of three engines at our first approach, for we escaped without a summons.

Taking Risks.

Later on, when motorcycles became very numerous, it was possible to take liberties with the law, for the identification of offenders was not so easy. For example, I once saw a clump of seven motor-bicycles rip through a very large and dignified city in the small hours at perhaps 40 m.p.h. with but three lamps between them. This clump consisted of a guide, an End-to-End record breaker, and five "followers." Doubtless the police phoned along the road to have them stopped, but as they had planned a devious route to avoid tramlines they were never caught.

On one occasion lamp troubles seemed to have made us accessories to a minor tragedy. Two of us were nearing the fag end of a very long drive on a powerful tricar - which had electric lamps supplied from accumulators which were not kept charged by a dynamo. Thirty miles from our destination and nine miles from a town, this lighting system misbehaved after the fashion of its kind. The batteries suddenly reached the exhaustion point, and the bulbs could produce no more than a dull red glow, suggestive of a match which is just smouldering out. We knew every inch of the road, which was lonely, and decided we would risk driving on in the dark. Meanwhile the batteries would recover a trifle, and with luck they might give enough light for the safe passage of the one small town which intervened between us and home. Driving slowly on bottom gear, it was possible to feel the camber of the road, and to keep well on its centre. All went well until we were dropping down a curving slope towards a Vee road junction. Just as we neared the Vee, we heard the noise of a thousand tomato tins being dragged along the road in a springless cart. This noise was unmistakable to the practised rider of those days - it implied that a certain infamous cyclecar was approach-ing at speed. As I hastily switched on the faded lights, five bright lamps rounded the corner just below us, and the cycle-car ran full tilt on to the Vee

tongue of turf at the road junction, and capsized with a horrific noise on to the lower road. We naturally supposed that the sudden apparition of our lamps on a previously vacant road had disconcerted the unknown driver; anticipating serious trouble we placed ourselves in postures of self-defence before going to his aid. Not a bit of it. My lamps, such as they were, had lit up immediately before he rounded the corner, and his smash was due to pure carelessness. But what a wreck! His front wheels were lying perfectly flat on the road, still precariously united by their axle; and as we picked his bus up, most of the spokes dropped tinkling on to the ground.

Early Dynamo Outfits.

By about 1910 lamp troubles had become temporarily extinct, but they revived with a rush when the first electric installations for motor-bicycles were produced. Experience had made me fairly wary where novelties were concerned, and I gave these contraptions a wide berth at their first appearance. Still I was not proof against the coaxings of one inventor, who presented me free, gratis, and all for nothing, with a handsome dynamo installation for one of my machines. The set was excellent, with the exception of the battery; I should not credit this with more than ten minutes' working life in the flash-lamp beloved of schoolboys. However, as I was careful to charge the wretched thing up to the neck by doing five hours daylight work for every hour of night work, it never let me down very seriously. A few months later I was fool enough to sell the outfit to my best friend. War broke out, and he found himself in camp. After a long day with awkward recruits he would jump into the saddle and set off hotfoot for the neighbouring town, where there was a good hotel and eke a small music-hall with a stage door. To judge from his eloquent epistles the lighting set gave a beam about two miles long for five minutes; the second chapter consisted of a dull red glow, lasting about ten seconds; after which there succeeded a thick darkness, which might be felt. Leave was scarce in those days, so I felt no immediate dread, and forwarded by post sage advice about seeing that the dynamo drive did not slip (in sober fact, it slipped incurably). As the date of his first leave approached I thought it well to scrounge a Mills bomb or two in readi-ness for his avenging visit. But fate was kind. He kept his machine in the guardroom; and one night when he was

orderly dog, he caught the guard stretched luxur-iously on the guardroom floor, reading “John Bull” by the bright rays of his headlamp. Being well aware that headlamps should not be lit except when the engine is driving the dynamo, he administered stern discipline upon the guard, and apologised to me.

Modern Equipment.

At the time of writing, the modern rider can pick and choose between three excellent types of lighting. The acetylene generator sets of today are superbly con-structed. It is possible to buy cylinders of dissolved acetylene, which are sometimes awkward to carry, but give no trouble. Finally, the electric dynamo outfit is now being produced in various miniature patterns, some of which are suited even for use on lightweight machines.

XIV. THE PLEASURES OF MOTORCYCLING.

WHEN I was twelve years old, my father asked me what I should like to be. I replied,

"An engine driver or a missionary." Most boys are half-mechanic, half-idealist. The former element commonly triumphs, as it did in my case, and is very largely responsible for the existence of the motor industry. We begin by "repairing" a toy watch with the aid of a hairpin and a pat of butter. We graduate by constructing a hutch for our tame rabbits. In the wealthy days of bachelorhood we buy a bicycle, take the bearings to pieces, and lose all the balls. Later on, if fortune prospers, we purchase a motor bicycle. It may be a good machine and run well, as is the rule nowadays. It may be a bad machine, and seldom capable of running at all, as was the general experience when I served my novitiate. The alternative is unimportant. The right to tinker with it at our own sweet will is one of the principal appeals which the purchase makes; the man who buys a Rolls-Royce and employs a skilled chauffeur to drive and maintain it is psychologically an octogenarian, even though he figure in the press as one of Lloyd George's boy statesmen. The pukka motorcyclist is often quite as happy in his garage on a wet December evening with a motor-bicycle which won't go, as he is on the open road in August with a beauteous flapper on the carrier.

Not less important is the element of danger in the sport. The danger is normally of the milk-and-water pattern. Have not I covered a six-figure mileage, much of it on weird and perilous mounts, without ever injuring myself or anybody else at all seriously? A motorcyclist tumbles like a baby or a drunken man. If he is thrown he is thrown like greased lightning. There is no time to stiffen the muscles, and create the resistance which leads to a bad fracture on impact. I have gone over my handlebars at 70 miles an hour, fallen like a sack of flour, and escaped with a few aches and bruises. Nevertheless, the danger is there. The sideslip which is a mere occasion for oaths and laughter on the Grampian road would imply being juggernauted by a motorbus in the Strand. More-over, our quick wits, swift steering, ready brakes, and narrow dimensions often wriggle us out of the clutches of imminent death. This spice of danger is extremely attractive to the young in a world which is full of grand-mothers, policemen and sanitary inspectors. The Victorian adolescent spent the day at his desk, and

devoured “Westward Ho” or “Ivanhoe” in an armchair at night. The youngsters of today correct the monotonous conven-tions of business hours by scatterbrained driving at week ends on machines which are unquestionably full of lethal possibilities.

The Nomadic Spirit.

The masculine character contains other personalities besides the dormant mechanic and the potential adven-turer. If the historians are right, our forefathers were once nomadic. The inherited instinct dies hard. Man is still compelled to travel, and if his compulsory journeys are limited in range and character, he will yearn to extend them. The discomforts of other methods of travel and the genuine wanderlust combine to endow the motor-cycle with a fresh appeal. Jones lives in a villa at Willesden, and must go to the City daily. Bus, tram, tube and train will conduct him thither punctually, cheaply, and safely. Not so did his forefathers travel when winter or famine urged them towards pastures new. Furtively they crept through the forests, warily watching for the sabre-toothed tiger. The deeps of Jones’ nature yearn to recreate lost traditions; and so far as civilization permits, the motorcycle meets his need. The juggernauts of the road-electric tram, gay taxicab, rumbling motor lorry-and the curt point policeman play much the same role in his life which the mammoth and the ape assumed towards his forgotten ancestors. In both cases safety depends on personal effort. Perhaps the greasy tramline, and the rain trickling under his collar, and the numbed fingers on the steel levers tickle his manhood just as his remote grand-father was not wholly oppressed by the precarious perch in the treetops and the bite of the winter wind on his bare and hairy chest.

The Accommodating Sidecar.

Thus far none but the more strenuous aspects of motorcycling have been visualized. Contrast is the spice of life, and motorcycling proffers joys which appeal to the emasculated. Many of us - perhaps most of us - are fair-weather devotees at the shrine. A summer day, a Devon landscape, a slim young thing in a jumper, and a picnic basket furnished with saffron cake and clotted cream - these also figure in our yearly programme. There is no more popular motor vehicle than a sidecar - every young Englishman would buy one tomorrow if he could

afford it. “Never the time and the place and the loved one together,” sang Browning; but Browning was not a motorcyclist. The streets are a cold courting ground. People *will* walk into the drawing-room without knocking. That ass Brown pays impertinent attention to Miranda at the tennis club. An hour in the sidecar, a mossy bank facing the June sunset - what could youth (male or female) demand more? It is better to live in 1920 and own an 8 h.p. sidecar outfit than to have been the hero of the jousts under Edward III.

Engineers prate about the “flexibility” of the modern motor. Its flexibility is surely spiritual as well as tech-nical. The years pass, and you no longer wish to sit in the gloaming and press Eve’s fingers. You are now head of a considerable business, and the day’s worries persist in keeping your brain on the bubble when the evening meal is over. Some form of anaesthetic is necessary. Golf for most of us is merely a counter-irritant. It has its golden days, when we can picture Vardon’s dread of being drawn against us in the Open Championship; but normally we are conscious of suppressed groans in the waiting crowd when we top our drive off the first tee.

Recreation Combined with Health.

The motorcycle never fails to blow the cobwebs out of a stuffy brain. An hour in the saddle, and the week’s work simply ceases to exist, whilst the entire body is oxygenated more entirely than a week at Brighton could do it. As a healthy distraction for busy men past their first youth, the motorcycle has no equal, excepting perhaps the motorcar.

Nor should its independence be forgotten. Gloomy deans do not lie when they emphasize the slavery of life in an overcrowded democracy. The stoker may call himself a wage-slave. He is rather less of a slave than the millionaire with delicate interests in six continents and a dozen industries, less of a slave than the rising young doctor with four children to educate and an ambitious wife. On the road our intrinsic slavery is forgotten. We may go where we will, and - except in Surrey - we may go as fast as we please. The willing machine between our knees is our slave, and we are its king. Nobody except a policeman can command our obedience, and even police authority does not extend beyond the next corner - unless fate should have placed a second bobby there. During these brief hours in the saddle we be free men;

and we like the taste of it.

Travel Revives the Drooping Soul.

Finally, let a contrast be drawn between the places where men live and the places where no man lives. An unkind fate bids most of us dwell in Bayswater, Balham, Birmingham or some such place. It has no beauty; and we all love beauty, For most of our lives we are peggeddown to places which may once have been fair, but are now disfigured by trams, gin-palaces, hoardings, suburban villas, newspaper contents bills, and other unlovely objects. The smear of civilization has not yet blotted out Dartmoor or Wensleydale or Loch Maree. If we will, we may revive our drooping souls by travelling to these Survivals of Nature on the railroad. There is a curse on railroad holidays. We have forgotten how to walk. Even if we relentlessly force our reluctant legs to carry us afield, a few days ex-haust our range. We grow bored, and the end of the first week finds us oscillating between the local bars, picture palaces and hippodrome, or blinking over the latest best-seller in a most uncomfortable parlour. The motor bicycle offers us an unlimited range of travel, with absolute immunity from boredom. We need do nothing but *look,* and an everchanging vista is presented to our gaze until stern duty calls us back to civilisation.

I hate to be utilitarian, but it is true that the motorcycle is no longer of necessity an open door into fairyland. Sordid people construct it, buy it and use it for their own disgusting purposes, such as saving time or money or extending the scope of their contemptible chafferings. It has the great misfortune to be the cheapest form of fast locomotion extant; and as such it is being increasingly adopted by people who are grossly unworthy of it. Already we bear identification numbers, like postmen, convicts, and other necessary evils. Already we are taxed like bills of exchange, dog licences, and other sordid byproducts of a corrupt civilization. Before long we shall probably be marshalled along special rubber roads at set speeds. When that ill day comes I shall emigrate to a coral atoll in the South Seas with a highpower seaplane.

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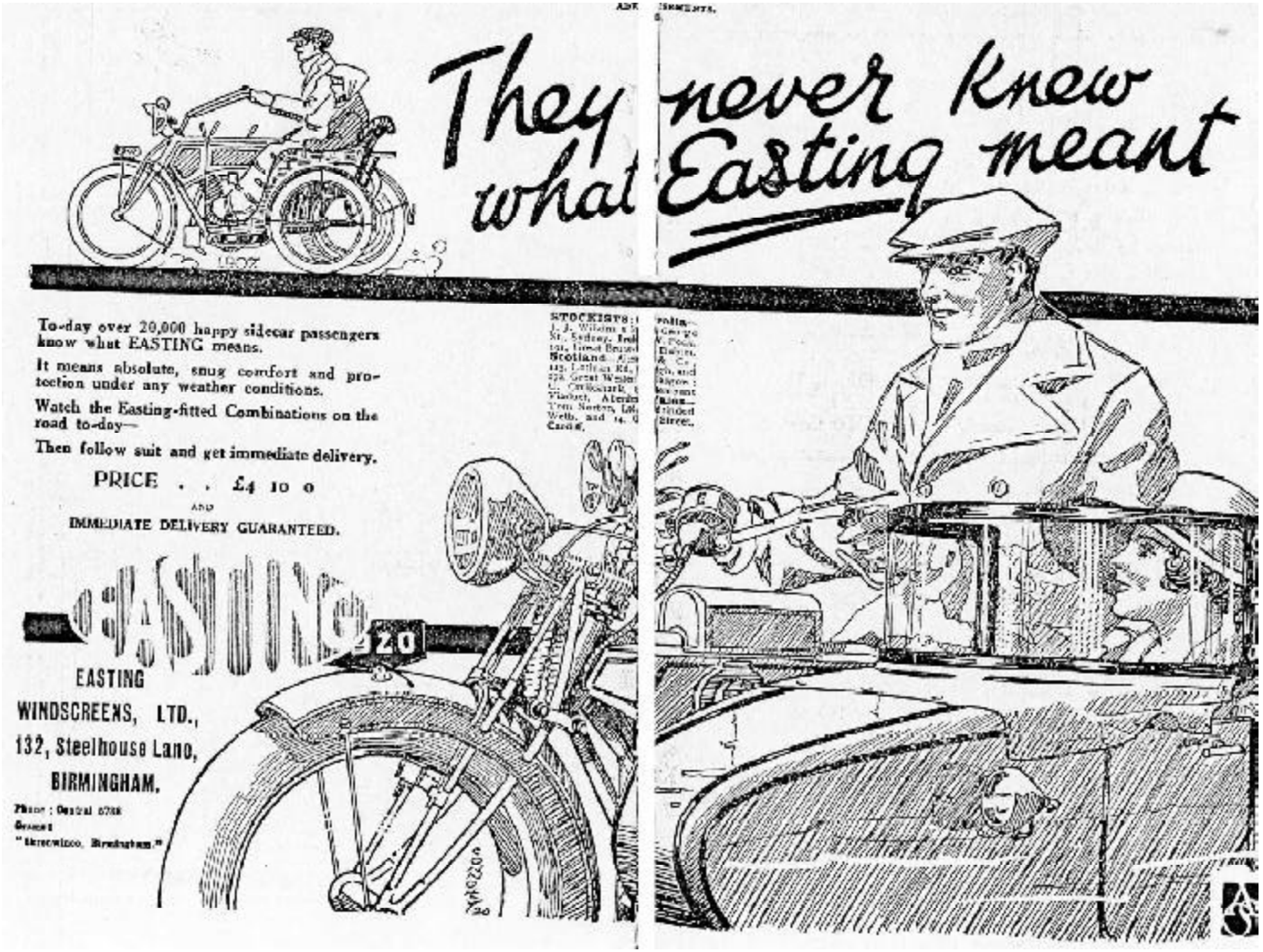
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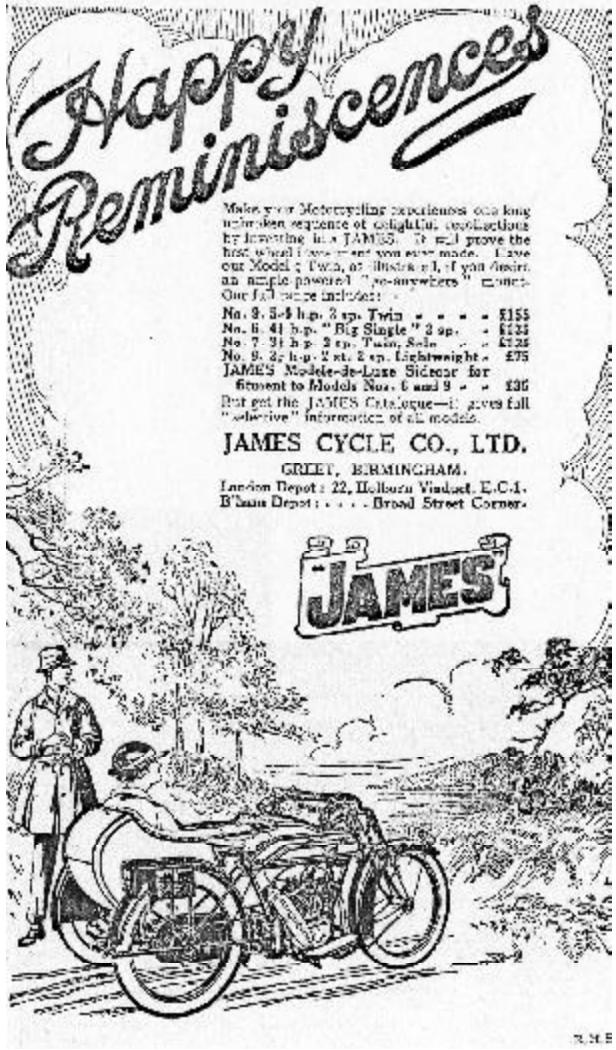
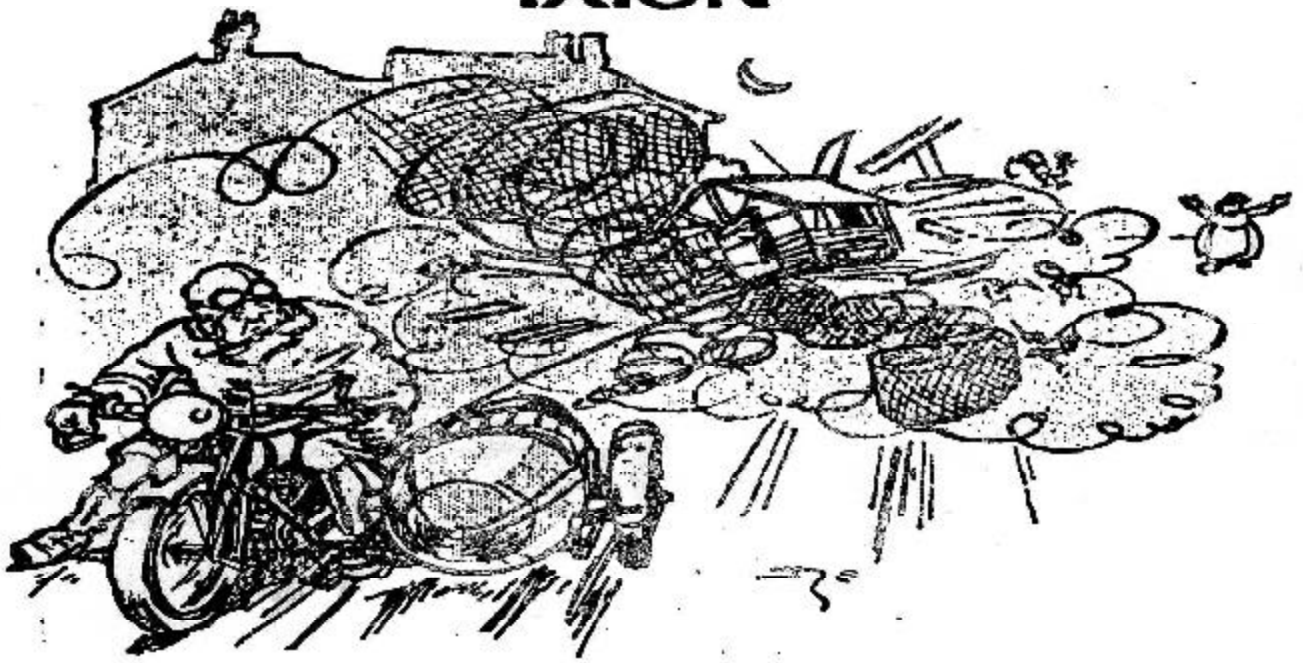


Further

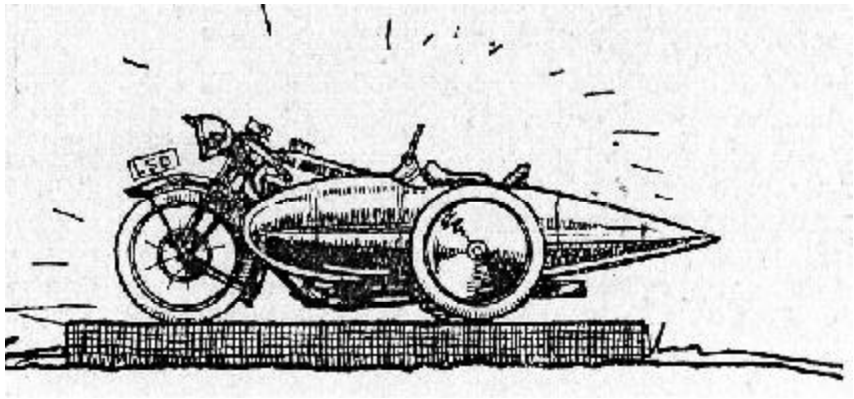
Motorcycle Reminiscences

`IXION´



NOTE TO THE READER

MY original volume of reminiscences was very kindly received by the motor cycling public. Its reception emboldens me to issue a further instalment, which I dedicate to all who sweated and suffered to make the British motor bicycle the best in the whole world.

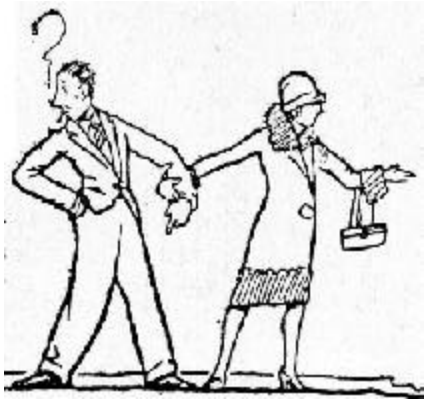


CONTENTS

I. GIRLS

WHEN you come to think of it, it is odd that although I have now reminisced in the *Blue' Un* to the tune of millions of words, I have never headed a chapter with that mystic intriguing word "Girls." It has nothing to do with *De morluis nihil nisi bonum,* for I am not so aged that any of my old flames are dead. Neither is it fear, for nobody knows who " Ixion " is, and I can camouflage the shadier incidents, so that Gladys - if she reads these pages, will not recognize them. Neither is it gallantry, for my sentiments about the fair sex are frankly Turkish. It was just that I never thought of it, so here goes. For good or evil the trail of the petticoat - or perhaps I should say in these days, the stamp of the Bolshie boot - is over most of the affairs of youthful males, and therefore over motorcycling. Negatively, as when we take up the hobby in order to avoid females. Tennis, jazzing, the cinema - these hobbies are impossible for misogynists. Today the girls even spoil rugger and cricket. Stern custodians keep them off the field of play, but nothing short of the zenana system can stop them from coming and gushing to you afterwards. . . "That last try of yours was *divine!" or* " I was *thrilled* when you hit Gregory over the sight screen!" So some young males buy motor bikes in order to escape women. Now that women are becoming keen motorcyclists, the fiercer misogynists join the flying clubs ; but even these, I am told, are being invaded. . However, it is the positive influence of women which is the more felt in our world, for very few of us are woman haters. For instance, Tom has to buy a motor bike, because if he doesn't, Joan will prefer Percy, who already has a Rough-Inferior. Or Bunty makes us buy a carrier, when we much prefer to ride minus mudguards. Or Mamie loathes pillions, and insists on a sidecar; and rather a stuffy sidecar at that, with hood and screen. Or Susie puts her foot down with a thud, and says that if we really buy that o.h.v. Norton, instead of banking the money towards furnishing, we can't really love her, and we shall never, never, never be able to get married, and all men are beasts, and we are the biggest brute that ever was, and boo-hoo! Yes, I feel extraordinarily sorry for the modern youngster with pronounced sporting instincts, and a shallow purse. He must feel almost bisected on occasions. It is hard enough at any time to find a girl who looks right, and is a decent chum, and has decent people, and a bit of money coming to her.

I feel extraordinarily sorry for the modern youngster with pronounced sporting instincts and a shallow purse.



And if on the top of all these rare qualities, she must further have her head screwed on correctly where motor cycles are concerned, hunting for one's twin soul must be something of a forlorn hope.

In my susceptible era, now long since gone by, a motor cyclist was a very rare bird indeed, and the Hopes and Prudences and Charities (as they were quaintly termed in those days) adopted a frankly experimental attitude towards the score or so of us who then existed. Few of them' knew two of us, and they didn't quite know what to make of us. It was rather as if a solitary American were suddenly to domicile himself in a Devon village. We were very strange, and therefore interesting ; but they weren't quite sure that they really liked us. But

1. GIRLS

for certain obvious drawbacks, we should unquestionably have had the pick of the basket, for a motor cycle implied money, and every daughter of Eve likes to brag over her sisters that her boy is different to their boys. Of course, she can always gush about his looks or his character, or his voice. But the other girls can gush back on those terms. If however, your boy has a motor bike, and there isn't another motor bike in the county, Eve had a cast-iron proposition which no gush could torpedo. Still, it wasn't as easy as that. Girls do like their boys to be clean; and clean I never was, at that era, or anything approaching to it. Continuous pushing of my prehistoric buses to make them start or to get them up hills, had made me lean. My skin hung in folds and crinkles. The folds and crinkles were caulked deeply with oil, carbon, road dust, and that peculiar viscous greeny-browny-grey slime which exuded from leather belts. Patent cleansers had not been invented. If I passed an endearing arm round Eve's waist, she had to get her blouse washed next morning. If I greatly dared to kiss her, it meant an hour's labour with sandpaper when she next faced her mirror, plus powder and enamel for several days afterwards. Also mamma noticed.

Not only were we personally unclean, but we speedily reduced Eve herself, poor darling, to the most appalling predicament. We took her out in a trailer. Roads were yet untarred. It took the air of a deep Devon lane half an hour to regain visibility after a 7 h.p. Panhard had churned up the Sin. dust. Grey whorls, house high, marked the passage of our back wheels; and Eve's person acted as deflector to the first whorl. Lubrication systems were crude; on occasions our exhausts were potent enough to project drops of oil two yards to the rear, and Eve's person served them as blotting paper. Hair was worn long. You raved about Eve to another girl, as you sat out at a dance. Fondly foolish, you told Gladys that Eve could sit on her hair (had she not told you so?). Gladys, blushed, simpered, looked the other way, and murmured that she could *tread* on hers. Very nice too. But after twenty miles in a trailer Eve's hair formed a sort of smoke screen astern, which entirely prevented the local bobby from perusing your number plate. This was naturally an advantage with a speed limit of 12 m.h.p. But anon you arrived at the pub where Eve and you were to have tea-probably *avec* shrimps, ordered the day before as a surprise for the dear girl. Eve

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had fought her mop of rebellious tresses all along the road, and wasn't feeling in the pink when you gallantly helped her out of the open wicker seat. She dashed for a chambermaid and requested a bedroom. Bedrooms have mirrors.

