Detection of Infanticide.
In Medical jurisprudence, the destruction of the life of a new born infant, whether perpetrated during parturition, or, a short time after, is designated Infanticide. This unnatural, and horrible crime, existed among the earliest nations of antiquity, and, we can find some totally exempt from it. The fact seems to have been comparative strangers to it, probably from the fact, that, every inducement was held out for the propagation of children, pride for their destruction. A circumstance, which may be explained, by the universal expectation of a Messiah to come. Subsequently, however, as their intercourse increased with surrounding Nations, they naturally imbibed their depraved tastes and habits, and suffered themselves to be carried to the utmost excesses in this, and other vices. Among the Egyptians, and ancient Persians, this practice was enforced by the most rigorous laws. In Greece, and Rome, Infanticide was prosecuted in the most barbarous and unrelenting manner. Thebes, seems to have been a solitary exception, and, by her laws...
against this inhuman Custom, set a worthy example to the neighbouring Nations: but this crime, has unfortunately, not been limited to the primitive ages, since, even in the 19th century, it has not been erased from the catalogue of human atrocities, in the most civilized Nations: and, still continues to disgrace the greater portion of eastern Asia and India to this day. When we consider, the outrage that is committed against the best feelings of human nature, the total perversion of that natural affection, which usually animates the breast of a Brother, the want of any provocation, or any object to stimulate, in the commission of this crime, we cannot wonder at the severity, with which most codes of Jurisprudence, have denounced this act as criminal, and, the perpetrators of it as guilty of Homicide. The detection of this crime, constitutes one of the most intricate and difficult problems, that can be proposed to a Medical Jurist to solve, since the law infers, that the child was born dead, unless the Medical Jurist can produce conclusive evidence, of its having been born alive.
This condition, constitutes the great difference between Infanticide, and, a common case of Homicide, therefore, the Medical evidence in a case of Infanticide, becomes of the highest importance, in influencing the judgment, and directing the Verdict of the Jury. Or the discovery of the body of a newly born infant, under circumstances which favor the suspicion, of its death having been effected by criminal means, the examination of the body, affords the most conclusive facts, for the evidence of the Medical Jurist, but, the production of the body must not be considered indispensable, for the conviction of the prisoner, since, in many cases, the body is never found, as when the body has been burned after murder, the Medical Jurist has usually, only the half consumed bones, and other residue, from which to deduce his evidence. Nevertheless, these deductions must be of such a character, as satisfactorily, to prove important facts to the Jury. The inspection of the body of the infant, must be carefully, and minutely prosecuted; in order that, we may come to some conclusion of its probable age, and whether it had arrived,
at that degree of maturity, at which it is probable it possessed the capability of independent existence. The erroneous, but popular notion, that at the period of quickening, the fetus for the first time becomes endowed with life, is still acknowledged by our English statute. But medical men now know, that the fetus is alive from the moment of conception, and, that those sensations to which the term quickening has been applied, are merely the movements of the gravid uterus, rising from the pelvis to the abdomen, in seeking a less confined situation. This occurs, between the third and fourth months of pregnancy. Abortion previous to this stage, was not accounted a crime, though as Professor Traill justly remarks, it ought to have been so. We are indebted to the statute of Lord Ellenborough for the obliteration of this absurd notion, and abortion previous to this, is now punished as a felony. The most frequent ages at which the bodies of infants, come under investigation for this crime, is between the sixth and ninth months of gestation, a period which will comprise all cases of infanticide, but cases have
Dr. Rodman of Paisley reports the case of a woman, who was delivered of a child at 19 weeks, which lived, but she adds that it was probably a miscalculation of the mother. When the child was three weeks old, it measured only eleven inches, and weighed 2½ lbs. The mother attributed the precocious labour, to fatiguing exertions on the previous day.

Churchills, Midwifery.

Dr. Churchill has known cases of viability, at the 5th and 6th months.

Teylors, Medical Jurisprudence.


A midwife was charged with infanticide, for procuring the abortion and consequent death of a child, under the seventh month. She was convicted and executed.

occurred at so much more recent date than this.

Various Authorities may be quoted who hold the opinion, that no charge of Infanticide can or ought to be entertained, if it can be proved, that the child has not reached the age of seven months, but since it is ascertained, that live births have occurred before this, it cannot exclude them, and consequently seems to me imperfect. The principal appearances, by which we may determine the probable age of a child between the sixth and ninth months, I proceed to enumerate. A child between the sixth and seventh months, usually weighs from one to three lbs, and from the soles of the feet, measures from ten to twelve inches, the head is considerably larger in proportion with the trunk, the brain is pulpy, and not yet convoluted, the mesial line of corresponds with the Viphoard cartilage, the eyelids adhere closely to each other, the posterior chamber of the eye, is closed by the Membrane Papillaris, the skin is of a red colour, the nails are not well formed, and do not nearly reach the points of the fingers, the hair, though as yet
very beauty, continues to grow, and acquires a silvery hue. In the sternum, and other bones, ossification is proceeding gradually, the testicles in the male, which previously were contained in the abdomen, beneath the kidney, and lying upon the Psoas muscle, have descended into the pelvis. Between the seventh and eighth months, the hair becomes darker, the skin is much thicker, and lubricated with an unctuous substance, the body acquires that symmetry, and plumpness, so characteristic of childhood, from the deposition of Adipose Tissue. The cutis lose the former red tint, the nails are well formed and strong, but do not reach the points of the fingers, the genitals in both sexes, are disproportionately large. Between the eighth and ninth months, the foetus weighs four to five lbs, and is from fifteen to sixteen inches long, the Membrana Pupillaris is obliterated, the quantity of Adipose Tissue increases, the Gall Bladder receives its bile, and the intestines their Meconium. At full term the average length is eighteen inches, and weight seven lbs and upwards, the vesical line corresponds with the
X. Lapierre,

braunius tells us, of two cases respectively, 23 and 27 lbs. aver.

