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CAESAREAN SECTION

ITS USE IN DIFFICULT LABOUR IN PRIMIGRAVIDAE*

BY

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The discovery of the sulphonamides and the antibiotics has practically removed the risk of fatal peritonitis after caesarean section and has led to the greater use of this operation in obstetrics.

Marshall's (1949) figures showed that even in the years 1943-7 the operation had become comparatively safe. The mortality of the lower segment operation performed at various times after the onset of labour was as follows:

Before or within 6 hours of onset	..	..	0.12%
6-24 hours after onset	..	..	0.40%
24-48 "	..	..	0.80%
Over 48 hours after onset	..	..	2.5%

Clearly, therefore, the risks increase steadily the longer the trial of labour lasts, and are especially high when labour has been in progress for more than 48 hours. In Marshall's series, 66% of all deaths after caesarean section for difficult labour were in primigravidae of 30 years or more, and yet only about 20% of primigravidae are in this age group. In such cases prolongation of labour is usually due to uterine dysfunction or rigidity of the cervix, and the decision to perform caesarean section is postponed in the hope that uterine action will improve. By the time it is clear that caesarean section must be done the labour has lasted so long that the risks of the operation have greatly increased. On the other hand, if less time is given many more caesarean sections will be done and, while the mortality rate will be kept low, just as many women may die because of the great increase in the total number of operations performed. The modern tendency is to avoid difficult vaginal delivery by the greater use of caesarean section in cases of prolonged labour. This is safer for the child and may also be safer for the mother.

Effect of Rise in Incidence

In the City of Aberdeen the incidence of caesarean section rose from 1% in the years 1938-47 to 2.4% in 1948-54. During the first period there were 11 maternal deaths attributable to long or difficult labour out of 29,500 births (3.7 per 10,000 births); five followed caesarean section and six vaginal delivery. In the second period there were four deaths out of 22,000 births (1.8 per 10,000 births); all followed caesarean section. Between 1938 and 1954 the still-birth rate from birth trauma and anoxia was reduced from 16 to 5 per 1,000 births. Thus, while deaths among babies from these causes have been reduced by two-thirds, maternal death rates have been reduced by a half. Mortality statistics for difficult labour before 1938 cannot be compared with present-day figures, since deaths from shock and

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haemorrhage could not be distinguished from those due to sepsis, which was a frequent sequel of difficult labour before the advent of the sulphonamides and the antibiotics.

Morbidity is much more difficult to assess, so that we cannot say how far it has been reduced. Fewer difficult forceps operations will decrease the number of cases of laceration of the cervix, vaginal walls, and perineum, and as a result fewer women will have pelvic pain, backache, discharge, incontinence of urine, and prolapse. Late complications of caesarean section, such as incisional hernia, intra-abdominal adhesions, and chronic swelling of the leg from phlebothrombosis, are possibly more common.

It is proposed to discuss this increased use of caesarean section in difficult labour in more detail, using all first births in the City of Aberdeen to avoid the bias which might result from the use of hospital statistics alone.

Fig. 1 shows that in the City of Aberdeen the stillbirth rate fell from 37.6 in 1939-40 to 19.2 in 1953-4. It also shows that the causes† of stillbirth behave differently throughout the period. The death rate from birth trauma and "mature, cause unknown" (unexplained stillbirth of a mature foetus) fell steadily throughout the period, except in 1946-8, while death rates due to "premature, cause unknown" (unexplained prematurity) and ante-partum haemorrhage (this includes placenta praevia and accidental haemorrhage not associated with pre-eclampsia) fell until 1945, but since then there has been a slight tendency for them to rise. We have concluded (Baird, Thomson, and Duncan, 1953) that this fall in the trauma and "mature, cause unknown" death rates is due to increased hospitalization and the increasing use of caesarean section, especially in the case of the elderly primigravida. The temporary rise in the stillbirth rate from these causes in the years 1946-8 was attributed to a great excess of elderly primigravidae immediately after the war and to the fact that because of the high birth rate and the lack of hospital beds many of them were confined at home.

A high standard of technical skill should prevent the more severe forms of birth trauma, especially in the mature foetus, but it is doubtful if the modern obstetrician is any more skilful in the use of the obstetric forceps than his predecessor, so that it seems reasonable to conclude that the great improvement which has occurred is due to the much wider application of this skill and to the avoidance of difficult vaginal delivery by the greater use of caesarean section.

