MOTOR NOTES FOR MEDICAL MEN.

BY H. MASSAC BUIST.

CAUSES AND REMEDIES OF STARTING DIFFICULTIES.

APART from one's own recent experiences, those of readers in regard to starting the engines of their cars, or motor cycles, suggest that it may be useful to give some brief hints on the matter at the present juncture. The idea that obtains is that difficulty is wholly due to the poor quality of the petrol available. Inasmuch as the bulk of related experience goes to indicate that the trouble has occurred during the last two months, and seems to have been growing worse, it is plain that it does not lie wholly with the quality of the petrol, but that it is in part due to the weather. The rapid changes from frost to thaw, from dry to rain or snow, from strong drying wind to saturating fog, causes penetration into most houses, with the result that temporarily damp walls have been a common experience during the last two months. This is in part an explanation of the difficulties being experienced as well in starting as in running motor-car engines. Sometimes when a motor is quite hot after a run, still there is considerable reluctance for it to fire.

When the engine is standing overnight in the motor house in such weather as we have experienced, as well as when it is in use in the daytime, the amount of condensation from moisture, combined with the falling off of the quality of the petrol, has resulted in a vast number of cases, including my own, in a gradual accumulation of water either in the lowermost portion of the petrol supply pipe to the carburettor, if at any point that pipe falls lower than any part of the carburettor into which the petrol has to flow, or, if the carburettor details themselves are lower than the piping in the float-chamber itself. In my own case investigation reveals that a quarter of an inch of water has accumulated in, and has had to be drained out of, the carburettor.

WATER IN PETROL PIPE OR CARBURETTOR.

The remedy for this, perhaps, the greatest cause of starting trouble, is simple. A drain tap should be fitted either to the petrol supply pipe, whereby any water can be drawn off immediately, as has been the standard Sunbeam practice for years past; or some similar draining contrivance should be supplied to the bottom of the carburettor so that before turning on the petrol prior to starting up the engine the tap can be opened, whereupon any water that may have accumulated will run off. In this connexion it should be pointed out that whatever form of tap is employed its closed position should be such that its handle then hangs down vertically; in other words, to open it you should have to turn it up into the horizontal position. By arranging matters thus any wear that might occur as the result of vibration, or what not, and so loosen the tap, would nevertheless not cause petrol to escape, because, when loose, the tap handle would hang down by the action of gravity, and therefore remain always in the closed position.

It is well nowadays to put plenty of rugs over the radiator, also over the bonnet of the car, even when it is housed in a brick building. In the event of frost obtaining this will both keep cold out of the vehicle and maintain the motor-house warm as well as the engine for many hours even where there is no artificial heating. Indeed, if the car is run into the motor-house bonnet foremost, with the back of the vehicle to the door, and there is no window or other aperture facing the radiator, in such climatic conditions as are experienced in this country there should be next to no occasion for any artificial heating, providing the car is wrapped up with rugs that are dried daily if there is any cause for them to accumulate damp.

Of course there are circumstances in which no amount of wrapping can protect the engine from the effects of condensation or moist atmosphere. Thus, after housing a wet car run over rain-soaked roads all day, or more or less slushy snow, without opportunity to clean the axles, the under parts of the mudguards, and other details before putting the car away, the slush or snow will gradually melt off the under portions of the vehicle and so make the whole air of the garage moist. Sometimes, but not often, this moisture can be communicated even to the points of the sparking plugs, and so render ignition faulty.

SPARKING PLUGS, CRANKING, AND SWITCHING OFF.

In any case, in these days of fewness of qualified motor-men magneto adjustment is likely to be neglected until something unmistakably faulty occurs. It will be found of great assistance, therefore, to see to it now and again that the points of the sparking plugs are closed up to the minimum gap advised by the makers of the engine.

Care should always be taken not to overflow the carburettor when starting the engine, while when testing the running of a motor no one cylinder should be cut off for any appreciable period, as that leads to deposit of an oily nature getting on the points of the plug. Oil and damp are the two great enemies of efficient sparking, hence bad starting of an engine is not entirely dependent on the prevalence of cold atmospheric conditions. Some engines are most difficult to start on thawy, foggy mornings.

