

great interest. I was first called to see him eleven years ago, when he was forty-five years of age. Without going into any details of the case, I will simply mention that he was suffering from ascites, and, in addition, was so reduced by vomiting and the discharge of blood from the bowels that he was considered in imminent danger. Three eminent physicians were in attendance, and although the distress caused by the abdominal fluid was very great, it was decided that it would be too much of a risk to resort to tapping. At the request of the gentleman's wife I was called in consultation, and at my suggestion the tapping was made, although I did not expect anything more than temporary relief. This was certainly afforded, and during the next three months he was tapped no less than ten times, 350 pounds of fluid being removed. After the tenth tapping there occurred a moderate accumulation; but this gradually disappeared spontaneously, and to-day the patient is in good health. I might mention many other cases in which repeated tapping was attended with the happiest results; but will not take up more of your time.

### Original Articles.

#### SOME REMARKS UPON INFANTICIDE, WITH REPORT OF A CASE OF INFANTICIDE BY DROWNING.<sup>1</sup>

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THE crime of infanticide appears to be relatively a very frequent one in Massachusetts. The following figures taken from the statistical reports annually published with our Transactions will substantiate this statement:—

Years.	Deaths reported as by Criminal Violence.	Deaths reported as by Infanticide.	Percentage of Deaths by Infanticide.
1878	30	2	6.6+
1879	21	7	33.3+
1880	17	7	41.1+
1881	13	2	15.3+
1882	23	11	47.8+
Total . .	104	29	27.8+

These figures are derived from the reports of individual cases alone, and represent, probably, less than one third the work of medical examiners throughout the State. But if the statistics were complete there is no reason to suppose that the percentage of cases of infanticide would be shown to be any less. It is safe to say that more than one quarter part of the cases of criminal violence that come under our official notice are those of infanticide. Yet prosecutions for the offense are very rare, and convictions still rarer. In a large number of cases the medical evidence that a crime has been committed is conclusive, and yet but little effort, or none at all, is made to bring the offenders to justice. The indifference of the community to this shocking crime is surprising. Let an adult or a

child of larger growth be murdered, and an intense excitement is at once aroused. But if the victim be a helpless infant the utmost apathy prevails regarding the crime,—often sympathy for the criminal even in those cases, unhappily, not rare, in which the hand of a mother performs the cruel act. Many of you may recall the notorious case, so much talked about in the newspapers, of Lizzie Corcoran, who drowned her illegitimate child, a few days old, by throwing it into the dock at Lynn. The chain of evidence was complete, and, in fact, the crime was ultimately confessed, yet the case was never even tried, and the culprit got off scot-free.

The popular sentiment which places a low value upon infant life is in exact accord with that which looks upon pre-natal life as of no value whatever, and refuses to regard its destruction as a moral offense. It is probable that infanticide is made to appear more frequent of late than formerly by the operation of the law of medical examiners. Under the old system when the dead body of an infant was found it was usually viewed and ordered to be buried, no attempt being made to ascertain by an autopsy the cause of death. But the medical examiner, when called to view the body of an infant that appears to be in such a stage of development as to warrant the conclusion that it was viable, has but one course to pursue in the discharge of his duty, and that is to make an autopsy, and ascertain definitely whether the child were born alive or not, and if it were to determine the cause of death. The very fact that the body was cast out unburied is proof presumptive of violence, and compels this course of action. The medical examiner is not justified, under any circumstances, in regarding the life of the newly-born child as being of less consequence than that of an adult. In view of the great prevalence of infanticide it is, perhaps, incumbent upon us to give increased thought to a study of this crime in its medico-legal aspects. The work of the Society has been well begun by Dr. Abbott in his article on the Evidence of Still-birth, published in vol. i., No. 2, of our Transactions. A series of papers following it upon the various causes of death, natural and violent, in new-born children, including reports of cases, might be of great interest and value. As a slight contribution to the study of the subject I herewith report a case of infanticide by drowning.

