PSYCHOSES ASSOCIATED WITH CHILDBIRTH.*

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PREGNANCY, with the associated pain and danger of labour and the puerperium, is an ordeal for any woman, more so perhaps to-day than it has ever been, because of the wide publicity given to the toll of puerperal infection and the need for ante-natal care. An experience so intimately connected with the love-life, and with social and economic difficulties also, is often a period of acute mental stress in perfectly healthy women. Still more is it a time of psychological tension in those constitutionally unstable and liable to mental breakdown, both because they are not able to withstand the strain of mental conflict, and because they are the more likely to meet with such emotional problems on account of their temperamental unbalance.

In any individual case the presence of bodily disturbance or disease leading to added toxæmia will increase the danger of the development of psychopathic symptoms, since it is well known that toxæmia of itself is often sufficient to induce a state of insanity.

It is not surprising, therefore, that psychoses associated with childbirth are fairly common, nor is it surprising, since at least one precipitating factor is known and can be investigated and its results treated, that the proportion of recoveries is fairly high.

The present essay is based on the case-histories of 14 successive patients of this nature admitted to a mental hospital during the years 1931 and 1932, with the addition of one admitted in 1933 who died soon after admission.

Of these 14 cases, 11 were puerperal, being admitted within three weeks of labour, and 3 were psychoses arising during the course of pregnancy.

Eleven recovered sufficiently to be discharged, 2 died, and 1 patient remains in hospital after a period of seven months.

It is proposed to investigate the various factors which apparently influenced the course of these psychoses, and to formulate a satisfactory scheme for their treatment.

THE RENAL FUNCTIONS.

The occurrence of renal infection and defect during pregnancy and the puerperium is well known to be comparatively widespread.

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Baird (1) showed that dilatation and stasis in the ureters are common in the second half of pregnancy, and he believes that this is a potent cause of renal damage. Infection is commonly produced, and this seldom clears till pregnancy has finished. Abundant fluids are advised in the treatment.

The exact mechanism of this ureteral dilatation is not settled. Casson (2) supports Opitz's original contention that it is the pressure of the pregnant uterus on the ureters, especially on the right ureter, that leads to dilatation and perhaps infection, while Stoeckel (3) suggests that the general ureteral muscular atony is dyshormonic in origin.

Edinburgh workers (4), however, have shown that in toxic albuminuria of pregnancy and in eclampsia there is an over-production of the hormones of the posterior pituitary, which should diminish ureteral atony. Küstner (5) also states that eclamptic toxæmia is due to excessive posterior lobe pituitary hormone. He states that this is antagonized by thyroxin, which increases the passage of the fluid from the tissues to the circulation, especially if the blood-pressure is low, œdema is present and the renal function is impaired, and in these cases thyroxin should be prescribed.

In 13 of the 14 patients considered in this investigation, albumen was found in the urine soon after admission. In 6 the amount was considerable, and in 3 of these it persisted throughout the duration of the patient's residence in hospital. Two of these 3 also had casts in their urine. The remaining 7 had albumen present in the urine during the early days or weeks, which disappeared later.

Pus cells were persistent in 3 cases, and *B. coli* were cultured from the urine of 8, in 3 of which the growth was very heavy. The urines of the other 6 patients were sterile. Four patients had urinary indican, 2 had acetone and 2 sugar. All these cleared up except the sugar in the urine of one case with a severe grade of diabetes.

Only one patient had a clear urine throughout.

In *B. coli* urinary infections, autogenous vaccines were tried in 2 cases without noticeable effect, but ordinary medicinal remedies usually proved efficacious.

Water excretion tests, based on the test described by Beaumont and Dodds (6), as used by Strauss Graunwald, were carried out at intervals on most of the patients. As tests of renal function they proved of little value, but the excretion regularly increased with improvement in the mental health, and it was found possible to correlate the increased excretion figures with reduction in the emotional tension. Thus, one patient admitted in a stuporose condition excreted 17 oz. of urine during the three hours following the ingestion of one pint of water on a fasting stomach. Three months later the patient was much improved, but tearful and depressed and full of vague fears. The same test now only produced 12 oz. Another patient excreted 6 oz. soon after admission, 4 oz. a month later, when emotional tension was very obvious,

and 23 oz. a month later, when convalescent. These results were fairly constant, and the test provided an index of the diminution of emotional tension, but not necessarily of cure in any individual case. Its use is therefore similar to that of the hyperglycæmic index calculated from blood-sugar curves, as employed by McCowan and Quastel (7).

