MOTOR NOTES FOR MEDICAL MEN.

BY H. MASSAC BUIST.

THE SHOW SEASON AND A YEAR'S DEVELOPMENT.

TWELVE months have passed since the last motor show season in Europe. Last year, in spite of difficulties with respect to labour and raw material, transport and coal troubles, the Society of Motor Manufacturers and Traders expanded its enterprise to an unprecedented extent by leasing the White City to supplement the accommodation at Olympia; whereas, by contrast, the French industry abandoned its projected show in the Grand Palais in October, and there was no exhibition in Berlin. This year there has been a complete change, the Germans opening the season last month with an exhibition which produced quite surprising results in respect of the trade done, particularly for export. The French industry is now holding the sixteenth of its twice interrupted series of yearly exhibitions in the Grand Palais, Paris. On November 4th the Society of Motor Manufacturers will open its motor car exhibition, under the patronage of the King, at Olympia, Kensington, and at the White City. Last year car prices were absurdly high, and relatively few firms introduced new models. This year nearly all firms will be introducing new models. Practically no firm in the world's industry will introduce a more powerful model; whereas the leading makers supplement their enterprise by the introduction of smaller cars. Prices are proportionately lower, and fuel costs have come down, though they are nothing like as low as they should be. Nevertheless, it is possible to buy petrol at just under 2s. 6d. a gallon for the lower grade, against the equivalent current price of approximately 4s. 2d. ruling at the moment in Paris. In this connexion, however, it must be pointed out that prices vary, not only from day to day, but also as between one centre of purchase and another throughout France; therefore it is almost impossible to give an exact idea of the situation beyond the fact that fuel costs very much more there than in this country. Moreover, apart altogether from the influence which the high cost of fuel had in causing makers to devote great attention to supplementary air devices for securing more economical fuel consumption, we find that the world's motor industry is learning also to gear its cars lower so as to give proportionately better performances in the case of small scale machines in the way of smarter hill climbing, quicker acceleration, as in traffic and so forth—of course, at the cost also of reducing the maximum possible rate of travel on the flat.

A YEAR OF THREE-SPEED CARS.

It has long been discovered that claims as to fast maximum rates of travel on the flat do not promote sales to nine potential purchasers out of ten, because we have long passed the period at which it first became possible to produce vehicles sufficiently fast for all reasonable purposes; whereas we have not anything like attained to the maximum degrees of acceleration the average motorist desires, as, for example, the doctor who has to use his car in the midst of traffic. The quicker a car can be accelerated the safer that vehicle is in traffic, because the more quickly can it be manoeuvred out of an emergency. Again, time can be saved by prompt hill-climbing. That has been had in mind, particularly by the British industry, which has again led the way in the reduction of weight, and by the French industry in its new style cars, which are by comparison much more conventional but still quite notable vehicles. Yet this is a year of three-speed cars, from the twelve-cylinder Super Fiat of 40/60-h.p. to the new 5-h.p. Citroën two-seater cycle cars. The reason is that the new style gearing and the engine facilities now standardized makes possible this weight carrying. Incidentally the odd situation obtains that the country that alone profited by the war—the United States of America, whose national wealth was more than doubled by it—finds it practically impossible to export its cars to the Continent by reason of the exchanges; whereas the country that lost the war, Germany, has secured such vast orders, particularly for export, that her motor passenger-car building industry was never busier than to-day. Despite what might be held to be a prohibitive import duty and the luxury tax, the French industry is scared at the prospect

of German competition, and the point is beginning to be realized in industrial circles in this country, too. Sensational types of German car development, such as the Rumberg, with engine in the stern and the control gear in the front, or of the freak exhibits in the Paris show, are of no more interest to medical men than are the vast number of cycle cars, and so-called light cars, introduced by the provincial French industry on the one hand, and on the other by firms more or less lacking post-war factory equipment in this country. Above all things, the medical man must have sound engineering work. The large engineering houses of the world now have every opportunity to produce in as great quantities as their order books justify them in embarking upon.

PEDIGREE VERSUS NONDESCRIPT CARS.