On the 20th of December, 1882, shortly before noon, I was notified that the dead body of an infant had been found in a privy vault in the outskirts of the town. On my way to the place I met the city marshal, who told me that he had removed the child from the vault, and was then taking it to the police station. He said also that an Irish servant girl, the supposed mother of the child, required medical attendance, and requested me to go on and render it. On my arrival at the house a few minutes later I found the girl sitting by the stove in the kitchen. Having put her to bed (she walked up stairs without difficulty), I delivered her of the placenta and membranes, which were lying loose in the vagina. The perinæum had been torn through nearly to the verge of the anus. On being questioned the girl said that she was unmarried; that she had left Ireland eight months previously, having become pregnant before she started; that since her arrival in this country she had been at domestic service, and had not informed any one of her condition; that when labor pains came on she excused her-

<sup>1</sup> Read before the Massachusetts Medico-Legal Society at the annual meeting, June 12, 1883.

self from work by saying that she was ill, and went into the cellar, where the child was born at about nine o'clock; that shortly before the birth she had a desire to go to stool, and attempted to use a floor pail for that purpose; that the child was then born into the pail, and that she, thinking it was dead, carried it out, and threw it into the vault; that she then returned to the cellar, and washed the pail and the floor. At this point the affair was discovered by the family, who had watched her movements with some curiosity and suspicion.

The view of the body was held at the police station at three P. M. of the same day, and the autopsy soon after. The body was found lying in a small box upon a piece of newspaper which appeared to be quite wet with some clear liquid. On taking the body up to place it upon a table a considerable quantity of watery froth ran from the nose and mouth. The following are the essential facts in the record of the autopsy:—

*External examination.* Body that of an apparently mature male infant recently born. Length 51.4 centimetres; weight 3670 grammes. Surface mostly clean, but presenting *vernix caseosa* in the usual places, and a few bloody patches. Skin red and firm. Head large, dark, with small *caput succedaneum*. Face congested. Eyes closed. Scalp covered with hair. Mouth open. Watery froth issuing from nose and mouth. Nails well developed. Testicles in scrotum. Umbilical cord fresh and bloodless, fourteen inches in length; end ragged. Two and one half inches from the end the cord is half cut or torn through. Meconium about anus. Abdomen distended. Chest full. Slight rigor mortis. Surface cold.

*Internal examination.* Section along median line. Diaphragm at level of sixth rib. Liver deeply congested. Both lungs expanded, completely filling the pleural cavities; light pink in color; somewhat congested. The trachea was ligated, and the lungs together with the heart and thymus gland removed. The whole mass floated in water high above surface. Lungs floated in sections. A slightly pinkish froth exuded from both lungs on section and pressure in abundance. The trachea and large bronchi were filled with this froth. Large veins distended with blood. Blood fluid; no clots anywhere. Meconium in large intestines. Small intestines distended with gas. In the stomach was a small amount of liquid, like water. Bladder contained urine normal in appearance. Other organs, so far as examined, were healthy in appearance.

The conclusions derived from the examination were:—

- (1.) That the child was mature.
- (2.) That it had been born alive a few hours before the autopsy.
- (3.) That the cause of death was drowning.

The conclusions in regard to the maturity of the child and the time of the birth were established by the testimony of the mother as well as by the appearance presented by the body. If the mother left Ireland eight months previous to her confinement, and had then been pregnant long enough to become aware of it, she must have been at time when the birth took place. It needs no argument to show that the child was born alive. The complete expansion of the lungs makes it certain that respiration was performed after the entire extrusion of the child from the body of the mother, and that therefore the child was born alive in the English sense. It can hardly be disputed, also, that the cause of death

