MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

THE MOTOR CYCLE SHOW.

THE seventh international show organized by the Cycle and Motor Cycle Manufacturers' and Traders' Union closes at Olympia, Kensington, on Saturday night. At the one extreme the exhibits embrace pedal bicycles and a few examples of motor scooters, and at the other, eight makes of cycle cars of the three-wheel type. What is, mechanically, the most important development under this head is, nevertheless, one that is not directly of interest to medical men—namely, the introduction by Morgan, the pioneer and the only firm of world-wide repute in connexion with the marketing of this class of machinery, of an 8-h.p. J.A.P. engined sports model, with somewhat shorter wheel-base than the standard type. The water-cooled T.B. tricar, with full cantilever rear springs, is the only other type of three-wheeler that has succeeded in climbing the Nails-worth Ladder. The 10-h.p. New Hudson has a water-cooled engine and is the type of machine that did notably well in the London-Edinburgh run, being well designed and finished. The Castle Three is also fitted with a water-cooled engine of the four-cylinder type, the bodywork being on the car principle with dickey seat. The fifth example of a three-wheeler make which has been previously introduced to the public is the Yorkshire built L.S.D., the improvements embodied in which include the use of a new "kick" starter and the fitting of better bodywork. The three other three-wheelers shown are new makes of no particular interest in their present stage to the medical profession—namely, the Day, the Economic, and the Xtra. The Scott Sociable also figures as a cycle car of the three-wheeled sort. It is built, however, on side-car lines.

Suspension and Accessibility.

In regard to motor cycles proper, perhaps the two most noteworthy developments of the year do not strictly concern doctors. I refer, on the one hand, to the use of engines of practically 1,000 c.cm. capacity, which is now one of the notable car types, as instance the 8-h.p. four-cylinder overhead valve engine Talbot capable of 55 m.p.h. introduced at the recent passenger-car show; and, on the other, to a number of motor cycle sports models with engines of any capacity ranging from 300 c.cm. to 600 c.cm. These latter are sold with guarantees of speeds up to 75 and 80 miles an hour. Of course one litre machines bring 100 miles an hour within range of accomplishment in racing. But in the smaller categories we have very interesting work done by A. J. Stevens, of Wolverhampton, who won most of the blue ribbon events of the motor cycle world this year, including both tourist trophy races, the senior one with a machine of so small an engine size that it came within the junior category. The new A.J.S. types are rated at 2½-h.p. and have side valve engines, the sports version being capable of speeds of a mile a minute. These mounts are interesting by reason of the application of the motor-car principle of braking, in that the back wheel has an internal expanding shoe pattern brake controlled by a pedal and the front wheel has the same type of brake controlled by Bowden wire lever. The front fork spring schemes on these motor bicycles are interesting. Suspension, indeed, has received attention by most designers, as instance the wide use of leaf springs. There are numerous examples of the furnishing of very deep valances to mudguards, as instance the Harley-Davidson. This was a development that began some years ago. An interesting variant, however, is furnished by the two-stroke 3-h.p. Omega with a wide type of pressed mudshield that permits of an extra draught impinging on the beehive type of cylinder used while, nevertheless, protecting the rider completely from mud no matter what the position in which the front wheel is turned for the purposes of steering the vehicle. On this machine, too, the new telescopic pattern fork fitted is immune from side play and is controlled by the action of a single-coil spring. The vertical rods act as oil reservoirs; buffer springs are fitted in the top of the side members; and the movement is in the same line as the steering head. Tyre changing is facilitated by the quickly de-

tachable rear guard on the two-stroke, as well as on the twin-cylinder, Enfield models, wherein the carrier is supported at the lower end by two hexagon nuts disposed one on either side. By loosening them with a spanner the slotted ends of the stays can be lifted clear of the studs, and the curved forward end is released from the socketed lugs fixed to the back stays. Carrier and mudguard complete can then be lifted forward, leaving the rear tyre accessible for repairs.

An unusual feature is furnished on the twin-cylinder Zenith model with Bradshaw engine, wherein the space between the upper surface of the power plant and the under surface of the fuel tank is used to accommodate a silencer specially designed to ensure safety as well as coolness, so that under all conditions of service the rider can place a bare hand on it without discomfort.

Some Light-weight Types.

