

THE AUTOCAR

A Journal published in the interests of the mechanically propelled road carriage.

EDITED BY H. WALTER STANER.

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COLONIAL AND FOREIGN EDITION.

IN ADDITION TO THE USUAL EDITION OF "THE AUTOCAR," A SPECIAL THIN EDITION IS PUBLISHED EACH WEEK FOR CIRCULATION ABROAD. THE ENGLISH AND FOREIGN RATES WILL BE FOUND ON THE LAST PAGE. ORDERS WITH REMITTANCE SHOULD BE ADDRESSED "THE AUTOCAR," COVENTRY.

The Autocar can be obtained abroad from the following:
 AUSTRALIA: Phillips, Ormonde, and Co., 533, Collins Street, Melbourne.
 FRANCE: Nice, Levant, and Chevalier, 50, Quai St. Jean Baptiste.
 UNITED STATES: The International News Agency, New York.

Notes.

Road Lubrication.

Attention still continues to be given to the treatment of road surfaces with heavy oil on the Continent. Following hard upon M. Henry Deutsch's experimental section near St. Germain, we hear of trial stretches being laid in Italy. It is estimated that the treatment of a kilom. of road (1,092 yards) of average width requires for its proper treatment about two tons of heavy oil. The cost of this oil in France is £8 per ton, so that, broadly speaking, the cost of the treatment may be set down at £20 per kilom. But hydro-carbons are subject in

France to an *ad valorem* duty of ninety per cent., which would not be imposed upon material imported for state use. Thus the cost of oiling a kilom. of road would be reduced to an inconsiderable figure. Heavy oil has been employed in the above connection with excellent results in the vicinity of Oran, Russia.

Interchangeable Parts.

The careful automobilist, of course, carries spare parts, such as inlet valves, exhaust valves, etc., but he may perhaps not be careful enough to see that these are absolutely interchangeable with those in the engine, and on having occasion to use the spare parts he may find that they do not fit. This warning is prompted by a recent experience of one of ours, who, when grinding in his exhaust valve, thought that he would also grind in his spare one, as the surface appeared slightly rusty. On putting the spare valve into the engine, he found that this was nearly half-an-inch longer in the stem than it should be, although it was purchased with the car from the authorised agents for it. Fortunately, this happened in the owner's workshop, and the end of the valve stem was easily cut off; but if it had occurred by the roadside it would have been a tedious job. Of course, such experiences would be impossible if all valves were absolutely interchangeable, but this is not always the case.

The Terrors of the Road.

That august body known as the Westhampnett Council—wherever Westhampnett may be—has amongst other things recently considered the important question of automobilism, and, apparently, it has its own opinions upon the subject. The Rev. W. W. Kelly, one of its prominent members, although he disclaimed all animosity towards motor-car owners, pointed out to his fellow members with great eloquence that the dangers to which the public were liable, owing to the furious driving of automobiles, were so great, and were increasing to such an extent, that it was high time firm steps were taken to prevent accidents. He moved "that it is desirable a number or other conspicuous distinguishing mark be carried by all motors in the interests of public safety, and that a copy of this resolution be forwarded to the Local Government Board." This at once brought another clerical councilman—the Rev. W. F. Shaw—to his feet, and with a pathetic flow of oratory that would have better fitted a worthier cause, pointed out that while the authorities did not want to interfere with the legitimate enjoyment of those who could afford to keep motor cars, it was absolutely necessary that public interests should be safeguarded. The way motor cars were driven along country roads was specially dangerous, and in his own parish, while Goodwood races were

on, he had seen these vehicles travelling at a pace of twenty miles or more, much to the danger of little children and pedestrians generally. The Rev. W. J. H. Newman, yet another member of the cloth (parsons and politics are evidently synonymous terms Westhamnett way), said he agreed with everything that had been said, except that, while Mr. Kelly had no animosity, he certainly did entertain this feeling towards motor drivers. After the members had fully recovered from the effects of this remark, which they considered highly humorous, but which, in our opinion, showed the speaker to be a prejudiced individual, the rev. gentleman went on to say that they—the drivers—were the terrors of the road, and besides spreading danger around, owing to the furious pace at which they went, created clouds of dust, which were most unpleasant to those who were left behind. Other gentlemen having given vent to their feelings upon this vital question, the proposition of the Rev. W. W. Kelly was put to the meeting and carried with a unanimity which is surprising and wonderful when we bear in mind the contrary spirit which exists in most councils. We are afraid the chronicling of these proceedings is hardly worth the space it occupies, but, at the same time, it is yet another example of the bigotry and narrow-mindedness which exists in many parts of this country. The wild exaggerations of these pettifogging councils may be amusing, but at the same time they are harmful, and tend to mar the progress of a glorious pastime and a great industry. It is this seventeenth century conservatism that has in many respects pulled England behind other countries, for although she is supposed to be ruled by enlightened legislators, these little parish councils exert an extraordinary amount of influence on the unenlightened mind, and play a far greater part in English government than many imagine.

The Way to Learn.

There are many ways of learning all about a new motor. Of course, the best way and the one which gives the least trouble, is to have an intelligent man from the works, and to put in an hour or two each day with him, carefully going over each part and its mission; but, above all, the new owner should thoroughly understand what it is necessary to do when he brings his car in after a drive. At the same time, this way has its objections to an owner who does not mean to keep a mechanic, and we must say we think those who dispense with the services of an engineer get the most enjoyment out of their car if they are at all mechanically inclined, as it is a pleasure to keep a good machine in the best running trim. The objections we refer to are based on the fact that knowledge so easily come by is apt to be as quickly forgotten, and it is only by experiencing the bad effects of the omission to, say, turn off the lubricating oil or to push the switch over, that the importance of these little attentions is realised when the car is put up for the night. What we may call the heroic course was adopted a few days since by an owner and his friend. They only obtained delivery of the car at nine o'clock at night, and thereupon they started for a hundred miles drive. They intended to stay the night about forty-five miles out, and to go on again in the morning, but the motor thought other-

wise, and on a hill inconveniently situated two or three miles from everywhere, the engine stopped, and the two enthusiasts proceeded to investigate the cause in the dark, and it is to their credit that they found it. It happened to be a loose terminal wire on the accumulator, but only they know how many other parts of the motor were tested before the cause was ascertained, as they naturally went in for plug changing and other remedies first, as they did not expect to find a loose wire on a new car. However, the great point was that in their nocturnal researches with nothing but the glimmer of a side light to help them, they obtained an intimate acquaintance with that motor which will serve them indefinitely, as they had to effect their adjustments by feeling rather than sight, and consequently their knowledge of the machine is now like Sam Weller's of London. Their adventures were none of them startling, though perhaps at times a little tedious, particularly as an involuntary stop which occurred again a little later for a time absolutely baffled them, and when they found it out the morning had dawned; so, banishing all thoughts of sleep, they drove blithely to their destination, arriving exactly at the time they had said they would.

Over-lubrication.

It may be instructive to say that the second stop, and the one which gave the two motorists referred to above so much trouble, was due to over-lubrication. Here again the makers were partly to blame, as the lubricators had been adjusted to feed at about double their proper rate, and, although the indications pointed to over-lubrication, such was the faith of the new owners in the manufacturers that they did not imagine till they investigated the state of the valves that this was really the cause of the trouble. When they had run off the superfluous oil, washed the engine out with a little petrol, and cut down the oil supply to half, their trouble was at an end, and they now feel able to cope with anything, and they have a knowledge of the engine and a confidence in themselves which they would not have obtained for a long while by any less laborious method. We daresay non-automobilists who read this will pity our friends, and think what a miserable drive they must have had, but we can assure them their pity is wasted. The two are absolutely satisfied with themselves and the engine, too. They know they have acquired a thorough knowledge of its idiosyncrasies. They understand the symptoms of practically any cause for stoppage, and they assure us—and we can well believe them, for we have experienced somewhat similar things ourselves—the delight of getting the engine to run at full power after it had seemed to have hopelessly struck work was such that the delay and the loss of a few hours' sleep were forgotten, and treated as a mere nothing. In fact, they both say they would not have missed the experience for anything, and from what we know of their car we quite expect they have had all their roadside delays for many months to come in one strong and rather full dose.

The increasing popularity of automobilism is credited with smashing up the fashionable golf club at Newport, the famous American watering-place.

HOME FOR THE HOLIDAYS.



Mr. F. T. Marwood, of Pleasington, near Blackburn, kindly sends us an interesting photograph of his 12 h.p. Belsize car, which was taken at the entrance of Ampleforth Abbey—a Benedictine monastery and college, twenty-five miles north of York. Mr. Marwood's two sons are seated at the back of the car, and they enjoy the distinction of being the first two boys who have left the Abbey for home by motor car. The distance from Ampleforth to Pleasington is 105 miles, and the journey was completed almost as quickly as it would have been by railway, not because excessive speed was compassed,

but because no time was lost in getting from the college to the railway station, and so forth. As to the enjoyment and invigoration experienced, it is, of course, unnecessary to make comparison with the railway, as everyone knows how tedious and enervating is railway travelling even under the best conditions. The canopy and dust screen had only just previously been fitted, and they were found a great success. In fact, Mr. Marwood tells us he would not be without them on any account. They undoubtedly render the automobilist independent of the weather to all intents and purposes.

Queen Maria Pia of Portugal is the latest royal convert to automobilism, Her Majesty having become the possessor of a splendid 12 h.p. car.

* * *

Mr. L. Savory writes: "I should like, through your columns, to recommend to tourists the Sussex Hotel at St. Leonards, just to the west of St. Leonards' Pier. The manager is most attentive, and does all in his power to meet the wants of motorists, and also stocks petrol, and is, I believe, going to keep lubricating oil, etc. Any friends I have recommended have invariably spoken of the attention they received in the yard and the comfort of the hotel."

The Automobile Club of Austria has organised a race for September 7th on the route between Scholtivien and Semmering. The competitors will be divided into three classes—First, for speed; second, racing speed; third, for sale. In the speed categories will be included motocycletes, with maximum weight of 50 kilogs., an additional weight of 7 kilogs. being accorded for those driven by electricity; motorcycles, with three or four wheels, up to 250 kilogs.; voiturettes up to 400 kilogs.; light cars from 400 kilogs. to 650 kilogs.; cars from 650 kilogs. to 1,000 kilogs.; and electric cars. The distance is about 10 kiloms.

MR. HEWETSON'S 5,000 MILES DRIVE.

The Pioneer Automobilist Interviewed.

As far back as May last we announced Mr. Henry Hewetson's intention of driving a 5 h.p. belt-gear driven Benz car a distance of five thousand miles, by daily instalments of 100 miles, until the full tale was completed. This would make fifty consecutive days' driving—a test sufficient to prove all that is desired of latter-day automobiles. Mr. Hewetson turned out for his first century on the 9th of June last, and covered his concluding hundred on July 29th. Chatting the other day with Mr. Hewetson over this most satisfactory experience, we elicited from him that it was as far back as the summer of 1894, two years and more before it was legal to dribble a car along at twelve miles per hour in this country, Mr. Hewetson, who was then interested in coffee, found himself in Mannheim on business, and noticed several of the earliest Benz cars running merrily about the town. He was much taken by, and attracted to, the little self-propelled machines; so much, indeed, that he sought out Messrs. Benz and Co. and discussed cars with them. Ultimately, by persuasion and the assurance of these far-sighted German gentlemen that legal or illegal England must come to it, he bought two and took them back to Catford.

Boldly he made local trips thereabout, and for quite six weeks his automobile career was interrupted by a visit from the inspector of police, who, while expressing regret at the duty Scotland Yard imposed upon him, informed Mr. Hewetson that if he ran "that thing" upon the public streets again he (the inspector) would be obliged to take notice of it.

The Red Flag Period.

In that distant age, and the only automobilist for many miles, this would have discouraged most, but not so Mr. Hewetson. He retained two youths; one he caused to ride like a vedette on a bicycle some way in front of the car, the other occupied the seat with Mr. Hewetson until the moment for his action arrived. As soon as the point on the bicycle descried a gentleman in blue afar off, he wheeled and returned with the information, when Mr. Hewetson dismounted his passenger-boy and caused that youth to stroll in front of the car carrying two square inches of red linen mounted on an exaggerated match-stick, and so complying with the law beneath the eyes of the law, avoided trouble.

Other pioneer work was later performed by Mr. Hewetson, but of that we have not space to speak now. Our concern is with Mr. Hewetson's latest performance, and we asked him what had prompted him to undertake the long drive.

"Well, you see," returned Mr. Hewetson, "a large percentage of the outside public are still imbued with the opinion that motor cars break down, and I thought if I could drive hundred miles a day for fifty days, taking just such gentlemen as would offer themselves, and a fresh one every day, the effect of such a drive, if accomplished without any breakdown which deserved the name of a breakdown, might help in removing an impression which you know is to-day an absurd one."

No Breakdowns.

"None better, Mr. Hewetson," we replied, "and as a matter of fact you did drive this standard 5 h.p.

geared Benz the stated 100 miles per day until the total of 5,000 miles had been piled up, without anything in the shape of a serious breakdown."

"Most assuredly. Let me tell you just exactly what was done to that car during those fifty days." Here Mr. Hewetson consulted a diary in which the route, exact distance, the name of his companion, weather, and state of the roads, etc., for every day's drive was scrupulously entered, and presently ejaculated: "Oh, yes. I see I took my chains up once, and renewed my sprocket wheels once. This replacement was due to the bad weather through which I drove, and the gritty nature of the mud on the Surrey, Sussex, and Hampshire roads I generally drove over. The belt I never touched from start to finish, which is, I think, something for the anti-belt driving people to ponder. The car, as one and all of the fifty passengers I carried will testify, ran most satisfactorily from start to finish, and I may add runs better now than when first she started on her long job."

"What routes did you particularly favour, Mr. Hewetson?" we asked.

"I preferred the run to Odiham, *via* Richmond Park, Kingston, Staines, Egham, Sunningdale, Bagshot, Blackwater, and over Hartford Bridge Flats to Odiham, returning through Farnham, over the Hog's Back to Guildford, and along the Ripley Road. I made thirty runs over this route, chiefly because I found my guest and I were so well looked after by Mr. Heath, the proprietor of the George Hotel at Odiham, whose hotel may be said to be a model house of call for the automobilist. No charge is made for housing the car, the cooking is excellent, and the wines are beyond reproach. Then I ran to Brighton and back, and once or twice fifty miles down the Bath road for the balance of the journeys."

Petrol Consumption.

"Did you keep any record of your petrol consumption?"

"Oh, yes. I could generally cover forty-four miles on a gallon of petrol if the weather was dry; but if humid thirty miles was about as far as that quantity would run me."

"Any trouble with horses during so much driving?"

"Only once, and that at Camberley, where a horse, driven by a Captain Le Brett, twisted clean out of its harness and cut its back on the lamp; but the Railway Passengers have that matter in hand."

"How was your car tyred?" was our next question.