Beck, Medical Jurisprudence.

Dr. Star of Boston found that the average weight of 222 males was 71/2 lbs., and 184 females 7 1/3.

Dr. Beck considers the average weight in America at 71/2 lbs.

Foster, vol. 2, p. 153, says the average weight is from 8 to 9 lbs.

La longueur, ordinaire d'un enfant mine, et à terme est de dixhuit a vingt pouces, et les deux extrémes de seize, a vingt deux, et même vingt trois pouces.

Farris, Medical Jurisprudence.

Dr. Farris considers the average weight, 6 lbs.

length 16 inches.

Dr. Merriman, met with a case, the same weight as Dr. Traill's.
Umbilicus. Extraordinary differences in weight, are occasionally recorded. Professor Traill mentions one case, of fourteen lbs. weight. Mr. Park one of fifteen lbs., and Mr. Owen of Ludlow, one which weighed twenty-four lbs.!

According to Fodere, and Saperov, the characteristic appearances of maturity, and apparent viability, are the child's ability to cry, and consequently to breathe, the mouth, nostrils, eyelids, ears perfectly open, ossification far advanced, the Fontanelles well formed, Hair, Eyes, brows, and Nails perfect, and well formed, under these circumstances we may conclude, that the child was viable. If on investigation, or the contrary, the weight is deficient, the volume is less, if there is a want of energy in the limbs, if the function of sucking is imperfectly performed, from inability to embrace the nipple, if the nails are blue and do not reach to the points of the fingers, the temperature is low, ossification is behind, the skin is red, the hair is not colored, but downy, when the usual discharge of Meconium and Urine is absent, you may safely come to the conclusion that the child is
Dobie v. Richardson, 1765.

In this case, Dobie's wife was delivered of an infant, which died in half an hour from convulsion, but did not try the mother, died in childbirth, and the husband by decree of court lost his effects.


Dr. Hayzen has published four of his own cases, and one of Mr. Petit of Copenhagen, where, although there was no evidence of the slightest trace of life, on dissection the thoracic visera floated in masses. Olivier D'Augs, speaking from experience says, that a child may in certain cases live without breathing, and he therefore argues that murder may be committed on a child that has not breathed, and that coagulation of the blood is the only proof that any injury has been inflicted on such a child during life.
immature. Among the Ancient Romans, it was necessary, that the child should be perfectly alive, (si vivus perfecte naturae est) before it could inherit. In France, Louis the 9° ordained, that the viability of the child should depend upon its uttering a cry, but according to the present statute, complete and perfect respiration is all that is required. In England, the viability of a child is determined by any apparent motion, however small; in Scotland, by the uttering of a cry. Having come to some conclusions respecting the probable age of the child, and whether that, and other appearances are such as to render it likely that the child was viable, we proceed to answer the second question. Was it born alive?

The essential difference between adult and foetal existence, is the act of respiration. It was formerly erroneously inferred, that if the lungs were collapsed, and had no appearance of being dilated, that the child was born dead; but instances are recorded, in which the infant's existence was protracted for many hours, and respiration continued in a very feeble manner, and still the lungs had no
x Reg. v. Brain,
Reg. v. Selles.

Taylor's med. Jurisdiction.
possible appearance of being distended, from which, we are led to infer, that the mere fact of the air cells being undilated with air, is no decided proof, that the child has not lived; and our judases seem to have argued in this manner, in the following cases alluded to by Dr. Taylor. The Pulmonary system is principally affected by respiration, and the physical changes which result, occur in the lungs, instantly, but are more tardy in their appearance in the heart, and its vessels. In a child of full maturity, which has never expired, the dimensions of the Thorax, is transversely from two to three inches; Antero = Posteriorly, two to two and a half; in a similar child whose lungs have been dilated by respiration, Transversely three to four and a half. Antero = Posteriorly, three. The external configuration of the chest is also changed, from being flattened, and as if it were compressed, after respiration is made, to describe an arc anteriorly. After opening the Thorax, the first appearance we should remark, is the extent of surface the lungs occupy, for previously to respiration, they are confined exclusively only to the posterior, and lateral parts,
of the Thorax, while after the establishment of this action, the middle lobes are forced forward to such an extent, as completely to conceal the Pericardium; which, they never doubtless, diseased in the unexpanded state. In the unexpanded state, the lungs are of a purple or reddish brown colour, but on exposure to the Oxygen of the Atmosphere, for a very short time, the colour is gradually changed to a bright scarlet. After respiration has been established, the colour becomes by deep and approaches a light blue. If the substance of the lung appears mottled, the probability is, that imperfect respiration has occurred.

Dr. Taylor discovered, that he could by artificial insufflation, produce that scarlet hue, (contrary to the opinion of Professor Berch.) A dilated lung is absolutely, heavier, than an unexpanded one, from the greater quantity of blood present, but, the latter is specifically heavier. The average absolute weight of a lung, which has been dilated by respiration, is according to Professor Bell, 0,1000 qrs, while in the undilated one, it is seldom heavier than from 430 to 500 qrs.
Dr. Taylor seems to have made a misstatement with regards to the proportions assigned by Professor Traill, p. 428. He has made a mistake in the average weight of the undilated lung for that of the dilated.

Taylor's Medical Jurisprudence.

