MENTAL REACTIONS

OF

CHILDBIRTH

by

Ashley Arnold Robin

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CONTENTS

INTRODUCTION

The earliest descriptions of puerperal psychosis include one by Hippocrates who "in his case book described mental symptoms in cases of pregnancy and parturition similar to those with which we are familiar to-day" (q. McIlroy, 1928). Bleeding from the nipple of a woman was an ominous sign that mania impended (q. Smalldon, 1940), and the aetiology was the suppression of the milk which then went to the brain. Galen, Soranus and Celsus also described the condition (q. Zilboorg, 1929). Galen believed that the hot blood formed burning vapours which mounted from the breast to the brain. Rodriguez in the early 17th century believed puerperal mania was due to mammary sepsis (q. Sivadon, 1933). Sennert, in the same period, believed the vapours arose in the uterus. Planchon in 1768 returned the situs morbii to the breasts, blaming the suppression of both milk and lochia. Levret in 1767 described particles of milk on the brain surface and this appeared to clinch the matter.

Esquirol in 1819 commented on the frequency of mental illness associated with childbirth. Pierret in 1842 suggested some form of autointoxication as the cause of the condition (q. Sivadon, 1933). Marcé in 1858 wrote that puerperal psychosis was "une maladie sympathique" and that ultimately neural connections between the uterus and the nerve centres would be demonstrated.

Webster in 1848 refuted William Hunter's claim that "puerperal psychosis" was not common in England and described post mortem cerebral changes in one case.

McDonald in 1847 described 66 cases at Bloomingdale

Hospital in three groups - pregnant, parturitional and lactational - with three diagnoses - mania, monomania and dementia. Some of his cases were treated by bleeding "to relieve the vessels of the head" and others with emetics, blisters, wine, baths, sedatives and anodynes. Heredity, stress, moral and physical factors were mentioned in the aetiology. He believed the condition could be differentiated symptomatically by the greater intensity of its excitement and incoherence, by the grossness of the obscenities uttered and by the high fever and pulse. Dr. McDonald searched for but found no milk on the brain.

Finally, Conolly in 1846 stressed the social aspects of the condition and wrote, "Epochs of national excitement which exercise an influence on all forms of insanity have been found to make the occurrence of it in the puerperal state more frequent". He also said, "Among the moral causes (of puerperal insanity) anxiety, the fear of abandonment and the pressure of poverty may be readily supposed to be the most conspicuous. In the sensitive condition of the brain and nervous system after delivery any strong impression might bring on insanity".

James (1935) summed up this history, saying: "The conception of 'puerperal insanity' as a mental disease peculiar to the childbearing woman enjoys a protracted funeral". The following study is not a further and even more elaborate obituary notice. It may be taken as a plea to re-examine the body rather than to lay it completely at rest. In making this examination the following points should be borne in mind:-

(a) The incidence of parapartum reactions is greater than expected. The average married woman, 56.8% of the total female population between the ages of 15 and 45, bears an average of 1.72 children (1951 Census: 1% Sample Tables (1952)). She thus spends about 2 of her 30 reproductive years (i.e. 7%) in the parapartum period. From this, given an even distribution, the expected admission rate of parapartum women would be about 4% of the total female admissions of like age. According to varied authorities, however, up to 12% of female mental hospital admissions are women in the parapartum period (Smalldon, 1940; Clarke, 1913; Jacobs, 1942; Harris, 1950; Zilboorg, 1928; Jaffe, 1941; Yaskin, 1945; Schmidt, 1943; Frumkes, 1934) and it should be remembered that our total female mental hospital admissions include a very high proportion over the age of 45. The ratio of actual to expected admissions of parapartum women is more than 3:1 for the figure of 12%, and more than 2:1 for the average figure of 8%.

(b) Parapartum reactions are mainly associated with a specific phase of the parapartum period. Bleuler (1949) points out that gestational psychoses are only one-tenth of the number of puerperal psychoses. There must obviously be a pregnancy for each puerperium and the pregnancy lasts longer than the puerperium. It must be presumed, therefore, that the puerperium is of special consequence.

(c) Parapartum reactions may be associated with a particular age group. The peak age for parapartum psychoses is 29-30 (Jacobs, 1942; Smalldon, 1940; Brew & Seidenberg, 1950; Zilboorg, 1929; Clarke, 1913). The peak age for childbearing is 20-25 (according to the 1% samples of the 1951 census) and at 30 the numbers of pregnancies are only about one-tenth of those at 20. If pregnancy was simply followed by mental illness because it acted in a non-specific way, then these two peak ages should tally - the more pregnancies, the more chances of breakdown there would be. The puerperium, especially around the age of 30, it appears, contains some special stress or noxia associated with parapartum mental reactions. In this study the attempt has been made to gather information in as many related fields as possible and the questionary on which patients were examined was based on an analysis of information already published from diverse view-points. That such a study is indicated appears to be borne out by the gross statistics presented.

THE PHYSIOLOGY OF REPRODUCTION IN RELATION TO MENTAL STATE.

In the non-pregnant woman it will be remembered that there is a continual cycle of events taking place from puberty to the menopause. This cycle, culminating in menstruation, is associated with psychological, biochemical and other physical changes - apart from the actual shedding of the endometrium. According to standard texts 75% of women complain of some discomfort just before and during menstruation and the "menstrual molinen" includes backache, pain in the lower abdomen, headache, fatigue, dyspepsia and tension. Work becomes inaccurate at menstruation, dark rings may be seen below the eyes, acne may be exacerbated, there may be swelling of the breasts and frequency of urine. Premenstrually there is a rise in blood pressure, the knee jerks become exaggerated and, as shown by the dynamometer, muscle power is increased. Premenstrually there is also nitrogen retention, rise in serum calcium levels and hyperglycaemia. There may be a variation in the size of the thyroid gland and variable thyroid activity. There is a cyclical accumulation of oestrogens from the end of menstruation until just before the next period, when the level falls suddenly and a similar cycle with progesterone from just after ovulation (at the end of the intermenstrual period) to the end of the premenstrual period. Slowing of

the alpha rhythm in the electroencephalograph with reduction of the frequency by ½ - 1 c/s takes place during menstruation and at about the mid point of the cycle (deBarenne and Gibbs (1942)). These changes may be correlated with variations in temperature. The oestrogen-progesterone changes are said to be related to the secretion of anterior pituitary factors - prolan A and prolan B. The physiological significance of menstrual changes for psychiatry have recently been discussed by Rees (1953), Greene & Dalton (1953) and by Frank (1931) in the past.

During pregnancy, however, physiological changes of a greater order occur. "The maternal organism is required to accommodate the fertilised ovum, supply it with nourishment and dispose of its excretory products. The growth of the uterus must be provided for; the control of implantation established; the maternal tissues protected against the destructive powers of the trophoblastic villi; the bloodstream adjusted to provide a slowly moving placental circulation; the digestive and absorptive systems empowered to acquire nourishment which they must pass on to the foetus; the excretory organs enabled to cope not only with the waste products from the increased maternal activity, but also directly with the waste products of the foetus itself; the mammary glands prepared for the function of lactation; and finally sufficient energy must be acquired to enable the

mother to expel the fully developed child from the uterus". (Kerr, et al., 1939).

It is not proposed to review the physiological changes in detail but attention is drawn particularly to the following as comment has already been made, regardless of their occurrence in pregnancy and the puerperium, on their importance in psychiatry.

1. A condition of "symbiose harmonique homogene" has been described in pregnancy (Kerr, et al., 1939).

2. Changes of a toxic character are said to occur in the blood vessels (Kerr, et al., 1939), and Fischer (1953) showed "an increased toxicity on tadpoles of the blood of normal women with hyperemesis gravidarum in their early stages of pregnancy or of normal women in their last months of pregnancy .... The toxicity of females in their last months of pregnancy lies between the indices of non-pregnant normals and acute schizophrenics. The serum of patients with cirrhosis or carcinoma of the liver shows also similar median values".

3. Intercurrent infections are frequent. In a recent review of 2,701 patients, over 1,000 had a puerperium temperature of 99°F, and 954 of 99.4°F or over due to infection of the urinary tract, genital tract, breast, etc. (Calman & Gibson, 1953).

4. There are marked alterations in the nitrogen balance and these are particularly rapid in the puerperium when rapid excretion takes place (Kerr, et al., 1939).

5. Extensive hormonal changes occur (Swyer, 1952) and a special hormone 'relaxin' may be secreted (Wright, 1952, Frieden & Hisaw, 1953). Oestrogens are also widely used therapeutically in the

puerperium to suppress lactation.

It is hardly necessary to quote references on the importance of physical well-being or conversely toxicity, for the mental state. The important influence of both on the mental health is generally recognised by psychiatrists.

Reiss and Hemphill (1948), Browne and Simpson (1952) Abely (1949) have drawn attention to the importance of the hormonal adjustment to psychiatry, while arterial function, chemico-haematological and oxidatory function have all been commented upon from a psychiatric viewpoint by Pickworth (1941), Quastel (1936) and Lovett-Doust (1954).

Finally Gjessing (1938) has shown the importance of the nitrogen balance especially in relation to periodic catatonia.

FURTHER EVIDENCE THAT REPRODUCTION AFFECTS THE NERVOUS SYSTEM.

(a) NERVOUS DISEASES IN PREGNANCY.

Changes in the electroencephalogram with slowing in seventeen out of twenty cases during pregnancy have been reported by Gibbs and Reid (1942). The cerebral metabolic rate shows no significant difference (Himwich, 1951), but increased irritability in the nervous system due to a relative decrease in calcium occurs commonly. Attention is now turned to the course of nervous diseases during pregnancy.

The condition which is most widely recognised to occur in association with pregnancy is chorea (chorea gravidarum). Indeed, Walshe (1945) says that "in adults it is encountered chiefly in association with pregnancy when it may assume its most severe and grave form." It is seen approximately once in three thousand pregnancies (Willson and Preece, 1932). Browne (1946) says that "pregnancy seems in some way to predispose to it and especially to its recurrence in a patient who has already been the subject of one or more attacks." The pathological basis of the illness is "a diffuse or disseminated encephalitis affecting chiefly the corpus striatum and involving the cortex and pia arachnoid." (Greenfield and Wolfsohn q. Browne, 1946). The condition is associated with infection by a strepto-diplococcus and Browne suggests that "pregnancy reduces the patient's resistance and especially

the resistance of the central nervous system to the dissemination of the infection and emotions such as shock or fright may act in the same way". This similarity in effect between "pregnancy" - a physiological condition - and "shock or fright" - psychological conditions, should be particularly borne in mind for the later discussion. Meanwhile it will be seen that chorea is predisposed to by pregnancy and frequently ceases after delivery, although in one case Buist (q. Browne) notes the clearing of chorea on conception. Primigravida are more susceptible than multipara although in about 10% of cases the condition recurs in subsequent pregnancies and may recur in each successive subsequent pregnancy.

Poliomyelitis was reported to be rare in pregnancy and Browne (1946) notes that only 21 cases had been reported in the literature up to 1941. He does not believe that either condition influences the other. Fox and Belfus (1950), however, state that pregnancy increases the patient's susceptibility to poliomyelitis and base this view on a statistical evaluation of the disease incidence in pregnancy.

Encephalitis gives an increased mortality in pregnancy and may be aggravated by pregnancy (King, 1950). Pregnant women are said to be more susceptible to neurological reactions to arsphenamine, and the sulphonamides and to be more suscep-

tible to coma and convulsions with anaesthesia.

King (1950) notes that gliomas, angiomas, meningiomas and neurinomas increase in size during pregnancy. He doubts if growth is accelerated and attributes the increase to vascular engorgement. Davis et alia (1950) in a study of a large number of cases conclude that "pregnancy stimulated the growth of intracranial gliomas." Divry and Bobon (1949) accumulated 71 cases from the literature, added 3 new cases and reported accentuated growth of the tumour in 80% of these cases. There was a further increase in 20% at delivery - probably due to circulatory disequilibrium. Giroire et alia (1950) report a number of cases which include two cerebral tumours brought to light in pregnancy and say there may be regression of the tumour post-partum. They believe there is increased vascular lability in pregnancy, giving rise to cerebral or meningeal accidents or oedema in a tumour. This vascular lability may sometimes be of hypophysodiencephalic origin. Boshes and McBeath (1954) also mention that pregnancy or the puerperium may first bring a cerebral tumour to light. Apparently some neurosurgeons consider cerebral tumour a sufficient indication for termination of pregnancy to safeguard the mother (Lassman 1952). Rand and Andler (1950) agree that "the course of patients' gliomas of one sort or another is much more rapid and fatal" in pregnant women but advise operative treatment of

the tumour.

Multiple sclerosis may be worsened according to King (1950) and Walshe (1945) says that "it must be admitted that this malady may first come to notice after confinement or may take a fresh lease of activity in these circumstances." A comprehensive study by Muller (1951) however, indicates that the onset of disseminated sclerosis in pregnancy may be explained by chance. Muller believes that child-bearing does have an unfavourable effect on the course of the disease when it occurs during a progressive phase.

Myasthenia gravis according to Viets et al. (1942) may relapse in the first trimester but remit in the second and third trimesters. At any rate the disease is always influenced in some way by pregnancy. Amelung and Lorenz (1950) report a case which improved in pregnancy and relapsed in the puerperium. They suggest that hormonal influences alter the acetyl-choline-cholinesterase relationship. Linford Rees (1953) quotes work which shows that oestrogens increase the synthesis of acetyl-choline while progesterone decreases it. Fraser & Aldren Turner (1953) claim that there is a danger of relapse in the first trimester and a greater danger in the post-partum period. Goni (1943) reported 4 cases of which 3 relapsed post-partum and says myasthenia gravis may first appear in pregnancy.

The effect of pregnancy on epilepsy is difficult to assess. Browne (1946) quotes Verlinger's figures which showed

28% of cases reported seizures ceased and 35% seizures increased. Browne also quotes Turner (1907) and concludes that while the effect of pregnancy varies, on the whole an increase in the number of fits is seen. Burnett (1946) believes that pregnancy affects epilepsy in a varying fashion according to the individual and depending on the biochemical equilibrium - water retention, CO_2 deficiency, hypoglycaemia and endocrine changes increasing the tendency to convulsions, and ketosis and posterior pituitary changes diminishing it.

Polyneuritis occurs not uncommonly in pregnancy, is associated with gastric anacidity, and is caused by vitamin B deficiency. Facial nerve palsies are said to be especially common in pregnancy (Schaible, 1950).

Brain (1948) says "Pregnancy is an occasional cause of cerebral thrombosis though how it operates is not obvious" and Kinnier Wilson (1940) says "Acute hemi or paraplegia before, during or after confinement....have been ascribed to haemorrhage.. to thrombosis....to 'reflex paralysis' of vaso motor origin. More than half a century ago Wilks agreed that some external irritant might act on the vaso motor system". These last conditions are not to be confused with "infected fragments of clot probably travelling from the pelvis to the cranial venous system by way of the vertebral veins" which Brain (1948) reports fairly commonly in the puerperium.

The neurological aspects of toxaemia are discussed elsewhere but meanwhile it seems clear that pregnancy influences the course of many neurological illnesses, causing either remission or relapse. These changes may ultimately be related to biochemical changes - e.g. the improvement in cephalagia is said to be due to altered histaminase and 11 and 17 oxysteroid levels (Antonini and Benoliel (1950)). In the meantime, whatever the cause, they represent changes in the function (or dysfunction) of the brain and nervous system which is the matrix of the mind. In one case - chorea - the effect of pregnancy was said to be similar to a severe psychological effect. In the other cases, pregnancy effects changes which might at least be expected to have psychological accompaniments if the integration of an individual is in any way related to the physiological state of his brain.

FURTHER EVIDENCE THAT REPRODUCTION AFFECTS THE NERVOUS SYSTEM.

(b) PSYCHOSOMATICS and PREGNANCY.

Pregnancy as well as influencing patently organic neurological conditions, appears to affect the course of psychosomatic conditions. Whether this is by virtue of its biochemistry - the example of the cephalalgia has already been given - or by some psychological qualities, is not clear.

The best known psychosomatic symptoms of pregnancy are nausea and vomiting which occur most commonly in the early months. They are associated with a decreased threshold for nausea. (This is an old observation and must have formed the basis of a pregnancy test Neuberger (1925) quotes from Brugsch papyrus - if the woman vomited after taking powdered melon with human milk, the test was regarded as positive.) Gladstone Robertson (1946) suggests that nausea and vomiting are psychosomatic symptoms, that they "may represent the physical expression of an emotional constellation in which disgust is predominant" and that "biochemical changes associated with pregnancy lower the threshold of the psychological expression of a latent or sub-conscious disgust." A significant number of his nausea and vomiting cases appear to have had previous dyspepsia and Haas (1952) says that "women who suffered in their childhood from gastro-intestinal disturbances and frequent vomiting nearly always suffer from nausea and pregnancy vomiting. In a

personal communication, Gladstone Robertson says that biliousness in adolescence at the commencement of menstruation is also associated with these symptoms in pregnancy. Harvey & Sherfey (1954) studied 20 women with vomiting in pregnancy and found that the common personality factor was immaturity; that pregnancy heightened anxiety and that the patients revealed a pattern of gastro-intestinal disturbance in response to stress.

There is a considerable body of evidence that nausea and vomiting may have psychogenic precipitants (summarised by Kroger and Freed (1951)) and a number of claims to have treated them by psychotherapy and even more dramatically by hypnosis. They are associated in 56% of cases with a history of dysmenorrhoea (Bertling, 1948) and with frigidity (Harvey & Sherfey (1954)) - both frequently psychosomatic conditions.

Contrary to what might be expected from the above, Clarke (1953) found confirmation of earlier work that peptic ulcers improved during pregnancy - 90% of his patients being symptom free when pregnant. This has been attributed to a reduced gastric response to histamine and to a rapid rise in blood histaminase in pregnancy. Sandweiss (q. Brit. Med. Jour., 1953) reported a protective substance "anthelone" in the urine of pregnant women.

Sheldon (1953) reports 80 cases of maternal obesity of which he obtained detailed information in 19 cases. He

reports that the gains in weight followed a common path - "they were all women where gain of weight began after the birth of a baby." Sheldon mentions the hypothalamic regulation of body weight and points out that obesity may occur in lobotomised patients and in patients with emotional stress. "Maternal obesity" he says, "begins immediately after the birth of the baby when there is a considerable endocrine stress....When such obesity occurs in the first and only pregnancy or in the last pregnancy, boy babies are no fewer than 4 times as common as girl babies and one cannot avoid the speculation that it is the appearance of the male infant which has released an emotional state in the mother, leading in turn to the increase in appetite." Schopback & Angel (1953) review 103 cases of obesity. "In over 1/3rd of the cases pregnancy served as the precipitating factor for weight gains while in even a larger number a distinct aversion to pregnancy was stressed."

Rheumatoid arthritis improves in pregnancy and Meakins (1939) "has known married women who were only free of symptoms when pregnant."

Some cases of asthma are aggravated by pregnancy, some clear up with pregnancy only to reappear in the puerperium (these cases are associated with menstruation) and, finally, some patients suffer from asthma only during pregnancy (Browne, 1946).

Mayer-Gross (1953) confirms that migraine frequently clears in pregnancy.

McLaughlin and McGoogan (1943) report that thyrotoxicosis is aggravated in 74% of cases and that 62.5% of women with thyrotoxicosis develop toxaemia of pregnancy. According to a study by Mussey, Plummer and Boothby (1926) hyperthyroidism is uninfluenced by pregnancy. McLaughlin and McGoogan (1943) also said thyrotoxicosis often subsides spontaneously in the puerperium. Both eczema and pruritis are not uncommon in pregnancy (Browne, 1946). Premenstrual tension occurs with "increased severity at the first menstruation after childbirth" (Green and Dalton , 1953). The onset of this condition was dated from childbirth in 15 cases in these authors' series.

The external hysterograph is influenced by environment (Vermelin and Ribon, 1950) and uterine inertia may be a psychosomatic condition (Jones, 1942) specifically associated with pregnancy.

The commonness of insomnia in the puerperium is remarked by Kowalski (1953).

This information is sketchy owing to an absence of definition of psychosomatic diseases as well as a paucity of work on them in pregnancy and the puerperium. The tolerance to nausea does, however, seem diminished in early pregnancy. There is evidence of improvement in peptic ulcer, rheumatoid arthritis

and migraine and/of worsening in thyrotoxicosis in pregnancy, Premenstrual tension, obesity and insomnia are often dated from the puerperium. In short, as in the case of neurological conditions, some psychosomatic conditions are shown to change their course or start in pregnancy and the puerperium. Halliday's (1948) contention that the psychoses are the psychosomatic conditions of the nervous system is of interest in this respect, as they behave, it will be seen, in a similar way to the conditions just described. The main conclusion drawn here however amounts simply to the general statement that further evidence of the processes of reproduction being accompanied by changes in nervous integration may be seen in the behaviour of psychosomatic conditions during reproduction.

THE TOXAEMIAS OF PREGNANCY AND THEIR EFFECTS ON THE NERVOUS SYSTEM.

Preeclamptic toxaemia has been defined as a "condition occurring in pregnant women characterised by a rise of blood pressure, oedema and albumin in the urine and often ending in convulsions" (Browne, 1946). Eclampsia, which develops from the above condition may, however, occur during labour (20% of cases) or post-partum (15% of cases). Toxaemia it is noted occurs chiefly in primigravida (70%). Its incidence is about once in 430 deliveries; it is relatively more frequently associated with hydatidiform mole; may be associated with concealed accidental haemorrhage or with bilateral renal cortical necrosis and is seemingly more frequent in "stout women of stocky build."

Numerous aetiological theories have been advanced and the more important have been ably summarised by Browne as:

(1) The intestinal toxin theory of Tweedy.
(2) The placental theory of Young.
(3) The water poisoning theory of Zangemeister.
(4) The increased intra-abdominal pressure theory of Paramore.
(5) The dietetic deficiency theory of Theobald.
(6) The endocrine theories of Smith, Smith and others.

The first, third, fifth and sixth theories above have their psychiatric counterparts and while Browne does not mention it,

there has been an attempt (Kroger and Freed, 1951) to build a psychosomatic theory of toxaemia. From the fact that convulsions occur, it is evident that there is cerebral involvement in toxaemia. The convulsions are said to be caused by the complementary action of cerebral oedema causing increased intracranial pressure and cerebral anaemia resulting from the hypertension. This may, however, be an over-simplification and the factors which may be relevant to cerebral involvement at any stage are therefore listed.

Dieckman (1938) studying its ecology says that toxaemia is limited to civilised and cultured races and that primitive societies only suffer from the condition after contact with more "sophisticated" people. Whether this finding (the validity of which has been questioned) implicates the psyche or the alimentary tract is not clear.

Read (1951) writing on the aetiology of toxaemia refers to the "psychogenic initiation of the provocative train of events". He stresses the beneficial effects of hospitalisation which he represents as a change of environment.

Nichols (q. Kroger and Freed, 1951) believes that the incidence of eclampsia rose during the War. Selye (1950) quotes work which demonstrated a marked rise in the incidence in Budapest in 1944-45 when the population took to the air raid shelters Walser (1948) suggests that the aetiology of toxaemia may be

found in a combination of over-eating and tension due to fear and anxiety.

There appear to be two main trends in the endocrinological theories - that emphasising the excessive antidiuretic substance and the hypersensitivity to injection of posterior pituitary extracts and that underlining the decreased adrenocortical activity.

Among the factors which release antidiuretic substance is emotional stress (Verney, 1946) and the adrenal cortex is also responsive to emotional stimuli (Selye 1950).

Blood uric acid and lactic acid are raised in eclampsia. The relative acidosis of pregnancy usually becomes more marked and there may also be hyperglycaemia.

Pathological findings in the central nervous system are cerebral anaemia (which is constantly found) and, less often, cerebral oedema, capillary and venular thrombosis, and multiple microscopic haemorrhages with small surrounding areas of softening.