Therein her affrighted gaze beheld

1. Imitation of a rope-walk after being bombed.

2. A grey (dust) complexion with green spots (Price's A).

She probably sat down and had a good cry (these mysteries were screened from me, of course ; I guess what happened by intuition, and by the fact that she was always a darned long time about coming down again).

Then she reflected

(a) That I was rather a dear (said he modestly).

(b) That anyhow she could have a jolly good crow tomorrow over Judy and Helen and Amy, who had been pedalling push bikes in the sun.

So she cleaned and tidied, and eventually came down in not too vile a temper considering. Meanwhile, I filled in time by shortening the belt. After the shrimps, there might possibly be an affectionate interlude in a big

arm-chair. This ended, Eve would resort to the mirror again, this time the large overmantel glass in the tea-room. The sight of her hair would provoke one scream and many pats. Then she would twist herself about, and probably discover my fingerprints (I take tens in gloves) indelibly engrossed in belt-grease between her shoulders on her brand new thirty shilling blouse. That usually tore it. One Eve I loved, who bore these slings and arrows of outrageous fortune with magnificent placidity. "Oh, Ixy, *dear!"* was the worst she ever said to me after one of these catastrophes; and I fancied that I had at last met my soul's mate. We were faithful to each other for two whole years, though I had some horrible fracas with her parents, when obstreperous motors caused me to return her to the bosom of her family at 2 a.m. and such like hours. One day the trailer bar broke. What made things worse was that I never noticed she was gone.

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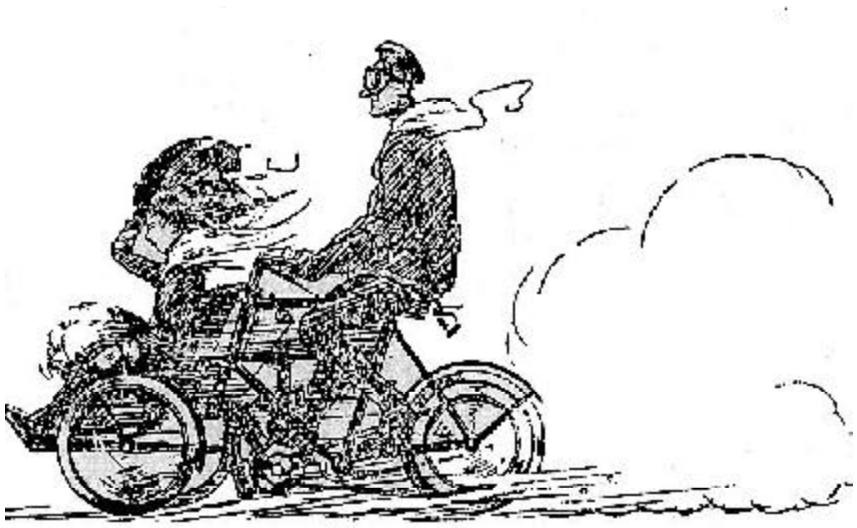
The engine was "bubbling" - old-timers will remember how the prehistoric motor bike would on rare occasions settle down and make a curious bubbly noise never emitted by a modern engine. I arrived outside the "Crab and Shrimp," switched off, dismounted, turned about, and beheld a bit of jag-ended tube dangling from the back of my seat pillar. Green with panic, for I truly adored Eve, I fled back down the road, and four miles away I sighted a wan, forlorn little figure seated in the gutter with her back against the wall, her hair down, her costume grey with dust, cuts showing in her jacket, and small dabbles of blood about her person. When the bar broke, she had turned a lovely back somersault, and stood on her mop of hair - Providence evidently arranged that the fashion of long hair should coincide with the trailer period. After that she had slowly overbalanced, and hit the part she sits on against a sharp flint projecting from the macadam. "This is the last time!" she pontificated when at last I got her into a trap. Her mother said so too. Darling Eve, if by chance you read these words, put a small prepaid in our agony column, and say you have forgiven me.

Followed a series of amorous interludes. The epitaph of most of them might be dismissed with the one word " irt." Motorcycling was a filthy pastime at this epoch, and no decent girl likes to be reduced to a scarecrow within half an hour of adorning herself for the credit of her man. Incidentally, I am very glad that the pastime was dirty. Young males are extraordinarily green in the calf stage, and not the least debt which I owe to the motor-bike is that it possibly delivered me from some of these young persons. I have met some of them since. Even the pious are said to fail to give thanksgiving its due place in their orisons; but I have uttered many a heartfelt thanksgiving when the fairy who booted me four years back introduced me to her husband and her twins or, revealed herself as having developed an extra eight stone in the interval.

Another obvious difficulty was that if there was only one motor bike in the county, Judy couldn't come out with you without the entire town discussing your affairs. Parents resent the secrecy of young humans in their first amorous adventures. But there is real practical value in a few experiments under the rose. You can drop each other, if you don't suit, without any bobbery. But if the whole of two families begin to picture you married after the first evening you have cooed -to each other, it is less simple to draw back. I think the girls of igoo felt this keenly where a motor cyclist was concerned. The whole affair was far too public; and she held back unless she was seriously attracted.

As the result of these trailer experiences, I was probably the first amateur owner of a tricar in Great Britain. The fairy would now sit in front. She would get no dust. No oil-laden exhaust would bespatter her complexion. Unfortunately the Paris studios seized this moment to decree a new kind of hat. I have forgotten the technical name for it, but I can do a word painting of its contours. Take a large meat dish, the sort a large family uses for a Sunday sirloin. Invert a teacup at one of the foci of its oval. Get several yards of pink satin ribbon about eight inches wide, and wreathe it round the teacup, finishing up the slack with a large bow. Group a few assorted fruit and flowers about the brim. Stick it on Judy's head, with an elastic passing under the bun of hair above the nape of her neck. Now picture the conduct of this colossal *chapeau* in an open forecar at forty miles an hour.

The meat-dish portion stood straight up, gradually developed flying speed, I began to tug at the elastic. Either the elastic snapped, and the hat was rescued from a ditch full of green slime - thenceforward barely fit even for a charity jumble sale - or else the elastic was new, and held. In which case the bun came adrift, Judy rose to her feet screaming, her hair came down, and she probably toppled out sideways. In any case finis was dead certain to be written across love's young dream. Nor was this the worst.



Picture the conduct of this colossal *chapeau* at forty miles an hour.

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My tricar had a single-geared belt drive and an engine of nominally 2-1/2 h.p. In those days designers thought of a number, doubled it, and that was their brake horse power. Incidentally, I lived in South Devon. So when the tricar reached a hill, I pedalled till my face looked like a gunner colonel when a waiter spills soup down his neck. As the engine died away, I would yell to Judy to jump out and push. If Judy was a fool she would try to obey; but it isn't easy to jump sideways out of a fore-car, and I remember running clean over her on one occasion. So she arranged that I was to take her up as far as I could. We then stopped while she got out. I descended, cooling the engine and myself. I then made a fresh climb under reduced load while she walked the rest of the hill. This did not work too badly for a time. But it fell on a day that her generous heart melted as I overtook her on my second ascent. The thermometer was at 100°, and rivers of sweat were pouring over my purple countenance as I stood on each pedal alternately. She tripped into the road and tried to fall in behind and help me with a push. The grade eased, and the engine accelerated. Judy behaved just like the punting novice, who is uncertain whether to remain with the pole or proceed with the

punt. She hung on like grim death, uttering little screams. My heart was thumping so after the pedalling that I never heard her. 1 was frightfully pleased because the summit was in sight and I was juggling with the twin tap control in search of an extra rev. or two. Down she went on her nose. In some manure. Heigho!

That woman has her place in the universe, the most stringent misogynist must admit. But her place is emphatically several miles away from where a motorist is executing awkward repairs. Helen came next. By this time we had a giant tricar, capable of 60 m.p.h. It had one serious fault. If the back tyre went, the rear spring on one side closed up, opening out its opposite number. The rear wheel lay over at 60°, and the machine instantly became unsteerable. You had two choices. You could either capsize in the centre of the roadway, or you could ditch the bus on the side of the road next the closed spring. One day my back tyre blew up somewhere in Hants. The ditch being soft and not too deep, whilst the road looked bony, I ditched her. Helen, devoid of technical knowledge, was unnecessarily rude. We patched up that shindy, and like a fool a week later I trained Helen over with me and the new tyre. We hauled the bus out of the pigstye of the village inn, where we had garaged it, and under a blistering sun I commenced to fit that tyre. There was no standardization in those days, and it was about an inch too small in diameter. I wrestled with it for two hours while Helen sat in an armchair and read *Forget-Me-Not.* When she'd finished the last page, she looked up at me. You could have wrung gallons out of my garments, and I had just stood up to stretch my back, and enjoy one long, eloquent, silent swear. "Won't it go on, darling? " she cooed. Well, I just blew up. "Does the blinkety, blankety, dash.... thing look as if it would go on?"

Helen made no attempt to stem the torrent of my eloquence, which I regretfully admit got rather pink in parts. She turned round, and marched straight off to the station. Her successor showed me *Forget-Me-Not* a fortnight later. I don't know if that superb journal still exists; it had a splendid "Auntie " who gave advice to damosels crossed in love. On ,"Auntie's" page an S.O.S. from a certain " H " was answered. " H " was feeling some faint pricks of conscience; ought she perhaps to have overlooked a not altogether unnatural irritation? Emphatically NO, thought "Auntie." No nice man would use the language you indicate in the presence of a girl whom he genuinely respects. "You are well rid of him." Perhaps she was; and perhaps I also can claim a deliverance.

II. CLOTHES

For a convict who had done twenty years in prison could be released into the middle of a crowd of motor cyclists checking in after a trial in bad weather, he would certainly run grave risks of throwing a fit; for it cannot be denied that we look an oddish crowd under such conditions. Indeed, a lag who had been incarcerated for a far shorter period might be moved to inextinguishable laughter at his first visit to the front at Eastbourne on a grilling August day, where gay berets and Fair Isle jerseys would probably strike him as weird. It is custom which makes clothes look smart or positively ridiculous. I have no doubt that a crowd of hooting urchins would pursue me if I ventured outside my gate in the motor-cycling costume of 1900 A.D. Yet at the time I was most certainly the envy of all the local knuts; I deemed my garb to be smart, work-manlike, and well designed for the job in hand. Shall I tell you about it?

The general effect was a cross between a Pekinese and a deep sea diver.

At that date all good "autocarists," as we were called, unless we went by the name of "chauffeur " (long since restricted to professional drivers), wore fur coats made of the pelt of an alleged China goat. Not having visited China, I do not know whether there are goats in that country, or whether the term was a trade name. Anyhow, the individual hairs of the fur were about 4 inches long, and rather coarse. The ground colour was white, with patches of pale brown and blue, and the fur bristled, instead of lying flat. We motor cyclists soon decided that these coats were unfit for our use. Car owners moved in little groups, and their normal habitat was a first-class hotel. We moved singly: our mounts often stranded us by the roadside; and a fellow who looked joke a cross between a bobtail

sheepdog and a doormat soon began to trail a queue of the populace behind him, if he dismounted. At this date motor cyclists, like cavalry in the Great War, were more often dismounted than not. So we hunted about for an alternative dress.

Being a bit of a dude, I went to Conduit Street for my first get-up. The tailor was quite dogmatic. "Owing to the great speed of autocycles, sir," he began, "the first requisite of good auto-tailoring is *warmth."* He cut me

(a) A single breasted black leather jacket with huge black buttons.

(b) A double-breasted black leather waistcoat to suit.

(c) A pair of loose black leather slacks.

(d) A black leather cap with shiny peak, such as is now worn only by the shabbier sort of taxicab driver.

(e) A pair of huge black leather gloves, with gauntlets which reached to my elbows.

He further supplied a pair of "Paris-Berlin" goggles, as worn by Rene de Knyff, Jarrott and Edge. The lenses were the size of teacups, and were mounted at the outer end of large aluminium cylinders, some 3 inches long.

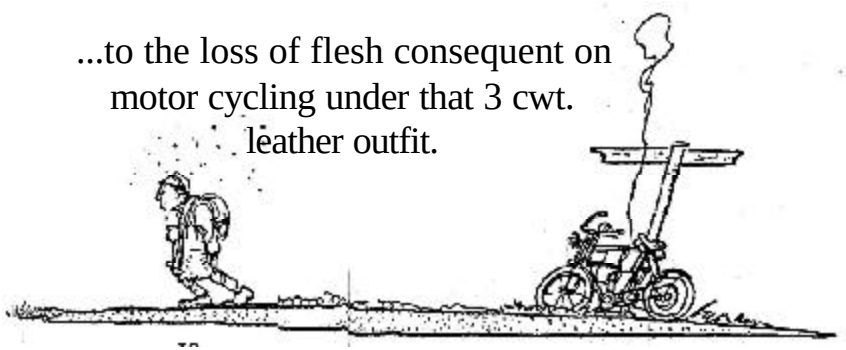
2. CLOTHES

The general effect was a cross between a Pekinese and a deep sea diver. A week later I put on the lot, and twisting round in front of Snips' pier-glass felt that I looked "some lad." On second thoughts, I had the outfit sent round to my digs, instead of wearing it afoot through the streets. This very expensive suit nearly did me one good turn. Clad in it, I looked so positively gigantic that the Oxford rugger captain, whose scrum was on the light side, asked whether I would play in a trial match. Otherwise my £20 was utterly wasted. Snips was in gross error when he alleged that motor cycling of the Zgo0 vintage was a cold sport. You began by perspiring gallons in the effort to start your engine on the stand. You continued by perspiring more gallons in pedalling it off on the road after warming up. If the road was flat, you might next conceivably cool down for a few moments, but it was only a matter of minutes before a hill necessitated either hard pedalling or harder pushing, or misfiring compelled you to pedal so that the engine might be carried over the explosion strokes on which no explosion occurred. Thick leather - and leather was leather in 1900 - was no garb for such a life.

I need hardly tell the imaginative reader that in 1900

there were no dustless roads or tarmac. Summer found our main highways covered with an inch or two of fine red or grey or brown powder, which arose in suffocating clouds at the passage of any sort of traffic - even a flock of sheep. So one's leather suit changed colour every day; and its aspect when a light drizzle melted its film of dust into a toothpaste consistency, quite baffled description.

I went to Conduit Street to curse Snips. He was suave and affable. "All the best autocarists," he assured me, "keep two suits." He produced samples of fairweather suiting. It consisted of a material called "crash" - possibly our fair readers may identify it. The suit consisted of a thin light jacket and trousers of some pale fawn material resembling the stuff they make into



...to the loss of flesh consequent on motor cycling under that 3 cwt. leather outfit.

expensive handkerchiefs, and topped by the most appalling little caplet of the same stuff. Seven guineas! I purchased, because all hopes of a rugger blue were evaporating owing to the loss of flesh consequent on motor cycling under that 3 cwt. leather outfit. I did not like my appearance in that "crash" suit, and I liked it even less after a few repairs had dabbled it with oases of grease, and a tumble or two had resulted in my landlady patching the tears with large crisscross stitches.

Ere long I had a slight go of pneumonia, engendered by pedalling till I became what Mantalini called a "dem'd moist unpleasant body and then cooling down at speed in an east wind. By this time I had sent that awful leather suit to a jumble sale, and the crash suit was reduced to garage rags, useful for mopping oil off the contact-breaker or grey slime off the leather belt. When I was convalescent, I felt the need of some new raiment, and an expert pal sent me round to another tailor, who - I am very sorry to see - is still in business, and apparently flourishing. At the time I thought him a genius. He was most sympathetic. "Why," he inquired of a puzzled universe, "should an autocarist look as if he had been recently imported from Thibet by an explorer, and had

contrived to break out of the Zoo? A gentleman should look like a gentleman. Now I have devoted much thought to chauffing attire." He beckoned to an assistant, who unrolled a huge cylinder of lovely greenery-heathery tweed. "In a suit of this a gentleman could go almost anywhere except to Windsor. By itself it would not be warm enough for high speeds. So I line it with camel fleece, camel fleece being - adequately ventilated for tropical suns, and yet so warm that the camel can lie snug in the open under night frosts. I intercept penetrating rain by a thin centre lining of the finest rubber sheet, pared as light as gold-beater's skin. This, my dear sir, is the perfect motoring garb."

I bought.

Instead of those infernal slacks, which were always getting hooked on the pedals, he gave me riding breeches, and my shapely calves looked their neatest in a pair of blocked mahogany gaiters. Full of beans, I set off for the Highlands. The suit seemed a trifle stuffy, and it dawned on me that the admirable theoretical ventilation of the camel fleece was rather blocked by the rubber sheet. However, the bus ran like a dream, and my complaints did not become serious till my timing gear gave a little screech outside Pitlochry, after which both valves became inert. I pushed into the town, and put up at Fisher's. In those days Fisher's was famous as the most exclusive, expensive and luxurious hotel in Europe. I had missed lunch that day owing to the misconduct of my engine, and I stalked into the vast dining *salon* with the most pleasurable anticipations. I gave my orders, and surveyed the assembled nobility at the surrounding tables with stares even haughtier than their own - they were, of course, scandalized at my venturing amongst them in breeches and gaiters at a date when everybody dressed for dinner. Suddenly I felt myself bursting into a hot sweat. After all, the dining room was superheated, and I had about a hundredweight of clothes on. It is difficult to look dignified when beads of burning liquid are dripping off your nose. The waiter brought a large bowl of *potage d la claasseur*. Its steam rose and smote my countenance. I waved it hastily away, though there was a gnawing sensation of hunger at my vitals. I managed the fish, but I was by this time dripping so visibly that the drip might presently be audible on the polished floor. I rose with haste. "Send a quart of bitter and a large steak to room 45," I murmured, as I fled. I came down to breakfast next morning with nothing on at all except that

suit. The mahogany gaiters abraded my bare calf. The camel fleece lining tickled my manly hide in a thousand places, whilst my underclothes vainly attempted to dry out on a chair close to my open bedroom window. But a heat wave had begun, and with nothing on except boots, gaiters, breeches and D.B. three-ply jacket, I sat and sopped. I beat another retreat, and breakfasted upstairs. After the feed, I went the round of the Pitlochry tailors. There wasn't a reach-me-down merchant among them. At long last a spare set of timing gears arrived from town, and I departed at speed, full of vengeful intentions with regard to that blinking tailor. At Edinburgh I bought a large suitcase and a ready-made kit, without which I did not stir abroad per motor cycle for several years to come. If the guilty tailor reads these lines, he may be interested to hear the fate of that awful suit. Soon after these catastrophes, a pal of mine left his country for his country's good. He tried to touch me for a fiver on his way to Liverpool, but no motor cyclist of that date ever owned anything except his bike and his debts. So I gave him the suit, and he wore it out feeding cows at 30 degrees below zero somewhere near Winnipeg on a farm owned by a German.

2. CLOTHES

The Problem Solved (?)

Ever since that date I have learnt to solve our clothing problems in the modern style, to wit, by wearing ordinary clothes as a substratum, with overalls of varying efficiency on top as a protection against wind and rain and dust. Even thus, curious pitfalls may waylay the best of us. For example, as long as repairs were of frequent occurrence, we all carried a few handy tools in our side pockets. We had to, because no known tool-bag would contain all that we might need. One season - 1911, I think - tyres were particularly dud. After various vicissitudes, I bought from Patchquick or some such person a half pound tin of rubber solution with press-lid. In a Scottish Six Days my crankshaft broke on a wild, open moor. I pushed profanely to a small hut visible on the distant horizon, ejected the poultry which it contained, and took refuge from the blinding rain until such time as the local bus (one per day) should heave in sight. "Thank heaven for tobacco," I ejaculated fervently, as my right hand dived into my side pocket. It refused to emerge. My features would have been worth a fortune to Harold Lloyd at that moment. The press-lid of my half pound tin of solution had come unpressed *en route.* I am told that

pulling candy is a popular sport in U.S.A. It is child's play to pulling half a pound of rubber solution, with the distant hope of saving one smokable gasper from the wreck.

In a certain Six Days, Loughborough's predecessor, the late Freddy Straight, garaged some of us in a stable. The sky had split that morning, and whilst other riders were, cursing the weather, knowing that their overalls were not rainproof for more than ten minutes, I had been rather unbearable at breakfast by boasting that my new Dunhill umbrella coat was drencher proof, and that its rubber neck positively excluded those filthy trickles which go down the back of one's neck with most other coats. Wheeling my bus out of the stable, the Dunhill caught on a nail whereon the stableman was wont to hang a bridle or something. Tearfully I besought the boys to sew up the split extending from my neck to my waist. But we all knew it would be difficult to keep time anyhow in such weather. The wind was astern; and viewed from the front I gave an imitation of the R.A.F. badge all morning, with two huge wings of fawn gabardine extending on each side of my soaked and unprotected back.

"Water-Cooled" Feet

That same year we had another awful day somewhere up north in a trial, of which I remember two incidents. Somebody had given me a pair of sea-boots, into which I gratefully tucked the hems of a large pair of oilskin trousers. I was too busy keeping my topheavy bus vertical to worry much about other sensations, though I had been conscious all. day that my feet felt funny. At the lunch stop the reporter of a technical paper came up to me. "Hello, old man, have you got a water-cooled engine?" " Water-cooled be blanked," I replied rudely, having had all the water I wanted that morning. He pointed to my feet. Clouds of steam were arising from my nearside boot. Aghast, I drew it off and poured out about a quart of water, which had drained off my oilskin trousers, and was nearly boiling, thanks to the proximity of the silencer. The following year I was seduced into wearing a cape which had two loops for hooking on to the handle bar after mounting, so that its front panel kept water off the machine. It worked admirably, and my magneto and carburetter came through a terrific downpour without incident. But when I dismounted, the gallon of water which had collected in the

lap of the cape poured all over my magneto and gave me a lot of bother. I cut a small drainage hole in the lap of the cape before taking the road again; but the cape died an early death when I parted company with the bus, thanks to a suicidally-minded sheep diving into my front wheel. The neck of the cape followed me into the ditch, but the bulk of the front panel elected to go on with the bus, and that was that.

I shudder to think what I must have spent on clothing since I started motorcycling. Invested in Courtaulds, it would have been . . . oh *cuss!*

III. STARTING

INCREDIBLE as it may seem, many people who bought motor cycles in early times did not succeed in starting the engine for several days.

Several bugaboos ministered to this difficulty. There was no kick-starter, pedal gear of the push bike type being provided for rotating the engine - this was nominally the sole function of the gear; but one soon learnt that its main utility was on hills. An unpractised novice could hardly hope to pedal a clutchless machine of tolerable weight along the road for any great distance, and no cold engine of the 1900-1905 vintage would start in a few yards; Why did we not run and jump? Well, we did later. But if you had never seen anybody employ this mount, the notion was rather terrifying. Besides, the engine probably wouldn't start until you had run yourself to a standstill; and if it did start and you jumped straight the engine would instantly stop.

Items of Interest

Here are some of the factors.

Item: the lubricating oil of those days was of a gluey consistency, which induced a gumminess akin to welding.

Item : the cylinder head was an amorphous casting, which distorted like a wax candle under a tropic sun.

Item : the ignition was something of a lottery at the best of times.

Item : the carburetter consisted of an inch of petrol swilling about in a sort of biscuit tin and never gassed really furiously at *low* speeds.

So the first essential was to pedal the machine off on a stand until it felt hot and free and willing. *No stand was provided. '* Indeed, for some years no stand could be bought. You had to get the local blacksmith to make one. I well remember half killing myself in the endeavour to get a new machine started by pedalling or running it along. Eventually, a brain-wave would come along. As it was the custom to mount push bikes by hopping along with one foot on a step screwed to the back wheel spindle, motor bicycles were automatically provided with such steps. As a customer might be either a right or left footed hopper, there was a step on each side. (They were needed too - one firm which I patronized in the

early days listed machines with 22, 24, 26 and 28 in. frames; the saddle of the latter sized frame must have been over a yard off the ground.) These steps were a godsend, as the machine could be supported by resting the steps across a pair of sugar boxes or other improvised supports.

This done, I injected about half a pint of paraffin into the compression tap, drew a long breath, and pedalled furiously. My tailor tells me my legs measure 37 inches from the fork to the datum line, and the standard frame of those days was perhaps 26 inches. So the surplus 11 inches of leg was disposed of above the saddle, with which my person made no contact during these operations. One literally stood on the pedals, and if a boot slipped *off* a pedal during these Herculean digs - as it was bound to do - with what a sickening thud one descended on to the tank. I might further mention that this tank-top was armed with four wooden levers, projecting some five inches apiece, and operating the ignition throttle, air and compression tap. So one ceased fire on becoming impaled.

3. STARTING

Like a Maiden's Sigh

At long last the engine would fire. There would be no hearty roar such as salutes the glad ears of the modern 'utter a few seconds after he has tickled the float chamber. The initial explosion would be a singleton, as the card-players say, and it would sound like a maiden's sigh. Still, it converted your growing despair into ardent hope. You increased the revs, of your ankling. In perhaps half a minute you would wring a genuinely audible puff from the engine. Faster and faster flew your legs, and anon a tutta-tutta would begin, and, with further pedalling, would swell into quite a regular noise. Meanwhile, the shed would be blued by the fumes of the burnt paraffin, and the Tate sugar boxes would begin to oscillate about the floor. You sat down on the saddle, toyed with the afore-mentioned quartette of levers, and inhaled blue paraffin smoke into your purple cheeks.

If you did not stop the engine by incautious use of the coarse air control, the engine was now ready for a *pukka* start on the road itself, for, having no clutch, you had to stop the engine before you could commence your ride. I once had a brain-wave, and arranged my sugar boxes so that the front wheel faced the door. I then

suborned the cook and the housemaid to up-end them as I sat on the machine with the engine running, the wire nails having been driven in towards the front corners of the crate. Never again!

If this preliminary ritual had been properly carried out, the second or real start on the road itself was seldom very arduous, especially if there was a slight fall in the road. It was, of course, possible that the engine might pull up on a compression just as your foot was shoving the pedal hard down. In that case the pedal flew back, and you might be projected violently backwards out of the saddle. More usually your foot slipped 'off the pedal and you felt as if you had stopped one of Dempsey's with your tummy. As a matter of fact, I very soon adopted the run and jump mount for start No. 2; but for start No. 1 the pedals were absolutely essential.