Chater Lea introduces a two-speed 2½-h.p. light-weight model at 50 guineas, which is little more than the pre-war price, yet the quality and finish are up to this firm's high standard. Raleigh makes two interesting contributions to the light-weight category, the larger being rated at 3 h.p. and capable of employment with a light side-car. The lesser is a solo mount of 2¼-h.p. rating. The crankshaft used for the single-cylinder power unit employed in each case is in one piece, balance weights being bolted to it. The big end bearing is a split bronze bush. New Imperial introduces a light-weight with loop frame, the engine and gearbox being a unit assembly. The rear brake is of the internal expanding type, which is increasing in popularity. The 1922 P. and M., with forward inclined engine, has a new type of frame wherein, nevertheless, the power unit forms part of the frame member, the head anchorage being ingenious. The lubrication of the fork plunger as well as of the fork rocker details in this machine is on motor-car principles and in most accessible fashion. The two-stroke engine constitutes the down tube, the fuel tank the main member, and a stay the third member of the triangular frame on the Peters machine. A simplified frame is employed for the new 6-h.p. twin-cylinder B.S.A. model. A Barr and Stroud sleeve-valve type of engine is furnished to one of the new Beardmore-Precision models, while another model has a double purpose four-stroke 4½-h.p. machine made by a firm hitherto concerned with two-stroke practice. A *de luxe* 2½-h.p. New Hudson model has all-chain drive and upswept footboards and leg-shields. The new 4-h.p. Calthorpe solo mount shows evidence of attention to suspension details, and is so designed that it can be used, at option, with a side-car. The chief Triumph novelty is a 3½-h.p. single cylinder solo mount, with four overhead valves and light Ricardo aluminium slipper piston. The chief interest to medical men consists in this firm's well-proved products already on the market, a remark which also applies to the Humber and Rover exhibits, which embrace, incidentally, a 75 m.p.h. sporting model by the former firm and a 75/80 m.p.h. type by the latter. The range of Brough models is supplemented by a 3½-h.p. type, incorporating the firm's distinctive engine design with a cylinder built up of four parts—the barrel, the detachable head, and the two valve ports. The manner in which the wheelbase of this machine is kept short, despite the use of a horizontally opposed twin-cylinder engine, is ingenious.

Guarding the Rider.

At the recent Paris Motor Cycle Show there were some interesting examples of the use of pressings, notably by firms hitherto engaged in the aviation industry. There is not much evidence of this development at the present show in London; but in this connexion mention may be made of the Hagg, which can be used at option as a tandem mount, the passenger being accommodated in an aluminium bucket seat sliding in grooves attached to the valances of the pressed steel rear mudguard. In face of the evidences of striving after originality of construction on the part of Continental makers, it is interesting to note that the only non-freakish type that gets away from ordinary motor cycle practice at this show is of British origin, namely, the single cylinder Ner-a-Car, an example of which, ridden by a lady, has lately been put through a 1,000 miles road trial by the Auto Cycle Union. The makers

claim that this is the link between the car and the motor bicycle. But though it differs notably from general motor bicycle constructional practice, nevertheless it is essentially a motor bicycle. Considerable use is made of pressings. The very wide front mudguard does not move with the wheels, but is of ample width to cover the wheel in any position in which it may be turned for the purposes of steering the vehicle. Pressings are used in other ways to protect alike the rider and the mechanism completely from mud, the single cylinder alone projecting between the rider's legs. No front forks are used, the wheel being supported separately within the hub. The steering column is connected to the wheel by means of a short arm and a tie rod; this detail admittedly follows motor-car practice, save that the problem is to deal with one wheel only, as distinct from an axle and two wheels. The suspension details are well thought out.

In regard to side-cars a deal of attention has been paid to sporting types, and, in one or two cases, to goods carrying types, such as chemists' vans. Of interest to medical men is the Royal Enfield side-car, wherein either a quantity of luggage or several tins of fuel can be carried, and more luggage, or fuel, can be disposed on the horizontal lid. Tools are accommodated under the seat. This firm's family side-car is improved in design to provide several inches more leg-room by taking the upholstery of the rear seat quite to the back of the body and carrying the luggage on a folding grid. A stool seat, provided with this side-car, can be bolted in any position desired. The Matchless tandem two-seater type side-car has, of course, the wind-screens disposed one behind the other, and is distinctive in that the floor boards for the front seat are collapsible.

Miscellaneous Exhibits.

It is plain that this year motor cycle builders and users alike have thoroughly grasped the point that it is economical as well as comfortable to fit a mount with the largest pneumatic tyres it will take. To meet the demand tyre makers are producing a variety of over-sizes. Buyers have become educated to the point of being quite willing to pay the extra initial outlay needed to acquire them, because they appreciate that in return these are relatively immune from punctures and other troubles and have more than proportionately longer wearing life. Of course all the tyre makers claim that their particular pattern of tread is the best to prevent skidding, and it is observable that the number of varieties of patterns employed does not diminish. It may be pointed out, however, that the engineering principle involved is that the use of circular or fluent curves only is not as efficient as a design wherein the principle of as sharp angles as possible is exploited.