"Oh, I had Clipper-Michelin pneumatics on my steering wheels and Connolly solids on my drivers, and I may say that I regard this as a splendid combination."

"Punctures?" we queried.

"But three," was the reply, "and those simple ones. I only blew up those tyres ten times during the 5,000 miles. Good, wasn't it?"

Some of the Witnesses.

"You carried a good many well-known people during your run, Mr. Hewetson," we said. "May we ask for the names of some of these gentlemen?"

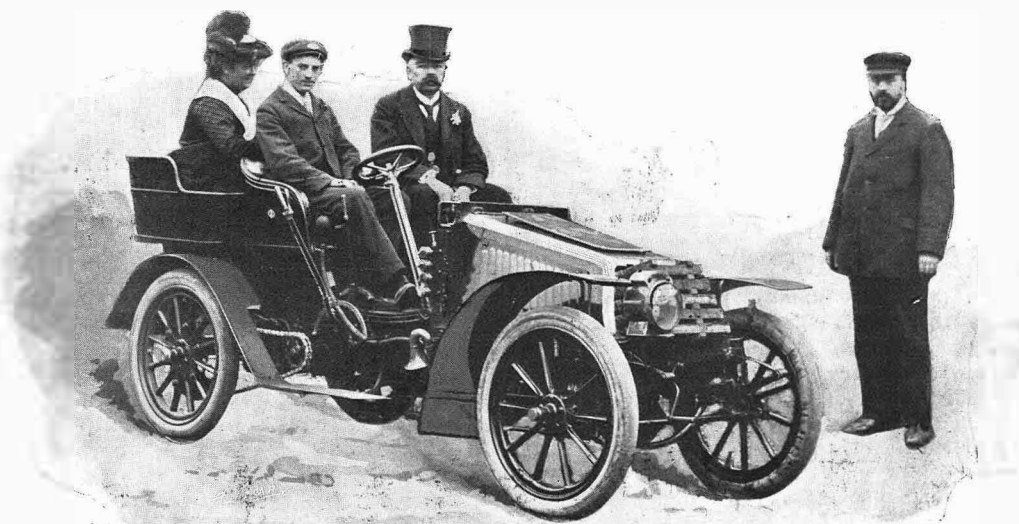
"Oh, yes. Let me see, there was Sir John Macdonald. I met you on your Arevill the day I had the Lord Justice Clerk on board. Then there were Mr. R. J. Hicksted, LL.D., M.I.J., the English repre-

representative of the *Ottawa Free Press*; Mr. Allan Bonfield, of the *Financial Times*; Mr. A. Hughes Buffon—no, no relation to the Swedish naturalist that I know of—of the *Gentleman's Journal*; Miss Simpson, of the *Free Lance*; Countess Von Hahn, the Rev. H. R. Clements of St. George's Chapel, Mr. Marks, of the *Financial Times*, and many private ladies and gentlemen, who took a keen interest in my runs. I used to pick up at the Carlton every morning at 10 a.m. Then there was Mr. Armstrong, of the *Globe*, who drives a Mors, and expressed himself delighted with the running of my Benz. Oh, yes, on the whole the thing was a great success; but I could have done with better weather."

"Well, we congratulate you, Mr. Hewetson," we replied, "and we think that by your persistent and successful driving you have not only demonstrated the already-accepted reliability of the Benz car, but you have conferred a distinct benefit upon the automobile movement by your five thousand miles in fifty days. Then the car is to be sold at public auction in the middle of September for the benefit of King Edward VII. Hospital Fund?"

"Yes, that is so," replied Mr. Hewetson, as shaking hands we left him to catch up the huge arrears of work his big drive had made for him; but he is so fit and well after his fifty days on the car that he feels he can make light of the task before him.

THE MAYOR OF BRADFORD.



Mr. C. Lupton, the Mayor of Bradford, is the owner of a 16 h.p. Pieper, supplied to him by the Bradford Motor Car Co., of the North Drill Hall, Belle Vue, Bradford. The car is driven by Mr. J. W. House, the son of Mr. Albert House, the manager of the Bradford Motor Car Co. The people of Bradford are to be felicitated on the possession of a chief magistrate who is so thoroughly up to date.

The acquirement of a motor car is almost invariably a proof that the owner is an enlightened and unprejudiced man, and no body of sportsmen in the world know better than automobilists that an unprejudiced mind is one of the most important—if, indeed, it is not the most important—qualifications of a magistrate. If all magistrates were automobilists, only really furious drivers would be fined.

Amongst automobilists, in the present position of the law, it is very properly regarded as a thing unpardonable to give up another man's card when stopped on the road by the police. Those who remember the inconvenience and annoyance which resulted from this practice on the part of cyclists some years ago have no desire that automobilists when held up should be haled off to police stations, and there detained for hours until their addresses are verified. It will be remembered that just lately a Mr. J. W. Lancaster—who, we believe, does not own or drive a car—was summoned for exceeding the legal limit of speed on a self-propelled vehicle near Staines. His card had been handed to the

police by the police-esteemed offender, and automobilists generally felt that this action had cast a slur upon the cult. In the beginning of the week we received a call from the gentleman who was held up, and who fears that quite by accident, due to his attention being diverted by the rage of another police victim at the moment, he gave the officer favouring him Mr. J. W. Lancaster's card in lieu of his own. His regret is very real, and he has already communicated with Mr. Lancaster, expressing his deep concern, and offering to bear all charges to which Mr. Lancaster may have been put by his unconscious error. It is most satisfactory to find that the act was accidental, and not intentional.

A MOTOR CYCLE RACE MEETING.

The impressions of an amateur onlooker.

IT is always interesting and valuable to have the impressions of an unprejudiced onlooker when he beholds for the first time an innovation, whether it be in sport or any other department of life. People who are more or less used to certain new things are often almost unconscious of the easily remediable defects or shortcomings in connection with these innovations. They have seen worse, they know they are transitional, and consequently scarcely regard as worthy of record the items which strike, and often unfavourably strike, the man who comes fresh to the subject. This being so, the impressions which "H." has been good enough to send us of the motor cycle race meeting held at Plymouth on the 9th inst. will be read with interest by all motor cyclists. At the same time, as will be recognised from his comments, our correspondent is a practical amateur motorist, and merely a novice so far as that branch of automobile sport—motor cycle racing—is concerned.

The meeting was an interesting one, but the impressions left on one's mind were some of them disappointing. Scarcely any machine seemed to be able to keep its speed up throughout a race. Even the best had their periods of depression, when for a lap or two the pace fell off noticeably, while some never got into their swing at all. As far as I could see, it was generally a case of the mixture altering, and one wonders how many carburetters are really automatic enough to give the proper mixture without constant attention.

While on this subject, I notice that the Longuemare or the surface carburettor are the ones principally used by the practical motorists of my acquaintance, but both need a lot of attention when running.

As to machines, the Werner was a great disappointment, and I think, considering the known excellence of the machine and its recent performances, that the rider was at fault. The Clement-Garrard was, as might be expected, noticeably underpowered, though it plodded along gamely, and might do as a touring machine for a light weight. The Humber and Excelsior both looked and went well, though troubles with the mixture occurred at times, and the former was certainly my choice of the lot. Rigal's "puffing-billy" was, of course, much faster than the others, and he rode it very pluckily on a track which must have been distinctly dan-

gerous for a machine of that power (8 h.p.) As he does not use a silencer, the noise was considerable, and this and the way he passed and lapped his men as he pleased, owing to his great speed and admirable riding, drew all eyes on him when he was on the track. His pace was not record, as he had always to shut off when turning at one end, and frequently at the other, but his performance was well worth seeing as a performance. It did not at all impress one with a desire to imitate him. Even on the asphalt track the great vibration of such a machine was very noticeable. On the other hand, the Humber and Excelsior appeared to be excellent touring machines as they stood, and the writer felt sorry that he had one of quite another type on order, impelled by the popular idea that a vertical engine is better than an inclined one—an idea that appears to be a fallacy as far as bicycles are concerned.

Another thing struck the writer forcibly at this meeting, and that is the great carelessness in matters of appearance affected by racing men. Except Yates and Martin, the riders were turned out shabbily and carelessly. Rigal in particular looked like a stoker attired for the practical exercise of his vocation. It seems a pity that there is no recognised standard dress for motor cycle racing. Surely a neat leather suit and cap with appropriate badges might easily be obtained, which would give at once a neat and distinctive appearance to the rider. H.

COMPACT VOLTMETERS.

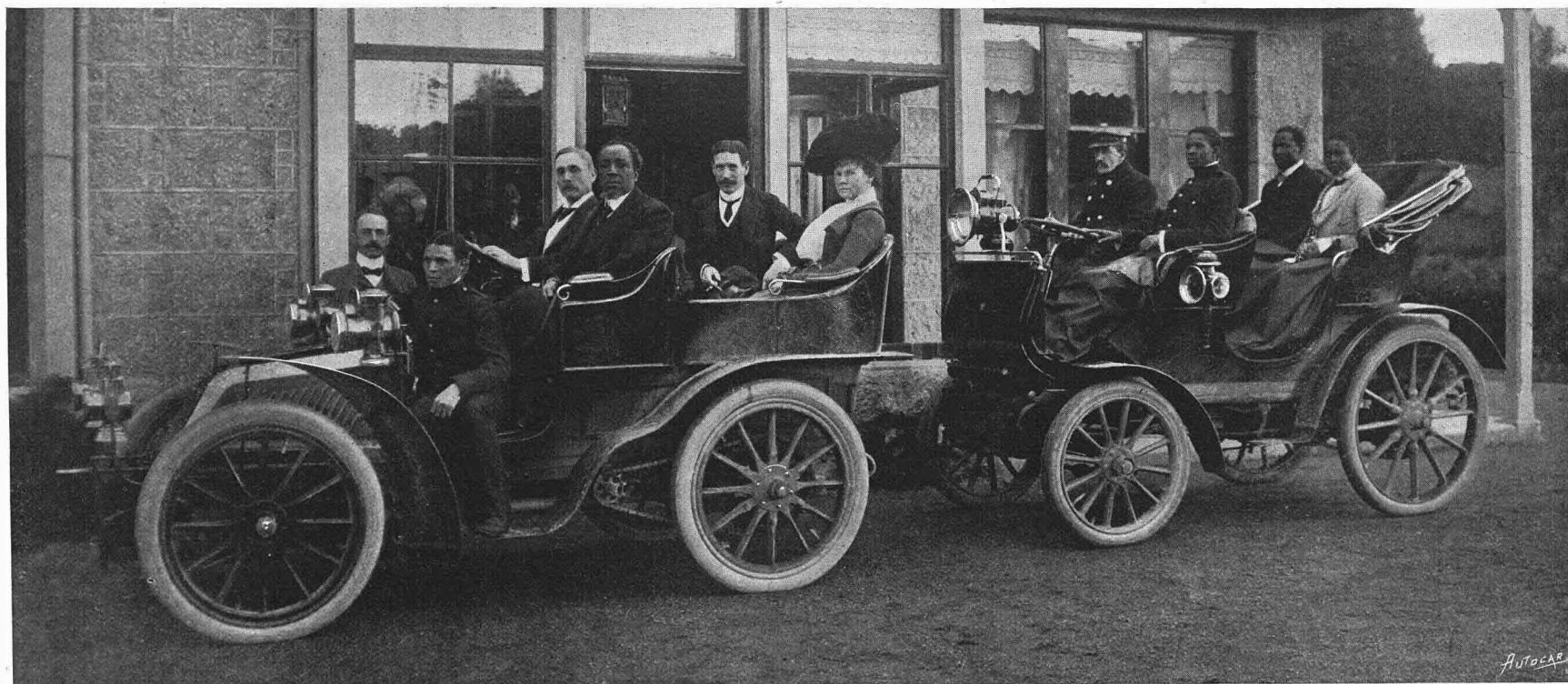
Our paragraph headed, "Wanted, a compact voltmeter," appearing on page 169 of our last issue, has resulted in some instruments being sent to us for inspection. Up to the present, that sent in by Messrs. Geipel and Lang, Parliament Mansions, Westminster, S.W., is the best instrument we have yet come across, though this does not fulfil the requirements as to size. The instrument has an extreme diameter of $2\frac{1}{4}$ in., and is $\frac{1}{2}$ in. thick exclusive of terminals, which add another $\frac{3}{8}$ in. to the thickness. Each terminal is provided with an adjustable prong, with which the circuit is completed across the terminals. Wires can be attached to the terminals when necessary without removing the prongs. What is of more importance than actual size is the correctness of the instrument. As all practical automobilists know, a primary or secondary battery after standing for some time recovers itself, so as to show as much as twenty-five per cent. above its true current on testing. The reason of this is that with the ordinary voltmeter no current is taken out in testing. This new voltmeter is, however, designed to measure the voltage, and at the same time to cause the current to be discharged at its normal

rate of working. The result is that only the actual current available for working is registered. The needle of the instrument has no swinging motion; it goes up to the limit of the voltage without a shake, and stays there until the circuit is broken. Further, the needle may be adjusted to zero by turning a small screw on the right of the case, and the index is marked with the exact full working capacity of the accumulator, viz., 4.4 volts. The instrument, which is known as the "Vulcan," may also be obtained reading to 2.2 volts, and ampèremeters on the same principle are also being manufactured.

Messrs. J. C. Meredith, Ltd., send us a specimen of their pocket voltmeter, which is, as it stands, $2\frac{1}{2}$ in. in diameter and $1\frac{1}{8}$ in. thick. They hope to reduce its size to $1\frac{1}{2}$ in. diameter and $\frac{3}{8}$ in. thickness, which is about the size of a man's watch, though a little thicker.

Messrs. Moseley and Co., 136 and 138, Horseferry Road, Westminster, also tell us they are about to put upon the market a small instrument, which is really an ampèremeter, convertible into a voltmeter, with accessories. With these a descriptive pamphlet will be sent out, showing how to use the instrument.

A NEW EXPERIENCE FOR KING LEWANIKA.



Mr. J. H. Paterson (Managing Director Caledonian Motor Co. Ltd.)
Interpreter.

Mr. Robert Williams. Col. Harding, C.M.G.
King Lewanika. Mrs. Robert Williams.

King Lewanika's staff.

During his visit to the North, King Lewanika of Barotseland enjoyed some automobilism. The photograph which we reproduce was taken at the residence of Mr. Robert Williams, of Aboyne, at the time of the Central African king's visit. The first car is the new four-cylinder 16 h.p. Peugeot, with mechanically operated inlet valves, and governed on the ignition as well as the throttle. The back one is an 8 h.p. Peugeot phaeton.

* * *

Mr. A. J. Wilson has been appointed an official timekeeper to the Automobile Club.

Prince Henry of Prussia during his visit to England enjoyed several drives in the King's Daimler. He was very pleased with the running of the vehicle, and one of his favourite drives was to Richmond.

* * *

Mr. James Beach, of the firm, Messrs. James Beach and Co., electrical and general engineers, Taunton, informs us that in the recent Coronation procession in his town his daughter, who is only fourteen years of age, drove a 5 h.p. Panhard, while Mr. Percy Beach followed steering a 5 h.p. Benz.