was drowning. No other theory would account for the presence of so large an amount of liquid and froth in the respiratory passages. This condition of things could only have been brought about by attempts to breathe under water. It is not to be expected that the signs of drowning in the case of new-born children will be precisely the same always as in case of adults. Those external appearances due directly to the submergence of the body are very likely to be absent. If Caspar's theory that the cutis anserina is due to mental shock is true, we should certainly never observe that. Neither should we expect so much pallor after a moderately long submergence; for the natural baby red is not to be as easily driven away as is the lighter hue of older persons. No deductions can be drawn, moreover, from the dark hue of the face, for this may have been the result of prolonged pressure upon the head during the birth. In that group of appearances which result from the attempt to carry on the process of respiration under water the differences to be expected would be less; yet we should hardly look for the signs to exist in the same degree as in the case of adults. The more feeble the life the shorter and less vigorous the struggle of its possessor to preserve it. The case reported, if exceptional in this respect, proves that the child was unusually strong. I place little reliance upon the minor indications of drowning as shown by the autopsy, such as the presence of water in the stomach, the fluidity of the blood, the accumulation of blood on the venous side of the circulatory system, the congestion of the lungs, etc., for the presence of liquid and froth in the respiratory passages seems sufficient in itself to establish beyond question the cause of death. This being settled, the only question remaining to be considered was whether the drowning was accidental or not. There being good reason to suppose that the mother willfully destroyed her child, she was arrested on the charge of infanticide, bound over from the police court, indicted by the grand jury, and released on bail without a hearing from the superior court. At the preliminary hearing the attorney for the defense vaguely shadowed forth two theories to account for the death of the child: one, that the mother drowned it while laboring under puerperal mania; the other, that it was accidentally drowned in the liquor amnii during, or soon after, the birth.

The first theory is not one that would have much weight with medical men; for it is incredible that a woman should develop mania after her confinement just sufficient in degree and duration to allow her to destroy her child, and that she should become perfectly sane and well a few hours afterwards, so as to show no trace whatever of the malady. Her own story, told with the object of relieving herself from suspicion, would of itself effectually dispose of this theory. The second theory is much more plausible than the first; yet there are certain circumstances which make it clear to my mind that the child was willfully murdered. In the first place the quantity and quality of the liquid in the respiratory passages of the child prove that it was drowned, not in a small pool of the discharges, but in an abundance of water. The city marshal stated that the contents of the vault were frozen; that the surface of the child was moist and steaming, but not wet. That he took it out by the feet, head depending,—an act which would allow much of the liquid in the child to escape. Notwithstanding this, and the wetting of

the paper in the bottom of the box during the journey to the City Hall, enough liquid remained to run in a stream from nose and mouth when the child was taken out and placed upon a table. Besides, the liquid was clear like water, presenting no traces of fecal matter, blood, or slime. If the girl's statement was true, that the child was born while she was sitting over a pail, we are to believe either that there was water in the pail, and that the child fell at once into it and was drowned before it had time to cry or manifest to her other signs of life, or that the breaking of the bag of waters furnished liquid enough, together with urine, etc., to drown the child. In the former case respiration must have been performed so as to completely expand the lungs in every part while the child was dropping through a space of a few inches at most. If the pail were half full of water the head would enter it at once. As the perinæum was ruptured, the extrusion of the child must have been sudden. It is not to be admitted that respiration could have been performed while the child's head was within the vagina, for the head was large, and the mother a primipara. Even if the head were extruded, and the body held back by the shoulders, attempts at respiration could only have imperfectly expanded the lungs at best. But the rupture of the perinæum makes it almost certain that this delay did not occur. We are then justified, I think, in concluding that the girl's statement was false. She could have invented such a story only with the purpose of covering up some offense of her own. Hence there is little doubt that the birth took place upon the cellar floor, and that the mother, after severing the cord with some rude instrument, deliberately drowned her child in a pail of water.

#### NOTES OF PROGRESS IN PHYSIOLOGICAL CHEMISTRY.

BY JOSEPH W. WARREN, M. D.