Nephritis.

In two cases there was a history of a severe degree of albuminuria of pregnancy.

In the first it necessitated induction of labour at eight months, after which the patient was gravely ill, and developed mental symptoms necessitating certification three weeks after delivery. The second case had had albuminuria of pregnancy with a first child six years previously, but had decided to risk a second pregnancy. Mental symptoms developed soon after delivery at full time. In both these patients casts and albumen persisted in the urine at least until the day of discharge, and both had high blood-pressure. Both had a history of œdema, but it was absent on admission. Fluids were given freely to both, with salines and enemata.

The blood plasma cholesterol content is widely accepted as a measure of renal damage of the parenchymatous variety. During pregnancy the blood cholesterol increases, but it diminishes towards term and during lactation, the fall being more rapid if the mother suckles her child, because of the excretion of cholesterol in the milk. No patient in this series suckled her child, and this added to the difficulty in estimating the degree of nephritic damage that might be indicated by a raised blood cholesterol level. The blood cholesterol figures of the two patients with parenchymatous nephritis are shown in Table I. The high contents were undoubtedly due to the renal defect present in these cases.

Table I.

		Time after delivery in weeks.					
		2.	3.	4.	5.	8.	12.
Case 1	Blood cholesterol in mgrm. %	..	463	283	216	303	200
,, 2		259	..	240	..	..	213

The estimations were not of any great clinical use, however, for the examination of the urine and the clinical condition of the patient are usually sufficiently trustworthy. In any case it is difficult to formulate reliable interpretations from blood cholesterol levels, for the variation in normals is wide, especially in women, being from 80 mgrm.% to 230 mgrm.% according to Gainsborough (8), and the same author adds that the level is affected by biliary stasis; hypothyroidism, diabetes and other conditions, as well as by nephritis.

Moreover, the blood cholesterol has been shown to vary with the emotional tone by Sternberg (9) and Lockwood (10). Table II shows the cholesterol blood plasma levels in two of the other patients in this series, who had relapses while under treatment :

TABLE II.

Time in weeks after delivery.	Case 1. Blood plasma cholesterol in mgrm. %.	Case 1. Mental state.	Case 2. Blood plasma cholesterol in mgrm. %.	Case 2. Mental state.
3	..	..	256	Maniacal.
4	123	Improving	237	,,
6	173	Maniacal	188	Improving.
8	229	Improving	177	Convalescent.
10	167	Convalescent	167	Maniacal.
14	..	..	228	Improving.
18	..	..	108	Convalescent.

These two cases illustrate the rise in the blood plasma cholesterol following an increase of emotional tension, but the increase lags behind the emotional level, as pointed out by Lockwood (10). The blood plasma cholesterol is subject to rather wide variations, even when estimated in the morning on an empty stomach, to avoid fitful increases from the digestion and assimilation of food. A succession of estimations on one patient in this series at intervals of roughly five days gave the following figures : 163 mgrm. %, 116 mgrm. %, 137 mgrm. %, 162 mgrm. %, 142 mgrm. %, 171 mgrm. %, 118 mgrm. %, and this without any marked change in the emotional tension. It is clear that the estimation of blood cholesterol has little clinical use in the treatment of psychoses associated with childbirth.

Blood Urea.