Another point to have in mind is that no amount of winding an engine will ensure a good start. This is particularly necessary for medical men to realize, in that cranking is a very exhausting business, and all their energies are now needed for the pursuit of their profession. As long as the driver makes sure, by touching the needle in the float chamber, that there is petrol in the carburettor, and shuts off the air either wholly or in part while the crank is turned from four to eight revolutions when the engine is cold in the morning so as to ensure that petrol has been sucked into the cylinders, especially if no doping plugs are provided, then the engine ought to start by an easy down thrust accelerating so that the upstroke is very "snappy." Of course, where dual ignition is furnished, so that there are accumulators furnishing a constant spark to the cylinder under compression and ready for firing, starting is a very much easier business than with a magneto alone, and can usually be effected by upstrokes only.

Medical men would, besides, be well advised when stopping an engine on arriving at the residence of a patient to open the throttle fully, either by means of the hand control lever or by pressing the accelerator pedal to the maximum, while switching off the ignition. By this means, when the engine has ceased to work, nevertheless it will be left with a fully compressed charge in the cylinder due to be fired; hence, if a rug is cast over the radiator and so forth, a single "snappy" upstroke ought to suffice for the engine to start firing again.

WARMING UP THE ENGINE.

It is impossible that notes of this character can go into the matter of magneto adjustments, particularly as there was never so wide a variety of magnetos in service as to-day, and because in the actual affecting of adjustments, what is right in regard to one machine would be quite wrong in the case of another. Apart from the differences between various makes of magnetos, too, is the fact that makers get their ignition differently one from another according to what suits the particular type of engine in question. One useful hint, however, may be given to the novice, namely: Do not treat the magneto as you would any other part of the car by rather over than under lubricating it "to make sure of being on the safe side." Magnetos need scarcely any lubrication. If they receive a drop too much often they cease to work on no other account.

Another point to bear in mind nowadays concerns both fuel wastefulness and the riskiness of racing your engine on starting out on a cold morning with the idea of warming it up quickly. This does not pay, for, altogether apart from wasting petrol, often it may lead to a seizure, because, until the oil gets sufficiently warm, it is apt to be very stiff, so that it does not flow easily enough adequately to lubricate a cold engine when it is being raced. It is far better to do these things gradually.

This racing an engine to warm it is often the explanation of an engine getting hot after it has been run for ten or fifteen minutes, some people thinking that the fuel must be of the consistency of paraffin. Of course, present day fuel is heavier than were pre-war supplies.

It should be had in mind that until the intake pipes, and so forth, are warmed up to normal temperature, gas of the proper consistency is not being made. This is why mere depression of the accelerator pedal, or opening of the throttle by hand control, causes the engine to choke instead of to accelerate. The mixture is too rich. When getting away in the morning it is best to keep in a lower gear for a few minutes, and so to employ the controls that

as thin a gas as possible is supplied until the engine gradually attains to faster and faster revolutions. That is the most economical way of warming up in the least time. It is no use choking an engine by supplying too much petrol and too little air. That is bad for the engine, as well as wasteful.

THE FUTURE OF MEDICAL SERVICE.

I.—By GORDON WARD, M.D.

THERE is a tendency to-day to suppose that by providing a solution for as many of our problems as we can now see we have made adequate provision for all future difficulties. A noteworthy example of this is the provision made for "specialist" advice and panel treatment for those whose health has been injured by the war. The success of this scheme depends on a sufficiency of practitioners, but whether this sufficiency is likely to be forthcoming does not seem to have been discussed. It is comparatively easy to show that it is not by any means assured; indeed, it is common knowledge that even in peace time many areas had not a sufficiency of panel doctors.

Other examples of the hand-to-mouth method of solving war problems will readily come to mind. It is the aim of this article to consider as briefly as possible certain wider aspects of national health problems which are being lost sight of, to the great prejudice of their ultimate solution.

It will be necessary to consider (1) the work to be required of doctors after the war; (2) the supply and capabilities of doctors to do the work; and (3) the most economical way of utilizing them and organizing their service.

The Work Required.

So far as I can gather from conversations, many doctors consider that their only national duty after the war is to get back to pre-war conditions as fast as possible. Their horizons are bounded by thoughts of their own incomes, and, since this prepossession is shared by 99 per cent. of the remainder of humanity, they cannot be blamed. But they are wrong in supposing that pre-war conditions are of necessity the most advantageous for the profession. Perhaps this is more an instinctive feeling than a definite supposition on their part, but, however that may be, it does very definitely prevent them facing questions of national needs. Even such views and thoughts as have recently obtained publication in the medical press have been far more concerned with the welfare of the profession than the good of the public. Yet, since the public is not in a position to understand the problems raised in attempting to provide for its future health, it follows that the medical profession, which alone is qualified to do so, ought to propound a solution of future problems in the light of some more exalted view-point than is provided by mere self-interest.

