abolish the antisocial activities of these persons. This must involve some restriction upon individual liberty. He was afraid that in framing the Act under which this administration was carried out, too much attention was paid in the House of Commons to an extreme clique who had such a regard for individual liberty that they were inclined to overlook the consideration of communal safety. In the Act there were restrictions upon their own helpfulness which they would desire to have removed. On the other hand, if they had to restrict individual liberty, there were two considerations to be borne in mind—that they should restrict that liberty only just so far as was absolutely necessary, and that if individual liberty were restricted the utmost possible must be done in common fairness within those restrictions for the individual concerned. (Hear, hear.) By all means let full regard be paid to the various interests which had grown up in connexion with this question—the teacher's interest, the doctor's interest, the local authority's interest—but the whole situation should be fearlessly reviewed with the object of arriving at the best administrative method. With regard to special schools, he had come to the conclusion provisionally that the proper person to be in the special school was simply the high-grade mentally defective child. If the places were filled up with low-grade mentally defective children the money was being wasted, and the best was not being done for the children placed in such schools. He thought it desirable also that the teacher should not be segregated for the rest of his teaching life in one of these special schools, but that he should go back to a normal school for a time, both for his own sake and for the sake of linking up the schools of different kinds.

The Education of the Mentally Defective.

The discussion on the education of the mentally defective was opened by Mr. SALTER DAVIES, director of education, Kent County Council, who described an attempt which had been made in that county to establish classes in selected schools for markedly dull and backward children as well as for the higher grades of the so-called mentally defective. The teachers of these classes had attended a special training course in the methods of instruction most suitable for such children. The work was ably supplemented in Kent by a voluntary association which detected cases of apparent mental deficiency, investigated home conditions, and followed up the children during holidays and after leaving school. Dr. HENRY HERD, assistant school medical officer of Manchester, said that feeble-minded children should be transferred to special schools at the age of 7 or 8, and he regretted that so many teachers hesitated to report suspected cases until the children were too old to receive the benefit of such training.

The subject of mental tests gave rise to an animated discussion. Dr. ROBERT HUGHES, school medical officer, Stoke-on-Trent, criticized some of the American tests which had lately come forward in such abundance, but he added that mental specialists in this country, to judge from their published works, appeared to rely solely, at any rate so far as adult cases were concerned, on their clinical knowledge and experience for the diagnosis and disposal of cases of mental deficiency, and probably the ideal method lay somewhere between these two extremes. Mr. CYRIL BURT, psychologist to the London County Council, emphasized the value of tests, though he believed that they should not be the sole means of diagnosis. Some remarks made by a director of education, who did not believe in mental tests at all, and criticized the ways of examiners, were resented by some of the school officers present.

The Influence of Heredity and Environment.

Professor E. W. MACBRIDE, in a paper on the influence of heredity and environment in causing mental deficiency, challenged the view that whilst it was possible to vary the effects of environment by varying its amount, it was impossible to change the effects of heredity except by linking it up with heredity of a different kind, as could occur in sexual reproduction. This idea, originally put forward by Weismann, and carried to an extreme by some others, he believed to be totally erroneous. In his view environment did modify heredity potentially, and he gave a description of some work which had been done in analysing the monstrosities of goldfish; this suggested that spots were formed as a result of the weakening of the egg by exposure to filthy water or water deficient in oxygen during the earliest period of development. He quoted another authority to the effect that in large working-class families, where the mother had no help, symptoms of germ weakening became progressively more marked in the younger children, the presumption being that fatigue substances in the blood of the mother checked the development of the germ. His own view was that too frequently recurring motherhood tended to bring about mental deficiency in the offspring.

Dr. A. F. TREGOLD, physician to out-patients, Bethlem Hospital, said that it was not the case that heredity and environment were factors acting in opposition to one another; all

development was the resultant of both factors. Mental deficiency was due to imperfect development of the cells of the brain cortex, and two types of defect might be distinguished: secondary amentia, in which development was proceeding normally until arrested by some adverse factor of the environment acting directly upon the growing embryo; and primary amentia, in which the cortical cells were incapable of full development owing to an impairment of germinal potentiality which was inherited. He held that the explanation of this germ change which best harmonized with clinical, pathological, and genealogical data was that the change was an impairment of developmental potentiality brought about by adverse factors of environment. There was no such thing as inheritance of mental defect, even in cases where a defective parent had a defective child. The inheritance consisted of tendencies to development only. If the impairment of normal tendency was slight it led, not necessarily to actual defect, but to disturbances of the function and durability of the brain cells; if more severe the impairment might lead to an actual incompleteness of structure. But even with mild degrees of germ impairment adverse factors of environment imposed an additional handicap. He believed that the transmission of this germ impairment did not follow Mendel's laws, but that the inheritance was blended, so that it followed that the introduction into healthy plasm of plasm whose developmental potentiality was impaired might have an injurious effect upon posterity extending over many generations.