Although no case of true azotæmic nephritis occurred in this series, yet the estimation of the blood urea was found to be a useful investigation. During the later months of pregnancy there is a progressive fall in the blood urea, probably due to the demands of the fœtus on the proteins ingested, and there is a progressive rise after the first week of the puerperium until about the twentieth day. Since a puerperal psychosis most commonly begins near the end of the first week, it is probable that this increased strain on the maternal metabolism is partly responsible in many cases. The fall and rise of the blood urea is illustrated by the following case in this series :

CASE 1.—Æt. 35. Admitted approximately seven months pregnant, restless and confused, and with diabetes of pregnancy. The blood-urea was 39 mgrm. %, and this fell in one month to 18 mgrm. %, but since the sugar curve grew progressively higher and more prolonged, labour was induced. After delivery the blood urea varied as follows :

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TABLE III.

	Days.					
	3.	6.	10.	15.	21.	28.
Blood urea in mgrm. %	29	23	42	47	39	20

Apart from nephritis a high blood urea may be due to dehydration or temporary renal toxæmia. In this series the diet was limited, as a rule, to fluids, at least five pints a day, consisting of diluted milk and fruit juice with glucose until the blood urea fell below 40 mgrm. %, and I am convinced of the wisdom of this procedure. The table (Table IV) shows the figures obtained in patients so treated :

TABLE IV.—*Puerperal Cases with High Blood Urea.*

Day after delivery symptoms commenced	3	4	5	7	9	10	10	11	?
Day admitted after delivery	11	6	20	14	11	13	20	14	23

Day after delivery.	Blood urea in mgrm. %.								
10th	..	45	..	..	..	..	..	..	..
12th	..	..	..	..	..	..	..	..	..
14th	63	26	..	..	49	49	..	..	..
16th	53	..	..	45	..	32	..	44	..
18th	45	..	..	33	..	..	..	..	..
20th	38	..	..	..	..	..	53	40	..
22nd	..	..	..	..	..	28	59	..	..
24th	..	..	62	..	..	..	68	32	45
28th	..	..	52	..	..	..	..	..	..
32nd	22	..	..	..	45	..	44	..	..
36th	..	..	37	..	41	..	24	..	36

Urea excretion tests proved of no value in this series, and even those patients with definite nephritis gave satisfactory figures, although in most cases the urea excretion increased somewhat as improvement took place in the patients' general health.

SEPSIS.

It is to be expected that the effects of local infection in the genital tract would frequently be found in a series of psychoses associated with childbirth, and where puerperal infection occurs it has a primary call for immediate treatment. Besides this, the rôle of focal sepsis elsewhere as an ætiological factor in the production of psychoses has to be considered. The importance of tonsillar, sinus or dental sepsis has been ably expounded by Graves and Pickworth (11), among a host of others, and Graves particularly stresses the frequency of sinus infection. He maintains that puerperal and lactational cases are often due to sinus disease, with or without dental, tonsillar and

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gynæcological sepsis, and he believes that there is a reduction in resistance to toxæmia and infection following labour, and that if sepsis is present it is intensified and may persist until relieved by operation. It is undeniable, too, that striking successes do follow the eradication of septic foci in psychotics as well as in many patients suffering from skin or joint lesions or nephritis, but the universal benefits at one time anticipated have not been fulfilled, and the treatment of focal sepsis in the majority of cases depends on the principle of leaving no stone unturned. Miller (12) has recently pointed out the comparatively disappointing results following the thorough treatment of dental sepsis, and the effects of tonsillar enucleation are receiving a great deal of criticism at the present time.

Two patients in this series died, both from puerperal infection and septicæmia. The first had had mental symptoms for seven days when she was admitted on the fourteenth day of the puerperium, seriously ill, with abdominal distension and tenderness over the lower abdomen, but no rigidity. The uterus was sub-involuted, and lochia absent. On the third day in hospital a hæmolytic streptococcus and the *B. alkaligenes fæcalis* were grown from a blood culture, and an identical growth of these two organisms was again obtained on the sixth day. A cervical swab gave a growth of *B. coli*. Treatment consisted of hot fomentations to the abdomen and hot vaginal douches, with large doses of anti-streptococcal serum subcutaneously, followed by intravenous injections of N.A.B. Pituitary extract was also given subcutaneously for the abdominal distension, which disappeared in a few days. The uterus was swabbed out on the fifth day after an intra-uterine douche, but the patient died on the ninth day, and the post-mortem revealed a large abscess in the right side of the pelvis and spreading peritonitis. Hæmolytic streptococci were grown from the heart and liver.

