



# ANTENATAL AND POSTNATAL CARE

EIGHTH EDITION

By

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To the Memory of  
**John William Ballantyne**  
Pioneer in Antenatal Pathology  
and Antenatal Care  
this book is dedicated

---

A comely offspring she shou'd raise,  
From sickness free, of lengthen'd days :

Plato: Republic.

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## ANTENATAL AND POSTNATAL CARE



J. W. BALLANTYNE (1862-1923)  
M.D., C.M., F.R.C.P.

*[Frontispiece]*

## PREFACE TO THE EIGHTH EDITION

THIS book appears for the first time under joint authorship. For its eighth edition it has been revised throughout, and in an attempt to keep the volume within convenient size much pruning has been done. This will be particularly noticeable in the section on Diet in Pregnancy which has been rewritten, and, while still containing the essentials, has been considerably shortened. Recent work on the Toxæmias of Pregnancy has been included, and some account given of the remarkable work at the Women's Hospital, Crown Street, Sydney, Australia, on the prevention of eclampsia which in this respect has given a lead to the world.

We are grateful to Dr. Grantly Dick Read and Professor Chassar Moir for again revising the chapters on "The Influence of the Emotions on Pregnancy and Parturition" and on "The Uses and Value of Radiology in Obstetrics" respectively. We are also indebted to Dr. P. L. Mollison for reading the chapter on the Rhesus Factor and making some useful suggestions; to Professor H. L. Sheehan for allowing us to reproduce Figs. 51, 52 and 53; and to Professor W. I. C. Morris for Fig. 15.

It is a pleasure to acknowledge once again the courtesy of Mr. A. S. Knightley, of Messrs. J. & A. Churchill, and his co-operation in seeing the new edition through the press.

F. J. BROWNE.

J. C. McCLURE BROWNE.

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## CHAPTER I

### THE HISTORY AND DEVELOPMENT OF ANTENATAL CARE

ANTENATAL care in its widest sense is no modern conception. Very few of the early writers on midwifery fail to make some reference to the care of the health of the pregnant woman, or to the treatment of the diseases and disorders of pregnancy. Thomas Raynald in his "*Byrth of Mankynde*," the English edition of which was first published in 1540, devotes an entire chapter to the ailments of pregnancy. François Mauriceau in "*Des Maladies des Femmes Grosses et Accouchees*" (1668) has several chapters (80 pages in all) on the hygiene and diseases of pregnancy. The woman is enjoined to avoid residence in narrow streets "full of rubbish," for "there are women so delicate that the odour of a badly snuffed candle can bring about premature labour." Moderate sleep is recommended, at least nine or ten hours and not more than twelve out of the twenty-four, and preferably during the night, "not turning night into day as is the custom with people who frequent the court." Monsieur Dionis in "*A General Treatise of Midwifery*" (1719) follows Mauriceau's work very closely. For vomiting he advises to think of "some meat sauce or ragoo that will give a fresh appetite." She must be allowed to choose her food and to eat whatever she has a fancy for. She may eat often, and at all hours, and "must not be tied down to meals." William Smellie, in his first volume (1774), has two short chapters dealing with "The diseases incident to pregnant women." These treat of such subjects as nausea and vomiting (which he ascribes to stretching of the uterus by the increase in size of the ovum affecting the nerves of that viscus, especially those that arise from the sympathetica maxima and communicate with the plexus at the mouth of the stomach), hæmorrhoids, costiveness, incontinence of urine, gonorrhœa and Lues venerea (which he evidently regarded as different stages of the same disease).