The caesarean section rate in the City of Aberdeen has increased from 0.8% in the years 1938-42 to 2.9% in 1951-4 and in primigravidae from 1.1 to 3.8%. It has been shown by Stewart and Bernard (1954) that the incidence of difficult labour from both mechanical causes and dysfunction rises steadily with the age of the patient, and also that difficult

†For a definition of the clinical causes of stillbirth used in this paper see Baird, Walker, and Thomson (1954).

labour from both causes increases steadily if pregnancy is prolonged beyond 40 weeks. We have shown (Baird *et al.*, 1954) that, taking the years 1938–52 as a whole, the obstetric death rate (stillbirths+first-week deaths) due to “mature, cause unknown” rose from 2.3 per 1,000 in the 15–19 age

maturity increases the chance of a long labour and its dangers. It is not surprising, therefore, that attention was directed to improving results in the older age groups.

Table I shows that a rise in the caesarean section rate in the age group 35+ began in 1943–5, and, as time went on, caesarean section was used more and more in the younger age groups.

TABLE I.—Caesarean Section Rates, 1938–54. Aberdeen First Maternities

	Age at Delivery				
	16–19	20–24	25–29	30–34	35+
1938–42	%	%	%	%	%
1943–45	0.5	0.3	1.6	1.7	6.0
1946–47	—	0.6	1.5	2.6	8.3
1948–50	0.3	1.0	3.0	5.3	20.9
1951–54	0.8	1.3	3.7	9.1	27.3

FIG. 1.—Stillbirth rates by clinical cause. Aberdeen City, 1939–54.

group to 19.0 in the 35+ age group, and that “birth trauma” rose from 5.7 in the 15–19 age group to 19 in the 35+ age group. Walker (1954) showed that the obstetric death rate rose quickly after the 41st week and that this was due mostly to an increase in the stillbirth rate, the immediate cause of death being anoxia. The incidence of post-maturity is not influenced by the age of the patient, but the deleterious effect of post-maturity on the baby increases greatly in older women.

A Double Hazard

To sum up, the incidence of difficult labour rises with age, as does the tendency to unexplained intrauterine death of the mature foetus, so that the baby of the elderly primigravida is subjected to a double hazard. In addition, post-

Fig. 2 shows graphically the caesarean section rate by age in primigravidae and the combined stillbirth rate from “birth trauma” (Tr.) and “mature, cause unknown” (M.U.) in three periods of time—1938–47, 1948–50, and 1951–4.

During the years 1938–47 the combined Tr. and M.U. rate in primiparae rose very quickly with age, from 7.5 in the age group 15–19 to 40 in the age group 35+. By the years 1948–50 the rate at all ages from these causes had fallen from 17.2 to 12.3 per 1,000, and the improvement was most marked in the age group 35+. During this time the caesarean section rate in this age group had increased from an average of about 6% to 20.9%. In primigravidae, aged 35 and over, for each 100 births 1.5 stillbirths due to M.U. and Tr. had been prevented at a cost of 16 additional caesarean sections. If no other factors enter into the picture, it appears as if ten additional caesarean sections had saved only one baby from being stillborn because of “trauma” or “mature, cause unknown.” In the age group 30–34, the stillbirth rate from these causes did not fall although the caesarean section rate rose from 1.8 to 5.1%. This suggests that up to 1950 the methods of selection of cases requiring caesarean section were not very precise, and that from the point of view of preventing death of the baby many caesarean sections had been done unnecessarily.

Between 1948–50 and 1951–4 the stillbirth rate from Tr. and M.U. fell from 12.3 to 6.3 per 1,000, and the caesarean section rate rose from 2.7 to 3.7%. Fig. 2 shows that there was a fall in stillbirths at all age groups except 15–19, and that it was most striking in the age groups 30–34 and 35+. In the case of the age group 35+ the stillbirth rate fell from 25 to 0, and during this period the caesarean section rate rose from 20.9 to 27.3%, a much smaller increase than in the previous period. In the age group 30–34 the stillbirth

FIG. 2.—Stillbirth and caesarean section rates, 1938–54. Aberdeen, first maternities.

rate fell from 22 to 8, and the caesarean section rate increased from 5 to 9%. In both of these age groups it appears that only two or three additional caesarean sections were necessary to prevent one stillbirth. This suggests that the method of selection of cases for caesarean section improved considerably after 1950.