It should be noted, however, that 80-85% of patients recover completely from eclampsia and conversely that death is often rapid, thus allowing little time for pathological changes to develop in the brain. Holmberg (1949) has reviewed the literature and notes various cases reported with alexia, agraphia, mild dementia etc. after eclampsia. He quotes Schmorl on the frequency of cerebral haemorrhage when the treatment of

the condition was expectant. He describes two cases of cerebral atrophy from the literature and adds a case of encephalomacia of his own. This last case presented as a depression and the organic basis of the condition was only apparent later. The postmortem findings included three large areas of cerebral softening. Holmberg concludes: "It is open to question whether the significance of the nervous system in the prognosis of severe eclampsia should not receive more attention. It is certainly unwarranted to assume that post-eclamptic cerebral damage is always insignificant or innocent".

Gibbs and Reid (1942) studied the electroencephalographs of seven post eclamptic patients and reported high voltage fast activity of a sub-convulsive pattern. One patient in stupor with eclampsia showed slow activity. Rosenbaum and Maltby (1943) studied twenty pre-eclamptics and twenty eclamptics one week to two years post-partum. 68% of the latter group showed E.E.G. abnormalities as compared with 10% of the former group. Twelve of the eclamptic patients had a personal or family history of convulsions as compared with two of the pre-eclamptics. Eclampsia was represented by these writers as a primary cortical dysrhythmia exaggerated by toxaemia. Evidence that eclampsia is more common in epileptics would certainly be of interest in view of recent work on tension and latent epilepsy (Liddell & Robin, 1955) but is not so far forthcoming. Toxaemia of pregnancy is, however, more common in schizophrenic histories (83.3%) than in controls of like parity (34.1%) (Weidorn, 1954).

The Cerebral Metabolic Rate shows a 20% reduction (3.3 - 3.5 to 2.5) in toxaemia (Himwich, 1951) and cerebro vascular resistance is increased (McCall, 1949).

The standard sequelae of eclampsia are organic neurological changes - as noted above - a predisposition to puerperal sepsis (probably on the basis of a generally reduced resistance rather than some Speranskian mechanism), and a ten-fold predisposition to hypertension. Browne (1946) reports that 70% of his cases of eclampsia had residual hypertension and "as in pre-eclamptic toxaemia, blood pressure on discharge is an unreliable guide to ultimate prognosis." Browne, however, questions whether eclampsia is really a cause of chronic hypertension and points out that the incidence of hypertension is greater in nulliparous than in parous women. In fact the converse, as suggested by Isenhour (1942), may be true and toxaemia may occur in those endowed with a tendency to hyper-tensive disease. McNeile and Page (1939), however, note a difference in the personality patterns of toxaemic and hypertensive women and claim that these fall into two groups.

Finally Battle (1949) and Schachter (1950) both report that toxaemia of pregnancy has an adverse effect on the intelligence of the progeny and the second author mentions the existence of specific central nervous system damage in the progeny.

In summary, therefore, it can be stated that the toxaemias of pregnancy occur in pyknic women; that eclampsia, at least, involves the central nervous system secondarily, and may involve it in an aetiological relationship as well. Finally the sequelae of toxaemia are not always immediately seen.

THE EXISTENCE OF A PSYCHOLOGY OF THE PARA-PARTUM PERIOD.

The emphasis so far, on the organic aspects of gestation and parturition, may tend to have painted a somewhat distorted picture. It would be unwise to forget that pregnancy, childbirth and the puerperium have also psychological aspects, per se which also produce specific psychic reactions. It might be argued that this would be difficult to show in the female where it would be impossible to disentangle them from the psychological concomitants of the organic changes, although Victoroff (1952) mentions 3 cases of psychosis following adoption. It is, however, possible to point to their existence in many males associated with childbirth who are not at this stage biochemically involved in it. The classical picture of the husband pacing the corridor, awaiting the news, is the best known anxiety state reactive to childbirth. Jacobs (1942) quotes a case where the husband vomited during his wife's pregnancy. An annotation in the British Medical Journal (1952) drew attention to The Couvade - an "ancient and world-wide custom" - of which Dioderus Siculus wrote, "If a woman has borne a child in the Island of Cyrnos (Corsica), no attention is paid to the woman in childbirth, but the man lies down as if he were ill and remains for a definite number of days in childbed." Fenichel (1945) mentions male envy of child bearing and Ernest Jones (1942)

offers the explanation that the couvade and male neurotic symptoms during the para-partum period, arise from this. Freeman (1951) collected six cases - including both neuroses and psychoses - in which pregnancy in a female associate acted as a precipitant of the mental illness in his male patients. He suggests that universal infantile ideas about birth; sibling jealousy and accidental events during childbirth predisposed their patients to breakdowns from this particular precipitant. Victoroff (1952) mentions "six male patients whose acute symptoms of phobia, dissociation, depression and various degrees of psychotic withdrawal have occurred only and recurrently in close temporal relationship to the pregnancy of their wives."

Without making any special search, the writer was able to collect three cases in males which illustrate this type of reaction.

A.W. was a man of 31, whose father was a strict, solitary, unsociable individual who was jealous of his wife and suspicious of strangers. His mother had suffered from neurasthenia and was described as cold, unaffectionate, meticulous and precise. A maternal uncle and a paternal aunt had been in mental hospitals. There was one brother ten years younger than the patient, who was indulged as a child at the patient's expense, but who was a normal sociable man. The patient was a quiet,

studious and solitary child with his "nose always in a book." He matriculated and became an office worker until he was called up in 1942. Until this time he had had no girl friends but while waiting to leave for N. Africa, he met his future wife, who was on War work in Liverpool. She was already married but living apart from her husband. His wife is 5 years older than the patient and has two children by her first marriage - girls of 16 and 12. After a few weeks the patient sailed but corresponded with his wife while overseas. In 1945 he again saw her for a few weeks when passing through England on his way to France. On his discharge from the Forces, he decided to live with her and she changed her name to his by deed poll. He worried about this relationship as he had had a conventionally strict outlook on life and was sensitive of other people's opinions. In 1948 his wife became pregnant and the patient at this time lost his libido. The baby was born and the patient registered it, saying he was married. He worried about this and about the child's illegitimacy. Shortly afterwards his wife's divorce came through and they were married, but within a few weeks he had been admitted to Severalls Hospital, believing the neighbours and his workmates were talking about the illegitimacy and accusing his wife of interfering sexually with the baby.

His delusions became more extensive and more people, including his doctors, became involved. He was hallucinated and frequently impulsive.

In summary, this patient was an intelligent, sensitive man who lived with a married woman somewhat older than himself and who first showed symptoms when she became pregnant - the earliest symptom being loss of libido. When the child was born before he was able to marry, he became psychotic, projecting his guilt about the baby's illegitimacy.

W.W. was 28. His father had recently had a depression and was always a critical, unpleasant man; his mother suffered from asthma. Of his seven siblings, a brother had a depression and a sister had a depression with a suicidal attempt on the day following her marriage. The patient had been a rather sensitive, shy child and had been afraid of the dark. On leaving school at 14 he worked on his father's farm until he joined the Forces at 17. He had a good war record and was cited on one occasion after being in a glider crash. He was finally discharged in 1945 with a crush injury of the leg, for which he was awarded a 20% pension. He then served an engineering apprenticeship and had worked for six years with one firm. He changed his job some 6 months prior to admission and in so doing bettered himself. He was married in March, 1950 and the

marriage was happy. There was a doubtful history of a miscarriage and at the time of his admission his wife was eight months' pregnant. They had recently moved into a bungalow which had various disadvantages but the patient's illness preceded the move. His illness started with abdominal cramp and diarrhoea. He then complained of insomnia, lost confidence, could not concentrate, could not make decisions. He became confused and dejected. On admission he was markedly hypertensive and for some time was thought to have an organic confusion. His Thematic Apperception Test (1943, Murray) (T.A.T.) showed an immature attitude to sex and suggested unresolved conflicts with his father. While he was in hospital his wife was delivered of a son. When the patient was informed, an increase in his confusion was noted. The final diagnosis was thought to be a severe anxiety reaction which had reached the state of exhaustion. He recovered with a short course of insulin sopors and has remained well for three years.

In summary, this patient was a reserved individual with an immature attitude to sex and unresolved conflicts with his father. He broke down during his wife's pregnancy and became worse when she was delivered. No other precipitating factors were ever elicited.

J.B. was aged 30. His father and mother are both Roman

Catholic converts and both are eccentric personalities. The father works as a post office clerk (as did the patient) and was said to take no interest in his family, but to spend all his time with boys' organisations - Boy Scouts, ATC., etc. The mother apparently felt she missed her vocation and should have been a Nun. As a second best, she undertook to reproduce in quantity with the idea that her children should enter Holy Orders. She appears to have been a querulous, untidy woman who complained constantly about her children and husband and their lack of respect for her. She produced seven children, of whom one died in childhood, one left home because of her, one developed T.B. and none, of course, took Holy Orders. The patient was the eldest boy. Apart from his war service with the RAF. as wireless operator air gunner, the patient had worked for the Post Office since leaving school. After a short period as a message boy, terminated because his mother wrote to the Post Office, pointing out that bicycles were too dangerous for him, he went into sorting and clerical work. He had been married three years on admission, having met his wife after corresponding with her. She was 28 and had been converted to Roman Catholicism to marry the patient. There was one child aged 17 months and during this

pregnancy our patient suffered from "rheumatism and sciatica, for which no cause was found." He was admitted one month before his wife delivered their second child and was ill for about four weeks prior to admission. Apart from some loosely systematised delusions about the public robbing the Post Office, he had numerous delusions and complexes concerning sex. He said to his wife that he was not a homosexual and asked her if she thought he was. He confessed to premarital experiences and wondered if he had V.D. He became sexually demanding and finally he attacked his wife, hitting her in the abdomen and saying she was not pregnant but had "wind." He continued to struggle with her until, it is quoted, "he had an emission, said, 'I am not a destroyer' and started to sleep." During interviews he gave 'sex' as one of his problems and said he had had a conflict about a desire for anal intercourse which he seemed to think would resolve his conflicts about contraception.

This patient was then a man of 30 with a queried neurotic reaction to a previous pregnancy, who broke down in his wife's second pregnancy, denying that it existed. Apparently he did not desire the child and had considered contraceptive methods of preventing children which were closed to him by his religious persuasion.

These three cases were men aged 28, 30 and 31 respectively. Freeman's cases were aged 33, 32, 29, 23, 27 and 40. The mean age is thus 30 which corresponds very closely as will be seen to the female cases. The difference is that 30 is near the peak childbearing age for fathers according to the 1% samples of 1951 census, whereas the female maximum is, of course, less than this (20-25) The psychological factors involved were immature attitudes to sex, an unwanted child, and guilt about illegitimacy. In two of the cases the psychopathology is illustrated in the patients' mental reaction.

In summary, therefore, it has here been shown that the male shows reactions to pregnancy and childbirth which emphasize that these events are of psychological importance. Henderson and Gillespie (1950) point out that the attitude of the husband is also important for the pregnant woman and is not always sufficiently taken into account.

THE PSYCHOLOGY OF PREGNANCY & CHILDBIRTH.

Both Cleghorn and Aubrey Lewis have recently (1950) commented upon the absence of serious investigation of pregnancy from a psychiatric point of view. Much has been written in an impressionistic way by the obstetricians themselves and a few of the psycho-analysts have approached the problem as a side issue to the complaints for which they were treating their patients. Klein, Potter and Dyke (1950) in the United States in one of the few psychiatric studies took 27 "normal" women but a brief analysis of their cases shows that either society in America is in a sadder state than one imagines or, alternatively, some bias entered into the selection of these supposedly unselected cases by the nature of the hospital. Ten of the 27, for example, were designated "unstable"; 5 of the 27 were unmarried (whereas the American figure for illegitimacy is 2-3%); 2 of the married women had already been deserted, one was separated, and another was later murdered by her husband. An analysis by the author (A.A.R.) of the case histories supplied in this monograph, showed that 18 of the 27 had had some degree of deprivation in childhood through the desertion of one or other parent, parents' divorce, separation or death, before the patient reached the age of 10. 12 of the patients were specifically mentioned to be sexually maladjusted (dyspareunia, disgust,

relative frigidity,etc.). These limitations must be borne in mind when the findings of the study are considered.

Only 6 of the 27 patients were said to have positively wanted their pregnancy. Two definitely rejected it and 19 were ambivalent. Of the latter, 7 wanted more than rejected ("positive ambivalence") and 12 rejected more than wanted the pregnancy ("negative ambivalence"). In all except the two cases of rejection there was an improvement in attitude towards acceptance, however, as the pregnancy progressed. The authors quote two other American sources showing respectively that only 17% and 23% of mothers studied had wished to become pregnant (Thomson, 1942, Hall and Mohr, 1933). They found evidence for an exaggeration of previous neuroticism in pregnancy and an exaggeration of previous mood swings. They found no evidence of euphoria as reported by Blakely (1940) but some patients became "quieter and more genial". There was no marked change in sexual gratification and possibly, as also reported by Kroger and Freed (1951) libido was diminished. A strong desire for a child of a particular sex was not common.

Anxiety was universal but was not always concerned with the pregnancy per se and might be related to housing, finance, etc. Hall and Mohr (1933) said that 42% of their cases were anxious about finance. Hirst and Strousse (1938) found 75% of their cases subjectively more anxious and only 3% less

anxious. Anxieties concerning the pregnancy included fears of a malformed or backward baby, of miscarriage, of carrying undiagnosed twins, of the foetus dying in utero. The latter, say these authors, happens so rarely in practise and is complained of so frequently as to suggest that in fact it represents a displacement of anxiety from something else. The mothers were also concerned with their own health, with fears of dying in labour, fears of pain, fears of being caught napping by passing into labour in the street or some other public place, fears of hospital, of being evicted etc. Family incidents and difficulties concerning childbirth tended to become personal fears.

Of 16 easy pregnancies, 14 were in the "stable" group; of 11 difficult pregnancies only 3 were "stable" patients.

19 patients had good physiological deliveries, but of these 5 had had psychological reactions in delivery. 8 patients had poor labours but of these 4 had good psychological reactions. Thus, stability of personality goes along with easy pregnancy but this does not imply easy labour and easy labour does not necessarily imply a good psychological reaction. (The finding of partial deprivation through divided early home life, which was mentioned earlier, seems to correlate positively with difficult labour).

A psychosomatic study showed 22 of the 27 patients had nausea and vomiting with no previous history of alimentary

upset. Cravings for special foods - usually difficult to obtain - were found in 12, for sweets in 17. Blakely (1940) found that cravings were negatively correlated with parity. Rejection of foods was frequent. Appetite was increased in 15 and diminished in 6. Dizziness and vertigo were present in the first trimester in 8 and in the third in 5. Dyspnoea was present in 16, palpitations in 6, constipation in 15, excessive perspiration in the third trimester in 13, insomnia in the third trimester in 19, drowsiness and fatigue by day in 15. 6 patients in the group were hypertensive - and all these were anxious. Two developed toxaemia, 13 in all had some physical complication of pregnancy.

Another study of normals was conducted in this country by the Parents' Group of the Association of Psychiatric Social Workers. In all, 12 members of the group provided information on themselves in 25 pregnancies. To quote from the report by Irvine (1948) "We get from this group a picture of a state of mind in which the expectant mother is radiantly absorbed in the pride and joy of creation, relieved from any chronic tendency to anxiety and magically protected against disturbances by the most urgent dangers." Nevertheless, it transpires from the report that two P.S.W. mothers only developed their "dream-like pregnancies" after three months of depression, fatigue and anxiety. Three were depressed later in pregnancy and two in the puerperium. Failure in breast feeding was given as a cause of depression

and conversely 7 of the 12 subjects obtained definite satisfaction from suckling. One reported that she averted a threatened failure of milk "by relaxing in complete seclusion during feeds and concentrating her mind on the idea of a good flow."

Insecurity, feelings of dependency, restriction of social activity and altered sexual relationships post-partum were also mentioned in this report. On the whole these P.S.W. subjects thought that there was a danger of being too rigid and expecting too much in pregnancy and lactation - failure to achieve targets or keep to routines upset them.

Steiner (1922) examined over 80 unmarried girls - mostly from the working class and from country and small towns, but with a few from higher social strata and from big cities. The majority were primigravida in the latter part of pregnancy. He reports hyperosmia as being more frequent in early pregnancy and being particularly directed against food, perfume and cigar smoke. Hypergeusia was also present in early pregnancy. Hyperemesis was rare and photophobia never seen. Cravings are more common in early pregnancy and in first pregnancies. They change rapidly but were frequently directed to unusual foods - in the working class patients, raw meat, chalk, wheat grain, unripe fruit, sour or sweet things - and to unobtainable foods in the upper class patient - cherries and strawberries out of season, for example. Steiner considers

cravings to have an obsessional character. They are related to aversions and both are said to have an emotional intensity without parallel in ordinary life. He also reports emotional lability and diversion of affect with depression, hypomania or hypersensibility. In early pregnancy there is heightened libido. Autonomic functions are frequently affected with vasomotor disorders, hyper ptyalism, increased thirst or sneezing. No special examinations were carried out in this study - no controls or statistical considerations are mentioned.

Bremer (1951) reports on certain aspects of pregnancy upon a small community (1,400) in northern Norway, where he was the only accessible doctor during the war years (1939-44). During this period 123 women had 178 pregnancies and 44 women (35.8%) in 51 (28.7%) pregnancies asked for or attempted abortion. In 10 cases abortion was performed medically and in 8 of these the indication was psychiatric - all suffered from depression. 14 others induced criminal abortion and 8 of these were "psychic exceptionals." There were 10 cases of probable spontaneous abortion. The figures for those desiring abortion did not appear related to war conditions, to psychiatric status, to social class or to marital status (22% of the group were unmarried). "No married woman, however, expressed a wish for abortion where she did not have any children. But once the first child had been borne the desire for abortion rose rapidly... no less

than 40% apply to the doctors...or themselves try to procure one..." Where there were 2 or more pregnancies within the five year period reviewed 50% wanted an abortion. 15 of 30 children born out of wedlock were born to "psychically exceptional" mothers, whereas only 18 of 108 legitimate children were so born. These figures are statistically significant.

Helene Deutsche (1945) early in her study of "Motherhood" points to a difference between "motherliness" and "sexuality". She, like Benedek and Rubenstein (1939) suggests that high oestrogenic activity is associated with sexuality and low oestrogen activity with raised progesterone activity is associated with motherliness. (Benedek and Rubenstein found fluctuations along these lines even in the course of the menstrual cycle.) Deutsche feels that the universal anxiety in pregnancy - often unconscious - is fear of death - "death always lurks in the mind during birth." Parturition is said also to excite aggressive feelings. "The woman in labour," Deutsche continues, "needs the presence of a helpful, loving circle of women in order to overcome the fear of death....Up until the last generation mothers were asked to be present at their daughters' deliveries. This custom concealed woman's deep psychological need of complete reconciliation with the mother, in order to become a motherly woman herself." Healthy pregnancy may not always be due to motherliness, however, but to the positive values of secondary motives, for example, stabilising a shaky marriage, pride in achievement, or liberation from unwanted obligations. Deutsche divides pregnancy

into two psychological stages - in the first the foetus is regarded as an endoparasite or as part of the mother, in the second, which begins with foetal movements, the foetus begins to assume an individual being. "The psychic hygiene of pregnancy," she says, "must aim at making the child more and more an object so that delivery does not have the effect of a painful separation from a part of the ego and a destructive psychic loss." The earlier part of pregnancy excites oral and the latter part anal impulses.

Pregnancy, Deutsche says, is accompanied by increased introversion and a narrowing of interests. This accounts for the occurrence of a sort of depersonalisation - "the inner world is overcharged." Apart from the relationship with the mother, "the centre of the psychological problems of pregnancy," masturbatory guilt may be re-activated, leading to a fear of childlessness or over-care and over-concern, in the prenatal period. Pregnancy and childbirth also reactivate "a high degree of psychic infantilism" from the earlier play with dolls under the aegis of the mother. The mother herself may enter actively into the situation. For example, a frustrated, widowed, or divorced mother may try to live through her daughter's situation and encourage the latter's dependent position. A further complication of the mother-daughter relationship is where the patient identifies herself with an aggressive rejecting mother.

Previous miscarriages increase pregnancy anxieties, as

does previous abortion.

Regarding labour, Deutsche says that the "emotional accompaniments...fall easily into amnesia or are unconsciously falsified" and that "objective data about the processes that take place during childbirth are also unreliable because the perceptions of the woman in labour are to some extent weakened and the area of her awareness narrowed by her absorption in the progress of the birth" which she adds is "the greatest female pleasure-pain experience."

Freedman et al. in a recent study (1952) have only partly confirmed this and show in fact a very good recollection of birth events. Only the quality and full intensity of the pain seems to be later repressed. Haas (1953) says that "although there is a certain amnesia...many women cannot forget the "ordeal"."

Deutsche treats labour in the traditional physiological stages and says that the first stage calls for feminine passivity and the second for masculine activity. In the second stage she notes that there may be a period of sharpened senses - the patient is likened to a paranoiac who misinterprets and mishears things with particular vividness. This is followed by a stage of apathetic unreality with concern only for the child. Sometimes, however, all external events are well retained and only the emotional aspects of the birth are repressed.

Following the ecstasy of the birth, there may, she con-

cludes, be a period of sadness with loss of feeling for the child for a variety of reasons, mainly concerned with the return of full reality testing and awareness of responsibility for the child in the social setting.

Menninger (1953) provides a different psychopathology for the anxieties of pregnancy, saying that they are "attempts to give plausible justifications for negative feelings regarding pregnancy." Jones (1942) believes that these anxieties are based on the reactivation of castration fears and on guilt concerning sadistic impulses. He stresses, however, the importance of economic and social factors in producing a healthy attitude towards pregnancy. Alexander and French (1946) say that the anxieties of pregnancy arise from an unconscious association of pregnancy with wrong doing and stress the importance of emotional maturity.

In addition to the list of anxieties already given, other authors (Yaskin, 1945; Bloss, 1950; Kroger and Freed, 1951, etc.) mention the patients' fears of losing their figure; of losing sexual attraction or sexual function through tearing or stretching; of their physical appearance in pregnancy diminishing their husband's affection; fears that nursing spoils the breasts; fears that an unsuccessful attempted abortion will mark the child; that bad heredity will show; that a shock in pregnancy will have affected the child; that having syphilis, tuberculosis, diabetes, heart disease, or "the latest bogeyman", a negative R_h factor, may

affect the pregnancy. Anxiety is also said to arise from being unmarried or unhappily married.

Way (1950) stresses the increase in dependency during pregnancy which the woman must face alone. He also stresses the importance of the male partner's attitude which may be negative due to jealousy of the child. He attributes post-partum depression to a return to the additional cares of reality.

Weiss and English (1949) stress the hostility that pregnancy rouses especially in the emotionally immature and as factors mention loss of appearance, enforced seclusion and the necessity for effort which it entails. Woodward (1952) confirms the effect of loneliness which is most marked at the fourth month.

Tylden (1952) says that anxieties in childbirth arise from conflicting explanations, previous unfortunate maternal experience, shyness, ignorance, previous unfortunate experience of hospitals or doctors. There is, she says, pressure to accept a passive role and the consequent state of dependence may be upset by stripping of authority the person in whom faith has now been placed, e.g. by sister correcting the midwife who is conducting the labour, Doctor correcting the sister, etc. Anxieties in the maternity unit are exaggerated by hospital methods, e.g. mixing patients in the various stages of labour. Tylden notes that "Patients in labour are acute of hearing, their suggestibility is

artificially increased by all the drugs at present used to relieve pain, and their world revolves round themselves and their functions...the patient overhears the accounts of other women's mishaps and relates them incorrectly to herself".

Hare (1952) supports the view that the hospital situation is an important psychological factor in childbirth, but Eysenck (1947) notes that suggestibility is only increased by narcotics in subjects who are already suggestible.

Haas (1952) mentions the positive aspect - the prestige value of pregnancy. She also discusses the "complexity of the reactivated conflict between mother and daughter" which "is confirmed by the frequent occurrence of peculiar apprehension over the grandmother's first visit". She further says, "It is significant how much pregnant women talk about their mothers'.... pregnancies and deliveries. Not only do they know their own birth weight but they claim to know all the particulars of their own delivery. It is striking how often this latter event is related to a danger situation in which mother or baby 'nearly died'". Haas also mentions impatience in the last weeks owing to discomfort and enforced sexual abstinence.

Sensitivity about appearance in pregnancy has been neatly epitomised by Ogden (1947) in the remark - "When we see a gravid woman our attention is naturally and inevitably attracted to the centre of gravidity".