The Canterbury Motor Car Co., of 5, St. George's Gate, Canterbury, is open day and night throughout the year for repairs, petrol, supply of spare parts, etc.

* * *

Mr. Thomas Shaw, of Dundee, had a splendid run last week on his 9½ h.p. Clément. Starting from the Dundee post-office at four o'clock in the morning, he, after a very exhilarating drive, entered Aberdeen at 6.30, the journey of sixty-six and a half miles occupying only two hours and a half. This was an excellent performance.

THE DETACHMENT, ATTACHMENT AND REPAIR OF GOODYEAR TYRES.

All whose automobiles run on Goodyear tyres do not need to be informed that they are proof against most of the puncturing agents encountered upon the roads; but I incline to the opinion that nothing in the shape of a rubber and fabric pneumatic cover, save some heavily armoured type not yet obtainable, is proof against $2\frac{3}{8}$ in. French nails, with their business ends ready for the fray. At all events, my staunch $30 \times 3\frac{1}{2}$ in. Goodyears do not appear to be, for after running some six hundred miles without giving me a moment's uneasiness, or requiring a single stroke of the pump, the near side driving tyre succumbed to the pressing attentions of the two penetrating articles referred to.

I am led to refer to the incident for the reason that many kind friends, upon learning that my car ran on Goodyears, have been at some pains to depict in lurid terms the particularly enjoyable time I should have when the inevitable puncture arrived. Consequently my gaiety of spirit was not remarkable when, issuing from Richmond Park and about two miles from my stable at the close of a sixty miles run, I discovered my tyre squabbling out in a very ugly manner, and realised that the oft-prophesied puncture had arrived at last.

Now, Messrs. the Goodyear Tyre and Rubber Co. tell you that you may, if you are willing to sacrifice your inner tube, drive at least ten miles on a deflated tyre, so long as you drive slowly. But the sacrifice of—nay, even partial injury to—an air tube was by no means to my fancy, to say nothing of the fact that any true automobilist should hold it shame to shirk any roadside repairable injury to his tyres.

Nevertheless, as I prepared to tackle the job, I cannot truthfully assert that I was altogether comfortable, for somewhere at the back of my brain there lurked the fragments of a legend concerning the unavailing struggles of three strong motor workmen through the long hours of a summer day to wrench a large and too tenacious Goodyear cover from its proud felloe.

But dire foreboding was mercifully tempered by a whisper that in another place one, newly introduced to Goodyear tyres and armed (as, alack, I was not) with the special tool supplied therewith, had deposed and again attached a far heavier Goodyear cover than mine in the space of nine minutes. So encouraged, I assailed my task, armed with an ordinary spanner, and made short work of unscrewing the eight large flange bolt nuts and the eight smaller cover bolt nuts which must be removed before the steel flange which retains the cover edge on the flat iron felloe can be removed. Owing to the holding of the paint, it was necessary to insert the end of a screwdriver between the wooden felloe and the inner edge of the flange before the latter would come away, but when this was done it was an easy matter, by the use of the same screwdriver, to lever the edge of the cover off the iron felloe sufficiently to get finger hold, to draw it still further away, and from the wheel, and get at the air tube. The fabric flap on the inside cover, which saves the inner tube from nipping or other injury, gives no trouble in withdrawing it; but what does oblige the uninitiated

to consider whether after all a plaintive wire to the Goodyear folk would not be the better way out of the trouble is the task of getting the valve tube sufficiently high up into the inner crown of the cover to rise clear of the felloe valve hole. By no amount of pulling and hauling at the cover—and I pulled and hauled and perspired for hard on half-an-hour—could I raise that valve tube just the short $\frac{1}{4}$ in. necessary to free it, until, taking a hammer by the head, I thrust upward against the valve plate on the air tube, and the trick was done.

But the most instructive part of the story has yet to come. Upon examination of the tube, I found a slight leakage of air at the joint, and with that haste that seldom makes for speed I concluded that therein lay the source of the deflation.

By the aid of the hammer trick, a spare tube was positioned without difficulty, and then the job of getting the cover edge back on to the rim and the steel flange into position had to be tackled. I found that the cover edge could be easily induced into its place by screwing up the tyre bolt nuts against it, although what subsequently happened showed me that this could easily be effected by the hand.

When taking off the flange, I had most unwisely omitted to mark it and the felloe, so that I could at once replace it whence it came, and as the sixteen bolts do not occur at exactly equal intervals all round the wheel the exact position of the flange had to be fossicked for.

In replacing and bolting up the flange, I found it best to ignore tyre bolts for the time, and start screwing on flange bolts where they gave the best bite for the nuts. As each successive nut was screwed home more of the flange bolt ends came through, and the job was simple enough. The holes in the flange taking the tyre bolts came true, and these bolts, such of them at least as were not proud of the flange, were easily tapped through from the back. These all duly nutted, there remained but the pumping, and having sufficiently inflated the tyre I was taking a last look at my handiwork, with more than a just feeling of pride, when, alas!—and this is the pitiful part of the story, pitiful because born of thoughtless neglect of the advice I have so frequently and forcibly impressed on others—I saw to my horror and dismay the shining head of an evil-looking French nail flush with the tread. Sick with dread of the hiss of the imprisoned air which I felt sure would follow, I withdrew it with the pliers, and, oh! joy, nothing happened. But ill-luck had not deserted me. An inch away I noticed a small hole with inturned edges, and fearfully I probed it with the point of a knife blade, to feel something hard about $\frac{1}{8}$ in. beneath the surface. I stretched the hole, to discern a metallic gleam below, and by an extractive effort which would have shed glory on a dentist, I, by means of a pair of sharp-nosed pliers, withdrew a horrid headless French nail $2\frac{3}{8}$ in. in length. The hiss followed. I had blown up the spare tube only to puncture against this instrument of evil, and all *démontage* and *montage* had to be gone over again. But I had yet another spare tube,

and, having profited by experience, I had that tube out, a fresh one installed, and the tyre fit for the road in a shade over half-an-hour—not so bad for a Goodyear novice, unprovided with the special nut-removing tool supplied by the company, which now I have, and so armed am sufficiently exalted to dream even of approaching the above-mentioned

nine minutes record. This have I written, in order that the possessors, or those who contemplate the fitting, of Goodyear tyres may in no way be dismayed or scared by the dire prophecies of those who have only "heard, you know."

HARRY J. SWINDLEY.

CONTINENTAL NOTES AND NEWS.

Racing Machines for Touring.

There has always been a tendency among a certain class of automobilists to possess the fastest and most powerful vehicles that money can buy, and during the early days of the industry wealthy owners never hesitated to get rid of old cars and replace them with powerful up-to-date automobiles that had gained a reputation for speed. So long as the autocar was undergoing a process of rapid evolution, this was perfectly natural, since a vehicle was soon outclassed by improvements which aimed not only at higher speed, but also tended to secure greater comfort and reliability. As soon as the French got accustomed to racing vehicles, and saw that there were certain limitations to the use of these cars, they were less anxious to spend heavy sums upon the purchase of costly and powerful carriages. If they bought them, it was simply with the idea of selling them to wealthy foreigners, chiefly Americans, who came to France prepared to buy the best that could be procured, and thus revived the vogue for big record-breaking machines. A Frenchman who will drive a 70 h.p. car at the rate of sixty miles an hour in a race contents himself with a very moderate touring vehicle for his own use, because he knows very well that it is safer and more reliable, and he finds he can get more pleasure out of such a car for himself and his companions than out of a big machine driven at high speeds, when the mind is strained and worried by the idea of something giving way at a critical moment. Of course, the demand for racing machines is a good thing for the industry, by enabling makers to get enormous profits out of vehicles that would otherwise remain on their hands, but it may be asked whether the risks attendant on these machines may not do some harm to the trade in the end, and, at all events, it may be taken for granted that when wealthy foreign automobilists see the dangers they are running by indiscriminately driving powerful racing cars, they will be more disposed to follow the example of experienced French chauffeurs, and content themselves, for touring purposes, with moderately powered vehicles. Touring with big racing machines is like putting a racehorse between the shafts of a cart. It is all very well to say that the cautious owner will keep his vehicle under good control, but, so long as he has power and speed, he finds a strong temptation to use them, and he is not even always aware that he is travelling at a dangerous speed.

The Death of Mr. Charles Fair.

An instance of the danger of racing cars in the hands of tourists was afforded last year by the fatal accident to Count Cahen d'Anvers, who was killed by the overturning of one of the Paris-Berlin vehicles on a winding down grade. M. Henry

Deutsch narrowly escaped a similar fate with the victorious Paris-Vienna Renault, and now Mr. and Mrs. Charles Fair have been killed in an accident with a 40 h.p. Mercedes. Mr. Fair went to Paris in June last, when he purchased a Mercedes, and toured all over the country, and he made an attempt on the kilom. record at Chartres at the time it was broken by his brother-in-law, Mr. W. K. Vanderbilt, jun. Last week the millionaire ran down to Trouville on his car, and on arriving there found he had left something at his hotel in Paris. He returned the following afternoon with his wife, and accompanied by his *mécanicien*, Brotéy, who was sitting behind. Brotéy states that Mr. Fair was a prudent driver—that is to say, he was very careful in taking corners, and only let the vehicle travel at full speed on straight stretches of road, when the way was perfectly clear. It was when the car was going at something like sixty miles an hour, near Pacy-sur-Eure, that the accident happened. At first it was declared that the vehicle swerved through the bursting of a front tyre, but Brotéy states that it was the tyre of the off side driving wheel which burst, and on seeing this he asked Mr. Fair to stop. For some inexplicable reason, Mr. Fair did not, or could not, stop, and, swerving off the road, the car ran up a bank, and dashed into a tree. According to an eye-witness, the three occupants were thrown high up in the air, Brotéy being projected some distance away into a field, while the unfortunate millionaire and his wife fell at a spot where the car rolled over them. They were both horribly mutilated. When the *mécanicien* recovered and saw what had happened, he fainted with terror. The bodies were conveyed to a neighbouring mansion. None of the friends of Mr. and Mrs. Fair were in France, as Mr. and Mrs. W. K. Vanderbilt, jun., had sailed for the States two days previously.

Autocar Accidents.

At this holiday season, when many hundreds of cars are on the road, there is always a number of accidents, which are made the most of by the daily press, and it is to be feared that for the time being they do a certain amount of harm, by creating a feeling of distrust among the public, while they are certainly not conducive to the peace of mind of residents at the seaside places, who are expressing themselves very strongly upon the attitude of a certain class of automobilists. In nearly all cases these accidents could be avoided with a little caution. An automobilist of Marseilles, M. Giraud, was driving a voiturette on Sunday from Orange, accompanied by his sister-in-law and a lady to whom he was engaged. As there was only place in the car for two persons, M. Giraud sat partly on the mud-guard, and when passing over a level crossing the

jolting caused him to lose his balance. He fell on to the road, while the car continued with the two terrified ladies, who knew absolutely nothing about the driving gear. The *fiancée* of M. Giraud jumped out, when her skirt caught in the chain, and she was dragged along at the rate of twenty-five miles an hour. After a few minutes of this horrible torture the car came to a stop by smashing up against a bank. The lady who remained in the car was unhurt, but M. Giraud had a broken arm, while his *fiancée* was in a terrible state, the injuries to the head being so serious that the doctors are unable to say whether she will survive. Another accident happened the same day at Houlgate, where Mr. Grey Dinsmore's car was being driven by his *mécanicien*, when it knocked over a workman. It appears that the residents at Houlgate are very wroth with the foreigners who drive about that pretty seaside place with powerful machines.

Autocar Wheels.

The superiority of one type of wheel over another is occupying a good deal of attention on the other side of the Atlantic, and one maker triumphantly points to the success of the Renault carriage in the Paris-Vienna race as proving the advantage of the wire-spoked wheel. Such evidence is very unfortunate for the American argument, as the Renault is not, of course, fitted with wheels of this type. At one time the wire-spoked wheels were popular for light carriages in France, quite as much as they are in America, and this is to be explained by the fact that the light carriage is an evolution from the *voiturette*, which is itself practically a development of the motor cycle. When makers began to meet the demand for a light and cheap vehicle by converting the quadricycle into a *voiturette*, they naturally adhered to the cycle system of construction, because nearly all the firms turning out such cars were cycle makers. They used tubular frames and wire-spoked wheels, and these are still adopted in nearly all the lightest types of cars. When, however, the big makers turned out light carriages to form a connecting link between the *voiturette* and heavy vehicle, they employed the constructional features of the large car, of which it is in many cases merely a small copy. The armoured wood underframe and artillery hub wheels consequently came into more general use, and apart from Decauville and Darracq, who were originally interested in cycle construction, and still preserve these features, most of the leading firms are adopting wood wheels for their light carriages. Peugeot have abandoned wire-spoked wheels in favour of wood, and Renault Frères fit wood wheels to their new vehicles. They are usually constructed upon the approved system with artillery hubs and acacia wood spokes and rims. To judge from the racing experience during the past year they have given remarkable satisfaction. In the Paris-Vienna race there was no evidence of a wood wheel breaking except through violent shock, and when M. Louis Renault's wheels were sheared off at Innsbruck by Baron de Cater's vehicle, he was able to repair them. The only case of a wheel collapsing happened in the Ardennes Circuit, when one of Jenatzy's wheels broke at the moment the car was travelling at top speed. It is difficult to account for this, unless it be a defect in construction. Breakages in collision are, of course, inevitable, and it

is significant that the spokes almost invariably break a few inches from the hub, which may be explained by the fact that while this is the weakest part, it has to bear almost the whole of the enormous strain resulting from a lateral shock during collision. The wire-spoked wheels prove serviceable for the lightest types of carriages, but they are liable to buckle under sudden lateral strain, and in a collision they often get hopelessly damaged. They of course have the advantage of lightness and cheapness. In a word, both the metal and wood wheels have their particular uses, and while the one is likely to be still adopted for *voiturettes*, the other is undoubtedly coming into increasing favour for the heavier descriptions of vehicles. One maker of wheels has been trying to effect a compromise by building spokes of bent steel strip into wood felloes, the idea apparently being to give a certain elasticity as well as strength. The use of heavy steel spokes of one kind or another is at least worthy of experiment, though there is the possibility that the contraction and expansion of metal spokes in wood felloes would eventually become a source of weakness.

