Rank and Command.—Medical officers should have power, in their own branch and in dealing with their own officers and men, equal to that of executive ranks. In every ship the senior medical officer should have power of punishment as a "second in command," and in independent commands (hospitals and hospital ships) he should have the same powers as an executive officer "in command." The invidious rule which makes a surgeon commander always junior to a lieutenant-colonel in the other three services (R.A.M.C., I.M.S., R.A.F.) should be done away with by making all commanders (of whatever branch) rank with lieutenant-colonels according to their relative seniority. Whenever a medical officer or rating is tried by court-martial a senior medical officer should always be a member of the court.

The vice-admiral (M), rear admiral (M), or captain (M)—to give them the titles suggested—in command of a naval hospital or establishment should have the same privileges as an officer of the corresponding executive rank, such as steamboat and allowance for servants.

Pensions.—There should be optional retirement after sixteen years' service, on pension, and the pension rates should increase in proportion to the exact number of years' service, and not remain the same for four years at a time. Pensions and widows' pensions and children's compassionate allowances should be increased to meet the new cost of living. Half-pay should be abolished except as a punishment or when granted at the request of the officer. An officer retired at his own request, or to facilitate promotion of others, or under an age clause, should be granted the next higher step in rank.

MOTOR NOTES FOR MEDICAL MEN.

BY H. MASSAC BUIST.

THE SURE WAY TO OBTAIN MOTOR FUEL LICENCES.

MEDICAL men who are experiencing any difficulty in obtaining fuel licences, or supplementary ones, and who are members of the Royal Automobile Club or the Automobile Association, should communicate with one or the other of those bodies, which have been requested by the Petrol Control Department to take up the matter, presumably with a view to expediting the work of licence issuing. Doctors' attention may also be drawn to the campaign initiated by the *Motor* to protest against the continuance in another form of the super-tax of 6d. per gallon on petrol, because it concerns them in that they pay a half-share of all peace-time imposts on motor fuel. Forms may be had on application to 19, Rosebery Avenue. Doctors should get all their motoring patients to append their signatures also, in that, unless there is a very wide protest, it is extremely unlikely that the Chancellor of the Exchequer will impose less than a 1s. fuel tax next Budget. Yet, with a gallon of petrol costing more than the pre-war price of a bottle of whisky, the individual medical man, who under taxation schemes has certain privileges over ordinary motorists, is paying far too dear for his motor fuel. Moreover, the more motoring in general is restricted in these islands, the relatively dearer it is for the medical man. The story of all locomotion movements, as well as of ordinary commerce, is that the bigger the scale on which you establish each, the cheaper the cost to the individual participating. It is therefore a matter of direct interest to the individual medical man to see to it that the motorists among his patients are enlisted in this campaign of public protest against the extortionate prices to which fuel and fuel licensing and taxation schemes have driven it to-day.

The Petrol Control Department's premises are advertised for sale "with early possession." Therefore, it is to be presumed that the department will cease to exist at the end of April, when the current licences run out. Obviously it would cost less to the Government to slip the extra 6d. a gallon tax on the cost of the petrol to the user at the time he is purchasing it in the ordinary way instead of involving all the paper wasting and clerical costs of running a separate department to raise a supplementary tax, as being another name for dividing up work that has already been provided for.

THE BENZOL SITUATION.

The Government has acted wisely in connexion with benzol to announce that the ordinary tax will be imposed on it if it is marketed by the oil companies. But the theory is more attractive than the actual practice. One of the chief reasons of the proportionately high cost of motor fuel, even in peace time before we had war costs to pay, was in its distribution in retail. The organizations, with their tremendous ramifications, cost an enormous amount to

establish. Therefore it would actually be an act of economy if existing organizations could be used to distribute benzol, provided some control were kept over the matter by the Government. It may be admitted that, theoretically, it would be better that the organizations selling benzol were rival concerns; but can it be imagined that they could continue so in anything but name? What is to prevent the oil groups, with all the financial and practical experience they possess, forming separate companies and running benzol just as they run oil, or, if entirely different groups started benzol companies at a later stage, buying their shares and coming into control of them in that way? Meantime, the enterprising "Shell" oil concern announces the sale of benzol to its customers, who are then not kept waiting for distribution facilities.

It is eminently desirable that the use of natural benzol should be encouraged. The Government should draw up very stringent regulations whereby the public will be assured against the possibility of buying under the name of benzol that which is in effect "denatured" benzol, such as was used at one period of the war; it is distinctly destructive of engines, having in it certain chemicals in substitution of ingredients withdrawn for the making of explosives during the campaign. By contrast, natural benzol should prove very satisfactory.