The first book solely devoted to antenatal care was "*Hints to Mothers for the Management of Health during the Period of Pregnancy and in the lying-in room, with an Exposure of Common Errors in connection with these Subjects*," by Thomas Bull. The first edition appeared in 1837, and the twenty-fifth, revised by Thomas Parker, was published in 1877. This edition consists of

over 300 pages, and the first five chapters are devoted to antenatal care. Diet, "longings," regulation of the bowels, exercise, dress, bathing, care of the breasts and nipples ("daily upon rising and going to rest, each nipple must be washed either with green tea, or the infusion of pomegranate bark, and having been carefully dried must be exposed to the air for eight or ten minutes and rubbed gently during this time with a piece of soft flannel. If the skin of the nipple is very delicate and sensitive, and the above applications do not effect the object, a lotion consisting of 30 gr. of sulphate of zinc to 8 oz. of rose water may be substituted"), heart-burn, cramps, etc. There is an excellent discussion of maternal impressions under the title, "The supposed influence of the imagination of the mother upon the child in the womb," in which he brings forward the following conclusive argument: "Why," he asks, "should we be surprised at some irregularities on the skin and other parts of the human body since we see the same thing occurring daily throughout the animal and vegetable world? They have their moles, their discolourations, their excrescences, their unnatural shapes which it would not be very philosophical to ascribe to any effort of the imagination." He pointed out that "eggs hatched in dunghills, stoves and ovens produce as many monstrous births" as those hatched by the hen, "which should, I imagine, prove irrefragably that the chick is produced in the very shape in which it was formed."

Dr. Ad. Pinard (1878) discussed the dangers of malpresentations, especially presentation of the shoulder. In 200 observations he found that malpresentations occurred seven times as often in multiparæ as in primigravidæ. The cause, he argued, could not therefore be congenital, as had till then been supposed, but lay in the state of the abdominal wall. When the wall is normal it pushes the head into the pelvis in the last two months of pregnancy. He advocated, in order to reinforce the stretched and weakened abdominal wall in multiparæ, the use of an elastic belt (an artificial abdominal wall). "In that way," he says, "I have always prevented presentation of the trunk. I believe that one should examine in the last month of pregnancy to see if the child is accommodated, if the presentation is good, or if bad to remedy it. In a word, if in the last month the head of the fœtus is not in the pelvic cavity it must be put there. If one does not always succeed in doing so one can always correct a shoulder presentation." "Women," he says, "are vaccinated that they may escape small-

pox, and they should be examined to avoid the risks of version for themselves and for their child." At that time the maternal mortality from version was extremely high, about 1 in 20. This is, I believe, the first reference to the need for routine examination of the abdomen in pregnancy and correction of malpresentations, and Pinard had evidently recognised, too, the dangers of the "floating head."

The next important paper is also by Pinard, and is dated 1895. In it he records the establishment, on the initiative of Mme. Becquet, of Vienne (France), in the Avenue du Maine, Paris, in 1892, of the first shelter or refuge for abandoned pregnant women (les femmes enceintes abandonnées) deprived of help and protection, whatever their social position or nationality. Some time later the city of Paris opened l'asile Michelet in the rue de Tolbiac. Pinard speaks of the services rendered to these women—the prevention of eclampsia and of malpresentations and of the "terribles accidents observés auparavant chez ces abandonnées." The babies were born in Pinard's service in the clinique Baudelocque and he claims that they were larger and finer than those born of women who had continued work till labour began. This he believes to be because, on account of the rest in the shelter, a larger percentage of the babies were carried to term instead of being born prematurely, as often happened in the case of the latter. Pinard calls the asylum of Mme. Becquet "the first establishment of this kind" (le premier établissement de ce genre).<sup>1</sup>

In 1899 a similar establishment was opened in Edinburgh in connection with the Royal Maternity Hospital and in an adjacent building called the Lauriston Prematernity Home. To it were admitted pregnant unmarried girls. The obstetrician in charge was Dr. Haig Ferguson, from whom the inmates received routine antenatal supervision. It was from this that there emerged the hospital out-patient or antenatal clinic started in Edinburgh in

<sup>1</sup> In view of the importance of this communication of Pinard's his actual words are here reproduced, as follows:—

PINARD. *Bull. de l'Académie de méd.*, 3<sup>e</sup> me série, 33-34, 1895, 593.

Je ne veux point insister aujourd'hui sur les immenses services rendus à ces pauvres femmes par la création de cette belle et nouvelle assistance, qui non seulement donne à ces déshéritées le logement et la nourriture, leur apporte la consolation et la quiétude, mais encore leur assure les soins spéciaux qui réclame leur état de grossesse.—Soins spéciaux qui font disparaître la plupart des terribles accidents observés auparavant chez ces abandonnées.—Je viendrai un jour vous démontrer, chiffres en mains, les cas dans lesquels en faisant disparaître en particulier l'éclampsie et les mauvais présentations, on a empêché les femmes de mourir et on a permis aux enfants de naître et je vous donnerai le nombre de ces vies humaines économisées.