In summary, therefore, at this stage it can be said previous personality seems to determine behaviour during pregnancy more than labour. Phobias and anxieties are practically universal. Some are related to the changes pregnancy brings from a social point of view and some - the phobias - may be displacements of deeper anxieties. Despite the phobias, the patients may paradoxically be generally more calm. Harnosh and Hope (1937) say that it is true that there are peculiar whims, caprices and irritability but "by and large the period was frequently recalled by the patients themselves and by relatives as one of remarkable complacence". Mood swings are not uncommon. Increased egocentricity and self-absorption to the point of unreality is also seen. The process of parturition is subject to partially occlusive amnestic processes but at some points a distorted hypersensitivity and hyperperceptivity is present. Suggestibility is artificially increased in labour by the analgesics used.

At this point a digression to discuss the phobias from a diagnostic (or nosological) point of view, might be useful.

(In practice, of course, no one would offer a diagnosis of these phobias as they are well within the normal range and probably the majority respond readily to simple reassurance. Therapeutic success, however, need not prevent us from considering the analogies involved and if "diagnosis" is too grand a word, it is at least simpler than "diagnostic analogy" or some other confusing addition to our terminology).

Clearly they can be regarded in two ways - they may be "real" or based on a false knowledge of reality (which for our purposes are the same thing), or they may be displacements. An example of the first class - the "real" anxiety - might be the case of a woman with mitral stenosis who expresses a worry about her capacity to stand up to labour when she thinks about it. If the last proviso holds good, she is simply a sensible woman considering in advance a pertinent problem. Likewise, if a girl with no previous maternal experience is told by an old wife that childbirth is a dreadfully painful experience, fraught with dangers of being torn, then again, when she thinks of it, she may well be worried about it.

It should also be noted that a very appropriate time to think about these problems is when seeing the doctor or someone from the clinic.

The diagnosis of this group might be that of "anxiety state" - the anxiety being predominantly reactive to a real problem.

In the second group we are informed that the phobia does not correspond to the reality - an example was quoted - and a variety of diagnostic possibilities offer themselves. The most likely from the psychological mechanisms which are variously described as operating would seem to be that of "hysteria" or "anxiety hysteria" (Abse, 1950). The mood

swings correspond to the emotional lability (Hobson, 1953) and the genial calm to the state of "belle indifference" which is met with in these conditions. The phobias themselves, amnesias, and egocentricity support the diagnosis.

It should also be noted that suggestibility is well known to be heightened by anxiety (Henderson & Gillespie, 1950) and finally that hysterics were originally reported as being pathologically suggestible, (work reviewed by Eysenck, 1947). In relation to the last two points the facts in two techniques of conducting childbirth should be considered - "natural childbirth" and hypnosis.

Read (1944) says on the technique of teaching relaxation in "natural childbirth" - "No girl should be left alone for so long a time that her faith is in jeopardy. She wants an intelligent and sympathetic person on whom she can rely...". Regarding the actual training, he says, "She lies completely still...eyes gently closed...mouth partially open...The weight of her arms may be appreciated if they lie loosely by her sides...all movements should be avoided...not infrequently she will go to sleep".

It must be agreed that this all sounds like a formula for light hypnosis. Kroger and Freed (1951) examined this question and concluded that Read was in fact using "waking hypnosis". Freedman et al. (1952) wrote a paper to refute

this charge and claim that the absence of amnesia is against it. Amnesia, however, is not a necessary part of hypnosis and indeed the restoration of memories is part of some techniques of hypno-therapy. Mandy et al. (1952) write of a long study of "natural childbirth" - "Some of the conclusions we have reached from this study are not entirely in keeping with those reported by the more enthusiastic advocates of "natural childbirth" since.... the programme may act not so much to develop a more mature expectant mother, as to encourage her dependence on an important authoritative figure supported by complex ritualistic routines." They described a case as "one of the most successful candidates (they) had ever conducted through "natural childbirth'" to the psychiatrist who later treated her and he replied, "That's interesting, because she has always been my best hypnotic subject." Read (1944) himself writes, "Those who have learned relaxation not infrequently lay as if in a trance." Deutsche (1945) comments, "Dr. Read underestimates the great importance of his personal influence."

The important point of this last discussion is, however, not just that "natural childbirth" is really light hypnosis but that it is, and yet it is so widely applicable. Thoms (1949) said that 89.5% of volunteers and 80.7% of non-volunteers had an excellent or good result using the technique. Goodrich and Thoms (1948) give the round figure of 80%. Soviet and French experience with similar methods gave

an 80% success rate (Ryle, 1950).

Using hypnosis, Michael (1952) had 76% successes at labour but in pregnancy had hypnotised 30 of his group of 31 (97%). The failures awoke in the second stage. Michael quotes Rhonhof Schultze (1922) as having 89.5% of successes in a series of 79 cases.

In the triadic hypothesis of Rosenzweig and Sarason (1942) "hypnotizability as a personality trait is to be found in positive association with repression as a preferred mechanism of defence..." Rosenzweig and Sarason link "repressionability" with hysteria but Eysenck (1947) disputes this and feels it should be linked with "neuroticism". Eysenck goes on to say, however, that many of his neurotics under Freuds classificatory system would be deemed cases of "anxiety hysteria".

We have seen then that suggestibility is likely to be increased in pregnancy and labour and that this is related to the use of drugs, to the presence of anxiety, to the utilisation of hysterical or neurotic defences (phobias and amnesia), to some special quality of pregnancy and labour (e.g. causing clouding of consciousness per se) or to the interweaving of these factors.

AN UNSELECTED GROUP IN THE PUERPERIUM

A group of mothers has been examined in the wards of two local maternity hospitals in an attempt to throw some light on the problems mentioned and to serve as a control group against the parapartum reactions. The examination of this group immediately raised a host of minor practical problems, ranging from the attitude of the general trained nurse towards the psychiatrist, to the best tactical time to approach the mothers who, while in hospital, are in a constant flurry of eating, feeding, bathing, washing, interviewing the parson, the priest, the registrar of births and deaths, and so on. Furthermore, as these mothers were not psychiatric patients, an approach had to be evolved which would produce the maximum amount of useful material without offending the patient or her attendants. The routine practice was for the examiner to interview any mother on the eighth post partum day and if there should not happen to be one, a mother in the nearest post partum day to this (but always later than the 8th day in order that she might be seen away from her bed). The patients were thus seen on the 9th day on the average. The patient was told that the examiner was from the department of psychiatry at the hospital, but that his only interest in her was the assurance that had already been given to him that she was normal in every way. It was then explained that

untoward psychological reactions sometimes occurred with childbirth and that while the psychiatrist saw these cases, he had little opportunity of seeing the normal reaction to childbirth. The patient was finally asked to answer a few questions and do a few tests. In only one case was cooperation refused.

The group is composed of 25 women, all married, between 18 and 39 years of age, with a mean age of 26.0 years (s.d. 5.3 years). 12 were primipara, 12 multipara (para. 2=8, para. 3=2, para. 4=2). Average parity was 1.79 (s.d. .91). 16 of the 25 complained of emotional lability, saying they were "giggly", "excited", "over-sensitive", "cried at nothing", "laughed at nothing", or were "up and down". One patient said, "I tend to be more upset by little things. My husband might say something about another baby and I will feel annoyed that he is not talking about ours". Another said, "I feel like sobbing and sobbing at the least little thing...I don't know what it is". Another explained, "When it's all over - all that time of waiting and then the climax...you're bound to be emotional". This lability was also evident objectively. The subjects did indeed "laugh at nothing", while a tear might be evoked equally accidentally. There was also a tendency to garrulousness. One patient recalled that after her first baby this condition lasted 6 weeks. Another attributed this condition to being in hospital - "the back-to-school atmosphere" evoked it, she thought.

19 patients complained of short-lasting depression post partum and the distribution of onset was as in Table I.

Table I.

Post Partum Day	Number of Patients	
1	2	5
2	1	
3	2	
4	2	7
	2	
5	2	
	1	
6	0	
7	2	7
8	4	
9	1	

11 patients mentioned possible causes - a visitor did not come, the baby was not feeding properly, there was a misunderstanding on the ward, etc. Few of these explanations were firm or stated with any conviction. In the other 7 cases the depression was frankly inexplicable. Typical comments were, "It was the inside of me. The emotions wanted to cry, not myself". Another said, "I was fed up with everything. I just felt like crying". This depression usually lasted one day.

Haas (1952) says "It is known to every clinician that at about the fifth or sixth day of the lying-in period many women get nervous, irritable, depressed and demanding. This mood is somewhat similar to pre-menstrual tension. What the psychological implications of these manifestations

are is unknown. Usually this mood subsides within a few days." This, apart from a passing reference to "maternity blues" (Victoroff, 1952), is the only mention of this condition noted in the literature.

As far as pregnancy and labour are concerned, 7 patients found labour more uncomfortable than they anticipated, 8 as expected and 10 much better than expected. 6 complained of depression or irritability late in pregnancy and 11 patients described their pregnancies as a time of well-being, some using phrases like "I was better than ever" or "It was the best time of my life". Of the latter, however, 6 were in the group who complained about labour. Of the 7 patients who did not have post partum depression, 3 had good pregnancies and 4 complained of symptoms (mainly nausea and vomiting). None of the 7 non-depressed patients complained of labour.

The following fears were mentioned by the patients as being present in pregnancy:- fears that the child would be deformed (4), that it would have a birthmark (1), be strangled by the cord (1), have chickenpox (1), be mental defective (1), show effects of heredity (2) and that the patient herself might abort (3) or have excessive pain (2). The fears of abortion in two of three cases, strangulation by the cord, excessive pain in one of two cases and mental defect arose from the direct experiences of the patients concerned. The fear of chickenpox was related to a family

experience. The patient who feared the child might have a birthmark did indeed have a child with a birthmark, although she had no logical reason to anticipate this. Only in the case of fears of deformity was the link not so apparent.

6 patients had no whims, cravings or fancies. Of the other 19, 14 fancied fruit - apples in 3 cases, oranges in 6 - one fancied Edinburgh rock, two chocolate, one fizzy drinks and the last patient porridge oats. The patient who fancied rock said she liked something chalky. One patient developed aversions to cigarettes and tea.

11 patients had nausea or vomiting, 2 complained of anorexia and one of over-eating. 4 patients had been warned to rest because of hypertension. 2 complained of headaches and one of epistaxis.

The family histories were negative in all except 3 cases - a sister of one patient had been treated for depression; a brother of another had a peptic ulcer; the third had a family history of asthma.

The past health of the group was negative in 5 cases, but included 11 patients who had had dysmenorrhoea, 2 with menstrual irregularity, 3 with premenstrual tension (one of whom said she was aware of the same tension monthly during pregnancy). 2 patients had had enlarged thyroids and one had had a thyroidectomy. 1 patient had had catarrh and 2 patients had had migraine. 8 patients hada past

history of "nerves" - in all cases these were mild spontaneously recoverable bouts of depression, insomnia or irritability and were primarily reactive. One patient had had a psychotic episode in adolescence, variously diagnosed and ultimately treated with insulin coma therapy.

17 patients described extraverted personalities and 8 said that they were shy and quiet. One patient had positive difficulities in mixing - this was not the patient with the psychosis who was in fact an extravert.

The proximity to the mother and relationship was assessed in an indirect way as follows:-

Dead or not seen	...8	(One patient had adoptive (parents with whom she had (quarrelled; another had (quarrelled with her parents.
Seen every day	...7	
" 1-2 week	...5	
" 1/month	...2	
" 2/year	...1	(Mother at a distance)
" 1/year	...1	(Mother abroad)

The only negative relationships, therefore, were between the adopted girl and her adoptive parents, and in one other case.

As far as the husbands were concerned, they were in 5 cases of different religion, and were on an average 3 years older than the patients (older in 20 cases, same age in 1, younger in 4). The patients had been married on an average 5 years (the primipara on an average 2 years 10 months). They had courted on an average of 2 years 3 months (3 months - 12 years). The average age at marriage was 21.0 years.

Attachment to the baby or, more properly, love for the baby, appears to develop at different times. The following is the distribution in this series:-

A.	Immediately at birth	9
B.	Within a few moments	2
C.	In a few hours	4
D.	When first seen on the next day after birth (owing to frailty on part of baby)	3
E.	Few days	1
F.	On the third day (when feeding was established)	1
G.	On 5th day	1
H.	An expectation based on previous experience that love would develop when patient got the baby home	1

In two cases the feeling of affection followed initial disappointment that the baby was of the wrong sex.

The child was a boy in 11 cases and a girl in 14. It was wanted or planned in 12 and not wanted in 7. Inadequate information was obtained in 6 cases. Wantedness may correlate inversely with parity, as most of the wanted children were among the primipara and most of the unwanted among the multipara.

Psychological tests.

24 of these lying-in mothers were tested with the Shipley-Hartford Retreat Scale (1940) - the 25th was a Belgian with English as a second language. She (at 35) scored 9 correct of 12 tests in the Short form of the Progressive Matrices (1947). The other patients gave an average Mental Age of 15.4 (s.d. 2.6), average Verbal Age of 16.2 (s.d. 2.3) and average Abstract Age of 14.1

(s.d. 2.9). The Conceptual Quotients (C.Q.) were as shown in Table 2.

Table 2.

C.Q.	Puerperal controls	% Puerperal controls	Interpretation after Shipley	% in Normal population after Shipley
60-70	3	12.5%	Probably pathological	2%
70-75	3	12.5%	Very suspicious	3%
75-80	3	12.5%	Quite suspicious	5%
80-85	2	8.3%	Moderately suspicious	7%
85-90	2	8.3%	Slightly suspicious	10%
+90	11	45.9%	Normal	73%
Total subjects	24	-	-	1046

For n = 5, χ^2 = 24.82 and p = <.01

The conceptual quotient is an index of intellectual impairment based on the finding that vocabulary is relatively unaffected while the capacity for abstract or conceptual thinking declines rapidly in states of mental deterioration. The interpretation of the degree of impairment and expected percentage in each group as described by Shipley from 1046 controls, is given beside the score. Four C.Q's were of doubtful validity because of low verbal scores - two of these gave normal C.Q's, one slightly suspicious and one probably pathological. Even excluding these doubtful cases the frequency of impairment is highly significant (for n = 5,

X^2 = 19.67 and p = < 0.01).

Selected cards of the Thematic Apperception Test (Murray, 1943) were administered in every case and the stories were compared with those of a group of controls previously tested (Valentine and Robin, 1950), and with information on normals published by Rosenzweig and Fleming (1949).

These papers use a similar approach to the test - namely the "controlled comparisons of response material evaluated statistically" (Valentine and Robin, 1950) - and where the same cards were examined the results compare closely in the two normal series. The hardest comparison is with Rosenzweig and Fleming's series, where semantic difficulties arise. There have been occasional slight differences in definition or wording and an element of doubt as to classification has arisen. This has been shown in the tables (Table 3). Rosenzweig and Fleming's series remains particularly valuable however as it is composed of females only, whereas Valentine and Robin used a sexually heterogeneous group.

Tables showing a detailed analysis of the T.A.T. cards (Table 3) are given at the end of this chapter.

There are sixteen items with significantly different scores between the present series and previous controls and in many cases these differences are in the direction of those found in diagnostic groups tested (Valentine and Robin, 1950, Foulds, 1953). There are a few items which were not scored in previous series but which occurred too frequently on this occasion to be overlooked. The presumption is that these items are in some cases also significant.

2

4

7 GF

12 GF

13 MF

Thematic Apperception Test. — Selected Cards.

Family relationships are seen less often in cards 2 and 18 (and in card 7, though here not significantly less often). On the other hand, the blank card 16 produces many more themes relating to family in the puerperal controls than in the previously tested controls. Both these findings were reported by Valentine & Robin (1950) in "moderate depressions" (depressions without delusions, hallucinations or gross retardation and including both reactive and endogenous cases) and while at first sight they may appear contradictory, it should be remembered that the task on card 16 is different from that on the other cards. Here the patient is asked to imagine a picture or describe a picture she would like to see, rather than make up a story about the activities of the depicted subjects. It may be of interest that in only one case did the "family" include the newly-born child - in all the others they were concerned with older children, husband, or mother, in that order. In the one case with the baby mentioned the husband was also in the picture.

Card 2 usually produces a mother, father, daughter relationship. A typical story in this series was "This group looks as if they are waiting for something or someone. The girl looks very sad. I do not know why two should be looking one way and one the other, or why she should be carrying books. It looks as if he is ploughing a field .....etc."

14

15

17 GF

18 GF

Thematic Apperception Test.

Card 18 typically produces a mother-daughter relationship. A typical story here was: "It looks as if a girl is just fainting and someone is catching her. She's seen coming down or had a fall down the stairs".

Pregnancy is seen less frequently in card 2, but not significantly less often. Babies, on the other hand, figure more frequently in card 7, described by Murray (1943) as portraying a girl "who holds a doll in her lap". Associated with this theme is the story that the girl is unhappy or jealous of the new arrival. A typical story was: "This is the elder sister with a new baby. She looks rather sad as though she doesn't like the idea. Mother is explaining something on those lines to her". Possibly related to these complexes about the family is the finding on card 4 where the background is passed over without comment, or/as in two cases with the words "I don't understand the background". The background depicts a woman, possibly in negligee. Sometimes this is referred to as a picture, sometimes as a person. A fairly frequent non-puerperal control response to the card is a story of the 'eternal triangle' type. No case in this series produced such a story.

Grief on the part of the man figured in card 13 more frequently than usual and in card 2 the girl in the foreground was commonly depressed or upset. In card 18 the older character was comforting the other one more than usually frequently, and in card 17 suicide was mentioned unusually frequently.

Card 4 often produced the comment that it was a scene from a film. Card 12 was often dealt with by stories of the mind-image type. Examples were "That (the older unpleasant figure) is her conscience egging her (the younger figure in foreground) on. It's some hidden feeling in the background", or again, "The character behind is an evil thought in her (front figure's) mind", or, "The foretaste of a dreadful future. She's imagining what she will be like".

As well as the two findings concerning family relationships, those of less background in card 4, more babies in card 7, abstract stories in card 12, more grief and less remorse in card 13, also occur in depression (and the last one in "dysthymics", i.e. mixed depressive-anxiety states (Foulds, 1953)).

At the conclusion of the test the subjects were asked which card they liked best and which they disliked most. The answers are clarified below in Table 5.

Card	2	4	7 GF	12 F	13 MF	14	15	16	17 GF	18 GF	12 M
Liked	11	0	4	0	0	1	0	5	1	1	1
Disliked	0	0	1	2	2	0	16	0	1	1	0

It will be seen that cards are preferred in the order 2, 16, 7 and disliked in the order 15, 12, 13. In the series of Valentine & Robin (1950) (although a larger series of cards was used - 20 in all) the respective orders

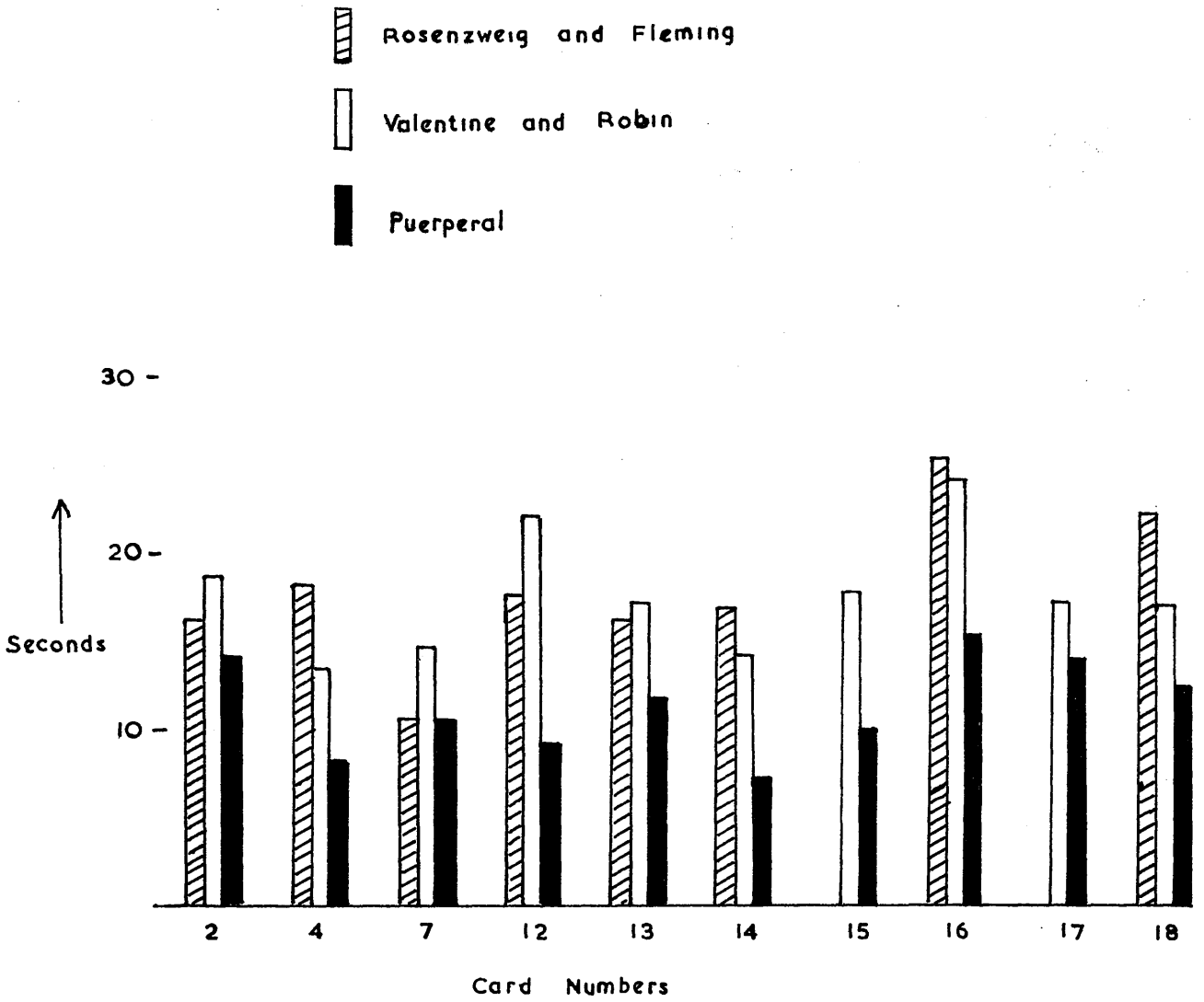
Rosenzweig and Fleming
Valentine and Robin
Puerperal
30 -
20 -
10 -
Seconds
2
4
7
12
13
14
15
16
17
18
Card Numbers

Figure II.

were: liked - 2, 7 and disliked - 12, 15, 13.

Finally, two times were recorded - the response or reaction time for each card and the total time to administer the test. From the latter the mean time taken on each card was calculated. (Table 6). As will be seen below, the response or reaction times are shorter in the puerperal series than in the previous control group and approach those of the depressives. (See Fig. II).

Table 6.

	Puerperals	Control	Depressed
Total time (min)	27.5 ± 2.6	35.2 ± 16.0	30.6 ± 8.4
Mean response-time (sec.)	11.35± 2.59	19.0 ± 12.1	16.3 ± 7.2

There is no significant difference between the total time per card between the puerperal group and the Valentine & Robin series. Both of these groups are, however, quicker than Rosenzweig's series. There is no significant difference between depressives and controls for this measure. (See Table 6).

Interpretations of psychopathology are always easy to offer and at this stage are so speculative that they might be referred to the Saskatchewan school. Are the 'jealousy of the baby' stories, for example, indicative of some reactivation of sibling rivalry in our subjects, or merely related to a real anxiety prompted by maternity literature and past experience on the family?

With whom is the identification in cards 13 and 18? Is the solicitude expressed in these cards an expression of a desire for support or is it an expression of motherliness? Does the unpopularity of the triangle stories in card 4 suggest complete marital harmony, or merely that the husband's possible behaviour is too painful to think of at this time? Haas (1952) believes that one of the reasons for the popularity of "natural childbirth" is simply that the husband is allowed to be present and one wonders if the basis for the statement that insecurity is a prominent feature in the parapartum period is related to the marital situation and the disturbance in it which pregnancy brings.