Fig. 2 shows that the increased use of caesarean section in the older age groups has not affected the stillbirth rate from other causes. Nevertheless the "trauma" and "mature, cause unknown" deaths form such a large proportion of the total stillbirths in these older age groups that their virtual elimination has completely altered the graph of stillbirth rates by maternal age, which no longer rises steeply.

The stillbirth rates in each five-year age group, starting with the youngest, are 17, 16, 28, 23, and 31.

Reason for Improved Stillbirth Rates

The reason for the striking improvement in the stillbirth rates in the period 1951-4, especially in primigravidae over 30 years of age, will now be examined in more detail.

Because of the increasing awareness of the dangers of post-maturity, especially in the elderly primigravidae, a policy of induction of labour at the end of the 41st week of pregnancy has gradually developed. In the years 1951-2 artificial rupture of the membranes, as a method of inducing labour, was used in those cases in which it was thought that clinical signs of "post-maturity" existed, such as loss of weight or decrease in the amount of liquor amnii, and was not usually performed before the end of the 42nd week. In the years 1953-4 it became a routine procedure in all primigravidae of 25 years or more when pregnancy had reached the end of the 41st week.

One advantage of puncturing the membranes was that it allowed meconium staining of the liquor to be detected, thus giving warning that a certain degree of anoxia already existed in the foetus (Walker, 1954).

Caesarean section was performed no more frequently for difficult labour in 1951-4 than in 1948-50, but on the whole the length of the trial of labour was reduced. For example, the percentage of caesarean sections for difficult labour performed after more than 48 hours of labour was reduced from 40 to 25. The shortening of the length of the trial of labour was most marked in primigravidae of 30 years or more.

Table II shows that a trial of labour lasting 48 hours or more is most frequently allowed in the age group 25-29. In those under 25 years of age uterine dysfunction is less common and disproportion is most often the cause of the difficulty. For this reason a decision for or against caesarean section is made sooner than in the 25-29 age group, where the difficulty is more often due to disordered

TABLE II.—Length of Labour Before Caesarean Section, 1951-4. Aberdeen Married Primigravidae

Age at Delivery	Length of Labour before Caesarean Section				Total No. of Cases
	Elective - 6 Hrs.	- 24 Hrs.	- 48 Hrs.	48 Hrs. +	
-25	10.0	30.0	45.0	15.0	40
25-29	32.5	12.5	27.5	27.5	40
30-34	50.0	25.0	18.8	6.2	32
35+	62.9	14.3	20.0	2.8	35

uterine action or rigidity of the cervix. Disproportion is less common in the 25-29 age group, since primigravidae in this age group come much more frequently, in Britain at least, from the upper social classes and are tall, well-grown, and have a roomy pelvis. The patient is still young enough to make one hesitate to perform a caesarean section in the first labour, since it may deter her from having another child and may complicate a second labour. Nevertheless the deleterious effect of age on intrauterine physiology has begun to operate in this age group, as shown by the fact that

the stillbirth rate in the "mature, cause unknown," group is rising. Even in the 1951-4 period the M.U. stillbirth rate is three times as high in the 25-29 as in the 20-24 age group. These facts may explain why the combined trauma and "mature, cause unknown" stillbirth rate in the years 1951-4 is highest in the age group 25-29 (Fig. 2).

In the age group 30-34, 50% of the caesarean sections are performed before the onset of labour and only 6% after a labour of 48 hours.

It was thought that routine induction of labour at the end of the 41st week in all primigravidae over the age of 25 might prevent some cases of long labour on the basis that the uterine action might be better at 41 weeks than a week or so later, and the baby, being less anoxic at the onset of labour, would be less likely to show signs of distress during labour. In actual fact the policy has had the opposite effect—namely, an increase in the caesarean section rate. This is probably due to the fact that when puncture of the membranes is performed the liquor is already sometimes stained with meconium or becomes stained. The passage of meconium when the vertex presents has been shown by Walker to be associated with a falling oxygen supply to the foetus, and should the onset of labour be unduly delayed after the puncture of the membranes or labour be rather prolonged, caesarean section has been performed sometimes "to be on the safe side." Although the overall caesarean section rate increased from 2.8% in 1951-2 to 4.7% in 1953-4 there was no corresponding fall in the stillbirth rate from trauma and "mature, cause unknown." Judged by stillbirths the increased caesarean section rate in the last two years may not have been justified, but the possibility of non-lethal effects of anoxia have to be considered.