There is no lack of cars, nor is there any need to wait for delivery of them. Therefore medical men should buy what might be called pedigree cars, and take no risks in "here-to-day and gone-to-morrow" propositions. Importers of cars into this country and builders at home have alike announced their 1922 programmes early this autumn. Again, the lesson of this year's racing for the Blue Ribbon events, wherein really useful experimental work is done, is that the 3-litre types of engine, which before the war were called small cars or voiturettes, are now too big even for the large car class. This was first brought to light when Ballot ran a 2-litre engine car, now standardized and shown in the Grand Palais, in the 3-litre French Grand Prix Race, and attained a mean speed of 68½ miles an hour without sustaining the tyre trouble that handicapped the 3-litre engined vehicles. A few months afterwards, on the Brescia circuit in Italy, a team of four Bugatti cars, with 1½ litre engines only, put up remarkable speeds, the leading vehicle doing approximately 72 miles an hour on a course which is chosen for its absence of turns and relatively level and straight going. The culminating surprise of all, therefore, came when the French had their Voiturette Grand Prix Race, also for cars with 1½-litre engines only; it was run on the Le Mans circuit, which abounds in corners, variations of gradient and abrupt curves; therefore, instead of a car getting under way and running almost without check to the finishing post, it is tested in really useful fashion by being subjected to constant braking, changing of gear and acceleration. In those circumstances a team of three Talbot-Darracq cars that come under the 10-h.p. tax in this country carried the day, the winner achieving a mean speed of 72 miles an hour and thus utterly eclipsing the astonishing 2-litre performance earlier in the year which had led a number of Continental manufacturers to hit on that size of engine for standard cars, as witness the introduction by Belgium of the Minerva 2-litre double-sleeve valve-engined type; and by Panhard-Levassor, and others, of machines also coming within this category. Nor is the development without parallel in this country, as witness the introduction by Sunbeam of a nominal 14-h.p. 2-litre, four-cylinder overhead valve-engined car with three-speed gearbox.

It will be noticed incidentally that, alike on the Continent and in this country, whereas the three-speed gearbox was wont to be attacked as inadequate before the war, quite a number of firms are using the type in face of such successful practice over years by firms such as Rover with their 12-h.p. vehicle, and later with the two-cylinder 8-h.p. type, and on the other hand by Vickers's concern, Wolseley, with their nominal 15-h.p. four-cylinder and 10-h.p. four-cylinder overhead valve types. The fact is, modern engines can be made so flexible and efficient, while nevertheless coming under low Treasury ratings, that there is no occasion to incur extra weight and complication by fitting four speeds forward. Of course, if an engine has a narrow range of useful revolutions, the case is different. But there is no occasion nowadays to concern oneself with other than modern motor engineering practice.

A GUIDE TO CAR SELECTION.

The time of the London motor show is so close at hand that those medical men who have it in mind to purchase cars will find it pay them, unless they have individual reasons for having made their choices already, to await the opening of the exhibition in London in the first week of next month. There everything that matters on the world's motor market—and, alas! much that had better

never have been built—will be placed in convenient juxtaposition whereby type can be compared with type. Nor need the large number of exhibits worry the medical man in the least, in that, at most, twenty types will be all that will concern any individual. There is no need to concern oneself with shoddy stuff, or with material produced by other than the firms which have adequate production resources. Nor is there need for medical men to embark on experiments, as by acquiring a new model rushed on to the streets in frantic haste to have something ready for the show, as some firms are doing, in that some of the sound types which were new, and to some extent experimental, in the hands of the public twelve months ago have now been "tried out" by motor users in hundreds. As a result a number of lessons have been learnt and the necessary improvements have been incorporated in the vehicles in question, which are now on sale, moreover, at lower prices. Most of the leading manufacturers can tell the inquirer right away what are their prices for the 1922 season, in which connexion there have been appreciable reductions practically all round. In the case of non-wasting assets, which alone concern the medical man—by which I mean cars designed on post-war lines to suit post-war conditions—the reductions are less drastic than in the case of stocks that may be said to hang heavy on vendors' hands because there is no demand for them by reason of their old-style design. In the case of the most modern designs the reductions range from 10 per cent. to 12 per cent.; in which connexion it must be had in mind that such design invariably indicates that the given vehicle is likewise cheap as to taxation, maintenance, and running costs, being economical of tyre and fuel consumption. Vast improvements have been made in springing. Notably such developments as the 10-h.p. and the 15-h.p. Wolseley system have had much to do with reducing tyre wear. This finds an echo in some fresh French enterprise. Our neighbours, however, still largely use half elliptic springs for the rear suspension. But the British lead of the full cantilever is favoured by Renault, Berliet, Darracq, Fiat, and many others for their latest models.