A moment's thought will convince the reader that the free-wheel made or marred this pedalling gear. The free-wheels for several years were of the standard push bike variety, which was never designed for such heavy duty. It could obviously play you two abominable tricks. On the one hand, it might free-wheel both ways, in which case nothing but a long, steep hill would set your machine going from cold. On the other hand, it might seize and become a fixed wheel. This was intensely dangerous. In the motor shed it meant that when your engine started, the pedals, instead of sinking into instant rest, continued revolving at increased speed. You tried to keep your feet on them, but, of course, they slipped off and inflicted horrific gashes on your calves. This explains why leather gaiters were *de rigueur* with all pioneer motor cyclists. Or they might seize on the road. The immediate action, as machine gunners call it, was a dismount.

This explains why leather gaiters were *de rigueur*

In the side of your tool-bag was a miserable little tin oilcan containing about a dessertspoonful of paraffin. (I earned many a guinea for eloquent articles, pleading that the capacity of this can should be increased to a quart.) Plenteous injections of paraffin would generally free the free-wheel again, but you had probably used all the juice to start the engine. In that case you had to continue your ride on a machine which was revolving two enormous pedals in a semi-visiblr blur, something like the scythes on the hubs of Boadicea's war chariots. Worse still were the days on which the free-wheel behaved intermittently.

.. a miserable little tin oilcan containing about a dessertspoonful of paraffin.

3. STARTING

You would be pedalling on the stand to get a start or up a hill to avert a probable push, when the pedal would slip right down from 1 o'clock to 6 o'clock, and you would feel like a man who has gone up two steps which aren't there, only more so. Anon, having breasted the hill, you would catch a mighty gasp of breath and cease pedalling, whereupon the pedals would continue revolving, hammer your ankles, and probably throw you off.

An Organist's Antics

Neither was the jump mount so peaceful as it may sound. When you leap on to the saddle of a modem machine there is nothing to do but tuck away the skirts of your overcoat, adjust your goggles, and open out. But in igoo the engine felt the sudden addition of 12 stones to its load, and its carburation was promptly upset. It probably stopped firing as a protest. You started pedalling desperately, simultaneously making lightning dabs at the levers on the tank. You would get these set somewhere about right, when a clumsy knee coming up on top dead centre of the pedal might disturb the air lever, and an unearthly silence would again descend upon the landscape, mercifully unbroken by oaths, as one had no breath left with which to swear.

.. an unearthly silence would again descend upon the landscape..

This emergency surmounted, you might enjoy a cooling down for a few minutes. But before long a misfire was certain to salute your ears. Instantly all your faculties became agog. What was this pernicious misfire? Very probably you had just crossed a pothole, which had caused the shallow pool of petrol at the bottom of the biscuit tin, miscalled a carburetter, to leap wildly, and to choke your engine with rich mixture for a revolution or two. Or the sparking plug, insulated with ordinary domestic china, might be cracking with heat. Or the platinum screw of the contact breaker might have begun to woggle. Or the exhaust valve might be seizing as one side of the cylinder head slowly expanded an inch more than the opposite side, and pulled the valve guide all cockeyed.

Probably the misfires continued and grew worse. A dismount being the last resource of despair, your brain worked tigerishly. You remembered that you had run no fresh petrol into the biscuit tin that morning. So you unscrewed a tiny cap off a nob on the tank. Out popped a small piece of wire, which was attached to a subterranean float, and indicated the depth of petrol in the tin. Meanwhile the cap rolled out of your nervous fingers and flew into the ditch. No matter. Insufficient petrol in the carburetter. You unscrewed another knob, controlling a needle valve, and ran some more juice into the biscuit tin. Joy ! The misfires ceased.

The Elements of Tragedy

Before very long a compulsory stoppage invariably occurred. Should it be of a lengthy character and befall you on the flat, all the elements of real tragedy were present. Let us suppose for the moment that you successfully traced the cause, though in all probability you

wouldn't. However, for the sake of argument, we will say that the wire from battery negative to switch had sawn itself in half against the sharp edge of the hole through which it emerged from the tin tank. You got out your knife, peeled away some insulation, plaited the naked ends of wire together, pulling out a few coils to make up the length thus sacrificed. (All wires were freely coiled in long cork-screws to render such repairs possible, and any picture of a igoo machine will betray these squiggly corkscrews outside each binding post.)

By this time the engine would be stone cold. You had no stand. All your paraffin was used up long ago. The road was flat. Why not inject petrol, do you say, gentle reader? Nothing less searching than paraffin would dissolve the carbonized oil of this period. Moreover, even if you could dope off the gummed oil, your morning run had developed two or three new warps in the cylinder.

As a rule, if the engine got really cool, there was no hope of restarting without the aid of a good steep hill. For this reason it was lucky that I lived in Devonshire where hills are plentiful. But on one mournful occasion I was stopped by a broken wire in the village of Parracombe. Its southern exit is a short hill of 1 in 5. Its northern exit is a long hill of 1 in 5. Both *up*, of course. I meekly chartered a farm cart, which conveyed me and the machine to the summit of the longer hill, down which I successfully restarted my glutinous engine.

Worse tragedies were, of course, possible. Pushing would generally bring one, sooner or later, to a hill of sorts. Paraffin was procurable at any farm or cottage. The seized free-wheel could be sluiced free. The free-wheel both ways could be faked by an earnest fellow with a hair-pin till some of its pawls gripped. In time I made it a rule to carry a spare free-wheel. But if one fell off, the pedals or cranks were sure to get damaged. And one fell off so often.

One fell off because the top-heavy machine was literally unsteerable on real grease. One fell off because one was exhausted by pedalling. One fell off because things seized or jammed. One fell off because that is the simplest way of stopping when one has no brakes and the road is blocked by anything hard, such as a traction engine.

IV. TOOLS

THE innocent reader may imagine that about A.D. 1900, as motor cycles were excessively bad, makers generously provided us with an enormous kit of tools. You credit Britain with more logic than it possesses.

The motor cycle was developed upwards from the push bike. Everybody knows what a push bike tool kit is. There are two small slots in the back rim of the saddle. From these slots there depends precariously by two flimsy straplets a tiny wallet, not unlike the case in which a society dame carries visiting cards. Within this case you find a white knitted duster of large mesh, about nine inches square ; three spanners stamped out of old biscuit tins; and a leaky oil squirt with a reservoir the size of a florin. This - neither more nor less - was bodily transferred to the first motor bikes when they were first invented.

The policy was neither so callous nor so unimaginative as you may suppose. If I may criticize it at all, I would merely say that a bolder and more logical manufacturer would not have issued any tools at all. The tools which he actually supplied were obviously worthless. An ideal tool kit, which might have fulfilled our frequent needs, would have burst a Saratoga trunk of the type which American school marms convey, to the steamer when they start to “do Yurrup.” This trunk was not portable on a motor cycle. *Ergo,* why carry any tools at all?

So those of us who served our novitiate in prehistoric days took the road gaily with this bare equipment, and in time we added to it, according to taste. The road soon developed a special instinct in me. I came to know where every blacksmith’s shop for fifty miles round was situated; and if I was faring forth into unknown counties, I con-sulted good military maps, and composed a list of the smithies along the route. At this date we disposed of our feet, when riding, in three principal ways.

No. 1. There were two little saw-toothed steps, each about three inches long, clipped to the front forks. (I soon scrapped these, because you can’t steer a fast machine with a pair of No. io boots clinging to the fork blades, and not less because the said steps used to jangle down the forks to the hub and rip the spokes out.)

No. 2. You kept your feet on the pedals, one foot up at twelve o’clock, and the other foot down at six o’clock on the opposite side.

There were two little saw-toothed steps clipped to the front forks

No. 3. You spread the pedals out horizontally, one foot forward at three o'clock, the other foot back at nine o'clock.

Then came a smash. One of the pedal cranks was bent inwards or broke off short, generally across the pedal spindle eye. If the crank was merely bent, you wended - nice word, that - your way to the next smithy, borrowed a 15-inch monkey wrench, and straightened the crank; meanwhile, you could not pedal to start. If the crank broke, one foot had to be waved in the air until you arrived at a cycle shop and bought a new crank. The cranks had to be bent, for standard straight cycle cranks would not clear the contact-breaker and other projections. So ere long I learnt it was wise to carry two spare cranks, and a colossal spanner for straightening them. These would obviously never fit into any conceivable tool bag, so I bought a rucksack, in which I disposed my spares and tools. The next discovery was that the standard tool kit contained no implement for dealing with belts. At this date our belts were of the twisted raw hide variety. All one needed was a bradawl and a knife. I bought them. I used my machine chiefly to keep appointments with sundry damsels of extraordinary charm. They

I learnt it was wise to carry two spare cranks and a colossal spanner for straightening them.

expected to be caressed at short intervals. Now even a Victorian damsel objected quite feverishly to having her chin chucked by fingers which had just been engaged in shortening a belt doped with collan oil. A small hatchet was indicated. I added one to the contents of the ruck-sack.

My knowledge of electricity at this era was comparable to my grasp of differential calculus, i.e., it was nil with a large N. So when my coil and accumulator ignition gave trouble, which it did on almost every run, my methods were painstaking rather than scientific.

I went carefully over both sides of the machine to see if every "binding post" was duly adorned with a brass terminal and a piece of black flex. There were about a dozen and a half of these binding posts.

If this survey led to no results, I tried a spare plug (of the porcelain insulator type price is at Gamage's). If the spare plug remained quiescent after ten minutes pedalling, I installed the spare accumulator, always provided that it hadn't dropped off away back somewhere. If the spare cell didn't start the engine, I pushed home.

One day I encountered a person whom I conceived to be a maniac. We had ridden some miles together, when the chuff-chuff of his engine stopped, and he threw up a hand as a distress signal. We dismounted. He carefully pulled out of his breast-pocket an object resembling a hen's egg, turned from yellow boxwood. He unscrewed it amidships, and one half revealed two short lengths of flex, tipped with metal, while the other contained a 4-volt bulb. He proceeded to apply this daintily to all his binding posts. I gazed in mute wonder. He informed me by degrees that our ignition circuits were of the 4-volt type; that there ought to be a light between any two points of the circuit which were theoretically con-nected; that if the light was white, the battery was O.K; that if the light sank to a surly pink, one had better be resigned to a push.

We were presently overjoyed that his lamp failed to light when connected across two points of his circuit ; and downcast to the nethermost pit because the wires seemed to be O.K. after all. Then I-I, if you please - spotted the fact that we had put the lamp across the contact breaker, which was open. Eventually we found a broken wire and got him going again.

Returning home, off I hurried to my dealer. He

laughed. I could have a test lamp for 4s. But all the best motor cyclists used a voltmeter at 15s. - a much more scientific instrument. Of course, no real electrician would use a shoddy instrument - the deadbeat type, as carried by Edge and Jarrott, would be 35s. I sighed. My wages were only £3, and I knew Gladys was apt to be cold if I bought no chocolates. But it had to be. However, I got value, for I showed my voltmeter to every motor cyclist I met, and though I met several who possessed meters, none of them were deadbeat like mine.

An Appropriate Name

Some weeks later that infernal voltmeter stranded me. It was a Sunday, and I wanted to go nearly 200 miles. I applied the deadbeat to the battery. The needle flew to the "4" and glued itself there quiveringly, like a Guardsman saluting Royalty. Off I went. The engine seemed to lack pep, and after a time it petered out up a ridiculously easy hill. Yet when I applied the deadbeat, I got my 4 volts all right. Some hours later a kindly cove on an antique Panhard happened along. He smiled pityingly. "That meter is no good. Your cells are probably down to 3.6 volts. Get a common or garden flash lamp." I did so when I got home; and the very first time I wanted it the bulb had gone west through keeping too close company with the coal hammer in my rucksack. In future the test lamp reposed in my breast pocket, and pill boxes full of cotton wool housed two spare bulbs, one in each of my waistcoat pockets.

For some months my rucksack received no new tenants. Came a day when something incontinently removed many of the spokes from my back wheel. I forget what it was - it may have been the sheer debility of the wheel, or it may have chanced that a stand or some other fitting slid along the tubes into the wheel. I was laboriously carted some miles to a cycle shop, where I watched a deft repairer with a spoke nipple key restore the wheel from ellipticity to rotundity. I bought his tools, and weeks later on a lonely moorside one of my wheels again dissolved. Out came the nipple key and the spare spokes from the rucksack, and I sat down on the turf kerb, full of gay confidence, to true the rebuilt wheel.

It looked uncommonly nice when I had finished. I replaced the Bowden horse-shoe rear brake with some care, as the rubber shoe had fallen out of my front brake (a spoon type, operating on top of the front tyre), and I

was then on the top of Dartmoor. When I pulled the machine off the stand, there was a sickening tinkle, and several spokes clattered into the road, fouled by the Bowden brake. I unpacked everything, and started all over again.

I soon learned that getting a wheel true is no child's play

4. TOOLS

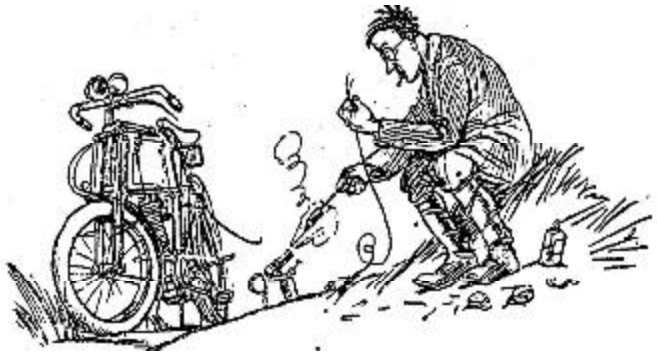
I soon learnt that getting a wheel true enough to clear a close-set horseshoe brake is no child's play. It was dusk before I finished.

Not long afterwards the Bowden wires of the outfit commenced to give trouble. Theoretically, a Bowden wire is equal to the strain of towing a derelict battle cruiser. In practice, much depends on the fitting ; and in xgoo makers left a lot of the stranded wire naked, led it round sharp corners, and committed other technical blunders which forbade its giving us of its best. The wire to the rear brake was absolutely indispensable, and on several occasions I had to hire a cart because this wire had broken. See illustration that follows...

Having seen various mechanics solder it into new nipples, I bought a soldering iron, a small phial of flux, some sticks of solder, and a pocket blowlamp, all of which duly went into the rucksack. They acted like an insurance policy, and nothing happened for weeks. At last one bleak autumn night, right on the top of Haldon, the rear brake wire snapped in two just aoove the nipple. I shortened the sheathing, trimmed off the broken wire, got out a new nipple, and tried to start the blowlamp. I had five matches left, and a gale was raging.

An hour or two later a shepherd person arrived, and sold me a box of matches. I got the lamp roaring, and thought I should soon be on the road again. Nobody had warned me that it is wise to solder up the strands of a Bowden wire before cutting it or threading it through a nipple. My fingers were numb, and it is vastly to my credit that at very long last I got that wire threaded through the nipple and soldered up securely enough for the brake to take me down the hills which separated me from bed. But the Recording Angel must have an asbestos ledger if he really got down all my remarks during the job. See illustration that follows...

4. TOOLS



By this time the rucksack was assuming quite absurd dimensions, and it was a bright thought which suggested that the local carpenter should build me a proper tool box, secured by sheet iron clamps, to the top of the carrier. Moreover, I had a birthday; and my latest flame had money. Having been up in town for the season she presented me with the best motor tool kit I have ever seen, fresh from Dunhill. It consisted of a huge pigskin wallet, opening out to 4 feet by 1 foot, fitted with clips, containing some sixty tools, all heavy implements of good quality. There were no less than five files; and I believe that in the course of the next two years every single tool in the case proved useful.

Today, some twenty-five years later, I have just sold a last season machine, of which all the tools are still virgin, excepting those used for decarbonization.

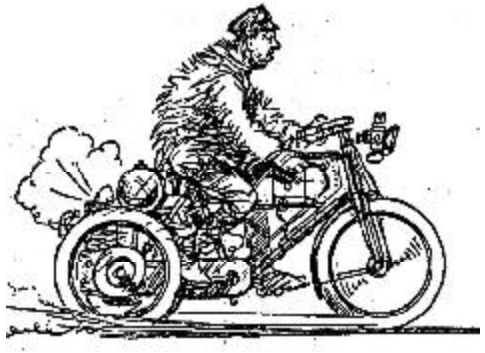
V. STANDS

SOME of us restless journalists have lately been en-gaged on a stunt in favour of easier engine starting ; and not without reason. But common gratitude impels me to own that the trade has accomplished great work in this direction within my memory.

When I started motoring, there were no motor cycles, so I most unwillingly drove a car. On entering the garage, you opened the door of a louvred cupboard in the boot of the coachwork, and with a sinking heart you sighted a huge flywheel, resembling that of a good-sized gas engine. It might be spoked, in which case it was easier to pull round. It might have a solid disc, in which case it was awkward to pull round, but couldn't grab you and haul you bodily into the gears to perish vermilionly.

Seizing a wad of waste-one kept cotton waste in all one's pockets at this era-you wiped the oil off a portion of the flywheel; cautiously "felt" the compression (if any), and then pulled and pulled and pulled and When motor cycles at last came in, I bought one with the slo-gan, "No more flywheel pulling!" My Boy Scout training in observation had led me to mark the salient fact that motor cycle engines had their flywheels covered up, so that you couldn't pull them.

For the benefit of a sheltered and cossetted genera-tion of motor cyclists, let me describe the starting of my first machine. It had no kick-starter. It had no clutch. Therefore, you had either to start it in full riding kit (which at this date implied (a) a full leather suit, or (b) a coat of China goat skin over riding breeches and leather gaiters, *plus* (c) a leather chauffeur's cap with shiny peak, without which nobody ever dreamt of taking the road. It was admittedly possible to start the engine up in ordinary clothes, stop it, don riding garb, and restart. But without exaggeration we all hated stopping an engine which had once started, because it was quite uncertain whether or when it would restart. See illustration below..



So we normally clad ourselves fully, in readiness to avail ourselves of any temporary amiability on the part of the engine ; and when the engine at last fired, we most gratefully and instantly commenced our journey.

Ignitions at this date were far, far less reliable than they are now, but they actually gave a better slow-speed spark, and were seldom to blame for nonstartitis. There were two chief culprits. No. 1 was the oil. I have no idea who made it, or for what purpose, but its action in a cold cylinder was a cross between acetylene welding and seccotine. With liberal flushings of paraffin and much leaping on the pedals, one might induce the piston to creak a millimetre or so along its stroke. As the engine could only be started by pedalling the entire machine along the road, a free piston was an indispensable preliminary.

Why did we not run and jump? Well, I have a secret belief that I invented this excellent form of starting. But at the outset it simply wasn't done. Remember that we were all ex-cyclists. There were two standard methods of starting push bikes. Under one system you straddled the back wheel with the left boot on a step screwed to the rear hub spindle. Under the other you pushed the machine and trod on the pedal of the fixed gear as it rose. My first motor bike had steps on *both* sides of its back hub spindle, and I found the hop start exhausting and undig-nified. It was so heavy to push that the pedal method was a washout. So we straddled the bus, brought one pedal to the top dead centre, trod that pedal down, and, catching the other pedal with the other foot, wobbled off, pedalling for dear life, with the compression tap open and squeaking piercingly. (The valve-lifter had not yet been invented.)

Early Carburetters

The carburetter explained the need of these lengthy pedallings. A typical example consisted of a small biscuit box, built into the tank, traversed by a perforated tin air tube, and fed with fresh fuel by a screw-down needle valve communicating with the main tank. Unless one was very cunning in using up the last drop on each run, the next start had to be made on stale petrol; and even fresh petrol did not vaporize too well unless it was (i) nicely joggled about by the vibration of the motion of the machine, and (ii) warmed by the silencer, which was located close to the carburetter for this express purpose. We

soon learnt to frequent those hotels within our radius which had been thoughtfully built on slopes ; and to avoid those which adorned a flat stretch of road. With a little ingenuity it was generally possible to locate stops on a steep down gradient. The snag came when one stayed the night anywhere, and had to store the machine for the night on the flat in a standless world. I cannot think any fen resident had the temerity to own a motor cycle at this date, though he would score by not having to ascend any hills.

As time passed we all grew very ingenious in rigging up temporary stands when away from home. Two petrol tins would serve in an emergency, the back wheel resting its two hop-steps, one on each can. Better still were a pair of packing cases, such as most garages or hotels could produce in return for *a pourboire.*

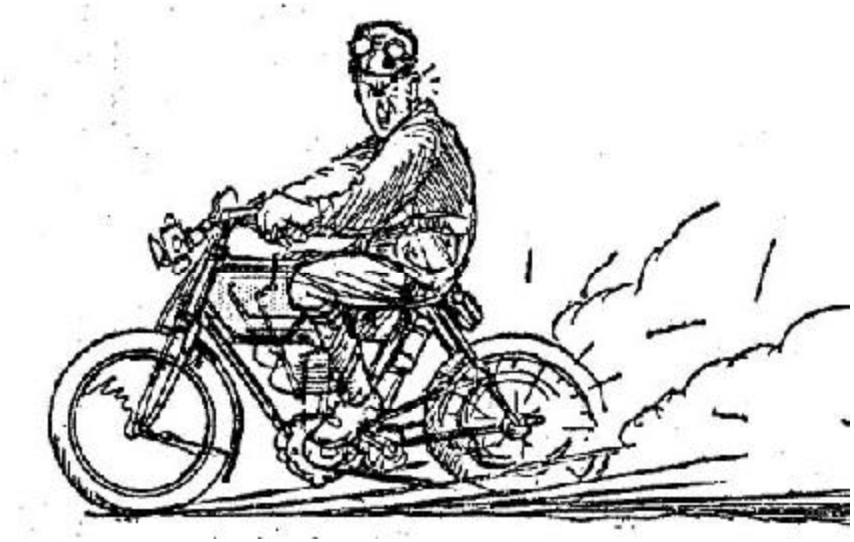
At last a brilliant genius brought out a small triangular stand-carrier or steel rod, pivoted to clips which bolted on to the rear forks. We ought to have erected a monument to his memory, for he was one of our greatest bene-factors, and I might never have lived to tell this tale but for him, such toll did engine-starting take of the heart-muscles in A.D. 1900. You cut two holes in the back of your saddle, bought a small strap, swung the stand up, fastened it to the saddle, and used the stand as a carrier, when on tour. Of course, you had to stop the engine in order to put the stand up, but at least you knew that the engine was free, and that your silencer was frying the petrol in the biscuit box before you attempted your actual road start.

I tried one experimental stunt with this stand, when I first bought it. I got two of them, and fixed one in the "up " position for road use. No. 2 I placed loosely on the concrete floor of the garage, and put the machine on it with the front wheel facing the open door. I then summoned my old Devonshire cook, who was a hefty person, scaling some sixteen stone. "When I give the word, Hannah, you are to push with all your weight against my shoulders." Hannah agreed. In ten minutes or so the engine started, and I gave the word. Hannah pushed with a will. The machine and I dived headlong forward off the stand, the back wheel, revving hard, bit the concrete well, and my front wheel hit the doorpost, twisting round at right angles, and fetching us all over on the hard floor.

Short-Lived Bliss

The next invention stood to the credit of a person called Price, if I remember aright. He evolved two dinky little steel legs, one of which was hinged to special spring brackets clipped to each chain stay, and arranged to lock in two positions, up or down. This obviated the screaming drawbacks of the combined stand carrier. On the latter you carried a spare accumulator, a case containing your razor, toothbrush, and pyjamas, several spare belts, and so forth. But the Price affair was a stand, and a stand only. I bought one and rose gleefully for a full week.

On the eighth day I was riding blithely along at about 18 m.p.h., which was a good cruising speed at this date. Suddenly a curious jingling saluted my ears. I craned my neck and peeped here and there without spotting any thing. One of the serious effects of difficult starting was that one never stopped except under sheer compulsion. The jingling grew merrier and merrier, but still I could not see anything adrift. I conceived serious intentions of voluntarily stopping my engine-incredible temerity for those days - when suddenly a fiendish scrunch saluted my ears, immediately followed by a sound all too familiar twenty-five years ago - the tinkle of disintegrated wheel spokes on the ‘ard, ‘igh road. Simultaneously the machine pulled up in its tracks as the rear wheel wilted to the contour of a huge egg. One leg of the Price stand had skipped cheerfully along the near-side chain stay until its bracket fouled the wheel and tore out all the spokes on that side.



.. the tinkle of disintegrated wheel spokes on the ‘ard, ‘igh road.

VI. CARBURETTERS

THE other day I took a 1924 machine into a garage, and one of the local bloods begged a brief trip up the road. On his return he enthused freely, but added, “Carburation a bit tricky, isn’t it ?”

By modern standards it certainly was, as a director of the firm owns a not too good carburetter, and insists on putting it on all these buses. But in 1900 this defective vaporiser would have been a positive godsend.

The crudest carburetter I ever owned consisted purely and simply of a screw-down needle valve, which one adjusted to trickle petrol into the inlet valve chamber. It died a natural death, car and all, when the inlet valve stuck open and the entire fuel tank blazed up. But the best vaporisers of that date were rather childish. The best types took the form of a tank built in two storeys. The bedroom was large and high, the ground floor was small and shallow. The two chambers communicated by a screwdown needle valve. You admitted petrol into the basement, guided by a float, the wire of which protruded through a cap on the tank top. In the basement was an air pipe, freely perforated. When the engine sucked, air bubbled up through the petrol, which mingled with the vapour produced by road vibration swishing the fuel about in the basement, which was fitted

It died a natural death, car and all, when the inlet valve stuck open and the entire fuel tank blazed up.

with baffle plates to annoy the petrol as much as possible and make it lively. Two small hand levers on the tank top controlled the throttle and the air admission respectively-they were known in print as the "twin tap." Of course, nothing but the best 0•680 sp. gr. petrol would operate such a crude device, and on rough roads the mixture always went west temporarily.

Momentary misfiring or engine stoppage over a pothole wouldn't worry us today. But *circa* 1900 the rider was generally pretty busy in other directions. To begin with, his machine was a first cousin of the giraffe. The centre of gravity coincided with one's tie pin, and holding the beastie up on grease was ever a real problem. Then one hand was usually detailed to hold some item in its place. Perhaps the accumulator; perhaps the head lamp. The other hand being urgently required for steering purposes, a series of lightning dabs at the twin tap were the eternal rule, and their adjustment was quite as sensitive as the reaction of a Flewelling wireless set.

Is it in Aesop's fables that the cat brought the milk up to the top of a thin-necked jug by dropping pebbles into the receptacle? Well, when our petrol supplies ran low, as they often did at a date when there were no regular vendors anywhere, we used to drop stones into our tanks to raise the level of the fuel over the holes in the air pipe.

Starting up could also be the deuce and all on occasion. The best 0•680 spirit could get astonishingly flat when the machine had been standing for several days with plenty of air leaks in the surface carburetter. This gadget held two or three pints, and no man could afford to drain the stale stuff away at a date when individual riders often covenanted personally with the oil syndicates and the railway folk to get their own fuel down from town in wooden boxes or large circular drums. Moreover, the functioning of the carburetter depended in part on the fact that the silencer was located close up underneath it, and the silencer was, of course, arctic in temperature when one first started up each day.