The number of cases studied so far is too small for firm conclusions to be arrived at as to the value of induction of labour in post-maturity and the optimum caesarean section rate in primigravidae. Probably the figure should be somewhere between 3 and 5%, but it must be emphasized again that the rate depends on the age composition of the group under consideration.

Table III shows that in the period 1938-47, 113 out of 145 (78%) of caesarean sections in primigravidae were performed for difficult labour and abnormal presentation, and

TABLE III.—Obstetric Deaths in Caesarean Section Cases by Cause. Aberdeen First Maternities (Single Births)

Reason for C.S.	1938-47		1948-54		Total	
	Obstetric Deaths	No. of C.S.	Obstetric Deaths	No. of C.S.	Obstetric Deaths	No. of C.S.
Difficult labour ..	2	87	5	133	7 (3.2%)	220
Abnormal presentation ..	2	26	2	20	4 (8.7%)	46
Foetal distress ..	0	3	2	27	2 (6.7%)	30
Age and infertility ..	0	4	2	17	2 (9.5%)	21
Placenta praevia and accidental haemorrhage ..	3	10	2	13	5 (21.7%)	23
Toxaemia ..	0	5	1	14	1 (5.3%)	19
Gynaecological condition ..	0	5	0	4	0 —	9
Maternal disease ..	0	5	3	10	3 (20.0%)	15
All reasons ..	7 (4.8%)	145	17 (7.1%)	238	24 (6.3%)	383

few for other causes, but since then more have been done for age and infertility and foetal distress. It will be seen also that in the latter period the obstetric death rate (stillbirth+first-week death rates) in caesarean section cases has risen. This is due to the fact that in the earlier period caesarean section was seldom performed, except in cases of placenta praevia, unless the baby seemed healthy, but now it is performed in the hope of saving the baby, sometimes even when the signs point to the fact that foetal distress is already present. It is not surprising that in a few cases anoxia has been too severe or too prolonged and the baby has died despite caesarean section.

Analysis of the deaths (stillbirths and first-week deaths) in the years 1951-4 shows that with regard to the group

"mature, cause unknown," 5 out of 26 occurred after the completion of the 42nd week of pregnancy—3 out of 1,063 primigravidae in the 25–29 age group, and 2 out of 2,272 in the 20–24 age group. There is therefore still, theoretically at least, a little scope for a reduction in the number of deaths from post-maturity in the 25–29 age group. The majority of unexplained deaths now occur at or about term and cannot be avoided in the present state of knowledge. Out of 22 deaths from birth trauma only one occurred after the end of the 42nd week. Labour lasted less than 24 hours in 15 cases and more than 48 hours in only 4. Eight of the 22 deaths were attributed to the cord being prolapsed or twisted tightly round the baby's neck; 6 occurred with breech delivery (complicated by prematurity in 3 cases). Nine of the women were under 5 ft. 1 in. (155 cm.) in height, and 13 between 5 ft. 1 in. and 5 ft. 3 in. (155 and 160 cm.). There were none over 5 ft. 4 in. (163 cm.). The danger of labour in small women is thus emphasized, especially when the age factor has begun to operate to produce rigidity of the pelvic bones, rigidity of the cervix, and the predisposition to intrauterine death.

Table I shows that between 1948–52 and 1951–4 the caesarean section rate in the age group 25–29 rose only slightly, from 3.0 to 3.7%. Possibly more caesarean sections should be done in this age group to bring the foetal death rate into line with that of the age group 30–34.

It has been stated (McKeown, 1954) that probably the optimum time to have a first baby is between the ages of

had only one child, and only 15% have had more than two. A stillbirth may therefore increase greatly the risk of childlessness. It may, of course, stimulate the couple to replace the lost baby by another more quickly than they would have had a second child, if the first had survived. There is some evidence that this does in fact occur. For example, in a series of private patients, it was found that 67% of second births took place within two years of a first birth which resulted in a stillbirth, whereas when the first baby survived, the second birth occurred within two years in only 38% of cases. Conversely, the second birth was delayed for more than four years in only 10% of cases where the first baby was stillborn, and 28% of cases where it was born alive.

