TABLE D (continued).

No.	Interval.	Urine Alcohol.	Police Remarks.
	mins.	mg.	
22	14	164	Had been found on tramcar two and a half hours before and taken to hospital, where stomach pump had been used, the doctor stating he was drunk. Pale face, unsteady in gait. Breath smelled of alcohol. Gave particulars of himself intelligently.
23	195	326	The prisoner was in a helpless condition. Her breath smelled strongly of alcohol. Speech was incoherent.
24	15	172	Very unstable; unable to stand without assistance. Flushed face, incoherent speech. Must have had a considerable amount of alcohol.
25	65	278	Face very pale; eyes very wild. Excited when she first entered the police office. Calmed down when questioned. Smelled of drink. Unsteady in gait; had to be assisted to walk. Stupid at times, but showed no violence.
26	50	360	
27	55	367	

The above table (D) is a summary of the twenty-seven police court cases examined.

Most of these are cases of pedestrians suffering from gross alcoholic intoxication. The alcohol concentration figure given is, with the exception of Case 4, the mean figure for a previous period of unknown length. The motorist cases are numbers 4, 11, 26, and 27. These results illustrate some of the weaknesses in the present-day methods. In Case 4 the defendant had a blood alcohol concentration when arrested of at least 180 mg. The charge of having been drunk three-quarters of an hour earlier was dropped when the police surgeon examined him forty-five minutes after arrest and certified him to be fit to drive a car. In Case 11 no special sample was obtained—the figure was a mean concentration. Having (unawares) driven his car on the pavement and knocked two people down, and on returning to the wrong side of the roadway having knocked down a cyclist, he could only confess his guilt. Case 26, one of those referred to in the introduction, is that of the defendant said to be suffering from the effects of influenza; Case 27 is that of No. 26's passenger, who admitted his guilt.

SUMMARY.

We have given evidence to prove:

(1) The inadequacy of present-day methods of estimating alcoholic intoxication, particularly that of the motorist, who, while showing no signs of gross intoxication, may yet be unfit through alcohol to be in charge of a car.

(2) That the concentration of alcohol in the blood is the best measure we have of alcoholic intoxication.

(3) That the concentration of alcohol in the urine is proportional to that of the blood under all conditions so far examined, and have shown that a fairly constant ratio holds which enables us to deduce one concentration from the other.

(4) That it is possible by this means to obtain a close approximation of the blood alcohol concentration of a person at the time of arrest, and therefore of the degree of alcoholic intoxication.

(5) That the work justifies tests being carried out to establish an upper limit of blood alcohol concentration for a person to be fit, after taking alcohol, to be in charge of a car.

It is with pleasure that I acknowledge my indebtedness to Professor Edward Mellanby, in whose laboratory my work has been carried out, for his help and criticisms. Also my thanks are due to the True Temperance Research Committee, who have defrayed the cost of my work.

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PUERPERAL MORTALITY.*

BY

SIR EWEN MACLEAN, M.D., F.R.C.P.,

PROFESSOR OF OBSTETRICS AND GYNAECOLOGY, WELSH NATIONAL SCHOOL OF MEDICINE.

I READILY accepted the invitation of your chairman, Dr. Rocyn Jones, to be present at this meeting of the Monmouthshire Division because, as one of my colleagues on the Welsh Consultative Council, I know him to be keenly interested in the subject of puerperal mortality, and I gather the intention is that I should offer some observations, by way of preamble to the discussion, by the Division, of the interim report of the Puerperal Morbidity and Mortality Committee of the British Medical Association, of which I have the honour to be chairman.

It is admitted, as regards both mortality and morbidity, that there is much room for betterment in this important sphere of medical practice, and that we in Wales and Monmouthshire have especial reason to give the subject our closest and most earnest attention. I feel sure, Sir, that you, in the influential role of county medical officer, must feel as I do in the capacity of a teacher, and as, I believe, those more highly placed in official circles must also feel—that it is easier to fulminate against the general practitioner or the midwife, or both, from the lectern or office chair than to strive, in season and out of season, to render available those conditions of service which are essential for the elimination of many of the factors contributory to the mortality and morbidity rates.

It is undoubtedly true that, if it were possible, a zealous, unvarying application in all the phases (including antenatal) of midwifery practice, and by all persons and bodies concerned therewith, of that knowledge which we already possess would result, even in prevailing environmental conditions, in striking improvement. It is true, too, that, short of this ideal unity of effort, each of us can contribute his quota toward improvement by conscientious use of that knowledge.

Unless, and until, however, further knowledge emerges to illumine some aspects of the problem, there will still always remain a mortality rate sufficiently large to engender concern. It was this consideration, I think, which led the Puerperal Morbidity and Mortality Committee of the Association to submit to the Council a recommendation urging that provision should be made for investigation into the factors which constitute and the conditions which vary resistance to disease, particularly as regards pregnancy and the puerperium. The Council readily concurred, and the recommendation has been referred to the Science Committee of the Association.