Throughout this discussion it should be remembered that by chance a number of differences might be expected to be significant and that this reduces the psychopathological specificity of any single finding. Nevertheless it appears that the puerperal controls resemble the moderate depressives

Figure III.

in their T.A.T. records as far as a number of scores are concerned. This would not seem unreasonable in view of the clinical finding that many of the patients suffered from post partum depression, although it is interesting to note that in only one case was the patient actually tested on the day of the depression.

Finally, some enquiry as to suggestibility was undertaken. As has been explained, this examination situation presented limitations. In the course of one interview it was not advisable to enquire into the patient's sex life, to ask whether she had masturbation guilt or to follow up other similar suggestions in the literature. Likewise, the testing of suggestibility by Chevreul's Pendulum, Hull's Body Sway Test or by attempted hypnotism was impracticable. To overcome this last problem, use was made of the finding by Rosenzweig & Sarason (1942) that stories on card 12M (Fig.III) of the Thematic Apperception Test can be correlated with hypnotizability. In all, 18 gave stories implying hypnotizability and 7 gave negative stories. This, in percentage form, is 72% hypnotizable - which, as will be remembered, is in the order of the figures for successes in obstetric practise. On the other hand, in the group of 20 normal subjects examined by Rosenzweig & Sarason (1942), only 8 or 40% were hypnotized. This difference is statistically significant (see Table 7).

Table 7.

	Hypnotizable	Non-hypnotizable	Total
Puerperal controls	18	7	25
Rosenzweig & Sarason group	8	12	20

For $n = 1$, $X^2 = 4.66$ and $p = < .05$

In summary, a small group has been examined and this precludes dogmatism. Emotional lability or increased emotionality and short-lasting depression post partum are common. A tendency to well-being in pregnancy appears confirmed. Fears during pregnancy were by no means universal and many were related to practical experience. Cravings for fruit are not uncommonly reported. A normal maternal adjustment to the baby is not necessarily immediate. The relationship to their own mothers in these subjects was usually friendly. Psychological investigations showed the occurrence of impairment of abstract or conceptual thought and a T.A.T. picture resembling the depressives. Tests imply that about 72% of the group may be sufficiently suggestible as to be hypnotised.

Comment.

It may now be permissible to comment on some of the published statements on the psychology of pregnancy. That anxiety is by no means universal in pregnancy is a contradiction of some work quoted. Likewise, from the T.A.T., little evidence is obtained showing concern with death. Card 15, which might be expected to show this (as in paranoid schizophrenia (Valentine & Robin, 1950)), elicits responses comparable to those of the previous controls. On card 17 alone there is a higher incidence of suicide stories. The importance of delivery in the waking state appears from a psychological point of view to have been over-emphasized in view of the variation in the time taken to form an attachment to the baby. That this variation does occur would appear more in line with biological expectation than the rigid schema of events suggested by some analysts in a situation which essentially involves the mother adjusting to the presence of the baby. There may, of course, still be other physical factors which make waking delivery desirable.

The pregnancy depicted in card 2 is seen less often than in other controls, but the difference is not significant. This might have been evidence for the repression of the experience or the amnesia

which has been mentioned, as may be the absence of the new-born in card 16 - the blank card. The prestige of pregnancy may be confirmed in the sickness and seriously ill stories of cards 13 and 18, with the male or elder woman expressing grief or concern.

The depression described needs further comment. It is hardly due to the appreciation of responsibility as these patients were delivered in hospital and responsibility was minimal. It might be expected that the depression would occur on return home under these circumstances, but this is not the case in the experience of the multipara. One cannot say positively, however, that the depression is not reactive, although many cases could suggest no cause. Lack of insight does not exclude reactivity and an event of considerable psychological significance has recently occurred. The delay in the onset of depression after delivery may be comparable to the delay in the development of symptoms following trauma, e.g. ship-wreck. Henderson & Gillespie (1947) quote the work of Clunet

on this showing that there is a latent period before the development of symptoms in all cases, that most clear rapidly, and that after a few months only the predisposed remain affected. The depression, however, occurs from puerperium to puerperium at roughly the same time and within a short range of time in different cases. This homogeneity is probably in favour of an endogenous origin, associated with the generally rapidly reversible biochemical and endocrine changes mentioned. It will be remembered in regard to this that depression was associated with complaints of difficult labour.

The emotional lability is also interesting. There was no doubt as to its objective existence and patients were strongly reminiscent of the fairly commonly seen mild anxiety hysteric who comes initially complaining of "something wrong with the heart or throat" because of palpitations or globus. This is not incompatible with the account given above of the depression. First of all the symptoms occur at different times; secondly they are not mutually exclusive. Henderson & Gillespie (1950) note cases where there was an apparent transition from psychoneurosis to psychosis. They also point to the frequency with which hysterical symptoms mask depressions. Mayer-Gross (1954) talks of the frequent "discovery of an endogenous depression under the guise of a more florid neurotic picture, especially of hysteria". Some psychiatrists interpret the same association in terms of an hysterical defence against depression.

Finally, on an aetiological plane the hysterical reaction is not infrequently an organic mental reaction. Curran & Guttman (1945) advise taking the blood pressure in a patient of over the age of 40 showing hysterical features for the first time. Even an organic basis to the depression does not, therefore, exclude the presence of an hysterical reaction.

Our conclusions may be then that pregnancy is on the whole a time of well-being but that latterly, and in the puerperium, emotional lability occurs and depressive traits are frequently found, conceptual impairment and heightened suggestibility may at the same time be demonstrated.

Table 3. Analysis of TAT cards in 3 series.

Card 2. Country scene: In the foreground is a young woman with books in her hand; in the background a man is working in the fields and an older woman is looking on.

Mean Rt = 14.04" s.d.11.9	25 controls Valentine & Robin 1950 %	50 normals Rosenzweig & Fleming 1949 %	25 subjects present series %	Significance
Family group	56	⁎ 62	28	0.5
Woman on right:				
Pregnant	28	20	8	-
Praying	8	?	0	-
Depressed	16	10	4	-
Domineering	?	?	20	-
Man:				
Ploughing	28	?	40	-
Working on farm	36	56	48	-
Girl in foreground:				
Student	?	68	48	-
Depressed	?	?	36	-
Women are rivals (for man)	4	?	0	-
Contrast between desire for education and farming background	68	⁎ 56	52	-

? = Figure not stated.
⁎ = Probable figure but wording of analysis of response differs slightly.

Card 4. A woman is clutching the shoulders of a man whose face and body are averted as if he were trying to pull away from her.

Mean Rt = 8.12" s.d. = 6.89	25 controls Valentine & Robin (1950) %	25 Puerperal controls %	Significance
Girl is restraining him	49	40	-
" " pleading or comforting	?	56	-
Man rejects her	28	36	-
" accedes	?	28	-
Background: a picture	16	0	<.01
a woman	16	8	
implied that it is female	36	0	
Film	?	24	

Card 7. An older woman is sitting on a sofa close beside a girl, speaking or reading to her. The girl, who holds a doll in her lap, is looking away.

Mean Rt 10.48" s.d. 6.38	25 controls Valentine & Robin (1950) %	25 controls Rosenzweig & Fleming (1949) %	25 Puerperals present series %	Significance
Relationship:				
Mother and daughter	84	78	76	-
Aunt and niece	12	?	0	>.05
Lady and girl	4	?	4	-
Godmother & Godchild	0	?	4	-
Doll:				
mentioned	56	✱86	40	<.01
broken	8	?	4	-
baby	8	?	40	<.01
girl's baby	4	?	4	-
Girl:				
reflecting	20	20	20	-
unhappy	28	?	56	<.05
wants to do something else	16	?	8	-
Woman:				
reading	40	68	52	
advising	16	✱ 40	16	<.05
telling "facts of life"	8	28	0	<.05
Girl jealous of new baby	?	?	24	-

Card 12. The portrait of a young woman. A weird old woman with a shawl over her head is grimacing in the background.

Mean Rt = 9.32" s.d.= 6.58	25 controls Valentine & Robin (1950) %	25 controls Rosenzweig & Fleming (1949) %	25 Puerperals present series %	Signifi-cance
Elderly figure:				
Unpleasant female	52	38	52	-
Male	0	0	0	-
Doubt as to sex	0	0	0	-
Occupation:				
Nun	12	?	12	-
Witch	20	?	8	-
Gipsy	8	?	0	-
Younger figure:				
Daughter	12	28	0	-
Anxious	20	22	4	-
Looking at someone	28	* 46	4	<.05
Imagining a future picture of herself.	8		24	- *
The older figure is a thought or the conscience of the younger one.	?	* 32	20	-
The picture is a painting.	?	?	16	-
Rejected.	?	?	8	-

* Seen in depression.

Card 13. A young man is standing with downcast head buried in his arm. Behind him is the figure of a woman lying in bed.

Mean Rt 11.8" s.d. 14.6	25 controls Valentine & Robin (1950) %	25 controls Rosenzweig & Fleming (1949) %	25 Puerperals present series %	Significance
Seduction scene	26	34	32	-
Murder or rape	40	28	20	-
Girl is ill, or dying, or dead.	30	54	52	-
Girl is asleep	10	14	8	-
Alternative themes	56	?	32	-
Husband and wife	?	26	8	-
Man is covering face	?	16	8	-
Man is: remorseful	?	44	32	<.01
grieved	?	28	52	<.05
anxious	?	22	12	-
Poor circumstances	?	?	8	-

Card 14. The silhouette of a man (or woman) against a bright window. The rest of the picture is totally black.

Mean RT. 7.36" s.d. 7.2	25 controls Valentine & Robin (1950) %	25 controls Rosenzweig & Fleming (1949) %	25 Puerperals present series %	Significance
Figure: male	98	100	44	$<.01$
female	?	0	4	-
unspecified	?	0	52	$<.01$
Light: outside	40	42	28	-
inside	?	?	4	-
Dark: outside	28	?	28	-
inside	?	42	44	-
Night	?	46	44	-
Moonlight	16	?	12	-
Insomnia	4	?	4	-
Burglar	8	?	8	-
Suicide	16	?	8	-
Thinking or dreaming	?	60	36	.05
Looking	?	26	16	-

Card 15. A gaunt man with clenched hands is standing among gravestones.

Mean Rt 10.08" s.d. 8.6.	25 controls Valentine & Robin (1950) %	25 Puerperals present series %	Significance
Figure is human	52	68	-
Ghost or unreal	20	24	-
Male sex	98	80	-
Visiting a grave	52	52	-
Thinking of life's futility	8	0	-
Repenting	8	4	-
Handcuffed	?	8	-

Card 16. Blank card.

Mean Rt 15.47" s.d. 20.9	25 controls Valentine & Robin (1950) %	25 Puerperals present series %	Significance
Subject related to self	0	8	-
family	10	48	$< .01$ *
other person	8	4	-
personal interests	42	12	$< .01$

* Seen in depression.

Card 17. A bridge over water. A female figure leans over the railing. In the background are tall buildings and small figures of men.

Mean Rt 14.22" s.d. 30.07	25 controls Valentine & Robin (1950) %	25 Puerperals present series %	Significance
Figure on bridge:			
Female	96	56	<.01
Unspecified	?	12	-
waiting	36	4	<.01
looking	16	12	-
suicidal	8	32	<.05
escaping	4	0	-
anxious	16	0	<.05
Scene:			
smuggling	24	8	-
stage set	8	4	-
unreal	?	20	-
2nd figure noted	?	12	-
Warehouse etc. noted	?	36	-
Gun noted	?	28	-
Bridge noted	?	48	-
Boat noted	?	44	-

Card 18. A woman has her hands squeezed around the throat of another woman whom she appears to be pushing backwards across the banister of a stairway.

Mean Rt. 12.64" s.d. 8.01	25 controls Valentine & Robin (1950) %	25 controls Rosenzweig & Fleming (1949) %	25 Puerperals present series %	Significance
Relationship:				
family	64	✱ 46	36	$< .05$
same sex	62	✱ 46	60	-
opposite sex	2	✱ 44	12	-
Upper figure is:				
harming other	46	✱ 58	24	-
comforting other	22	46	56	$< .05$
Lower figure is ill or injured	32	24	56	-

CLASSIFICATION OF MATERIAL

At least two sources recently (Victoroff, 1952; Hemphill, 1952) have suggested that there is a clinical entity to be recognised symptomatically in the parapartum period. Victoroff described three "symptom categories" - the depressed, phobic and schizophrenic. Hemphill says that there "appear to be two psychiatric disease entities causally related to childbearing - puerperal depression and puerperal schizophrenia". The former resembles involutional melancholia and the latter has an exceptionally poor prognosis being rarely curable. Schmidt (1943), Abely (1949), Delay, et al. (1948) and Balduzzi (1951) among others, appear to subscribe to a similar point of view. On the other hand, many authorities take the completely opposite position and maintain that reactions at this period are peculiar to those at any other time, with pregnancy or labour acting as a chance precipitant. (James, 1935; Kilpatrick & Teitbout, 1926 ; Frumkes, 1934 ; Clarke, 1913; Saunders, 1929 ; Harris, 1950 ; Piker, 1938 ; Brew & Seidenberg, 1950 ; Sivadon, 1933 .) Finally, there is a group of complex opinions falling mid-way between these two poles. Fenichel(1945) describes a peculiar difference in symptomatology which is seen in puerperal confusions - a heightened vividness in the hallucinations. Kraepelin (1904) believed that while childbearing women broke down into the usual forms of illness, "the appearance of catatonia

in pregnancy is so common that it is not very probable that it is an accidental coincidence." Bleuler (1949) expresses a similar view in regard to schizophrenia as a whole - "gravidity and the puerperium seem to have some connection with schizophrenia. There are too many women who develop a further advance or thrust of their schizophrenia during several or in each of their puerperal periods.....We cannot agree it to be mere coincidence." Zilboorg (1929) and Karnosh & Hope (1937) express the view that while parapartum women break down into ordinary disease forms they do so because of special structural defects in the personality specifically susceptible to the childbirth experience. Strecker & Ebaugh (1926) use ordinary classifications but believe that an organic overlay seen as confusion is present more frequently in all psychiatric categories.

Hemphill (1952) says "All workers have had difficulty in classifying pregnancy reactions.....The difficulty seems to be created by the special characteristics of some pregnancy reactions." If he means by this the apparent frequency of mixed syndromes, then we would certainly agree with him. As our present classifications in psychiatry are essentially descriptive and describe leading symptoms or symptom clusters along with the basic personality which modifies the symptomatic appearance, it will be seen that any condition can be "classified". If, however, the aetiology of the parapartum reaction is related to the

parapartum period in a specific manner then it is justifiable to indicate this by adding a defining word to the symptomatic diagnosis, e.g. postpartum depression. Our initial suggestion was that this was justified although we are unable to indicate the nature of the relationship.

The case material is dealt with under two broad headings - neuroses and psychoses. In many cases even this classification presented difficulty and the two groups are only absolutely clear at the poles. The neurotics, it will be seen, present three groups of symptoms - namely, anxiety, hysteria and depression. Depression also occurred more prominently in a group of depressive reactions which are classified with the psychoses. Even these, however, often showed anxiety or even more frequently hysterical features. The psychoses were primarily confusional. The confusion was present alone or it may have revealed neurotic or other psychotic features - depressive, manic, schizophrenic. It may remit or emerge into a chronic psychosis of a non-confusional type.

The cases are thus classified as:-

Neuroses: (a) predominently hysterical.
(b) showing depressive features.

Psychoses: (a) depressive reactions.
(b) confusional states.
(c) confusions with neurotic or psychotic colouring, or issuing as psychosis.

THE PSYCHONEUROSES OF THE PARAPARTUM PERIOD

The behaviour and occurrence of the psychoneuroses in the parapartum period is a subject which has been largely ignored. Karnosh and Hope (1937) say that it is "a common observation....that during the period of pregnancy neurotic women often became more placid, functional tremors and choreas temporarily disappear, epileptic seizures and periodic headaches are absent and psychoneurotic features are in abeyance." Weiss and English (1949) remark that "certain neurotic patients enjoy a period of well-being during the period they are carrying a child only to have the symptoms recur after the baby is born." Deutsche (1945) writes that "many neurotic women say that they never at any time feel as free from their neuroses as they do during pregnancy." She offers different disconnected and purely psychological explanations for the behaviour of hysterics and obsessional neurotics in pregnancy - the former are given a motive for their tendency to phantasy, the latter are incapable of ambivalence to the object in this situation - the foetus - as it has no "self".

Deutsche (1945) says that "the cure or alleviation of neurotic ailments through delivery is more common than negative consequences." In another passage, however, she says that delivery "can become a starting point for chronic neurotic.... processes" and that "it is noteworthy that a given experience sometimes has a therapeutic and sometimes a pathogenic effect

....Some obsessional-neurotic states become much milder.... others become acute, depressions are moderated or intensified." Yaskin (1945) confirms this and warns against the doctor advising neurotic patients to "have a baby" as a method of treatment as the recurring symptoms post partum are frequently more severe than the original ones.

Karnosh and Hope (1937) - who present a totally different series of figures in their illustrative tables to those in their text - in the former of 126 cases note that 2 (1.6%) were psychoneuroses commencing in the second and third weeks post partum respectively. Smalldon (1940) reported that 28 of 220 cases (13%) were psychoneuroses and of these 8 were psychasthenic (4%), 8 mixed states (4%), 7 reactive depressions (3%), 3 anxiety states (1%) and 2 hysterics (1%). Smalldon's hospital, however, selected its cases on the basis of education and suitability for psychotherapy. Kilpatrick and Teitbout (1926) had 4% psychoneurotics and Cruickshank (1940) 1%.

Hemphill (1952) records 4 cases of neurosis among 64 post partum reactions in maternity hospitals and 5 cases among 79 women admitted to mental hospital from home in the puerperium - a total of 5% of the cases seen. Anderson (1933) showed 2 patients in a series of 50 (4%) as suffering from anxiety state.

A reference found on "Puerperal psychoneuroses - treatment and prognosis" (Gayral, Ferrier & Gleizer, 1950), advises rehydration, E.C.T and insulin and mentions five deaths in a series of 68. This is obviously not dealing with the psycho-

neuroses as we know them and is presumably using the word in a much wider sense. Abely (1950) describes anxiety and obsessional states of the psychasthenic type in early pregnancy.

Wengraf (1953) notes that "pregnancy acts as an agent provocateur" and asks "Why should a woman apparently normal before pregnancy suddenly disclose a host of conversion and organ neurotic symptoms....(while) some women who had imposing hysterical symptoms during puberty may remain symptom free during their real pregnancies". He suggests that improvement occurs where the instinctual demands of the hysteric are met by the pregnancy.

Armond (1954) describes a special "type of post partum anxiety reaction" in which apart from anxiety "depression was also evident at times ....(but) was of secondary importance.... The onset of anxiety was early, either appearing in the hospital or shortly after the patient went home. Sometimes there was sudden panic-like fear without precipitating cause. Sometimes there was gradual onset accompanied by a feeling of unreality ...." The patients complain of being unable to cope, of phobias of insanity. They are labile and there is a loss of empathy. They were both primipara or multipara and this condition was thought to be due to a disturbance of the body image. It was treated psychotherapeutically on an out-patient basis.

35 cases of parapartum psychoneurosis have been examined in just over 3 years. Of these 6 were referred by others who knew I was interested in the group. For this reason and the

fact that the psychoneuroses and psychoses were largely from different sources - the former being more frequently out-patients (21 out of 35) and the latter mainly hospitalised - there is little point in supplying percentages. The group consists mainly of surprisingly chronic psychoneuroses, the average duration of illness being just over 3 years. The only criterion for selection was that the patient dated her symptoms from pregnancy or childbirth. In some cases the patient immediately opened with a remark like "I have not been well since my last baby" (or whichever child it was) but in others the chronological relationship only became apparent on taking the history.

The diagnosis of the 35 cases was as follows:-

11 Anxiety hysteria.

1 Anxiety state with depressive and hysterical features.

4 Hysteria.

1 Hysteria with physeptone addiction.

2 Hysterical reaction with depressive features.

1 Hysterical reaction with obsessional features.

1 Hysterical reaction with epilepsy.

11 Reactive depression with hysterical features.

2 Depression with hysterical and anxiety features.

1 Depersonalization with depressive and marked hysterical features.

Information on subjects with which a direct comparison can be made with the controls is presented below:-

TABLE 8

Data.	Controls.	Psycho-neurotic-hysterics.	Psycho-neurotic-depressives.	Total psycho-neurotics.
Number	25	18	17	35
Married	25	18	17	35
Mean age	26.0	30.61	31.59	31.54
S.D.	5.3	6.4	5.4	5.95
Primipara	13(52%)	4(22%)	5(29%)	9(26%)
Multipara	12(48%)	14(78%)	12(71%)	26(74%)
Average parity for living births	1.79	1.94	1.88	1.91
S.D.	0.91	-	-	0.96
Pregnancy "ideal" i.e. felt better than normal	11(44%)	5(28%)	4(24%)	9(26%)
Fears	15(60%)	9(50%)	6(35%)	15(43%)
Whims *	19(76%)	8(44%)	7(41%)	15(43%)
Nausea and vomiting	11(44%)	12(67%)	7(41%)	19(54%)
Labour				
Better	10(40%)	1(6%)	2(12%)	3(9%)
Equal	8(32%)	1(6%)	1(6%)	2(6%)
Worse *	7(28%)	11(61%)	7(41%)	18(51%)
?	-	5(28%)	7(41%)	12(34%)
Family history *	3(12%)	10(56%)	12(71%)	22(63%)

Data.	Controls.	Psycho-neurotic-hysterics.	Psycho-neurotic-depressives.	Total psycho-neurotics.
Dysmenorrhoea	11(44%)	11(61%)	6(35%)	17(49%)
Irregular *	2(8%)	5(28%)	4(24%)	9(26%)
Premenstrual tension *	3(12%)	13(72%)	9(53%)	22(63%)
Prewneuropathic history	10(40%)	10(56%)	10(59%)	20(57%)
Extravert	17(68%)	10(56%)	10(59%)	20(57%)
Introvert	8(32%)	8(44%)	7(41%)	15(43%)
Mother				
Dead or not seen	8(32%)	4(22%)	6(35%)	10(29%)
Daily	7(28%)	7(39%)	4(24%)	11(31%)
1-2 x week	5(20%)	2(11%)	5(29%)	7(20%)
Occasionally	4(16%)	3(17%)	2(12%)	5(14%)
Husband				
Religious difference	5(20%)	2(11%)	3(18%)	5(14%)
Age	+3	+2.24	+1.25	+1.7
Younger	4(16%)	5(28%)	3(18%)	8(23%)
Married	5 years	8.94 yrs.	9.2 yrs.	9.1 yrs.
Age at marriage	21.0	21.67	22.39	22.01
Child - male	11(44%)	7(39%)	8(47%)	15(43%)
- female	14(56%)	9(50%)	9(53%)	18(51%)
- ?		2(11%)		2(6%)
Wanted	12(48%)	6(33%)	8(47%)	14(40%)
Not wanted	7(28%)	12(67%)	9(53%)	21(60%)
?	6(24%)	-	-	-

As will be seen, the two groups differ in mean ages and this accounts for a difference in parity - apart from the usual bias in a maternity unit where healthy primipara are given preference over healthy multipara for admission. The average parity for live children was 1.91. Average parity in Britain is 1.7 (1% samples 1951 Census), but 21% of married women are childless and in childbearing married women average parity is 2.1. The patients may be very slightly below average parity for live births. There was a total of 5 miscarriages and stillbirths among them and if these are taken into account parity was 2.05.

Apart from this, it will be seen from Table 8 that there are more complaints from labour and few patients found pregnancy a time of well-being. This may be only an expression of an attitude to pregnancy and labour, as the statements are made with all the possibilities of falsification in retrospect and of atrophied recollection. Dalton (1954), however, notes this frequency of minor subjective complaints in toxaemic and pre-toxaemic patients before the development of objective signs. Fears and whims were recalled less often and nausea and vomiting slightly more often. This might also be taken as evidence of atrophied recollection.

The fears were experienced by a total of 13 patients and were as follows:-

TABLE 9.