THE NATIONAL BENZOL ASSOCIATION'S SPECIFICATION.

An organization styled the National Benzol Association, whose membership, however, does not embrace all those producers who collectively are distilling something like 21,000,000 gallons of benzol in this country a year, has done well to issue the following specification of benzol for use as motor spirit, because it ensures something like a standard grade quality being supplied to the public by members of the association; it contains necessary provision against freezing, in that benzol crystallizes at 18° F.; and it allows a negligible amount of sulphur only to be embodied in the fuel, so that there is no danger of corrosive action to the engine. The points are as follows:

1. Specific gravity: 0.870 to 0.885.
2. Distillation test (by flask). Benzol shall give a distillate of not less than 75 per cent. to 80 per cent. at 100° C. Benzol shall give a distillate of not less than 95 per cent. at 120° C. Benzol shall give a distillate of not less than 100 per cent. at 125° C.
3. Sulphur: The total sulphur shall not exceed 0.40 per cent.
4. The benzol shall be entirely free from water.
5. Colour: water white.
6. Rectification test: 90 c.cm. of the sample shaken with 10 c.cm. of 90 per cent. sulphuric acid for five minutes should not give more than a light brown colour to the acid layer.
7. Benzol shall be entirely free from acids, alkalis, and sulphuretted hydrogen.
8. Benzol shall not freeze at 25° F. below the freezing point of water.

The Automobile Association is taking the keenest interest in the recovery of benzol from gas works, and is alive to the proposal of the subcommittee of the City Council and of other bodies to approach the President of the Board of Trade concerning the alleged hardships imposed on gas consumers during the war owing to gas companies having "scrubbed" their gases for benzol. It seems to be generally agreed that scrubbing to a moderate extent, while recovering a large quantity of benzol, only affects the calorific value to somewhere about 5 per cent. As regards illuminating power, the difference where incandescent mantles are used is quite insignificant. In view of this, it is strongly felt that, far from gas companies being deterred from continuing the process, they should receive every encouragement, both from the public and the Government, to continue an enterprise which has such an important bearing on the production of indigenous motor fuel. The production from gas works alone last year was over 6 million gallons. If all gas works scrubbed their gases, this figure could be increased by some 15 million gallons, making over 21 million gallons in all obtainable from coal. This amount is actually carbonized at the present moment, and the by-products are being wasted.

In America the much boasted "Liberty" fuel, which is supposed to be an entirely new motor spirit, turns out to be nothing very original, but merely a 65 per cent. mixture of benzol with nearly 30 per cent. of what the Americans call kerosene, or what we should call petroleum plus a small percentage of amyl acetate. This raises the question whether we could make combinations of fuels of that sort probably more cheaply in this country if the oil groups blended them, than by having benzol and oil marketed by

two distinct concerns, so that any organization desiring to place a blended fuel on the market would have to pay the oil and the benzol groups their profits before it could secure its supplies.

THE COST OF NEW CARS—AND A WARNING.

While the next six weeks should witness a considerable clearing up of the fuel situation, it should also see the first issue of post-war cars. The majority of firms have now announced the main features of the vehicles they will market during the spring and summer, though practically none will give definite dates for delivery. Since post-war models of cars of sizes and types likely to interest medical men were last dealt with in these pages, very much more definite information has been forthcoming as to prices. Unfortunately, these are all in the undesired direction. Pre-war values are absolutely no guide.

It may be asked how it is that manufacturers should not ask such higher prices as the high costs of labour entitle them to demand, since the net cost of producing a car in the post-war period is more than 100 per cent. over the pre-war cost. Increasing wages for the mining of coal, the shipment or other transport of ore, and so on, go through all the processes of producing the raw materials of motor manufacturing. When the matter is examined in detail in this fashion, the only matter for surprise is, not that type-for-type cars are 50, 60, and 75 per cent. dearer than they were in the pre-war time, but that they are not 100 per cent. or more dearer.

In very few cases that have come under review in the small and middle size car markets are machines being offered at double their former prices, though the medical man should be warned that here and there agents appear to have got hold of demonstration examples of post-war cars, and to be offering them for early delivery at utterly fancy prices. This is something for which the manufacturer is not to blame. Indeed, all the responsible firms are taking active steps to stop such an injury to their trade, but they cannot control the buying public. Therefore they plead that it should not further raise costs against itself by paying such prices for cars, manufacturers themselves never demanding such. The middleman alone makes such unauthorized profits in addition to the quite handsome ones allowed him by trade agreements.

