Pekin to Paris.

The great race is over, won by the only competitor who got through. It is an instructive lesson to the thoughtless motorist who makes speed and brilliancy his first aims. All the competitors but Prince Borghese were victims to the speed craze, and they handicapped themselves out of the running by their preparations for the gallery work which is the bane of motoring. Prince Borghese thought only of the stupendous difficulties of the journey and prepared for them with fine forethought, discarding speed, selecting a heavy motor warranted to do solid work. All the band had arranged for coolies to pull them out of trouble, which was certain at every turn; but the car which was by far the heaviest of the lot, requiring forty men to lift it, came through leaving the rest piled up wrecks behind at various stages. In fact, the rest, with one exception, have never been heard of since they started—a very significant fact seeing that the best preparations had been made for constant telegraph communication.

The troubles were numerous, partly political and partly physical. All succeeded in overcoming the suspicions of the Chinese Government which for a time, without flatly refusing—they never flatly refuse, preferring more scientific and less compromising methods—delayed the passports in the usual dilatory fashion. Once started, the real troubles began for the travellers. Had they selected the railway route, most of these would have been avoided. A simple run along good roads to Liauyang would have taken them to the Manchurian line, which they could easily have followed past Mukden and Karbin to the Siberian railway, along which there is an excellent road right to Moscow. But the course did not lie that way. The competitors preferred to make for Lake Baikal through the desert of Gobi in Mongolia, making a great saving of distance. First, quite close to Pekin came the mountainous country of 150 miles on the boarders of the desert, then there were some big rivers, and the country was strewn with swamps; moreover there were many regions covered with boulders like a gigantic New Zealand river bed.

All the cars started loaded up with mountaineering equipment—bamboo rods, light pulleys, ropes and tackle of all kinds, not forgetting some notable pontoon devices for the rivers The old tracks were in most places washed away by heavy rains, there were countless slips to negotiate, and the swamps in the valleys of the mountain region were most provoking. Petrol had been sent ahead in the requisite abundance, and the wires were ready to chronicle anything and everything that might happen and to signal for anything and everything that might be needful in emergency. But what are wires and what is petrol when the car has to be lifted bodily over great boulders, dragged through streams, and fished out of dismal swamps ?

These obstacles proved too much for all but the Prince, who had used his head. Everything was in readiness, gangs of coolies waited at the dangerous spots, the repairing shops were all that repairing shops are in civilised places, the good will of the tribes on the road had been won and lasted enthusiastically. Indeed, the accounts speak with great pleasure of the behaviour of the people of the country, high and low. The Grand Lama of Urga prepared gorgeous festivities, which were much appreciated by those who got through—indeed, all seem to have done that, but only one seems to have got his car through with him. That one, Prince Borghese, who had deliberately sacrificed speed to stability, kept a good course through the mountains with his superior travelling car, with its petrol reservoir sufficient for 600 miles The Prince carried with him 20 lbs of baggage, 10 gallons of water, tent and provisions for several days, and a passenger. The race was practically won in the mountains, for the desert proved to be better going than was anticipated. It is well to remember that this car was fitted with extraordinary wire tyres so arranged as to counteract the sinking tendency in the sandy parts of the desert. It was also furnished with special pontoon equipment for use in water. The race was to have been completed in eighty days, and the Prince Borghese has finished it in sixty-one—having a handsome margin He is the only competitor who made a show of progress, and it is interesting to note the time occupied on the various stages of the journey. Irkutsk, 1500 miles was reached on July 2nd; Krasnoyarsk on July 7th; Tomsk, 2700 miles, on July 11th; Kazan on July 24th; Moscow, 4500 miles, on July 28th; Berlin, August 5th: arriving at Paris on August 10th