The principle underlying the oft-quoted legend which spans the portals of the New York Health Department—to the effect that public health is purchasable, and that, within limits, a community can determine its own death rate—has a very real application to the State responsibility aspect of this question.

To provide those requirements in personnel, equipment, and institutional accommodation, to name no others, which, by common consent, are essential to further lasting improvement in puerperal mortality and morbidity, means money in substantial amount; and let me add that whilst the professional services rendered must be met, in order to secure efficiency, with adequate remuneration, the expenditure under that heading would be by no means the largest item.

In health matters, as in some other concerns, it is extraordinarily difficult to arouse genuine and sufficiently sustained public interest. It took many years of propaganda work, acting on the principle of the summation of stimuli, to convince the public, and, indeed, many members of our own profession, of the need of the Midwives Act, and to bring home the fact that on the date of securing that enactment we were many years behind other civilized communities.

In its own effective, though perhaps undiscerning, way an aroused public opinion will ultimately insist on Parlia-

* Paper introductory to a discussion by the Monmouthshire Division of the British Medical Association, February 26th, 1925.

ment devising such economies in other directions as will permit of the necessary funds being provided. I confess, however, to hearing the other day that during the proceedings at a women's political conference, when the question of national expenditure was under consideration, a rhetorical appeal from the platform, "Shall we have battleships or babies?" was met by the reply from one lady, "Give me a battleship every time."

That phase of the genius of our country which is expressed in the evolution and development of our voluntary hospital system, as we know it to-day, has blinded successive Governments to their obligation to provide, as the Governments of other countries have provided, adequate moneys to cover the expenses of trained personnel, of equipment, and of premises concerned in the conduct of the costly research into matters concerning the health of the people. A few years ago a beginning was made in the establishment of the Medical Research Council, but the funds at the disposal of that very able body represent a small proportion only of the amount which could and should be expended. In this, as in so many other spheres of good service, voluntary effort has blazed the trail and is working towards the development of a highway, and I can imagine no more beneficent or hopeful project to endow than the research along the lines which are now contemplated.

There are not a few signs which go to show that good results are following the propaganda of recent years, and that as experience accumulates we ourselves, as well as those even more directly concerned—to wit, the mothers—are becoming more convinced of the value of ante-natal observation, advice, and, where necessary, treatment.

The public ultimately judges by results, and where, consciously or subconsciously, it is apprehended that, in given smaller or larger areas, ante-natal attendance is followed by a very real diminution in the incidence and gravity of the diseases and accidents of childbirth, there is no lack of patronage of the clinic or of the surgery. An essential condition, however, to a successful degree of appreciation by our patients of ante-natal attendance is their knowledge of the availability, should occasion arise, of adequate facilities for any necessary treatment, institutional or otherwise. I know of several instances where the knowledge of the provision of the contingent use of maternity beds has multiplied the ante-natal work in private practices and at the clinics of local authorities.

The absence of this principle of the "carry-through" provision constitutes, in my opinion, one of the heaviest handicaps to anything like efficiency in the notification of "puerperal fever," and an effective system of notification is essential to the success of our attack upon the largest single factor in puerperal morbidity. A later report from the committee will deal with this highly important subject, which, it is believed, is now engaging the anxious attention of the Ministry of Health.

The difficulty must be to decide whether notification shall apply to (a) cases in which diagnosis of puerperal infection may be presumed to have been established, or (b) all cases of sustained puerperal pyrexia. If the former, then the indications for early treatment and the prevention of the spread of infection may well be prejudiced; and if the choice be for the latter method, then, though the notification may be early, the many cases to be investigated and the many processes to be brought into play in their investigation may overwhelm even a large and costly addition to the administrative machinery existing at present, or even, indeed, that contemplated by the different schemes which the antizing overlapping of the various health agencies is forcing on to the screen.

It is truly difficult to comprehend, from consideration only of the bulk of the work involved, how the local authorities can be expected to comply with the recommendation that there should be an investigation in every area by a competent and experienced medical officer of all maternal deaths, and of all cases of puerperal fever, and all stillbirths and neo-natal deaths, with a view to ascertaining and preventing the causes likely to lead to maternal or infantile mortality.

I think it will be agreed, too, that the amount of the work would not be the only handicap to the satisfactory

discharge of this added range of duties. While practitioners and midwives must bear their share of the responsibility for the breakdown of notification, it must be borne in mind that, under prevailing conditions, objection is frequently raised by the lying-in woman herself or by her relatives and friends. Notification which results in nothing beyond visitation by various officials cannot be other than unpopular, but if and when it is followed by helpful service, and, where necessary, institutional treatment, the prospects of its acceptance and efficiency are assured.