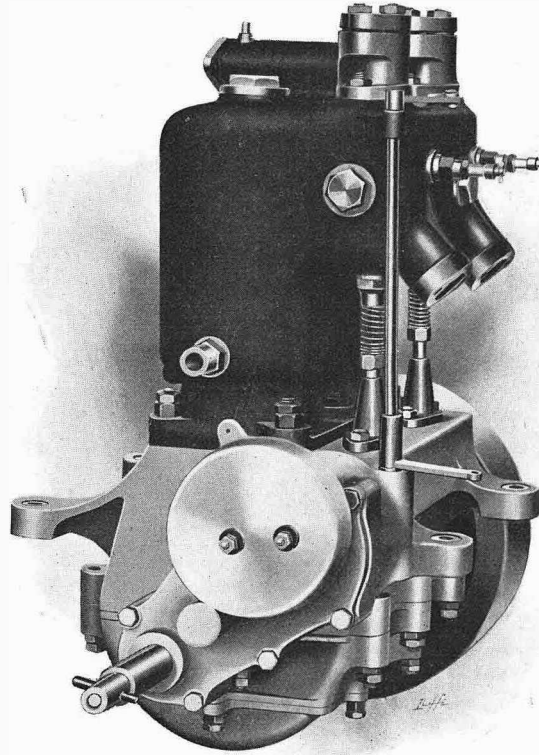
Increasing Power.

Automobile makers have had to display so much ingenuity in increasing the powers of their motors within the weight allotted for the vehicle that it hardly seems possible to improve upon the 70 and 80 h.p. engines which are at present fitted to the big racing cars. And yet we hear of three or four firms who intend next year to eclipse everything they have yet done. Gobron-Brillié have been encouraged by their recent successes to go in for the construction of big vehicles, and are credited with designing an engine of no less than 120 h.p., while Mors and Peugeot are thinking of putting motors of 100 h.p. into their next year's cars. De Dietrich will also make a great bid for racing honours with their Turcat-Méry system of vehicle. If they succeed in augmenting power in this way can we look for any considerable increase in speed? It is difficult, even over well-known courses, to imagine that they can be driven at much more than a mile a minute, as was done by Baron Pierre de Crawhez in the Ardennes Circuit, or seventy-six miles an hour over a kilometre on a record course. Speed has evidently physical limitations, and it is doubtful whether a driver will care to utilise the full power of these formidable machines over ordinary roads. Whatever may be done by the vehicles in the way of speed, this striving after higher powers must continue to have excellent results for the industry, and the French makers have carried out so many remarkable improvements that there is no telling what their ingenuity will do in the future.

The Great Central Garage, of 300-306, Marylebone Road, W., now has premises ready to accommodate eighty cars. We understand the enterprise will be conducted on thoroughly up-to-date lines. It will be open day and night, and all accessories and parts for every well-known make of car will be kept in stock. Besides these, new cars of the latest Panhard type, with Centaur engines of 7, 10, and 16 h.p., will be found; also the Mors, Renault, Clément, and other makes, but a new car called the Earl will be the principal feature, and we hope to say more about this vehicle very shortly.

THE NEW REX TWO-CYLINDER 14 H.P. MOTOR.

A well-designed motor is the new 14 h.p. Rex which the Rex Mfg. Co. are fitting to their latest pattern cars. The motor is a double-cylinder one; both cylinders are in one casting, and have a bore and stroke of $4\frac{1}{2}$ in. Running at 1,000 revolutions per minute, the motor develops 18 h.p. on the brake, the high power being obtainable by using a higher compression than is generally used in two-cylinder engines. The water jacket gives plenty of space for the cooling fluid, the passages around the valves being particularly large. Both inlet and exhaust valves are of large diameter, the exhaust being $1\frac{3}{4}$ in., and correspondingly large pipes are fitted. The valves are easily reached by removing two nuts only, no pipes having to be disconnected. The cylinders are bolted to an aluminium crank chamber, which is provided with particularly long bearings, of which there are three—one at each end of the chamber and one in the centre. The end bearings are solid bushes of bronze, unsplit, lubricant being supplied to these through a cup cast on to the inside of the crank chamber to catch a portion of the oil thrown up by the connecting rod end. The crankshaft is a steel forging $1\frac{3}{8}$ in. diameter, the cranks being set at 180° , between which is the central shaft bearing. The connecting rods are provided with split brasses at their big ends, and adjustment to these is easily effected by removing the bottom plate of the crank chamber. The half-speed shaft is driven by a train of three wheels, which are enclosed in an extension of the crank chamber, to which is



filled with an oil-tight cover. The pitch of these wheels is finer than generally used, which results in a quiet-running gear. On the two to one gear wheel on the half-speed shaft is a centrifugal governor, which, through the vertical rod, seen in the illustration, actuates a butterfly throttle valve. The governor sleeve works against a lever pivoted through the crank case, and connected to the accelerating lever which checks the action of the governor. The exhaust valve cams, governor, and gear wheels on the half-speed shaft all being enclosed, efficient lubrication is assured, and the working parts are protected from dirt and grit. On the forward end of the half-speed shaft the contact breaker is mounted. This is of the make and break type, the platinum points being brought into contact with one another by a cam. The exhaust valve plungers carry at their lower end a hardened roller, which is in contact with the cam. The plungers, which are also of hardened steel, work in gun metal guides bolted to the crank chamber. Electric ignition is used, as will be seen from the illustration. The position of the sparking plugs is in one respect good, inasmuch as the body of the plug receives the benefit of the water cooling, but, on the other hand, the sparking points are further away from the centre of the cylinder, and, moreover, in their present position, they do not receive the benefit of the scouring action of the exhaust gases. This, however, is a matter which is easily overcome by using a plug projecting more into the cylinder.

Fire and its risks have recently been the uppermost themes of conversational debate, and the thoughtful mind is naturally led to consider the requirements needed to improve the efficiency of our own fire brigade in London. On all hands it is admitted that one of the most essential requirements is expedition, that is to say, the more quickly an engine and its brigade arrive at a conflagration the less risk persons will run of losing their lives and their property. Where, then, is there a more speedy vehicle than a motor fire engine? What other vehicle could be made to carry impedimenta more conveniently? The recent fire in Queen Victoria Street seems to have induced the authorities to consider the possibilities of the motor fire engine

in these two respects. Time is of paramount importance in fire brigade operations. We look to the motor vehicle to solve some of the difficulties which the metropolitan brigade has to combat, and to materially lessen the risks inseparable from outbreaks of fire.

THE BURNLEY AUTOMOBILE CLUB.

The newly-formed Burnley Automobile Club held their first meet on Saturday afternoon. The cars assembled in front of the Town Hall, and the destination was Bolton-by-Bowland. Between twenty and thirty vehicles of various types formed a goodly collection. The company included the Mayor of Burnley (Alderman Thorner), the Town Clerk, the Chief Constable, and others. The president of the new club is Sir John Thursby.

Correspondence.

We do not hold ourselves responsible for the views or opinions expressed by correspondents.

ENGLISH COILS.

[2577].—Permit me, through your paper, to invite Mr. Edge to visit our works and see us making the high-speed inductors we have lately put on the market, and to see the first coil he ordered from us being made.

We shall then be able to show him why his experience with British coils has been unsatisfactory on high-speed motors, and that the experience we have had when repairing French coils of various makes has enabled us to obviate all faults in our coils.

H. W. VAN RADEN.

THE KLINGER WATER GAUGE.

[2578].—You were kind enough to insert a letter I wrote a few weeks ago relative to information I required respecting the working of the Klinger water gauge. Several of your correspondents were good enough to tender me, through your paper, hints and suggestions which I have found most satisfactory. Nothing can be more perfect than I now find the working of the gauge, and I drive my Locomobile fitted therewith not only with ease but perfect confidence and pleasure. The publication of this letter would greatly oblige me, as I feel that the remarks therein are due both to the Klinger Co. and to your good-natured correspondents, to whom I tender my best thanks.

E. J. WINTER-WOOD.

Kenwick, Paignton, Devon.

SATISFACTION.

[2579].—As firms who treat clients badly are frequently shown up in your columns, it is only right that those who treat their customers fairly and liberally should also be mentioned. I purchased a 12 h.p. Boyer car from the Motor Traction Co., Ltd., Walnut Tree Walk, London, about six weeks ago. It happened (as I suppose often does with new cars) that certain mishaps occurred with mine. I can only say that the utmost attention was given to my complaints, parts replaced promptly and without any grumbling over them, and every desire expressed and effort made to give me satisfaction. Needless to say, I fully appreciate their courtesy and attention, and I feel sure that this is the correct policy to work on to secure and retain business.

L. LOWTHER.

A SUBSTITUTE FOR DASHWOOD.

[2580].—Living only a few miles from Dashwood Hill, I have had many opportunities of judging the local feeling of the police and public towards these hill-climbing competitions, and can assure you that that feeling is quite a friendly one, but when, as on the last occasion, a certain competitor (who was eventually suspended by the Automobile Club), on a powerful and extremely noisy car, drove down the hill at a pace of about sixty miles an hour, scattering the lookers-on and blinding them with dust, it was only natural that some sort of action would have to be taken in future to prevent a recurrence—as a matter of fact, feeling ran very strongly at the time over this, and several letters appeared in the local press goading the police on to action, and no one hereabouts is surprised at the action they have now taken in stopping the last competition. Being doubtful whether the police would allow another competition on the main road, I, some time ago, wrote Mr. Claude Johnson, suggesting another hill for the competition in the immediate neighbourhood, and if my hint had been acted upon a much steeper hill could have been used, and without any interference from police or public. I may mention, for the benefit of those who would like to try their cars on one of the steepest hills I have yet come across, that the hill in question runs parallel with Aston Rowant Hill on the main Oxford Road, the main road being left at the right-hand turn of cross roads top of Aston Rowant Hill, a signpost pointing to Kingston. The hill is locally known

as Kingston Hill, is about threequarters of a mile long, and has a gradient in places of one in seven, and, although I have been down about a dozen times, have never yet met a horse, vehicle, or pedestrian, so can recommend the hill as an ideally isolated one for competition. The main road can be joined again at bottom of hill by the "Lambert Arms."

Thame, Oxon.

EDWIN S. CHEEL.

PETROL CONSUMPTION.

[2581].—As the owner of an Argyll car, I have read with interest the letter of Neophyte in this week's issue of *The Autocar*, and at his request it gives me much pleasure to give him some actual figures regarding the consumption of petrol.

My car is a 6 h.p. tonneau body Argyll, which I have found extremely economical in fuel. I have on one occasion taken a run of sixty-eight miles, as registered by the odometer fitted to car, and this was on a hilly road, and greasy as well, with two passengers all the way; the actual consumption worked out at something like forty miles to the gallon, a result to which very few cars of this size can attain.

I consider the Argyll is certainly second to none for economy in fuel if carefully driven.

I on another occasion got as much as forty-two miles to the gallon. Of course, I use weakest possible mixture, which keeps engine clean, and throttle it as much as possible.

In ordinary town driving, slowly, in traffic my average consumption would be some thirty miles per gallon, and if I use more than this there is something wrong.

I have now driven the Argyll car almost two years.

If Neophyte wishes any further particulars I shall be pleased to answer him if he will give me his address.

T. PICTON BRADSHAW.

[2582].—In reference to the query *re* petrol consumption of an 8 h.p. Argyll car, the makers claim that four gallons will drive their car one hundred miles. This I am prepared to verify, as I have recently covered 750 miles on an 8 h.p. Argyll, fitted with M.M.C. engine, in five days, our consumption of petrol being well under thirty gallons. On the final day's run from Taunton to Penzance, we used exactly four gallons from Exeter to Redruth, a distance of 105 miles.

J. T. TAYLOR.

[2583].—In reply to "Neophyte," I cannot help thinking someone has had a bad time, and stated offhand it took three gallons to run twenty-five miles with only two up. "Neophyte" must not accept it. The editor's footnote is quite correct; the Argyll is moderate in consumption. I own an 8 h.p. Argyll, with Simms engine; it has run 1,800 miles. For scores of miles on tour, the consumption was from twenty-eight to thirty miles to the gallon, three up. With four up, it has never done under twenty miles per gallon. When the engine runs less than twenty-five miles to the gallon, I grind the valves in again, etc., and immediately the mileage rises. In fact, the consumption is so regular I measure distances by gallons. I have no interest in the Argyll Co. nor Simms. If "Neophyte" cares to write me, I will run him a gallon distance in Kent. The editor has my address.

CAR 178.

THE KING'S RECOVERY.

[2584].—I have not seen the idea mentioned, but it must have occurred to a good many people, and to motorists especially, that the King's marvellous recovery has been due to a great extent to one thing, *viz.*, His Majesty's fondness for motoring.

It would be very interesting to know how many miles the King has run in his own cars during the last twelve months, and the opinion of His Majesty himself and his doctors as to how much he owes, as regards his quick recovery, to the health-giving results of motoring. One's lungs are expanded and filled with pure air every time one goes out, and the bracing result is known only to those who are the happy possessors of cars.

M. V. CHARRINGTON.

PROPOSED LEGISLATION.

[2585.]—I see from your last issue that there appears to be some difference of opinion on this point, a fact at which I am somewhat surprised. Perhaps you will permit me to add a few words to the letter you were good enough to publish from me some three or four weeks since.

What, then, is the object of numbering cars? The only object from the motor car man's point of view is that he may have the twelve-mile limit removed. With what object is this limit to be removed? In order that cars may travel faster than at present. I think not. I do not believe that any of your readers would find their speed would increase by virtue of the abolition of the twelve-mile limit. In fact, such an abolition would not affect speeds at all. If, then, the object of this abolition is not an increase in speed, it must be one of two things—(1) either the more or less academic advantage of permitting a man to drive a car without of necessity being a law-breaker, or (2) the prevention of irritating persecution. Now I believe that the first object would be desirable, but I for one am not prepared to pay the price of carrying a number to gain it; if it pleases the legislature to make me a law-breaker (for that is what it practically amounts to), I can stand it. As to No. 2 object, it is quite chimerical. One of your correspondents, in answering my first letter on this subject, seemed to think that it would be more difficult to trap cars if the twelve-mile limit were abolished, but he is without doubt mistaken in this particular. For consider the following points: The police, as one of your correspondents points out this week, are instigated by the joint committee, of which half are magistrates, and they will naturally not trap roads in a district where they have hostile (from their point of view) magistrates to deal with. You therefore have the following conditions: A stretch of road trapped in a district where the magistrates are known to be hostile to cars, and evidence which is practically sound, that a car has been travelling at something between twenty and thirty miles per hour. Now I leave it to any of your readers to judge whether this would result in a conviction or not. If any of your readers think it would not, let them look up the prosecutions of cyclists which appear from time to time in the press. The car would not stand a ghost of a chance of getting off. In other words, the object sought is not attainable in this direction, and if the magistrates of any county wish to persecute cars, they will do so, twelve-mile limit or not.

If this line of argument is sound, and I believe it is absolutely so, we should (in accepting the numbering of cars) be accepting numbers and getting in return a purely academical advantage; the only real alteration in the conditions would be that it would be easier to identify cars, without the ghost of a practical *quid pro quo* for the car.

For goodness sake let us leave well alone.

But is there not one other way out of the matter which would make the carrying of numbers optional. Let it be enacted that the present limit of speed remain in force, except for such cars as are registered and carry a number. It seems to me that this would meet the case, and everyone would be pleased. If a man wanted to be free from the twelve-mile limit, all he would have to do would be to register his car and carry a number, when he would not be open to conviction under the speed limit clause, and would have the ineffable bliss of being convicted for furious driving on identically the same evidence.