	Psychoneurotic-Hysterics.	Psychoneurotic-Depressives.	Total
Baby dead	3	1	4
deformed	2	2	4
defective	2	0	2
Patient would tear	1	1	2
die	1	1	2
lose figure	0	1	1

The cravings were of the same character as those of the controls - various fruits, mainly apples (7), carrots (1), chips (2), lemonade (1), pickles (1), cloves (1), tea (1), water (1). One patient had developed aversions for household polishes and disinfectants because the smells induced nausea.

There was a positive neuropathic personal history more often in the patients and more introverts were found among the patients. The patients with some neuropathic reaction in childhood or adolescence - though still mainly showing hysterical symptoms - did not always have the same symptomatology as the presenting reaction. One patient with anxiety and depersonalization had, for example, previously had a depression; another with anxiety and depression had previously had a frankly hysterical reaction.

Association with the mother was comparable in the two groups as was age at marriage. In 3 cases, however, the attitude to the mother was of rejection despite the fact that

these patients saw their mothers every day - mainly because of the housing situation. Patients' husbands' mean age was slightly less and a greater proportion were younger than the patients. There was no difference in the sex of the child or the alleged wantedness of the child. The only really significant differences are in the weighted neuropathic heredity of the patients and their greater number of complaints of all types about menstruation and in particular of premenstrual tension. Information about the age of onset and rhythm of menstruation in the patients was, however, not particularly revealing (Hysteroids:Mean Onset 13.46 years, phase 5.4/27.6. Psychoneurotic-Depressives:Mean Onset 12.8 years, phase 4.8/23.4).

Certain additional information was collected in the patients which could not be compared against the controls and this is presented in tabular form below:

TABLE 10.	Psychoneurotic-Hysterics.	Psychoneurotic-Depressives.	Total
No. in group.	18	17	35
Religion:			
C of E	16 (89%)	13 (76%)	29 (83%)
Methodist	1 (6%)	1 (6%)	2 (6%)
Roman Catholic	1 (6%)	1 (6%)	2 (6%)
Jewish	0	1 (6%)	1 (3%)
?	0	1 (6%)	1 (3%)
Mother's age at patient's birth (mean)	26.33 yrs	34.25 yrs	
Father's age at patient's birth (mean)	28.5 yrs	37.46 yrs	

	Psychoneurotic-Hysterics.	Psychoneurotic-Depressives	Total
Patient only child	4 (22%)	2 (12%)	6 (17%)
Neurotic traits in childhood	11 (61%)	14 (82%)	25 (72%)
Social: Working class	12 (67%)	15 (88%)	27 (77%)
Middle class	6 (33%)	2 (12%)	8 (23%)
Interests: Home	7 (39%)	5 (29%)	12 (34%)
Outside	7 (39%)	9 (53%)	16 (46%)
? or none	4 (22%)	3 (18%)	7 (20%)
Worked for gain at sometime	18 (100%)	16 (94%)	34 (97%)
Frigidity	10 (56%)	9 (53%)	19 (54%)
No prior boyfriends to husband	3 (17%)	5 (29%)	8 (23%)
Courted	2.31 yrs	3 yrs	-
In-law trouble	7 (39%)	6 (35%)	13 (31%)
Negative attitude to mother	5 (28%)	4 (24%)	9 (26%)
Negative attitude to father	6 (33%)	7 (41%)	13 (31%)
Suggestibility: Hypnotised	9 (50%)	11 (65%)	20 (57%)
Not hypnotised	4 (22%)	2 (12%)	6 (17%)
?	5 (28%)	4 (24%)	9 (26%)
Progesterone used	8 (44%)	5 (29%)	13 (37%)
Relief of pre-menstrual tension	4 (22%)	2 (12%)	6 (17%)
No relief	4 (22%)	3 (18%)	7 (20%)
History of miscarriage or stillbirth	1 (6%)	4 (24%)	5 (14%)

	Psychoneurotic - Hysterics.	Psychoneurotic - Depressives	Total
Complications of labour and pregnancy:			
Neuritis	0	1 (6%)	1 (3%)
Antepartum haemorrhage	0	1 (6%)	1 (3%)
Sensitivity to enema	1 (6%)	0	1 (3%)
Raised blood pressure	2 (11%)	1 (6%)	3 (9%)
Toxaemia	2 (11%)	1 (6%)	3 (9%)
Cystitis	2 (11%)	1 (6%)	3 (9%)
Prolonged labour	0	1 (6%)	1 (3%)
Forceps	3 (17%)	0	3 (9%)
Surgical induction	0	1 (6%)	1 (3%)
Caesarean Section	0	1 (6%)	1 (3%)
Tear	1 (6%)	2 (12%)	3 (9%)
Retained placenta	1 (6%) +?1 (+?6%)	0	2 (6%)
Total	13 (72%)	10 (59%)	23 (66%)
Length of illness	3.3 yrs	3.1 yrs	3.3 yrs.
Age at onset	27.3 yrs	28.49 yrs	28.31 yrs
Pregnancy of onset			
1	9 (50%)	6 (35%)	15 (43%)
2	5 (28%)	8 (47%)	13 (37%)
3	3 (17%)	3 (18%)	6 (17%)
4	1 (6%)	0	1 (3%)

The parents' ages at the birth of the patient are rather high in the case of the psychoneurotic depressives. Although there is no information in the controls the incidence of neurotic traits in childhood also appears high. The traits elicited were phobias - fears of the dark, animals, water - dissociative phenomena - sleep-walking, nightmares, night terrors and enuresis, nail-biting, truancy and tantrums. Phobias were the most frequently found. The incidence of middle-class subjects with neurosis without depression was not quite significant, but was higher than in the depressed group. Over half the patients complained of frigidity and in the majority this had been present since marriage and not merely since the onset of the illness. Suggestibility was tested in 26 cases by attempting light hypnosis to the point of analgesia to pin-pricks. This was achieved in 20 cases (57% of the total cases, 77% of the cases tested).

Progesterone was used in 13 cases and in just over half produced some relief. The hormone was used mainly in the tablet form in a sublingual dose of 15 mgm. t.d.s. for 14 days, but in some cases parenteral administration was arranged. The best response seemed to occur where pre-menstrual tension was a leading complaint. Where it represented essentially an exaggeration of existing symptoms in the premenstrual period, improvement tended to occur when the symptoms as a whole were successfully treated.

The incidence of miscarriages or stillbirths and the incidence of complication in pregnancy or labour both appear

high. Previous miscarriage or stillbirth has been suggested as a factor in the aetiology of the parapartum conditions.

Psychological problems uncovered concerned the husband in 15 cases. In one case the husband deserted the patient when she was pregnant and in 4 others the husband was called away during the pregnancy (War, etc.). One of these patients had her baby when the husband was overseas. She was ambivalent about him and when seen could not make up her mind whether she wished him to emigrate and if he did, whether she would follow him. She feared at the time of the baby's birth that he would not accept the baby as his own, although she had in fact conceived it prior to his departure. 10 patients did not get on at all well with their husbands - one was sarcastic and the patient said he "treated her like dirt"; one was "bone lazy in the house" and sexually over-demanding; another was a moody man who had had a post-marital affaire, who brought his work home at night and who completely ignored his wife, merely using her to afford himself sexual relief.

In 7 patients incidents in labour appeared to have some bearing on the subsequent reaction. One patient complained that the nurse shouted at her and finally kneeled on her abdomen. Another patient said that after delivery she was left in the delivery room and then on a trolley in a corridor for 12 hours awaiting suture of a laceration. This was then attempted with inadequate local anaesthetic before a general anaesthetic was finally administered. The third patient was unaware that she was carrying twins as were her

attendants who told her that she was talking nonsense when she complained of further labour pains. The second twin was born macerated. (In two cases - where the delivery was in hospital - reports were requested and it is surprising how little note or importance was attached to the events just described. In the last case the report said: "I was present at the birth of Mrs. X's twins. One child lived, the second was stillborn...the husband made quite a commotion...but eventually good sense prevailed". In the second case the report read, "She delivered of a normal baby without complications except for a second degree perineal laceration which was sutured....Following delivery she was hysterical, crying and screaming and was sedated").

In 23 cases the unwantedness of the child was thought to be of direct or indirect significance for a variety of reasons. Examples were that it would be an additional tie to an unhappy marriage, it would be an additional economic problem, it would be an additional limitation to social life, it would be an emotional responsibility of which the immature mother concerned would be incapable, it would simply need attention and mean more work.

In 5 cases the relationship with the mother presented a problem. In two cases the mother was a business woman with little time for the patient during her childhood. On the mother's retirement her attitude had changed but in each case the patient became markedly ambivalent - condemning her

mother for the way she had been treated earlier but unable to stay away from her. In a third case the mother simply took no interest in the patient. In two further cases the patient was very attached to the mother who died in the relevant puerperium. In a sixth case the patient had lost her mother as a child, and the mother-in-law to whom she was attached died in the relevant puerperium. There were 3 other cases with deaths of relations in the puerperium. In only 6 cases was the problem concerning property - finance, etc.

Thematic Apperception testing was available in up to 16 patients - eight neurotics with depression and eight without. The testing did not appear to show any marked differences between the groups, and in view of the small numbers available these have been treated together. The results of the tests are shown below* with the comparable results from the puerperal control series and the mixed control series (Valentine & Robin, 1950).

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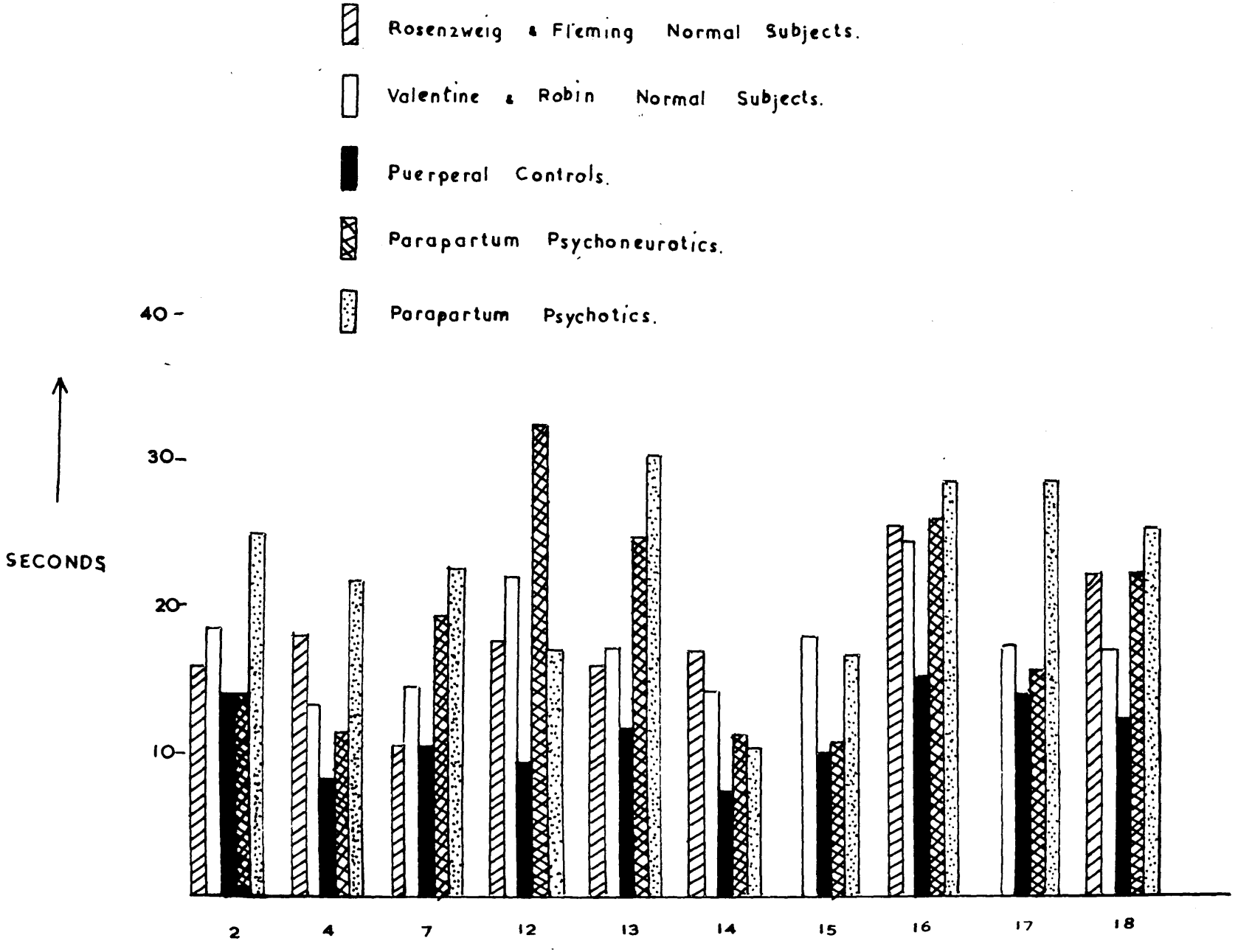
* See end of Chapter - TABLE 11.


Rosenzweig & Fleming Normal Subjects.
Valentine & Robin Normal Subjects.
Puerperal Controls.
Parapartum Psychoneurotics.
Parapartum Psychotics.
40 -
30-
20-
10-
SECONDS
2
4
7
12
13
14
15
16
17
18

Differences are possible (a) from both control series (b) from the puerperal controls only and (c) from the Valentine & Robin controls only. The significant differences were in category (a) :-

Card 2 The women are rivals for the man more common in psychoneurotics. The man is specified as ploughing more often in the psychoneurotics.

Card 4 The background mentioned as a picture of a woman (often the woman in a triangle story) more often in the psychoneurotics.

Card 12 The older figure is a nun more commonly in the psychoneurotics. The reaction timein this card is greatest in the psychoneurotics. See Fig. IV.

Card 15 The figure is less often specified as male in the psychoneurotics.

Card 17 The figure on the bridge is looking over more often in the psychoneurotics.

More significant trends of the same sort were:-

Card 7 The doll is mentioned more often in the psychoneurotics. The woman is more often advising in the psychoneurotics.

Card 12 The younger figure is the daughter of the other woman more often in the psychoneurotics. The older woman is sinister or unpleasant.

Card 14 Insomnia is more often mentioned by the psychoneurotics. Burglars are more often mentioned by the psychoneurotics.

In category (b) - different from the puerperal controls only and significantly so, are:-

Card 4 The scene is from a film more often in the puerperal controls.

Card 7 The doll is described as a baby more often by the puerperal controls. The woman is reading more often in the puerperal controls.

Card 12 The 'image in her mind' sort of story is more common in the puerperal controls.

Card 14 The figure is less often specified as male by the puerperal controls. The light is outside less often in the puerperal control stories. The figure is more often thinking and less often looking in the puerperal control stories.

Card 16 Stories about personal interests are less frequent in the puerperal controls.

Card 17 Smuggling is less frequent in the puerperal controls. The warehouse is mentioned more often and the boat less often in the puerperal controls.

Card 18 A family relationship is mentioned less often in the puerperal controls. The upper figure is harmful less often in the puerperal controls.

In category (c) - differing from the Valentine & Robin controls only, are:-

Card 4 Stories implying the woman in the background are more common in the controls.

Card 7 The girl is unhappy is less common in the controls.

Card 13 Murder and rape is more common and illness less common in the controls. Alternative themes are more common in the controls.

Card 16 Family themes are less common in the control stories.

Card 17 Figure on bridge is specified as female more often in the controls.

Card 18 Upper figure is comforting less often in the control stories.

Category (a) may be seen as special to the psychoneurotics, category (b) special to the puerperal controls and category (c) special to the Valentine & Robin controls. The psychoneurotics, it will be seen, show more stories of marital instability (Card 4) or rivalry for a man (Card 2), more stories with a mother figure (Card 12), more with burglars breaking in (Card 14) and more with insomnia (Card 14). The puerperal controls have more film stories (Card 4)(i.e. implying that the situation is fictitious), more 'mind-image' stories (Card 12), more live babies (Card 7), fewer stories about personal interests (Card 16) and fewer harmful or unhappy family situations (Card 18). These findings tend to confirm the suggestions made about psychopathology.

Card 12M was used in 14 cases and is compared with the results in the puerperal controls below:-

Card 12M. A young man is lying on a couch with his eyes closed. Leaning over him is the gaunt form of an elderly man, his hand stretched out above the face of the reclining figure.

Mean Rt. 13.2" s.d. 6.6	25 Puerperal controls %		14 Psychoneurotic patients %	
Hypnotizing	48	72	57	86
Relaxing	24		29	
Examining, praying, blessing	16		7	
Waking, murdering, harming	12		7	

TABLE 12

Hypnotizing and relaxing stories are taken as evidence of suggestibility; the examining, praying and blessing stories are neutral, and those of waking, murdering and harming indicate negative suggestibility. The proportions hypnotizable in the two groups and the actual percentage hypnotized among the patients, excluding those where no attempt was made, are shown below:-

	25 Controls on TAT %	14 Patients on TAT %	26 Patients hypnotized %
Hypnotizable	72	86	77
Not hypnotizable	28	14	23

TABLE 13

The level of suggestibility is higher than that found by Rosenzweig & Sarason but the psychoneurotic patients resemble the puerperal controls.

The Shipley-Hartford Retreat Scale was used in a small number of patients and a battery consisting of the Progressive Matrices (P.M.) and the Mill Hill Vocabulary (M.H.V.)Test was used in a further group. To make these two series of tests roughly comparable, the score on the P.M. and M.H.V. were converted into Intelligence Quotients from which Abstract and Vocabulary ages were derived on the Shipley-Hartford Retreat Scale. From these it was possible to calculate a Mental Age and estimate the Conceptual Quotient (C.Q.). The various ages are shown below compared with the puerperal controls.

TABLE 14.

	Mean Abstract Age and s.d.	Mean Vocabulary Age and s.d.	Mean Mental Age and s.d.
Puerperal Psychoneurotic patients (13)	15.0 ± 2.3	14.6 ± 2.3	14.8 ± 2.1
Puerperal controls (24)	14.1 ± 2.9	16.2 ± 2.3	15.4 ± 2.6

The Conceptual Quotients are reproduced below for this series, the controls and the Shipley-Hartford series.

TABLE 15.

C.Q.	13 Psychoneurotics	1046 Shipley-Hartford series	24 Puerperal controls
90+	10(77%)	73%	11 (45.9%)
85-90	0 (0%)	10%	2 (8.3%)
80-85	1 (7.7%)	7%	2 (8.3%)
75-80	2 (15.3%)	5%	3 (12.5%)
70-75	0 (0%)	3%	3 (12.5%)
60-70	0 (0%)	2%	3 (12.5%)

Although this series is very small, it will be seen that the resemblance is fair to Shipley's series and like the latter, differs from the puerperal control where impairment is marked.

When comparing the two groups - puerperal controls and puerperal psychoneurotics - it must be made clear that they are both small in size and that there is an age difference. Certain findings may be influenced by this. For example, there is a significantly greater number of patients with premenstrual tension and with menstrual irregularity among the psychiatric patients than among the controls and premenstrual tension is said to become more frequent as the menopause approaches (Haas, 1952). The evidence of positive family histories would also be affected but these are probably still significantly more tainted among the patients.

Other findings, however, will remain valid and in view of past reports their negative nature is of interest. The average age of marriage, for example, is the same in both groups, the period of courting hardly differs, the sex of the child does not vary significantly, religious differences between the marital partners are equally common and the religions are evenly distributed. Hypnotizability in this group is comparable to prospective hypnotizability in the controls. A problematical relationship with the husband, mother and in-laws was more common among the patients. There is no information regarding the frequency of frigidity among the controls. The husbands of the patients are relatively

younger than those of the controls.

As far as treatment is concerned, at some point or other 6 patients had E.C.T. and in only 3 did this produce any therapeutic effect. One patient did discontinue her attendances at the out-patients and told a friend that she would rather have her symptoms than E.C.T. with Succinyl choline. Accounts of her progress indicate that she has done very well. Leptazol was used in the treatment of one patient, with good results. Prolonged narcosis was used in 3 patients. One patient became acutely ill with a toxic psychosis. In the two others the therapeutic effect was minimal.

Psychotherapy was of a supportive nature. Social changes were suggested in many cases and 12 patients were sent for contraceptive advice. In some cases it is probable that the patient could not or is still trying to carry out the advice given, e.g. to move house. In others the patient would not take the step advised. Seven patients took full-time jobs, 6 patients took part-time jobs, 4 patients joined a Social Club, and 18 patients continued as before. One patient who worked full-time has since abandoned work to look after her baby - which she was incapable of doing before. The reasons for suggesting work were that this provides an outlet for the masculine unmaternal woman and safeguards her children from

her; it provides a way to independence to the unhappily married woman; it allows time for the immature mother to develop a more satisfactory attitude to her child.

To summarise, we have already seen that the normal puerperium is a period marked by conceptual impairment, increased suggestibility and by the accentuation of hysterical and depressive traits. This is clearly a period ripe for accidents. Those who break down into neurosis at this period are predisposed constitutionally, as is indicated by their weighted family histories and have already frequently shown neurotic traits, especially in childhood. Their interpersonal relationships, especially with the husband, mother and in-laws, are marred. They are unusually suggestible even in the absence of demonstrable impairment. Their neuroses are predominantly hysterical and depressive, that is to say they utilize features already present or these features are exaggerated.

Initially, it appears integration may be loosened by some physical agent which also reveals itself in the conceptual impairment. Recovery of psychic integration does not follow mechanically on withdrawal of the noxious agents. Roth and Rosie, (1953) mention a group of cases "when a psychosis continues after spontaneous or therapeutic termination of the illness in which it developed" and another group "when

a psychosis commences after recovery from a toxic or infectious illness". The physical agents have largely been withdrawn by the time these patients present for treatment some years later. Physical treatments are thus of minimal use. Psychological treatment is logically directed to withdrawal from the psychogenic noxia - usually a problem existing prior to parturition but perhaps accentuated by it. This is frequently achieved by getting the patient away from the home.

TABLE II. Thematic Apperception Test in Psychoneurotics.

Card 2. Country scene: In the foreground is a young woman with books in her hand; in the background a man is working in the fields and an older woman is looking on.

Mean Rt. 14.0" s.d. 10.1	25 Controls Valentine & Robin (1950) %	25 Puerperal Controls %	14 Psycho-neurotic patients %	Signif-icance
Family group	56	28	43	
Woman on right:				
Pregnant	28	8	14	
Praying	8	0	0	
Depressed	16	4	0	
Domineering	?	20	21	
Man;				
Ploughing	28	40	64	<.05
Working on Farm	36	48	28.5	
Girl in foreground:				
Student	?	48	35.5	
Depressed	?	36	21	
Women are rivals (for man)	4	0	28.5	<.01
Contrast between desire for education and farming background	68	52	50	

Card 4. A woman is clutching the shoulders of a man whose face and body are averted as if he were trying to pull away from her.

Mean Rt. 11.4" s.d. 6.7	25 Controls Valentine & Robin (1950) %	25 Puerperal Controls %	14 Psycho-neurotic patients %	Signif-icance
Girl is:				
restraining him	49	40	43	
pleading or comforting	?	56	57	
Man rejects her	28	36	35.5	
Man accedes	?	28	43	
Background:				
a picture	16	0	43	<.01
a woman	16	8	14	
implied that it is female	36	0	7	
Film	?	24	0	<.05

Card 7. An older woman is sitting on a sofa close beside a girl, speaking or reading to her. The girl, who holds a doll in her lap, is looking away.

Mean Rt. 19.3" s.d. 14.8	25 Controls Valentine & Robin (1950) %	25 Puerperal controls %	15 Psycho-neurotic patients %	Signif-icance
Relationship: Mother and daughter	84	76	73	
Aunt and niece	12	0	0	
Lady and girl	4	4	0	
Godmother and Godchild	0	4	0	
Doll: mentioned	56	40	73	
broken	8	4	6.5	
baby	8	40	6.5	<.05
girl's baby	4	4	0	
Girl: reflecting	20	20	13	
unhappy	28	56	66.5	<.02
wants to do something else	16	8	26.5	
Woman: reading	40	52	26.5	
advising	16	16	33	
telling "facts of life"	8	0	6.5	
Girl jealous of new baby	?	24	6.5	

Card 12. The portrait of a young woman. A weird old woman with a shawl over her head is grimacing in the background.