Smith's Forensic Medicine.
According to Dr. Taylor, it is 57.9 grs before, and 69.7 grs after respiration, but the weight of the lung is subject to the same variance, as the skull, according to the degree to which respiration has occurred, as has been satisfactorily proved by Dr. Taylor in the following cases.

**Case 1st. Case 2nd. Case 3rd. Case 4th.**

Born dead, lived 6 hours, 24 hours, 9 Days.
Weight, 68.9 grs, 77.4 grs, 67.5 grs, 86.7 grs

The lungs before respiration have a tough, doughy feeling, resembling the substance of the liver, until neither air, (which may be recognized by the well known sound, to which the term crepitation, has been aptly applied,) nor blood, but on the other hand in the lung dilated by respiration, a feeling of elasticity is imparted to the fingers, and distinct crepitation with emission of frothy blood, is recognized on incising them. The two tests proposed respectively, by Messieurs Cloquet and Guillot, though very ingenious, and well worthy of praise, are still nevertheless, open to objection. The first, seems to me, rather diffuse in its...
effects, and the latter from the great difficulty of the various steps, and the previous time necessarily exhausted in its completion, particularly, unsuitable for practice. Monseigneur Plonquequet asserted, that the weight of the lungs bore an invariable ratio to that of the body, and that in the undilated condition, the ratio was 1:70 in the dilated condition 2:70. Monseigneur Baysseur by late experiments, objects on very good grounds to this statement, and Monseigneur Devergie, also assures us that the proportion is as 1:60 before and 1:45 after respiration; a statement completely at variance with Monseigneur Plonquequet.

M. Guillot discovered, that the average quantity of fat in the substance of the lung is greater before, than after respiration, and in order that this can be clearly demonstrated, the lung must first be subjected to a gradual heat, so as to evaporate the moisture, and dry it, after that, it must be pulverized, and subjected to the vapour of ether. The average quantity of fat in the lung is 16 per cent, in the undilated, and 6 per cent, in the dilated.

The comparative specific gravity of the lung,
before, and after respiration, is however the most valuable test we have to rely on, and the one, probably least liable to variances. The lung dilated by respiration is specifically lighter than water, therefore floating, and buoyant on its surface, while the lung undilated by respiration being specifically heavier, necessarily sinks to the bottom. In 1633, Thomas Bartholin, a Danish Physician, a gentleman to whose indefatigable energies Forensic Medicine is already deeply indebted, for the elucidation of another important fact, acting upon this principle, fortunately discovered the Hydrotstatic Test, or as it is usually better known, under the celebrated Docimusia Pulmonum. For a considerable period, this experiment was considered not only to afford satisfactory evidence that the child had breathed, but sometimes, that it was even murdered. Thus, we have Dr. Hunter asking the question, How far may we conclude, that the child was born alive, and probably murdered by its mother? But when we consider and are perfectly aware of the objections to which this Test is exposed, we can generally have little difficulty, in eliminating important
and correct facts from experiments. The lungs having been removed from the Thorax, we proceed to immerse them together with the heart in a vessel of water. If they sink, the experiment should be repeated with a single one, for frequently while one lung is buoyant, the other sinks. If we observe that both lungs are specifically heavier than water, we should again repeat the test with small portions of each, and remark the result, for, in imperfect respiration, portions of the lungs being dilated with air float. If the lungs and heart together, and separately float, the manner in which they do so should be noticed, whether they swim on the surface of the water, or below it. When the organs treated in the above manner, are observed constantly to sink, the inference is, that although the child may have lived, yet there are no signs of respiration present. On the contrary, if they are uniformly buoyant, the degree to which they are so, will declare the degree to which respiration has been present.

Let us now shortly refer to the arguments, which have been advanced to oppose this test. Oft, that the presence of artificial
insufflation, putrefaction, infiltration, sepatisation, and congestion, will materially hinder the efficacy of the Hydrostatic Test, but as I formerly remarked, a little care and attention on the part of the examiner, and the more knowledge of these objections, will be quite sufficient to surmount them. Where Artificial Insufflation has been employed, the quantity of air present will be quite inadequate to float the lung. Though the air cells approximating the Bronchi may be distended, yet the more remote ones are not so, when incised, no blood is emitted, and when floating portions of such a lung, are subjected to rigorous pressure between the finger, and thumb, or twisted in a piece of linen, so much of the air may be expelled as to cause them to sink. This expulsion of air cannot possibly be effected in a portion of lung fully expanded by respiration.

In putrefaction, the general appearance of the Tissues, being of a dark brown or green colour, more or less disintegrated, exuding a festid odour, and the fact of the gaseous matters not dilating the proper air cells, but rising in blisters under the cellular tissue, (to which the
We are indebted to Professor Mayer, for a series of experiments on this subject. He found that lungs placed in water, not exposed to draughts, floated on the 6th day, if exposed to draughts, not till the 9th day, and continued increasing in bulk, and emitting rancid odours, till the 21st, or 23rd day, when they again sank, to rise no more.