So you can picture me 'holding a red-hot poker against the silencer with one hand, and stirring up the contents of the carburetter fiercely with an egg whisk held in the other hand. Even thus, starting was apt to be uncertain.

A Real Carburetter

How I gloated when entering Gamage's one day I spotted a veritable spray carburetter, priced at 10s. 6d. So far as I remember, it consisted of a float chamber, a jet, a choke tube, and a butterfly throttle, thus giving " an incorrect mixture at all speeds," which was a 1900 cynic's definition of so-called automatic carburetters. But as our engines were mostly designed to run at one speed and one speed only, a lack of flexibility in the carburetter was no real handicap. If one jammed one's handkerchief or cap in the air intake, this cheap little vaporiser would always start the engine, and its single lever control was a great joy. It had only one other defect, viz., that its float needle was made of some now obsolete metal, which combined the appearance of brass with the consistency of butter; and the point of the needle would "shoulder" in ten miles and evaporate in fifty. Attempts to grind it in rapidly reduced it to a stump; and at last I took to carrying several spares in a needle case presented by one of my flapper friends.

Not long afterwards Mr. Pearson, of Southsea, introduced me to the current De Dion spray carburetter. It was an enormous gasometer-like creation, but I lost my heart to it on the spot, because it had a colossal fat needle, weighing about half a pound. I brought many tribulations on my pate by fitting this huge carburetter to many engines in turn. In itself it was excellent, but its weight used to break off the inlet pipe. On one occasion it held me up for an hour; its annular float had been soldered, and the mechanic in reassembling it forgot to hitch the heavy needle over the levers which raised it; he fancied that petrol would swim a solid half-pound of brass; and not suspecting him of being such a fool, I took everything else to pieces first. See below.

Then came a brief era in which the Werner Brothers, of Paris, took undisputed station as the leading motor cycle designers of the world. I bought their machine at sight, chiefly attracted by a leather pulley with flat belt drive, and humbugged by some highly unscientific state-ments about coefficients of friction. It had a spray carburetter, of course ; and they made a great talking point of the fact that the carburetter was safely ensconced *inside the tank,* where dirt could neither choke the jet nor silt up the gauze over the air intake. This peculiar location excited nothing but admiration. We already carried our batteries inside the tank, access being furnished by a sliding panel in the tank side; and what could be more excellent than to include another cupboard for the carburetter?

Unfortunately, the tank was made of very light sheet tin, and the edges of the cupboard were left razor sharp. Moreover, the carburetter gave any amount of trouble, and as it was securely embedded inside this very tiny cupboard, tools were operated with extreme difficulty and danger; a pair of leather wristlets were necessary wear for the job. I often wonder how they were assembled at the factory; probably they made the carburetter first, and then built the tank round it.

At last Brown and Barlow entered the carburetter industry and a great peace descended on this aspect of motoring.

I Try a New One

As an inveterate experimenter, I was never satisfied with what was familiar, no matter how good it was. Ere long the Triumph people sent an experimental one-lever vaporiser of their design, asking me to use it for a season and report. It behaved quite nicely and, anon, I fitted it when *The Motor Cycle* sent me North to report a Scottish trial. It fell on a day that we were traversing one of those giant moors which deface the extreme North, where the normal population consists exclusively of stags and eagles. Further, it was raining in the wholehearted fashion characteristic of those latitudes; in other words, one felt as if one was immediately below a great dam which had burst.

My engine stopped. The miserable procession sped past and I tinkered and searched, and ere long I concluded that my jet was stopped up. I wriggled the carbu-

retter off, and commenced to dismantle it. As the job proceeded, something tinkled down into the flood which marked where the road had once lain. I dived into the yeasty waters and fished. At last the object was recovered, and proved to be the top half of the jet. Its lower extremity had a somewhat irregular appearance, and my horror-stricken eyes realized that I had ripped it clean in half during dismantling. I thought intensely and fiercely. Decided after much agony that there might still be two men behind me - a rival pressman and a competitor who had struck trouble soon after breakfast. The jet being freakish in shape, I could not hope for a spare to fit; but with luck I might get some sort of fine tube which I could jam in position.

A **Good Samaritan**

The pressman appeared. “Got a spare jet?” I hailed him, as he swished through the surface water. “Nope!” he replied sourly, and disappeared. Anon came the last competitor, and he ladled two or three assorted jets into my eager hand before floundering onwards. After a solid hour’s work, what with filing and hammering and caulking clearances with a compound of rubber solution and french chalk, I contrived to jam a jet of sorts more or less into position. As the carburetter was automatic, and demanded above all things a jet of precisely the right height and delivery, my wade back to civilization on a single geared machine over the mountains with the engine firing anyhow was a nightmare. But I eventually reached a cycle shop where I was able to remarry the divorced portions of the original jet and proceed with the trial.

Reliability at Last

Since that date I do not think I have ever been stalled with real mechanical trouble due to the carburetter. The punctured float occasionally assails us, of course. We get our tanks filled up with water and eke with paraffin, though the petrol pump system has largely banished such catastrophes.

Ah! There is one more tragedy to be recorded, though I was the sole culprit. The sun was shining brilliantly, and the surrounding landscape was so worthy of admiration and study that I felt quite genial when a series of spits and bangs indicated a partially choked jet. I spat and banged up to the top of a rise whence a fine view

could be guaranteed, propped the machine against a convenient turf kerb, and sat down with my back against a stone wall to clear the jet.

As I took each part out, I laid it on a nice clean stone, pending reassembly. Having once stepped on a float when it was out of the carburetter, I carefully placed the float on the flat top of the wall above my head. The jet being vetted clear at last, I commenced reassembly, and anon stretched up rather a careless paw to reach down the float from the top of the wall. I wasn't looking what I was doing, and a clumsy finger touched the float over the far side of the wall. With a careless motor cycling oath I stood up to recover it. If our photographer had been there to record my facial expression! On the other side of the wall the ground sloped steeply to the edge of a craggy precipice, and my float was nowhere to be seen. I stripped off my overalls, and made a long circuitous pilgrimage to the foot of the cliff, but never a sign of my missing float could be found. Doubtless it decorates some predatory jackdaw's nest to this day. I proceeded by the hoary method of adjusting the petrol tap. Which is neither as easy nor as pleasant as it sounds.

Doubtless it decorates some predatory jackdaw's nest to this day.

VII. FOUR-WHEELERS

MOST motor cyclists take at least a vicarious interest in cars, and some of the veterans may have their memories stimulated if I, for once, refer to a few pre-historic four wheelers which provided interludes in the more acute misery of trying to keep two wheels revolving.

Seen through the kindly haze of time, the outlines of these vehicles are mistily indistinct, and only the major agonies which they inflicted survive in one's mind. The great grandfather of them all was a 3-1/2 h.p. Benz, which carried a horizontal single-cylinder engine of colossal dimensions and Lilliputian efficiency in a sort of drawer let into its tail.

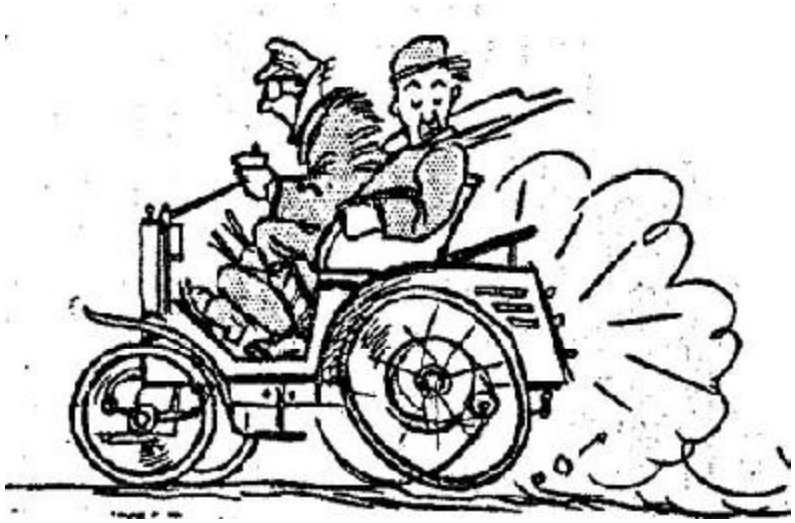
The owner of this plutocratic monster was short-winded, and I soon discovered why I received such frequent invitations to Benz with him. The engine was started by pulling round the flywheel. Being located in a receptacle like the till of a small shop, and being normally anointed with much oil, this flywheel was not too easily pulled round; and when pulled, the engine seldom responded.

I soon discovered why I received such frequent invitations to Benz with him.

If you got it going, your real troubles began. The wheels of the car were some 40 inches in diameter, and were adorned with pram tyres of solid rubber, secured partly by cement and partly by internal wires. The cement melted and the wires snapped.

Early Belts

If a tyre came off, and one testily drove home on the rim, innumerable spokes fell off, and the wheel presently became egg-shaped. Still, it wasn't my car.



.. the wheel presently became egg-shaped.

The transmission was by flat belts over a series of fast and loose pulleys, operated by a large wooden striking lever and fork. We motor cyclists know something of belts, but our worst belts in the past were at least acces-sible. I can assure all and sundry that a belt on a car is calculated to drive the coolest and most saintly man into furies compared with which the roars of a tigress robbed of its cubs are as the bleatings of a frightened lamb. This belt had a laced joint. I tackled it in all positions. I inserted myself vertically downwards into the centre of the car, as a cork enters a bottle. I crawled underneath its abdomen, and worked upwards, lying on my back. I sat on the road at the side of the car with my feet underneath it, and my tummy bent sharply over the iron step. I never discovered a comfy way of doing it.

On this belt drive the gear ratio was about 6 to 1, and the engine curled up at the least sign of a gradient. Then some genius invented the Crypto gear, an epicyclic two-speed, innocent of either lubrication or bearings.

Oil-less Gears

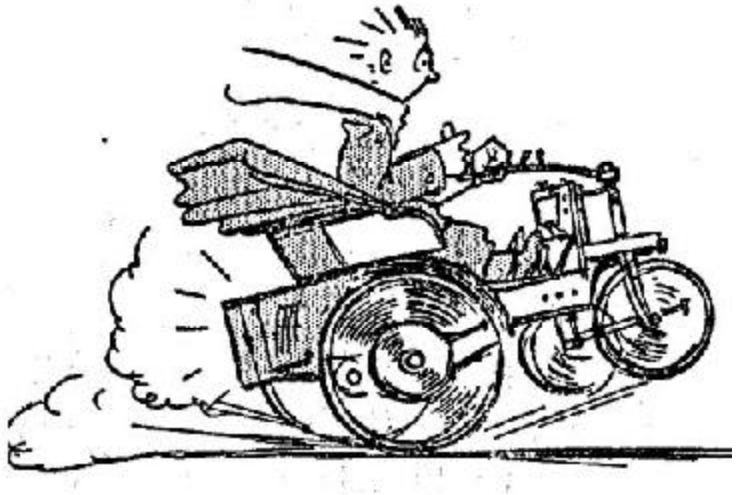
With this gear one could climb under power the first short hill encountered after buying the extra gear, though the speed literally did not exceed 3 m.p.h. By the summit the gear had probably melted or seized. You oiled it with a teaspoon. You spent precious water from the engine (which had no radiator whatsoever) in trying to cool it. You took it to pieces, and anon deliberately lost bits of it in the grass, because you could not remember where they went, and dreaded that the owner might insist on the gear being dismantled all over again if there were some pieces left over at the finish. See illustration over.

You took it to pieces, and anon deliberately lost bits of it in the grass.

The next four-wheeler which I remember was called a Eureka phaeton. Its stern portion consisted of a small hard bench for two, under which was an engine and gear and axle of sorts. Far out in front were two cycle wheels, each carried in a front fork, the forks being joined together by 1/8-in. steel rods. From one of the forks a long, horizontal steering tiller ran backwards, ornamented with a vertical 3-in. grip at its tail end. By this you steered.

7. FOUR-WHEELERS

At intervals along the horizontal tiller were set tiny wooden levers, controlling ignition, gas, gears, brakes and other things. All the weight being well astern, this contraption normally took the road like a racing hydroplane in the bay at Monaco; that is to say, only a tiny arc located at about seven o'clock on the rear tyres ever made contact with the road, the front wheels being high in the air, especially over bumps or whenever the small, fierce clutch was let in. Result - she was quite unsteerable; and as one finger at least of your steering hand was tickling some of the serried levers on the tiller, frightful things used to happen. **See below.**

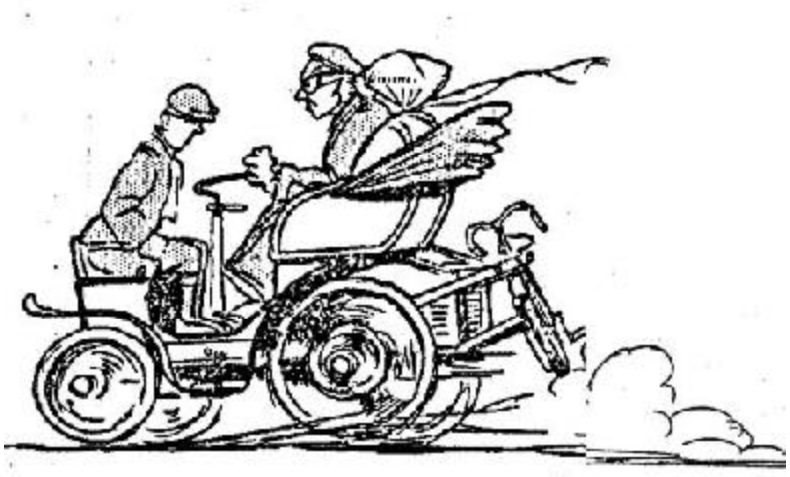


After we had capsized her six times, we found a kind home for her with a stranger a long way off, and bought a 3 h.p. De Dion voiturette. This clever little car was the real grandmother of motoring in this country, being the first usable four-wheeler ever imported. It was quaint to a degree. It had the usual “single phaeton” back seat for two - no hood, no screen, no doors. Where the bonnet and screen ought to have been, there was a rummy little erection, a sort of hybrid between *a prie-Dieu* and a hassock, on which a third passenger was seated facing backwards; he formed a useful buffer in collisions.

A Tragedy of Inaccessibility

The engine was accessibly located behind the near-side back wheel. Thereby hangs a tragedy. The car had not been in our hands many weeks before we went to a dance on it. Returning over a bleak moor at 4 a.m., the car stopped. By 7 a.m. three very draggled men in soiled and tumbled evening dress had actually tracked the fault to its lair. The platinum screw of the contact breaker ‘had slacked back from the blade. This device was mounted on the crank case, and cleared the wire spokes of the back wheel by about bin. These spokes were close-set and heavily dished - we had no screw-driver long enough to reach the part.

The draggled trio sat round the back wheel and glared at the contact breaker for upwards of an hour. We finally cut a spoke out of a front wheel, started a fire with gorse, heated the spoke, hammered and filed it into a turnscrew, mounted it in a file handle, adjusted the contact breaker, and drove home. Britons can’t be beat. Ever after, we carried a push bike slung on the tail of the car, and oftentimes it proved a very present help in trouble. See illustration below..



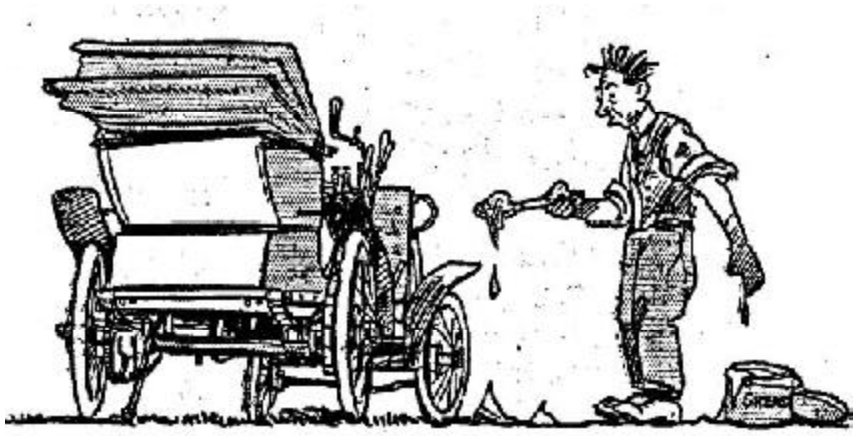
If we could resurrect the cars which followed the 3-1/2 h.p. De Dion, they would scandalize the present generation in two chief respects, apart from their quaint and appalling appearance. They were as innocent of tickover as a bad motor bike handled by a clumsy owner. Only a year or two removed from the era of the single-speed engine, devoid of a throttle, and controlled solely by changing gears, they rattled and clattered at very nearly maximum r.p.m. when they were "standing still"; of course, they never really "stood still" - they quivered and shook spasmodically, like the Emperor in *San Toy* when the lovely girl danced before him ; and one dare not switch them off, for restarting might occupy hours.

Their second peculiarity was that when the best driver took them off from rest, the front wheels raised themselves bodily off the road, and anon descended again with a little thump; if the driver were not expert the engine simultaneously stopped. It follows that to start a car in the presence of ladies was a fierce trial of one's self-control.

But ere long the coachwork became superb. The fashionable body of the day was known as a Roi des Belges tulip. All four seats were separate fauteuils, with their backs curved like the petals of a flower; my own sample had green panels, picked out with black and white lines, and it was upholstered in buttoned vermilion. One entered the rear cockpit - known as a "tonneau" - by a tiny gangway oetween the two back seats, terminating in a door and a small cast-iron step. When one reversed too hastily, this step took the brunt. It was a formidable weapon with a fierce clutch behind it, and on one occasion I brought down the best part of a friend's brick wall with it.

The prevalence of French words and French engines at this date indicates how little we in England knew about motoring, but before long ardent souls on this side the Channel began to build cars. My ever-patriotic heart mastered my judgment, and I purchased. I will not name the maker. He is still in business, and has doubtless repented. I need only say that his frame was about as rigid as four strips of Meccano, laid flat-side upwards, and bolted together at the four corners. In spite of this, he carried his crankshaft across the frame, in two brass castings, suitably drilled, and bolted to convenient holes. Except when the road was dead smooth, and the only

frame movement consisted of the natural wave of the thin side members, the crankshafts always bound; and if one wheel on one side was perceptibly higher than the other three wheels, the crankshaft practically jammed in these bearings. That is, until they had time to wear, which was not very long. So one spent an awful lot of time with a large can of grease and a wooden kitchen spoon, trying to plaster blobs of grease into the aforesaid brass cast-



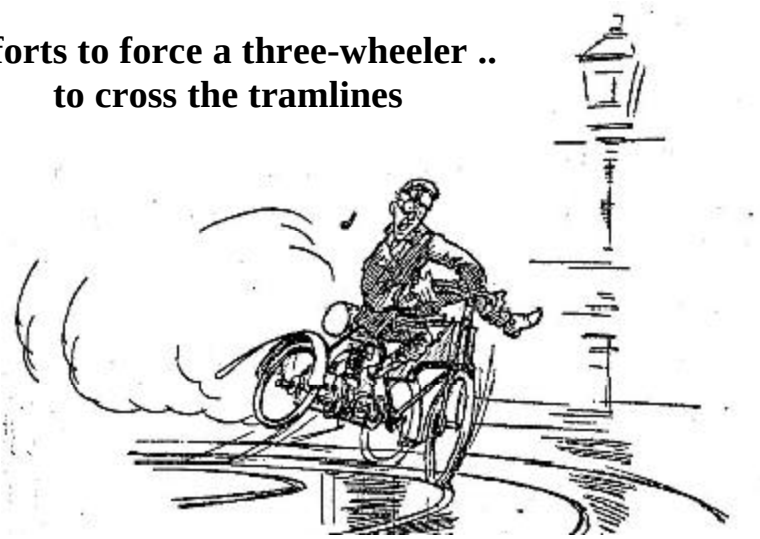
one spent an awful lot of time with a large can of grease and a wooden kitchen spoon,

ings. Even when the date is taken into consideration, it was certainly a rank bad car.

It is always an open question in my mind which type of motor vehicle skidded worst. Today one occasionally hears that it is impossible to hold a modern car or cycle on certain stretches of patent road surface with which certain surveyors have experimented. But in the early days of motoring it was really impossible to hold any motor over ordinarily bad grease. Motor bicycles were like camels, except that their centres of gravity were far higher than any camel's. Imagine a 28in. frame, a snatchy drive, and your engine mounted on a carrier above the front wheel. Picture such a mount in the Euston Road when a November fog had filmed the paving with a thin, glutinous smear!

Three-wheelers were worse. I have made five or six efforts to force a three-wheeler, dated about 1900, to cross the tramlines near the Oval Station in November; every time it has sheared right round and gone back again, whilst the hansom cabbies and growlers paused to jeer. But a few selected cars inspired an even more profound sense of helplessness.

efforts to force a three-wheeler .. to cross the tramlines



Time was when I drove the first voiturette ever turned out by the now famous house of Renault. Time may have distorted my memories, and I cannot have set eyes on a sister car for at least twenty years. But I am prepared to take a solemn affidavit that this unspeakable car was 5ft. wide, 5ft. long, and 5ft. high. It certainly approached a true cube more nearly than any other vehicle I have ever seen. You know how a Columbine in a pantomime eyes Harlequin coquettishly, extends her sinuous arms horizontally, and goes into a spin? Well, that little Renault would be chugging peacefully down the

Brixton Road, when a spot of rain would fall or she would get one of her half-inch back tyres well home in a tramline. Pst! Before you could say - well, what one *would* say - she would go into a spin, and when she would come out of it, or where she would be when she did, were matters entirely outside your control. I have recovered consciousness to find her caressingly leaning against a horsed 'bus, or with her shoulder through a shop window, or lying on her side across the tram conduit with every prospect of a chain dropping through the slot and electrocuting me.

Chitty-Bang-Bang of Long Ago

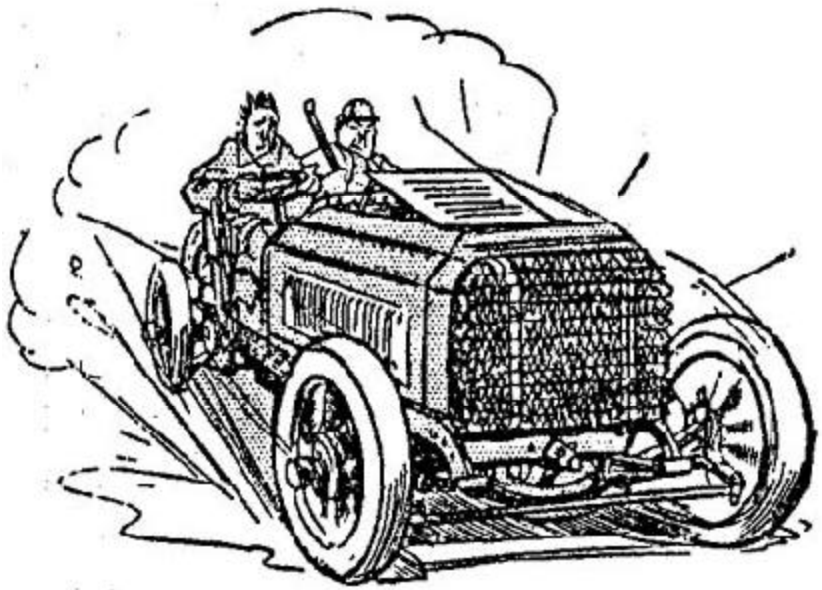
But the world's worst drive came on an occasion when I truly expected to enjoy myself. A rich pal had just bought the Chitty-Bang-Bang of those days. I rather fancy it was a 100 h.p. De Dietrich, which had recently won some big Continental race. Anyhow, he was unable to fetch it home, and he asked me to collect it from the London concessionaire's, and take it home to his place in Kent. Not knowing that all South London was " up " for the electrification of the tramways or something, I rashly consented.

At the De Dietrich depot I was rather subdued to see three gigantic French mechanics trying to start the engine with an implement resembling the sort of jemmy with which cracksmen used to burgle bank strong rooms before the acetylene blowpipe was invented. However, the manager assured me that she was a perfect lamb when she was once warmed up. By some miracle I reached the south of the Thames without incident.

Somewhere about Camberwell I collected a rather tipsy coster - a bruiser from his looks and muscle. I thrust a golden sovereign into his enormous paw, and implored him to come with me and see life. Armed with the jemmy, he proved invaluable for an hour, during which we covered perhaps three-quarters of a mile with frequent stops and restarts, the bruiser operating the jemmy on my crankshaft with a skill which created sinister suspicions about his spare-time avocation. But somewhere in Peckham the De Dietrich back-fired fired just when he was pressing down his fourteen stone most manfully.

The radiator filler cap had caught him one on the point of the jaw. But I think it was the kick in the stomach administered by the jemmy which laid him out.

The sequel proved quite expensive for my friend the owner. For when, in the grey dawn, I finally extricated. the De Dietrich from South London, I was pinched for speeding. Ah, well!



Armed with the jemmy, he proved invaluable for an hour,

VIII. TRICYCLES

AS the motor tricycle is entirely defunct, we sometimes forget that it was easily the first roadworthy motor cycle.

My own acquaintance with it had not begun in those strenuous times, when its engine was rated at 1 h.p., and when it was no uncommon occurrence for a rider to pedal continuously on the level, its sole attraction being that you had to use your legs less energetically than if you dispensed with an engine altogether. Neither did I own a machine in those stirring days, when ignition was effected by a platinum tube threaded through the wall of the com-bustion chamber, and heated externally by a petrol lamp, so that the inner red-hot extremity provided permanent pre-ignition.

On rare occasions rich friends gave me a joy-ride on such a mount, but, eager as I was, I accepted the gift warily. You see, a cross wind was apt to extinguish the petrol lamp, but the hot surroundings continued to draw fluid out of the burner tank, which was sometimes of the pressure type. When you struck a match to relight the burner, all this wet petrol flared up, the machine was destroyed instanter, and your altruistic pal touched you for £8o or so, which he applied to the purchase of a machine with electric ignition. Heaven is always just, and the primitive electric ignition generally revenged you for the swindle of which you had been the artless victim. But £8o was a lot to pay for one brief swank up the road on a motor tricycle.

When I rose to the motor-owning class, the weakest trike was rated at 1-1/2 h.p., and would genuinely run at about 14 m.p.h. along the level with modest reliability. Memory still recalls the sensation. What with horses which pardonably mistook one for a fiend escaped from some equine hell, police bristling in every whisker, and horsey interests bursting with honest British prejudice, it was wise to restrict one’s self to five or six miles an hour so long as any member of the public loomed above the horizon. Irregular ignition, carburation of the “if” type, and an engine totally innocent of balance-the machine proceeded in a series of picturesque jerks, which can only be reconstructed nowadays by running a four-cylinder engine on one cylinder, with the brakes hard on and several teeth out of the crown wheel. The progress of a tipsy man walking barefoot over broken

bottles would be smooth and direct by comparison.