I do not know how many women whose first child was stillborn did not have a second pregnancy at all. In young women the loss of a first child is less likely to limit the size of the completed family, and if the first child is born by the vagina, even after a long and difficult labour, subsequent labours are usually easy. On the other hand, caesarean section performed in the first labour, even in a young woman, might necessitate caesarean section next time, and this might limit the family size, since most women who have undergone two caesarean sections prefer not to have more children and often ask to be sterilized after the second. In the age group 30+ this policy would not limit the family size, since few women who have a first child at 30 years or more have more than two children under any circumstances.

An Important Point

It is important to determine, particularly in young women, whether a caesarean section in the first labour will decrease the likelihood that the mother will have a second baby. To test this, all hospital-booked primigravidae who were delivered by caesarean section in 1948–50 have been followed up for four years, along with two control groups consisting of an equal number of women, (1) who had a forceps delivery, and (2) who had a spontaneous delivery in 12 hours or less. Cases in each group were matched in pairs, for age, height, social class, and length of marriage before the first birth.

Table IV gives the results of an analysis of 48 women who had a first child by caesarean section and 48 individually matched cases in which there was a spontaneous

FIG. 3.—Family size at the end of 10 years' marriage, by age at marriage, for 1939 cohorts (Taylor, 1952. Reproduced by permission of the author and of the publishers).

25 and 30, because, while labour may be more difficult, the infant mortality is low, indicating that the children of such mothers are well cared for. The risks of postponing child-bearing even to this age are shown in Fig. 3, which illustrates that maximum fertility is retained for a relatively short time. After ten years of marriage the percentage of women still childless is least in those who married before the age of 20 and increases very quickly thereafter. Of those who married between the ages of 25 and 30, 30% have not had a child in ten years of marriage, 28% have

TABLE IV.—Child-bearing After Caesarean Section*

Spontaneous Delivery Cases: Subsequent Children	Caesarean Section Cases: Subsequent Children		Total
	At Least One	None	
At least one	9	14	23
None	4	21	25
Total	13	35	48

* This Table summarizes the results of a four-year follow-up of a matched series of caesarean section and spontaneous delivery cases (48 in each group). The numbers summarize information provided by each pair of cases. Thus, for example, 14 in the top right-hand corner signifies that, in 14 pairs, women after caesarean section had no subsequent children within the four years, while their spontaneous delivery controls had at least one child in this period.

delivery in under 12 hours. It is seen that 14 of the caesarean section cases had not had another baby, while each of their matched spontaneous delivery controls had at least one. Only four who had spontaneous deliveries had not had another child, while their matched caesarean section cases had had at least one. Numbers are too small to permit a conclusive analysis of subgroups, but it seems that a similar disparity occurred in each age group and in each social class. It also held both when the caesarean section was elective and when it was done after a trial of labour. Caesarean section seemed to have its deterrent effect even in cases of pre-nuptial conception where little conscious planning of the first pregnancy had been shown. This might mean that the relative infertility after caesarean section was involuntary and acted through a physical mechanism in the pelvis unconnected with the patient's emotional reaction to the

caesarean section, or it might be that young women, usually in the lowest-income group, many of whom make no effort to plan their marriage and first pregnancy, were just as deterred by a previous caesarean section as those, usually in the upper-income group, who had given the matter a great deal of thought. Indeed, young badly educated women might be more easily frightened by an abdominal "operation" performed unexpectedly in labour than the better-educated elderly primigravida who knows that, because of her age, caesarean section is a likely occurrence which may be the only means of saving her baby.

When the effect of forceps delivery was tested against spontaneous delivery by the matching technique mentioned above, no deterrent effect of the forceps delivery similar to that of caesarean section could be detected. It seemed that the length of the labour before the forceps delivery also had no demonstrable effect in deterring the women from having another child. Caesarean section appears, therefore, in Aberdeen at least, to have a deterrent effect which is not found after any form of vaginal delivery.

Conclusions

A healthy well-oxygenated baby is very little affected even by a prolonged and difficult labour unless undue force is applied to the head in the course of an instrumental vaginal delivery. In healthy well-grown young women the pelvis is normal, uterine function is usually very good, and labour is therefore easy as a rule, and, in addition, placental function is so good that only the most extreme forms of post-maturity will cause dangerous anoxia.

