MOTOR NOTES FOR MEDICAL MEN.

BY H. MASSAC BUIST.

FUEL PRICES.

NOTHING could better illustrate the chaotic conditions of to-day than the situation in regard to motor fuel. A month ago there was every prospect that the world would have to pay more and yet more for its petrol and benzol. Yet this week threepence a gallon has been taken off the price of petrol in this country. Some vendors are actually forecasting that, when the sixpence a gallon duty comes off at the end of the year, it will be found that the price of fuel will be reduced to the public by that amount. Seemingly the financial situation in Europe and America will help towards the attainment of this. It would, however, be unwise to build too many hopes on this, for we have seen the situation completely reversed in the last four weeks; consequently there may be a reversal, in an unfavourable direction to the consumer, in three months. Many explanations have been or may be given as to the cause of this present change in the prices of motor fuel. One thing is certain, it proves once more that at present the price of motor fuel is controlled by America. The chief cause of the fall is that the United States groups are willing to sell it cheaper. The reason is that the United States are now passing through a period of extreme depression, which has had an immediate effect in reducing the home demand for new motor vehicles. Of course, the prices of motor fuels are fixed by the big corporations, on the result of calculations made on prospective, as well as on present demands. In the ordinary course prospective demands include the increasing rate with which new motor vehicles are acquired and put into service by the public, therefore a check to the absorption of new cars or utility motor vehicles by the public at once reduces the estimates of consumption in the near future: hence the controllers of motor fuel look for other markets.

In doing so their attention turns first to Europe. In France there has been a brief period of rapidly changing prices, practically always in an upward direction; while these prices obtained, the full force of the industrial depression came over France, with a result that there has been a great check in the prospects of motoring, particularly in the case of utility vehicles. Consequently France has accumulated a very satisfactory supply of motor fuel; indeed, she has probably never been better off in this respect than she is to-day. But demand rather tends to decrease than increase, for Frenchmen, like other taxpayers, have to curtail their expenditure. Therefore the price of motor fuel in France during the last few weeks has come down steadily.

Germany has also been faced lately with the fact that she has not as much petrol as she presumed she could use, by two-thirds at least. To-day she can get at a price all she wants from America, but she cannot afford to export money in exchange for petrol. Therefore the German Government is standardizing two classes of motor fuel. One is a combination of benzol and petrol; the other is a combination of alcohol and benzol. She can rely on both these home-produced alternative fuels because her coal miners are to be depended on as well as her agriculturists. Moreover, her enterprise in this direction is likely to be of considerable importance to motor users throughout the world in the future, in that we are not really getting anywhere fuels of the sort we used to have before the war, but are instead gradually increasing the proportion available from the treatment of raw materials by ingenious mixtures. We are merely at the beginning of the phase. Of course Germany will be of assistance to us in this direction merely in measure as we require knowledge of the various processes she evolves. She will not be an exporter of fuel. It will merely be for us to study the application of her methods to our own case. In this country, too, consumption is not increasing at the rate anticipated.

ECONOMIZING FUEL.

The Royal Automobile Club was on the point of promoting a series of trials of accessory devices to economize motor fuel consumption when the announcement was made of the fall in petrol prices. Precisely what will be the effect of this on the scheme has not been decided; but

it is likely that there will be no trial of these devices if the price of fuel tends rather to fall than to rise. In the interests of medical men it is possible only to repeat the advice given here long ago, to the effect that it is not wise to lock up the sums of money necessary to acquire these devices unless the one selected has been submitted to an official test of some sort. The reason is obvious. Every time any increase of costs is manifest in connexion with motoring, inventors see a chance of reaping a golden harvest by causing the public to buy devices before there has been furnished any official proof of the ability of the given invention to justify its claim in practice. Anybody marketing a genuine device need not wait for the Royal Automobile Club to suggest a trial of it, for that organization is always able to undertake individual tests of devices for very moderate fees—that is to say, for practically the bare costs. Provided the invention is a genuine one the certificate issued to the public has an enormous advertising value to those marketing the device. Therefore it is practically inconceivable that anybody with an invention that can really revolutionize the fuel situation by effecting economy would abstain from such an obvious cheap and simple form of enterprise as getting it tested officially. It takes several extra pence per gallon off petrol over a long period to recover, say, £10 10s. spent on acquiring a fuel economizer *plus* the cost of fitting it.