Crude Transmissions

You must also add to this jerky progression an unparal-leled uproar. A small spur wheel on the crank-shaft was geared direct to a large spur wheel on the back axle. Both wheels were originally untrue, and had prob-ably run in a state of complete nudity for several hundred miles, during which grit and dust and small stones had reduced their original contours to the resemblance of a pencil after little Percy had sharpened it with his first knife. A threshing machine was quiet compared to such gearing, and there was certainly no need to carry a hooter. In broad, flat valleys one became audible long before the machine topped the skyline, and the local cattle began to prepare for action when the tricycle was a solid mile away.

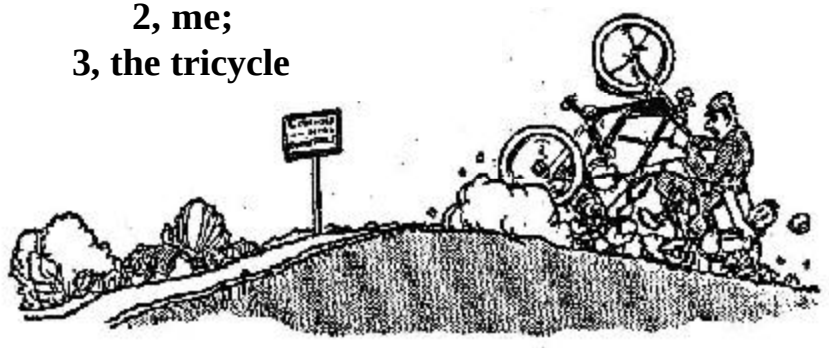
Roads, of course, were comparatively good, which might have atoned for the intrinsic shortcomings of a rigid fork if the machine had possessed the least pre-tence of balance. But it had none. The front wheel car-ried its own weight, the fork, and about a third of the diamond frame, which was usually an open panel. The rear wheels, with their heavy axle and bridge, bore the rider, the rear frame, the engine, the gearing, the tanks, the cells, and the coil. If the bus scaled 1-1/2 cwt. (I have no record of actual weight) the front wheel prob-ably took 18 lb. and the rear wheel 150 lb. plus my 14 stone. So at speed any wee hump in the road flung the front wheel up, and the trike tried to fall over backwards like a rearing horse.

A ride was one succession of Ballig Bridge effects. I soon learnt this. A small boy implored me to take him out as a pillion passenger. Easily done, as the axle bridge furnished an excellent stance for his feet, and he could stand erect with his arms round my neck or his hands on my shoulders. All went well on the level, except that the front wheel felt more lifty than usual, and I had to bend well forward.

All went well on the level,

Presently we essayed a steepish grade. As the engine plunked to an inevitable conk when my tired ankles ceased to twinkle round, young Cecil prepared to dismount. The centre of gravity shifted rearwards at speed, and the front wheel reared up at my nose. We assumed a three-ply order astern on the road. The order of the layers was: 1, Cecil; 2, me; 3, the tricycle. Fortunately, nothing caught fire.

The order of the layers was: 1, Cecil; 2, me; 3, the tricycle



8. TRICYCLES

In one small matter manufacturers were extremely generous at this date, viz., low-tension wire. Different ideals prevail today, when electricity is reliable, and its devious paths are hidden. At this era it was deliriously uncertain, and its paths had to be advertised. So literally yards of rusty black insulated flex were festooned about the machine. There was a dry cell slung from the top tube. A rotable grip control switch on the handle-bar. A coil on the axle bridge. A lever-operated contact breaker on the engine, low down astern. Some four yards of wire were strictly essential. We probably received more like fourteen yards, it being the custom to curl it like a valve spring. In use the wire shrunk. It broke, or charred, or perished, or caught on your waistcoat buttons, or got oil-soaked, or chafed through at the point where it passed through a sharp-edged hole in a tin accumu-lator case. Each new joint or repair shortened it an inch or so.

Ignition Spares

The wiring was most ingeniously arranged for the pur-poses of diagnosis. All canny riders stored a large hank of spare wire in their pocketss or toolbags. When an ignition problem baffled us, we removed each sepa-

rate wire, one at a time, inserted a fresh piece from the spare hank, and tried the engine. The really posh merchants carried a voltmeter or a glow lamp, and tested for currents between every pair of binding screws (as we then christened the terminals). For myself I eschewed this method; if I got a glow or four volts registered between the positive of the switch and the negative of the coil, I did not know whether it ought to have been there or not. So, swopping new wires for old paid me better, if it was a trifle unintelligent.

A Sturdy Job

The utter misbalancing of the De Dion machines was presently grasped by the genius who presided over the Ariel works, and anon he brought out a really good solo tricycle. The cycle portions were built on the best British lines, and the gears were cut really true of good stuff. But best of all, the engine was mounted forward of the rear axle instead of behind it, and the power was considerably increased. Some of these machines did yeoman service in hilly districts for many a long year, and I dare say one or two are running yet.

8. TRICYCLES

At this time I got bitten with a fresh De Dion stunt, the water-cooled head. Our weakness on hills was alleged to be due to overheating-no doubt considerable distortion actually occurred. So the French firm added a water-cooled head. The necessary water was carried in a tank behind the saddle. I finally became the proud owner of a French tricycle with a huge cylindrical three-compart-ment tank mounted behind the saddle. It had separate receptacles for oil, petrol, and water. Originally it had no radiator, but I soon found one was needed, and added a dozen feet of square-gilled tubing under the contraption, which then resembled a nickelled Ewart geyser laid on its side. Incidentally, the intrinsically bad balance of such a tail-heavy bus was not improved by this tank.

Early Gear Boxes

Unfortunately, these French machines were disfigured by two-speed gears. There were two popular makes-the Dupont and the Bozier. I have forgotten how they worked, and I sometimes think that their main function was to serve as brakes. Anyhow, no modern front wheel system on cars procured anything like the instanta-

neous deceleration which occurred when one threw in low gear. The friction must have been frightful. *And* the scrunch-ing ! A practised ear could probaby detect that low gear was in action two miles away. There was a clutch of sorts operated by a fork. And the forks used to drop off with sickening frequency. At least from the Dupont model. The motoring world was sharply split into -pro-Boziers and pro-Duponts. The first gear I bought was a Dupont. I never tested the Bozier. By the time I got rid of the Dupont I was hopelessly insolvent.

I **Experiment Still Further**

Prosperity returning, I ordered what ranked as the Brough Superior of those days-to wit, a Dennis Speed King, built by the well-known Guildford firm. Its de-signer was a psychologist of the first water. Not only did this unquestionably handsome mount display far more nickel than any rival, but it had polished aluminium mudguards. It treated me fairly' well on the whole.

Then the dual-purpose machine craze dawned. All motorists were youngsters. No elderly man could pro-duce the optimism demanded of motorists at this date.

8. TRICYCLES

No ageing heart or muscles could long withstand the physical drain of getting them along the road. Now every youngster has a girl. Possibly several girls. So extra seating was desirable. But since the wise youngster carefully segregates his various girls, only one extra seat was called for. This was easily provided by taking out the front wheel; substituting a two-wheeled front axle, held to the chassis by two stays to the steering head, and two more to the rear axle. Direct steering was linked up to the front fork, and a chair of sorts was slung in front by Cee springs. Behold the quadricycle

What little air had formerly reached the engine at the stern was now finally shut off. So the poor engine glowed in a pocket of warm, hot air. Nor was that my only trouble. Through a long eighteen months I tuned and tuned and tuned, but never got the ordinary results. Enlightenment came at long last one night on a lonesome moor. My automatic inlet valve dissolved into two com-ponent parts, a head and a stem, and did in the piston. There was a flaw where the head joined the stem.

One on “Portsmouth Jones”

Here I must really break off to tell a yarn against somebody else. He is still living, so I suppress his name; but he was a great man in the motor cycling world up to the war. Proud of his veterancy, he insisted on riding an old Ariel trike, long after good motor cycles had come into being. He even used to frequent big competitions on this, and stoutly aver that it was better and more com-fortable than any modem introduction. One day the big noises of the motor cycling world were massed at a hill-top in readiness for the competitors in an A.C.U. Six Days. A frightful uproar was heard approaching.

“That must be “Portsmouth Road’ Jones,” averred the Sherlock Holmes of the party, giving our hero the proud name he had earned in cycling days.

As Jones hove in sight we espied a curious flappy appearance about his antique tricycle, something like Joyce bringing the 100 m.p.h. A.C. into the pits at Brooklands. Behind Jones rode a clump of motor cy-clists, bowed over their handle-bars in paroxysms of glee. One of “Ports-mouth Road’s” rear tyres had come off the rim, and flopped itself on to the axle inside the wheel. He had ridden quite a number of miles on the naked rim in sublime ignorance of the fact. It only shows how those old tricycles used to bump.

IX. LAMPS

THE modern motor cyclist who is dissatisfied with his expensive umpteen hundred feet beam gas head lamp and yearns for some dynamo outfit should have taken up the sport in the late ‘nineties.

At that era no motor cycle lamps existed. Motor cycles were delivered with a filigree steel lamp bracket of L shape incorporated in the steering head. On this weak and treacherous support you affixed a push bike lamp. An earnest agent positively supplied my first new machine with a cycle oil lamp. Wick, 5/8-in. wide. Illumination, two glow-worm power. On the first night ride I covered two miles when the spring hinge snapped, and the pendulous lamp dangled noisily round the fork, wasting its faint yellow glow on the spoon brake above the front tyre. I completed the ride grasping that lamp with as many of the fingers of my right hand as were not required to hold the handlebar.

I bought a better lamp, which was made by Lucas, and boasted a 1-in. wick; and would add that climbing Devonshire hills on a single gear with if (nominal - very nominal) horse power behind such a lamp was rather like navigating the Channel at 30 knots in a destroyer with all lights out in 1918. But I soon found that the perpetual jogging of a rigid fork and un-balanced balanced engine jumped all the oil out of the reservoir. The wick would turn peevish when the last drop of oil disappeared. The faint yellow glow ahead would shrink to a still fainter red glow, and a most appalling smell would salute my nostrils as the wick burnt rapidly away. At the next cottage I would get neat paraffin. Paraffin, burnt in a draught without a chimney, is known to create the minimum of light and the maximum of aroma. So I next bought a candle lamp.

I loved that little candle lamp for a whole evening. It emitted no smell, it sprayed no oil dew backwards over my heather stockings, it burnt with a clear, bright light resembling that of my conscience, and if the illumination was a trifle futile, at least it was always there. Next evening I relit my candle lamp, and prepared to enjoy life. In half a mile or so the lamp went out. I examined it

by the twinkling stars, and found the candle hermetically soldered into its spring telescope by the accumulated wax melted on the previous evening.

Araminta Waits

If I had been clever, I should merely have pressed the candle-holder against the still opalescent cylinder of my engine ; there would have been a loud and instantaneous "plop!" as the released candle flew to the top of its travel; and another five minutes would have seen the waiting Araminta clinging to my manly bosom. But I was always slow-witted. So first of all, I used all my matches in trying to warm the holder without success. Then I removed the bottom cap, discovered with glee that my tyre inflator was of the right bore, stuck the inflator into the holder, as a drift to shift the candle, and hammered the inflator with my largest spanner. The inflator split from end to end, and the candle stayed put. I believe that an hour later I danced on the brutal thing, and finally hurled it and some of my tools over the hedges. Anyhow, I know that I drove without a lamp of any sort for the rest of the journey, and that Araminta was never the same to me again.

9. LAMPS

I am not quite sure when gas lamps were first introduced for push bikes, but I first encountered them seriously about 1901. My first experiments were not encouraging.

No. 1 dissolved in a sheet of flame. See below.

No. 2 fell to pieces. No. 3 was a Lucas, not much unlike those which this excellent firm still markets for pedallists. As a pedal cycle lamp it was really good. Or would have been, if there had been anybody to tell me how to manage the water drip. As it was, I turned on a little water and waited for the smell which never came.

Then I turned on a lot of water, rejoiced in the smell, singed my eyebrows in igniting the colossal rush of gas, waited till the fireworks exhibition had subsided, and took the road. Presently the light would get less and less, and I would discover enormous carbon crusts on top of the microscopic burner. I would examine the interior and find it full of a sort of grey gruel. >>>

Refilling, I would repeat the manceuvre with rather less water. This time the lamp would burn well, but one eye of the burner would be choked. Perhaps it was the front eye, in which case the glass would suddenly crack and fall into the road. Perhaps it was the back eye, in which case the reflector would come unsoldered. But one never learnt to manage the water drip, because the spring back always collapsed, just as daylight was dawning in one's bemused brain. Believe it or not, but I and most of my pals used to carry a cycle oil lamp in haversacks over our shoulders or boxes on our carriers, as a reserve to the untrustworthy gas lamps of the day.

Occasionally, there were small variations in the programme. The commonest was for the lamp-bracket of the motor cycle to snap before the spring back of the lamp gave way. These brackets were light stampings designed for push bikes, and they disliked both the weight of our super lamps and the shocks which our rigid forks administered at motor cycling speeds.

A little comparative peace descended when I at last learnt:

(1) how to manage a water drip;

(2) that Lucas lamps were the best made;

(3) that a square block of wood, thrust inside the spring back and well wired home, would hold the lamp up when the springs broke.

But night joy came from Germany. Some philanthropist named Schmidt invented a solid little self-contained gas lamp minus any spring back, and fitted with two stout prongs and a pair of sturdy handle-bar clips. When I came to know this lamp well, I positively ventured to leave my oil lamp at home.

An Electrical Monstrosity

Trouble was reborn when the paper advantages of electricity were brought to my notice. I will not name the great firm which was responsible, as it has long ago repented in sackcloth and ashes. It sent me, free, gratis and for nothing, a large black metal ark, stove-enamelled and bearing its transfer. It was designed to be lashed by metal clips and leather straps to my carrier. Inside - it there was a compartment for extra tools; a compartment to hold four separate 4-volt accumulators of 20-ampere-hours apiece ; and a tail-piece with opal regis-tration numbers and a ruby tail lamp, the latter a magnificent work of supererogation, since the law made no such demand. Switches galore garnished its inside, and out of the tangle of wires two led forwards to a neat little head lamp resembling a silvered egg cut in half.

Twenty years of technical journalism had not then taught me to look a gift horse in the mouth even more closely than one looks a bought horse. I accepted this monstrosity with youthful transport and lashed it to my carrier. Thus commenced a genuine Odyssey. I hardly know where to begin the telling of it. The carrier collapsed under this awful load - that was probably the first tragedy; and I still remember the blacksmith who built me a new carrier, and how, as we surveyed his solid handiwork together, he threw a chest and opined, "*That* won't never break, sir!" No more it did; when I last saw it, it was supporting a full-size grindstone. But it broke the chain stays. That was later. The next problem was to get the straps tight. The contraption probably weighed a good 40-lb., and two light straps passed through brazed wire cleats were inadequate to damp its antics.

One Thing after Another

As I rode along, I was conscious of this huge metal portmanteau bouncing on the carrier astern, and I felt just like an army mule when a mountain gun comes adrift on its funny-bone. The cleats fell off, and the straps tore, but finally we got it tolerably secure. By this time the accumulators were beginning to feel the strain. Not being designed for motor work - we had no invulnerable Ni-Fe cells then - each cell gradually filled up with a sludge of paste dislodged from the plates, and they shorted. True, there were four sets; if four sounds an enormous provision, remember that the quartette consisted of one ignition cell, one spare ditto, one lamp cell, one spare ditto.

So the reserve for night riding was not excessive. Especially when three of the cells shorted internally simultaneously, as occurred more than once.

The next outstanding item was the fracture of the short and outraged strap which secured the fore rim of the carrier to a slot cut in the rear edge of the saddle. The carrier then pivoted at speed backwards round the rear spindle, and the tail end of the portmanteau hit the road a fearful wump. Its piano hinge flew out, and a perfect fountain of accumulators sprayed out in graceful parabolas, fetching up short as they drew their wires taut. In course of the aforesaid wump the opal number plate and tail lamp met their latter end, and for the first time I nourished vile dreams of consigning my most prized accessory to the scrap heap. Later that day, still seated on the road, still endeavouring with a fundamentally non-electric brain to find one cell with some juice in it, and eke to decide which wires in the tangle led to the contact breaker and which to the head lamp, my dream hardened into decision. When I got home, I flung that black metal portmanteau into a disused quarry which my household used as an ash-pit. It is well I did; for another month of that contraption would have cured my motor cycling fever for ever.

9. LAMPS

Better Days

For long years after that I knew peace. Really good acetylene lamps had begun to make their appearance. Occasions there have certainly been when I have found my generator waterless on some houseless stretch; and filling a generator by immersing it in a stream is a slow job. In December it is also a cold job. I have also found myself minus carbide, and had to wait for a cyclist to pass.

I have also found my one and only burner stuffed up and I do not know whether there is a worse job in the universe than trying to blow a burner clear with an inflator which does not fit, or trying to reamer it with a strand of Bowden wire pinched off the valve lifter cable. But, broadly speaking, since 1910 or so gas lamps have been good, if used wisely.

..found my one and only burner stuffed up..

Later on, a second electric era began to dawn, and my nocturnal sufferings recommenced. Bad batteries and worse dynamo drives were the rule for a year or two. The cells were usually ridiculously tiny, and there was nothing to show whether the dynamo was actually charging or not. One would start after dusk to ride from, let us say, London to Bristol. Wriggling out through 'the crowded suburbs, one would rejoice in a beam which seemed a quarter of a mile long, and picture in fancy the speed to be indulged in half an hour later. Along the penultimate tramline that joyous beam would begin to contract incredibly. Towards the verge of the last suburb there would be no beam left, and a prehensile neck, twisted forwards and round to the front of the lamp, would confirm the horrid suspicion - the filament had turned into dull emitter, as the wireless men happily term it.

.. a prehensile neck, twisted forwards and round to the front of the lamp ..

9. LAMPS

Plonk went the brake, and investigation would show that the belt had dropped off the dynamo in Hyde Park, or that the small rubber friction wheel which worked against the belt rim had peeled off all its rubber. So one hastily put up at the "Pint and Cockchafer," or whatever loathly little beer-house would reduce the inevitable push to the fewest yards. Next morning one's pen scarified the paper, and the inventor sent you down another rubber friction wheel or a new belt, as the case might be. And still the microscopic battery joggled freely up and down in its tiny little tin test-tube-of-a-case, and played its worst pranks at the most awkward moments.

Still, in their sprightliest moods, the modern electric installation can never hit you quite so hard as the prehistoric lamps of earlier eras. For today trouble with the motor cycle need not be taken into account. It simply does not happen. But in the 'nineties and early days of the twentieth century, the chief purpose of a lamp was NOT - as the salad innocent might suppose - to illuminate the road. It was rather to illuminate the MACHINE, when the latter misbehaved, as it inevitably did by night as by day. The more vulnerable elements of the motor cycle of those days were housed inside the tank, where

the coil and accumulator lived amidst a maze of shabby, emaciated black wires, resembling Lilliputian duplicas of the charred sausages served at the baser type of slum eating-house. Plenty of light was needed to investigate these mysteries; and without light it was unsafe to proceed.

In good weather I bothered very little about lighting up the road. I lived in a county where police were few, and mostly my personal friends. Traffic was scarce.

A Wonderful Switch

In the modern era the chief tragedy in my memory befell a pal who was a fine amateur mechanic. His electric installation included a huge rotary switch, ostentatiously labelled with the legend that it must on no account be rotated other than clockwise. This construction betrayed its designer's crass ignorance of psychology. Whenever the machine took a lonely rest at the kerbside, some small boy would spot the legend, and investigate its truth by forcibly rotating the switch anti-clockwise. It would then jam, and when its returning owner discovered the catastrophe, a heavy repair bill followed from the parent factory.

And What Became of It

At last our A.M.I.M.E. grew desperate. "I will convert this blamed switch," quoth he, " till it can safely be rotated to either hand." Like staunch friends we collected in a respectful circle to watch the conversion. His deft hands withdrew a bolt here and a stud there, till the den of mystery began to gape. Just so did Howard Carter feel when his pickaxe pulled the first shard out of the wall which sealed Tutsnkhamen's tomb. But the sequel was less happy. There was a loud spanging noise. Myriad of little screws and springs and contact blades dispersed themselves like slivers of high-explosive shell to the four corners of the workshop. Like all clever amateur mechanics, my pal had collected an astounding collection of junk. In the course of the centuries it had grown dusty. Grime-streaked and perspiring, we counted the collection two hours later. By no feat of genius or imagination could the resulting parts be stretched to. form a switch. He ripped the one sad remnant - an amorphous casing - off the machine, and anon constructed a new, smaller, and simpler switch, which bore no legend, and would turn both ways. On which note of triumph and hope I close my mournful tale.

X. REPAIRS

ONCE owned a country cottage with a well which ran dry every summer.

This was supplemented by an immense subterranean rain-water tank with concrete lining. One summer a drought came, the well ran dry, and we resorted to the rain-water tank. It contained just two inches of slime. So I sent an S.O.S. to the local handyman, who pronounced that the concrete lining was defective, spent two days underground in the slime, and sent in a bill for £8. We got through that year's drought somehow, and when the next summer grew arid, I revelled in the thought that my large tank was as tight as a drum. But, alas 1 when we began to draw on it, all it contained was one inch of slime. This time I firmly made a personal inspection. Nothing had ever been the matter, except that a dead rat was wedged with leaves in the inlet pipe.

Repair Shop Fortunes

This small experience of the ways of the less intelligent type of professional man explains why motor cycle repairs used to cost us such a fortune in the early days. I

have just unearthed my first repair bill (for over £40) from a local garage. It is dated 1902, and the most frequent item is - I will give anybody a thousand guesses-" to grinding in carburetter needle valve, 7s. 6d." In this connection I make two pungent remarks. First, it is extremely doubtful whether that needle valve developed a shoulder every three days, as the bill suggests; secondly, if it did, no sane repairer would grind it, a new part of better stuff being loudly indicated. But I was ignorant. The repairer was either ignorant or a rogue (probably both). And that's that.

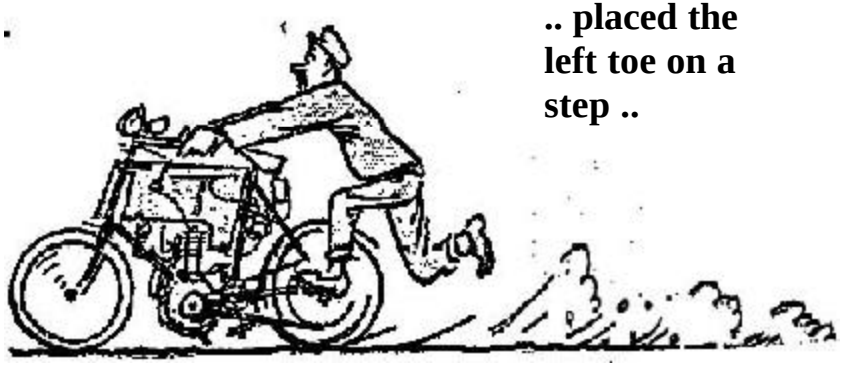
The secret history of that machine is that its valves were made of putty and its piston rings of cream cheese. Consequently, it never ran decently. When it baffled me, I pedalled it round to Sharkey and Fleece, who were also baffled. They rode it up and down the road, and noticed that the carburetter dripped. How could the poor carburetter help dripping when an engine, devoid of balance and lightly clipped to a remarkably whippy-frame, was bouncing a light float violently up and down? So they made a nice, regular income at my expense.

Queer Repairs

The other items will sound strange to youthful. ears.

Straightening the pedals " was a heavy debit. The neighbourhood was hilly and greaseful. The machine had just one gear. To suit my lanky limbs, it had been specially constructed with a z8in. frame (all the best makers offered frames ranging from 22in. to 3oin. in those days, as a good pedalling position was the most vital element in design). On a greasy corner the outfit was probably less stable than the old " penny-farthing " type of push bike, for the belt had to be as tight as a towing hawser to grip at all, and the smooth back tyre used to " snatch " abominably, while the centre of gravity was, perhaps, aft. above the road.

Once the pedals were bent in a tumble, engine starting became a fierce problem. There was, of course, no clutch. The normal system was to warm up the engine by pedalling it furiously on the stand. The latter consisted of a trian-gulated steel girder construction, hinged to the rear spindle, and fastened to the back of the saddle by a small strap when out of use. Having warmed up, we restrapped the stand, stood behind the back wheel, extended a pair of sinuous arms to the handlebar, placed the left toe on a step (yes, on *a step!)* screwed to the rear spindle, and hopped vigorously. Since the compression was as gentle as a maiden's sigh, the engine did not willingly fire. But when it fired, and one leapt forward and upwards - in a word, saddlewards - the engine subsided while we were in mid-air, and the hopping process recommenced *ad lib*.



.. placed the left toe on a step ..

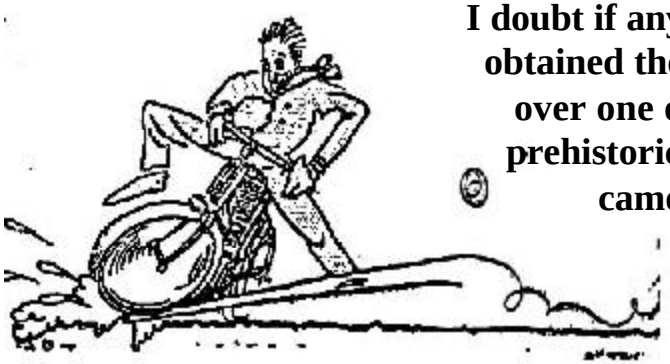
Why did we not employ the manly run-and-jump applied to B.R.S. Nortons of a later day? Gentle reader, have some pity. Push bike traditions practically forced this step-hopping business on us; it was bred in the bone, so to speak. Then the height of the machine; the

exiguity of the saddle; the number of spiky parts on which one might (and often - did) semi-debag oneself; the aptness of the high, top-heavy mount to lie down in the road. . . . I occasionally managed to jump mount from the side. But not at first. The unfamiliar bark of the engine and the consciousness that one was the only motorcyclist in the county, and locally regarded as a dangerous lunatic - these factors also repressed enterprise. However, I have at least made it clear that straight pedals were needful. Some cowardly wights habitually carried enormous black-smith's pipe wrenches on their person or machine for this sole purpose. Those who did not soon regretted the omission.

A Little Matter of Brakes

Another heavy item in the bill goes to explain the present opulent position of the Bowden people. My front brake was quite good. Under the right handle-bar grip was a huge plated, scimitar-like piece of metal, for all the world resembling a field-marshal's sword of ceremony before sharpening. This ultimately applied a large india-rubber shoe to the top arc of the front tyre; and when the tyre was dry, the stopping power of this brake was quite good. Since - for reasons to be stated - it was never possible to brake the rear wheel perceptibly, the chief purpose of the front brake was to induce colossal skids.

A bold rider may hope to correct the skids of a modern low-built machine. I doubt if anybody ever obtained the mastery over one of those prehistoric petrol-camels when it chose to skid. I never did. So I came to distrust that front brake. It would stop the front wheel dead. The front wheel would then cease to revolve and sledge slowly through the mud. The undecelerated back wheel, fretting under the curb, would pivot violently to right or left; and my body would ricochet through space in a series of graceful curves, just like the hammer when Nokes throws it at Queen's Club. So I devoted great thought to my rear brake.