From the age of 25 placental function becomes steadily less efficient, especially if pregnancy goes beyond 40 weeks. In addition, disordered uterine action and rigidity of the cervix also become more common, so that the risk of fatal anoxia is much increased. The avoidance of post-maturity by induction of labour will lessen the risk of anoxia but will not remove it. In our experience it has not led to a reduction in the use of caesarean section, but it has led to a reduction in the stillbirth rate. Unfortunately no specific test can be used to measure the risks of stillbirth in any particular case, so that one must decide the line of treatment on probabilities. In some cases there is a heaping up of unfavourable factors. For example, the outlook is very unfavourable in the primigravida over the age of 30 who is under 5 ft. (152 cm.) in height, especially if the pregnancy goes beyond 41 weeks and if the head is lying in the occipito-posterior position. If, in addition, there is pre-eclampsia or hypertension, or other serious maternal disease, the risks of a stillbirth are great and a caesarean section is justifiable. We do not believe that rupture of the membranes is harmful in most of such cases, since labour will often come on soon and progress favourably and will thus greatly diminish the need for caesarean section, which could, however, still be done with safety if required.

What is wanted is the lowest stillbirth rate and the lowest caesarean section rate. In our experience the optimum caesarean section rate is between 3 and 5% in primigravidae. This will depend on the age composition of the women being treated and the standard of health and nutrition in the community. It is important to study a "total" population to eliminate bias, otherwise percentages may be most misleading—for example, if they are derived from a hospital series only.

Summary

The methods of assessing the condition of a foetus *in utero* are at present very imprecise, and therefore the decision to deliver by caesarean section in the interests of the child's life is far from easy. If the operation is delayed until labour is well advanced, the risk for both mother and child is increased: on the other hand, early caesarean section in anticipation of danger means that the operation may have been unnecessary. Although the operative risks are small, the total maternal deaths

may be just as great with many operations carrying a low mortality as with few operations carrying a high mortality risk.

These problems have been examined by comparing the trends in caesarean section rates and in stillbirth and maternal mortality rates in Aberdeen primiparae. The stillbirth rates from birth trauma and unexplained intrauterine death fell by two-thirds and the maternal mortality from difficult labour by half between the years 1938 and 1954. These reductions are attributed to (a) increased hospital confinement, (b) more extensive use of caesarean section, especially in primiparae over the age of 25, and (c) the avoidance of the effects of postmaturity by induction of labour shortly after term.

There is no doubt that recognition of the hazards of postmaturity has contributed substantially to the fall in the stillbirth rate, but the ideal practice is not easy to determine. Routine surgical induction of labour in primiparae aged 25 or over not delivered by the end of the 41st week has not had a demonstrably better effect on the stillbirth rate than a policy of induction only in cases with "clinical" evidence of postmaturity. Again, undue anxiety about the signs of foetal distress may lead to unnecessary caesarean sections. In terms of total family size the long-term deterrent effect of caesarean section on future births has to be set against the immediate saving of infant lives.

A follow-up study has shown that a first pregnancy ending in caesarean section has a deterrent or delaying effect on further pregnancies, compared with first pregnancies ending in spontaneous or forceps delivery. In the young primipara, the acceptance of some slight risk at the first delivery may be justified in the interests of future fertility, whereas in the "elderly" primipara it may be of primary importance to secure a live first birth at all costs.

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At a meeting of the Harveian Society of London on October 12, Dr. DESMOND CURRAN, senior psychiatrist at St. George's Hospital, talked on murder. His discourse was based on a large series of patients, found guilty of the crime, in whom varying degrees of insanity had been responsible for their actions. As a more satisfactory alternative to the death penalty, he suggested detention in a mental institution or prison where the murderer's mental health could be reviewed periodically. If necessary confinement would be permanent; such a sentence was not remarkable to a psychiatrist, he said, who was accustomed to permanently institutionalized patients. If, on the other hand, the murderer regained his mental health, he could be granted supervised parole. The argument that such a paroled murderer is apt to revert to further homicide was not supported by facts. Only one Broadmoor patient had ever relapsed in this way. This was in noteworthy distinction from other types of criminals, and might be due to the well-defined motivation of the murderer, who displayed no remorse for his particular victim. If the death penalty were abolished, said Dr. Curran in conclusion, the present somewhat metaphysical questions of the M'Naghten Rules should be superseded by the more practically important ones: Would the murderer get better, and what would be his response to treatment?