Mean Rt. 32.4" s.d. 23.6	25 Controls Valentine & Robin (1950) %	25 Puerperal controls %	14 Psycho-neurotic patients %	Signif-icance
Elderly figure: unpleasant female	52	52	71.5	
male	0	0	0	
doubt as to sex	0	0	0	
Occupation: Nun	12	12	43	<.05
Witch	20	8	14	
Gipsy	8	0	7	
Younger figure: daughter	12	0	21	
anxious	20	4	21	
looking at someone	28	4	14	
Imagining a future picture of herself	8	24	0	<.02
The older figure is a thought or the conscience of the younger one	0	20	7	
The picture is a painting	?	16	14	
Rejected	?	8	7	

Card 13. A young man is standing with downcast head buried in his arm. Behind him is the figure of a woman lying in bed.

Mean Rt.24.8" s.d.21.3	25 controls Valentine & Robin (1950) %	25 Puerperal controls %	16 Psycho-neurotic patients %
Seduction scene	26	32	31
Murder or rape	40	20	12.5
Girl is ill, or dying, or dead	30	52	69
Girl is asleep	10	8	0
Alternative themes	56	36	19
Husband and wife	?	8	25
Man is covering face	?	8	6
Man is: remorseful	?	32	44
grieved	?	52	37.5
anxious	?	12	19
Poor circumstances	?	8	12.5

Card 14. The silhouette of a man (or woman) against a bright window. The rest of the picture is totally black.

Mean Rt. 11.3" s.d. 7.3	25 Controls Valentine & Robin (1950) %	25 Puerperal controls %	13 Psycho-neurotic patients %	Signif-icance
Figure:				
Male	98	44	85	
Female	?	4	0	
Unspecified	?	52	8	<.01
Light:				
Outside	40	28	62	<.05
Inside	?	4	0	
Dark:				
Outside	28	28	8	
Inside	?	44	54	
Night	?	44	46	
Moonlight	16	12	23	
Insomnia	4	4	15	
Burglar	8	8	23	
Suicide	16	8	8	
Thinking or dreaming	?	36	8	
Looking	?	16	85	<.01

Card 15. A gaunt man with clenched hands is standing among gravestones.

Mean Rt. 10.7" s.d. 6.2	25 Controls Valentine & Robin (1950) %	25 Puerperal controls %	13 Psycho-neurotic patients %	Signif-icance
Figure is human	52	68	46	
Ghost or unreal	20	24	38.5	
Male sex	98	80	46	$<.05$
Visiting a grave	52	52	46	
Thinking of life's futility	8	0	0	
Repenting	8	4	8	
Handcuffed	?	8	0	

Card 16. Blank card.

Mean Rt. 26." s.d. 21.2	25 Controls Valantine & Robin (1950) %	25 Puerperal controls %	11 Psycho-neurotic patients %	Signif-icance
Subject related to:				
Self	0	8	9	
Family	10	48	55	<.01
Others	4	8	0	
Personal interests	42	12	36	

Card 17. A bridge over water. A female figure leans over the railing. In the background are tall buildings and small figures of men.

Mean Rt. 15.9" s.d. 8.4	25 Controls Valentine & Robin (1950) %	25 Puerperal controls %	13 Psychoneurotic patients %	Significance
Figure on bridge:				
Female	96	56	62	<.05
Unspecified	?	12	8	
Waiting	36	4	15	
Looking	16	12	54	<.01
Suicidal	8	32	15	
Escaping	4	0	0	
Anxious	16	0	8	
Scene:				
Smuggling	24	8	31	
Stage set	8	4	8	
Unreal	?	20	38.5	
2nd figure noted	?	12	23	
Warehouse etc.noted	?	36	8	
Gun noted	?	28	23	
Bridge noted	?	48	31	
Boat noted	?	44	69	

Card 18. A woman has her hands squeezed round the throat of another woman whom she appears to be pushing backwards across the banister of a stairway.

Mean Rt. 22.4" s.d. 13.8	25 Controls Valentine & Robin (1950) %	25 Puerperal controls %	14 Psycho-neurotic patients %	Signif-icance
Relationship:				
Family	64	36	64	
Same sex	62	60	77	
Opposite sex	2	12	31	<.01
Upper figure is:				
harming other	46	24	64	<.02
comforting other	22	56	64	<.02
Lower figure is ill or injured	32	56	46	

PSYCHOSES OF THE PARAPARTUM PERIOD

Our next consideration is the parapartum psychoses.

(a) Incidence. The incidence of these conditions is presented in various ways. First it may be calculated in relation to the number of births as:

1 in 400 (de Forest q. Smalldon, 1940)

1 in 458 - 1370 (Karnosh & Hope, 1937)

1 in 587 - 714 (Hemphill, 1953) i.e. 1.4 - 1.7 per 1000

1 in 833 (Stander q. King, 1950) i.e. 0.12% of 34,000 cases

1 in 1000 (Davidson, 1936).

The accuracy of many of these figures is open to doubt as they are in most cases provided by obstetricians and condition on discharge from the maternity hospital soon after birth is no guide to the state later in the puerperium. Our own experience is that the obstetricians only hear of a fraction of the cases and that the incidence is greater than generally thought. While accuracy is difficult to obtain, Hemphill's (1953) calculation of 1.7 per 1000 births is probably the most realistic as, apart from the comprehensive way in which it was derived, it coincides roughly with the expected rate calculated from mental hospital admissions, total population and birth rate.

The incidence may also be reported in relation to total admissions as:

2.3 in 1,000 (Davidson, 1936).

13 in 1,000 (Brew and Seidenberg, 1950) i.e. 1.3%.

23 in 1,000 (Cruickshank, 1940) i.e. 84 in 3,600.

30 - 50 in 1,000 (Sivadon, 1933) i.e. 3.5%.

71 in 1,000 (Jaffe, 1951).

And again it may be found related to the total female admissions:

2.7% (Fishback q. Brew and Seidenberg, 1950).

3% (Brew and Seidenberg, 1950).

3.4% (New York State Hospitals, Smalldon, 1940). 1916-21.

5% (Clarke, 1913).

5% (Clouston, 1904).

7% (Kraepelin, 1904).

7.1% (McDonald, 1847).

8% (Harris, 1950).

8% (Smalldon, 1940).

8.7% (Zilboorg, 1928).

10% (Mc Ilroy, 1928).

11.6% (Jaffe, 1951).

12.5% (Webster, 1848).

5-10% (Yaskin, 1945).

10% (Schmidt, 1943).

3.8% (Frumkes, 1934).

The variation in the last two series of reports may be due to difference in diagnosis or selective criteria for admission.

(b) Race. An increased incidence in Jewish females has been commented upon by Karnosh & Hope (1937), Strecker & Ebaugh (1926) and Smalldon (1940). Strecker and Ebaugh found 36% of their puerperal women to be Jewish as compared with 18% of their female admissions. Smalldon found 33% of his puerperals were Jewish and almost all the rest English. The latter, however, were in proportion to their admission rate. Myerson (1920) explains that Jewish women narrow their activites because of a hostile environment, and says that they develop intellectual interests at the expense of physique. That this is hardly the explanation (if, indeed, one is required) is shewn by the high incidence quoted from Israel (Jaffe, 1951) where these factors would not operate. Brew & Seidenberg (1950), however, found no increased incidence in Jewish females. Gold (1951) reports that parapartum psychosis is very common in India, but relatively uncommon in Siam. He believes this difference may be related to the absence of child marriage in the latter country.

(c) Predisposition. Jacobs (1942) in 21 cases personally observed found a maternal history of puerperal psychosis in 4. Two of these were also recorded as later suffering from involutional melancholia. There was a history of epilepsy in the father of one other patient, and four had siblings, with a history of mental illness. All the patients with a positive family history were manic-depressives.

Smalldon (1940) finds morbidity in the heredity even more often in psychoneurotics and psychopaths than manic-depressives, but more frequently in the latter than in schizophrenics.

Cruickshank (1940) found that the heredity of the toxic psychoses was better than that of the manic-depressives and schizophrenics. Clarke (1913) found that 24 of his 75 cases had a positive family history. Sivadon (1933) found that 30% of 160 cases were predisposed and that on examining the diagnostic groups the lowest predisposition was in the toxi-infectious group (13.5%) while the highest was in the gravid group (100%). Brew & Seidenberg (1950) report that in 14% of 103 cases the presence of psychosis among the parents and siblings was confirmed. Haworth (1939) found a positive family history in 30% of her cases and Bamford (1934) found 18% with insane heredity.

(d) Previous Personality. Smalldon (1940) reported that 73% of his manic-depressive cases, 80% of his psychoneurotics, and 75% of his toxic cases were extraverts; 66% of schizophrenics were introverts, while 61% of hebephrenics were aloof and shy, with no male associates and no love affairs. (In view of the diagnosis, unless they were all cases of rape, this cannot have been entirely true). Strecker and Ebaugh (1926) report a high proportion of personality defects while Bamford (1934), and Brew & Seidenberg (1950) say that 60% of their cases had an abnormal personality. Jacobs (1942) found only 3 of her 21 cases (14%) with a normal prepsychotic personality. Haworth (1939)

said that 25% of her cases had a positive personal history. Hemphill & Reiss (1948), however, suggest that the prepsychotic personality is a relatively good one in puerperal schizophrenia as evidenced by the occurrence of marriage and reproduction.

(e) Aetiology.

1. Organic. Brew & Seidenberg (1950) mention the possible role of the anaesthetic and note two toxaemias and two prolonged labours in their series of 83 cases. King (1950) notes that 5% of patients with eclampsia have mental symptoms after pregnancy. Schmidt (1943), Blomberg & Billig (1942) and Hemphill & Reiss (1948) among others, believe that there is an endocrine origin to puerperal psychoses. The last named authors note "marked deficiencies....(or) no oestrone or pregnandiole in urinary assays". Endocrine pathology is, of course, known after pregnancy in Simmond's Disease.

Wilson (1953) reviews 7 cases of pituitary insufficiency in the female, 5 of which occurred post partum. "After her last confinement each patient became a different person, affected by unaccustomed inertia and frailty....declined in memory...and concentration...couldn't be bothered with anything ...did not want to mix...was prone to fits of dejection...(or) pent-up feelings of irritability and would explode now and then in storms of temper...." There was "ever increasing slowness of thought and responses but not peace of mind" and also a number of physical signs - weakness, loss of secondary hair, loss of weight, angina, claudication, low BMR, insulin sensitivity, etc.

Sivadon (1933) says that infection was the main cause of

psychosis in 30%, and a part cause in a further 15% of his cases. Smalldon (1940) believes that the toxi-infectious cases were more frequent in the past and that the incidence of diagnosis has changed. This may account for some of the discrepancies in the literature, for Clarke (1913), Jacobs (1942) and Saunders (1929) minimise the importance of toxic factors. Jacobs (1942), however, gives the incidence of psychosis after puerperal fever as 1 in 25, and as the incidence after childbirth is around 1 in 500, her views are difficult to reconcile. Jacobs does note that sepsis is more common in the unmarried (8% in her series) and 59% of these cases had a septic puerperium, with organic mental reaction in over half the cases. Kilpatrick & Teitbout (1926) and Strecker & Ebaugh (1926) say that physical factors are responsible for the high incidence of confusion in their manic-depressive cases, and in relation to this commenting on the frequent absence of fever, Baruk (1950) says "La psychisme est parfois un revelateur plus sensible de l'infection que le thermometre".

Haworth (1939) found that 80% of her puerperal cases were under-weight and of 54 recoveries, 53 showed a gain in weight as compared with 6 in 14 non-recoveries. In a larger series of 114 cases, 20 were described as seriously ill, and 69 in poor condition. Malnutrition and debility she concluded are of importance in the puerperal psychoses.

2. Psychological.

(i) Hostility to the Child. Brew & Seidenberg (1950) say this is common in both schizophrenics and depressions

and is either overt or symbolised. 4 of their cases attempted infanticide, and here the hostility is clearly established. These authors, however, also regard over-solicitude, fears of transmitting disease and inability to care for the child as evidence of hostility. 10% of their cases admitted that the child was unwanted (a figure lower than the normal). 13% of Jacobs (1942) cases attempted infanticide, while 13 of 97 cases in Smalldon's (1940) series expressed hostility to the child in a variety of ways. The patients refused medical aid, handled the child roughly, made threats or actually attempted infanticide. Many had dreams that the child was dead or injured, or expressed the fear that the child would die (20 out of 97). In 44% of this series the child was unwanted. Zilboorg (1928) believes that hostility to the child is the nodal point of depression, and says that infanticide is common in women as it is more difficult to deny the reality of motherhood than fatherhood. Male patients more usually develop paranoid reactions to these circumstances. Anderson (1933) noted aversion to the child in 9 out of 29 cases.

(ii) Hostility to the Husband. Brew & Seidenberg (1950) claim that hostility to the husband often follows hostility to the child as he is regarded as responsible for the latter's advent. Smalldon (1950) said that 75% of manic-depressive cases (especially non-depressive cases) showed hostility to the husband. This was expressed in indifference or irritability, in homicidal attempts, by the patient using her maiden name, or throwing away her ring. Anderson (1933) said that there was no constant attitude, but that aversion

was present in 9 of 31 cases. Davidson (1936) believes that hormonal changes produce virilisation and that this accounts for the frequent rejection of the husband.

Smalldon (1940) says that in 12 of 64 schizophrenic cases the husband was 7 - 30 years older than the patient. The average age at marriage was 23.5 and the average length of courtship 2 years 2 months. Anderson and Davidson agree with these figures. Zilboorg (1929) says that his cases married in their 30's and had exceptionally long courtships. He believes this to be of significance. 8% of Jacobs' (1921) cases and 10% of Brew & Seidenberg's (1950) 50 cases were unmarried.

(iii) Attitude to Parents. Saunders (1939) claimed that these patients expressed a preference for the mother, and Zilboorg (1929) the opposite. Smalldon (1940) found 24 of 64 to prefer the father, and 27 of 64, the mother.

(iv) Sexuality. Homosexual ideas are said by Brew & Seidenberg (1950) to be common and may be expressed in symbolic form by the projection of delusions onto the nurses. Zilboorg (1929) believes that homosexuality is more important in the schizophrenias. Smalldon (1940), however, disputed both of these findings. He found that 12 of 44 schizophrenic patients had, however, incestuous ideas expressed as delusions that God, Christ, or the Doctor was the father of their child, or by the statement that their own male parent was not in fact their father, but their guardian.

Saunders (1929) suggests that sexual maladjustment is of prime importance, but Terzian (1950) notes that both puerperal and multiparous schizophrenics are sexually maladjusted.

Frigidity was reported in 60% of depressions and schizophrenics, and hypersexuality in 5% of the former and 16% of the latter by Smalldon (1940). This author also noted chronic masturbation in 33% of schizophrenics and 50% of these cases masturbated during their psychotic period. Zilboorg (1929) stresses the importance of chronic masturbation - a constant finding he claims Anderson (1933) found autoeroticism in 6 of 50 puerperal cases as compared with 2 of 50 non-puerperal cases. Hypoeroticism was found in 5 of 50 cases in each group. He concluded that prepsychotic sex life played no special part in puerperal psychoses, and that frigidity was neither common nor distinctive.

Kalichman (1951) claims that labour often symbolises intercourse and Tylden (1952) notes that crowning in labour is often appreciated as an erotic experience. These ideas and experiences are said to produce guilt feelings.

(v) Environment. Karnosh & Hope (1937) say that there was a rise in the incidence of puerperal psychoses during the slump in the 1930's. Brew & Seidenberg (1950) note a decline in incidence in the U.S.A. during the War (1940-1945) and claim, rather incongruously, that the psychosis is therefore not responsive to situational factors. Jacobs (1942) presents a list of environmental causes - social and domestic strife, illegitimacy, bigamy, extramarital conception, unhappy marriage, absence of the husband, male neurosis and aversion to childbirth. Haworth (1939) found puerperal psychoses more frequently in rate-aided than in private patients.

AUTHORS NAME.	Hemphill.	Jacobs.	Karnosh & Hope.	K & H. Table.	Strecker & Ebaugh.	McDonald.	Smalldon.		Brew & Seidenberg.	
TOTAL CASES.	116	152	231	126	50	66	220		103	
Melcholic – Depression.	12	30		19			27		10	
– Stupor.		3					0·5			
Agitated Depression.	38						3		11	
Perplexity.							0·5			
Circular type.							7			
Mania.	7	13		22		51	10		20	
Total Manic Depressives	19	52			36		49		31	
Mel. with Paranoid Features.		18								
–developing chronic paranoia.		2				42	0·5			
Schizophrenia.	16			15	26	6	30		51	
– Catatonic							13		27	
– Paranoid							10·5		13	
– Hebephrenic.							5·5		6	
– Simple							0·5		1·5	
– Manic depressive symptons.	4									
– Chronic: no remiss.		3		11			12			
Delirium.	16	30	24	44	34		4		5	
Psychoneuroses.	5			2	2		13			
– Psychasthenic.							4			
– Mixed.							4			
– Reactive Depressive							3			
– Anxiety							1			
– Hysteria							1			
Psychopathic Personality.							5·5		4	
– with Psychosis							4·5			
– Pathological Emotions.							1		4	
Organic – GPI. etc.		<1			2					
– Epilepsy.		1								
TOTAL CASES	116	152	231	126	50	66	220		103	

Kilpatrick & Teibout.	72											4	32					14		14			50	8·5	4				37	72
Harris J.	37												22							37			41							37
Cruickshank.	84											1	38							26			33							84
James.	–												33							15–18			40·5							–
Anderson.	50						4					4	6					2		18			70	2					68	50
Clarke.	75	3					2					2	44							7	11		31							75
Terzian.	10																	40		60										10
Victoroff.	55		4				18	11			27		2		27					11			5·5							55
Haworth.	68												13							31			56							68

DIFFERENTIAL DIAGNOSIS OF PARAPARTUM REACTIONS.

TABLE 16.

(f) Diagnosis. The differential diagnosis according to various authors is shown in Table 16.

(g) Symptomatology.

1. Age at onset. Smalldon's (1940) cases were between 17 and 45 years with an average age of 25 - 30. Jacobs (1942) cases had an average age of 25, but the paranoid cases had an average age of 34.5. Brew & Seidenberg's (1950) cases were between 15 and 46, with a mean age of 28.5. Zilboorg (1928) says his cases were close to 30, and Clarke (1913) gives the mean age as 30.5.

2. Parity. The average parity of Jacobs (1942) cases was 2.0 - lowest parity was in schizophrenia (1.0) and highest in melancholia with paranoid features (3.5). Smalldon (1940) gives average parity as 1.8. The percentage of primipara hovers round 50% - Smalldon (1940) 55%; Jacobs (1942) 57%; Anderson (1933) just less than 50%; Saunders (1929) more than 50%; Brew & Seidenberg (1950) 49%; Hemphill & Reiss (1948) more than 50%; Davidson (1936) 55%; Clarke (1913) 39%.

3. Clinical State.

(i) Ante-natal symptoms. Brew & Seidenberg (1950) say that there may be irritability, seclusiveness, feelings of inadequacy, crying spells, somatic complaints, and evidence of hostility to the husband in the first trimester. Strecker & Ebaugh (1926) say that 50% of schizophrenics and 35% of manic-depressives have premonitory symptoms. Smalldon (1940) gives the comparable figure as 12.5%, Cruikshank (1940) 15%,

and Davidson (1936) 13%. Seidenberg & Harris (1949) say that ante-natal symptoms are commoner in manic-depressives than in schizophrenics. Hemphill and Reiss (1948) say that such symptoms are rare.

(ii) Psychosis commencing during gestation. Karnosh & Hope (1937) say that few psychoses are observed during pregnancy, when patients are in fact more placid. Smalldon (1940) gives the figure of 12.5%, Brew & Seidenberg (1950) 20%, Frumkes (1934) 19%, Clarke (1913) 17%, and Sivadon (1933) 5.5%. Schmidt (1943) says that the psychosis never appears in pregnancy, and Baruk (1950) says that schizophrenic psychotics both remit and relapse in pregnancy. Gravid cases are more insidious in onset and puerperal cases more precipitate, according to Davidson (1936).

(iii) The 'latent' period in postpartum cases. Jaffe (1951) says that the onset is within one month and Davidson (1936) within 14 days. Brew & Seidenberg (1950) say that the average is 4 days with a longer latent period in depressions. The patent period from a few more discriminating papers is shown in Table 7.

TABLE 7. 'Latent period' in days - or average postpartum day of onset of psychosis.

	Jacobs (1942)	Karnosh & Hope (1937)	Strecker & Ebaugh (1926)
Melancholia	10	26	14
Mania	4	19	-
Schizophrenia	30	24	35
Delirium	5	9	22
Psychoneurosis	-	15	-

(iv) Symptoms. Karnosh & Hope (1937) describe the symptoms as follows:- "Panic; confusion; sudden aversion and distrust of relatives; misidentification; hallucinations; sing-song jargon and disintegration of normal affect; with a rapid pulse; tremor; quick dehydration; and a fever ranging from 99 - 102..."

Jacobs (1942) says that an organic colouring with perplexity and clouding as the leading symptoms is the prime feature of the puerperium. Frumkes (1934) says that the confusion often proves to be a symptom of dementia praecox and not an organic reaction; Blomberg & Billig (1942) say that toxic reactions often progress as schizophrenia later. Smalldon (1940) and Strecker & Ebaugh (1926) say that atypical schizophrenic reactions with clouding, manic-depressive symptoms, and frequent remissions are common. Jacobs (1942) noted that her older patients were predominately paranoid reactions; Kilpatrick & Teitbout (1926) that all their schizophrenic cases

were of the paranoid type. Kraepelin (1904) and others note a high incidence of catatonic reactions. Fenichel (1945) claims that puerperal reactions can be differentiated from schizophrenia by the acute hallucinosis and wish fulfillment.

Depression is frequently associated with aseptic stillbirth (Jacobs, 1942), marked by guilt feelings (Brew & Seidenberg, 1950) and may resemble involutional melancholia (Hemphill, 1954).

Amenorrhoea is a normal finding postpartum. Recovery from the psychosis is said by Delay (1948), Skottowe (1953) and Sackler (1952) to be associated with the return of normal menstruation. Sivadon (1933) did not find this to be the case.

(h) Prognosis. Jacobs (1942) finds the prognosis in all puerperal reactions better than in like psychoses. Davidson (1936), Harris (1950) and Smalldon (1940) say that schizophrenia after childbirth is less malignant than otherwise - possibly due to a high incidence of catatonic reactions. Yaskin (1951) gives the recovery rate as 15 - 30%, and Terzian (1950), 20%. Brew & Seidenberg (1950) and Hemphill & Reiss (1948) find the prognosis for manic-depressive reactions good, but say that the prognosis for schizophrenia is even worse than otherwise. 19 of 21 cases in the latter series became chronic. Cruikshank (1940) and Terzian (1950) believe that schizophrenia with antepartum onset has a bad prognosis and with Jaffe (1951) believe that while the immediate prognosis for the group is good,

there is a strong chance of relapse at any subsequent delivery. While Anderson (1933) did not comment on this, it is apparent from his tables that the incidence of previous puerperal attack in relation to the number of pregnancies is significantly higher in the puerperal group. That means that the chances of a puerperal psychotic having another puerperal illness is much greater than that of a non-puerperal woman. 18% of Anderson's puerperal cases had had a previous puerperal reaction. Jacobs' (1942) figure was 13%, Brew & Seidenberg's (1950) 23% and Clarke's (1913) 23%. Henderson & Gillespie (1947) note that recurrent psychoses related to childbirth are apt to lead to considerable mental deterioration.

James (1936) gives the recovery rate in manic-depression as 96% of cases. There is, he says, an overall recovery rate for all psychoses of 70%. 25% of cases become chronic, and 8 - 10% reach a fatal termination.

Brew & Seidenberg (1950) had a death rate of 11% in schizophrenics and manic-depressives, compared with a death rate of 2.4% in similar non-puerperal cases.

Sivadon (1933) considers that prognosis varies inversely with tainted constitution and improved with the presence of exogenous features.