In the second case symptoms commenced on the eighth day of the puerperium, and the patient was certified on the fourteenth. There was a septic wound in the perinæum and a profuse foul discharge from the vagina, with a swinging temperature, varying between 98° and 102° F. Blood culture was negative on one occasion, and staphylococci were cultured on another. A cervical swab gave *B. coli* and staphylococci. Improvement occurred at first, but on the eighth day in hospital an intense scarlatiniform rash appeared over the body, and acute nephritis, with œdema, diminished urine and albumen caused the patient's condition to become critical, and she died two days later, despite three injections of 50 c.c. of mixed polyvalent anti-streptococcal serum and anti-scarlatinal serum. A post-mortem examination was refused. The nature of the terminal signs and symptoms in this case made it fairly obvious that death was due to streptococcal septicæmia.

Excluding these two patients who died from puerperal septicæmia, septic infection was still fairly frequent. Subinvolution was present in 8 of the remaining 12, and in 6 of these the lochia were offensive, in 2 slightly and in 4 markedly so, while 4 patients had temperatures above 100° F. for a few days. All cases responded to treatment by ergot and postural drainage, with hot vaginal douches twice a day. In one case where a swinging temperature and grave toxæmia persisted for several days, a hot uterine douche of weak iodine was given under general anæsthesia, with excellent effect.

Cervical swabs were taken in all cases; *B. coli* was cultured five times, while *Staph. aureus*, *Staph. albus*, *Strep. viridans*, pneumococcus and diphtheroid

organisms were cultured once each. In 3 cases vaccines were prepared from these cultures, one of *B. coli*, one of a mixture of pneumococci and *Strep. viridans* and one of *Staph. aureus*. In the last case the *Staph. aureus* was grown from a septic tonsil and from a perinæal wound, as well as from the cervix, but in no case was any effect observed following the use of the vaccines, and reactions were absent.

N.A.B. injections were also given to the patient from whom *Streptococcus viridans* was cultured.

All patients were examined, and, where necessary, treated by an ear, nose and throat surgeon, and by a dental surgeon. One patient was edentulous, in 8 the teeth were satisfactory, 2 had several extractions, and 1 patient had a total clearance under general anæsthesia. In this last case the teeth were sound, but recovery was delayed, despite other forms of treatment, and the patient was too confused and restless for any psychological approach. Speculative cultures were grown from two tooth-roots and a vaccine prepared from a growth of *Streptococcus salivarius*. Marked reactions were obtained by the use of this vaccine, and in consequence it was decided to have all the teeth removed. A good recovery followed soon after.

Three patients had their tonsils removed by dissection under general anæsthesia. Three other patients, whose recovery was delayed, had both antra and both sphenoidal sinuses washed out by the special aseptic technique recommended by Watson-Williams and Graves. Twelve sterile cultures resulted, but in one patient the right antrum was full of pus and mucus.

Non-specific protein therapy in the form of intravenous T.A.B. vaccine was used in 8 of these 12 patients, the dosage being usually regulated so that a temperature of 102° F. or less was produced at weekly intervals. The injections were continued until a dosage of 1,200 million mixed bacteria was reached, the number of injections varying from six to twelve. No advantage, but rather the reverse, was obtained by higher temperatures.

Two patients, in whom treatment was commenced one month after labour, were clinically worse following this treatment, while three patients who seemed to be passing into chronicity and dementing, after being in hospital from four to seven months, made remarkable clinical improvement soon after. The impression gathered from these cases was that treatment with T.A.B. vaccine should be postponed until the patient is in fairly good physical health, and that if mental improvement is not then satisfactory, good results can be expected in a majority of cases by the use of doses calculated to produce comparatively small rises of temperature. This is somewhat surprising, since it is my experience that small doses of T.A.B. vaccine can often be used with great benefit very early in the course of an acute confusional psychosis from other causes.