Paxsioto and Champeau also informs us, that the lungs are the last organs in the body affected by Putrefaction.
term, Bullae, has been applied) also that the application of a slight compression, will cause it to sink, and the absence of blood when incised, will prove sufficiently distinguishing properties, to prevent any unfortunate mistakes arising from this phenomenon. The consolidation of the air cells in the patient, or stichus, both from the extreme rarity of their occurrence, the facility of discovery, and the impossibility of artificially inflating the diseased portion can it appears to me be discarded with great propriety. That condition of the lungs, comparatively lately revealed by Dr. Loig of Leipzig, to which the term Atelectasis (arelia) incomplete (ektasis) expansion cannot be so easily overcome, and in fact is by far the most serious objection to this experiment. This condition of the lung, may be easily distinguished from that of stichus, from the fact, that the incompletely expanded portion of lung, can be dilated by artificial insuffluation no consolidation of the air cells being present. Any influence, which has the effect of perishing the vital energies such as severe hemorrhage from the cord, or any of the causes
which induce Asphyxia, may readily produce this incomplete expansion, which after a time (in those unexpanded portions of lung) may pass into a state of Keptatistic. Having carefully examined all the ad-

tantages and alleged disadvantages of the Hydrostatic Test, the inference we may safely conclude from that examination is, that if the suspected lung, throughout the various steps of the operation, is noticed uniformly to sink though the likelihood is very strong that the child was born dead yet we cannot justify come to this conclusion until the consideration of other appearances corroborates this suspicion. If the lung is observed always to float, and we have satisfied ourselves that that buoyancy is not dependent on any of the above mentioned objections, the conclusion we arrive at is, that the child respired, and consequently was alive. Having very briefly considered the appearances and characters in the Pulmonary System resulting from the
Dr. Handyside found it closed, in 1 and 8, between the 2nd and 3rd day. Taylor's Med. Jurisprudence. Capuron. Med. lég. des accouchements. p. 337. Capuron records a case, in which this closure was present previous to birth and respiration.

Med. Gazette, 1838-967.

Dr. Cheever has also frequently met with it. Two cases are recorded, which occurred at Guy's Hospital, London, respectively at the ages of 11 and 50 years.
act of respiration; let us now turn to the corresponding changes in the circulatory system. On the birth of a child, the circulation of the blood undergoes great and permanent changes. The blood which previous to this was purified by the placenta, (according to the theory lately propounded by Dr. J. Reid) has in order to undergo purification, to pass to the foetal lungs, to be brought into the close proximity, and purifying influence of the oxygen of the atmosphere. The foramen ovale, ductus arteriosus, and ductus venosus, in consequence, being of no further use become impervious, and obliterated to mere cords. This process necessarily proceeds slowly. Cases of complete impermeability of the foramen ovale, for a considerable period after birth, and even throughout adult existence, are of pretty frequent occurrence but as a general rule this aperture becomes closed after the establishment of respiration. The unibical arteries also become
impervious, after this action. No instance has been recorded of complete obliteration of the Ductus Venosus, previous to birth, but upon the establishment of respiration, it collapses and shrinks to a mere cord, and is quite impermeable. From the late experiments, performed by Professor Bernt of Vienna, (for the investigation of the state of contraction of the Ductus Arteriosus, at various periods after birth) we learn, that after a few seconds of respiration, the portal extremity becomes contracted; after a few hours it resembles a truncated cone; after a few days it narrows still more in the centre; after a few weeks it will hardly admit a crow quill, while, after several months it is quite impermeable.

In several seconds, several hours, a week, a month,
Taylor Med: Jurisprudence, p. 194

Beck's Med: Jurisprudence
The remark previously made on the test for the proof of respiration, having occurred in the pulmonary system, is also applicable to those of the circulatory system that not one fact is of itself able conclusively to prove that the child was born alive.

Sometimes good evidence may be derived from the state of the digestive system. As if food, such as milk, sugar, albumen, were found in the stomach, it would prove beyond a doubt that the child was born alive. Dr. Grogheyard of Liverpool detected farinaceous food in the stomach of an infant by the application of iodine. The liver is also subject to great diminution in size after birth, and Dr. Beck proposed that if it were satisfactorily proved, that that diminution resulted from the organs of respiration after birth, monopolizing the greater quantity of that blood, which was wont to permeate the liver) to subject to comparison, the reciprocal relations of the liver, and lung. But that atrophy of
Rechtsmedizin: Jurisprudenz.
Mr. Bryce, on the Judicial Line.
the lives occurring after birth, seem to me to depend more upon the removal of its former function, of throwing off the carbonaceous matter by the blood; and, this view seems supported by the fact, that in cases of Phthisis, where a considerable portion of lung is destroyed by disease, and is unable to get rid of this carbonaceous matter, the liver becomes hypertrophied, (this function devolving on it.) The condition in which the bladder, and rectum are found, should be observed, whether filled with their respective secretions, or empty, since some authorities consider this of much value for the inference of live birth. The situation of the Diaphragm, is also worthy of remark whether lying in the Thorax or Abdomen.

Taking it for granted that the various phenomena observed on the dead body are of such a nature as to lead us to conclude, that the child was born alive. The next question which naturally occurs to us, and which is of fundamental importance,

is the probable cause of death? and whether that death happened naturally, or, by criminal design? and, first as to the natural causes.

Disease.

The Fœtus participates in many of the diseases of the mother, and consequently may die before birth, from smallpox, fever, syphilis, and probably many other as fatal congenital affections. Dr. Burgess alleges dyspnea, and asphyxia are very common causes of death among newborn children. Dr. Male informs us, that Intussusception is a frequent occurrence among infants, and that this can be discovered only by direction. Mahoi says, premature obliteration of the Tracheal Duct, furnishes in his opinion, the explanation of many deaths, without any apparent cause. Laborie is also of this opinion. But the maladies which are of the greatest importance in a medicolegal point of view, are those affecting the organs of respiration or air passages, as flopsation, congestion, hemorrhus, edema, the diagnostic
& Meek. Gazette, page 542.