With reference to the suggestion that numbers should be carried on all fast cars, it seems to me that a serious difficulty has been overlooked. Perhaps someone can tell us how this is worked in France on the Serpollet cars. For, if it is interpreted to mean that any car which can for a hundred yards on the level exceed fifteen miles per hour shall carry a number, I think it will be extremely unfair to the steam car. Most of your correspondents will agree that a Locomobile, for instance, creates much less nuisance when fitted with a condenser, than any petrol car, and it is only capable of a sustained speed of about fifteen miles per hour on the level. Still, for a hundred yards or so it would easily do twenty-five miles per hour, and it seems to me that to compel it to carry a number on these grounds would be most unfair, and would be in effect the putting of a premium on petrol cars. We have had enough government retardation of the industry already, without having any more.

One of your correspondents, in answering my first letter

on this subject, made the perfectly logical remark that persecution of cars would be as certain to die down after the abolition of the twelve-mile limit in favour of a number as if the change had never been made. Of course, this is true, but it does not take us much further. Would your correspondent honestly rather have a number than a twelve-mile limit, supposing there were no trapping of roads? If so, he is peculiarly constituted.

I would endorse in the strongest terms Mr. Macdonald's statement that, once adopted, the numbering of cars will never be dropped, but this fact offers a little hope to those of us who ask for no change in the present law, because they think that the abolition of the twelve-mile limit can only be had at too great a cost. This hope lies in the difficulty in getting private bills through Parliament, and the innate hatred of unnecessary changes in our legislature.

Referring to Mr. Deasy's letter, I have only to point out that it is very difficult to say in practice whether a car can or can not travel at over the speed fixed on, if it is at all near the border line, and I should rather like to know how we are to decide the point. It would lead to endless jockeying by makers in getting certificates for their cars. Are you going to prohibit all changes of sprocket wheels, and all structural alterations, without a new certificate? If so I am afraid there will be much difficulty in enforcing the law. Further, are you going to have every car tried and certified? For, if not, it seems to me that practically no cars will be numbered, except, perhaps, racing cars, for a man will say his car can only do so and so many miles per hour, and arrange his governor accordingly. There would, of course, be not the slightest difficulty in arranging a governor so that its manipulation would be far beyond the ken of the average policeman, and there would be unlimited opportunities for permanent changes before an inspector could be on the spot.

In fine, the whole question bristles with difficulties in this country, though doubtless comparatively easy in a country where personal liberty is not so much considered.

To say as Mr. Deasy does, that, because a man wishes to avoid a number, he is necessarily a reckless (or at least over-fast) driver, is most unfair. As a matter of fact, I am inclined to think that very much the contrary is the case. Were I a racing driver, I should not care much for the numbering business, for all you would have to do would be to clean your number with a little paraffin oil before going out, so as to make it nice and clear; in ten minutes you would be as able to read diamond type through an inch board as that number through its coating of dust. This has been pointed out before, but I think a little overlooked by some of your correspondents. It would only be the slow moving cars of which the numbers would be legible.

In further answer to Mr. Deasy, I would point out that the question before us is a matter of the relative advantages of the numbering of cars as compared with the twelve-mile limit, and as such arguments based on reckless driving are scarcely applicable, such arguments would be quite to the point, if the question were whether cars actually require numbering for the public safety. This question is not up for discussion as I understand it; that is, of course, unless Mr. Deasy wishes to start it. I note, of course, that he does not write under the heading of "Proposed Legislation," which would leave the point slightly in doubt.

To sum up, and confining myself to the question at issue, which is, as I understand it, whether the average motor car driver would be better off with a number than with the twelve-mile limit, I am driven to the conclusion that, as far as his own advantage is concerned, and leaving out of the question any consideration of the advantage to the public of having cars numbered, he would be much worse off with numbers than with the legal limit, for he would gain absolutely no practical advantage for the imposition of the number.

As pointed out above, however, a golden road seems open in making the number optional, and making the legal limit still hold for those who did not carry the number.

Camborne.

J. S. V. BICKFORD.

P.S.—After reading the club secretary's letter in last week's *Autocar*, I beg to submit the following comments: I repeat that I think too much is being made of the advantage of the twelve-mile limit as a means of ready conviction, and that convictions, at least before magistrates, would be nearly as frequent without the twelve-mile limit as with it. Mr. Johnson's letter, however, re-

moves the discussion to another point. As I have pointed out above, the point as it appeared to me was whether the abolition of the twelve-mile limit from the motorist's point of view could be bought on reasonable terms at the cost of numbering, and I do not think it can. It is an absolutely different question whether the numbering of cars is advisable in order to prevent reckless driving and to forestall the authorities in the matter. For instance, if it can be shown that it is almost certain that the authorities will impose a number in a year or so's time to prevent reckless driving, then I am certainly of opinion that, if possible, the present bill should be allowed to pass as far as motorists are concerned in order that we may get a *quid pro quo*, no matter how shadowy, for the number. But, on the other hand, if the matter is simply a choice between a twelve-mile limit, which will fall into disuse in a year or so's time, and going round labelled like a dustcart, for goodness sake let us have the limit. There is, however, another point in the matter which has had little attention paid to it. This is the appeal clause. If the bargain offered were the wearing of a number in exchange for the trial of all motor cases by the county court judge with appeal to the high court, I am inclined to think that I should favour the change, and I am open to admit that this clause puts a very different complexion on the matter. It should be noted, however, that appeal to quarter sessions is absolutely futile. Either the case must go in the first instance to the county court, or else appeal must lie to that court or to the high court. As someone has pointed out before, appeal to quarter sessions is simply an appeal to the same people who have convicted in the first instance. I would therefore sum up my opinions as follows: If the matter is a choice between number and limit, let us have the limit. If, however, it is simply a question of having the number with or without *quid pro quo*, of course, take what you can get. If you can be sure of getting the bill through so as to have motor cases tried in the county court, or with appeal thereto, I am almost inclined to think it is worth it, but be sure this clause is not amended out in the passage through Parliament, and the rest left in. Numbering to prevent blackguardism and road racing is futile, as a scorch's number would never be legible on account of dust, and even if it were not coated with dust, who could read a four or five figured number with absolute certainty at high speeds?—J.S.V.B.

[2586.]—The circular letter by the executive committee of the A.C.G.B. and I. is so far satisfactory in that they propose to have a general discussion.

If, however, their circular letter to the press is an outline of their reasons for having autocars numbered, then their position will be very weak.

If some prominent members of the legislative committee will speak their full and free minds it will be seen that while they desire an Act on commonsense lines, they are equally against the display of numbers on private cars, and have only swallowed that part of the proposals, because they had an idea that most owners had made up their minds to swallow that bitter pill. They would like to feel the opposite, I think.

It may be true that no bill would pass now which does not include the numbering, but that only shows the undue haste of the whole idea. Given a couple of years, Parliament itself will be a compact body of reformers needing no stimulus from the A.C.G.B. and I.

The only concrete reason given for swallowing the vulgarity and indignity of large (for they must be on advertisers' scale) numbers is the extraordinary one that without them the police cannot identify public nuisances and dangers, and that once this is so, and the ordinary powers and methods of very expensive police and judicial systems, backed by public opinion, are not enough to cope with even a few cases, that the crop of weeds will get beyond all control, and we shall then be all treated as if we were even naughtier children than we are now. I think that the assumption that the criminal-cad will increase, and that public opinion and the arm of the law cannot catch him and squash him without numbers, are both wild ideas.

If the proposed bill be passed, a ready method of appeal to the High Court of Justice would prevent the

unjust punishment of unoffending motorists." I assume this means that the bill has some clause to this effect.

Now, I am not familiar with the law of England, but let us take care that we do not get the bill passed with the numbers and without the appeal part. I know enough about Acts of Parliament to know that the greatest and most proper care will be taken to see that no one class of persons will be allowed to have a new and specially direct road of their own to any court of appeal.

Even if such a road were open, will some English lawyer kindly tell us whether in a criminal case the higher court can or will consider any questions except those of law? In Scotland all questions of fact and the decision of "proven" or "not proven" rests most properly with the court which has heard the evidence and seen the witnesses. Surely it cannot be that in England the whole case (facts and all) and the credibility of the witnesses could be gone over again in a higher court.

Unless this be so I cannot see how an appeal to the High Court can prevent the machinations of amateur and prejudiced magistrates, aided by promotion-swayed and master-pleasing country constables, from giving unjust punishment to unoffending motorists.

The conviction would be either because the accused was the cause (direct or indirect) of an accident, or was driving so recklessly as to be a public danger and nuisance. All these points are matters of fact or opinion—things to be weighed in the scales by the evidence and by commonsense. The appeal court will teach inferior courts how to hold the scales, but it cannot take upon itself to re-weigh the whole affair.

Only the advance of knowledge and sense will help a hot-headed or stupid magistrate to weigh facts and not fancies.

In this city of Edinburgh the magistrates and police came down hard on many of us who were merely crawling, just because they were ignorant. Now that autocars pass along in a regular string, and most of them have been in them, no one dreams of interfering with speeds which are really high for a city.

Even the police, like all of us, can live and learn.

Edinburgh. NORMAN D. MACDONALD.

SCOTTISH AUTOMOBILE CLUB (WESTERN SECTION).

A successful club run took place on Saturday last to Garelochhead. Notwithstanding the fact that the great majority of the members of the club are at present scattered for the vacation, there was a good representation at the meet. The well-known Whistlefield Hill, which is adjacent to the place of rendezvous, was made informally a test of the climbing capacities of some of the cars, which continued their run across the hill further into the Highlands.

AN AUTOMOBILE CLUB FOR SHEFFIELD.

On Thursday last week an informal meeting was held at the Wharnclyffe Hotel, Sheffield, to discuss the desirability of the formation of a local automobile club. An honorary secretary, *pro tem.*, in the person of Mr. J. R. Wade, 25, Storth Lane, Ranmoor, Sheffield, was appointed, and also a provisional committee, consisting of Messrs. F. B. Cawood, E. Hill, B. Hind, E. Ledaux, and P. Thompson. Opinion was divided on the question of affiliation with the Automobile Club of Great Britain, so it was decided that a more representative meeting should be called for Thursday, September 4th, when addresses will be given and letters read which will show the advantages of affiliation. At this meeting it is also proposed to elect officers and transact other business incidental to the inauguration of a motor club. The selection of the date is somewhat unfortunate, as it is right in the middle of the club trials. This will not only prevent some visiting automobilists from attending, but will also result in the absence of more than one prominent Sheffield automobilist; it would be advisable therefore to postpone the meeting for another week.

Flashes.

The King of the Belgians is reported to have purchased three autocars in Germany, one of them costing £2,400.

At Antwerp, on August 12th, in the motor cycle race of ten kiloms. for the Grand Prix, out of nine starters only one "Kelecom" motor was entered, and this finished first by about 150 yards.

The Manchester Automobile Club will run to Tarporley to-day (Saturday). The local member of Parliament (Mr. J. Tomkinson, I.P., C.C.) has kindly invited the members and their friends to visit Wellington Hall and take tea on arrival. After tea it is proposed to proceed to the village of Tarporley and dine at the Swan Hotel, remaining there the night, or returning same day, as the members may individually decide.



Photographed at Dashwood Hill. A disappointed spectator, Lady Robinson, drove down to witness the Dashwood Hill trials on a 12 h.p. Mors, with Mr. Graham White at the wheel.

Some of the dailies have been rejoicing in the tale of an autocar which was left by the owner for a few moments, when the inevitable boy arrived on the scene, and by touching a lever—some of the papers say a tap—the car suddenly took to its heels, or we suppose we should say wheels, and ran amok, knocking down people and lamp-posts with praiseworthy impartiality. These tales are always interesting, because we are almost invariably unable to find out where they occurred, and to whom the car belonged; but in any case, whether imaginary or otherwise, it is well to remember that it is always advisable to turn off the petrol, as well as to put the switch to the off position, when stopping, if the car is to be left even only for a few seconds. It is quite possible to imagine that if the engine is left running some meddling person might strike in the gear lever, as there is nothing which the public seem to enjoy more than handling a car all over when they get the chance. Why it should afford them pleasure, as it neither purrs nor wags its tail, we do not know.



Admirers of Jarrett's 70 h.p. Panhard of Dairbaird.

Two motor companies are to compete with the tram service in Johannesburg. With sixteen cars they will convey passengers, deliver parcels and goods, and trade as cartage contractors.

A match between Biarritz and Madrid will shortly take place. The competitors are the Count of Valdelegana, on a 24 h.p. Panhard, and M. Lorraine Barrow driving a 24 h.p. Dietrich. The road is said to be bad enough to try a gun carriage.

The demand for the Rex car during the present season has been so good that the company have acquired a large piece of land adjoining the present works upon which to erect workshops which will enable them to more than double their output. The turnover of the company this year to date is treble that of last, so that if the same rate of progress is maintained, the firm will soon outgrow its new additions.

The General Accident Assurance Corporation, Ltd., who have opened a special department for the insurance of autocars, motor cycles, and special business of a kindred character, have taken a wise step in appointing a manager of the department who is well acquainted with the special requirements of the automobilist.



Five reasons for the abandonment of the Dashwood trials.

The proprietors of the *County Gentleman* are prepared to pay the expenses necessary for testing a mile or two of main road in or near London with the petroleum treatment for dust-laying—if the local authorities are prepared to rise to the occasion.

* * *

A large auction sale of cars, voiturettes, motor cycles, engines, and parts for cars will be held by Mr. Albert House at the Drill Hall, Belle View, Manningham Lane, Bradford, on Sept. 1st.

* * *

Automobilists driving down the Bath Road through Marlborough will find that Mr. A. W. Bell, of High Street and London Road, is able and willing to give them any assistance they require. In addition to stocking petrol and oils, they will find that he has an inspection pit, also water, hose, and the necessary tools for effecting ordinary repairs.

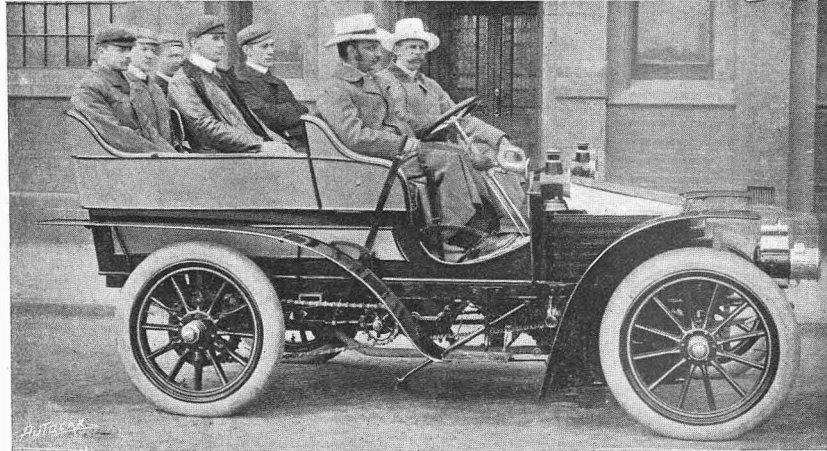
* * *

A very good belt dressing for motor bicycles and belt-driven cars, and known as "The Castle," has been placed on the market by the United Motor Industries. We have found that it keeps the belt in good order, and, whilst lessening the stretching tendency, it acts as an excellent preservative. It is an exceedingly economical dressing, it only being necessary to apply a small quantity to the face of the pulley or inside the belt.