It has been demonstrated by Mellanby (13 and 14) and his fellow workers that a diet rich in vitamin A has a preventive action against the development

of puerperal sepsis and also a favourable influence on a puerperal fever already present, and consequently cod-liver oil was administered to all patients.

In all patients the Wassermann reaction was negative in the blood.

The Heart.

Since puerperal patients especially are often gravely ill, it is only to be expected that the cardiac condition frequently needs careful watching, for the heart muscle shares in any general toxæmia that is present. In both patients who died of septicæmia the heart was dilated, particularly to the right, and the rate very rapid. In 6 further cases the heart condition gave rise to anxiety, and the pulse-rate remained above 100 per minute for several days. Systolic murmurs were heard occasionally, and in one patient the heart-rate fell to only 36 per minute for twenty-four hours, about one month after labour. This was presumably a temporary heart block resulting from toxæmia.

Glucose by the mouth was used as a heart food, and digitalis was prescribed with advantage in several cases. Rest, however, is the first essential for a heart that is showing signs of early failure, and sedative drugs are often essential.

Sedatives.

Sedatives were almost uniformly required. The standard prescription for most patients was 10 gr. of medinal twice a day.

It was often possible to reduce this dose after several days of treatment, but occasionally an injection of morphine and hyoscine was required in addition. Continuous baths were used in the case of two patients, but the results attained by frequent tepid sponging seemed to me to be superior. Sedative massage was sometimes useful.

Blood-pressure.

The following table (Table V) is a summary of the blood-pressures of the 14 patients here considered. Cases 1 and 2 suffered from parenchymatous nephritis. Rest reduced high blood-pressure in all cases, and drugs were not necessary. In the case of Case 1 in the table, after rest had reduced the systolic blood-pressure from 170 mm. to 130, the pressure rose again to 150 during a course of intramuscular injections of collosol iron and arsenic. This may have been accidental, but since I have observed a similar occurrence in other psychoses with a tendency to high blood-pressure, I am inclined to the belief that the injections were responsible for the rise. All the figures given are averages of two or three readings.

Blood-pressure Table.

	1.	2.	3.	4.	5.	6.	7.
During 1st week	170/120	190/140	150/100	150/95	145/95	135/95	135/95
After 2 months	130/90 [150/105]	143/100	150/95	125/88	135/88	..	..

	8.	9.	10.	11.	12.	13.	14.
During 1st week	130/80	130/75	115/85	110/78	105/65	90/60	150/90
After 2 months	..	..	..	115/80	120/85	115/90	90/62 [120/80]

There were several cases of low blood-pressure. Case 14 fell from 150 systolic to 90 with rest, and rose to 120 following the administration of ephedrine.

Ephedrine was also prescribed in Case 13, while Case 12, a hypothyroidic patient, received thyroid extract, in each case with a satisfactory result.

Anæmia.

Anæmia, of course, was a common finding. Seven patients had hæmoglobin percentages below 60, the average of these being 48%. Iron was usually given by intramuscular injection, since many patients were taking other medicines concurrently. Collosol iron and arsenic was usually employed, but sometimes 20 gr. of iron and ammonium citrate were given by the mouth three times a day. This was successful in all but one of these cases, the average hæmoglobin content three months after admission being 70%. Red cell counts ranged from 4 to 5 million cells per c.mm., averaging 4·4 millions, and white cell counts were usually about 7,000 per c.mm.

Whitby (15) has pointed out that while anæmia in pregnancy is more commonly a simple iron deficiency, responding satisfactorily to the administration of iron, yet anæmias of more serious nature, resembling pernicious anæmia, are fairly frequent in incidence.

These latter can be divided into plastic and hypoplastic from bone-marrow hypoplasia.

The hypoplastic type is worse with succeeding pregnancies and difficult to cure. It is usually most severe between the sixth and eighth month, but is often not clinically manifest until the puerperium. The use of liver in addition to iron is generally essential, and blood transfusion may be necessary. It is obvious, of course, that pernicious anæmia itself may occur.