Again, the existence and even the persistence of a rise of temperature in childbed is far too often regarded by the patient and her friends with the minimum of concern. I know, indeed, of some rural areas in Wales where lingers still a tradition that a mother recently confined *must* have a rise of temperature, the condition being dignified by the title "brad-gyfarfol," which, my friend Dr. Llewelyn Williams tells me, freely translated may be taken to mean "a combative meeting." The lochia and the mammary secretion are regarded as the principals in the combat. The mists of such superstitions and of many harmful practices based on ignorance are rapidly disappearing in the light of the wise propaganda conducted by many of our colleagues, by the health authorities, and by the various philanthropic bodies, and an informed public opinion not only asks why, if this mortality and morbidity are in large part preventable, they are not prevented, but is, I believe, ready as never before to support by practice and precept all reasonable measures to make that prevention an objective. Our duty as a profession is to strive, individually and collectively, to meet that aspiration so as to secure the best possible results.

The British Medical Association has taken the matter in hand, as one of profound importance, and our Committee is in touch with the oversea Branches. It has become, indeed, an international concern. It is gratifying to observe the many signs that the Interim Report has aroused the deep interest of our Divisions and Branches, for I am convinced that our Association is the only body which can mobilize the profession to make a real and effective advance, not only in matters medico-political, but also toward the solution of this problem, which intimately engages all its spheres of work, from the most technical bacteriological and biochemical research, through the ranges of hospital practice and investigation, to the clinic and the ultimate domicile.

The Divisional replies to the questionnaire will be analysed by the Committee, and before a further report, with recommendations, is submitted to the Council, the Committee hopes to have the great advantage of conferring with representatives of the Ministry of Health, the Medical Research Council, the Obstetrical and Gynaecological Section of the Royal Society of Medicine, the Society of Medical Officers of Health, and the Central Midwives Board, to which bodies the Council will issue invitations. The report and recommendations will in due course come before the Representative Body after consideration by the Divisions.

I want to see our powerful Association throwing its whole weight into this great problem, which seems to me to call for its influence in initiating research, its unrivalled capacity through the Divisions for initiating or amending clinical methods, and its experienced medico-political skill—in other words, the basis, the adjutant, and the vehicle of a life- and health-saving combination.

It is sometimes forgotten that the Association, as such, is by far the largest purveyor to the profession in this country of all that concerns the practical application of the science and art of medicine, and I have heard it suggested that a logical development of that status would find a much appreciated expression in arrangements by the Association whereby demonstrations may be given, as occasion arises, of any of the newer clinical methods of investigation or treatment. Such demonstrations could take place at convenient centres (hospitals or other buildings) in London and throughout the provinces. I can well believe that such provision would be of eminent service in connexion with the topic we are considering.

There are not a few who regard the outstanding medico-political achievements of the Association as an over-developed salient, and that the general line, including the

clinical interests, needs bringing up. I am a firm adherent of the policy of the salient, but the extent to which we bring up the line is the measure of our consolidation in the confidence of the profession and the esteem of the whole community.

MATERNAL MORTALITY AND MORBIDITY.*

BY

LOUISE McILROY, M.D., CH.B.,
PROFESSOR OF OBSTETRICS AND GYNAECOLOGY, LONDON SCHOOL
OF MEDICINE FOR WOMEN.

THE passing of the Midwives Act in 1902 was an epoch-making event. I hope that the two reports—that by Dame Janet Campbell, issued by the Ministry of Health, and that by the Scottish Committee—will lead to other reforms of almost equal importance. In 1923 living births numbered 758,131 and maternal deaths 2,892, or 3.81 per 1,000. Of these, puerperal sepsis accounted for more than one-third, and eclampsia for one-ninth, so that deaths from other causes were 1,552, or about 2 per 1,000. But, as every practitioner knows, these figures do not tell the whole story. They do not indicate the terrible amount of ill health due to pregnancy, much of which is avoidable. I cannot, however, acquiesce in the opinion that the profession is entirely to blame. Until a comparatively recent date education in midwifery was meagre, and the practitioner, when qualified, was not as well equipped as he might have been to deal with midwifery. It redounds to the credit of the general practitioner that in most cases the defective education has been effectively supplemented by observation and practical experience. If the British accoucheur be compared with those in other countries it will probably be found that he is the best; for reasons which influence Dame Janet Campbell I place small reliance on comparative international figures.

In considering the progress of midwifery and the credit due to those engaged in its practice, we must remember that the fall in the infantile mortality rate from 154 in 1900 to 77 in 1922 is due in no small measure to improved obstetrics, by means of which hundreds of thousands of mothers have been enabled to produce healthier children. This is so even in spite of the stationary mortality of the first month. It may also be pointed out that the comparison between the general death rate and the maternal mortality rate may be fallacious, as it does not follow that there was the same room for improvement in the latter. We know, for example, that there was a great wastage of infant lives which should have been preserved, and the saving of these has been chiefly responsible for reducing the general death rate. There is no evidence of any such preventable wastage in maternal lives.