* * *

"The War Office has officially approved of motor cars for the army, and it now only remains to adopt the wrong sort." *Punch* is getting humorous.

Owing to increasing business in motor repairs, etc., Messrs. Donald and Co., 61, Goldhawk Road, London, have taken additional premises in Wells Road, Shepherd's Bush. They keep a large stock of motor accessories, oils, greases, petrol, etc., and have laid down a plant for charging accumulators. They will be pleased to attend motorists in trouble at any time.



The Hon. Ronald Greville's 20 h.p. Wolseley is a somewhat uncommon car, so far as the body is concerned, for this has been specially made to meet his requirements. It gives ample accommodation for seven—two sitting on the middle seat and three at the back, in addition to the two on the front seat. It is finished in grey and black, with red upholstery. The view shows the car as it was about to make its trial trip in its finished form, as a final test is always given after painting and finishing. In addition to the usual road trials given before the cars go into the body and painting shops, Mr. Austin is at the helm, and other members of his staff occupy the car.

Miss Kitty Loftus will drive an Argyll car in the forthcoming musical play, "Naughty Nancy," billed for the Savoy Theatre. Miss Loftus, by the way, is an expert driver.

* * *

On Tuesday afternoon Mr. E. H. Arnott covered 36 miles 342 yards on the Crystal Palace track on a 2 h.p. Werner bicycle, in spite of a very strong wind. Heavy rain put an end to his trip, but he intends shortly to add long distance track honours to the list of records to the credit of himself and his speedy type of motor cycle.

* * *

Although in the touring section at Welbeck the big Serpollets were too much for the light American steamers, it would appear that there is likely to be a pretty duel before long between the two types when some larger Locomobiles are made, as it will be noticed on making comparisons as to the speeds accomplished at Welbeck in the speed section, and given on page 155, *The Autocar*, last week, that the 8 h.p. Locomobile, which only weighed a little over 10 cwts., made the fastest time, doing nearly a mile an hour better than the Serpollet. As the two types are so different, future contests will be interesting.



Photographed at Welbeck. Mr. D. M. Weigel on the latest pattern 30 h.p. light Panhard. This vehicle was second in the Light Car Class in the Ardennes Circuit, and has been purchased from the British Automobile Commercial Syndicate, by Mr. Creyke, of Oxford.

Already across the Channel they are discussing the novelties which may be seen at the Salon in December next. It is reported that M. Leon Bollée will show a 40 h.p. car with a 4-cylinder vertical engine, having its induction valves mechanically actuated. He will also employ magnetic ignition. The firm of Rochet-Schneider may modify their present design of engine by mechanically actuating their induction valves. The French makers are evidently not too proud to follow the Mercedes lead. The firms of Mors and Peugeot are building engines of 100 h.p., Gobron-Brillié have one in hand of 120 h.p., while Dietrich is making something close to this.

* * *

Colonel Conway-Gordon's remarks as to his always carrying a red flag when driving, and showing it when meeting a car, should not, our Lincoln correspondent remarks, be taken too seriously. The fine imposed, of 10s. and costs 5s., and for a second offence, is very small, and is locally believed to be really a friendly warning not to go too fast. The charge was of exceeding the legal limit, and there is no doubt this was done. It is stated that Colonel Conway-Gordon knows the joys of doubling the legal limit, having that week, if not that morning, taken a fast ride in the 9 h.p. De Dion owned by the clerk to the magistrates, Mr. A. A. Padley. Possibly that evidence of the safety of, say, a twenty-miles pace may have something to do with the low fine.

* * *

As there appears to be still some doubt as to the placing of the cars in Class D at Welbeck (touring cars weighing 17 cwts. and over), owing to the two disqualifications, we may say that the placing has been officially settled as follows: 22 h.p. Daimler, driven by Mr. Instone, carrying four people, 1; 20 h.p. Maudslay, driven by Mr. Craig, carrying four people, 2; while Mr. Gorham's 22 h.p. Daimler, which ran third, carried, as previously mentioned, five passengers.

* * *

It will be interesting to supplement the letter we published last week with regard to the successful transport of fruit between Sittingbourne and London in a Thornycroft lorry, if we state that we have ascertained that the vehicle in question was in all respects a standard pattern 3-ton lorry towing a 2-ton trailer, so it is only reasonable to anticipate that had it been specially built, so far as the lorry and trailer accommodation are concerned, for the carriage of fruit, it would have been even more successful.

Lord Derby and Sir Clinton Dawkins, K.C.B., have each of them recently ordered 18 h.p. Daimlers.

* * *

A lady laments, in a provincial paper, the alleged ineffectiveness of dust-protecting garments for autocarists. "How to protect the face and hair from dust when motoring is a problem apparently difficult of solution," she says. The wraps or hoods that completely cover in the back of the head are unbecoming, and do not protect the face. A small, closely-fitting toque with thick gauze veil arranged in thick folds over the hair is the headgear she prefers.

* * *

Writing upon the results of the recent Westerham hill climb, Messrs. Werner point out that the machines they ran in these events were absolutely standard patterns, and were not in any way specially prepared, as some people are led to believe. It will be remembered that the Werner proved itself a capital hill-climber, being second in the light class, while in the class for engines up to $\frac{3}{4}$ h.p. the Werner, which performed so well, was a standard 2 h.p. machine.

* * *

Some time since we referred to the inadvisability of having the crank chamber, or any other part of the car, too near the ground. Only the other day one of our readers, whose condenser cleared the ground by 3in., tore out the bottom tubes when driving into a private road. It caught in one of the stones fixed in the centre for taking

the ground bolt of the gates. Strangely enough, our correspondent was contemplating buying a certain make of French car, but when he remembered that the crank chamber was only 3in. from the ground he decided not to invest, but selected a machine with a reasonable clearance.

* * *

Whip-cracking by drivers of vehicles has become such a nuisance in some German towns that special byelaws have had to be passed against it. The remedy is obvious.

* * *

The Motor Traction Company, Limited, inform us that they guarantee all cars supplied by them for a period of six months from date of purchase against any defect in construction or material, and agree to replace free of charge any parts proved to be so defective.



Photographed at Welbeck. Mr. F. H. Arnott on the 2 h.p. Werner. This machine, and the 2 h.p. Humber which beat it, ran in the Touring Section, as they were fully entitled to do, but it is somewhat striking to note that the two Orient bicycles, which competed in the Speed Section, were between three and four miles an hour slower, although one was a 2 $\frac{1}{2}$ h.p. and the other a 3 h.p. machine. Comparison can easily be made by referring to page 155 of *The Autocar*, August 16th.

The United Motor Industries will have a store at the Crystal Palace during the whole period of the September trials of the Automobile Club, in order that competitors may be able to obtain on the spot sparking plugs, lubricating oils, accumulators, washers, grease, induction coils, and a number of other things which they might possibly want during the progress of the trials. The assistants of the company will be on duty at six o'clock every morning, and will remain until the departure of all the cars. They will also be at the Palace at six o'clock in the evening to receive the cars on their return. The assistants will be distinguished by a red badge on the right arm, having on it the letters U.M.I., Ltd. No doubt the competitors will find this a great convenience, as in previous trials one of the great difficulties has been to obtain quickly and easily the many necessary little articles that all automobilists require from time to time.

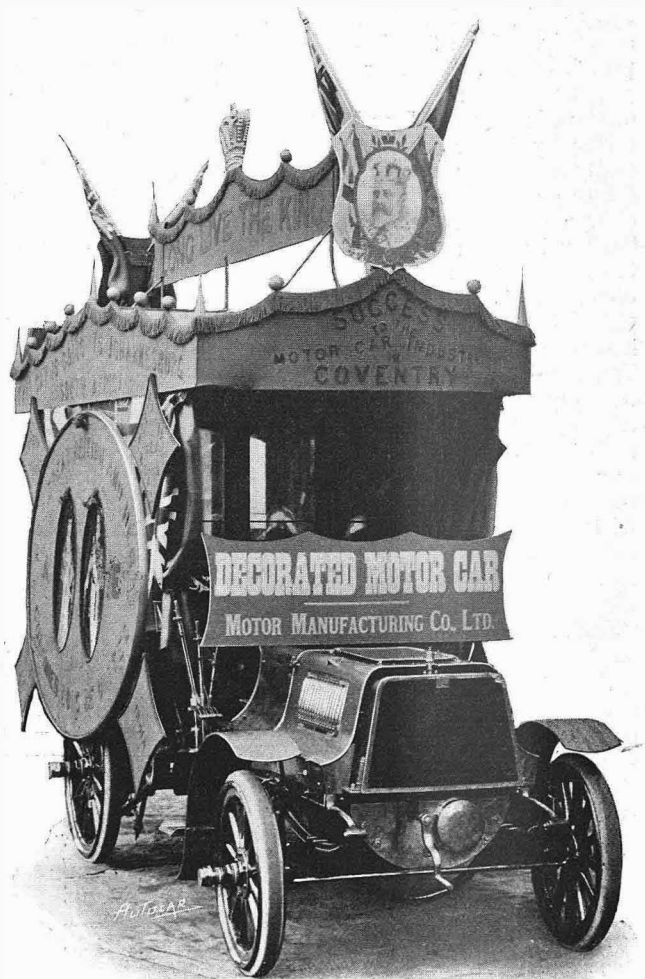
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As another instance of the way in which a really good car stands work, we may cite Mr. J. D. Siddeley's Parisian Daimler, which performed so exceedingly well in the thousand miles trial of 1900. Since then the machine has been in continuous work. Mr. Siddeley drove it about 8,000 miles, and we believe it has been driven at least 6,000 since he parted with it. In any case, the machine is still in good trim, and its present owner is thoroughly satisfied with it. In many respects, these Daimlers were in advance of their time, for, despite the notable changes which have taken place in the outward appearance of cars since the thousand miles trial, the machine we have referred to still looks smart, and very far from antique. Cars of the same make built only a few months earlier look very much more venerable, owing to the higher centre of gravity and shorter wheelbase, these two points being the ones which have done more to alter the appearance of the modern car from that of its predecessors than anything else.

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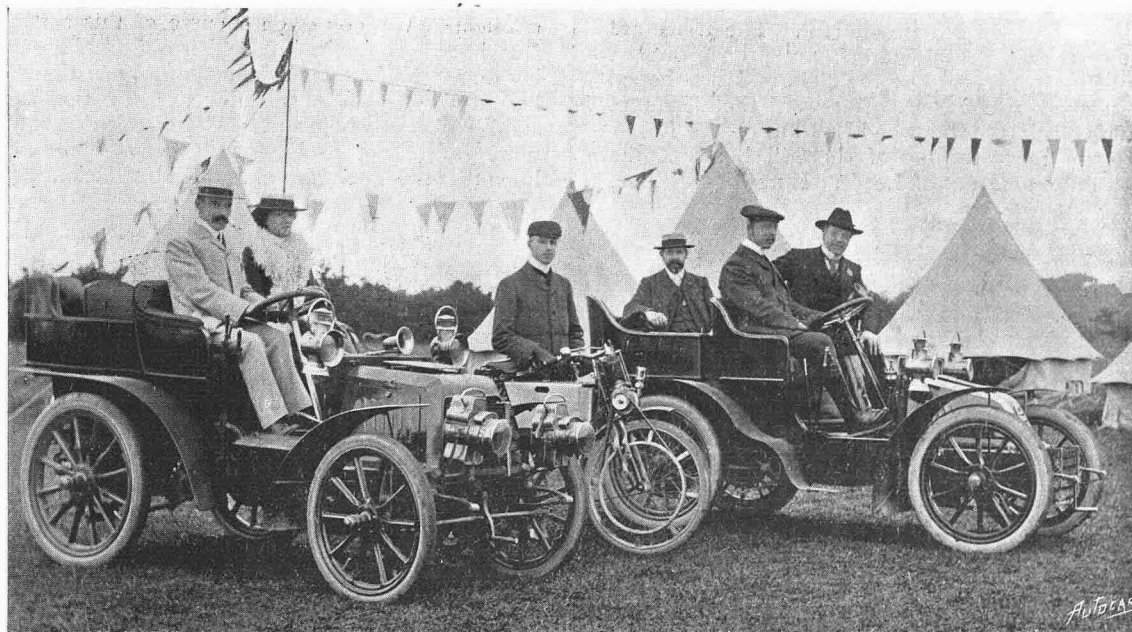
The village of Lamberhurst, Kent, has for a long time past been considered by its neighbours to be a go-ahead place. With up-to-date institutions, electrically-lighted houses and public places, a well-equipped brewery, a volunteer company, and a band, it may be termed a model village. Determined to move with the times, the good folk of Lamberhurst this year arranged for motor car competitions in connection with the annual flower show and sports. First of all was a two miles motor car race, in which Dr. Fazan, in his 6 h.p. Gardner-Serpellet car, beat Mr. P. A. Simpson driving his 6 h.p. Panhard; whilst the latter gentleman's 10 h.p. waggonette, driven by Mr. Bean, was third. The race proved most interesting and at times exciting, as the grass track was of a rough nature, and necessarily militated against anything like speed records. The next competition was a motor Victoria Cross race, in which the competitors tilted at rings, dislodged indiarubber balls, and finally had to take up a dummy soldier whilst travelling at full speed. In this race, Mr. B. Playfoot was the winner in a car driven by Mr. P. A. Simpson. The concluding item was a driving test through posts placed at awkward and difficult curves about the track, Mr. Simpson again proving the winner.

Mr. W. B. Candler writes: "There are doubtless many persons who would be glad to know where a good, comfortable, and roomy car could be hired cheaply for day trips, and I have much pleasure in bringing before your readers the name of Mr. Dewey, of 6, Queen's Road, Battersea, S.W. His charges are most reasonable, he is a careful driver, and his car is calculated to favourably impress in favour of automobilism any novice who has a ride therein. I have no interest whatever in Mr. Dewey's business, and until I went to Brighton and Worthing with him the other day have never before come in contact with him, so that my recommendation is entirely disinterested, and is given with a view to help others who, like myself, have not their own car, but who wish occasionally to enjoy the pleasures of the pastime."



Last week, on page 170, we published an illustration of the decorated motor bus made by the Motor Manufacturing Co., which was driven in the Godiva Procession, at Coventry, on Coronation day. As the front appearance of the car was even more striking than the side view we reproduce the photograph showing this. It will be recalled that this vehicle is one of a batch of 12 h.p. cars which are to be shipped to Johannesburg. It will be interesting to add to the particulars we have already given that the cars are fitted with the patent Buffer tyres, made by the Sirdar Rubber Co. After a series of tests and careful consideration of the results obtained, it was decided that for the hard work to which the buses were to be put, the Buffer was the pattern which would prove most satisfactory.