One patient in this series had a hypoplastic anæmia which proved refractory to treatment. The initial blood examination gave red cells 3,900,000 per c.mm., hæmoglobin 48%, white cells 2,400, of which 57% were lymphocytes and 40% were polymorphs. Intensive iron therapy only raised the red cell count to 4,200,000 per c.mm., the hæmoglobin to 54% and the white cell count to 3,000 per c.mm. Liver and liver extract were prescribed and the red cell count rose to 5,000,000 per c.mm., the hæmoglobin to 66%, while the white cell count rose slowly to 5,600 per c.mm.

A white cell count of 13,000 per c.mm. was found in one patient who died from septicæmia and peritonitis.

The Lungs.

No pulmonary complications were observed in this small series.

Nervous System.

Abnormal neurological signs were practically confined to changes in the pupil reaction and the tendon reflexes. The tendon reflexes were normal in 4 cases, exaggerated in 6 others and grossly exaggerated in the remaining 4, changes resulting from the failure of inhibition of higher centres. A diminution in the tendon reflexes during the course of the illness is generally a good sign.

The pupils were markedly dilated in 6 patients and contracted in none. Reactions were normal in 5 cases and sluggish in 7, while in one patient with very dilated pupils no reactions could be obtained. Another patient's pupils reacted briskly to light, but re-dilated almost immediately, although the light remained.

One of the septicæmia patients had a positive Babinski reaction on the right side, which persisted until her death, and a positive Babinski on the right side was observed temporarily in one other patient suffering from a severe grade of toxæmia.

Gastro-Intestinal Functions.

The tongue was usually found to be coated, and frequently it was dry and cracked and the mouth and pharynx lined with viscid mucus, necessitating hourly cleansing. The bowels were almost invariably constipated, and as a general rule salines and enemata were administered early until the motions were very loose; the dose of salines was then reduced, sufficient being still given to keep the bowels acting freely. Since two of the three patients admitted when pregnant and 10 of the 11 puerperal cases were faulty in habits when first admitted, this is a form of treatment that taxes the patience and skill of the nursing staff not a little. Where recurring constipation was met with during the progress of the illness a course of Plombières douches was given and seemed to help.

Most patients were on a fluid diet at first, and when refusal of food was met with, tube-feeding was promptly resorted to, an endeavour being made to give each patient at least 5 pints of fluid daily. Each feed and drink was charted on a daily sheet as so many ounces and the total added each day. Six patients needed tube-feeding for some time.

Even when patients were on a full diet it was surprising how often their weight failed to rise at first, but when the weight did begin to increase this was

generally rapid, sometimes as much as a stone a month, and there were few signs of such good prognosis as this.

Little information of value was obtained from investigation of gastric function. Fractional test-meals were carried out on 8 of the patients. Four had no acid in the resting juice, and one of these gave a culture of *Streptococcus viridans*. The fasting juice of the remaining 7 was sterile. Two patients, one of whom had given a positive culture, had hyperchlorhydria, and these were given alkalis in moderate doses after meals. Three were within normal limits. The remaining 3 had hypochlorhydria, and of these 2 gave curves within normal limits when the test was repeated after a few months. Hypochlorhydria was treated with dilute hydrochloric acid before meals. In two cases the stomach emptied in an hour and a half.

Endocrines.

One patient certainly, and another possibly, had deficient thyroid secretion.

The first patient was admitted a few days before term. She was stuporose, but could give replies to simple questions if given plenty of time. She was solidly fat, her complexion was pallid and her skin dry. The blood-pressure was low and the pulse-rate 75 per minute. The thyroid was impalpable. A course of Lugol's iodine was followed by increasing doses of dried thyroid extract up to 24 gr. a day, finally reduced to 5 gr. a day. The patient quickened and brightened considerably, the blood-pressure and pulse-rate rose, the skin became a little flushed and moist, and recovery followed.

The second patient was a puerperal case and developed a depressive stupor. This patient was mentally slow, confused and very apathetic, and had a well-marked simple goitre. She improved following a course of Lugol's iodine and thyroid extract, but the blood-pressure and pulse-rate fell, and the patient put on weight while under this treatment.

Two patients with very low blood-pressures were successfully treated with ephedrine, and may possibly have had some suprarenal insufficiency.

