Claviceps purpurea was at once seen invading it, and the fungus showed up well after staining with methylene blue and eosin. Sections of grain were also stained with iodine and potassium iodide for starch, none of which was seen in many sections, owing to its having been replaced by the fungus. Extracts from the rye were also tested physiologically for ergot, and the results were positive. Mr. Heap has, moreover, been able to grow the fungus from the rye.

The three chief constituents of ergot are sphacelinic acid, cornutine, and ergotine. However, ergot is not as yet definitely split up into its component parts or active constituents, and little is at present known of them specifically.

It is found that the average Jewish person consumes about 1/2 lb. of rye bread per diem, the flour of which contains 1 per cent. of ergot. Now 1/2 lb. of bread will contain about 5 to 6 oz. of flour, the rest being the water, which is added before baking; 5 oz. of flour equals 2,285 grains, of which 1 per cent. is ergotized. Each person is thus consuming 22.85 grains of ergot daily. The ordinary medicinal dose of ergot, taking the liquid extract of ergot as a sample dose, is 10 to 30 minims, which equals 10 to 30 grains. Thus each individual is taking rather more than the average dose of ergot each day. On account of freshness the ergot is also likely to be more potent than the medicinal ergot which has been kept for a time; also grain harvested during last autumn, if infected by ergot, is likely to contain fresher principles than that of the ergot from the previous harvest. It is found that rye bread takes time to rise before baking, especially in the winter months, when it is colder; and the flour mixed with water is allowed to stand for a time to "sour," during which time it is likely that the fungus may increase in quantity.

The symptoms observed in these Jewish patients correspond very closely with those produced by chronic ergot poisoning. The severity of the symptoms produced seems to increase with age, children being slightly and elderly people more acutely affected. This may be due to the elderly people having taken rye bread for many years. The foreign-born Jews, who have always eaten rye bread, are the most affected.

The first symptoms observed are coldness of the extremities combined with numbness. These symptoms are especially observed in tailors, buttonholers, etc., who find that their fingers are numb, and they have difficulty in keeping up with their work. They often notice that they prick their fingers without feeling it. Raynaud's disease amongst the Jews during this winter would appear to be more prevalent than heretofore. We have also come across a man, aged 47, who has a definite dry gangrene of both hands. The gangrene of this man is not associated with diabetes or any similar condition, and it is possible that, as a rye bread consumer, his gangrene is due to ergot poisoning.

A very typical sensation, which is found in all marked cases, is that of an insect creeping under or over the skin. This sensation is volunteered by the patients in most cases. Itching is also a common symptom. They also suffer from nervousness and depression, whilst headaches are well marked. Pains in the abdomen are frequently complained of, whilst among the more severe cases staggering gait and ataxia may be found. In most of the long-standing cases the blood pressure is definitely raised—for example, a woman aged 44 had a systolic blood pressure of 174.

It has been observed that these cases quickly improve when rye bread as an article of diet is discontinued.

A large number of the symptoms are due to general contraction of the arteries all over the body, and it is probable that if the poisoning should become more severe such serious conditions as Raynaud's disease and gangrene will become more frequent. Ergot has the power of contracting the pregnant uterus, and it is likely that chronic ergot poisoning may cause many abortions in early pregnancy. Unfortunately no record is available of these cases, as the Notification of Births Act only applies to children born after the expiration of the twenty-eighth week of pregnancy.

Treatment consists in stopping the consumption of the contaminated bread at once, and it is remarkable how quickly patients recover when this is done. They should be kept warm, and drug treatment is necessarily only palliative.

We are much indebted to Mr. H. Heap, M.Sc., F.I.C., the city analyst, for his careful analysis of the samples sent, and for his help and advice.

THE INFLUENCE OF PARTURITION UPON INSANITY AND CRIME.

ABSTRACT OF A PAPER READ BEFORE THE MEDICO-LEGAL SOCIETY ON FEBRUARY 23RD, 1928.

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In 1922 the Infanticide Act relieved the courts from the painful task of finding a verdict of murder against a woman, mentally deranged by childbirth, who kills her newly born child.