* North Meek. Journal (Connack's) page 278.
  March 1846.
properties of which, are of very patent. That condition of imperfect dilatation, (acteletasis) may be also classed as a disease, perfect dilatation perhaps may have been prevented by hypertrophy of the thyroid gland or the obstruction of the mouth or fauces with mucous. The child may have been born with such a deficiency of some vital organ, as would render the very idea of its survival quite out of the question, as in the two cases reported, in one of which the pharynx terminated in a cul de sac, and in the other the duodenum was obliterated for more than an inch. In a third published by Dr. Fairbairn, 1st Edin., the child died from swallowing its tongue from a peculiar development of the lower jaw and a defect of the frenum, in such a case, the appearances would exactly resemble those of strangulation. There is a popular idea, but a prevalent one, that it is legal to destroy such monstrous births, but it must be remembered that the law punishes in the most severe and summary manner.
Mr. Pooley's case.

A lady was delivered of a hideous monster, and in the absence of the husband, and at the instigation of the friends, the midwife destroyed it, and was soon after committed on a charge of homicide.
and however hideous the deformity may be, it is not acknowledged as justifying the deed.

In foetiling or breach presentations, compression of the cord may obstruct the organic function of circulation, between the mother and child, as to prove the death of the latter. Or strangulation may occur from the cord, being twisted round the neck of the infant. Deaths are frequently reported to have occurred in this manner. Dr. Fairbairn, who had two cases of this kind, informed me, that in both, the cord had three times wound round the neck, and was so tight, it had to be divided with the knife, to prevent strangulation; both fortunately recovered. According to Dr. Burnet, this happens only when the cord exceeds its usual length of two feet. A child may become so exhausted, and its vital energies so enervated, from excessive hemorrhage or caused by an accidental rupture of the cord, or premature separation of the placenta, as rapidly to pass into syncope.
* Simpson's Midwifery

and death. But death as a result of accidental rupture, is a comparatively rare occurrence, from the fact, that torn arteries bleed little, and if respiration is established, the blood has already sought a different course. Dr. Taylor however mentions a case, where death ensued even under these circumstances. Since it is a well ascertained fact, that a great proportion of children die during childbirth from natural causes, the law infers, that unless the medical evidence proves the contrary, death is presumed to have occurred in this way. According to Dr. Simpson, the proportion of still births among legitimate children is at 1 in 20, but among illegitimate it bears a much higher proportion, being as 1 in every 8. A greater number of male children die in this way than females, as in males it is 140:100, while in females 106:100.

In protracted delivery, the child's head may be so materially injured from the severe contractions of the uterine, as to cause death, and since this has been remarked as a frequent occurrence among male children, where the
head attains considerable dimensions it seems the probable explanation of the fact, of the greater mortality among male children than females. The head in such cases would be elongated, and more or less deformed. Having concluded our remarks on the natural causes of death among newborn children, let us now consider those modes of death, which must be included under the head of criminal design, and for the facility of description, I propose to divide this subject into two sections; viz., those of omission, and commission. It must not be overlooked, that in many instances death from omission may be palliated, or sufficient explanation may be afforded of ignorance, or want of presence of mind, as completely to do away with the suspicion, of wilful, or premeditated violence, as from the unexpected occurrence of delivery, and the mother’s consequent inability to assist herself, or procure any one else to do so. This should be re-
A girl had become pregnant, under circumstances particularly disastrous. Actuated by the strongest impulse of shame and remorse she concealed her situation from every one, and ascribed her appearance to a cold she had caught. On the day of her delivery, she had been to market, and in returning home slipped her foot and fell into a mule pond; she was speedily rescued, and conveyed to a neighbouring malt kiln, where she was left under the charge of a woman. On whose assistance she was left. Treated at the fire, drying herself, and on whose return she had been delivered of a baby, which was lying at her feet in the ashes, and was so severely scorched that it died a few hours after. The girl said her pains came on suddenly, and she became unconscious, and could offer no assistance to her child; she was forthwith banished for life.

Observations on the uncertainty of the signs of murder in bastard children.
primiparous females. A very remarkable case of this sort, is recorded by Burnett in his (criminal laws of Scotland) it occurred in Aberdeen, in September, 1804. Tredern (vol. iv, p. 504) asserts as a cause of death, the omission of removing the child, from that state of supination in which it commonly enters the world. Asthymia has been induced from the pressure of the bed clothes, or wet linens, over the mouth and nostrils of the child, from the membranes not being ruptured, on the neglecting to remove any mucus which may be present in the farces, and preventing the access of air to the lungs. Dr. Hunter relates an instance of a child being suffocated, find its face being immersed in a pool made by the uterine discharges. A similar case occurred to Dr. Beck, in which the mother was totally unable to render assistance when offspring. Dr. Wharriett case reported in the (North med. Journal 1845) is a very good example, of how in such a case the nurse capability of
A young woman who had previously given birth to two illegitimate children, was according to her own statement, seized during the night with abdominal spasms, after some delay, and suffering, and while her mother who slept with her had gone out to procure assistance, she rose from the bed, under the impression she was going to have a motion of her bowels, and there being no suitable convenience in the apartment, she seated herself on an earthen pitcher filled with water. Instead of the contents of the rectum, a child, and shortly afterwards an after birth dropped into the vessel, and she said she was rendered faint and helpless by the consequent hemorrhage, as to be unable to render her assistance. She was found by her mother, sitting with a neighbour, seated upright on the vessel. Suspicion of foul play, induced the Procurator Fiscal, to order his servant and myself to investigate the case, but nothing could be proved against her. But Dr. Haynoopener remarks, since she had physical powers to maintain her position on the pitcher, the presumption is, that had she wished she might have saved the life of her child.
Mr. WM. John Fairhain?