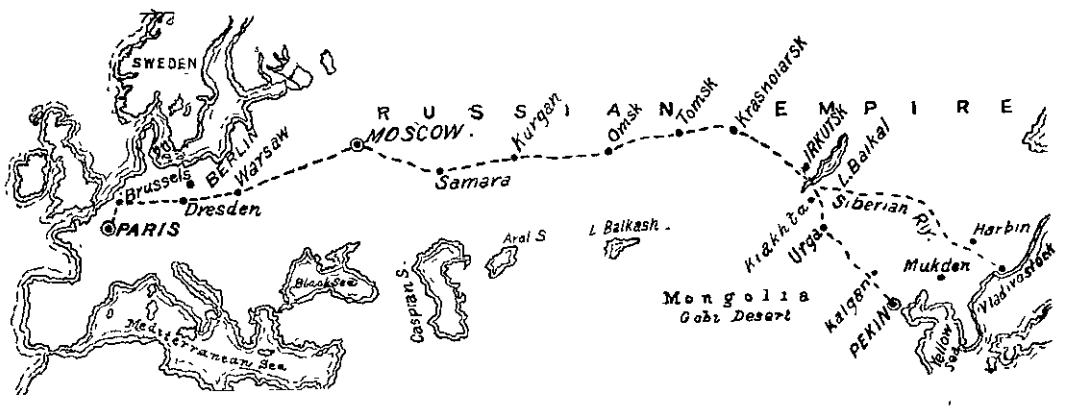

CHART OF ROUTE—PEKIN TO PARIS.

Lubrication of Motors.

On February 2nd last, Mr. J. S. Critchley, the well known writer on motor subjects, wrote plausibly and well, thus :—

My experiments have now incontestably proved to me that the light bodied oils, consistent with their being adapted for the purpose, provide superior lubrication and give off less carbon and smoke than the heavy grades of oil so often claimed to be the only satisfactory lubricating media.

The reason of this is that the thick oil, when in contact with a very hot surface, instead of running off clean, and making way for a fresh supply of new oil, only does so in as far as the top layer of oil is concerned, as that part of the film nearest the metal adheres, thickens, and becomes carbonised. This process being constantly repeated, the deposit of carbon accumulates, and prevents that free and efficient lubrication of the frictional surface which is necessary to the perfect working of the engine.

The thin oil, if possessing the necessary friction-reducing qualities, is not subject to this drawback. Each film of oil as it is applied does its work, and then makes way for another supply before it has time to thicken or carbonise. Thus, there is a continuous circulation of fresh oil, which does not remain on the hot metal long enough to become spent or impaired in quality, and the consequence is that, in addition to providing more perfect lubrication, it is cheaper by being more efficiently used.

On the 9th of February another authority replied to Mr. Critchley, considerably elucidating the position, thus—

The lubricant needed is the one which will reduce friction to an irreducible minimum, and one would think that this would be, as it should be, the buyer's first consideration, but it is frequently his last. Such comparatively unimportant questions as

Will it go through my lubricator ?
Will it go through too quickly ?
Will it leak through the joints in the crank chamber ?
What is the specific gravity ?
What is the flash point ?
Is it a dark, thick oil ?
Is it a pale-coloured thin oil ?
How much does it cost per gallon ?

are sometimes allowed to determine the kind of lubricant employed. Lubricators are often bad enough to make the use of the right oil impossible. Other lubricators, capable of adjustment, might take the right oil, if adjusted; yet there are those who will use oil which adapts itself to the lubricator, rather than alter the lubricator to feed the right oil in the right quantity.

There are many questions involved when this subject is under discussion, so I will confine myself to the point raised by Mr. Critchley as to whether thin oil is best for the motor.

The first thing to consider is that there is a best possible oil for every friction place. That would be too fine a point, so the oil manufacturer who studies the question has to "group" the friction parts and make the best possible oil for a particular "group"; that is, as near as you can go in practice, apart from the experimental shop. There are two most important and totally dissimilar friction places in the motor-car engine, *viz.* :

(*a*) Cylinder walls, piston, and gudgeon pin ;
(*b*) Crankshaft bearings, camshaft, and big ends of connecting rods ;

and to obtain the maximum power output of which an engine is capable it would be necessary to use the best oil for each place. In (*a*) we have sliding friction with light pressure under considerable heat, and in (*b*) rolling friction with considerable pressure and comparatively low temperature, and these conditions, being unlike, need equally careful consideration. Mr. Critchley's remarks are, I take it, confined almost exclusively to the first named (and in this I agree with him), for he would not, I am sure, advocate the use of a thin oil for the lubrication of the big ends of an 8 h.p. single-cylinder engine, or of a large multi-cylinder engine.

It is true that much thinner oils than are generally employed would efficiently lubricate group (*a*), where the piston was a good fit and the cooling system good, for the thinner the oil the better, so long as the cylinder and piston can be kept apart by a film of oil