(i) Autopsies. Apart from an old report by Webster (1848), who found "turgidity of the cerebral vessels and membranes, large bloody points on cutting the cerebral substance and considerable effusion of fluid in the fifth ventricle", Karnosh &

Hope (1950) present 2 cases with "typical wet brains, weighing 1400 gms. and 1225 gms. respectively". Acute cloudy swelling appeared in all parenchymatous organs. Microscopic section studies of one case showed nothing "beyond an increase in size of the subpial spaces indicative of oedema and an abnormally thin ependymal lining. Section through the second brain revealed an increased number of micro- and macro- glial cells. The glial tissue under the meninges was frayed and oedematous and the large neurones were oedematous. Sections through the medulla showed severe granularity, loss of staining property, and, in many instances, loss of nuclei of the large motor cells. In addition, the glial tissue of the medulla was frayed and oedematous. Sections through the cerebellum revealed no significant abnormality. While some of these interpretations are open to question...the excessive glial proliferation is a significant pathological finding". Sivadon (1933) reports pathological findings in his cases of "encephalites psychosiques puerperales". These are equally non-specific.

(j) Infantile mortality. Sivadon (1933) says that of 33 children he was able to trace, of more than 100 born to the patients in his series, only 10 were normal. Six showed retarded growth, and mental development, and 17 had died through pre-maturity or other causes. Bamford (1934) reports 7 stillbirths and 9 premature babies in a total of 97.

(k) Treatment. As is often the case when aetiology is obscure, treatments are legion.

1. Electroshock (ECT) was used by Jacobs (1942) not sooner than 4 weeks postpartum as was advised by Feldman (1946). With the introduction of relaxants there is no longer any need to delay. Turner & Wright (1947), Polatin & Hoch (1945), Simon (1948) and Block (1948) have published reports on the use of ECT during pregnancy. Brew & Seidenberg (1950) used ECT in 11 cases of which 10 improved. Russel, Page & Jillett (1953) advocate intensified electroconvulsant therapy which they say gives especially gratifying results in puerperal reactions.

Blumberg & Billig (1946) used shock treatments combined with corpus luteum therapy. Von Hagen (1943) and Terzian (1950) used insulin with ECT.

2. Insulin Shock (IST) is used postpartum for the treatment of both schizophrenic and toxic conditions. There is some danger to the foetus in using it during pregnancy. Gralnick (1946) reported 2 stillbirths after IST in these circumstances, and Kent (1947) a further one. Wickes (1954) recently reported another case and reviewed the literature. He believes that insulin may cause foetal abnormality if given prior to the tenth week of gestation.

3. Other treatments include anterior pituitary extracts and vitamins (Jacobs, 1942), Antuitrin-S and Theelin (Karnosh & Hope, 1937), Metrazol (Goldstein, 1941), Progesterone (Schmidt, 1943), Thyroid (Zondeck & Wolfson, 1944; Reiss, 1953), Cortin and Vitamin C (Hoff & Shaby, 1940), cerebral pneumotherapy with oxygen insufflation (Abley, 1951) and curettage (Delay, 1948).

Case Material:

Thirty-five cases of psychosis were collected and classified in three broad groups - depressive reactions, confusional psychoses, and confusional psychoses with psychotic colouring or issue. Information was classified as in the neuroses and is tabulated below with comparable information from the neuroses (and controls where available).

TABLE 18

Data	Controls (C)	Psycho-neuroses (PN)	Depression (D)	Confusion (Cn)	Psychotic confusion (PC)	Total psychoses (T)
Number	25	35	10	9	16	35
Married	25	35	10	9	16	35
Mean age	26.0	31.54	30.2	25	30.7	29.1
S.D.	5.3	5.95	7.9	2.6	5.9	6.4
Primipara	13(52%)	9(26%)	4(40%)	6(67%)	7(44%)	17(49%)
Multipara	12(48%)	26(74%)	6(60%)	3(33%)	9(56%)	18(51%)
Average parity/live births	1.79	1.91	1.7	1.2	1.7	1.57
S.D.	0.91	0.96	0.64	0.77	1.25	1.01
Labour						
- better	10(40%)	3(9%)	5(50%)	1(11%)	4(25%)	10(29%)
- equal	8(32%)	2(6%)	0(0%)	0(0%)	0(0%)	0(0%)
- worse	7(28%)	18(51%)	4(40%)	8(89%)	7(44%)	19(54%)
- ?	0(0%)	12(34%)	1(10%)	0(0%)	5(31%)	6(17%)
Pregnancy						
Ideal	11(44%)	9(26%)	2(20%)	0(0%)	0(0%)	2(6%)
Fears	15(60%)	15(43%)	7(70%)	6(69%)	12(95%)	25(70%)
Whims	19(76%)	15(43%)	4(40%)	4(44%)	9(56%)	17(49%)
Nausea & vomiting	11(44%)	19(54%)	4(40%)	6(67%)	6(38%)	16(46%)

Data	Controls (C)	Psycho-neuroses (PN)	Depression (D)	Confusion (Cn)	Psychotic confusion (PC)	Total psychoses (T)
Family history	3(12%)	22(63%)	7(70%)	5(56%)	11(69%)	23(66%)
Menstruation						
- Dysmen.	11(44%)	17(49%)	4(40%)	6(67%)	5(31%)	15(43%)
- Irreg.	2(8%)	9(26%)	1(10%)	1(11%)	3(19%)	5(14%)
- PMT	3(12%)	22(63%)	3(30%)	1(11%)	3(19%)	7(20%)
Personal neurop.	10(40%)	20(52%)	5(5o%)	3(33%)	6(38%)	14(40%)
Extravert	17(68%)	20(57%)	5(50%)	8(89%)	10(63%)	23(66%)
Introvert	8(32%)	15(43%)	5(50%)	1(11%)	6(32%)	12(34%)
Mother- -dead/not seen	8(32%)	10(29%)	3(30%)	2(22%)	7(20%)	12(34%)
-daily	7(28%)	11(31%)	5(50%)	3(33%)	4(11%)	12(34%)
-1-2/week	5(20%)	7(20%)	1(10%)	3(33%)	2(6%)	6(17%)
-occas.	4(11%)	5(14%)	1(10%)	1(11%)	3(9%)	5(14%)
Husbands -Religion-diff.	5(20%)	5(14%)	3(30%)	0(0%)	2(13%)	5(14%)
-age in yrs.	÷3	÷1.7	÷5	÷3.4	÷3.6	
-younger	4(16%)	8.(23%)	2(20%)	0(0%)	1(6%)	3(9%)
Married (yrs.)	5	9.1	6	4.4	6.4	
Age at marriage	21.0	22.01	24.2	20.6	24.3	
Sex of child -male	11(44%)	15(43%)	6(60%)	4(44%)	7(44%)	17(49%)
-female	14(56%)	18(51%)	4(40%)	4(44%)	7(44%)	15(43%)
- ?	0(0%)	2(6%)	0(0%)	1(12%)	2(12%)	3(9%)

Date	Controls (C)	Psycho-neuroses (PN)	Depression (D)	Confusion (Cn)	Psychotic confusion (PC)	Total psychoses (T)
Wantedness of child						
-wanted	12(48%)	14(40%)	5(50%)	7(78%)	13(81%)	25(71%)
-unwanted	7(28%)	21(60%)	5(50%)	1(11%)	2(13%)	8(23%)
- ?	6(24%)	0(0%)	0(0%)	1(11%)	1(6%)	2(6%)
Religion						
-C.of E.		29(83%)	7(70%)	9(100%)	12(75%)	28(80%)
-Non-con.		2(6%)	0(0%)	0(0%)	3(19%)	3(9%)
-Jewish		1(3%)	0(0%)	0(0%)	0(0%)	0(0%)
-R.C.		2(6%)	3(30%)	0(0%)	0(0%)	3(9%)
- ?		1(3%)	0(0%)	0(0%)	1(6%)	1(3%)
Parent's age at patient's birth						
Mother	26.3/34.3		30	31	28.2	
Father	28.5/37.5		36	34.3	31.3	
Pt. only child		6(17%)	1(10%)	2(22%)	1(6%)	4(11%)
Neurotic traits in childhood		25(72%)	5(50%)	3(33%)	8(50%)	16(46%)
Social status						
-working class		27(77%)	8(80%)	9(100%)	13(91%)	30(86%)
-middle class		8(23%)	2(20%)	0(0%)	3(9%)	5(14%)
Interests - Home		12(34%)	4(40%)	5(56%)	9(56%)	18(51%)
Outside		16(46%)	4(40%)	4(44%)	6(38%)	14(40%)
?/none		7(20%)	2(20%)	0(0%)	1(6%)	3(9%)

Data	Controls (C)	Psycho-neuroses (PN)	Depression (D)	Confusion (Cn)	Psychotic confusion (PC)	Total psychoses (T)
Frigidity		19(54%)	6(60%)	1(11%)	4(25%)	11(31%)
No prior boys		8(23%)	3(30%)	1(11%)	1(6%)	5(14%)
Courted in yrs.		2.3/3.1	1.3	3	2.6	
In law trouble		13(31%)	2(20%)	3(33%)	7(44%)	12(34%)
-ve attitude -to mother		9(26%)	2(20%)	2(22%)	5(31%)	9(26%)
-to father		13(37%)	4(40%)	2(22%)	6(38%)	12(34%)
Worked for gain		34(97%)	10(100%)	8(89%)	16(100%)	34(97%)
Suggestibility -hypnotised		20(57%)	1(10%)	0(0%)	0(0%)	1(3%)
-not hyp.		6(17%)	3(30%)	0(0%)	0(0%)	3(9%)
- ?		9(26%)	6(60%)	9(100%)	16(100%)	31(89%)
Progesterone used		13(37%)	1(10%)	0(0%)	1(6%)	2(6%)
-relief of PMT		6(17%)	0(0%)	0(0%)	1(6%)	1(3%)
-no relief		7(20%)	1(10%)	0(0%)	0(0%)	1(3%)
History of miscarriage or stillb.		5(14%)	1(10%)	3(33%)	5(31%)	9(26%)
Complications of labour etc. Pneumonia, Bronchitis etc.		0(0%)	0(0%)	2(22%)	4(13%)	4(11%)
Cystitis, Pyelitis, Vaginitis etc.		3(9%)	0(0%)	0(0%)	3(19%)	3(9%)
Neuritis		1(3%)	0(0%)	0(0%)	0(0%)	0(0%)
APH.		1(3%)	1(10%)	0(0%)	0(0%)	1(3%)
Enema sensitivity		1(3%)	0(0%)	0(0%)	0(0%)	0(0%)

Data	Controls (C)	Psycho-neuroses (PN)	Depression (D)	Confusion (Cn)	Psychotic confusion (PC)	Total psychoses (T)
Raised BP.		3(9%)	2(20%)	2(22%)	7(44%)	11(31%)
Toxaemia		3(9%)	2(20%)	3(33%)	8(50%)	13(37%)
Forceps		3(9%)	2(20%)	0(0%)	0(0%)	2(6%)
Surgical induction		1(3%)	0(0%)	0(0%)	0(0%)	0(0%)
Caesarian section		1(3%)	1(10%)	0(0%)	0(0%)	1(3%)
Tear		3(9%)	0(0%)	5(56%)	3(19%)	8(23%)
PPH		0(0%)	0(0%)	0(0%)	1(6%)	1(3%)
Retained placenta		2(6%)	0(0%)	0(0%)	0(0%)	0(0%)
Precipitate labour		0(0%)	1(10%)	0(0%)	1(6%)	2(6%)
Prolonged labour		1(3%)	1(10%)	3(33%)	1(6%)	5(14%)
Phlebitis		0(0%)	1(10%)	0(0%)	0(0%)	1(3%)
Breast abscess		0(0%)	0(0%)	0(0%)	2(13%)	2(6%)
Pyrexia-origin doubtful		0(0%)	0(0%)	3(33%)	1(6%)	4(11%)
Anaemia, poor physique etc.		0(0%)	0(0%)	1(11%)	1(6%)	2(6%)
Total		23(66%)	11(110%)	19(211%)	30(86%)	60(172%)
Cases affected		18(51%)	7(70%)	8(89%)	14(40%)	29(83%)
Length of illness/yrs.		3.3	0.5	0.1	0.5	0·4
Age at onset		28.21	29.7	25.0	35.0	31·0

Data	Controls (C)	Psycho-neuroses (PN)	Depression (D)	Confusion (Cn)	Psychotic confusion (PC)	Total psychoses (T)
Preg. of onset						
- 1		15(43%)	3(30%)	6(67%)	7(20%)	16(46%)
- 2		13(37%)	6(60%)	2(22%)	3(19%)	11(31%)
- 3		6(17%)	1(10%)	0(0%)	2(13%)	3(9%)
- 4		1(3%)	0(0%)	1(11%)	2(13%)	3(9%)
- 5		0(0%)	0(0%)	0(0%)	1(6%)	1(3%)
- 6		0(0%)	0(0%)	0(0%)	1(6%)	1(3%)

Once again all the patients were married, but in this group five patients were living apart from their husbands or had been divorced and re-married. While the mean age of these patients is as for the neuroses, the straightforward confusions tended to occur in primipara , and consequently in a younger age group. Parity for the whole psychotic group is probably lower than might be anticipated and the same is seen in Anderson's (1933) series. The attitude to labour and pregnancy is roughly comparable to that in the psychoneuroses. Labour is experienced as worse than expected more often than in the controls, while ideal pregnancies are practically non-existent. Fears were recorded more often than in the neurotics and whims about as frequently. A positive family history of mental illness occurs as frequently as in the neurotics and of course much more often than in the controls. The number of complaints concerning menstruation was on the whole comparable with the other groups, but the confusions reported a slightly higher incidence of dysmenorrhoea. A positive personal neuropathic history occurred with average frequency but neurotic traits in childhood were seen much less often than in the neurotics. The distribution of personalities was of the same order as in the other groups except in the simple confusions where extraversion predominated. Apparent relationship to mother and husband, age at marriage and sex of the child were as in the other groups. The claim that the child was wanted occurred more frequently in the psychotics than in the

neurotics. Comparison here with the controls is vitiated by the number of doubtful responses in the latter group.

Comparing the psychotics and psychoneurotics, it will be seen that religion, parents' age at birth, social and family status, interests, courting habits and in-law or parental difficulties are similar in incidence in both groups.

Psychological problems uncovered on investigation, however, concerned the husband in 3 cases (c.f. 15 in neurotics), the child in 6 cases - mainly unwantedness (c.f. 23 in neurotics), the mother in 1 case (c.f. 5 in neurotics). Finance was mentioned in 3 cases and the patient's age (around 40) in 2 cases where the child was unwanted. Frigidity occurs less frequently in the psychotics.

A history of miscarriage occurs equally frequently, but while the overall distribution of the pregnancy of onset is comparable, it will be seen that straightforward confusions occur mostly in primipara and other psychoses in multipara.

The age of these patients at the onset of mental illness is a little greater in the psychotics than in the neurotics. The psychotics are also more acute in onset.

The complications of pregnancy and labour occur much more frequently in the psychotic patients' histories. Attention is drawn to the incidence of infections and pyrexia, toxaemia, hypertension and tears. As far as toxaemia is concerned Pike & Dickens (1954) found 541 cases in 3651 admissions at a maternity hospital. This selected population had an incidence of 15.

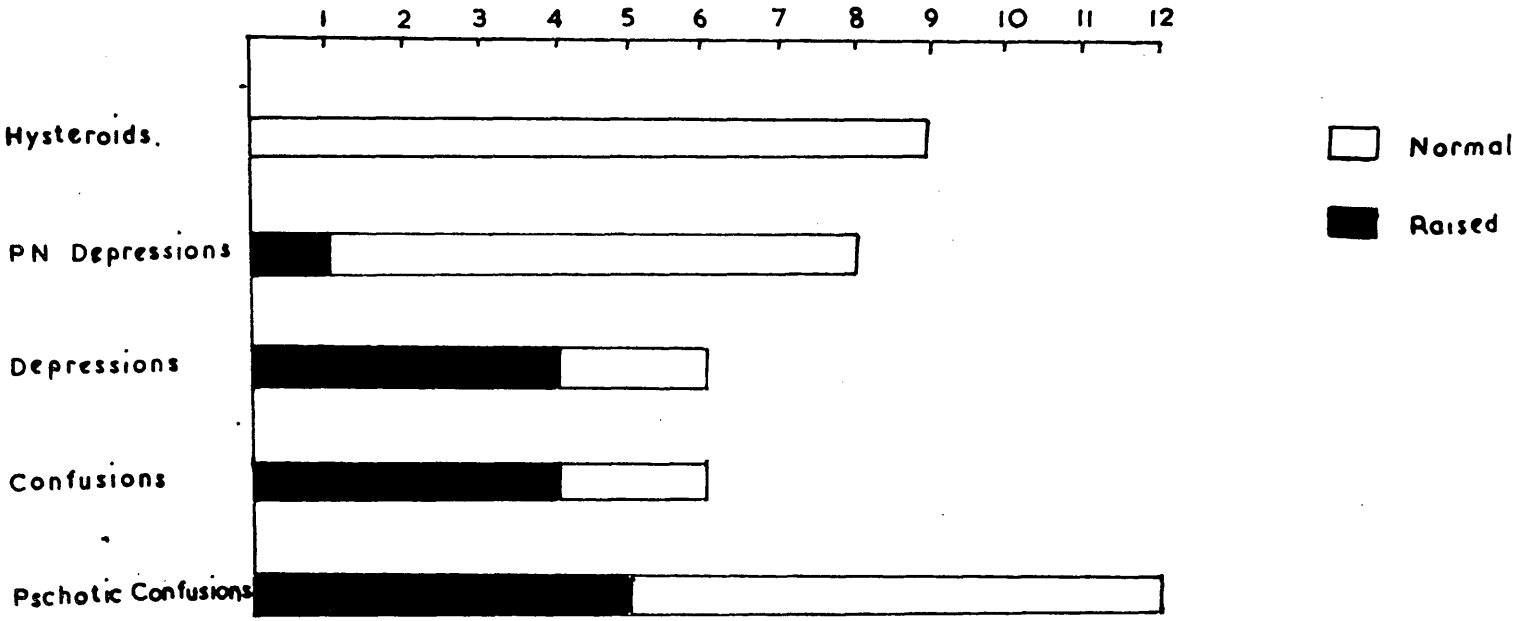


Figure 3

ESR's in various diagnostic groups.

as compared with a mean incidence of 37% in the psychoses.

Finally, an erythrocyte sedimentation rate (ESR) is part of the routine examination on admission at Runwell Hospital. The distribution of ESRs is shown below in admitted cases. (Table 19).

ase No.	Neuroses	Case No.	Neuroses with Depress-ion	Case No.	Depression	Case No.	Confusion	Case No.	Confusion with psychotic colouring
2	4	20	1	37	1	45	3	55	2
6	1	21	4	40	9	46	16	56	1
7	5	23	2	41	10	49	105	57	34
8	2	26	1	42	2	50	46	58	15
9	2	27	2	43	6	53	3	59	32
1	5	31	2	44	3	54	45	60	7
6	1	34	4					62	2
7	1	35	16					63	14
8	4							64	7
								67	6
								68	4
								69	25

ESRs in m.m. per hour. Table 19.

The ESR was in each case calculated by the Westergren method and the critical level by this method is 10mm/hour. The following histogram shows the distribution of raised and normal ESRs in the groups.

Exogenous organic factors are clearly more frequently found in the psychoses and especially in the presence of confusion.

Psychological Tests.

Test material was obtained as in the neurotics and the same conversion was performed where applicable from the Matrices-Mill Hill to the Shipley Hartford to obtain conceptual quotients. The material is treated in one group and the various "ages" in 17 tested patients is shown below (Table 20).

Mean	Psychotics	Neurotics	Puerperal controls
Vocab. Age.	12.6 ± 2.6	14.6 ± 2.3	16.2 ± 2.3
Abstract Age.	11.0 ± 1.85	15.0 ± 2.3	14.1 ± 2.9
Mental Age.	11.6 ± 2.1	14.8 ± 2.1	15.4 ± 2.6

It will be seen that these patients were of poorer intellectual make-up than the other groups. The low verbal score cast doubt on the validity of the Conceptual Quotient in a high proportion of cases but the distribution is shown below (Table 21).

CQ.	17 Psychotics	24 Controls	13 Neurotics	1046 Shipley	Interpretation.
90+	7 (41.9%)	11 (45.9%)	10 (77%)	73%	Normal
85-90	3 (17.7%)	2 (8.3%)	0 (0%)	10%	Slightly suspicious
80-85	3 (17.7%)	2 (8.3%)	1 (7.7%)	7%	Moderately suspicious
75-80	3 (17.7%)	3 (12.5%)	2 (15.3%)	5%	Quite suspicious
70-75	0 (0%)	3 (12.5%)	0 (0%)	3%	Very suspicious
60-70	1 (5.9%)	3 (12.5%)	0 (0%)	2%	Probably pathological

The distribution of CQs in the psychotics, it will be seen, is similar to that in the normal puerperals and distinct from the neurotics and Shipley's validation series.

The Thematic Apperception Test is analysed at the end of the Chapter (Table 20).

The main finding is of the paucity of responses and nearly all the significant differences are illustrative of this, although on card 14 there was a high number of escape stories and on card 16 the emphasis was on personal interests rather than family.

An example of the paucity of these responses would be those of a confusional psychosis with depressive features:-

Card 2: Rejected.

Card 4: "He's thinking of going away and she's trying to stop him."

Card 7: Rejected.

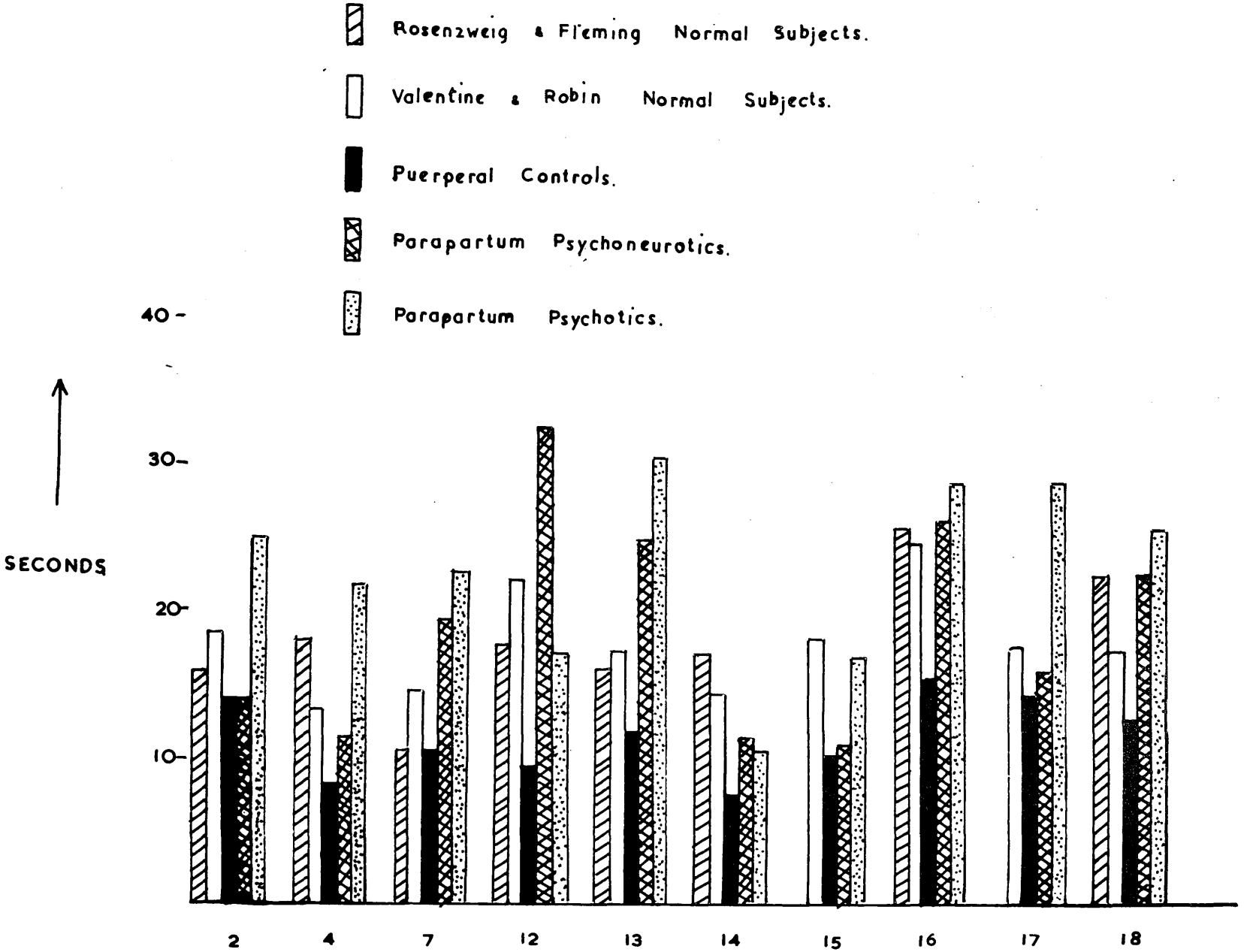
Card 12: "The old lady is planning some evil."