NOT the least pleasant record to be made here is the appearance of a new edition of the well-known hand-book of Hoppe-Seyler.<sup>1</sup> An old friend of all workers in this department, the new edition shows everywhere a praiseworthy endeavor to keep abreast of the times. Many less satisfactory methods have been omitted, and condensation practiced where permissible, and still the fifth edition contains fifty pages more than its predecessor. Without going too much into detail, we note some of the changes which are apparent even on a hurried examination of the book. There is a new and sufficiently brief chapter on testing the reaction of liquids, and in another place rosolic acid, alkanna, and tropæolin receive due attention. The new remarks on the use of the spectroscope for quantitative analysis (page 21) are sensible and to the point. There are many new chapters about the multitudinous compounds which have been found in recent years, among others acetone, hydrochinon, the various compound sulphuric acids, skatol, etc. The chapter on urea contains much new matter, and that on glycogen is enlarged, but here, as elsewhere, too little attention is paid to the difficulty of completely extracting the tissues. There is a new chapter on maltose, but the chemistry of this substance is hardly full enough. In the chapter on grape sugar Worm-Müller's

<sup>1</sup> Handbuch der physiologisch- u. pathologisch-chemischen Analyse für Aerzte, Studierende, von F. Hoppe-Seyler. 5te Auflage. Berlin. 1883. Hirschwald.

laborious investigations are fully regarded, and the chapters on the proteid bodies are full of newer and interesting details. In this, as in the previous edition, no account is given of gasometric analysis proper, a misfortune to the student surely. There is also no mention of the new cadaveric alkaloids or ptomaines, but, perhaps, these belong too much to the department of toxicology, yet hardly more so than some subjects treated in detail in the hand-book which are really the product of a kind of poisoning. Leaving captiousness aside we may say, then, that the new edition has all the clearness, convenience, and compactness which have characterized former editions, and remains an indispensable aid to all students.

Another recent book ought also to find a brief notice here, the closing half volume of Hermann's Hand-Book of Physiology.<sup>2</sup>

This division of the work was originally assigned to Huppert, but was finally taken in hand by Drechsel, who has prepared it somewhat more hurriedly than he wished, as he has explained in his little preface. The result is, however, an interesting account of the chemistry of the principal secretions and tissues, excepting the digestive and some other secretions, as the bile, which, together with the chemistry of muscle and blood, had been already considered in other portions of the book. The chemistry of the urine is given with great brevity, but very pleasantly, and special attention is paid to the new bodies, compound acids, that have attracted so much attention of late. The chapter on milk is brief, but sufficient; that on fats and similar substances exceedingly good and suggestive. The section on connective and epithelial tissues is shorter than some authors have led us to expect, but it contains the principal facts in a convenient form. It would, indeed, be difficult to write a better succinct account of these portions of physiological chemistry than Drechsel has given us in some 175 pages, of which ninety-four are devoted to urine. The directions for quantitative analysis are everywhere reduced to a minimum, and in one important case, that of dextrose, omitted altogether. The principal criticism which might be made against the book, that it tends to be too chemical and too little physiological, is disarmed by the author in his preface.

Some twenty years ago Schiff reported that the pancreatic juice or extract no longer digests albumen if the spleen have been previously extirpated. More recently it was found by Heidenhain that the zymogen, or forerunner, of trypsin is formed in the pancreas quite independently of the presence of the spleen. A couple of years later Herzen looked into this discrepancy, and decided that although the zymogen is thus produced independently its transformation into the proteolytic ferment (trypsin) depends upon a ferment furnished by the spleen. His conclusions were based upon too few observations to be altogether satisfactory even to himself, and he has therefore recently repeated them, and published the results of some twenty experiments<sup>3</sup> which he has made. He seems to have demonstrated pretty conclusively that a proper spleen, one which is enlarged and blood containing during digestion, produces a ferment extractable with glycerine or a five per cent. solution of boric acid, which, when

<sup>2</sup> Handbuch der Physiologie. Fünfter Band, zweiter Theil, zweite (Schluss-) Lieferung. Chemie der Absonderungen u. Gewebe, von E. Drechsel. Leipzig. Vogel. 1883.

<sup>3</sup> Herzen: Ueber d. Einfluss d. Milz auf d. Bildung des Trypsins, Arch. f. d. ges. Physiol., xxx., 295.