One pregnant patient had diabetes of pregnancy, which insulin failed to control satisfactorily, and labour was induced at eight months, resulting in a stillbirth.

The possible rôle of posterior pituitary hormone as a cause of puerperal infection should also be borne in mind when stimulating the uterus in puerperal cases.

Miscellaneous.

In this group of cases labour was usually easy and of normal duration. In one case the presentation was an impacted brow, necessitating Cæsarean section; in two others labour was prolonged, and two more had the placenta expressed by Crédé's method. In several there were minor perinæal

tears. This is noteworthy, since 12 patients were pregnant for the first time. In one case it was the second pregnancy, and in one the third.

In 12 patients it was the first attack of insanity; one patient had had an attack of mania ten years before, lasting five months, and another a psychosis of a schizophrenic type eleven years before, lasting ten months. Both these previous attacks occurred apart from pregnancy.

Illegitimacy and desertion were not potent factors in this group. One patient was married when two months pregnant, and one was not married. In the remaining 12 the pregnancy was legitimate.

Ten of the resulting children were boys and 4 were girls.

The incidence of insane heredity was 50%, which agrees with that observed by others.

The ages of the patients varied from 19 to 36, the average being 26.

The general picture presented by most patients on admission was one of toxic confusion, with disorientation, restlessness and noisy, incoherent talk, but as the confusion cleared and the physical health improved, the underlying psychosis made itself apparent.

The Types of Insanity.

The diagnosis in this small group was as follows: Schizophrenic states, 6 (hebephrenic 3, paranoid 2, simplex 1); manic state, 5; depressive state, 1; toxic confusional states, 1; stupor, 1.

The two chief groups are seen to be manic and schizophrenic, and there were certain broad differences in the onset and course of these two groups.

Although no hard and fast rule can be laid down, yet the schizophrenic group tended to be certified earlier and to develop symptoms sooner than the manic cases. Two schizophrenic cases were certified during pregnancy, one at six months and another at seven. The average time of certification of the puerperal cases was the ninth day of the puerperium.

All the manic cases were puerperal, and the average time of certification was the sixteenth day.

The average day for the onset of symptoms in the puerperal schizophrenics was the fourth day, and the first symptoms were usually the development of delusions of suspicion and of bizarre ideas. Restlessness and insomnia usually followed, working up to the excited and confused state seen on admission.

The average day for the onset of symptoms in the manic cases was the eleventh day of the puerperium. Excitement with insomnia were the first symptoms as a rule, although one patient began with a day's acute depression. All became steadily worse, and were admitted to hospital excited and confused, the clinical picture very often being indistinguishable at first from that of the schizophrenic cases. The latter cases, however, were not uniformly and persistently noisy, but had depressive, uncertain periods, and were more impulsive and sudden in their outbursts.

Another very striking difference was observed in the course of the illness. Of the manic patients one died, and the average duration in hospital of the other four was five and a half months, whereas, excluding one schizophrenic still in hospital after seven months, the average duration of the remaining five was fully twelve months. One of these schizophrenic patients remained in an advanced stage of mental disorder for eighteen months, finally improving rapidly and being discharged three months later.

The differentiation of schizophrenic cases is thus of the greatest importance, for one has to expect a much longer course, and carefully avoid allowing the patient to slip into the obscurity of a chronic ward.

The convalescent manic patient is easily enrolled into an occupational class or into one of the hospital services, but persistent and repeated efforts should be made by the occupational staff of a hospital to interest the backward schizophrenic; these patients are often difficult and tedious, but success results so frequently that all the effort expended is amply repaid.

Too often the diagnosis of schizophrenia causes a cessation of therapeutic activity. Actually the prognosis is fairly good in both manic and schizophrenic cases, but the prognosis as to the duration depends on the type of psychosis present. Cole (16) states that in puerperal psychoses the more acute and the sooner the attack the better the prognosis. Since in acute attacks the diagnosis of mania is more likely, this can be passed, but the early onset of delusions within a few days of labour is usually a sign of an underlying schizophrenic psychosis, and the prognosis is that the illness will be correspondingly longer.