1915 by Dr. Haig Ferguson. "He was stimulated to do so by observing the benefits which followed the medical care and supervision given to girls in the Lauriston Home. He obtained the consent of the managers of the Maternity Hospital to establish an antenatal department, pointing out that the hospital patients in general should have an opportunity of reaping the same advantages as the Lauriston Home offered to its more limited *clientèle*. The managers agreed and gave him the best accommodation available and the necessary nurses, and Mr. Paterson, the secretary, provided some form of printed ticket for the patients to bring back on subsequent visits. Ferguson told me that he was so busy personally that he found the supervision of the department a burden and asked Ballantyne to take it over. This Ballantyne at first refused to do, but some months later he came to Ferguson and said that he had changed his mind and would be willing to take it over."<sup>1</sup>

#### The Work at the Hôtel Dieu and Hôpital de la Salpêtrière

As is noted above Pinard referred to the establishment of Madame Becquet as the "first of its kind." This, however, is by no means correct even if his statement applied only to shelters for women illegitimately pregnant. A very full account of the work at the Hôtel Dieu is given by Tenon in his "*Memoires des Hôpitaux de Paris*," published in 1788. Tenon was professor of pathology at the College of Surgeons in Paris, and gives a review, with plans of the wards, of the entire hospital accommodation available in Paris at that time. "No one," he says, "is more worthy of care than the pregnant woman who carries within her the support of empires and the germ of future generations." "All pregnant women who present themselves at the Hôtel Dieu are admitted provided they have reached the end of the ninth month. Those who before that period wish a secret refuge find it at the Hôpital de la Salpêtrière, where a special ward is reserved for them alone." The strict rule for admission at the Hôtel Dieu was as follows: "All pregnant women who present themselves are admitted provided they have reached the end of the ninth month, but exceptions are made in the following cases: Women seven months or more pregnant who are ill; those fatigued by heavy work or by a long journey are also received at the seventh month, especially when they have pains, when the womb is very low, and

<sup>1</sup> Personal communication from Professor R. W. Johnstone, Edinburgh.

when at the same time the cervix is dilated." They were accommodated in two large wards comprising 67 beds in all, but 43 of these beds were large ( $4\frac{1}{2}$  feet wide) and had to accommodate two or three or sometimes four patients, so that on account of the crowding many found it more comfortable to spend at least part of the night on a bench by the side of the bed. Little effort was made to separate sick from well patients. "We must not suppose," he says, "that all the pregnant women are in good health. There are some with itch, some with venereal disease and a large number with fever and other maladies." Those suffering from itch had five places in three beds, while the venereal patients had two places in a single bed 3 feet wide. Many of the sick occupied the same beds as healthy patients.

How long had this accommodation been available? On this point there seems to be no definite information. Tenon says, "A Paris de temps immémorial, des Hôpitaux destinés aux accouchements ont été ouverts à la femme légitime, à la femme dissolue, et à cette infortunée qu'un instant de fragilité a rendu mère." It is clear therefore that their admission goes back to long before 1788. How Pinard could say that the refuge of Mme. Becquet, established in 1892, was the first of its kind is difficult to understand, unless he means that the refuge (l'asile) was different from a hospital. If that is so most readers will agree that the distinction was a very trivial one, and that in the establishments described by Pinard there was nothing essentially new.

Nevertheless, these two papers by Pinard mark the beginning of a new period in the development of the care of the pregnant woman. Hitherto, writers when they had referred to the subject at all, had dealt with the treatment of the discomforts and diseases of pregnancy, but only, if we except some references to the treatment of the nipples in order to prevent cracking, with diseases that were already established and that therefore could scarcely be ignored. One looks in vain for any attempt at *prevention* as we understand it to-day. Pinard's papers mark the opening of a new epoch. They are the first faint whisperings heralding the coming dawn that was destined to lighten the early years of the new century. It is true that the refuges to which Pinard refers were open only to abandoned women, and that these entered them only to receive food and shelter and to conceal their condition, but none the less they received there routine care which was sufficiently enlightened and adequate to prevent eclampsia, and

difficult labour resulting from malpresentation. There was yet, however, no attempt to secure the *routine supervision* of all pregnant women. But such attempts were not to be long delayed.