It is true that to do so effectually requires also the gifts of a statesman, but these gifts are not the prerogative of lawyers, and have over and over again in the past found their highest expression in the persons of medical men.

Let me, then, attempt some comprehensive view of what ought to be required of the profession after the war.

In the first place, let it be said that man power is important now, but will certainly not be less important when peace is declared. Then we shall be a stronger nation morally but a weaker physically and financially. The work of every man will be required to enable us to compete with those who have grown rich while we fought the cause of morality against materialism. Taking, then, the population existing at the conclusion of peace, it will be of the first importance to safeguard the worker from preventable disease. An enormous amount of disability is now due to industrial disease. Those who work in factory districts will realize this. Here, then, is one sphere in which the work of medical men ought to be increased. There is, again, a very heavy mortality from infective disease—for example, tuberculosis and infantile diarrhoea. That much can be done by adequate research is shown by the examples of small-pox, diphtheria, enteric, and tetanus. A great deal is also to be done by earlier diagnosis and institutional treatment. All of these can only add to the burden of the medical profession.

We have also to consider the supply of workers; and here we are at once faced with the problem of child mortality. Every medical man knows that this is largely a question of ignorance, bad housing, and inherited disease. The bad housing is the concern of the State, the inherited disease is often the fault of the parents, but the ignorance is very largely due to the medical profession. In part this is because the profession has not known what practical advice to give, and in part because we have been constrained by pressing personal interests from rebuking ignorance in those quarters—for example, landlords—where it is most dangerous. The giving of advice should entail a far more practical acquaintance with problems of ventilation, drainage, food supply and values, etc., than is commonly possessed by the average medical man of to-day.

Add to these the problems of antenatal hygiene and maternity and we have an enormous and practically untouched field for the activities of medical men after the war. And all these problems are, be it noted, of long proven urgency, and only the more insistent because of the weakening of our man power by the war.

Problems of treatment have not yet been touched on, but these are scarcely less urgent. We know that venereal disease is seriously on the increase and that actual war wounds themselves provide a vast number of men who will require treatment for years to come. Nor is the end of the war yet in sight, and meanwhile disability from wounds increases daily. It is obvious to medical men, but not to the public, who demand a scar before they are convinced that a man is disabled by war, that the medical casualties will be at least as serious a problem as the surgical. In particular, the results of long stress are far less easy to deal with than those of long suppurative. The after-effects of dysentery or plenrisy are not less disabling than those of a stiff joint. Herein is another increase in the burden to be borne by the profession.

Lastly, a much higher level of attainment in treatment, and perhaps especially of diagnosis, might be reached had medical men the time and opportunity for post-graduate study. There can be no doubt that the benefit to public health from this alone would be of quite inestimable value.

Having briefly outlined some of the spheres in which speeding up will be most required, I may pass to the question of supply of medical men and of their abilities.

The Supply of Doctors.

After the war we may expect to find the supply of medical men depleted by (a) the return to retirement of many now assisting in practice; (b) a number of retirements only postponed now because of the war; (c) actual war casualties; (d) cessation of entries.

Retirements may be expected to be more than one would have expected in normal times in proportion to the extra stress of the war years (which will certainly number three, and may very well number at least five). On the other hand, the increased cost of living may hinder a few retirements otherwise due. The latter, however, will not make much difference, as men in this position will be almost "non-effective" as practitioners.

War casualties are a dead loss to the profession, and are constantly increasing. It must be remembered, too, that these affect almost always the younger and more vigorous men, from whom the nation in the ordinary course might expect most work.

Cessation of entries is very serious, and has been much aggravated by deaths of partially qualified medical students, and is by no means compensated for by increased numbers of women doctors. It also is a progressive drain on our ranks.

The capabilities of doctors will also be different. The days in which a doctor could squat and make a living wage in a few years have been altogether banished by the Insurance Acts. A practice has to be bought now, and capital will be increasingly difficult to obtain. A particularly serious matter is the death of so many doctor sons of country doctors, for these had normally every prospect of finding a practice ready made in a locality in which they had many social ties. These practices will now be much harder to dispose of; in other words, local needs will be much more difficult to meet.

A further very important factor is the loss of vested