MOTORISTS AT HARROGATE.



The North-eastern camp of cyclists, held at Harrogate in the Bank Holiday week, was visited by a large number of Northern motorists, as many of them had friends under canvas. Their visits greatly added to the interest and life of the camp. Our illustration shows Mr. and Mrs. Chas. Conning on their Panhard, Mr. C. H. Ward with his "Raleigh"

motor bicycle, and Mr. W. B. Kirsop and Mr. J. B. Radcliffe, of Newcastle-on-Tyne, and Mr. A. Fattorini, of Bradford, on one of the new 8 h.p. Peugeots. Mr. Radcliffe is a past president of the camp, and Mr. Kirsop one of its most regular visitors—first by bicycle, and now by motor. The camp has been held annually since 1877.

The upkeep of a car fluctuates according to the character of its build and quality and the kind of usage to which it is subjected. We know several owners who would have been much more favourably impressed with the possibilities of automobilism had they been content with motor cycles, instead of purchasing cars of third-class build, which have been nothing but a source of expense and trouble since they came into their possession. We are speaking now of owners whose ambition it was to possess a car, but whose finances did not permit the acquisition of really reliable vehicles. It is not surprising that they find motoring "too expensive," and are endeavouring to dispose of their vehicles. A car without a reputation behind it is seldom cheap at any price, and people with limited means would frequently find a motor cycle a more economical self-mover, and a more pleasurable means of enjoyment than a so-called car which lacks the needed constructional features found in better-class vehicles.

* * *

South Africa is naturally engaging the attention of most British manufacturers, and this new British territory is not being ignored by motor manufacturers at home. Of late we have been in receipt of much South African literature, and it is evident from information and remarks contained therein that autocars will be needed, and, in fact, are very much needed at the present time. For instance, we read that Johannesburg is wanting at least a hundred cars for passenger and transport service. Here is a big

and remunerative order for somebody. Is the foreigner to be allowed to beat us here, as he has undoubtedly beaten us in some other markets? In Cape Colony the existing motor-car service is to be extended, and the same remark applies to Durban. It is hoped British makers are taking cognisance of these developments, and are feeling the pulse of the South African market. Some are, we know, but others, for various reasons, do not appear to have given the matter the attention its importance merits.

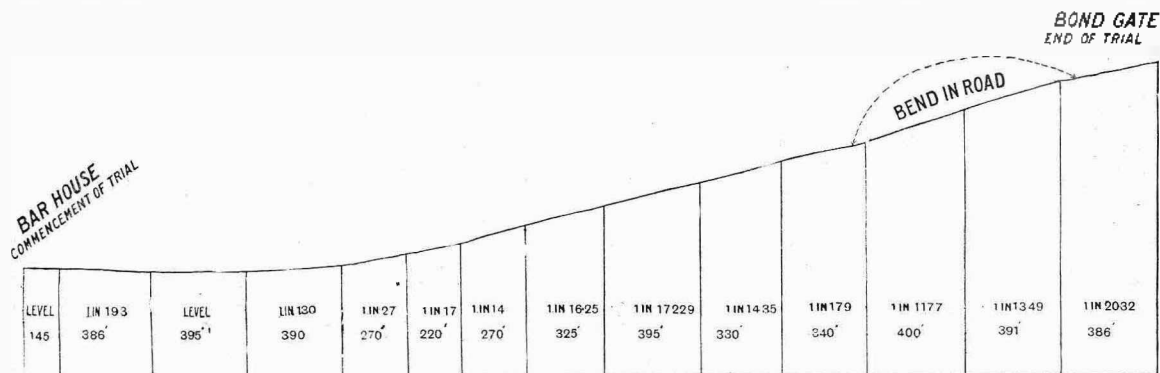


The entrance gate from the main road to the course at Welbeck.

THE YORKSHIRE AUTOMOBILE CLUB HILL TRIALS.

On Saturday, August 23rd, the Yorkshire Automobile Club are holding an informal meeting and hill-climbing trials on Harewood Hill. The trials are open to agents, manufacturers, and private owners, as well as to members of the club, and it is hoped that a good attendance will reward the efforts of the club officials. Harewood Hill lies on the Leeds-Harrogate road, the top of the hill being at the eighth mile stone out of Leeds. Harewood Bridge,

the course is excellent, and will test the solidity of the car even more than a straight hill with stiffer gradients. We look upon a curve of this sort as a very important factor in carrying out any hill-climbing or reliability tests, as, though no fast times can be put up, it gives a splendid test for the lateral stability of the whole car. Hills of this description, however, are not to be found everywhere, and we hope that the Yorkshire club will be sufficiently well



Section of course. Total length, 1,548 yards. Total rise, 210 feet. Average rise, 1 in 22'11.

at the bottom of the hill, is six miles from Harrogate, the road in either direction being hilly, but with a good surface. The hill, as a test hill, is not very severe, the average gradient being 1 in 22.11; the lack of steepness is compensated by a sharp curve coming near the end of the trial. This curve has a radius of two hundred feet, and also contains the stiffest bits, as shown on the section of the course. As a test for back axles, balance gears, and tyres,

supported to enable them to hold periodical trials at Harewood.

The entrance fee is purely nominal, being 2s. 6d. for each car or cycle entered before the day of the trials, and 3s. 6d. upon that day. Certificates will be given to competitors, stating times, distance, and number of passengers carried. Entries sent by wire on Friday evening to Mr. A. W. Dougill, Great Northern Hotel, Leeds, will be accepted.

GOOD STEEL.

When talking of the quality of British work, it should be understood that we are not attacking the best French or other foreign manufacturers, but there is no doubt that a considerable number of more or less extraordinary ideas are fostered, and often by quite disinterested people. For instance, we are told of the "wonderful" steel which is used in some of the foreign vehicles, but everyone who knows anything about this subject is aware that there is no such thing as a wonderful steel, and that, provided the manufacturer is prepared to pay the price, he can obtain the very best and the particular brand most suited to his purpose. We are moved to this by a test certificate we have from the Ince Forge Co., which has been sent us concerning the tests which they have made of a block cut from the crankshaft forging of a Napier motor after being drawn out. The diameter of the piece was .798 and area .5. The breaking strain in tons on the piece was 14 tons; consequently the strain per square inch was 28 tons. The elongation on a piece 2in. long was $\frac{3}{4}$ in., which gives a percentage of elongation of 37.5. This elongation resulted in a reduced area of .221, or 55.8 per cent. For those who do not wish to trouble themselves with decimal points, we may say that, roughly, the diameter of the piece was $\frac{8}{10}$ in., and its area half a square inch. Consequently the breaking strain of 14 tons was, as we have said,

equal to 28 tons per square inch. The elongation before the breaking strain was reached is, as will be seen, more than one-third of the total length of the piece, which, we may say, shows a fine crystallised fracture. Now, it would be a good thing for those who imagine that better steel than this is used in other countries for motor cars if they would bring forward tests to show grounds for the beliefs they so thoughtlessly enforce.



The timekeepers' shelter at the finish at Welbeck.

THE HON. SEC. OF THE MANCHESTER AUTOMOBILE CLUB.



As a mistake was recently made as to the identity of Mr. J. Hoyle Smith, the honorary secretary of the Manchester Automobile Club, we feel that we cannot do better than present a reproduction of his latest portrait, taken as he was seated upon his 12 h.p. Belsize car. The Manchester club is an

energetic and prosperous body, and, while credit is due to every member for this, they are all unanimous in recognising how much of the success of the club and the enjoyment of its fixtures are due to the foresight and energy of the honorary secretary. A club is made or marred by its secretary.

THE RELIABILITY TRIALS OF THE AUTOMOBILE CLUB.

As the first week in September will see the Automobile Club trials in full swing, it will be interesting if we give the daily routes. These are still subject to some alteration, but will probably be as follows: Monday, Sept. 1st.—Crystal Palace to Folkestone *via* Riverhead, and back *via* Ashford (140¼ miles). Tuesday, Sept. 2nd.—Crystal Palace to Eastbourne *via* Sevenoaks, and back *via* Edenbridge (116½ miles). Wednesday, Sept. 3rd.—Crystal Palace to Worthing *via* Epsom, and back *via* Arundel (119½ miles). Thursday, Sept. 4th.—Crystal Palace to Brighton *via* Bolney, and back *via* Cuckfield (93 miles). Friday, Sept. 5th.—Crystal Palace to Tunbridge Wells *via* Riverhead, and back *via* River Hill, Pole Hill, and Westerham Hill (62 miles). Saturday, Sept. 6th.—Crystal Palace to Bexhill *via* Sevenoaks, and back *via* East Grinstead (123½ miles). The start will be made at the Crystal Palace at eight o'clock each morning, and the vehicles will be on exhibition there each evening during the trials. This 650 miles trial will also be

the opening week of the 3,000 miles trials of tyres. These, it is satisfactory to know, have been extended to include not only pneumatic tyres, but also hollow uninflated tyres and solid rubber tyres. The electrical trials occupy the whole of the week previous to the 650 miles trial, as they commence on Monday next. There are two sections—one for town carriages and the other for country carriages. The latter will be required to take the following routes: Monday, Aug. 25th, London to Brighton. Tuesday, Aug. 26th, Brighton to London. Wednesday, Aug. 27th, London to Esher and back. Thursday, Aug. 28th, London to Windsor and back. Friday, Aug. 29th, Special route for observations. Saturday, Aug. 30th, London to Ascot and back. The trials of the town cars will be made over routes in and about London, but it is probable that on Friday, the 29th, both town and country carriages will cover the same route, as this day is devoted to special observation as to the hill-climbing speed, electrical and commercial efficiency, and battery recuperation.

A LONG TOUR ON A BRITISH CAR.

Recently we briefly referred to the 3,000 miles continental tour which was being undertaken by Mr. C. J. Glidden, of Boston, on a 16 h.p. Napier car. The satisfactory behaviour of the machine is another proof of the utter fallacy of the idea that a British-built car is apt to give trouble on a continental tour. We have been favoured by Mr. Edge with correspondence that shows the car has been driven



nearly a hundred miles a day for seventeen consecutive days across Europe without giving the least trouble, and we give a facsimile of the back of a postcard which Mr. Glidden sent to the makers of this car on the seventeenth day of the tour. The whole circumstances of the case are interesting, as they show the reliability of the vehicle, for we find that Mr. Glidden ordered his new car by cable from Boston, stating the day on which he would call for it in London. He arrived to time, took delivery, and within a few hours of his arrival in this country he had made a start on his long continental tour, and met with unqualified success. His experiences with the first Napier he had were characteristic. When he started on his tour last year he had never previously driven a petrol vehicle, his automobilism having been restricted to the handling of electric vehicles. His method of learning to drive was distinctly simple, and one which we should scarcely like to recommend to everyone. He ordered that the car should be at his hotel at eight o'clock in the morning. When it arrived he asked the man the mission of the different levers. Thereupon he took the driver's seat and made his first day's run of 120 miles.

Since the above was written we have heard that Mr. Glidden has kept up his average, and had covered 2,008 miles at the 20th day of the tour, still

without troubles of any kind. He climbed the Brenner comparatively early in the tour, and has now been over the St. Gothard pass. This is roughly a climb of ten and a half miles, and then there is a descent of eight miles. Mr. Glidden and his party had quite an interesting time, as they made the ascent in a blinding snowstorm with a howling gale raging at the top. They stopped for a momentary breather, and then found the petrol had frozen, or, rather, the vapour had frozen in the pipe, so they made the descent with the engine stopped. At the top of the pass the thermometer registered 28°, and at the bottom 75°, so the frozen petrol was automatically thawed before the engine was wanted again. They were stopped at Andermatt for driving a car through the pass, but the fine is only ten to fifteen francs, so the matter is not serious. The tour, as a whole, testifies in an unmistakable manner to the regularity of running which can now be depended on if a really good car, made on a tried system, is selected, and it also, as we have pointed out above, incidentally shows what a good British car will do when cut right adrift from its makers, as the only stops have been due to a few punctures.

A GOOD CLIMB AT LINCOLN.

Last week, Mr. Cyril Owen, Coventry, had a Locomobile at Lincoln, and gave several medical men and others trial runs. Mr. R. M. Wright, the local autocar dealer, had arranged the runs, and Mr. Owen had his time and his car pretty fully occupied. During the trials the car, a 4½ h.p., was put at Spring Hill, which for the upper half has a gradient of one in seven—a steep hill, up which, we believe, no other car has been driven. The little car went up splendidly, was turned down again, stopped on the steepest part, started up again from a standing start, and then put at what is locally known as Penitentiary Hill—another stiff incline, which it mounted well. The quietness and smooth running of the Locomobile made an excellent impression, and attracted very favourable notice. We believe that several Locomobiles will be added to the



already large fleet of cars and motor cycles in and around Lincoln. Mr. G. M. Lowe, M.D., a prominent Lincoln gentleman, led the way among the medicos by ordering a Locomobile with a hood, and

other medical men were making trials. The illustration shows the car at the commencement of the one in seven section of Spring Hill. Mr. Owen is driving, and Mr. R. M. Wright sits with him. Mr. Wright has done an excellent service to automobilism in Lincolnshire, as he was among the first in the provinces to take up the business seriously, and his depot has been a great convenience to followers of the pastime in the district. We might point out that the gradient of the hill is that sup-

plied by the City Surveyor. Of course, those who know the capabilities of the light steam cars are well aware that they make nothing of one in seven, if fairly driven, but what it was particularly desired to demonstrate to prospective automobilists in Lincoln was that the machine was perfectly capable of easily surmounting the stiffest hill in the city, as this was the point upon which many who did not know the capabilities of the autocar were doubtful. There is nothing like a demonstration on the spot.

A NEW MILNES CAR.



This vehicle is a standard pattern 20 h.p. Milnes, built for Mr. L. Fleischmann. It is fitted with a Rothschild body, and is interesting as showing the tendency to make the two rear seats of the tonneau even more luxurious and comfortable than the double scolloped front seat.