I doubt if anybody ever obtained the mastery over one of those prehistoric petrol-camels

The Bowden people will forgive me if I describe it with that mellow malice which the years bring to all philosophers. The rear forks were crossed just above the tyre by a small plated bridge, containing an adjustable stop for the Bowden wire. Like my carburetter needle, the wee threads of this adjuster confessed that the engine vibration had them whacked to the wide. Short of soldering the adjuster up solid, nothing would make it hold. Beneath were two large steel crescents on. a pivot, their lower ends precariously supporting two small fibre shoes. These shoes were nominally kept off the rim by two microscopic coil springs, hooked into wafer steel clips, bolted round the fork tubes on top of paper packings. Supposing the wire held, and the adjuster did not slack back, and the steel crescents balanced themselves instead of getting cock-eyed and deftly pushing one brake shoe into the spokes, and the pull-off springs did not haul their anchorages bodily up the tubes; why, then, the fibre shoes could not hope to get any grip on a light rim which had been ham-mered into hummocks by the ‘ard, ‘igh road. The Bowden people were most courteous. When I pointed out that this construction entailed 2-in. of naked wire, and that rust disintegrated the said wire rapidly (my local rainfall was 64in. p.a.), they graciously sent me free of all charge two inches of small rubber tube, wherewith to protect the naked portion from the fury of the elements. But in all courtesy I plead that it was a bad brake.

Next in costliness ranks the contact breaker. My ignition was, of course, coil and accumulator, the primary circuit being broken by a small, pear-shaped device on the timing gear. This consisted of a movable and insulated base, on which were two tiny pillars, respectively support-ing a platinum screw, and a spring blade containing a platinum rivet. The whole was encased in a light pressing of tinfoil, and, without prejudice to *l’entente cordiale,* truth compels me to add that it was made in France. The adjustment of the platinum points was far more vital than it is on a magneto; and, like everything else, these small screws wilted their ineffectual threads under stress of the unparalleled engine vibration. Water and mud were splashed freely over the whole affair, and short-circuited one’s batteries. Finally, imagine a rider (with No. 10 boots) reduced to the pathological condition of a losing ‘Varsity stroke at Barnes Bridge, endeavouring to pedal a machine ten yards further up a

bad hill, with every circuit of the pedals taking that No. 10 boot past the contact breaker at a gap of 2mm.; and you can understand why I bought three new contact breakers in one season.

Valve Grinding

I further notice vindictively that my exhaust valve was ground in once a week. In fact, in one black week it seems to have been ground in no less than four times. Why did I not tackle this simple job myself? To begin, I was very green. To go on, my trade mentor assured me 'that many cylinders were ruined by duffers who insisted on grinding in their valves with a screw-driver or a brace. Now, so he averred, accuracy demanded the use of a lathe. I had not got a lathe. He had. I thought of buying one for the purpose. Till I saw his bill. So weekly, or oftener, according to the exact point at which heavy pedal assistance became necessary on the half-mile of 1 in 17 leading to my house, off came the cylinder, and on to his lathe went my valve. There were three lamp-posts on that hill-I can see them now. When the machine was new, it took the entire hill unassisted. Ever afterwards the lamp-posts and repairs formed a sort of geometric progression.

10. REPAIRS

L.P.A. (light pedal assistance) at top lamp-post - grind in carburetter needle.

L.P.A. at penultimate lamp-post - grind in exhaust valve.

L.P.A. at bottom lamp-post - grind in everything.

I observe with sorrow that I also bought three new accumu-lators during the season. This is not surprising. Our batteries at this date reposed in a special compartment of the tin tank, the door being secured by two skewer hinges. This compartment was unlined - none of those neat cemented rubber pads which one gets in a modem case. From this cubby hole umpteen low-tension wires of great length and inferior quality proceeded to various portions of the machine. They emerged from their secret lair through unbushed holes punched on the sides of the tank. In due course the sharp rims of the holes abraded the insulation, or even cut the stranded copper clean through. Meantime, the engine vibration (see above, *Passim)* joggled the battery up and down. Its plates did not stand on porcelain feet, as nowadays, to raise them above the paste sludge. So the paste fell out of the plates and shorted them internally. Or the

terminals hit the top of the tank, and shorted the cells externally. Or the much-tried celluloid walls of the cells parted company at their angles, and let all the acid out.

Remarkable Foresight

Incredible to relate, when my 1902 machine arrived, its cells were wedged into their tin compartment by bits of cardboard ripped off the box in which a pair of ladies' boots had been supplied. The machine was probably the first ever actually sold from its factory. I like to think that the entire staff assisted at its erection and despatch. It is a romantic thought that the managing director's stenographer was perhaps the sole member of the staff who had undertaken no mechanical function in its production. I see her standing apart and tearful in a corner of the packing-room. Suddenly the lynx-eyed works manager ejaculates, "That battery needs some packing." Men scurry to and fro. Suddenly Gladys strikes her brow with one lily-white hand. She dives to the cupboard where the girls keep their mackintoshes, drags her new boots from their box, and pleadingly extends the crushed carton. The men seize it, and squeeze bits of it round my cell. Gladys goes home full of smiles, scandalizing the neighbours by carrying the new boots naked in her hand.

My end of the incident was less picturesque. The vents jumped out of the cells. The acid jumped out of the vent-holes. The acid demoralized the cardboard of the boot-box. The cell, no longer packed, began to jump about. It pressed its brass terminals firmly against the lid of the tin compartment. They shorted. A fizz, a buckle, and a bill!

The new cell, I see, was rather expensive. Some heavy fellow, who had shared experiences such as mine, brought out an accumulator filled with jelly. This non-fluid electrolyte, as he pointed out in page advertisements, *could* not spill. "Unspillable" was the slogan intended to make his fortune. It didn't. I invested. An accumulator weighing eight or nine pounds can chew almost any packing to rags in a very few miles, with the aid of a bucking broncho type of engine. A holy peace descended on' me with the advent of that cell. For a time. Then one day I noticed a species of eczema on the top of my tank. I applied various cleansers. All in vain. At last the truth dawned. Jelly may not flow, but it can be flung.

What did I get in return for this £40 bill? Well, here is a reader's recipe for resuscitating the lost sensation of riding a prehistoric motor cycle

Take one Army mule. Stand on sheet of corrugated iron. Tie round each fetlock one large bunch of empty bully-beef tins. Place on mule's back one small block of hard wood. Sit on this. Soak a piece of rubber in oil, and set fire to it. Sniff the last ingredient. Procure some .680 petrol. (N.B. - This will have to be specially refined by some super chemist.) Dip in rag. Smell. Ignite. Apply to hindquarters of mule. Then close your eyes and imagine that you are back on your old 1902 machine."

10. REPAIRS

Take one Army mule.
Stand on sheet of corrugated iron...

XI. **PRACTICAL JOKES**

MOTOR cyclists are usually confirmed practical jokers, though their code bars any serious interference with a machine on important occasions. This applies especially to the early days.

On tour and in club runs it has always been legitimate to penalize a rider who knows too much and talks too much, by putting his machine temporarily out of commission. A fussy and important motor cyclist can be amazingly funny when his tank has been secretly filled with paraffin, or his magneto points separated by a tiny disc of paper, or the plug wires of his twin crossed, or his air wire coupled to his throttle and *vice versa.* But perhaps the best trick of the sort on record was perpetrated on a dark night some fifteen years ago when Blinks was refreshing himself inside an inn. One of his pals wedged a billet of wood between the back tyre and the mudguard. After lengthy potations Blinks came out and endeavoured to start his single-geared bus, without success. A fair Hebe came to the rescue with a two-gallon canister of paraffin, and Blinks doped his apparently seized engine repeatedly. We were all very helpful, and with five or six of us pushing, Blinks at last got away

A fussy and important motorcyclist can be amazingly funny...

in clouds of blue smoke and proceeded at about 8 m.p.h., sooting a plug every mile or so. He naturally needed further refreshment at the next town, and while he was obtaining it we removed the billet of wood, which now bore a marked Clincher imprint. But we have never dared to tell Blinks the facts, and to this day he muses over the queer conduct of that engine.

The Coming of the Field Telephone

An even better prank was once played at a lonely hill-climb in certain moorland wilds. The advance fatigue party had planned a stunt which was then practically unknown, and had made a field telephone to assist in run-ning the show. We started early on Saturday morning and laid the wire in the drainage trench beside the road, concealing the phones in some bends by the roadside. Then we consumed a picnic lunch and waited for the rank and file of the staff. As we nibbled sandwiches at the hill-top, seated perhaps loft. away from the clump of grass in which the phone lay hid, we heard a sepulchral voice proceeding apparently out of the void and cursing us most luridly. The secretary at the hill-foot was calling us up. This gave us a brain-wave, and we made a foul plot.

The Plot Thickens

A burly and youthful member of the club, whom we will call Jenks, was sowing his wild oats rather busily just then, an his bibulous proclivities had made him rather a nuisance at times. We determined to get our own back, Jenks was not in the secret of the phone, and we soon made the necessary arrangements with the secretary at the foot of the hill. Ere long, Jenks was seen threading the valley at speed, and the party at the summit rapidly took cover, Bill concealing himself, complete with signal flag, behind a large boulder, from which he could wag signals to the hill-foot whilst remaining unseen at the top.

Presently Jenks ascended at speed and dismounted when he saw our dump of coats, drinks, etc. Putting his machine on its stand, he made straight for the dump and began overhauling it for liquids. Bill, invisible behind his boulder twenty yards away, flagged wildly. The secretary at the hill-foot a mile away began to mouth impressive scriptural admonitions up the wire. He began by sum-moning the unfortunate Jenks with his Christian name in majestic tones : “Arthur!” Arthur, completely unaware that there was anybody within miles, looked rather startled, for the voice of the phone was sepulchral and stern. He sat up and stared about him, bewildered and already a little alarmed. Then came a text suggesting rapid preparation for immediate death and judgment. Arthur turned a sort of yellowy green, his pallor being so alarming that the watchers under cover conceived fears

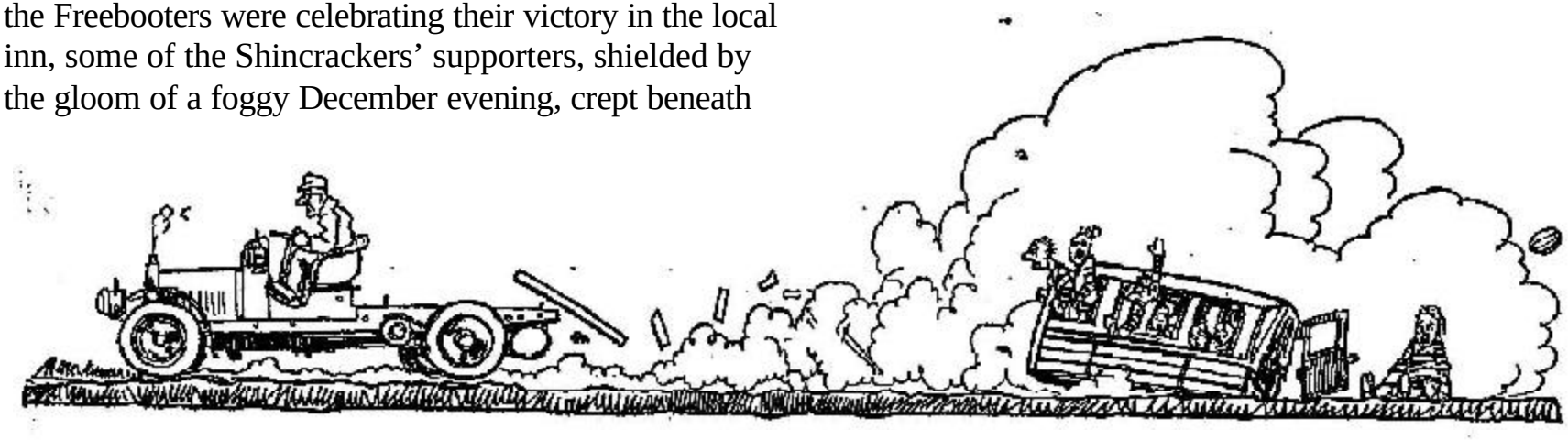
that he might die of heart failure. The distant secretary, as judicial and dignified as possible, began to dilate in severe and well-chosen language on some of Arthur's more nefarious love affairs, on his excessive potations, and on the very pardonable anxiety of his mamma. To say that these mysterious voices, emanating from the void, reduced Arthur to a pulp is to put the facts mildly. He wilted like a pricked balloon, and one of the concealed jokers; afraid of a serious collapse, suddenly broke cover and let fly a peal of laughter which was hardly sincere. Arthur was too knocked over to say anything, and the rather pitiful business was glossed over somehow; but, being of a resilient temperament, the victim returned to his oats in a few weeks with undiminished vigour and appetite.

He wilted like a pricked balloon...

Hanging on a (Screw) Thread

My next yarn is not of a truly motorcycling character, and ought to have ended in tragedy. The Freebooters were playing the Shincrackers in the county soccer cup competition. The Freebooters won by the most dastardly exhibition of savaging in the annals of a noble game. Our - the Shincrackers' - outside left was a pocket midget, as full of tricks as an eel, and the Freebooters' right back systematically pulverized him. Four or five of the Freebooters reached our village per motor cycle, but six of them had travelled in a motor bus which was antique even at the date of the story - about 1906. Whilst the Freebooters were celebrating their victory in the local inn, some of the Shincrackers' supporters, shielded by the gloom of a foggy December evening, crept beneath the said antique bus and examined the holdings of its top structure. They finally removed the two front bolts which held the body to the frame. From the two rear bolts they withdrew the spring washers and poised the nuts precariously at the tip of the threads. Anon the Freebooters, flushed with wine, victory, and brutality, set forth on their homeward jaunt. The bus, having been constructed by the local undertaker from the wreck of an aged Gladiator, still boasted the front seat of its original touring body, behind which a home-made bus body formed a cross between a conservatory tory and a chicken-house.

Six tipsy Freebooters..heavily dumped in the lane

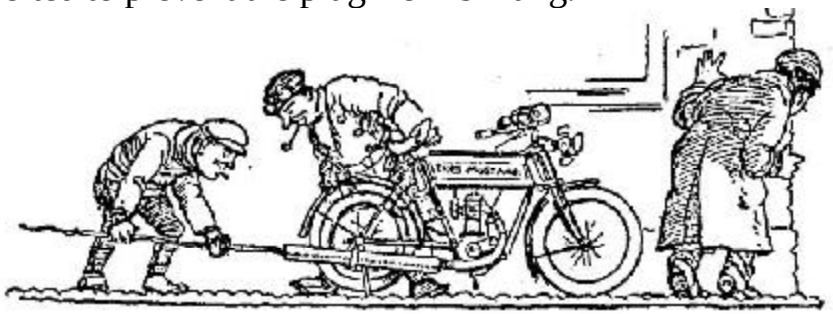


Ten miles out the bus successfully vibrated the two last nuts off the tip of the threads, and the rear body, containing six tipsy Freebooters, was heavily dumped in the lane, whilst the driver, blissfully unconscious, drove on home to Freebooterville. The villagers turned out *era masse* to welcome the conquering heroes. As the driver turned round with a proud smile to watch "the boys" being chaired to their respective domiciles, his face fell. Astern of his seat stretched a long expanse of naked chassis. (see previous page)

Meanwhile the blaspheming Freebooters had extricated themselves from a welter of splintered deal and broken glass some eight miles back and were keeping anxious patrol by turns in the twisty lane to prevent other traffic from ramming a derelict shanty in the centre of the fairway, inside which the rest of the team sought uncomfortable shelter from the icy blasts and stinging snow of a mid-Decemher night.

11. PRACTICAL JOKES

A safe and evergreen joke to play on an unsuspecting motor cyclist is to block up his exhaust pipe, a prank performed in all climes since engines began. I have seen it applied many times, but never to quite such good effect as in a certain Six Days trial. The victim was not a competitor, but occupied a minor official position, by dint of which he Prussianized rather too freely. Moreover, he talked as if he knew much more than he did. The job was very neatly done, and nobody except himself knows when it was discovered. Quite possibly he never found out, and the clue only came to some desperate repairer who may have bought the machine as a bargain later on. A drilled plug was concealed in the exhaust pipe, thereby reducing its effective bore by some 50 per cent. A hole was tapped on the under-side of the pipe in an unostentatious position, and a pin inserted to prevent the plug from shifting.



The engine ran beautifully until he opened the throttle, when it misbehaved extraordinarily. Short of some excuse for suspecting practical jokes, there was naturally no great likelihood of the real cause being spotted, and the victim's struggles on hills through the week were pathetic. He attributed his failures to a slipping clutch; but had he only known it, the outwardly emotionless listeners to his long nightly tales of woe which he told in the official bar parlour were inwardly doing some 3,000 convulsions per minute.

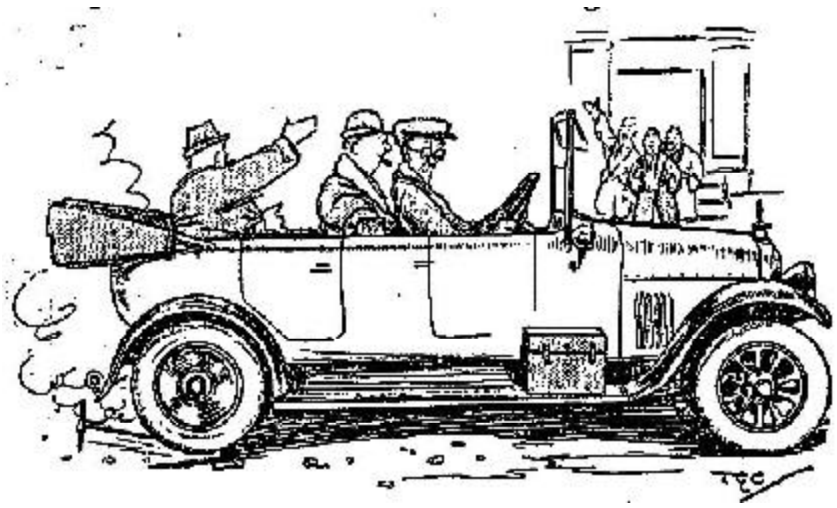
XII. MORE PRACTICAL JOKES

SINCE I resurrected a few practical jokes of a motor cycling character in *The Motor Cycle*, various corre-spondents and friends have reminded me of several others, which have long since grown prolonged whiskers. I publish them not without misgivings that I may presently be hoist with my own petard.

Wireless experts know what a "grid leak" is. The modern steatite sparking plug does not lend itself to this experiment as well as some obsolete patterns. But if a soft pencil be taken and a broad pencil line be drawn down the insulator from the terminal to the body of the plug, an excellent short circuit can be provided ; and if the line be drawn at the back of the plug the owner is unlikely to discover it for a considerable time.

A more humorous experiment is possible when a renegade to the sport arrives at your house 'for lunch in a car - the bigger the car the better the joke. Engaging the owner with food or conversation, charter some varlet to procure a small and unobtrusive jack with which one rear wheel of the objectionable vehicle may be firmly supported so that its tyre just clears the surface of your drive.

Make the farewell scene hearty and genial as possible. The car owner is extremely unlikely to suspect the truth when he lets in his clutch, and with any luck he will lay bare his clutch and examine carefully, after which he may proceed to take the lid off his gearbox. Unless this trick is carried out by a gang of stout fellows, it is well to have a weapon handy. By the time the owner tumbles to the trick his best suit will be adorned with crumbs of gear grease, and the strongest friendship may well fall into sudden ruin.



The owner is unlikely to discover it for a considerable time.

12. MORE PRACTICAL JOKES

A good variant to the game of permanently plugging an exhaust pipe, previously described, is that of improvising a momentary plug when the owner is not looking. Jones, let us say, has successfully started his new supersports, and is bragging about her tune. Seated on the saddle, he demonstrates her tick-over and thunderous acceleration with deft motions of his throttle. Partly camouflaged by the admiring group around him, you alternately leave his exhaust open, and choke it for him by any improvised means, such as clapping the sole of your boot against his fishtail.

I am all against any real mechanical interference with a pal's machine. But in the case of a frightful bounder who needs a real lesson it may occasionally be permissible to retime the magneto; this should not be overdone, substituting full retard for full advance being far better than transferring the spark to the exhaust stroke, or to solder up the passage connecting the float chamber to the jet chamber. In one priceless case of this sort an unspeakable person was despatched to Scotland for a whole week by his firm. During his absence, and for his soul's good, his riding associates took his engine entirely to pieces and substituted a new connecting rod consid-

erably shorter than the original part. The resultant engine symptoms baffled several experts, who were not in the know, for quite a time. Another rather cruel trick of the same kind has never been solved by the victims to this day. The engine was of peculiar construction, a certain part being attached to the exterior of the main bush by means of a stout grubscrew. With the aid of a giant turnscrew, this grubscrew was tightened home so violently as to distort the main bush, causing the crankshaft to bind. The engine was runnable, but its running was not as heretofore. The engine being finally dismantled in desperation, it ran well after re-assembly; but the operators never tumbled to the cause of the trouble. Such ruthless derangements as these should be reserved for disciplinary purposes under grave provocation.

The Envy of All

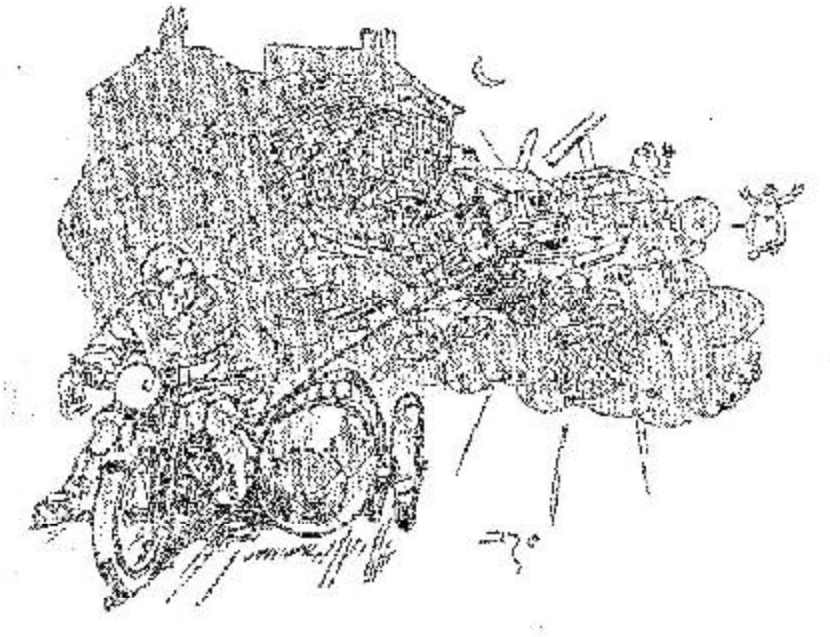
In the early days of the original tricar boom it was customary to retain pedalling gear, partly for starting up the engine, partly for emergency assistance on steep hills. A very famous rider had sufficient imagination to grasp the folly of perpetuating cycling features, and he promptly constructed a two-speed gear and starting handle. These made their public bow at the opening Brighton run of the M.C.C., which was then a star occasion for introducing new models. What time his trade rivals step-danced in un-gainly fashion on pedals hemmed in by numerous frangible fittings, and from time to time fractured glass oil and petrol gauges when a huge boot slipped off a pedal on the compression stroke, H- gaily twirled a little handle re-sembling the winch of a sewing machine, and made spiteful remarks *sotto voce* about Noah and the flood. The rivals sulked.

The run took tea at Crawley, and H-, having scored a distinct personal triumph, took a good long tea. But he had unwarily left his starting handle in the pocket of his raincoat in the forecar. Tea at last being over, the club poured out into the road, and while others eyed their pedals and regretted that final slab of cake, H- sauntered debonairly up to his forecar and explored the pocket of his raincoat. Nothing doing. Ultimately he had to push off amidst the loudly-expressed pity of his club-mates. I could not stay to the dinner at the “Old Ship” but I rather fancy H-’s starting handle was returned to him when he lifted the silver cover off an *entree* dish.

Under cover of dark, many freaks impossible by daylight may be attempted. For example, not so very long ago a club called for dinner at a roadside inn, and a wag in the party noted Brown's sidecar outfit had been parked up against a wheeled chicken-house in the corner of the yard, and that a coil of fencing wire lay fairly adjacent. It was only the work of a few moments to wire Brown's back axle securely to the aforesaid chicken-house. At closing time the rays of many head lamps, all pointing streetward, created Cimmerian darkness behind the machines. Brown started up, mounted, put a gear in, and clutched up with the delicacy of a good rider. The resistance being unusual, his engine stopped. He repeated the process, giving a little extra throttle. By this time most of the club had cleared the yard, and Brown desired neither to take their dust nor to be the last home. So he yanked his throttle wide open, and let his clutch in ruthlessly. The noise was appalling. Great panels of wire netting, forming a chicken yard, were wrenched from their staples, the small iron wheels of the chicken-house ground lustily, and the chickens, presently awaking, added their protests to the general uproar. Then the landlady and her handmaidens came out.

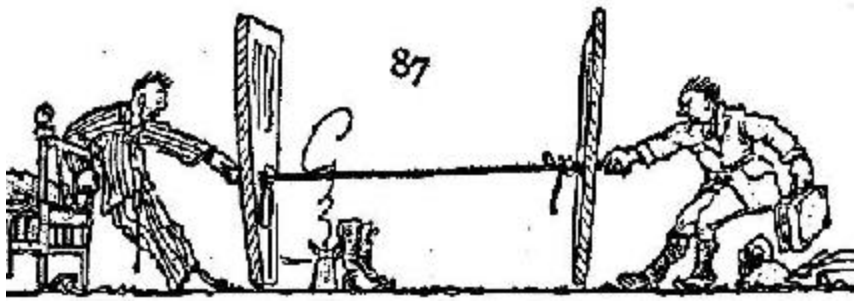
12. MORE PRACTICAL JOKES

The chief offender was by this time well started for home on an o.h.v. Norton.



**Great panels of wire netting....
were wrenched from their staples,**

With the connivance of the hotel staff, a narrow corridor on a bedroom floor lends itself to tests of the good temper of your mates. Select two bedrooms, the doors of which are opposite. They should preferably be occupied by two men who are pals and who do not rise too early for the next day's run, which in a Six Days event is probably timed to commence at some highly insanitary hour. Rising early yourself, procure a length of light rope slightly exceeding the width of the corridor, and firmly rope the handles of the two doors together a few moments after the .two victims have been roused by the chambermaid. Robinson, let us say, is the first up. He attempts to quit his room at speed, having left himself a beggarly five minutes for breakfast. Inside forty seconds he is hauling at the door handle, raving and cursing. Smith, opposite, notes that his bedroom door is behaving queerly, and investigates. Fragments of Robinson's objurgations presently reach his sleep-drugged ears. Each of them decides that the other is having a lark with him, and presently they get really cross after such mild protests as "A joke's a joke, old man, but there is such a thing as carrying it too far, and I'm due to kick off at 7.10." They try ringing their bells for the chambermaid-always useless at a Six Days hotel, and anyhow you have her bribed at the far end of the passage. It is now time to watch for (a) the rope to break, or (b) one of the door handles to become disintegrated. Before either termination occurs, you should be far away.