Neither is the used car market at the moment to be understood. For example, a case came under review the other day in which a man paid over £500 for a 1914 Singer coupé, and in the middle-size class equally extraordinary prices seem to be realized. Yet if an owner endeavours to sell a used car, it turns out that his may be worth 20 per cent., at most, more than he gave for it at the beginning of the war; but in most cases £10 or so less than he gave for it.

NO CASE FOR DESPAIR.

Certainly motoring is going to cost the medical man much more in the immediate future than it did before the war, alike as regards the prices of his tyres and fuel and for the purchase and repair of his car. Therefore the best advice that can be given is: any medical man who has a vehicle at all up to date with which he can make shift should, not merely in the interests of his colleagues who may have no such standby, carry on with what he has until production has begun to meet demand; it is, besides, in the interest of his own pocket, in that, beyond, peradventure, from next November onwards we shall begin to see what designers will achieve towards reducing car costs in the light of what we shall not discover until Budget time in the matter of the taxation the Government is going to impose on the motoring movement.

None need despair, because an interruption of approximately five years has occurred in supplying the needs of the motoring public at large, with the inevitably resultant shortage. The increase in factory capacity the world over is such as to ensure that in about two years the manufacturers will have overtaken the public demand. Then there will be something of the nature of a world-wide slump in car production.

One might forecast it much earlier were it not for the fact that the bulk of the world's motor vehicles are produced and used in the United States of America, where statistics show that the average life of a motor vehicle is five years, and that in the course of that time two bodies will be worn out. When it is recollected that there is one

motor vehicle in the U.S.A. for every eighteen inhabitants, it will be understood that even a large industry has much headway to make before it can catch up such a demand as is created by war prosperity on the one hand—America's national wealth has increased by at least 40 per cent., whereas her national debt is only 4½ per cent. of her total wealth—and on the other by the brief interruption of output due to concentration by motor manufacturers on munitions production. The Americans estimate that their home market will be short of cars for two years at least; this, however, does not mean that we shall not see the American industry very eager to do business in this country, because the Americans foresee that it must follow as the night the day that presently motor car production the world over must overtake demand. Therefore they want to get well set in their export markets for that time when they will want to bring wealth into their country and keep their industry going by export. Accordingly, during the next two years they will starve their home market, and even let foreigners do business there rather than neglect to utilize every opportunity to do export business. By the time American production can suffice alike for U.S.A. and export demands, the American makers can oust the foreigner from the States whenever they please.

Therefore, during the next two years or so we may expect car prices to be relatively high, though in Europe they must be brought down earlier than in the New World by reason of the impoverished state of the community of the Old World, leaving relatively a very small proportion of the population in the position to pay high prices for motor vehicles.

NOVELTIES NEXT NOVEMBER—AND NOW.

Medical men for whom a motor vehicle is a necessity are among the class which will necessarily refrain from buying vehicles at fancy prices, unless they are absolutely driven to do so. Those who can hold out for two years may rest assured that by that time, at the longest, new methods of designing and competition will have compelled at least a section of manufacturers to evolve cars that are cheap but can yet give good service. There is, however, no prospect of revolutionary design on the part of responsible firms during the 1919 production season. What will be shown at the Olympia Exhibition next November (7th-15th) will be machinery that for the most part will be produced in 1920. Therefore, at the moment that does not concern us.

Of course, scale of production has much to do with the cost at which a vehicle can be put on the market. The fabulous scale of American output to each factory is more widely known than the effectiveness of it is appreciated, since one cannot realize the thing unless one has been to factories and seen the work in progress. Then one really grasps what it means.

What has been done in Europe to counter this? In Italy the Fiat factory had between forty and fifty thousand hands during the war, and one of its great post-war propositions was to have been a four-cylinder light car marketed complete at about £200; yet within the last month the firm has abandoned the scheme altogether in favour of a large model policy. At base the change is due to the cost and temper of labour. In the meantime the company sees that it can sell more than all the large models it can turn out for a long time, so that the type most likely to be of use to the medical man is held up in the interval. With the lapse of time, however, shipping rates must fall, and so forth, so that gradually the hundred and one factors which contribute to the current cost of a car will decline. In France, Renault employs twenty-five thousand men, but there is no confirmation of the fact that he is going to put a very cheap car on the market this summer, though he has some popular models in view. In France, however, a war-created organization formed by M. Citroën is aiming at mass production on a basis of some thirty thousand vehicles a year, the scheme being, of course, to embark on a cheap car, of which sufficient details are not available at the moment. It is expected that by April the output will be one hundred cars a day, to be retailed with standard body and complete equipment at from £270 to £360, with a four-cylinder engine of 68 mm. bore and 100 mm. piston travel.

(To be continued.)