In the meantime it may be noted that practically none of these devices are standardized. There is, however, at least one exception, for quite twelve months past a number of cars, both in the Old World and in the New, have been standardized with the "autovac" system of fuel feed between the petrol tank and the carburetter. Undoubtedly this principle does save fuel and make for more satisfactory working, particularly in the case of machines that have a pressure tank. For all its disadvantages that method is coming increasingly into use owing to the need to redistribute the weight on the chassis in face of mechanical engine-starting devices, and so forth, all increasing the load on the forepart of the vehicle. Therefore, for weight distribution it is better to place the tank at the extreme rear of the chassis instead of at the dash. The autovac system is excellent both for pressure and for gravity fed systems.

For the rest, the best hints that can be given to the medical man for saving petrol are to remember such obvious things as to test, at frequent intervals, the alignment of the wheels of his car. It is astonishing what a number of folk drive their cars with the wheels slightly out of alignment, with a result that the tyres get ground away and there is a great loss of effort, or, in other words, a considerable proportion of extra fuel consumption. Again, especially in the event of cold weather, one should always assist the warming up of the engine by leaving a rug, or some sort of a cover, over the radiator until the engine has got thoroughly hot. In the case of medical men, when a call is made something should be thrown over the cooler. Two or three miles more to the gallon can be obtained by doing this, apart from the convenience of easier restarting and the gain of better performances as judged by pulling power. Another point to remember when driving a car is that when it has attained the desired speed it is wasteful to keep the accelerator pedal in the position by which that speed was got. Instead, the proper way to drive is to employ the accelerator mostly to attain the desired speed; it should then be released gradually to such a position as enables the given speed to be maintained. That is the most economical way. Another thing very common among drivers is that they "burn too much petrol and too little spark," as the saying goes. On those cars wherein the driver has control of the ignition point, the tendency is to leave the lever more or less in one position, or to employ two positions at most, one for starting and the other for running. Economy, as well as a much better performance, can be achieved by remembering that in the hands of a driver who develops a real sense of feeling for the business the spark control is capable of variation to no less an extent than is the throttle. In the ordinary way, at twenty to twenty-five miles an hour a car ought to take the fullest advance of the ignition. In measure as the spark is retarded the fuel burned is wasted. The spark ought to be varied just short of pinking, which should never be allowed.

Medical men will doubtless be interested to know that the second post-war Motor Car Exhibition will be opened

at Olympia, Kensington, and at the White City, under the patronage of the King, from November 5th to 13th. This will be the first occasion on which the British show has taken the place of the French one. It will be the most representative show of the kind ever held, the exhibitors being more numerous than ever before. Nothing that has been done in America is in any wise comparable as regards representing the international element. Last year the outstanding feature was furnished by the number of high-powered expensive cars staged. This year the middle and small sized cars will constitute the principal features of the display.

FACTORIES AND WORKSHOPS IN 1919.

THE annual report of the Chief Inspector of Factories and Workshops for the year 1919 has just been published.¹ It appears in a new form, in chapters, each dealing with one important subject and containing a summary of the detailed reports of the inspectors.

It has been found that during the war the standard of safety and sanitation on the whole declined owing to pressure of work, shortage of staffs, and difficulties in obtaining materials and labour to effect repairs or renewals; but during 1919 a great step forward was made not only in recovering the lost ground but in many cases in advancing to a much higher standard. The higher level of sanitation and comfort required in munition and other war material producing works, and the strict conditions attached to emergency orders have tended to produce better surroundings in general and greater regard for cleanliness in particular, in certain classes of factories.

It is surprising to learn that on the part of the workers themselves there is no great demand for washing and sanitary conveniences, even where the trade is obviously dirty and unpleasant, and also that firms that are leading the way in welfare work have unsatisfactory sanitary conveniences. One firm which had a continuation school, a dental clinic, and a welfare staff, had sanitary accommodation which the report describes as "extraordinarily bad." Conditions of this kind, however, are bound still to be found, when the general standard of domestic sanitation is still so low in many parts of the country, both urban and rural, and where it appears to be difficult for the factory inspectors to persuade the local authorities that anything better is necessary or desirable. The same difficulty has been found in the provision of drinking water in factories, under the Order of October 9th, 1917, which routine enforcement during 1919 has now made well known. Under pressure from the factory inspectors to provide "wholesome" drinking water, firms in certain country districts have found it necessary to stir up the local authority, with the result that it is hoped that a more efficient service for the whole district will be provided.