In this small group of cases the age-incidence in the two groups was somewhat different. The average age of manic cases was 24, and of schizophrenic 29.

During the period covered by this essay at least 4 patients were admitted to hospital with ordinary mania or melancholia who had previously been certified during a puerperium. One patient had attacks of melancholia at the ages of 19 and 60, and of puerperal confusion at 30; another was certified with puerperal insanity at the ages of 35 and 39, was a certified melancholic at 48, and was finally admitted with mania at the age of 53; while a third was certified for three months at the age of 26 during a puerperium, and had another attack at 31 without pregnancy, both attacks being clinically typical of melancholia.

I am inclined to think that the incidence of manic-depressive psychoses in insanities associated with childbirth is greater than would appear from the small number considered here, for among the remaining 3 cases there was only one depressive state. In this patient the symptoms commenced seven days after labour, and she was certified on the twenty-first day in a state of toxic confusion. She soon subsided into a depressed condition from which she gradually recovered, to be discharged in five months.

The case labelled "toxic confusional" died before a final diagnosis

could be made. She was gravely ill and worried by terrifying hallucinations. Symptoms had commenced on the eighth day and she was certified on the fourteenth.

The last case was one of stupor in a patient who had never been very intelligent and who suffered from definite hypothyroidism. Symptoms had commenced with fits of depression and outbursts of excitement early in pregnancy. She was certified four days before labour, and was discharged at her normal mental level in nine months.

The Sexual Life.

The youthful histories of these patients showed little of note in the manic cases, but three of the schizophrenic patients had been difficult, sensitive and moody children.

The pre-marital life was apparently normal, and there was nothing distinctive about the menstrual periods.

One schizophrenic was unmarried, two lived happily with their husbands, but the remaining three were moody, jealous and difficult wives, and each of these three showed frigidity in marriage, which in one patient was periodic. Of the manic patients, one was separated from her husband after a series of violent quarrels, and at least two had been secretly unfaithful during marriage. Four of the five manic patients led happily married lives, however. The three other cases were all happily married also.

In 11 of the total 14 cases the pregnancy was desired.

Two manic patients and the stuporose patient stated that their sexual relations with their husbands were unsatisfactory.

During the hyperacute stage indifference to both husband and child was practically uniform. Of the 11 cases that proceeded to convalescence, 8 expressed anxiety to return home to their husbands and to resume normal relations. The 3 others were all schizophrenics, and showed a large measure of indifference to the resumption of the marital state—an attitude that persisted in some degree right up to the day of discharge. Two of these 3 patients wrote a series of bitter, hostile letters to their husbands full of suspicion and unfounded accusations of infidelity while they were in hospital.

Obviously erotic behaviour was more apparent in manic patients than in the others, but only two patients masturbated, one being a schizophrenic and the other a manic case.

During convalescence affection for the child was almost uniformly expressed, but the feeling of genuine warmth usually apparent in the manic was absent in the schizophrenic. Two schizophrenic patients on four days' leave of absence from hospital hardly gave their children a second look, despite the long separation, or possibly because of it.

Most patients were appreciative of conversations designed to elicit their

marital problems, and generally spoke with a fair degree of freedom about their home life. Manic patients as a whole showed a greater interest in their future, and were often keen to have advice as to pregnancies and the risks of another attack. They derived greater comfort from explanation and advice than the schizophrenics. The latter were often difficult to guide in a therapeutic talk owing to their insistence on the fancied iniquities of the husbands, and it was usually the husbands who showed the greater interest in the possibility of future attacks.

Anderson (17), in a recent communication, found no material differences in the pre-psychotic sexual life in psychoses associated with childbirth and similar psychoses occurring apart from childbirth. I incline, however, to the belief that, speaking broadly, there are differences in the pre-psychotic sexual lives of schizophrenics and manic-depressive cases. Anderson quotes Zilboorg as finding aloofness, long courtship, persistent frigidity in marriage and chronic masturbation in cases of puerperal schizophrenics. With the exception of masturbation, the very few cases in this series roughly agree with this finding.

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