No resolutions were passed by the conference, but its general tone was strongly in opposition to one speaker who laid stress on the burden which was imposed upon the normal by whatever was done for the mentally defective and urged a policy of doing for defective persons the least that could be done with security.

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

THE R.A.C. SMALL CAR TRIAL LESSONS.

THE lessons of the Royal Automobile Club six days' 1,000 miles trial of standardized small cars from Llandrindod Wells as a centre, from May 12th to 17th inclusive, can be dealt with in comparatively small compass for the reason that, well planned and conducted though the test was, nevertheless the industry and trade did not support it in representative fashion, therefore everything in connexion with it has to be regarded in the light of that governing fact. The value and strenuousness of a test depend necessarily and always on two things: the minimum conditions to be fulfilled, and the quality and number of the competitors setting forth to fulfil them. Thus in the matter of hill-climbing all performances were judged by the best made; but if that best performance is not the best possible performance on the part of the industry of the whole world at the given period, then the standard of relative merit falls by whatever degree the leading car may fail to achieve the maximum possible. What that maximum is none can tell unless the entry list is really representative. This the reader must judge for himself: though cars with engines up to as much as 1,000 c.cm. volume were allowed to figure on a classification according to price, nevertheless an aggregate of 21 manufacturers only sent in 29 cars, of which 21 only were placed on the starting line and 17 finished, 6 of them receiving class gold medals, 5 class silver medals, and one, a 10-h.p. Lea-Francis, a special gold medal for consistent running, hill-climbing, and condition after the trial; another, an 8-h.p. Gwynne, the *Daily Chronicle* cup for the most meritorious performance in the trials, irrespective of class, and the *Autocar's* silver cups to a 10-h.p. Trojan in Class B and to a £10 tax Rhode car in Class C. Therefore the proportion of awards to the number of cars competing is quite unprecedentedly high—in other words, it cannot be said that the minimum performance necessary to secure a medal, or an award of some sort, was high. Again, when we read of class awards we are apt to think that a deal of competition took place between one maker and another in order to achieve distinction. In this connexion one must bear in mind that there were no entries for the class for cars not exceeding £130 in cost. But in Class B, in which two 10-h.p. Trojan cars are given a

gold and a silver medal respectively, and which is for machines costing more than £130 but not more than £170, the precise extent of the competition amounted to this: those £10 tax machines which carry the two class medals were challenged only by an £8 tax Austin "Seven."

AWARDS AND CONCLUSIONS.

Having an indication of the particular character of this competition in the now long series of trials for standardized cars in this country on the six days' 1,000 miles principle, I will put on record the class medals awarded by way of completing the tale:—Gold Medals: Class B, Trojan; Class C, Rhode; Class D, Rhode; Class E, Gwynne; Class F, A.C.; and Class D, Palladium. Silver Medals: Class B, Trojan; Class C award withheld; Class D, Gwynne; Class E, Lea-Francis; Class F, Galloway; and Class G, Lagonda.

The judges feel that the trials have been successful in demonstrating the many merits of the small cars which took part in them, especially as the machines competing were vehicles standardized precisely as sold to the public. From the medical man's point of view the most important question is the condition of the machines at the end of approximately 1,000 miles running over roads which are used every day of the year alike by passenger car owners and by utility vehicles. It is therefore important to note that the final inspection of the vehicles at the conclusion of the trial revealed that several of the cars were in need of repair. In other words, it is to be concluded that had the trials been prolonged another day or two there would have been eliminations. Of the twenty-one cars put on the starting line, one was disqualified, and three others were withdrawn on account of mechanical failures in the course of the running. The 10-h.p. Surrey sustained a bent propeller shaft and a torque during the final day's run from Llandrindod Wells to Weybridge. Apart from this, during the trial comparatively few marks were lost under the heading of reliability. But the subsequent examination of the vehicles told the tale as set out above. The parts that appear to have suffered most severely were front axle pivot pins and steering gear connexions, which are very vital portions of a chassis. A few back axles developed noisiness during the trials, and springs squeaked. The class of tubular front axle used proved unsuitable for such touring conditions. In every case in which such an axle was fitted it had bent. This should not be so, since properly designed and made tubular front axles can take the reaction of front wheel brake application—instance Lanchester practice. No car in the trials had front wheel brakes. Pivot trouble was extensive and was due to inadequate bearing surface and inattention. In this connexion it should be noted that inattention caused loss of marks in the trials. A medical man should not be required to give attention to these parts in the course of 1,000 miles' use. As these trials are run to legal limit, the only conditions in which they might be held to differ from a medical man's use are these: in the trial marks were awarded for the timed climbing of certain hills, therefore engines were overrun on a few occasions to an extent which would not obtain in ordinary use because the medical man would not try to make the best possible speed up some of these hills. Against that, in the competition each of the cars was driven by an expert who understood every symptom emanating from its mechanism and who strove to save it to the utmost because, from reading the rules, he knew that the proportion of marks given for a reliable performance during the six days exceeded any he could possibly gain by risking a machine to achieve the best hill-climbing performance in the whole trials. Further, though there was rain on some days, no one can pretend that the test on that road in the month of May imposed on the cars conditions anything like as severe as those which a medical man must be prepared to meet in the course of his practice, which necessitates his traversing roads in his district all the year round, alike when they are under snow and ice-covered, when they are deep in rut and mire, and when they are dusty.