In addition to ordinary motor cycle tyres, the Dunlop Rubber Company introduces a series of heavy covers, to suit flat base rims, with car type beads, the whole being built up on the lines of car tyres. These are available in 26 by 2½ in., 26 by 3 in., and 28 by 3 in. sizes. Dunlop Magnum tyres are now made to suit the following rims: 650 by 65 mm., 700 by 80 mm., and 26 by 3 in. in cord. The Magnum cover takes the form of large staggered studs with rows of small studs on the outside, there being a central longitudinal ridge round the moulding. In regard to electrical apparatus, apart from Maglitas for single and for flat twin-cylinder engines, the M.L. Magneto Syndicate introduces in the E. type of this apparatus a design suitable for light-weight motor cycles. Several advantages not embraced in earlier models are combined in the new pattern switch gear for use in connexion with the Maglita apparatus, a more compact battery unit being also shown.

SMALL CAR DEVELOPMENTS.

In connexion with the large number of small cars shown at the recent motor-carriage exhibition at Olympia and at the White City, the display was not, of course, completely representative of all the makes introduced to the home market. Therefore the present opportunity may be taken to mention that a novelty from Italy is the four-cylinder, overhead valve engine, 12.1-h.p. Treasury rating, £13 tax, 70 by 120 mm., 1,847 c.cm. Ansaldo, wherein the cylinder heads are detachable. The ignition is by magneto. An electrical engine starter is standardized. This machine

follows in sundry details the main tendency of high grade English middle size car productions, the power being transmitted through a disc clutch to a gearbox giving three speeds forward, whence the drive is passed through the back axle by spiral bevel gear. Steel disc wheels are used. The suspension is by half elliptic springs fore and aft. In regard to cars of sizes of interest to medical men which were staged at the recent exhibition, but which were not mentioned in the review at the time owing to the exigencies of space, it may be pointed out that the £13 tax, 12-14-h.p., four-cylinder 70×120 mm., 1,847 c.cm. De Dion-Bouton chassis has been little altered. There are, however, changes in the wheelbase and track, both of which have been increased by a matter of four inches. Moreover, the foot brake now acts on drums attached to the rear wheels, and the hand brake on the cardan shaft, thereby meeting the ever-increasing demand for brake control which shall be according to the instinctive principle. A speedometer drive is now fixed to the front end of the propeller shaft. Some of the coupé and the cabriolet coachwork schemes standardized by this firm are interesting.

VOLUNTARY HOSPITAL FINANCE.

At a meeting on November 9th the president and general council of King Edward's Hospital Fund for London adopted a resolution affirming that the condition attached by the Treasury to the temporary assistance voted by Parliament to voluntary hospitals requiring that fresh money should be raised pound for pound, and expressed the opinion that the application of this condition, which was not recommended in the report of Lord Cave's committee, nor separately considered (much less expressly enjoined) by Parliament, will lead to great difficulties and probably to great injustice as between different hospitals in the distribution of the grants. It has therefore asked that the condition should not be pressed. The Chancellor of the Exchequer has replied that the pound for pound basis is absolutely fundamental, adding that, in view of the present financial position, it should be made perfectly clear that the £500,000 grant is the limit of Government assistance to voluntary hospitals.

ROYAL MEDICAL BENEVOLENT FUND.

THE following is a summary of some of the cases considered at the last meeting of the Committee; twenty cases were considered and £262 voted to eighteen applicants.

M.R.C.S.Eng. and M.D.Brux., aged 49, suffers from epilepsy and is at present in hospital. Owing to indifferent health has had no practice for seven years. His wife's income of £50 per annum is all that they have to depend upon. Voted £26 in twelve instalments.

Widow, aged 67, of L.R.C.P.Edin. who during the war served as a ship surgeon, and was drowned in a collision in 1917. Applicant has been living on a small legacy and £100 granted her by the owners of the ship. These funds are now exhausted, and she is now living on proceeds of sale of jewellery and is nearly at the end of her resources. She is willing to take a post to enable her to support herself, but finds her age against her. Voted £18 in twelve instalments.

Daughters, aged 57 and 49, of L.S.A. who died in 1903. Owing to ill health they are unable to support themselves. Their joint income amounts to £82. Relieved by the Fund thirteen times. Voted £18 in twelve instalments.

Widow, aged 58, of M.B.Aber. who died in 1912. All savings were used up in expenses connected with late husband's and daughter's illness, and applicant was left without means, and owing to ill health is unable to work for a living. Voted £18 in twelve instalments.

Widow, aged 40, of L.R.C.P.Edin. who died in 1916. Applicant was left with four children with an income of about £95 per annum; the children's ages now range from 7 to 15 years, and they are all at school. Apart from the income of £95, she received this year £7 10s. towards education, and £48 from a lodger. Voted £18 in twelve instalments.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters J. Symonds, at 11, Chandos Street, Cavendish Square, London, W.1. The Royal Medical Benevolent Fund Guild is overwhelmed, in these days of exorbitant prices for clothing and household necessities, with applications for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for secondhand clothes and household articles for the benefit of the widows and children who in happier times would not have needed assistance. The gifts should be sent to the Secretary of the Guild, 43, Bolsover Street, W.1.