defects from which the affected children suffer vary, each child presents individual problems in reconstructive surgery and in rehabilitation. Those most severely affected will need to be treated, at least for part of the time, in institutions specially equipped for fitting prostheses and for functional training.

Treatment and schooling must go hand in hand. At present few institutions are able to give both to a very severely disabled child. The voluntary societies may here be able to make their contribution. Schools properly equipped and staffed for special medical treatment and the special educational methods required may have to be organized in areas within reasonable travelling distance of home. Some will be able to attend normal school or local schools for the physically handicapped, but probably those with severe handicaps will be more suitably placed in special schools. It is not yet clear whether such schools should concentrate on this particular group, or whether existing schools for the physically handicapped children with normal intelligence could include a few thalidomide cases. Finally will come the question of careers with the possibility of village settlements and sheltered workshops.

The babies themselves must be trained to maximum development, making the greatest use of natural abilities, helped by suitable prostheses. The ultimate aim is a full life and a satisfying career in a community which not only accepts but values them and into which they can feel happily integrated.

In drawing up this memorandum I have been greatly helped by advice and criticism, for which I am grateful, from Mr. D. Ellison Nash (Shaftesbury Society), Dr. E. P. Quibell (Chailey Heritage), Dr. C. F. Harris, Dr. E. W. Hart, Professor J. D. Hay, Dr. Gerald Neligan, and Dr. R. W. Smithells.

A. WHITE FRANKLIN, M.B., F.R.C.P.

Medical Memoranda

Case of Malignant Smallpox Treated with Compound 33T57

Since Bauer and Sadler (1960) described successful results of laboratory trials with *N*-ethylisatin β-thiosemicarbazone in the protection of mice artificially infected with the virus of alastrim (variola minor), the drug, or an analogue of it, has been used in a number of cases of generalized and progressive vaccinia, with results so far difficult to evaluate. The first case of smallpox so treated is here reported.

CASE REPORT

The patient was a male Pakistani aged 22 who apparently had never been successfully vaccinated. He was ill when he reached London Airport on Christmas Day, 1961. He was diagnosed as a case of smallpox on December 28 and was admitted to hospital a few hours later. He was then very ill with a profuse papulo-early-vesicular rash at about its third day and already confluent on the face.

On the clinical findings at that time the type of attack was provisionally classified as confluent ii (Ricketts, 1907), malignant confluent (Dixon, 1948), a type in which a fatal issue almost invariably occurs between the 12th and 14th days of the rash.

Treatment with *N*-methylisatin β-semicarbazone (33T57) began on December 29, the fourth day of the rash, and between then and January 7, 1962, the 13th day of the rash and the day on which the patient died, he received altogether 31 g. of the drug, mainly in the form of an emulsion by the mouth. The course of the illness appeared to be completely unaffected by the treatment and the disease progressed to a fatal termination in its familiar deadly manner.

The strain of virus isolated from this patient was shown, in the laboratory, to be sensitive to 33T57 (Bauer, personal communication).

COMMENT

The severity of an attack of smallpox may fall anywhere between the extremes of an overwhelming haemorrhagic viraemia and variola sine eruptione. The length of time which has elapsed since the last successful vaccination is the most important single factor in the prognosis of any case of variola major. Regard must be paid to these factors in attempting to assess the effect of any alleged antiviral agent in the treatment of smallpox, and small-scale therapeutic trials should be confined to unvaccinated patients suffering from a malignant form of the disease, as was the case of the present patient.

Failure to respond in this instance may have been due to non-absorption; the drug was highly insoluble and blood-level estimations were not carried out. Furthermore the drug may have been given too late: it might well have its most beneficial effect if given before or at the very onset of the viraemia.

J. PICKFORD MARSDEN, M.A., M.D., D.P.H.

Metropolitan Regions' Smallpox Hospital, Dartford, Kent.

REFERENCES

Bauer, D. J., Dumbell, K. R., Fox-Hulme, P., and Sadler, P. W. (1962). *Bull. Wld Hlth Org.*, **26**, 727.
—— and Sadler, P. W. (1960). *Lancet*, **1**, 1110.
Dixon, C. W. (1948). *J. Hyg. (Camb.)*, **46**, 351.
Ricketts, T. F. (1907). Annual Report of the M.A.B., London.

Use of "Syntometrine" in Rotunda Hospital District Maternity Service

The management of labour on the Rotunda District Service has traditionally and deliberately been conducted on conservative lines. This includes leaving the events of the third stage to proceed naturally so far as possible. This policy has enabled generations of students and nurses to gain experience in conservative midwifery. Third-stage complications inevitably occur, however, and are a cause of anxiety to all who practise domiciliary obstetrics. Any method of management which would lead to a reduction in such complications in a simple and effective manner should obviously be studied by those responsible for teaching students and midwives. Thus it was decided to try out the use of "syntometrine" in order to assess its potential value in domiciliary practice.

Syntometrine consists of five units of oxytocin and 0.5 mg. of ergometrine, and is supplied in 1-ml. ampoules. It is administered by intramuscular injection. This makes its administration simple, and more suitable for use by midwives. The combination of oxytocin and ergometrine is theoretically attractive, inasmuch as intramuscular oxytocin acts more quickly than ergometrine similarly applied, whilst ergometrine has a more protracted effect in causing uterine spasm than oxytocin (Embrey, 1961). It was decided to conduct a series of cases on the Rotunda District Service. In this series the cases were conducted under domiciliary conditions by relatively junior personnel, but the recording and

TABLE II.—*Duration of Third Stage in Minutes*

	Minutes:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	25	26	30	35	40	45	90	100	105	125
No. of cases	Syntometrine series ..		6	4	2	27	4	1	2	3	22					5									1		1	1	1		
	Control series ..				2	13					22					15	1				11	2	1	5	2	2		2		1	1

supervision of the work was done by hospital staff of greater experience.