I never saw any prayer on the whole—
Frederik instead of Ideni.

In 45 pages' the argument rests on—
Delivering only those who are not the
Mother of the Child, not that the
Destroyed it.
rendering assistance to her offspring, may be artfully advanced by the process in her defence. The fact is, has in some instances fallen from the mother while in the erect posture, and engaged in her usual avocations, and been consequently much injured; and Mr. Tatham reports a case in which a patient in her fourth labour after trifling pains, was on her way to the bed-room, when the child was unexpectedly thrown on the floor, bleeding profusely from the lacerated cord, but she had presence of mind to call for assistance, and her child was saved. An interesting case of unexpected delivery is reported by Mr. Ryan. Children have frequently been delivered, and thrown into privies while the mother was engaged at a necessary process. Mr. Tatham related in case of this sort, also where the wife of a clergyman, while in her last month of pregnancy, at chapel was obliged to retire to her night chair, where she was delivered of twins. They were speedily rescued but died.
Mr. Nye, Taunton, June 1845.

Campbell's Midwifery.

not survive more than a week.

Omission to preserve the necessary warmth
of the child, is another frequent instance of
death from omission, and all that need be
mentioned on this head, is embraced in
the admirable and concise remarks
made by Toedero, on this point.

"If the body of a child is rigid, and shrivelled,
discoloured, and in a state of partial or
complete nudity, buried under stones
or earth, and if the lungs from their
buoyancy, prove that respiration has taken
place" and if from the blanched appear-
ance of the integuments, and the in-
ternal organs gorged with blood, con-
striction of the arteries has occurred, we
cannot do less than attribute death to
exposure. This condition may be easily dis-
tinguished from death by hemorrhage, by the
total want of blood in the latter case. Premature
tying of the cord, has been remarked in a case which
occurred to Dr. Campbell, to be succeeded by the most
alarming symptoms, but he observes when death
ensues from this cause it should be ascribed to
ignorance rather than to wilful design, unless where a qualified practitioner has been employed.

Criminal design.

All that need be said on this subject may be comprised under the three divisions: Wounding, Asphyxiating, Poisoning, Suffocating.

And first as to Wounding.

A wound may be defined, as recent solution of continuity of the tissues of the body, in which the skin is included, occurring suddenly by external means. It may be proper here to give a slight sketch of the characteristic appearances, which would lead us to infer, that a wound was inflicted before, or after death. In wounds inflicted during life, there are usually traces of haemorrhage, either upon the integument, or the adjacent clothes, eversion of the edges, owing to the vital elasticity of the skin, and coagula between the lips of the wound, while after death the absence of copious haemorrhage, if present at all exclusively occurs,
their being neither erosion nor truefaction, and if coagulo their not being adherent, will prove sufficiently diagnostic properties. I do not intend to enter here, into a description of all the different sorts of wounds, since wounds of a serious nature are never wilfully inflicted on the body of a new born child, but with the intention of murdering it. It is only necessary to say, that wounds and contusions intentionally and criminally inflicted, which have so injured the Brain, Spinal Marrow, Heart, Respiratory or Digestive organs, or such lesion of blood vessels as would produce mortal Haemorrhage, must be regarded as the means of murder. We may very appropriately at this point define the appearance characteristic of violence, inflicted before and after death. For the investigation of the latter fact, we are indebted to Dr. Christieon. Ecchymosis is the effusion of blood from ruptured vessels into surrounding tissues, external discolouration of a deep blue or livid hue, ensuing after a brief interval, (if the subject outlives its production) it successively changes, from blue, to violet, green, yellow, and terminates
by fading to a pale citron colour, when the
discolouration is entirely removed, by the
absorption of the extraneous blood. Dr.
Christison, from his assiduous researches
proved, that blows inflicted 2 hours after
death, presented no material difference
from those produced, auto mortem. From
this interesting and important discovery,
we conclude, that judging from visible
appearances, contusions inflicted immediately
after death, may easily be confounded with
those produced, auto mortem. But ecchym-
osisis the result of contusions, inflicted
after death, may be clearly distinguished
from the mortem extravasation, from the fact
that there is no corresponding oedema on the
integument. The colour is deep purple or
brown. There is generally more or less diffuse
infiltration in the cutis, while this is never re-
marked after death. It very frequently happens
that valuable information may be obtained from the
ecchymosis, assuming such a form, as may
indicate the means by which the violence
was perpetrated, as in Hanging, a livid
ring of extravasated blood, usually masks
the situation of the injury. Digital im-
pressions, are also usually present
in those strangulated. But there is an in-
variable appearance of the dead body,
worthy of being mentioned viz. a livid con-
gested appearance of the more dependent
portions of the body, due to the gravitation of the
blood corpuscles, which has been termed
sugillation. The essential difference between
and ecchymosis, and a sugillation is
that in the first, the blood is coagulated,
in the latter fluids.

Penetrating the brain through the fontanelle
is a very deadly, and unfortunately, a
plan very often resorted to, for the
perpetration of infanticide. Civil Police
mentions an instance, of a midwife
in Paris, who destroyed several children
in this way, but was at last convicted
and executed. Brelenc, and Belloc,
have met with similar instances. The
temples, internal canthi of the eye, the
neck, Thorax, about the region of the heart,
and abdomen have all been selected for the object, in order to kill the infant. The spinal cord, is said to have been punctured by needles. In such cases the skin should be carefully scrutinized for any minute spot of ecchymosis, which will probably be discovered around the wound, we must ascertain the depth, and situation of the wound, and whether it was sufficient to account for death. But must however be careful not to mistake that oedema, and discoloration, consequent on a difficult labour, for that swelling and ecchymosis which follow blows or maliciously inflicted after birth. Fractures of the skull, may be conveniently discussed under this head. I previously mentioned that this cause of death, may happen accidentally, and it depends chiefly on the common sense of the medical jurisprudent to ascribe it to accident, or criminal design. These accidental fractures it may be mentioned, are commonly very slight, accounting to mere fissures, while in those inflicted with intent to murder, the injury is much
Investigations of Leccey.