As concerns morbidity, it is not possible to compare one period with another. There is, however, good reason for believing that morbidity has decreased and is steadily decreasing. Progress may not be as rapid as we desire, but if our efforts have not been successful in reducing morbidity it is obvious that our methods must be radically wrong. It must, however, be admitted that maternal mortality and morbidity are partly due to ignorance, carelessness, and undue haste on the part of doctors and midwives. The cases quoted in Dame Janet Campbell's report make sad reading, but they represent only a minute fraction of a vast total of midwifery. Other branches of the profession have their inefficient followers, but it is easier to detect obstetrical errors. We can only look to improved education and the inculcation of higher ideals to remedy these evils. In other directions also there is much to be done. Maternal mortality and morbidity are no doubt largely influenced by bad housing and economic or industrial conditions. This, however, is not the place to deal with those questions. I propose to confine myself to the medical points.

First. I look to the extension of ante- and post-natal work as the most effective means of improvement. There is no need to dilate on the advantages of ante-natal

examinations and treatment, but it may be well to urge the importance of "after-care" in the interests of both mother and child. The continuance of breast-feeding is most important, and this cannot be ensured unless the mother is kept under the observation of the obstetrician for at least a month after the child is born. The post-natal (or rather the maternal and neo-natal) clinic also affords the means of studying and rectifying injuries and other illnesses due to labour. Ante- and post-natal clinics should not be confused with child welfare, and should be staffed by practitioners experienced in obstetrics. No person can carry out ante-natal work who has not been trained. It is a very difficult branch of medicine, and requires much skill and judgement in diagnosis. An intensive campaign should be organized to teach people the advantages of ante-natal work, which can be demonstrated by simple examples. For instance, toxæmia can be controlled or avoided and eclampsia almost eliminated by early recognition and appropriate treatment. The risks of labour in cases of pelvic abnormality may also be obviated or reduced. Steps must be taken to improve and extend the teaching of ante-natal methods for the benefit of both medical students and pupil midwives.

Second. While education in midwifery has improved, much remains to be done. For instance, one great defect is the absence of any clinical test at the final examination. But above all we must have facilities for post-graduate training of young practitioners and for refresher courses for older ones. We do not want more lectures, but facilities for clinical work and the actual handling of patients under the supervision of competent teachers. For this purpose we require one or more well equipped maternity hospitals, solely devoted to the instruction of graduates and staffed by experts who would serve only for limited periods, so as to give persons attending for instruction opportunities for studying different methods. It is sad to think that, considering all the material available in this country, anyone desiring instruction of this sort should have to go to Vienna or Paris. As 60 per cent. of the deliveries in this country are made by midwives, it is most essential that their education also should be improved by increasing clinical facilities that will enable them to see and take part in practical obstetrics of the best type.

Third. The provision of more beds for abnormal cases and for women who desire institutional accommodation owing to housing difficulties. The material thus provided could be utilized for educational purposes.

Fourth. We now come to that mysterious subject sepsis, of which, though it is a notifiable disease, there is no workable definition. At the same time, generally speaking, we know only too well the class of symptoms which come under this name. We also know, partially at any rate, the cause. We know that sepsis may be contagious and exogenous, and that to a great extent it may be avoided by cleanliness. On the other hand, we are satisfied that sepsis is also endogenous, but we do not understand how it arises in these circumstances. In the time at my command I cannot discuss technical details. I may say, however, that there is every reason to believe that streptococci that may be harmless when living upon a healthy unbroken epithelium change their character and become dangerous when allowed to feed on a bruised or broken surface. There are other possible causes of sepsis demanding investigation, notably the effect of intercourse during the later months of pregnancy and the after-effects of venereal disease. We are also faced with the strange and inexplicable fact that women who live and have their children in dirty surroundings do not suffer more from sepsis than those who live and have their children under the best possible conditions. Both classes suffer from contagion, but it is questionable whether the former class is not less liable than the latter, provided no operative intervention has been carried out. When we come to the endogenous type, either there is no difference between the two classes, or if there is a difference it is in favour of the women who live and have their children under apparently unfavourable conditions. All this requires elucidation, and more facilities for research are necessary—research especially directed towards immunity and the defensive nature of the bacteria of the genital tract. The course and treatment of sepsis we understand

* A paper (slightly abridged) read in opening a discussion in the St. Pancras Division on the interim report of the British Medical Association Committee on Causation of Puerperal Morbidity and Mortality, published in the SUPPLEMENT of January 9th, 1926.