THE SCALE OF PRICE REDUCTION.

Some notion of the scale of price reduction in the case of proved and unproved types may be had from the fact that the two-cylinder, air-cooled, three-speed, worm-driven 8-h.p. Rover car, of ample body accommodation, has now been reduced to 230 guineas. There has been a corresponding reduction in the cost of the 12-h.p. water-cooled four-cylinder type. The 10-h.p. Wolseley (complete) specification two-seater is now retailed complete at £475, this being a type of vehicle that is as handy in traffic as it is surprising in hill climbing and speed performance in the open country; in this connexion it is to be borne in mind that it will give thirty-eight miles to the gallon touring across country in spirited fashion. Again, the 15-h.p. Wolseley chassis is reduced to £615. All these vehicles, moreover, are produced in improved form, as the result of a year's service in the hands of the public, the designs being so notably original and sound that they are being paid the compliment of very extensive imitation. In another direction progress may be illustrated by citing the introduction, by Daimler, of a four-cylinder, £20 tax, sleeve-valve engined chassis complete at £700, which is capable of accommodating the largest classes of covered coachwork for town service; by Armstrong-Siddeley of a new six-cylinder, overhead valve engined, £18 tax chassis at £575 only, the vehicle being furnished complete with saloon coachwork at £895; by Austin a 12-h.p. four-cylinder type to retail at about £550 complete; by Singer of a nominal 15-h.p. six-cylinder type; Sunbeam of three-speed, cantilever spring, 14-h.p. four-cylinder type with overhead valve engine; by Vauxhall of a nominal 14-h.p. side-valve four-cylinder engine car with three speeds forward at £750 the complete vehicle; by Talbot-Darracq of a 10-h.p. four-cylinder overhead valve engined type with cantilever rear suspension; by Standard of a smaller four-cylinder type than the already well-established model; by B.S.A. of a nominal 10-h.p. air-cooled 90° twin-engined, three-speed Lanchester-worm-driven small car to retail complete at £340; by Horstman of a 10-h.p. car of original construction; by Belsize of a Bradshaw designed nominal 9-h.p. air-cum-oil cooled twin-cylinder car to retail at about

£300; and by Wolseley of a nominal 7-h.p. flat twin-cylinder, water-cooled, side-valve engined, three-speed, worm-driven, quarter-elliptic sprung two-seater car. Turning to the foreign industry we have, among approved undertakings, a series of remarkably low prices for 1922 in the case of Fiat. Among the new French types the 11-h.p. four-cylinder Delage, with side-valve engine, retails at a chassis price of £575 or as a four-seater complete at £725 in this country; the 10-h.p. four-seater Citroën has come down to £395; the new 5-h.p. 55 mm. bore by 89 mm. stroke four-cylinder two-seater Citroën, introduced at the Paris show, sells in France at the equivalent of £170; and so on. Panhard introduces the smallest sleeve-valve engine, a nominal 10-h.p. car of 1,187.51 c.cm.; Berliet a light 20-h.p. model; while Renault has a small 10-h.p. type and Voisin introduces a small 12-h.p. type as well as an 8-h.p. sleeve-valve type; and 10-h.p. models are brought forward by Peugeot, Delahaye, Rolland-Pilain, and Chenard-Walcker, among many other well-established car builders. In short, whether among proved models or new style cars by the principal makers there is no lack of choice; nor need there be any delay as to delivery.

HOW TO JUDGE A CAR AND ITS SALESMAN.

Some medical men stand in need of advice as to how to judge a vehicle when he is being subjected to what Florio would style the "wordy wily beguillies" of the able salesman. For example, this is the period at which petrol and tyre economy—in other words, running costs—are of prime importance; therefore, no sooner does one vehicle possess some particular point of merit in this connexion than, of course, it is claimed for every other one. Thus, where good suspension resulting in lightness on tyres is claimed, it is well, when a car is being tried, to watch whether the tyres are flat. Often poor suspension is hidden by running demonstration vehicles with relatively soft tyres, which is the exact opposite of tyre economy. Again, the fuel consumptions claimed are usually quite impossible. Neither is an R.A.C. certificate much good in this connexion, because the routes chosen are probably not the type the given user has to traverse, apart from which the vehicle will be demonstrated in the hands of experts and specially tuned up.