POINTS TO NOTE.

Noisy back axles may be attributed to overloaded bearings, or to lack of rigidity of their housings, or to both.

Undoubtedly faulty lubrication was the cause of the springs squeaking, though many were provided with gaiters. Many of the cars had seating capacity for more than the passenger and the driver; nevertheless, two only were carried in the trials. On the timed hills most of the engines showed signs of overheating. Some climbed the gradients only by dint of skilful driving. There appears to be much need for improvement in cooling systems and for the avoidance of the formation of steam pockets, the presence of which led to the cooling water in some of the engines boiling. Five engines only were provided with fans, and no engine was furnished with a water circulating pump. The judges note that the best performance in regard to cooling was made by an engine without either pump or fan, and having a radiator of comparatively small surface and good water supply capacity. There is, however, nothing scientific in this conclusion; that is to say, no data are provided to indicate what is the relative efficiency of the engine in question. In regard to brakes, the expert nature of the driving and that the trial was not a race are two circumstances that must not be forgotten. Of the seventeen cars that finished at Weybridge, seven had had their brakes adjusted, once in each case, in the depot at Llandrindod. Adjustment was made on the road in the case of one car only. But many marks were lost under the heading of replenishment on the road, the reason being the inadequate capacity of some of the fuel tanks and radiators, or the difficulty of access, shape, or size of the filling orifices. In this connexion it must be remembered that the longest day's run was 175 miles. The electric engine starters, which were fitted in all cases except four, proved commendably trustworthy. In one case only was an electric starter out of action at the conclusion of the trial. This was alleged to be due to the immersion of the accumulator in one of the water splashes. These splashes tested the suitability of the position allotted to magnetos, accumulators, and carburettors. In some instances these components later suffered from the effects of immersion.

THEN AND NOW.

Altogether the Royal Automobile Club has conducted three trials confined to small cars as such. It is curious that they have been organized over a period of exactly twenty years evenly divided—namely, from Hereford in 1904; from Harrogate in 1914; and from Llandrindod Wells in 1924. In the earliest trials the single and 2-cylinder types of engine were the outstanding classes. In the earliest trial twenty years ago the Rover Company ran a 100-guinea car. Last month the characteristics of the products of the industry represented were that most of them had 4-cylinder water-cooled engines, though there were some of the 2-cylinder air-cooled type. Twenty years ago the average fuel consumption was at a rate of 30.2 car miles per gallon, or 20 ton miles per gallon; ten years ago it was 35.99 car miles per gallon and 23.95 ton miles per gallon; and last month it was 35.23 car miles per gallon or 32.76 ton miles per gallon. Last month an 8-h.p. Gwynne did 46.22 car miles per gallon and the 9/19-h.p. Seabrook car did 37.63 ton miles per gallon, against 43.46 and 26.37 respectively for the best performance of ten years ago. Last month the best petrol consumption was got by a car fitted with a jet variable from the driver's seat. In conclusion, of course, the cars of to-day have vastly better acceleration, braking, and hill-climbing powers than those of 1914 and 1904.

At a meeting recently held in Paris under the presidency of Professor Roger, dean of the faculty of medicine, it was proposed to hold a medical congress of Latin races in Paris at the end of June, 1926, when the official languages will be French, Spanish, Italian, and Portuguese.

THE annual French Congress of Stomatology will be held in Paris from October 20th to 25th inclusive, when the following subjects will be discussed: (1) Dental caries, its problems, facts, and hypotheses, by M. Fargin-Fayolle. (2) Expansion of the jaws in orthodontia, by M. Izard. A general discussion will also be held on (1) treatment of pyorrhoea, and (2) treatment of focal infections. Further information can be obtained from the general secretary, M. L'Hirodel, 57, Rue de Rome, Paris.