The child 15 infants, who had only survived a few hours after birth, and in whom the bones of the skull were quite sound, he raised them by the feet, to the height of 20 inches, and then dropped them perpendicularly on a stone floor; he found fractures in one, and sometimes both Parietal Bones in two of them. He doubled the height, and found the fractures in the Parietal Bones, extending in some instances, quite to the Occipital & Frontal Bones, and when dropped from a still greater height, perpendicularly on the floor, the injury was greatly increased, even to the stretching of the meninges, commissures of the brain, and injury to the Brain.

Hutchison's Infanticide
Beck's Jurisprudence
more severe. The skull would probably be crushed, and driven inward, while the brain may protrude, and the scalp be extensively contused. We had before in treating of the natural causes of death, among newborn children, occasion to mention that this may result from injury to the bones of the head, owing to the powerful contractions of the Os Uteri, and for the confirmation of that statement allow me to refer to the following cases. The first case occurred to Dr. Schweitzer. The child was still born, he received it into his hands at birth, so that the head could not have sustained any outward violence, on inspection, the integument over the vertex was found swollen, and discoloured, and on cutting into it, a quantity of extravasated blood was exposed beneath, in conjunction with two distinct fractures in the Parietal Bone. The second case is reported in Casper's Wochenschrift October 1840, where there was a similar condition, viz. a clot, in conjunction with a radiated fracture. Coagula were
present on both occasions in conjunction with the dura mater, and brain. There is a third reported in the above publication, September 1837, in which, both parietal bones were flattened, and in one, there were two fissures each an inch in length. Luxation, and fracture of the cervical vertebrae, may be mentioned as a cause of death. In such cases the vertebrae are found fractured or dislocated, the ligaments ruptured, and death from severe injury to the dura ensues. Having given a sketch of the appearances presented by wounds, inflicted ante and post mortem, and treated fractures in a summary manner, I propose now to pass to the next division of this subject, 

Suffocating.

We previously proposed, for facility in description, to divide this subject into three subdivisions, Hanging, Drowning, Asphyxiating.

Hanging may cause death from injury to the vessels, nerves of the neck; dislocation of the head forwards, and pressure on the cords,
or by obstruction to the passage of air to the lungs, from pressure on the Trachea. Where a cord has been used, there is in general a distinct ring of ecchymosis round the neck in the course of the cord, the face is livid; tongue protruded, and swollen; mouth and wrists pipe filled with mucus; eyes injected; and forced from their sockets; hair stands, irregular, on man and right side of the heart, forced with black blood; lungs livid, and covered with spots. The only instance in which it is possible to confound this state is in the before mentioned, hanging by the feet, but by the use of the Hydrostatic test, and the application of the following facts that the ecchymosis in the former, is not superficial, there is more or less extravasation of blood, together with excoriations, or chafing of the cuticle, all which signs are quite incompatible with the idea that it has been occasioned by natural causes, when we take into account the softness, and lubricity of the Trachea.
A case occurred in London, in 1842, where a woman attempted infanticide, by immerging the head of her child only, in a pail of water, but fortunately, the child was discovered and resuscitated.

In another case related by Toedœ, vol. IV, p. 545, a woman succeeded in destroying her child, and concealing her delivery, though surrounded by females, by crushing its head between her thighs as soon as born.

"Il resta constant qu'elle avait pressé la tête de son enfant en la comprimant fort, et l'enterré avec les caisses lors de sa sortie."

"She remained constant until she had crushed the head of her child very firmly, and buried it with the boxes on its emergence."

"Il resta constant qu'elle avait pressé la tête de son enfant en la comprimant fortement avec les cuisses lors de sa sortie."

"She remained constant until she had crushed the head of her child very firmly, and buried it with the legs during its emergence."