The records of Broadmoor show that of the total female receptions from 1900 to 1924, 42.8 per cent. were in respect of child murders due to insanity associated with childbirth, the majority being crimes committed during lactation. To escape punishment a woman pleading puerperal insanity must prove (a) that she was suffering from the disease when she committed the offence; (b) that she was incapable of distinguishing right from wrong, or was under the influence of a delusion which prevented her from understanding at the moment the nature of the act which she was about to commit. The law assumes the delusion to be a fact, and if the fact would justify the act of violence then the prisoner would be entitled to a verdict of "guilty, but insane." This is provided for by the Criminal Lunatics Act, 1884. As many critics have pointed out, it is difficult to see how a person can be both insane and guilty. Before the Infanticide Act was passed the practice was for the jury to bring in a verdict of "not guilty, on the ground of insanity," which seems more logical. It should be borne in mind that a verdict of "guilty, but insane" can be passed upon a person sane at the time of the trial. A prisoner who is admittedly insane when about to be tried is, of course, unfit to plead, and is therefore detained during His Majesty's pleasure—that is, until he recovers his reason and becomes fit to plead.

From this it is plain that a woman suffering from puerperal insanity who murdered her child knowing that she was doing wrong would be liable to be convicted and sentenced to death for murder unless she were able to avail herself of the Infanticide Act, which makes an exception from the general law. On the other hand, if she established a defence of insanity she would be found guilty of murder, but insane, and locked up during His Majesty's pleasure, so that even in these circumstances she would suffer punishment of no light order.

The Infanticide Act provides (Section I):

"Where a woman by any wilful act or omission causes the death of her newly born child, but at the time of the act or omission has not fully recovered from the effects of giving birth to such child, and by reason thereof the balance of her mind is disturbed, she shall, notwithstanding that the circumstances were such that but for this Act the offence would have amounted to murder, be guilty of felony, to wit, infanticide, and may for such offence be dealt with and punished as if she had been guilty of the offence of manslaughter of such child."

As a corollary, Section II entitles a jury to find a verdict of infanticide where the charge is one of murder. To put the matter in a nutshell, in respect of a newly born child the mother has a period of absolution under the Act. When that period has expired she is dealt with on the same principles as other persons charged with murder. It is obvious that the Act requires two things—the woman must be mentally unbalanced and the child must be newly born. The absence from the Act of any definition of the term "newly born" has occasioned some discussion.

In a case relating to a young woman named Mary Donoghue, heard last November (1927), the Court of

Criminal Appeal, consisting of the Lord Chief Justice, Mr. Justice Avory, and Mr. Justice Salter, decided that a child more than a month old was not newly born within the Act. Subsequently, when correcting a statement in a textbook, Mr. Justice Avory expressed the opinion that a child three weeks old did not come within the Act. We therefore do not yet know what constitutes in law a "newly born child," except that one more than a month, and possibly three weeks, old does not come within the category.

In medicine the definition of a newborn child is somewhat vague. Obstetricians look upon the newly born or neo-natal infant as one under *ten days*, but frequently, for purposes of mortality statistics and diseases, this period is extended to *one month*. The convalescent period, or puerperium, of the mother normally lasts eight to ten days. At the end of this time the uterus has become reduced in size to a pelvic organ and the uterine discharge, or lochia, has ceased. The mother should therefore be normal, but convalescent. Ten days after parturition is usually the time agreed upon for the discharge of patients from hospitals, homes, etc. In private practice nurses are engaged for one month—witness the term "monthly nurse"—to look after mother and baby till the end of this period. In no case is the infant looked upon as newly born after one month from birth. A woman ought to be fully recovered at the end of a month from delivery. This might well be the legal standard under the Act in its present form.

The state of the law is most unsatisfactory so far as it affects cases of puerperal insanity, a term used to denote an abnormal mental state during pregnancy, labour, the puerperium, or lactation. The three chief forms are confusional, intermittent (manic-depressive), and dementia praecox. Latent tendencies are often stirred into action or precipitated by strain, exhaustion, or septic intoxication due to pregnancy, labour, or lactation. The attack may come on at any time within at least six weeks after childbirth, and may last for days, weeks, months, or even years. The nearer to labour and the more acute the attack, the more likely the patient is to recover quickly and completely. Usually the symptoms are those of the confusional type.

In cases of puerperal insanity it should be impossible to apply the ordinary rules relating to criminal acts by the insane. Apparently, as the law stands, a woman suffering from puerperal insanity who killed her child during the first day of its life, when presumably it would be regarded as newly born, would be guilty of the lesser offence of infanticide, whereas if she killed it when six weeks old she would be guilty of murder. Unless she could prove that she did not know that she was doing wrong, or was under the influence of a delusion, she might be sentenced to death.