Each of them decides that the other is having a lark with him

The Mayor at the Dinner

Once upon a time a motor cycling club decided to eliminate tedious speeches from their annual dinner and confine the official guests to good fellows. But the local mayor haughtily informed the secretary that he should be pleased to grace the proceedings, and there was no escape. As chairman of the local bench, the worthy cheesemonger had considerably scarified several members of the club, not so much by his fines, as by the interminable paternal homilies which he had imposed from the bench when they were caught speeding. So they decided to get their own back. They put him in the chair, of course. Opposite his place there reposed on the table the immense silver challenge cup which was the club's pride. Underneath its pedestal was a tiny rubber bag, connected by an unostentatious tube running beneath the tablecloth to a rubber bulb, secreted in the hand of a club official.

During the soup and eke the fish courses, the behaviour of the silver cup was exemplary ; it never so much as stirred. But by this period the mayor had had one or two, and, being a solemn person with an eye to the dignity of his person and office, was feeling anxious lest he should grow a trifle muzzy before the toasts had been concluded. At this stage in the proceedings the challenge cup commenced from time to time to give a slight convulsive shudder. The mayor at first could not believe his eyes. He cast furtive glances at the cup from time to time, and was rendered increasingly anxious by an expression of rather solicitous surprise in the eyes of the officials seated near him. The club operator behaved admirably. He was careful not to overdo things. For the most part, the great cup stood rock-steady. But every now and then it shuddered very slightly, especially when the mayor was halfway through a fresh glass, which had been more or less forcibly refilled in the teeth of vigorous mayoral protests. Presently the unfortunate magistrate was lulled to false security by that treacherous cup, which had suddenly ceased to shudder at all. The loyal and routine toasts were through, and the mayor had cast off his early trepida-tion. Local and personal toasts were succeeding each other like rapid fire, and the mayor was thoroughly happy and becoming fairly well heeled, when suddenly that dis-graceful cup positively staggered. We saw the mayoral eye pale and harden incredulously. His geniality sloughed off him like a snakeskin, and never for

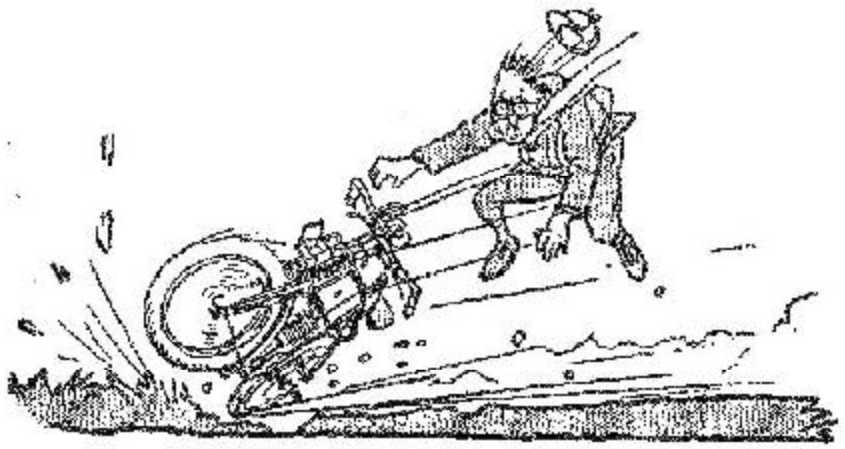
more than a few seconds did he remove his anxious gaze from that incredible trophy. Our president inquired tenderly, “Aren’t you feeling very well, your worship?” He turned green at that. Slight shudders at intervals on the part of the cup were plainly indicated and duly administered with con-summate tact. Finally, our self-invited guest turned and fled, muttering something about a long day with the borough surveyor on the morrow. He probably took the pent-up roars which sped his departure as a tipsy tribute to his personal popularity.

XIII. IGNITION

THE original motor cycle ignition was known as the “tube” type. A burner, fed with petrol under pressure, played on a platinum tube, the business end of which projected into the combustion chamber and would have caused chronic pre-ignition if there had been sufficient compression. I never rode more than one machine so equipped - a fact to which I possibly owe my life.

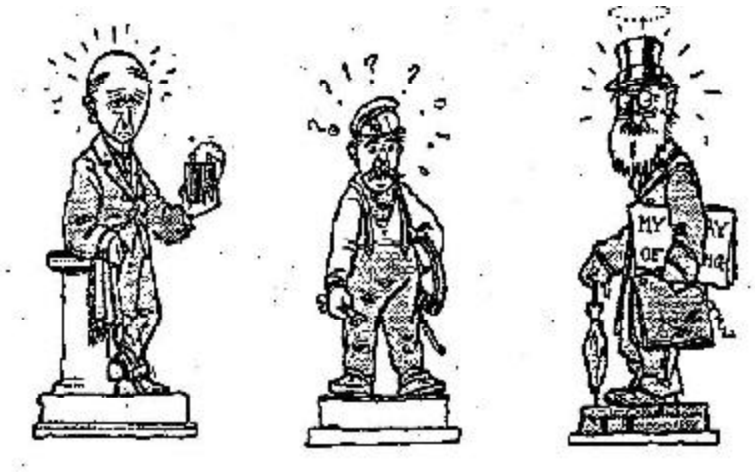
The mechanism was wisely arranged on a small platform over the front wheel, which it shared with a biscuit-tin full of lamp wicks and petrol, optimistically known as a carburetter. Each component was possessed by a little devil, and the two devils acted in concert. They automatically ruled out the depreciation which now worries us, by destroying the machine before it had time to depreciate. As a rule, the burner ignited the carburetter within a month of purchase; this risk explained why the apparatus was put where the front mudguard ought to have been - you could keep an eye on it and dive overboard when flames shot up. If the conflagration did not occur while you were peacefully riding along, it inevitably occurred when you fell off.

Falling off was a habit dictated by two caprices of the machine. Caprice No. 1 consisted of both brakes going out of action when most required. Caprice No. 2 took the form of most virulent sideslip, due to a combination of smooth tyres with a centre of gravity located in the plane of the top tube. The great thing was to be thrown clear on these occasions. Otherwise you got cremated. I was thrown clear. Then electric ignition came in and saved my life.



Caprice No. 2 took the form of most virulent sideslip

My first electric ignition was quite good. Gracing a De Dion tricycle, it consisted of a portly dry battery; a substantial contact breaker; a huge cylindrical coil attached to the back axle by plated clips, through one of which it was earthed; and several dozen yards of bell-wire draped about the frame in picturesque festoons. It was common talk that only three men in England knew how to adjust the De Dion contact breaker, for the tension of the blade exercised a remarkable effect on easy starting and the power output; but this, I feel sure, was a gross libel.



only three men in England knew how to adjust the De Dion contact breaker

13. IGNITION

An old De Dion machine could give plenty of ignition trouble. I once picked one up second-hand and did not get it to fire for three weeks. The bell-wire had mostly perished. Rust had ruined the earth *via* the coil clips. The switch consisted of a revolving hand-bar grip, and its tiny parts had been removed and replaced hundreds of times. Worst of all, the contact breaker had been renewed from imitation parts, made by profiteers who employed old corset springs for the blade, and any metal which could be polished white for the "platinum" rivets. But the genuine De Dion stuff was uncommonly good, though the generous spirals of low-tension wire, so freely wreathed round everything, were alarming to a novice.

British-But Not Best

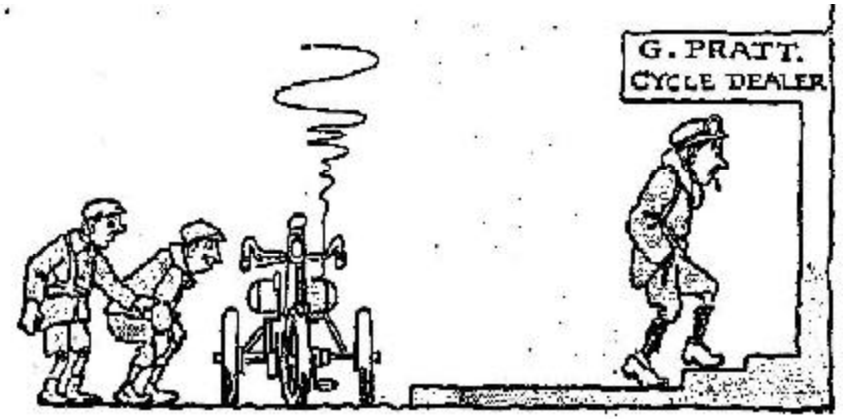
My next ignition, I regret to say, was British. Its coil contained no condenser worth the name, and blackened genuine platinum points in half a day. The baseplate of the contact breaker was made of tinfoil and bushed with putty; its cover, ingeniously placed just where my heel would foul it when pedalling to start, always crumpled at a touch and shorted the innards of the contraption all

over the place. The screws securing the platinum contacts were of the size one only meets nowadays on the Cee springs of a magneto contact breaker; they were bedded in some forgotten metal as soft as butter, and stripped their threads as soon as they heard the rattle of your tool-bag strap. Moreover, the De Dion dry battery had foolishly been replaced by two measly little 8-ampere-hour accumulators, furnished with a two-ray switch, and of the flimsiest character. These miserable cells joggled up and down inside a compartment of the tank. If they did not short against its metal, their bell-wire connections were speedily snipped through by the unbushed holes through which they merged to the switches. Of these there were no less than *three!*

No. 1. -The two-way switch for coupling up either battery at will.

No. 2. - The "interrupter plug" switch, provided to avoid running down the cells if the contact breaker chanced to be in the contact position when the engine stopped; this consisted of a vulcanite block with a loose brass plug. The Quadrant machine ingeniously utilized a sixpence, and knowledgeable urchins always inspected a Quadrant very closely in hopes that the absent owner had left his tanner in the switchblock.

No. 3 was the usual twist-grip for driving emergencies, but was not so well made as the De Dion type; one usually removed it in a week or two and substituted a bulky gadget sold for the purpose.



knowledgeable urchins always inspected a Quadrant very closely in hopes ...

A New Plaything

The extreme badness of these early British contact breakers may be judged from the fact that many experts clamoured for a return to lamp ignition. I seriously think the return might have come about if some genius had not applied the trembler coil - so dear to Henry - to our machines. This was a real joy. In the first place, it banished the troublesome platinum points, for which we bought spares every week at 3s. 6d. a time; for the buzzer coil utilized a wipe contact, which as often as not ran in grease ands evinced no dislike of the oil which at that date was spewed in fountains from the sloppy half-time bushes of all our engines; but the abolition of the "make and break" was not the real cause of the joy we took in trembler coils.

Be it understood that very few of us knew anything about electricity. When we had tracked a road stop to the ignition, we might have burnt out the coil; our cells might be dud-we carried voltmeters to try them with; the contact breaker might be suffering from any of the thousand ills to which it was heir; or any inch of the yards and yards of bell-wire might be abraded; or one of the three mysterious switches might have gone phut; but as soon as the trembler coils came in, the buzz was a most gleesome aid to diagnosis. First of all, it informed you unmistakably right at the very start whether or not the ignition was to blame for your stoppage. If there was a healthy buzz, probably your petrol was not up to the air-holes in the surface carburetter.

If no buzz, you started hunting the electricity; and the buzz came back when you touched the right spot. It was great. I converted an imitation De Dion ignition to a Vandervell trembler coil with a home-made wipe contact, and ran it 15,000 miles with no trouble except accumulators and plugs.

Accumulators! Designers who posed as philanthropists but were probably the meanest of men, forbore, to fit two accumulators, on the ground that it "coplicated the wiring" and that their patent cell was absolutely reliable if recharged by a "competent electrician" every 500 miles. I believed and bought. Simpler wiring was my heart's desire at the moment. The patent cell burst its walls; it sulphated; it shorted itself against the tank; it spewed acid from its vents, burnt up the wiring and rotted the tank; it leaked acid over my clothes, compelling me on one occasion to return home in an improvised

kilt for decency's sake. This was Gamage's opportunity. He was always a live man, and after twenty years I bear him no malice at all. He advertised that the proper place to carry "the spare cell" was on one's person, where it would not be subject to the vibration of the machine. For this purpose he had put on the market a neat leather case not much larger than a Kodak wallet. It was lined with steel to resist the corrosive effects of leaky acid. Price 8s. 6d. And a cell to fit, eight-ampere-hours guaranteed, 10s. 6d.

an improvised kilt for decency's sake

13. IGNITION

I paid up my 19s. like a man, and if I had met Mr. Gamage I should have embraced him out of sheer gratitude.

I daresay the cell was a genuine: eight-ampere-hour. I never had the opportunity of testing its capacity. If Mr. Gamage had furnished it with chains for attachment to my person I should doubtless have known the truth. As it was, the case was made to be slung round the shoulders by a strap. Not a very good strap either. The acid was too much for it on my very first ride. I heard a sickening plop, rather like an over-ripe fig colliding with a stone wall. I looked down, and there was my new 10s. 6d. cell lying in the road with its walls opening out like a child's house of playing-cards.

That I have left sparking plugs to the tail end of these memories is no indication that they were reliable. Soberly, truthfully, and accurately, I bought them by the dozen. So did we all. You must not fancy that they cost £3 per dozen, as they do now. At one of Gamage's sales I once bought a dozen sparking plugs for 6s. 6d., and even at that I consider I was overcharged. Practically all the plugs of that era were made in France, and consisted of an extremely brittle china insulator with two points of florist's wire. There was no perceptible difference between

one make and another, except in the colour of the porcelain. Blue was my favourite colour, personally. The gadget plug already existed. I remember one bright example sold by a Mr. Calvert, which had a quartz insulator. The merit of this was that you could see the explosion through the quartz and judge by its colour whether the mixture was correct, resetting your air tap to suit. I invested largely. On the rare occasions when I could get the plugs to function, the mixture was invariably the wrong colour.

The life of the ordinary porcelain plug was always the same save in one detail. You put in a new plug. It fired. You rode happily for a little way. Then the engine emitted strange noises. One of three things might have happened, viz.

i. There was nothing at all left of the plug except its metal socket, the centre having been bodily blown out.

2. The plug was still present on parade, but was visibly quivering like a jelly or like the fat emperor in *San Toy,* the porcelain insulator having sheared round the waist and being held together by the central electrode.

3. The plug was ostensibly O.K. This was the worst fate of all. You knew at once that the lower half of the insulator, plus the two spidery electrodes, had descended into the cylinder.

13. IGNITION

Laying the machine on its side and tugging the piston jerkily with the aid of the belt, you endeavoured to eject the broken portions from the cylinder. Sometimes they came out. Sometimes they stayed inside and chewed up your piston rings.

One solitary ignition had something of a reputation for reliability from the outset. This was the Simms low-tension magneto, fitted to the Singer and one or two other engines. Incredible to relate, it had a mechanical make-and-break inside the combustion chamber. That I have nothing vicious to say of it is possibly explained by the fact that I never owned a sample. On one occasion I took out a tricycle fired by this ignition ; but it did not have a chance to occasion me any anxiety, because the aluminium spokes of the motor wheel quietly folded up before the engine had time to get frisky.

Then the engine emitted strange noises.

XIV. EQUIPMENT

THE motor cyclist of today, who grows peevish because his twin armoured panniers are not fitted out at the factory with spare valves, plugs, and chain links, ought to have entered the pastime in 1903.

About that date I took delivery of a "2-1/4 h.p." (nominal) machine, which had its parsimonious tool-kit disposed in a small leather bag the size of the manicure cases which ladies carry in their vanity bags. This portly wallet was attached by two slender brown-papery straps passed through slots stamped out of the back of the saddle. Its contents were as follows

(1) A stamped wheel cone spanner.

(2) Two pedal cycle tyre levers some 4-in. long.

(3) A 4-in. imitation King Dick adjustable spanner.

(4) A tin oilcan, of the size which go four to the ounce.

(5) A "multiple" tool.

These multiple tools were a standard convention of the motor cycle trade at that date, and for some years later, and were wildly interesting. Their handles consisted, like the, floorboards of the modern cheap car, of a peculiar timber which I have never met elsewhere on sea or land, and its chief characteristic was that it split at sight. Inside this handle were concealed a toothpick, a cork-screw, a screw-driver, bladed with tin-foil and assuming weird whorly shapes if you were fool enough to use it, and a broach. Green as we all were, a very few miles suggested that more tools were desirable. Notably, a sparking plug spanner; a big blacksmith's wrench for straightening the pedal cranks; a tyre outfit; a dozen plugs; three or four valves; lots of insulating tape; and a tin box full of contact breaker spares. All these were compulsorily carried in our pockets for a year or two, to the great detriment of our personal appearance and the huge profit of our tailors. For some two years I resembled a well-laden mule crossing the Pyrenees.

... compulsorily carried in our pockets ...

Then somebody - Lycett, I think-invented a Saratoga trunk type of tool-bag for hitching to the back of the saddle in lieu of the aforesaid manicure case. For a week all was peace. Then the flimsy saddle began to complain. Its springs broke. Its steel framing cracked. Its leather slots ripped out. We bought new saddles, and strapped the new "ark" tool-bags to our carriers. Then somebody else invented a sturdy saddle, calculated to support the weight of our tool-bags. And so the industry progressed.

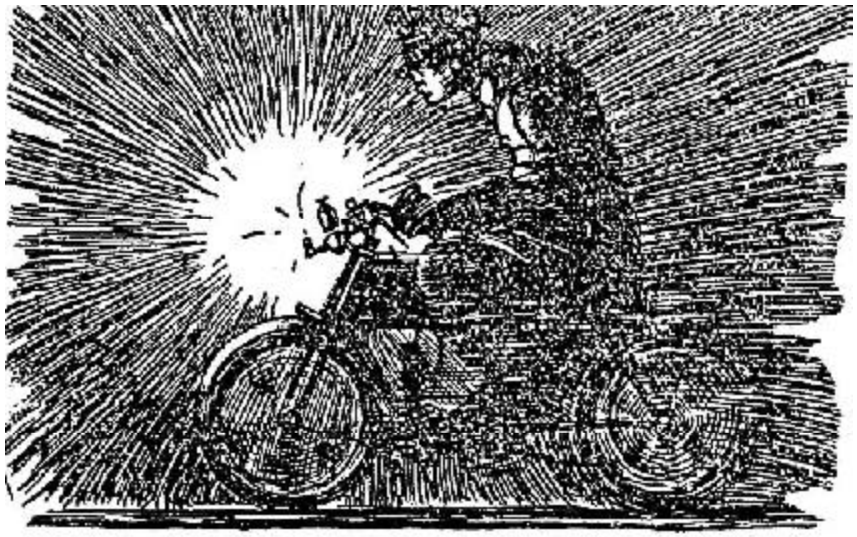
The Horrors of Accumulator Ignition

But, stay! I had almost forgotten a worse horror. These were the days of accumulator ignition. Accumulators spill sulphuric acid. Sulphuric acid eats leather. So they couldn't make us carry our accumulators in leather wallets. The solution was to construct cunning little cupboards in the bowels of our petrol tanks. Closed by hinged metal doors. Locked by a loose steel skewer after the fashion of an old woman's market basket. Then some designer of genius mused to himself: "I will save manufacturing costs by storing the tools in a second little cupboard inside the tank!" Which he promptly did. And how they rattled! In a certain reliability trial a famous rider felt something prick his leg as he thigh-gripped the tank hard on a bad corner. He looked down and beheld the business end of his belt gimlet protruding inquisitively from the transfer which adorned his tank side. He remarked - no, on second thoughts I will cease the incident at this point.

Apart from these sketchy tool-kits, no equipment was provided with the prehistoric motor cycle. Not even a lamp-bracket. Probably because machines were regarded as sufficiently fearsome by day, when you could watch the parts shaking loose, and salve them in the nick of time. It was obviously crazy to ride in the dark, when you could not keep an eye on the components, nor recover them from the road after they had dropped off. But experience soon proved that the ride which was begun at dawn did not necessarily terminate before sunset.

So we bought clip-on lamp-brackets. My first bolted round the steering head tube, and the beam consequently peered straight ahead when the machine was rounding a corner. This would have been a distinct drawback if there had been any beam. But the beam was usually reduced to the candle-power of a mere bobby dodger,

and resembled the expiring smoulder of a cheap, foreign match. You see, we used ordinary pedal cycle gas lamps with spring hinges. First, the spring broke, and we chopped lumps of wood out of the hedgerow to replace it. Then the hinge broke. We wired and strapped what was left of the lamp. Then the glass fell out. Then the reflector tumbled in the road. In strict honesty and sobriety I have finished more than one run with just the generator, the burner bracket, and the burner remaining.



Then the glass fell out.
Then the reflector tumbled in the road

Hooters were only a legal necessity. All traffic got out of our way with delicious velocity, whether we hooted or not. But we did not carry hooters merely to satisfy the law. We *liked* hooting. The raucous honk-honk was an intrinsic part of the colour and atmosphere of the new sport. I used to buy splendid hooters for 8s. 6d. from Bransom and Kent. They emitted a most satisfying noise, but did not last very long. Fitted with rather wafery clips, such as still linger on bicycle "pipsqueaks," they had an annoying habit of jangling along the handlebar towards its centre. Then the trumpet portion slowly became detached. Remember we had rigid forks, unbalanced engines, and very narrow tyres. I do not suppose it was possible to manufacture any accessory which could long resist such vibration as we then suffered; but with unlimited insulating tape and copper wire and broad straps we kept them on somehow.

My first British machine had two brakes of a character now obsolete. Its front brake was quite reliable, consisting of a large shaped rubber pad or spoon, forcibly depressed against the top of the front tyre by a huge plated lever resembling a small crowbar. It was quite effective, and wore the tyre less than one might suppose;

in fact, it saved my life repeatedly. Its defect was that the front mudguard terminated abruptly at the fork; so whenever the spoon brake was applied in dirty weather, two fountains of brown mud spouted fanwise from the front tyre and sprayed all over one's trousers. >>>>>>>

Of the rear brake, it is harder to write kindly. A huge plated steel horse-shoe all but encircled the rear tyre just behind the rear fork tubes. Each horn of the shoe was supposed to contain a small fibre pad. The horse-shoe was held central by two microscopic pull-off springs, hooked to clips precariously bolted to the forks. One applied the brake violently in an emergency. As a rule, no deceleration occurred. Both brake shoes might have gone west. The wire might have broken through rust at its naked areas. The tiny adjustment nuts might have shaken loose.

On the other hand, the deceleration might be instantaneous and sensational. As, for instance, if one brake shoe and one pull-off spring had gone west. The horse-shoe would then have rocked sideways, and one of its arms would neatly rip out all the spokes on that side of the wheel. The wheel would then become elliptical with extreme rapidity.

... neatly rip out all the spokes . . .

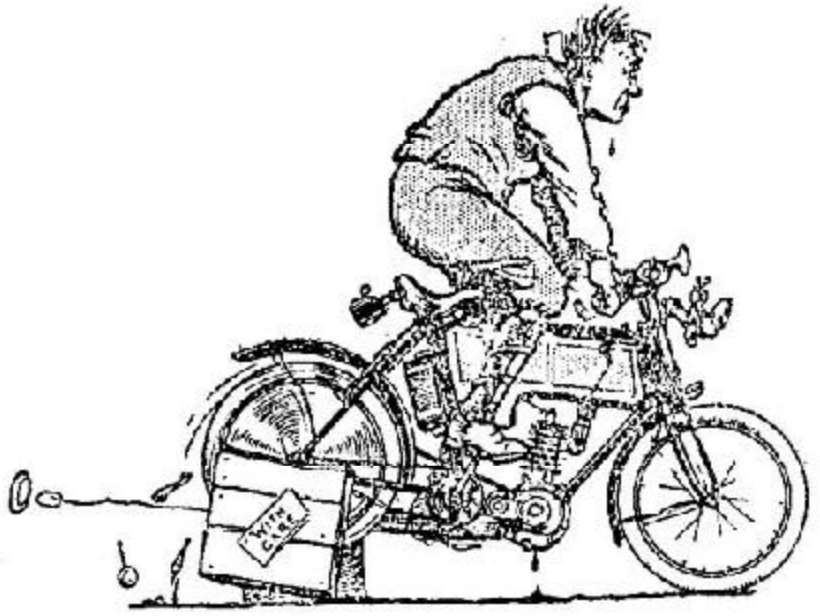
Of course, we braked principally with the soles of our boots; an awkward manoeuvre when one's saddle might be 34-in. off the ground. The renaissance of the British boot trade was inspired chiefly by the invention of the motor cycle.

But when all is said and done, it was the starting of the early motor cycles which kept us young, physically fit, and mentally alert. It was a chancy business with the "surface" type of carburetter. Recent recruits must understand that this consisted of a sort of biscuit tin, fitted into the tank; petrol to a depth of an inch or so was swilled about in the base of this box until petrol vapour was emitted. A leak hole at the top, controlled by a stumpy tap, admitted as much air as one thought judicious.

With •680 spirit it worked better than one might expect. But with an automatic inlet valve which was probably stuck up; an exhaust valve which was scaled rather than pitted; a cylinder which had become hopelessly distorted when first it was run; a contact breaker which was falling to bits, full of dirt and oil, and defiled by German silver points in lieu of platinum; and an ignorant novice for owner - there was no saying how long one might have to wait for bang No.1.

14. EQUIPMENT

So we did not push to start - that might be a matter of miles. If we had a stand, we put the machine on it, and we pedalled hard, frenziedly experimenting with the air tap as our legs flew round in a blur of sweat. Modern riders may not believe it, but when the engine started it frequently fired so feebly that we kept on pedalling for two or three more minutes to keep it going.



... our legs flew round in a blur of sweat

For a year I had no stand - I do not think any were made. Then Lake and Elliott brought out a light folding trestle made of meccano strips for garage use; and I bought one with infinite joy. Some time later fearful and wonderful stands were marketed for permanent attachment to the machine; one of them once snapped across the top and cut my back cover in halves during a Six Days trial.

The standless machine created special anxieties about a restart on the road, miles away from one's twin packing cases. All was well so long as the engine was warm ; trouble began when one stopped for a meal, and at that date I was a walking encyclopmdia as to those hotels which were situated on nice steep down grades. I would wait an hour for lunch rather than stop at an inn on the flat. If stern necessity compelled me to feed on the level, I would visit a garage, and, after innocently buying what a petrol and spare parts I needed, I would inquire if they had a motor cycle stand.