The average medical man runs, as a rule, relatively a short distance between his cases, therefore his engine is always getting cooled. For this reason the air-cooled engine is, among the types on cheap cars, not an impossible proposition for him. Of course, it is easy to abuse an air-cooled engine, which may be defined as running it fast before a following wind. Even so, if it becomes overheated all that has to be done is to ease it for a spell. Moreover, British roads are so devious that it is rarely one runs quite away from the wind for more than a few minutes at a spell. Indeed, the troubles encountered by those who know how to manufacture air-cooled car engines are not so much in regard to cooling as to silencing. This is one of the reasons why the Rover car is so clever. It runs very quietly, and it does not hold out the lure of great speed. On the contrary, the maximum rate of travel of the vehicle is limited strictly. Yet it is adequate. The engine size shows that the whole structure is stressed lightly. This makes for success. By contrast, a number of the air-cooled cars brought forward this year with a view to competing for the great market that Rover has opened hold out the inducement of greater speed. That way trouble lies. The air-cooled method is easy enough if you do not stress it; but the moment you do so you begin to court trouble. Again, the actual economy of the Rover is notable, forty-five miles to the gallon being quite ordinary.

Another interesting thing about the development of these twin-cylinder engines, whether of the air, air-cum-oil, or of the water-cooled type, is that they owe their evolution to the practicable stage primarily to the motor-cycle industry, not to the motor-car one. The flat opposed twin-cylinder motor is a type that has a very good balance by contrast with the vertical twin-cylinder engine, which was a popular early type that fell out as soon as manufacturing methods were developed to enable four cylinders to be bored in a single operation, thereby making negligible the difference between boring a small four-cylinder block and boring an equivalently larger two-

cylinder block, a type of construction that has inherently a bad balance. Thus we find in the case of Wolseley, who pioneered even the single cylinder horizontal engine with chain drive, made when Sir Herbert Austin was the mainspring of the enterprise in the early days, ultimately abandoned it as a type, whereas the flat twin engine is justifiably employed as the latest practice for cheap car production in the form of the water-cooled 7-h.p. Wolseley. Nevertheless the French makers chiefly favour four vertical cylinders, as instance the water-cooled 6/8-h.p. Mathis. The extensive use of the "hot spot" for warming the mixture in the induction pipe before it enters the cylinders makes for economy as well as for convenience.

COMPETITION BETWEEN AIR AND WATER COOLING.

These developments have largely been made possible by the frame and suspension design evolved by the Vickers Wolseley concern when they made the Stellite car before the war, as instance the quarter-elliptic springing and the abbreviated frame which characterizes the 10-h.p. and the 15-h.p. Wolseley cars, as well as the new 7-h.p. variety, the 8-h.p. Rover, and the 10-h.p. B.S.A. A development is the rapidly increasing use of the disc or plate type of clutch in combination with three speeds and worm-drive in the back axle. Evidently during next year there will be quite a battle in the small car market between the water- and the air-cooled type of engines, also between twin- and four-cylinder constructions. Mr. Edge is of opinion that the air-cooled type is doomed; but I should hesitate to endorse this view so long as manufacturers proceed on such sound lines as Rover, whose car, now obtainable at the 1922 price, constitutes a real link between the motor cycle and side-car proposition and the motor car, combining as it does motor cycle costs with car service, as witness the amplitude of the body accommodation—a point that seems to have escaped nearly all who seek to enter the market thus created. The French produce a number of cycle-cars, chiefly of no manufacturing or material merit, in which, it seems to be imagined, the world is wishful to progress at great speed and in a sensational fashion, instead of under refined and economical conditions.