It may be alleged that the Infanticide Act was intended to apply only to those cases in which a woman, after giving birth to a child, destroys it in a moment of mental anguish, although she knows she is doing wrong. If this reading of the Act is correct, it involves great injustice. Why should a woman who kills her child in such circumstances be treated with more leniency than one suffering from puerperal insanity who kills her child at, say, six weeks?

"Fear of exposure, shame, depression, even misery following the breaking of the moral law should not be confused with the symptoms arising from the disordered mind; such were the reactions of the normal mind—in fact were direct evidence of it."—J. R. Lord, *Journal of Mental Science*, July, 1927.

It may be said that the general law concerning acts by insane persons is a sufficient protection for sufferers from puerperal insanity, but this should not apply to puerperal insane cases.

Puerperal insanity is a well-recognized disease of motherhood, just as much as puerperal sepsis, and should be treated accordingly. A verdict of infanticide is equivalent to one of manslaughter, so that the offender does not escape lightly. If the prisoner relied upon the general law, and succeeded, the verdict would be one of "guilty, but insane," which would for all time brand her as a murderess and involve her imprisonment, perhaps for a long period.

The question is further complicated by the fact that puerperal insanity associated with crime most frequently occurs during the later periods of suckling, owing to physical and mental exhaustion. It occurs among badly nourished, overworked, and poorly fed women. It is due to the strain of nursing, and many milder cases are cured by weaning and general treatment. It is usually melancholic in type. The patient has suicidal or homicidal tendencies, often on impulse. She may cut her throat or strangle or drown her infant. Many patients are difficult to cure, and may end their days in an asylum. In many criminal asylums a considerable number of women are incarcerated because of homicidal acts towards their infants or children due to lactational insanity. This may be due to the fact that during lactation there is less skilled and constant supervision than during the puerperium. It must be recognized that as the acute maniacal non-homicidal type is most common within ten days of childbirth, and the later melancholic, suicidal, homicidal type during lactation, no legal distinction should be made between the various weeks or months when the symptoms occur. Needless to say, a woman afflicted in this way has "not fully recovered from the effect of giving birth" to her child, to use the language of the Infanticide Act. Therefore she should be entitled to the benefit of its provisions. If the law absolves the mother who commits infanticide upon her ten days old child, it should just as readily absolve the depressed mother who, worn out by lactation, puts an end to her infant's life.

The words "newly born" should be deleted from the Act, subject to a proviso that its operation should be limited to a period of six or nine months from the date of birth. It would afford protection for mothers suffering from what the medical profession recognizes as puerperal insanity, and it would also cover cases in which a woman, although not insane, in a moment of distraction kills her child shortly after its birth. It is important to mark the difference between the two classes of case. Unhappily the murder of infants is only too common, but they are usually killed either at birth or shortly afterwards. Therefore the extension of the period would in practice be limited to cases of puerperal insanity. It is fully recognized that many infants are deliberately made away with, and nothing should be done to weaken the law in such cases.

Motherhood is a necessity for the race. It is the factor of motherhood that makes the woman insane and causes her, when suffering from a disease due to motherhood, to destroy her offspring. There is a marked difference between a murder committed by a person suffering from general paralysis of the insane, or even paranoia, and one committed by a mother in the delirium of childbirth or exhausted by nursing.

A debate took place in the House of Lords on the Children Bill, 1908. Lord Loreburn, the Lord Chancellor, with the concurrence of the Home Secretary, proposed to insert a new clause providing that:

Where a woman is convicted of the murder of her infant, and that child was under the age of 1 year, the court may, in lieu of passing a sentence of death, sentence her to penal servitude for life or any less punishment.

In support of the clause he said that the passing of the death sentence in such cases was a mockery, as such a sentence had not been carried out since 1849. He thought that public opinion was shocked at the idea of the death sentence being passed in cases where it was manifestly inhuman to carry it out, and on the other hand it was very much to be regretted that the death penalty should be nominally inflicted when there was no reality behind it. The bill was ultimately rejected by 42 votes to 36.

Any change in the law should be limited to women who are mentally unbalanced owing to pregnancy, parturition, or lactation. The removal of the term "newly born" from the Infanticide Act, coupled with the proviso suggested in the present paper, would meet the difficulties recognized by speakers who opposed the clause.

The following points demand consideration: (1) The definition of the term "newly born" under the Act. (2) Should the law be altered to give more extended protection to the parturient and nursing mother who, when suffering from puerperal insanity, destroys her child?