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"Il resta constant qu'elle avait pressé la tête de son enfant en la comprimant formente
Infanticide by drowning is by some authors considered. It is seldom resorted to for the perpetration of murder, but merely for concealment of the body after. The main point to be investigated, in a case of drowning is, "was the child alive when immersed in the water?" it is not necessary that the whole body should be under water to occasion death, but the fact that the mouth and nostrils were below the surface is quite conclusive. Where a child has not resisted it is quite impossible to produce proofs that the child was drowned, as in a case reported in (Connack; Dublin Journal Oct. 1845 p796) where a woman caused herself to be delivered in a bath, and the child when born to be forcibly retained under water. The diagnosis of drowning after respiration, is founded upon appearances exactly similar to those observed on the bodies of adults, destroyed in this way, and of which I will proceed to give a short description. Death by drowning, is due to asphyxia, in which condition the blood is circulated unfit for the support
of animal life, this condition is induced by the medium of water, proving a physical obstruction to the entrance of air to the lungs, and though expiration is carried on, and the air contained in the lungs is all expended, a fresh supply cannot be obtained; and the person becomes unconscious, and dies asphyxiated. In the case of an infant discovered drowned in water, the verdict must be either accident or murder; and murder is inferred by law, and it then rests on the accused, to afford satisfactory proof of accidental drowning. The face is usually pale, the brain congested, the lungs, and principal side of the heart gorged with black blood, the tongue protruded, the nose, and mouth filled with frothy moisture, excoriations at the ends of the fingers, and dirt or sand lodged under the nails, must be carefully examined. In the body which has been sometime immersed, the eyes are half closed, and the diaphragm lies low in the abdomen. The contents of the stomach should particularly be remarked for if
+ Dr. Easton of Glazov's case recorded in Medico-Journal, 1845.
there are present portions of straw, or weed, similar to those in the water, we may conclude, that the infant was alive when thrown into the water. The brisk of water contained in the stomach, should also be noticed, whether salt or fresh, and if it corresponds with that in which the child was immersed. Newborn children may be drowned, or suffocated by being thrown into mud, or more commonly the soil of privies, but this like drowning is seldom resorted to as a mode of death, but merely for concealment. It may be alleged in the defence, that the child was born dead and thrown in for the sake of concealment, but this can easily be proved by the Hydrostatic Test. The presence of suspicious wounds or marks which remain unaccounted for by the fact, that the child was still born, and merely thrown in for the sake of concealment. Professor Traill mentions a case, in which from noticing particles of chaff in the stomach, and similar particles floating on the surface of the water, he concluded
that the child was alive when thrown into the water, and this trivial circumstance, which to a careless person would probably never have been noticed, or if noticed, not taken ad-
antage of; yet to an intelligent and shrewd
mind it proved of the highest importance, and constituted the principal fact on which his evi-
dence was built. Children have been murdered
by preventing the passage of air to the lungs by
corks, or other foreign bodies thrust into the
fountain. In such cases dissection alone can elicit
the cause of death. When an infant has been
strangled under the bed clothes by pressure
from the hand, or the application of a wet cloth
the same phenomenon will be observed as in the
case of strangulation. Under the head of suffoca-
tion it would be well to mention that children
may be suffocated by exposure to Mephitic
vapour, or noxious fumes, but this is
extremely rare; women have been
known to destroy their children by suffocating
them with the fumes of Sulphur. When
death has been produced by the vapour of burning charcoal.
The body presents several peculiar appearances. It preserves its heat, for a long time after apparent death; there is great accumulation of black fluid, blood, in the veins, and hardly any in the arteries; the vessels of the lungs, and brain, are especially gorged with this fluid; the face is red, and somewhat tumefied, the eyes are bright, and the lips have a ven million red.

Poisoning is introduced, among the probable ways in which child murder has been perpetrated, but is very rare, and the ears of death produced by this cause. The earliest case of poisoning observed by Professor Taylor was at two months, and this case is hardly mentioned as a case of infanticide, where to a child of the above age, a quantity of arsenic was administered and it died in three hours, and so, after, if poisoning be suspected, the usual course of procedure in such a case, is exactly similar to that in the adult. Having concluded a short and very imperfect sketch of the usual natural
and criminal causes of death, among newborn children; before entering upon the particulars of the suspicious appearances of recent delivery, in the accused, let me shortly mention the appearances indicative of the period of survival in children that have been born alive. It has been remarked, that scarcely any appreciable changes occur in the corpse of a dead child, until after the lapse of twenty-four hours. After twenty-four hours the skin is less firm, and considerably paler than immediately after birth; the umbilical cord is shrivelled, and of a purplish colour, between the ligature and abdomen, the meconium has been discharged, the lungs are more or less distended with air.

From the second to the third day. The skin is yellowish, the cord is brown and dry.

From the third to the fourth day. The skin is yellowed, and the cuticle desquamates from the chest and abdomen. The umbilical cord is of a brownish-red colour, flattened, semi-transparent, and
Philosophical Transactions 1794-1795
twisted, a distinct line of demarcation presents itself, between the healthy skin and the brown shrivelled portion of the cord.

From the fourth to the sixth day.

The remainder of the cord usually separates but sometimes not until the eighth or tenth, if the umbilical aperture is cicatrizied, and healed it is probable the child has survived for three weeks or a month. From the observations of Orfila, it would appear that putrefaction proceeds more rapidly in the infant, than the adult corpse, but the period which has elapsed since the child died, can only be determined by observing the degree of Putrefaction in the body, compared with temperature, locality, and other conditions, to which it has been exposed. If the body has been immersed in water, putrefaction proceeds more slowly in running, than stagnant water, but it appears from the experiments of Orfila, that before the body can be converted into adipocere, it must have been immersed between five or six weeks in running water.

When the body is subjected to the combined
action of the air, and water at the same
time, putrefaction takes place very rapid-
ly; or when free access to the internal part
is afforded by incisions, if however the
corpse be enclosed in a coffin, previous to
the commencement of putrefaction, it may be
retarded for a long time. Having now treated all
the different subjects in connection with
Infanticide, viz. The History of Infanticide.
The Viability of the child. The proofs that it
was born alive and was killed. The pro-
able time which has elapsed since the
perpetration of this crime, it only remains
for us to consider, the signs of recent
delivery in the mother, so as to be able
to draw some conclusion, as to the probable
guilt of the mother, of the baby or mother of the child.

Signs of recent delivery.
The female is weak, her countenance
pale, and anxious, the varices of the
abdomen flaccid, and thrown into folds, the
external organs of generation swollen,
and sometimes extensively lacerated, the
lochia discharge continues four 15 to 35,
days after delivery. The mammary become perceptibly, larger, heavier, and more tense, and usually after the second or third day yield their secretion (milk). It becomes almost a practical impossibility for a medical jurist to state with precision that a woman has been delivered, after two or three months; it is a matter of great difficulty giving an opinion on this subject if not examined within twelve days, the wrinkled appearance of the abdomen is the only persistent mark of delivery.