The whole question of heating, especially in large factories such as engineering shops, appears to be receiving much attention, and in nearly every district the unit system of heating is being introduced. In this system each unit consists of a bar which forces the air under pressure downwards over steam-heated pipes and so distributes the heated air at floor level where the effect is most felt by the workers. In order to obviate the "dry" feeling in the air, sometimes noted in shops heated by this system, one firm has introduced a slight amount of steam from jets near the roof, and the workers maintain that the atmosphere is improved. Another interesting development for reducing the very high temperature associated with many important industries is the douche system of air cooling, in which a douche of cool moving air is blown by means of fans into the space where the men are at work, producing a cooling and refreshing effect. Employers and workers both speak enthusiastically of it, and whereas in former years the men often left work in the early afternoon owing to the excessive temperature they were now able to put in full time without fatigue. The close relationship between production and good working conditions is thus demonstrated.

In regard to industrial diseases the Whitley Councils made themselves felt during the year, and conferences were held with representatives of the manufacturers and operatives in different trades to consider possible improvements in matters affecting health. The statistics show that in lead poisoning there has been an increase as compared with the phenomenally low figures for 1918, but that was unavoidable with the return to ordinary trade. The industry which now stands out as the one exposing workers to the greatest risk of plumbism is not that of

the manufacture of white lead, pottery, or coach painting, but the manufacture of electric accumulators. Experiments have in the past been made in this country in the direction of accomplishing by machinery the operation of pasting in this industry—in which the larger proportion of cases occur—but they have not been so successful as in America, where pasting machines are beginning to take the place of hand-pasting in the larger works. Among the few cases of plumbism reported in the pottery industry the proportion of fatalities is very high—28.1 per cent. over the five years 1915-1919, compared with the proportion—7.2 per cent.—to all reported cases.

The Anthrax Disinfection Committee was appointed in 1919 to advise the Home Office on the scheme for disinfecting infected materials. With the formation of this Committee the Anthrax Investigation Board of Bradford, feeling that the object was accomplished for which it was appointed fourteen years ago, has dissolved. The success of the work of this Board is a signal instance of a branch of a large industry attacking the particular problem in a scientific manner and in the right spirit. They consider that clinical experience has shown that a fatal termination in anthrax is now a rare event, provided the necessary medical attention be available and the disease recognized at an early stage. This may be due to the efficiency of the serum treatment of anthrax combined with enforcement of physiological rest, the need for which, they say, has been well established; while grave doubts have been cast on the utility of the excision of external anthrax, save perhaps in the earliest stages.

During the year considerable progress was made in complying with the first aid clauses of the Welfare Orders, and three inspectors have been entirely engaged during the year in their administration. With the routine keeping of records of all slight accidents requiring first aid, attention has been focussed on their causation, and surprise has been expressed by more than one management at the number that occurred, very few of them being reportable under the Notice of Accidents Act. Workpeople and employers alike appreciate the advantages of the new regulations, and find the first aid rooms of great benefit to the works from both points of view.

EXPERIENCES OF PROPHYLACTIC VACCINATION AGAINST INFLUENZA.

Two methods may be used in an endeavour to estimate the efficacy of prophylactic vaccination against influenza. According to the first mode, the incidence and the mortality rate of influenzal infection, simple or complicated by pneumonia, are measured among the inoculated and the uninoculated; the alternative is the retrospective method of ascertaining what proportions of patients undergoing attacks of influenza have received prophylactic inoculation, regard being had also to the comparative mortality among the uninoculated, the partially inoculated, and the completely inoculated.

During the influenza epidemic in New South Wales—of which we gave an account on September 25th, 1920—prophylactic vaccination was employed on a very large scale. Public dépôts for vaccination were opened two months before the occurrence of the first case, and prophylactic inoculation became exceedingly popular, partly, it is said, in consequence of a widely spread belief in its efficacy as a remedy for rheumatoid arthritis and chronic catarrhs. For some weeks the practitioners in the towns were kept busy in inoculating their patients; most of the large business firms made private arrangements for the inoculation of their staffs, and in the public dépôts the number of inoculations, according to a conservative estimate, was 670,000. Almost a quarter of the whole population of the State received this treatment. In this epidemic it was not possible, by a process of "following up," to compare the mortality among those who had and those who had not received prophylactic vaccination. By retrospective investigations, however, it was found that of 12,000 persons treated in public hospitals, the mortality among 6,249 persons who had not been inoculated was 16.5 per cent.; among 705 persons who had been inoculated once, 11.1 per cent.; among 2,273 persons who had been inoculated twice, 10.1 per cent.; and among 605 persons who had been inoculated three times or more, 8.2 per cent.

In the Studies on Epidemic Influenza issued by the University of Pittsburgh School of Medicine, Dr. Samuel R. Haythorn gives an account of vaccine prophylaxis

¹ Cmd. 911, H.M. Stationery Office; price 1s. 6d. net.