From time to time this year a section of the trade and press that objects to the current system of motor-car taxation in this country has put abroad rumours to the effect that the Government is going to abandon the present scheme. That, of course, is manifestly absurd in that the Treasury has to reap a year's revenue from it, and the cumulative results, quarter by quarter, show that anticipations as to yield have been more than realized. Moreover, motorists as a whole have not felt hardships from this. You cannot legislate for the benefit of the manufacturer or user of one make of car and penalize the majority of manufacturers who develop in other directions and the users of their machines. Whether they are British or Continental built cars, all the new style motor cars of the economical sort, which concern eight users out of ten, come off very well under our new taxation. Some hold that there can be no future for these small car constructions, because they do not accommodate four passengers apiece. Unfortunately, some of them are made to do so on occasion, very few of them on lines that can be praised. The Standard is perhaps an exception in this connexion. But for the most part such chassis should be used with two seats and a dickey if really successful service is to be got. It is not so much that the machines by the responsible houses break down as that the going is relatively rough and the accommodation woefully cramped. Unless a small vehicle is produced by a really responsible house, the four-seater design can be described only as unreliable. The costs of running these smaller classes of vehicles are so modest as to widen the market for them every year. The public is now realizing that, though some of them are relatively expensive to buy, the difference in cost between them and the cheapest products of their type is saved in the first year or eighteen months of use. The new scale of price, however, in practically all cases reveals that the vehicles are actually cheap to buy. European motor manufacturers are in the main working on the right lines, looking to long-wearing life as well as economy of service. France and Italy are doing sound business by following this policy. We shall see great developments in this connexion, notably

through the aid of racing as an experimental enterprise. In the course of next year in the Isle of Man there will be an event for 3-litre engined cars for the Tourist Trophy, and another for 1½-litre engined cars, apart from which, on the 22nd instant, there will be a 200 miles race at Brooklands for 1½-litre engined cars, as well as for cycle cars having engines of 1,100 c.cm. Next year's Grand Prix race for large cars in France will be for engines of 2-litres volume. Therefore the small high efficiency engine will be tested increasingly with the lapse of every twelve months. A hint of the nature of the value of the development may be had from the fact that limited fuel consumption and the fitting of coachwork will constitute features of one of the Automobile Club de France's Grand Prix races next year. In short, the era of the small economical engine and the durable chassis is already at hand and uninterrupted development in this direction is assured.

England and Wales.

ENDOWMENT OF A CHAIR OF BACTERIOLOGY AT LEEDS UNIVERSITY.

SIR EDWARD ALLEN BROTHERTON, Bt., M.P., has given £20,000 to the University of Leeds for the development of bacteriological study and research, more particularly in the interests of public health. This is the largest individual gift ever received by the University of Leeds. Sir Edward Brotherton, who is an ex-Lord Mayor of Leeds, has been actively interested in many branches of public life, and a number of good causes have benefited by his generous help. But perhaps nothing has made a stronger appeal to him than the problem of improving the health of the community, and in this direction he has been profoundly impressed by the importance of the study of bacteriology. He is Chairman of the University Advisory Committee on the Department of Pathology and Bacteriology. This body includes representatives of the Weekly Board of the General Infirmary, of the Leeds City Council, and of the County Councils of the North, East, and West Ridings. The department of the University of Leeds with which this committee is concerned is engaged in research into pathological and bacteriological questions as well as with the instruction of students, and also performs the bacteriological tests required by the Public Health Department of the city, by the General Infirmary at Leeds, and by other bodies outside the city. The volume of work thus undertaken by the University is now very large.

MANCHESTER RADIUM HOSPITAL.

The Manchester and District Radium Institute began work in 1915, and we have year by year given an account of the progress of its work. In 1920 the number of patients applying for treatment reached a total of 834, or 157 more than in the previous year. Recently Sir Edward and Lady Holt acquired and equipped a large residence near the Manchester Royal Infirmary as a hospital for the patients of the Institute. Lord Derby, who presided over the meeting at which the deeds of the building were handed over to the Lord Mayor of Manchester last week, said that the record of work done in the Institute showed that much suffering had been obviated or relieved.

MEDICAL EVIDENCE BY A DISTRICT NURSE.

A medical man sends us from North Wales an extract from the *Cambrian News* of September 16th, 1921, containing the report of a coroner's inquiry held at Penmorfa, Portmadoc, into the death of a single woman, aged 64, who had been living alone. No mention is made of the calling of any medical evidence, but it appears from the conclusion of the report that a district nurse's statement of the cause of death was accepted by the coroner: "Nurse Maggie Williams, district nurse, who had attended deceased, said she saw her a week prior to her death, when she complained of being unwell. She suffered from the delusion that she was ailing when she was not. On being informed that she had been found dead, witness made an examination and found that she had died of haemorrhage, followed by suffocation. She had been dead for several days." A verdict of death from natural causes was returned.