Card 17: "She's wondering whether to jump into the river."

Another patient with similar diagnosis gave similar stories, but often ended: "There's no outcome is there?". Finally, another type of response involved the entry of the patient directly into the depicted situation.

Card 7: "She's holding a doll - it's a little girl....and the mother's nursing her....the little girl is turned away from her mother. You see, I've said unkind things to my mother but I didn't mean them and unkind things to my husband....."

Or another patient on Card 18: "It seems as though someone is trying to choke someone....I felt one night as if someone was trying


Rosenzweig & Fleming Normal Subjects.
Valentine & Robin Normal Subjects.
Puerperal Controls.
Parapartum Psychoneurotics.
Parapartum Psychotics.
40-
30-
20-
10-
SECONDS
2
4
7
12
13
14
15
16
17
18

to strangle me. I thought it was my husband's arm. The outcome is that it still looks as if someone were going to die."

Or Card 7: "A woman is holding the baby...this little girl loves the baby. The girl is very young (anything else?) She doesn't want to think of anything more"(puts card down).

Cards were liked or disliked in the order shown below where information was available (Table 23).

TABLE 23.

	2	4	7	12	13	14	15	16	17	18
Liked	2	1	3	0	0	1	0	2	1	1
Disliked	0	0	0	3	1	0	3	0	2	2

i.e. liked 7, 16, 2; disliked 12, 15. This is a similar order to that described earlier from Valentine & Robin (1950).

Reaction times are shown in a histogram (Fig. IV) and are clearly higher in Cards 7, 12 and 13. It is difficult to escape the conclusion that blocking occurred on Card 13 and this may be related to the avoidance of stories with a seduction theme. On the whole, however, a reduced number of responses was clearly more a general than a specific and meaningful finding. Total response times showed also a marked increase in comparison with other groups (mean per card 143", s.d. ± 18.5").

Suggestibility was investigated in the psychotics, as in the other groups, with card 12M of the T.A.T. The results with comparable results from the other groups are shown below:-

TABLE 24.

	Puerperal controls (25) %		Psycho-neurotics (14) %		Psychotics (10) %	
Hypnotizing	48	72%	57	86%	30	40%
Comforting	24		29		10	
Praying	12		7		20	
Harming, waking	16		7		40	

The expected proportion hypnotizable is then 40% in the psychotics which compares with Rosenzweig & Sarason's (1942) figure for normals and is significantly less than in the neurotic or puerperal control group. Suggestibility may be said to play little part in the aetiology of the psychoses. In relation to this it will be seen that psychoneurotic symptoms are an exaggeration of the normally occurring puerperal traits and it is possible that the appreciation of these traits in a state of heightened suggestibility is the method of symptom formation. The same cannot be said for the psychoses.

Diagnosis has already been mentioned but may now be discussed in more detail.

Depressions: The diagnosis in the ten depressive cases was given as follows:-

3 Agitated depression in an immature personality (Hemphill's "puerperal depression").

1 Depressive reaction with anxiety features.

1 Depressive reaction with anxiety and obsessional features.

1 Depressive reaction with depersonalization.

1 Depressive reaction with hysterical features.

1 Depressive reaction with paranoid features in a hysteroid personality.

2 Schizo-affective reactions.

In both the latter cases, who were seen by a variety of psychiatrists apart from the author, depression was undoubtedly a prominent symptom, but diagnosis was difficult. In one case the diagnoses "Melancholia", "Schizophrenic episode", "Melancholia with schizoid features" appeared at different points in the case record, which read "She is depressed, tearful and perplexed. She says she does not feel natural. She feels she may turn into a half-wit. In conversation she is rambling, vague and irrelevant. She believes she takes ideas from others and during conversation can see evil in their eyes." This patient improved with ECT and insulin coma, but relapsed and further ECT did not ameliorate her condition. She absconded from hospital on a number of occasions and attempted suicide several times. She finally absconded 3 years after first

admission and succeeded in committing suicide.

The second 'schizo-affective' case presented similar problems. She was variously diagnosed as "depression, "toxic exhaustion state", "paranoid state". She was admitted three times after childbirth or abortion. She was described as "very solitary. She walks up and down the corridor and she does not mix with other patients. She does not speak spontaneously. There is a prolonged period between questions and her answers." She had abortive courses of insulin coma as on each occasion her husband discharged her from hospital, although she was not considered well on discharge. She has now been out of hospital for two years.

These patients were treated with:-

ECT - 7 cases (one after failure of prolonged narcosis).

Insulin and ECT - 1 case.

Insulin - 1 case.

Conservatively - 1 case. (This patient had ethisterone for several months. Her recovery was not attributed to this).

9 of the 10 patients left hospital and the tenth absconded to commit suicide. Two of the 9 were not improved, two were improved and 5 recovered fully.

Confusion: There were 9 cases of Acute Confusion. These were all of acute onset with confusion, disorientation, restlessness, impaired recent memory, and sometimes hallucinations - mainly visual - emotional lability, anxiousness, hypomania, or conversely, mild depression.

Five were treated conservatively and four were started on

insulin therapy, receiving 0, 9, 12 and 24 comas respectively. All 9 recovered and in a follow-up of 1 - 4 years none have recurred. All but one were discharged from hospital within 2 months and 6 within one month. The exception was a life-standing neurotic who was hospitalised for 3 months 18 days in the hope of modifying her neurosis after the confusion cleared. Cruickshanks (1940) gives the mean duration of his toxic cases as 10 weeks.

Confusion with Psychotic colouring: Diagnostic problems recur in the last group. In all of these patients confusion was a prominent symptom. A few unselected cases are given individually:-

Case 20: Admitted 5.9.52, aged 26, prima 38 weeks pregnant, B.P. 140/100. Toxic and dehydrated. Acetone in urine. Tearful, distressed, difficult with diet, restless, says "I'm dirty" "Take it away while it is still alive" (i.e. the baby). On 12.9.52. labour was induced. On 29.9.52 the patient was trying to cut her wrists and set fire to herself. Next day she was reported to have lobar pneumonia. Later she started IST but remained grossly confused, resistive to attention and identified the staff as old friends. Leptazol was combined with IST and after 30 comas and 4 grand mal she was reported improved. She left hospital in December 1952. In October 1953 she was re-admitted. She was "confused, stuporose, negativistic and mute. She smiles inanely and at other times looks agitated and tense". Her weight had dropped from 8st. 4lbs. in August 1953 to 6st. 10lbs. on

admission. IST and ECT were re-started and she became "rather euphoric, fatuous....in a giggly mood...aggressive at times.... infectious laughter...." ECT was stopped after 5 grand mal and IST continued. She relapsed becoming "irrational, disconnected and confused....at times stuporose". She had a further 4 ECTs and 38 comas in all. She was "much better" on discharge in January 1954.

Case 21: Admitted 7.1.52., 8th day postpartum, aged 20. Low grade pyrexia on admission. B. coli cultured from vaginal swab. Patient was confused, asked if she was "a sex maniac" as "she played with herself with young". Emotionally shallow. Says there are monsters on the bed. She started IST but was discharged against advice 3 weeks after admission. Re-admitted on 15.2.52. Immature and hysterical. She denies her baby is her own. Says she is evil and a witch. Refuses food. Believes she is wicked. Re-started IST. In all she had 39 comas and was discharged in March, against advice. Re-admitted to St. Clement's Hospital on 19.6.53. Had been "creating a disturbance in the Labour Exchange. She says that "cigarettes make her go like this and that she makes the moon and the stars". Auditory hallucinations. Diagnosed as schizophrenia and transferred to Runwell Hospital. Discharged against advice next day by her husband.

Case 22. Admitted 9.2.52, 7 weeks postpartum. History of anxiety in late pregnancy. At this time told husband that she felt there was a psychiatrist in the room when at Opticians for

refraction or that the Optician was a psychiatrist. Admitted maternity to/hospital 12 days before delivery. Toxaemia of pregnancy. Discharged after week and re-admitted in labour. After 12½ hours in labour Caesarian section performed because of foetal distress. Foetus post mature and no liquor in uterus. Patient appeared very worried about normality of child. At home became depressed and anxious. Blamed herself for all types of accidents. Said she was responsible for a plane crash during the War. On admission "confusional state with depression. She obviously has visual hallucinations. Perplexed. Unable to concentrate". She would begin to relate something then say "No, skip it" and stop. She started IST. After 16 comas appeared to be improved and was discharged. Re-admitted two weeks later. "Resistive to attention. Confused, overactive". Onthe morning of admission she had suddenly announced that she was the most vile person on earth and that the dog was an evil spirit. She attempted to knife the animal as she felt its death would relieve her wrong-doing. History of apathy for a few days prior to admission. Auditory hallucinations were now reported. She had a further course of IST - 33 comas - plus Leptazol - 6 grand mal. She was fatuous and giggly but improved during the next month and was discharged on 15.6.52. Re-admitted 18.12.52. While superficially well preserved, clean and tidy and able to converse intelligently on books, films, etc., now has numerous delusions apparently systematised. Very guarded and story obtained only after numerous interviews. Believes she married John St. Aubyn (who was disguised as a waiter) during the War and that she was

invited to be a bridesmaid at Princess Elizabeth's wedding. Diagnosis now of schizophrenia. In the course of the next few months her mood gradually changed and she became agitated and depressed. She was given further ECT and was now jovial, friendly, worked as a typist in the laboratory and was writing a novel. Obtained a temporary post outside the hospital. Worked well although quite deluded. Advised to go to her mother in Cumberland and left in October 1953. After a few cheerful letters has not contacted the hospital. In a bright, but still psychotic, phase this patient was sent for diagnostic testing, and a very experienced clinical psychologist, using specially selected TAT cards which had been quantitatively validated, gave a diagnosis of "hysteria".

Case 23. Admitted 16.4.53, 17th day postpartum, toxaemia of pregnancy. Pale, exhausted, confused. Extremely noisy and resistive at times. At times very tense. Says she is afraid of going down to hell. Complains of "pains in the heart". Pyrexial. B. coli cultured in urine. Infection was treated and IST was started. After 40 comas there was little improvement and she was also given ECT. On 22.7.53 it was noted "one has the impression that much of the clinical picture is not genuine. She stares vacantly and answers questions fitfully. Erratic and unreliable". A week later she was "disconnected, fatuous, autistic. Mutters incoherently as if hallucinated". Diagnosis of schizophrenia was now made. She was discharged by her husband on 25.9.53 and is still at home.

These cases show (1) confusion, (2) periodicity, (3) affective changes, (4) hysterical behaviour, and (5) deterioration into a schizophrenic illness. In three cases of the 16 there was no evidence of a schizophrenic process and the psychotic colouring was simply of depression. These patients were all very retarded and indeed almost stuporose. In the remaining 13 cases, 9 showed catatonic, 2 paranoid, and 2 hebephrenic syndromes.

Differentiation from the simple confusions when the cases first present is not easy, but (1) premonitory symptoms as in case 22 and (2) depressive delusions may help in assessing the prognosis. As has been said, at two months 8 of 9 confusions had been discharged from hospital; but of the psychotic-confusions one had been discharged within three months - against advice - on the order of her psychopathic husband. This is a later guide in the differential diagnosis. The prognosis in the psychotic-confusion group is consequently worse. In the psychotic-confused group 7 recovered, 2 were improved, 6 were not improved and 1 committed suicide. Mean stay in hospital was 9.8 months (s.d. ± 10.9). The psychotic-confusions were treated with:-

IST - 1 case.

IST and ECT
or
Leptazol - 9 cases.

ECT - 4 cases.

ECT ± IST and leucotomy - 2 cases.

In most cases treatment was started with insulin and the treatment allegedly continued with ECT. The results, however, apart from physical improvement and a quietening effect, appear to have followed the latter treatment. One extraordinary case is worthy of mention:-

Case 25: Admitted to Shenley Hospital in 1949, aged 35, and diagnosed as suffering from "a schizophrenic episode complicated by the fact that she is also a mental defective". (I.Q. was 73). There was a positive family history - her mother is in a mental hospital suffering from paraphrenia. Her symptoms had begun after her 3rd child which she had produced with the idea of bolstering up her shaky marriage. Her husband deserted her while she was in hospital but she improved and was discharged in February 1950. Three days later she attempted suicide by jumping off Southend pier and was admitted to Runwell Hospital. Her condition was variable. At times she was apathetic, complained of headaches, but was able to help on the ward; at other times she was "confused and almost mute. Her behaviour was compulsive - she made a dive at the ward doctor and attempted to embrace him. She behaved similarly to the Matron. She looked puzzled and muttered to herself." She was again tested and was in group V in the Progressive Matrices. Her weight varied, rising from 9st. 8lbs. to 11st. 6lbs. in one year, falling to 10st. 13 lbs. and rising again to 11st. 7 lbs. later. She suffered from long periods of amenorrhoea but was gynaecologically normal. She responded to ECT for short periods (a few weeks) and then relapsed. She re-

mained in the above state for almost three years. She was then given progesterone intramuscularly in January-February 1953 - in a dose of 25mgm. on three alternate days. She menstruated normally one week after this and her mental condition appeared much improved. In the next cycle the treatment was not repeated. She did not menstruate again and her mental condition deteriorated. In March she was again given progesterone and she again improved. Thereafter treatment was repeated monthly, latterly as an out-patient. She was discharged in April 1953 and has been working as a barmaid since discharge (now 20 months).

Comment.

The most striking findings in the psychoses are:-

(a) Low average intelligence.

(b) Tainted heredity.

(c) High incidence of organic mental reactions or reactions with organic overlay.

(d) High incidence of physical difficulties in gestation, labour and the puerperium.

Contrary to findings in the neurotics:-

(1) There was a low incidence of neuropathy in childhood.

(2) There was a small number of psychological problems of apparent aetiological relevance on investigation.

Impairment, it will be recalled, was seen in the normal puerperium. It is likely to be increased by toxaemia or other complications in the puerperium. It will be particularly evident clinically in the patients of lower intelligence, for

the lower the intelligence the greater relatively will be the loss of function.

Clinically, also, the association of catatonia with the puerperium is confirmed and a high frequency of affective reactions and affective features in schizophrenic illnesses is seen. The occurrence of catatonia may be associated with the marked changes in the nitrogen balance mentioned early on. These may also explain the recurrence of mental illnesses from puerperium to puerperium. This was seen in 4 of this series of cases - all psychotic-confusions. On the other hand, as will be seen below - an endrocrine aetiology may also be postulated.

The frequency of affective symptoms might be associated with the occurrence of toxaemia in women of pyknic build - apart, of course, from the naturally occurring incidence of these symptoms and their apparent accentuation in the normal puerperium.

Case 25 is probably unusual. Schmidt (1943) and Blomberg & Billig (1942) reported cases which responded allegedly to progesterone but these were more acute than the case reported here and the improvement may have been spontaneous. That premenstrual tension often follows pregnancy has already been mentioned. Williams & Weekes (1952) reported that psychotic episodes in the premenstrual period are usually catatonic, manic or combinations of these and observed in 16 cases. Case 25 may have been in this category.

The overall prognosis is good and the prognosis in puerperal schizophrenia no worse than in schizophrenia in general (Table 25).

TABLE 25.

	Recovered	Improved	Not Improved	Total
Depression	5 (50%)	2 (20%)	3 (30%)	10
Confusion	9 (100%)	0	0	9
Psychotic-confusion (mainly catatonic)	7 (43.75%)	2 (12.5%)	7 (43.75%)	16
Total	21 (60%)	4 (11.5%)	10 (28.5%)	35

There is no significant difference in the recovery and improvement rates between depressives and psychotic-confusions.

It appears, in conclusion, that one approach to prevention of the parapartum psychoses lies in the avoidance of obstetric complications, especially in the patients of lower intelligence who, to make matters more difficult, may be less well prepared for labour through not understanding or following instructions in the preparation for it.

TABLE 14. Analysis of Thematic Apperception Test.

Card 2. Country scene: In the foreground is a young woman with books in her hand; in the background a man is working in the fields and an older woman is looking on.

Mean Rt. 25.0" s.d. 13.2	25 Puerperal Controls (PC) %	14 Psycho-neurotics (PN) %	20 Psychoses (P) %	Significance
Family group	28	43	35	
Woman on right:				
Pregnant	8	14	15	
Praying	0	0	0	
Depressed	4	0	5	
Domineering	20	21	5	
Man:				
Ploughing	40	65	35	
Working on Farm	48	29	20	$<.02$
Girl in foreground:				
Student	48	36	20	$<.02$
Depressed	36	21	20	
Women are rivals (for man)	0	29	15	
Contrast between desire for education and farming background	52	50	35	

Card 4. A woman is clutching the shoulders of a man whose face and body are averted as if he were trying to pull away from her.

Mean Rt. 21.9" s.d. 14.4	25 Puerperal Controls (PC) %	14 Psycho-neurotics (PN) %	21 Psychoses (P) %	Signif-icance
Girl is restraining him	40	43	19	
pleading or comforting	56	57	19	$<.02$
Man rejects her	36	36	19	
Man accedes	28	43	0	$<.01$
Background: a picture	0	43	5	
a woman	8	14	10	
implied that it is female	0	7	5	
Film	24	0	0	$<.01$

Card 7. An older woman is sitting on a sofa close beside a girl, speaking or reading to her. The girl, who holds a doll in her lap, is looking away.

Mean Rt. 22.6" s.d. 39.5	25 Puerperal Controls (PC) %	15 Psycho-neurotics (PN) %	22 Psychoses (P) %	Signif-icance
Relationship: Mother and Daughter	76	93	32	<.01
Aunt & niece	0	0	0	
Lady & girl	4	0	14	
Godmother & Godchild	4	0	5	
Doll: mentioned	40	73	32	
broken	4	7	0	
baby	40	7	18	<.05
girl's baby	4	0	5	
Girl:				
reflecting	20	13	14	
unhappy	56	67	5	
wants to do something else	8	27	5	
Woman: reading	52	27	14	<.01
advising	16	33	14	
telling 'facts of life'	0	7	0	
Girl jealous of new baby	5	7	24	

Card 12. The portrait of a young woman. A weird old woman with a shawl over her head is grimacing in the background.

Mean Rt. 17.0" s.d. 10.7	25 Puerperal Controls (PC) %	14 Psychoneurotics (PN) %	20 Psychoses (P) %	Significance
Elderly figure: unpleasant female	52	72	40	
male	0	0	5	
doubt as to sex	0	0	10	
Occupation: Nun	12	43	10	
Witch	8	14	10	
Gipsy	0	7	0	
Younger figure: daughter	0	21	5	
anxious	4	21	0	
looking at someone	4	14	0	
Imagining a future picture of herself	24	0	0	$<.02$
The older figure is a thought or the conscience of the younger one	20	7	20	
The picture is a painting	16	14	0	
Rejected	8	7	10	

Card 13. A young man is standing with downcast head buried in his arm. Behind him is the figure of a woman lying in bed.

Mean Rt. 30.2" s.d. 31.2	25 Puerperal Controls (PC) %	16 Psycho-neurotics (PN) %	21 Psychoses (P) %	Signif-icance
Seduction scene	32	31	5	$<.02$
Murder or rape	20	13	19	
Girl is ill or dying or dead	52	69	14	$<.01$
Girl is asleep	8	0	5	
Alternative themes	32	19	0	$<.01$
Husband and Wife	8	25	19	
Man is covering face	8	6	10	
Man is: remorseful	32	44	10	
grieved	52	38	14	$<.01$
anxious	12	19	0	
Poor circum-stances	8	13	0	

Card 14. The silhouette of a man (or woman) against a bright window. The rest of the picture is totally black.

Mean Rt. 10.3" s.d. 9.8	25 Puerperal Controls (PC) %	13 Psycho-neurotics (PN) %	20 Psychoses (P) %	Signif-icance
Figure:				
Male	44	85	75	<.05
Female	4	0	0	
Unspecified	52	8	10	<.02
Light:				
Outside	28	62	40	<.01
Inside	4	0	0	
Dark:				
Outside	28	8	5	<.05
Inside	44	54	25	
Night	44	46	10	<.02
Moonlight	12	23	10	
Insomnia	4	15	0	
Burglar	8	23	0	
Suicide	8	8	10	
Thinking or Dreaming	36	8	5	<.02
Looking	16	85	50	<.02
Escaping	?	0	25	<.01

Card 15. A gaunt man with clenched hands is standing among gravestones.

Mean Rt. 16.7" s.d. 20.7	25 Puerperal Controls (PC) %	13 Psycho-neurotics (PN) %	19 Psychoses (P) %	Significance
Figure is human	68	46	32	$<.05$
Ghost or unreal	24	39	11	
Male Sex	80	46	37	$<.01$
Visiting a grave	52	46	5	$<.01$
Thinking of life's futility	0	0	0	
Repenting	4	8	5	
Handcuffed	8	0	0	

Card 16. Blank Card.

Mean Rt. 28.3" s.d. 31.0	25 Puerperal Controls (PC) %	11 Psycho-neurotics (PN) %	19 Psychoses (P) %	Signif-icance
Subject related to:				
Self	8	9	0	
Family	48	55	11	<.01
Others	4	0	5	
Personal interests	12	36	26	
Rejected	0	0	11	

Card 17. A bridge over water. A female figure leans over the railing. In the background are tall buildings and small figures of men.

Mean Rt. 28.8" s.d. 24.4	25 Puerperal Controls (PC) %	13 Psycho-neurotics (PN) %	19 Psychoses (P) %	Significance
Figure on bridge:				
Female	56	62	26	<.05
Unspecified	12	8	5	
Waiting	4	15	5	
Looking	12	54	16	
Suicidal	32	15	11	
Escaping	0	0	0	
Anxious	0	8	5	
Scene:				
Smuggling	8	31	0	
Stage Set	4	8	0	
Unreal	20	39	0	<.05
2nd figure noted	12	23	16	
Warehouse etc. noted	36	8	21	
Sun noted	28	23	26	
Bridge noted	48	31	16	<.05
Boat noted	44	69	21	<.01

Card 18. A woman has her hands squeezed round the throat of another woman whom she appears to be pushing backwards across the bannister of a stairway.

Mean Rt.	25.6"	25	14	20
s.d.	27.1	PC	PN	P
		%	%	%
Relationship :				
Family		36	64	55
Same Sex		60	77	60
Opposite Sex		12	31	30
Upper figure is :				
harming other		24	62	50
comforting other		56	62	40
Lower figure is ill or injured		56	46	30

SUMMARY

1. The occurrence of psychiatric conditions in association with gestation and particularly the puerperium is greater than might be expected by chance, and the mean age at which these reactions occur is about 30.

2. The parapartum period is associated with physiological changes which have also been associated with mental changes in psychiatric reports.

3. Changes in the nervous system occur in the parapartum period and are illustrated by changes in the course of nervous and psychosomatic conditions.

4. Toxaemia of pregnancy, which is a common complication of parturition, involves the nervous system.

5. Childbirth is an important psychological event per se as is seen by its influence on the male associated with it.

6. A group of normal mothers studied in two maternity hospitals showed conceptual impairment, and associated hysterical and depressive traits and heightened suggestibility in the puerperium.

7. A group of parapartum neurotics studied in out-patients' departments and mental hospitals had predominantly hysterical and depressive reactions to chronic interpersonal difficulties no longer contained by the weakened integration associated with the parapartum period. A history of neuropathy in childhood, of frigidity since marriage, and a tainted family history was frequently found.

8. A group of parapartum psychotics of low average intelligence had predominantly confusional, depressive and catatonic

reactions to physical difficulties in parturition. A tainted family history was found equally commonly but psychological problems were relatively infrequently discovered.

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