Mr. Norman D. Macdonald very recently contributed to the *Glasgow Herald* a most interesting article on railway problems. The writer handles his subject in a very able manner, and speaks very largely from experience. The use of autocars in competition with "tubes" and overhead railways is advocated, and the opinion expressed that they will come into use for this purpose at a much earlier date than is generally supposed. The writer gives some details of what is being done by various railway companies to facilitate their suburban traffic, but no ideas as to how autocars are going to compete against these improvements are given. Directly, the autocar can never seriously compete with "tubes" or overheads, and other methods of traction having separate and unencumbered tracks, over which they are at liberty to travel at the highest speed they can attain between stopping points. At one time they can transport in one train, and at one cost, a large paying load, a state of things to which the autocar can hardly ever aspire. For local street traffic in cities where a public vehicle stops

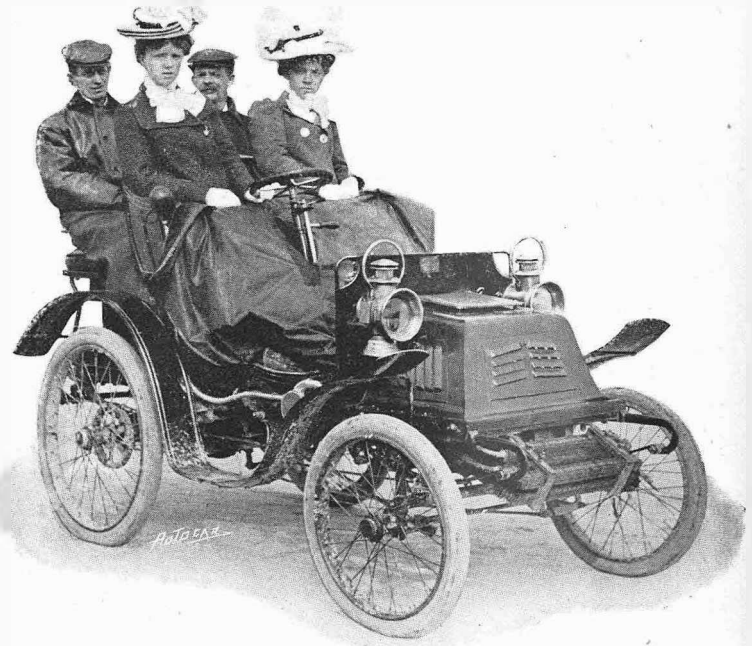
to pick up or set down passengers on request, or, preferably, has set stopping places at convenient points, the autocar has an immensely wide field. Though but comparatively small loads can at present be carried on such cars, a service can be run at a profit if properly managed, on account of the low running cost. Hitherto nearly all public service autocars have been run more or less experimentally, and with a varying amount of success. The reason seems to be that there is some difficulty in obtaining suitable vehicles, but we opine it is rather more a want of knowledge as to how to run the vehicles—as public vehicles. That is really the stumbling point. There are cars which can, and will, do the work if only looked after in a reasonable manner. With a small service of cars it can never pay to establish a proper storage house with cleaning pits and appliances, and a full staff of cleaners and mechanics. Therefore the larger the number of cars used on service the less proportionally is the cost of upkeep, by reason of everything being done in a systematic way.

A GOOD RUN ON A SMALL CAR.

Mr. Herbert Pickles has sent us some interesting particulars of a long run which he recently had from Bradford to Torquay on a 4½ h.p. three-seated Pieper car. He left Bradford on a Thursday at 6 p.m., accompanied by his brother-in-law (Mr. Teale), whilst on board there were eight gallons of petrol, some spare parts, and luggage, the total weight being nearly equal to that of three people. The start was made in pouring rain, and the first stop was made at Doncaster, which is thirty-three miles from Bradford. Here the engine stopped and refused to work. The trouble turned out to be that there was no petrol in the running tank, Mr. Pickles having forgotten to fill up before starting. As it was pouring with rain, the tourists stayed the night in Doncaster. This place was left the following morning at eight o'clock, and although it was still raining, the car ran through Tickhill, Worksop, Mansfield, and arrived at Nottingham at 11.50 a.m., the distance being forty-four and three-quarter miles. Mr. Atkey's premises in Trent Street were visited, our correspondent getting every attention. Nottingham was left about two o'clock, and the journey was continued through Loughborough, Leicester, Lutterworth, Coventry, Kenilworth, Warwick, and on to Stratford-on-Avon, which the tourists reached at six o'clock. Tea was partaken of here, and after having oiled up and watered, the weather having cleared a little, they left an hour later, and ran through Broadway, Winchcomb, and on to Cheltenham, where they arrived at 9.45 p.m. Here a halt was made at the "Plough," where they were comfortably and reasonably put up. The distance for the day was 149 miles. On the following morning Mr. Pickles and his companion left Cheltenham at eight o'clock, and went through Gloucester, and on to Bristol, where they lunched and took in petrol at Clarke's. Bristol was left at two o'clock, and Bridgwater, Taunton, and Cullompton were passed, and Exeter reached, where a stop was made for tea. This old western city was left at 7 p.m., and then the stiff climb up Haldon Hill to Chudleigh negotiated. Both were obliged to dismount and run alongside the car, owing to the gradient of the hill, the surface of which was covered with a deep layer of sand. At times the wheels sank up to the rims. At the top a breather was taken. After this there was a delightful coast all the way to Newton Abbot, which is seven and a half miles from Torquay, at which place we arrived at 9.30 p.m. The distance for the day was 143 miles, making a total of 325 miles. Mr. Pickles had not the slightest hitch with his car from beginning to end, barring the blunder with the petrol at Doncaster. By way of excitement, a dog was run over at Nottingham, and a hen was killed between Gloucester and Bristol. Both of these accidents were unavoidable, as the dog charged the car in front, and came out unhurt behind, whilst the hen tried to pull the spokes out of the front wheel, and

got its neck wrung. Twelve gallons of petrol were used on the journey, and the net running time was twenty-five hours, which was very good when it is remembered that it rained practically all the way, and that the roads were in a wretched condition. Fortunately, Mr. Pickles put a belt guard on before leaving Manningham, and he had not the slightest trouble with belt slipping.

After a few days stay in Torquay, the return

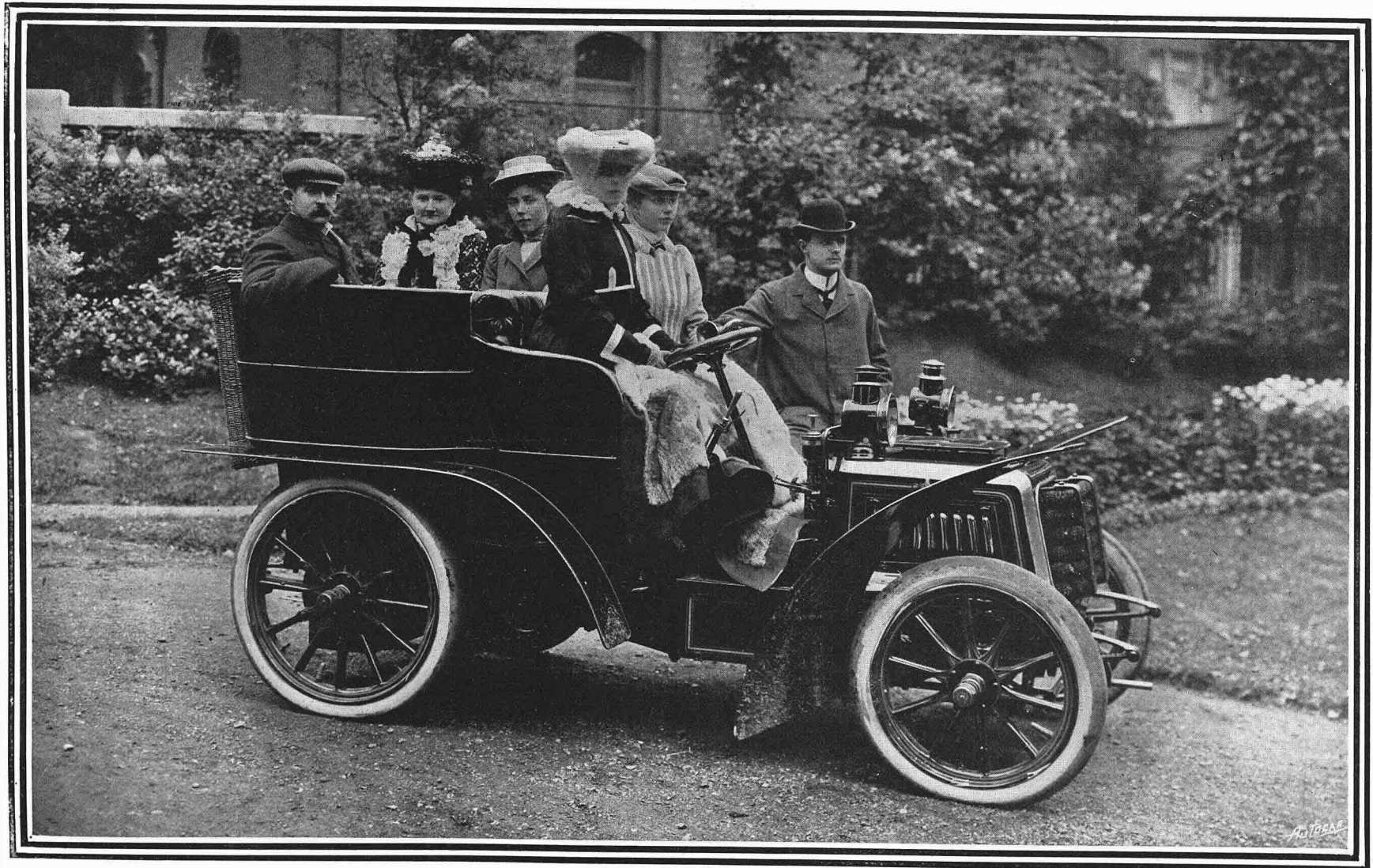


journey was made in an equally satisfactory manner, the only troubles experienced being in connection with the tyres. Altogether the run was a great success, and once again proved to Mr. Pickles that the car was not only reliable, but economical from a running point of view. The total distance covered was nearly 1,000 miles. The photograph from which the accompanying illustration is reproduced was taken at Torquay. The party on board are Mr. and Mrs. Pickles and Mr. and Mrs. Teale.



A view of the course at Welbeck. The 15 h.p. Watsonia-Durkopp driven by Mr. Frentzel.

H.R.H. THE CROWN PRINCESS OF ROUMANIA.



Argent Archer, Photo.

H.R.H. the Crown Princess of Roumania driving the Hon. C. S. Rolls's 10 h.p. Panhard. The photograph was taken at Lord Llangatock's town house, South Lodge, Rutland Gate, S.W. Lady Llangatock will be noticed in the tonneau, and the Hon. C. S. Rolls is by the front step.

High Street, Kensington.

Answers to Correspondents.

QUERIES OF GENERAL INTEREST.

Q.—I have experienced a great deal of trouble with my inner tubes of motor car. I have used Clippers, Dunlops, Michelins, etc., but they all seem to split badly on the underside, and even when split or punctured we cannot get the patches to adhere on the red tubes. I use best solution and patches, and they seem all right and hold until car is in motion, when off come the patches. Can you recommend me a good motor tube, or inform me how to make patches adhere. I am told this is a frequent trouble with red tubes.—W. J. B.

A.—It is a rather curious coincidence that you should experience the same trouble with the inner tubes in the various types you specify. Under ordinary circumstances, it would point to a poor tube, the circumferential joint of which is not properly made. A small gap between the edges of the tyres in the bed of the rim tends to weaken the tube and cause it to split. We have always found the Clipper red rubber tube give every satisfaction, though after long periods of hard wear they have shown a weakness at the joint, but nothing more. This being the case, we can understand even a slightly inferior tube giving way. The tubes could be supported by fixing to one edge of the tyre a stiff tape $1\frac{1}{2}$ in. broad, arranged to bridge the gap between the edges. Have you the bandage round the rim beneath the cover? This only applies to Clipper pattern tyres. Patches can be made to stick easily by cleaning the patch, and around the puncture, with petrol on a clean rag. Damp the places cleaned with a spot of water, and rub the surfaces with the red head of a match. Then apply the solution and stick on patch. Use French chalk liberally all round the tube. Are you sure that your rims, air tubes, and covers have been the right sizes? Similar difficulties to yours may be experienced through a misfit.

TO CORRESPONDENTS.

Owing to the pressure on our columns, we have found it necessary to reply by post to all questions from our readers to which we may not consider the answers of general interest.

This week the following correspondents have been, or will be, replied to by post:

P. W. Tinne.	M. Franklin (Ballarat).
J. G. Haywood.	T. E. (Birmingham).
J. Jenkins.	M. B. Foster.
G. J. Arnold.	I. O. Newman.
R. H. Verney.	Ed. J. Thompson.
Subscriber.	F. T. Brown.
T. P. Brown.	H. Liskeard.
H. W. B.	Henry Barron.
R. J. Hudson.	L. Laurence.
W. Coles.	F. O. Smith.
Puzzled.	George Hurt.
R. Borwick.	R. W. Bayly (Plymouth).
G. M. Garrett.	H. Easton (Saxmundham).
J. Cox.	
S. Dawson (Brixton).	

Our thanks are due to the following for items of news and various topics of interest which have been or will be dealt with: W. Barry, J. Beall, O.H.B., E. J. Smith, Claud Noakes, Wilfrid E. Nicholson, E. J. Winter Wood, C. A. Page, Thomas Shaw, H. Pavillet, H.R.B., and J. J. Acworth.

Letter forwarded to L. H. Kenyon.

New Patents.

This department is conducted by Mr. G. Douglas Leechman, consulting engineer and registered patent agent, 18, Hertford Street, Coventry; 32, York Street, Dublin; and 9, Exchange Chambers, New Street, Birmingham, from whom any further information respecting patents, designs, and trade marks may be obtained.

The following list of printed specifications was published on 17th July, 1902. All notices of opposition to the granting of patents on the several applications should be filed not later than 2nd September, 1902.

1901.

8,388.—W. F. Williams. Elastic tyre with knotted circumferential and branch cords imbedded therein; hollow tyre with elastic core.

13,309.—W. J. Robb. Internal combustion two-cylinder motor with double purpose valves.

13,349.—G. Robson. Method of and apparatus for longitudinally compressing wired-on cushion tyres before fitting them to their rims.

14,545.—S. T. Walker and W. H. B. Flather. Heavy motor road wheel with radial spokes which are projected while near the bottom to obtain a grip on the ground.

16,206.—H. Hoerbiger and F. W. Rogler. Internal combustion motor having two cylinders formed in line, with three pistons, of which the middle one moves in the opposite direction to the other two.

16,917.—H. W. van Raden. Internal combustion motor built up of sections with bearings to the shaft between the crank pins.

16,972.—A. L. Cudey. Pneumatic tyre cover with U-shaped staples embedded radially therein.

17,032.—F. W. Lanchester. Ball thrust bearing in which each ball or each pair of balls engages different parts of the thrust surfaces.

19,325.—J. A. Wade. Steam motor with two cylinders in line, central crankshaft, and piston valves.

19,827.—J. Edmondson. Magneto ignition in which the armature is fluted for starting purposes.

21,913.—C. P. Norgate. Telescopic handle-bar stems and saddle-pillars with tension springs for cycles and motor cars.

1902.

519.—J. Archer. Detail improvements in the variable speed hub gear described in Specification No. 15,638, 1901.

1,248.—H. Hildebrand and G. Ihle. Internal combustion motor having a double-ended piston traversed by the crankshaft.

3,509.—P. G. L. Daniel. Internal combustion motor in which the pistons carry rollers running on ellipses mounted on the drivingshaft.

NOTICES.

SUBSCRIPTIONS.

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