### Dr. J. W. Ballantyne

In 1901 appeared a paper by Dr. J. W. Ballantyne of Edinburgh, entitled "A plea for a pro-maternity hospital." In this Ballantyne deploras the fact that, in spite of noteworthy advances in gynaecology and to a less extent in obstetrics, but little progress had been made in our knowledge of the pathology of pregnancy. There was still much ignorance of the real nature of eclampsia, of hyperemesis gravidarum, of hydramnios, of hydatid mole, and of most of the idiopathic diseases of the foetus, and progress was much hampered by absence of reliable information "concerning the physiology of pregnancy and more especially concerning the physiological chemistry of pregnancy." "The question may now be fairly asked if we in the twentieth century are going to be contented with the knowledge (or ignorance) of the nineteenth in these matters. The pro-maternity hospital might quite well be an annexe of the maternity . . . it will be for the reception of women who are pregnant but not in labour."

There can be no doubt that the appearance of this paper marked another important forward step in the development of antenatal care. Hitherto, with the exception of the accommodation in the Hôtel Dieu, women suffering from one or other of the diseases of pregnancy had been admitted, not into maternity hospitals, but into the wards of general hospitals, where they were under the care of practitioners in general medicine, who might or might not be interested in the diseases of pregnancy. Their admission was often only secured after considerable difficulty, they were discharged at the earliest opportunity, for births in the wards of a general hospital are always unwelcome, and, few of the general physicians having any interest in the physiology or pathology of pregnancy, little or no effort was made to carry out any investigation that might further knowledge of these subjects. The provision of prematernity beds in maternity hospitals was certain to give a fresh impetus to, and enhanced opportunity for, these important studies.

It is, I think, clear that Ballantyne had in mind at this time, as the chief purpose of the "pro-maternity" hospital, the advancement

of antenatal therapeutics in the interests of the foetus and child, for he says, "The idea of a pro-maternity hospital has been forced into my mind by several circumstances during the last few years, but more particularly by communications which I have received from medical men in various parts of this country and the United States. In these communications the particulars of cases of antenatal disease and deformity were stated, and an opinion asked for with regard to possible plans of treatment. In some I was able to give advice, in others I had little or nothing to propose, but in all I could not help wishing that I knew of a hospital where the case could be placed and scientifically investigated." He gives as examples a case of repeated abortion, one of an alcoholic mother who had given birth to an infant with congenital heart disease, a hæmophilic mother who had given birth to two hæmophilic male infants, and the case of a woman, "truly a monstripara," who had brought three monstrous infants into the world and had had several abortions. In all this paper there is no mention of the interests of the mother. Ballantyne's work up to that time had been chiefly concerned with antenatal pathology, and his two classical volumes on this subject, "*The Fœtus*" (1902) and "*The Embryo*" (1904), were shortly to be published. He was lecturer in Antenatal Pathology and Teratology in the University of Edinburgh, and in that capacity had given, in February and March, 1899, a series of six lectures on these subjects. In 1900 two lectures on "*Antenatal Diagnosis*" were published. In all these attention is directed almost exclusively to the diagnosis of morbid states in the foetus and to therapeutic measures meant for their prevention. "Antenatal diagnosis," he says, "includes the discovery of normal pregnancy and of plural pregnancy, of foetal death, of diseases and monstrosities of the foetus, of hydramnios and of morbid conditions of the placenta. All these matters must be kept in mind in examining a patient who may be pregnant and in all of these there is at any rate an increasing probability that the diagnosis may be thoroughly well established under favourable circumstances and with reasonable care and skill." The same remarks apply to his paper, "*A Visit to the Wards of the Pro-maternity Hospital—a Vision of the Twentieth Century*" (1901). The article is headed, "There is a fall in the birth rate," and this gives the clue to its contents, and still more to its purpose. In order to compensate for the falling birth rate, which he foresaw as one of the pressing problems of the twentieth

century, he imagines a pro-maternity hospital established in "Weissnichtstadt in the Alsace Lothringen country between France and Germany" and with an international staff, the purpose being to "prevent miscarriages and that most terrible of all events, the dead birth, and cure before birth the diseases and deformities of the fœtus."