XV. GEARS

THE modern motor cyclist seldom gives gears a thought, unless it be to brag that his machine four gears instead of the usual three; or if he be a knut, to swank about his “close ratio” speedman’s box, for which he pays by anxiety on freak hills, where his emergency ratio is probably far too high for confidence. He can therefore hardly picture either the tribulations which the pioneers suffered when all riding was performed on a single gear ratio, operated by a belt which slipped far oftener than it gripped; or the far more severe sufferings which befell us when crude and primitive gears of weird design were first unloaded on a patient public by experi-mentalist factories.

The first and simplest attempt to improve our hill-climbing was deliciously simple. The bus had two fixed and unalterable pulleys, one on the engine and one on the back wheel. Normally, one used a belt 3/4-in. wide. It was obvious that a 5/8-in. or 1/2-in. belt would possess less contact, and so less grip; it might slip rather more than the bigger belt, and so assist climbing. On approaching a fierce hill, one dismounted, removed the big belt, and fitted the small belt; after which filthy job even a casual ward would hesitate to admit the rider to its sanitary precincts; for of all the filths discoverable on earth’s surface, the grease which exuded from a well-used leather belt was at once the most odious and the most tenacious.

Some of us then devised the plan of carrying a spare engine pulley of small diameter. It was by the aid of this stunt that such hills as Sutton and Sunrising were first climbed. The standard pulley would give a gear of about four to one; the smallest pulley which could be got on to the engine would afford a gear of 6-1/2 to 1. So we used to carry a spare pulley in our side pockets. To change a pulley necessi-tated the use of a huge spanner (to unlock the nut); wedges (to insert between pulley and crankcase); and a large lead hammer (wherewith to tap the end of the crank-shaft and make the pulley jump). These extra impedimenta made it undesirable to carry a spare belt cut to the length of the low gear ; and we usually made up our belts in two sections with a couple of hooks, taking out the short piece for the small pulley. In long rides and trials we carried a spare belt. It started the trip neatly coiled up like a clock spring under the luggage on the carrier. After the first hill it was usually wound round our waist, or neck, or swathed round the handle-bar, or stuffed into a pocket.

Hill-Climbing Procedure

Next came the adjustable pulley, with a threaded barrel and a loose outer flange, which could be screwed in towards the fixed inner flange, or further out from it. In trials, whenever the route card indicated that there was a hill ahead, the boys would get their noses down on the lamp brackets, and scrap like blazes to its foot. Leaping off like firemen on arrival at a burning house, they would rip spare belts from around their waists, seize a tool, reset the pulley, drain the stale oil out of the engine, inject three charges of fresh oil, tie their overalls round the handle-bar, and depart up the gradient with their feet poised on the pedals ready for an effort comparable to that of the finishing spurt in a boat race.

Anon, experimental two-speed gears made a shy and timid appearance. Phelon and Moore were first in this field. I lacked the sense to buy one of their machines, but bought one of their gears and put it on a light machine designed for belt drive. As the gear was chain driven, it rapidly devoured both my engine and my frame, both of which were too light for it. The engine was never designed to run at the high speeds obtainable on a low gear of 11 to 1. The vibration made my teeth chatter, almost gave me lock-jaw, trembled all the small fittings off the bicycle, and finally bent the crankshaft.

The engine was reconstructed, whereupon the rear part of the frame of the bicycle bent. I went back to belt drive, but failed to finish in a certain trial, simply because it rained all day, and my belt slipped so continuously on the hills that I finally went home in a horsed bus. My next gear was comparable in size to a railway station platform-at least that is what it felt like.

There was a rectangular platform of steel tube in the centre of the bicycle, carrying two magnificent rubber-covered - footboards, each about 36-in. x 9-in. Beneath them was a shaft carrying two loose sprockets, each provided with a sliding dog clutch. A huge leather cone clutch adorned the engine. I showed off on this for a week or two, till a wet spell set in, and the machine lay down on a corner. When I picked it up, the tubular platform had been knocked cock-eye, and the dog clutches would no longer slide. I regret to confess that after this ,machine had been trued up, I callously sold it to a timid, elderly novice, resident-fortunately-at a considerable distance from my home.

A Popular Machine

The N.S.U. machines at this date enjoyed a considerable vogue all over the world-they were the only factory with any real export trade, and British machines were unsaleable against them in British colonies. Well-made, they had a beautiful little epicyclic gear on the crankshaft, which gave some such ratios as 5-1/2 and 8 to 1.

The British maker whom I patronized at this date, despairing of designing a gear for himself, bought N.S.U. gears. He never spotted the fact that they were supposed to be lubricated from the engine through a hollow crankshaft. His crank-shaft was solid, and so the gears which he fitted were un-lubricated. Needless to add that my low gear seized up solid in Wigan, where I spent several' very reluctant days of my short summer holiday, repairing the mess. We started the job blithely, but in about ten minutes uncovered a collar which no known tool would touch. Even in Wigan August could be warm, and we lost several stone apiece bending over the forge and making a tool to shift this collar. At long last the tool was made, and. the collar began to come off. In a few seconds came a loud spanging noise, and the entrails of the watch-like gear dispersed themselves in assorted parabolas. The repair shop, after the manner of those days, was part scrap-heap, part junk store, and part tool shop. Neither of us had ever seen the bits of the gear before, and after some eight hours' hard .labour on the part of the entire *Personnel* of the shop, we had piled on the bench a heap of springs, nuts, gear-wheels, washers, spindles, and other small metal parts, which might or might not have formed part of the original jig-saw. Two days later we had re-erected what we hoped was the gear; but when we mounted it on the crankshaft, it revolved as a solid eccentric mass, groaning most excruciatingly. I returned home by train, and the gear went to Germany, where it evidently outraged the Neckar-sulmer people, if one may 'judge from our laborious translations of their correspondence.

More About Gears

Undaunted by this fearsome experience, I bought a Nala two-speed hub, which was another German device, on the bevel differential principle. The factory built it into a wheel for me, or I should never have ridden it; as it was, I did not realize its weight until much later in its

history. When the new bus first took the road, I experienced at once a sensation as if I was sitting on a cast iron saddle over one of Boadicea's elm section chariot wheels, shod with a cast lead tyre. But even then I did not grasp the fact that the hub weighed about 2cwt. After a marvellous no trouble morning run, I sat down at a good inn for a first-class lunch. Anon another motor cyclist appeared, and shared my table. "Have you just come along from X?" I had. "You dropped some wire - I have it in my overalls." " Don't bother," I remarked politely, thinking he alluded to the copper wire, which was part of every rider's stock in trade; "I have another hank in my trouser pocket. It may be useful to you." However, in the yard outside he handed me some objects which I recognized with horror as bent and dismembered spokes. I dived in terror for my bus. Yes. Its rear wheel was decidedly egg-shaped, and minus about one-third of its spokes; no wonder I had thought the road rather potholy for the last mile or two. That wheel was rebuilt, and rebuilt, and rebuilt. Failing to sell that hub, I gave it as a prize to a local club, and some joyful innocent no doubt repeated my sorrows with it.

15. GEARS

About this date I commenced a lurid career as a consulting engineer - at least, that was how I viewed a surprising request from the leading firm in the industry that I would consent to make a prolonged test of their new hush-hush two-speed hub, intended for the ensuing season. My chest expanded, and I felt inches taller. The entire machine was buckshee, and gorgeous to behold.

The first ride daunted me a little. There was no clutch; one simply lifted the valve and pushed the gear lever over from low to high, or vice versa. This sounds simple enough, but there was a colossal difference between the two ratios; the top was apparently about 3 to 1, and the bottom about 12 to 1. With no clutch or shock absorber, a most hideous jar was administered to the person of the unlucky rider. The first time I slammed in top gear, I felt as if a steam hammer were trying to punch my backbone vertically out through the top of my skull.

Worse was to follow. I arrived at Edge Hill, and about ten yards up I threw the lever over to low gear, rejoicing that today at least I should not have to pedal my soul out. Ugh! The machine slowed in a foot from 18 m.p.h. to 2 m.p.h. My chin hit the bail handle of my

acetylene lamp, my eyes filled with tears, and I felt as if Tunney had taken a good hate against me, and slugged me good and proper on the point of the jaw. I dismounted somehow, and staggered wanly about for three or four minutes, after which I pushed off on bottom gear, and for the rest of the day stopped my engine and did a fresh run-and-jump start whenever a gear change was indicated by the gradients. I sorrowfully returned the machine to the factory at the week-end with some biting comments on the gear. They gave me lunch in the directors' room as a sop to my wounds; and during the meal my pride was felled to the ground. "We weren't sure whether the gear would stand the rough changing which our customers are sure to give it; and we thought that if anybody could smash it up, you would."

Then came the first three-speed hubs designed and built by engineers. Unfortunately, these engineers' previous experience was wholly in the cycling field, and they had no idea of the far heavier stresses to be met when an engine replaces the human calf muscles, or of the rough usage to which motor bicycles are subjected. I was deputed to ride a machine with such a gear in a big trial, and it was delivered to me on the night before the start. I sat up late, poring over the instructions. These were fairly simple. The adjustment of the controls sounded intricate, but after all, surely no adjustment could be necessary to a new gear in the first week. What's this? Inject half a pint of light machine oil every 100 miles? It was then 11 p.m. We were due to start at 6 a.m. And I had no light machine oil. I dressed in a hurry, and explored the town in search of the lubricant. About 3 a.m. I staggered back to bed, hugging a fat squirt and a large tin can full of machine oil.

The next morning opened wet, and the first hill stopped me with a wop - engine roaring, back wheel motionless, and rivers of sweat pouring down between my shoulders, after a gallant bout of pedalling in the effort to save the gold medal which would be forfeited if I stopped. All in vain! I dismounted, and studied the machine. Probably belt slip. The belt felt tight enough. Happy thought; start her up on the stand, and apply the rear brake; if the belt holds, the engine will stop; if the engine continues to run, the belt is slipping. Proud of this brain-wave, I sweated the machine off the boulders to a smooth island, and putting the bus on the stand, applied my improvised test. On went the brake, and everything

stopped together; apparently, the engine, brake and gear had all seized simultaneously. Some two hours later I had unseized the brake, and persuaded the clutch to grip.

Up the next hill I changed down, and found a perfectly free engine with the lever in the notch marked "2." Mercifully I decided to try the notch marked "2," and with the lever groping for this notch I found a gear of some sort, apparently quite a low one; and on this I just struggled up, without losing any more marks. At the top I paused to investigate the precise significance of these notches, and proved that though I had most admirable free engines in notches 1 and 2 and 3, yet I had two gears of unknown ratios somewhere between the various notches.

As I was now well behind time, I struggled along with a hand on the lever as far as lunch, where I got no food but a lot of knowledge. Imprimis, I had left my can of light machine oil on the first hill, and sundry dry squeakings from the hub were a direct attempt on the part of Providence to remind me of the fact. So I injected engine oil instead.

Secondly, the gear controls were now thoroughly out of adjustment. There were lots and lots of them - one on the lever, two on the hub, and another on the clutch operating rod. If one experimented with them, it was possible to obtain free engine positions all over the place, and every now and then a gear could be felt in action, only it was never opposite a notch, and apparently could not be induced to coincide with a notch.

Finally, I took the road again with one gear position opposite a notch, and free engine everywhere else. Half a mile convinced me that my solitary gear was top. Now "top" on this particular type of hub was geared up from middle, which was direct; and the direct drive being by belt, top had a ratio of about 2-1/2 to 1, and might have been serviceable for a 16 b.h.p. machine on the track with lots of starter pushers, but was about as much use to me with 1-3/4 h.p. on the road as a bed-warmer in the infernal regions. Another long job on the road. I shortened all the controls by inches, and at last obtained two gears, which were unquestionably middle and bottom. Two miles from the night stop the hub finally developed a permanent free wheel both ways in all positions of the controls; and I pettishly pitched the bus into a train.

Zeniths Barred

These experiences bred a somewhat cynical attitude towards gears of the invisible type, and about the same time the Zenith machines established an extraordinary supremacy in hill climbs. In fact, they won everything for which they were entered, so that club secretaries who desired to replenish their coffers with entry fees, had to announce that Zenith bikes were barred from their events. To which the Zenith people retorted by printing huge black bars across their advertisements in *The Motor Cycle.* This supremacy was attained by an adjustable pulley gear, affording ratios from say 4 to 7 to 1, the belt slack being taken up by bodily sliding the rear wheel in special fork ends.

The gear was operated by a coffee-grinder type of handle, and if a really big engine was used, the correct ratio for almost any speed hill could be used. I bought one - an 8 h.p. I think. Now I had never before ridden such a fast bus. I had never heard of speed wobble. I supposed that Zeniths were invincible because their riders continuously raised the gear fractionally all the way up the hill, as the engine accelerated. (We all thought in those days that a high gear was essential to high speed.) I tuned the engine up splendidly, and resolved to try my luck in a minor speed climb. When my turn came, I got away to a perfect start with the gear at its lowest, and in a hundred yards or so I was really moving - probably about 6o m.p.h. The time had evidently come to do some coffee-grinding. I darted my right hand off the bar, seized the knob of the gear control, and rotated it furiously.

The bus instantly went into a lurid wobble, and snaked onwards at nearly 70. Back flew my hand to the bar, but it was too late. The wobble had become irresistible. The bus snaked on in convolutions of ever increasing pitch, and in a second or two I described a lovely parabola over the handlebar. Tucking my head into my tummy, I tolled like a tennis ball across the turf at the side of the road, and finished up miraculously unharmed. But the poor Zenith . . .

However, I had learnt my lesson. After rebuilding, the bus earned me a number of prizes. But hardly ever again did I coffee-grind it at sixty. I made a few preliminary tests, found the gear which suited the grade in question, and went up with both hands attending to their proper duty - i.e., steering.

At long last Messrs. Sturmey and Archer - is there really an Archer? - came along, and saved the motor cyclists of a later age any such sufferings as we pioneers underwent.

XVI. TYRES

FOR sheer extreme blasphemy there has never been such a provocative as tyres. Yet, when all is said and done, we have never gone through a tithe of what car owners used to suffer. The first cars introduced into this country boasted at least one asset of real value - their tyres could never be repaired by the roadside. They were solid rings of rubber with a pair of elastic steel wires built into the rubber. These wires formed a circle of slightly less diameter than the wheel rim. How the tyre was ever put on, I do not know; I can only guess that the wheel was placed inside a giant refrigerator until it shrank sufficiently to pass under the tyre. On the road mishaps were, obviously of a final character, for the wires broke, the tyre snapped across, and came off. It might wrap one end round the axle, and lash the crew with its free end, but it never did this to me, always dropping gently off on to the road. With pneumatics our purgatory began. We were always being gladdened with advertisements of an unpuncturable tyre, but they were never much use. My chiefest agony occurred late one night on Romney Marsh with a huge prehistoric Daimler. It had Collier tyres with several inches of solid rubber for their tread. One of them punctured, and we discovered that the tyre was attached to the wheel rim as follows. In-serted in the beads of the cover were 48 small steel threaded studs. Drilled in the wheel rim were 48 holes. You pushed the 48 studs through the 48 holes, slipped on 48 washers and 96 nuts. Further, the tyre itself was about as bendable as a crowbar.

Motor bicycles at this date were mostly shod with 2-in. Clincher tyres, as light and flexible as a kid glove, and quite easy to manage. They were not much thicker than the tongue of a golf shoe, and could be punctured by a small thorn. But in practice punctures were genuinely rare, so far as the road itself was concerned. This is rather surprising, but the cause probably was that roads were soft and not very smooth, so that tintacks and horse nails got no real purchase against which to push; they lay sideways on the mushy surface of the soft road, and did us less harm than on the hard, smooth tarmac of today. On the other hand, our tyres were frequently done in by some eccentricity on the part of the machine. The wheel, for instance, was perfectly capable of dissolving, and after a few spokes had gone west, the hub would be forced out of centre, and a spoke would push up into

the tube. Or the rear brake would come adrift. Or the carrier would collapse, and force a mudguard stay into the tyre. Or the mudguard itself (a regular occurrence) would go west and cut the tyre before one could pull up. But the tyres themselves were the best part of the machine. They carried little weight, the drive was velvety, the speed was low, and the acceleration cautious. I once accomplished 15,000 miles on a pair of these thin Clincher covers, and I doubt if I had more than three punctures in the distance.

Early Tyre Repairs

When trouble occurred with tyres in the very early days, it could be spelt with a capital T for several reasons. No stand was ever provided, and we bought triangular trestles of light steel rod, which served the dual purpose of stand and carrier. They were pivoted on the rear spindle. For use as a carrier, you swung them up and fastened them by a short strap to the tail of the saddle. For use as a stand, you unloaded all luggage - pyjamas, tools, a salmon for Aunt Mary, spare belts, reserve lamp, etc., etc. - and swung the trestle downwards. The next step was to cast adrift the rear brake, a Bowden horseshoe, which at best enjoyed rather a precarious lodgment on the rear forks. If you unscrewed the two nuts on the ends of the rear spindle, and the wheel dropped out, it could then be removed to a grassy bank (if fine), or under a railway bridge (if wet), for the purposes of repair. The actual repair demanded extreme care. Modern quick-drying rubber solutions were unknown; the solution of the day took a very long time to dry, and the patch was very apt to peel off if the tyre got hot, either through such speed as we could achieve or through standing in the sun. We used to apply three thin coats of solution to both tube and, patch and let each dry for ten minutes or so before application; even then, the success of the repair was something of a gamble. Dust further complicated the business. The entire machine would be heavily filmed with grey grit in the era before road tarring commenced, and many of the spicules would be quite equal to puncturing a thin motor cycle tube; so one started operations by dusting the wheel most scrupulously. Passing cars would deposit a fresh layer of grit over everything, so that after solutioning tube and patch, we had to protect them during the drying process with our caps and coats.

A Step Forward

There followed an intermediate period in which tyre repair became simpler than it will ever be again. The shoe brake inside the belt rim was invented before gears came along. So by simply undoing two nuts on the ends of the spindle, the back wheel could be taken out in a few seconds, and a spare tube slipped into position. At one swoop the delay due to a puncture was thus cut from the best part of an hour to perhaps three minutes. During this chapter of history everybody carried spare tubes. The dandies stored them in patent cases of one sort or another; the die-hards looped them round their waists or shoulders. On important occasions-trials or road records-we never dreamt of starting without a spare cover aboard. The lightness of the covers can be gauged from the fact that we pressed them out flat, doubled them over, and packed them like a newspaper on the flat top of the carrier under our luggage.

Then chain drive came along, and the drop-out wheel disappeared for many a year. Solution was still chancey stuff, and tyres were rather stationary, and hardly equal to the speed and weight of our machines. Wheels could not readily be taken out, and a puncture became a very formidable, matter indeed. The remedy took the form of butt-ended tubes. In a trial one could see a machine begin to bump, the rider cast an agonized glance downwards and astern, rap out a horrid oath, and leap off. He instantly produced a knife, exposed the tube, and cut it across. From some private receptacle he would then produce a long rubber sausage, and fit it in place of the bisected and punctured tube. The best of these handy devices was the Rich, which had open ends with rubber-locking collars; properly handled, the joint was air-tight, provided that the tube was properly blown up, and the joint sealed with a smear of a special jelly. But if the tyre began to deflate, one was never sure whether the jelly had dried, or if there was a new pinhole puncture somewhere. Other tyre firms preferred tubes with closed ends, and a male to female joint. These were excellent when new, but the closed ends would “work” against each other, and chafe through. Altogether, the hard rider usually kept up a postal seesaw with his tyre factory-bisected endless tubes en route to be converted to butt-enders, and faulty butt-enders being sent for repair. The cost was quite a heavy item in a trial rider’s weekly expenses.

Skidding

Sideslip was, of course, much more worrying in the old days. The machines were top-heavy, and their drives were apt to be rough. In certain counties the mud was naturally gritty, and gave good tyre adhesion; in others, the soil was slimy when damp, and your machine would lie down at the least provocation. High saddle position gave one very little chance to save oneself by an extended foot. In South Devon, for example, real caution was necessary, for even in dry weather there would be slime at any corner beneath trees; the slime might be quite deep and well rutted; and if a modern machine would take no notice of such going, the heavy top-sawyers of those days never missed a chance to lie down. We used to finish long trials with sore hips, banged into bruises as the machine slipped from under us. Ere long we began to ask that our tyres should protect us against these heavy skids. The best of them all was the Palmer, which had a trebly ribbed tread.

But as tyres were still very small, this tread fitted tram-lines as if it had been made for the purpose. You may see agony written on the human face in war; in hospitals; at the finish of a cross-country race; but I have seldom seen such agony as a rider of the early days would display when he got a nice, high, giraffey sort of machine with both wheels dead straight and deep in a worn tram-line ; nor have I lately heard such a crash as he would produce when he and his ironmongery came down whonk on the stone Betts in which tram-lines were laid.

The Puncture Bogey

Tyres soon became the chief bugbear of competition work. To this day a tyre burst at high speed is the nightmare of the racing man; and we only hear little of this risk because modern tyres are so good. Times without number I have had a tyre burst at the fifties and sixties which used to be our maxima, and have had a breath-catching struggle to slow the machine before it crashed. Not a few men were killed at Brooklands and in the Isle of Man from no other cause. In reliability work success was practically impossible unless one was a first-class hand at tyre repairs. Nowadays punctures are very rare, and a quick and lasting repair is possible, whilst the machines are fast enough to make up for the time lost in a repair. Years ago, we were so slow and uncertain in our climbing that even at the modest pace required of us, a single puncture often meant the loss of

a gold medal. If we punctured, we leapt off and laboured like maniacs, perhaps in our flurry nipping the tube when we put it back, or excoriating it in the chain-sprocket as we turned the wheel. If we did not puncture, we rode like demons on leaving each check, so that if a puncture befel us, there might be some hope of repairing it inside our time allowance.

For many a long year motor bicycles had rigid and springless front forks. Quite obviously, discomfort would be acute if the front tyre were blown up to the pressure advised by its maker. So we ran our front tyres as soft as we dared, and they punctured at least as often as the rear tyre - probably oftener.

In a Six Days trial whenever we had a few moments to spare outside a checking station, we pored earnestly over our tyres. If you saw a competitor, sitting meditatively at night with a sullen face in the corner of a hotel bar, whilst his friends were rejoicing over their brief escape from effort, you might be sure that he had noticed a doubtful spot on one of his tyres. He would be wondering whether to chance continuing without a tyre change on the morrow. Before the start we were all allowed a short time for adjustments without penalty.

If some of his mates were willing to replenish his tanks, adjust his brakes, tighten up all his small fittings and so forth, he could probably fit a new cover without loss of marks by toiling like a demon. But medals were sometimes lost through this job taking longer than one anticipated; for standardization had not commenced, and neither wheels nor tyres were necessarily of the size which they were supposed to be. The new tyre might drop on to the rim and roll off of its own accord in a mile or two; or, on the other hand, it might take three strong men, sweating blood, to lever it over the rim.

As a rule, we preferred to fit a new cover in the shelter of the official garage. On such occasions the unlucky wight who was due to fit a new tyre next morning was the object of general sympathy. He was early outside the garage doors next morning, and his pals kept the crowd back while he poised himself for a dive into the yard the instant the gates were unlocked. One held his coat and vest and overalls; half stripped for Herculean effort, he leapt at his machine when the clock struck, and friendly hands attended to its mechanical needs whilst he swore and sweated at the tyre.

I myself have changed the rear cover seven times in a Six Days trial without losing a mark. In fact, the tyre bogey interfered so seriously with the data of mechanical tests that the authorities introduced facilities for repairing or changing tyres without penalty twice a day. In one trial at least, everybody was en-couraged to change both tyres after the third day. Tyre makers have now risen to the occasion, so that punctures are comparatively unknown.

Oddly enough, one of my very latest tyre stops was as long as any in my existence. I took out a brand new machine the other day for a four mile run. Two miles from my door the back wheel began to bump, and I got off. The trouble was obviously in the valve, and I pulled it out. The tiny rubber sleeve had obviously been long in stock at the factory, had perished, and remained behind in the barrel portion of the valve which is fixed to the tube. I had no tie-pin or other small probe with which to get it out. The road was lonely, and I waited a long time before anybody appeared, when at last a pretty girl hove in sight pushing her cycle up the hill. Assuming my most ingratiating expression, I walked coaxingly towards her. There had been a brutal murder in the neighbourhood a few weeks before, and the miscreant had not been traced. She hesitated. Finally, as I drew nearer she took fright, turned her machine round, scrambled on to the saddle, and pedalled off for dear life. (Mopping my heated brow, I had got some chain grease on my face.)

Another long wait. Nobody came. So at last I climbed a small hill, sighted a cottage some fields away, and went off to borrow a pin. Armed with a nice fat hat-pin, I trudged back, and cleared the barrel of the valve. Another trudge to return the hat-pin. On my return, there proved to be a crumb of rubber in the fine hole of the valve itself. Another long wait. Another trudge, and a thin needle at last cleared out the last obstruction. Back to the machine. Alas, fate had a fresh blow in store, for there was no spare valve rubber in my repair outfit. Loud and hearty maledictions on all merchants who put up tyre repair kits devoid of this essential.

At long last the local policeman happened along on his bike, and produced some rubber sleeving. Ever since I have taken a meticulous interest in the condition of my tyre valves and repair kit.

THE END

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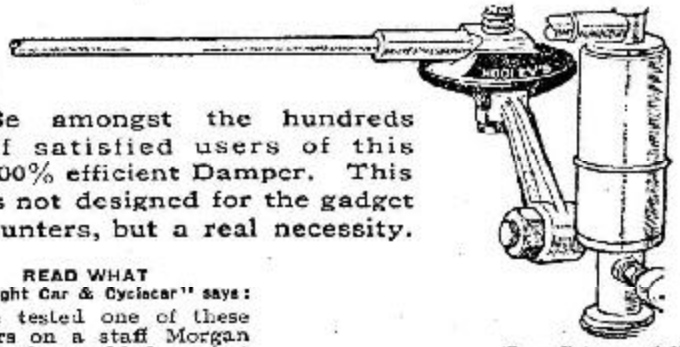

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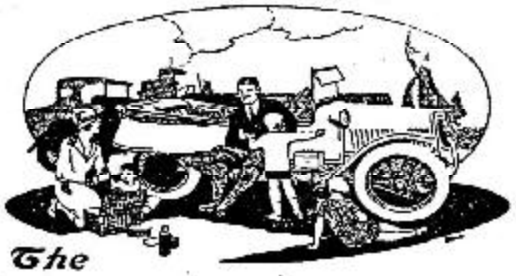

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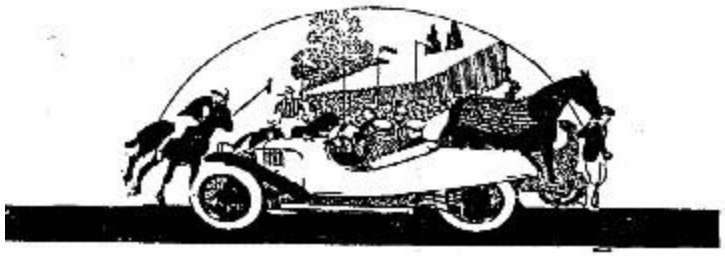

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