All prospective patients for district delivery attend the hospital for antenatal care, and are regarded as favourable for domiciliary confinement only when their previous obstetrical history and current pregnancy are satisfactory and when the patients themselves are anxious for confinement at home. Unfavourable parity or complications occurring near term are indications for hospital delivery.

A staff midwife, assisted by a pupil midwife or student, attends all normal confinements. Abnormal labours are managed by the clinical clerk, who may admit patients to hospital if thought necessary. The survey of syntometrine was carried out using consecutive cases as they arose in the day-to-day running of the district service. Syntometrine was administered by staff midwives only, who were instructed to observe the duration of the third stage and any abnormal blood loss.

This survey consists of 80 cases in which syntometrine was used in the management of the third stage. These are compared with 80 cases managed conservatively as heretofore, in the following manner: After completion of the second stage, signs of placental separation are awaited, diagnosis being made by observation supplemented by minimal palpation. The separated placenta is expressed and ergometrine is administered, but not until after natural completion of the third stage.

RESULTS

The average age of patients in the syntometrine survey was 29 years, and the average parity was three (see Table I). Cases of para-6 or over in the series were either unbooked or had failed to go into hospital at the onset of labour as advised.

TABLE I

Parity ..	1	2	3	4	5	6	7	8	9	10	11	12
No. of cases	12	17	22	11	7	3	2	2	3	—	—	1

Duration of Third Stage.—The average duration of the third stage was 10 minutes in the syntometrine group and 20 minutes in the control group (see Table II).

In 89% (71) of the syntometrine group the third stage had been completed within 10 minutes, whereas only 47% (37) of the control group had completed third stages within 10 minutes.

Post-partum Haemorrhage. — Primary post-partum haemorrhage occurred four times in the syntometrine group and five times in the control group. The average loss of blood in these two groups was 23 and 29 oz. (653 and 824 ml.) respectively. In the syntometrine group two cases were not severe, and in spite of recorded blood losses of 20 oz. (568 ml.) in each case there was virtually no change in haemoglobin level before and after delivery. The amount of blood lost may have been overestimated in these cases. The third case was delivered by the clinical clerk by a low forceps application under general anaesthesia. Syntometrine was injected intramuscularly when the head "crowned." However, a sharp post-partum haemorrhage, recorded as being about 30 oz. (850 ml.) occurred about five minutes after delivery and before placental separation had been diagnosed. The bleeding was quickly controlled by intravenous ergometrine 0.5 mg., and the patient did not suffer shock or require transfusion. Her haemoglobin was 10 g. at 32 weeks and 7.5 g. on the seventh puerperal day. It was obvious that intravenous ergometrine should have been given in preference to syntometrine in this case. In the fourth case an adherent placenta required manual removal. Primary post-partum haemorrhage began about 40 minutes after delivery, and while the clinical clerk was on his way to the case intravenous ergometrine was given. This controlled the bleeding pending completion of preparations for manual removal under general anaesthesia. Removal was performed without difficulty, and the patient's condition remained satisfactory. The estimated loss of blood was 30 oz. (850 ml.) and the haemoglobin, which was 10 g. at 32 weeks, fell to 7.8 g. on the seventh puerperal day.

Retained Placenta.—This occurred on four occasions in the syntometrine series, but was not associated with excessive loss of blood in three of these cases. The remaining case is referred to in the preceding paragraph. In the control series there were eight cases of retained placenta; manual removal was performed on two occasions.

Involution.—This was difficult to assess, but it was thought to occur more rapidly in the syntometrine group than in the control group. No case of secondary post-partum haemorrhage was recorded in either group.

CONCLUSIONS

Syntometrine administered by intramuscular injection was effective in reducing by one-half the time of completion of the third stage. It secured satisfactory contraction of the uterus, and for these reasons alone was appreciated by the relatively inexperienced personnel conducting the cases. Staff midwives were much impressed with the effectiveness of syntometrine in shortening the third stage and in reducing blood loss. The latter point is of great significance in a poor population greatly prone to iron-deficiency anaemia.

Retained placenta was not commonly encountered, but when this condition was diagnosed medical aid was sent for promptly as it was appreciated that a small proportion of such cases may have a pathologically adherent placenta necessitating manual removal. The majority of cases did not present any such problems.

Our thanks are due to Dr. Peter Dowse and Dr. John Bell, ex-clinical clerks of the Rotunda Hospital, and to Dr. H. Holgate, of Sandoz Products Limited, who made syntometrine available to us for clinical evaluation.

JAMES MCGRATH, M.B.,*
Lately Clinical Clerk, Rotunda Hospital, Dublin.
ALAN D. H. BROWNE, M.D., F.R.C.P.I., F.R.C.O.G.,
Master, Rotunda Hospital, Dublin.

REFERENCE

Embrey, M. P. (1961). *Brit. med. J.*, **1**, 1737.

*Now S.H.O., the Maternity Hospital, Hull.