The result of his "plea for a pro-maternity hospital" was the endowment by an anonymous donor, whom we now know to have been Dr. Freeland Barbour of Edinburgh, of a bed to be called the Hamilton bed in memory of Dr. Hamilton, formerly professor of midwifery in Edinburgh. The story cannot be better told than in Ballantyne's own words: "It was in July, 1901, that my hopes regarding the establishment of a pro-maternity hospital, which had been drooping somewhat, were revived by the receipt of a letter from a friend who had all along thought well of the proposal. This letter contained the welcome intelligence that the writer had given a sum of money (£1,000) to the Edinburgh Royal Maternity and Simpson Memorial Hospital for the endowment of a bed to be used for the treatment of patients suffering from the diseases of pregnancy. The bed was named the Hamilton bed in memory of Professor Hamilton, who had so much to do one hundred and ten years before with the founding of the Edinburgh Maternity Hospital (1791). In November, when Sir Alexander Simpson took over the hospital,<sup>1</sup> he was able to open the Hamilton bed by putting into it a patient suffering from hydramnios; and as I acted as assistant physician at this time I had an opportunity of superintending the four or five cases treated in it during the next three months." Here it may be stated that Ballantyne soon dropped the term "pro-maternity" and substituted for it the word "pre-maternity." He had used the prefix "pro" in its Greek sense of "before" or "in front of," not in its Latin sense of "in favour of." But he soon realised that the term was misleading and was in any case a hybrid word. He therefore adopted the name "prematernity," which more clearly indicated his meaning, and this term was in use for a number of years. The number of beds was soon increased to four and gradually to twenty-five.

Whilst it would be absurd to contend that these were the first beds set apart for pregnant women, they were, I believe, the

<sup>1</sup> There was at that time a rota of service at the hospital, each physician's term of service lasting three months.



first designed for the specific purpose of the study of the physiology and pathology of pregnancy and of antenatal therapeutics.

### The Establishment of the Outdoor Antenatal Clinic

It is remarkable that during the first dozen years after the establishment of the "pre-maternity" beds, there seems to have been no conception by Ballantyne of the outdoor antenatal clinic designed for the routine supervision of all pregnant women, normal as well as abnormal, which is such a commonplace feature of obstetric practice to-day. This is all the more difficult to understand when we consider that there is no doubt that he was fully aware during these years of the advantages to both child and mother to be gained from such routine supervision. In his address on "The Future of Obstetrics," delivered from the Presidential Chair of the Edinburgh Obstetrical Society in 1906, he imagines himself in telephonic communication with the President of 1940, and getting information of the advances that by that time had taken place in obstetric practice. The two Presidents discuss the falling birth rate, and the means by which in 1940 the fall had been compensated by a saving of child life through increased attention to the health of the pregnant woman and better knowledge of antenatal pathology. "The hygiene of pregnancy," says the President of 1940, "began to be studied in detail, and with an enthusiasm and thoroughness never before arrived at. . . . Every medical man made it his duty to revise with the pregnant patient all the rules relating to the care of the bodily functions, putting right what was wrong, and warning against possible errors in diet, clothing, habits, and the like. Further, in cases of doubt consultations were freely asked for and given, it being recognised that it was better to check the beginnings of evils in pregnancy than to wait till an abnormal gestation had developed into a labour dangerous for infant and mother alike. . . . Eclampsia was one of the first maladies which began to benefit by such a revolution in the management of pregnancy. Whereas it had been common for the urine of the pregnant patient never to be tested—indeed, in many cases it was not customary for the medical attendant to be told about the pregnancy or summoned to the patient till labour was in the first stage, now the doctor was engaged to look after her in the early weeks of her pregnancy. . . . The obstetrician of 1940 finds it difficult to understand why his brethren of the early part of the century paid so much attention to the one month of the