

Case of criminal poisoning with oxalic acid, in which perforation of the stomach took place / by Henry Duncan Littlejohn.

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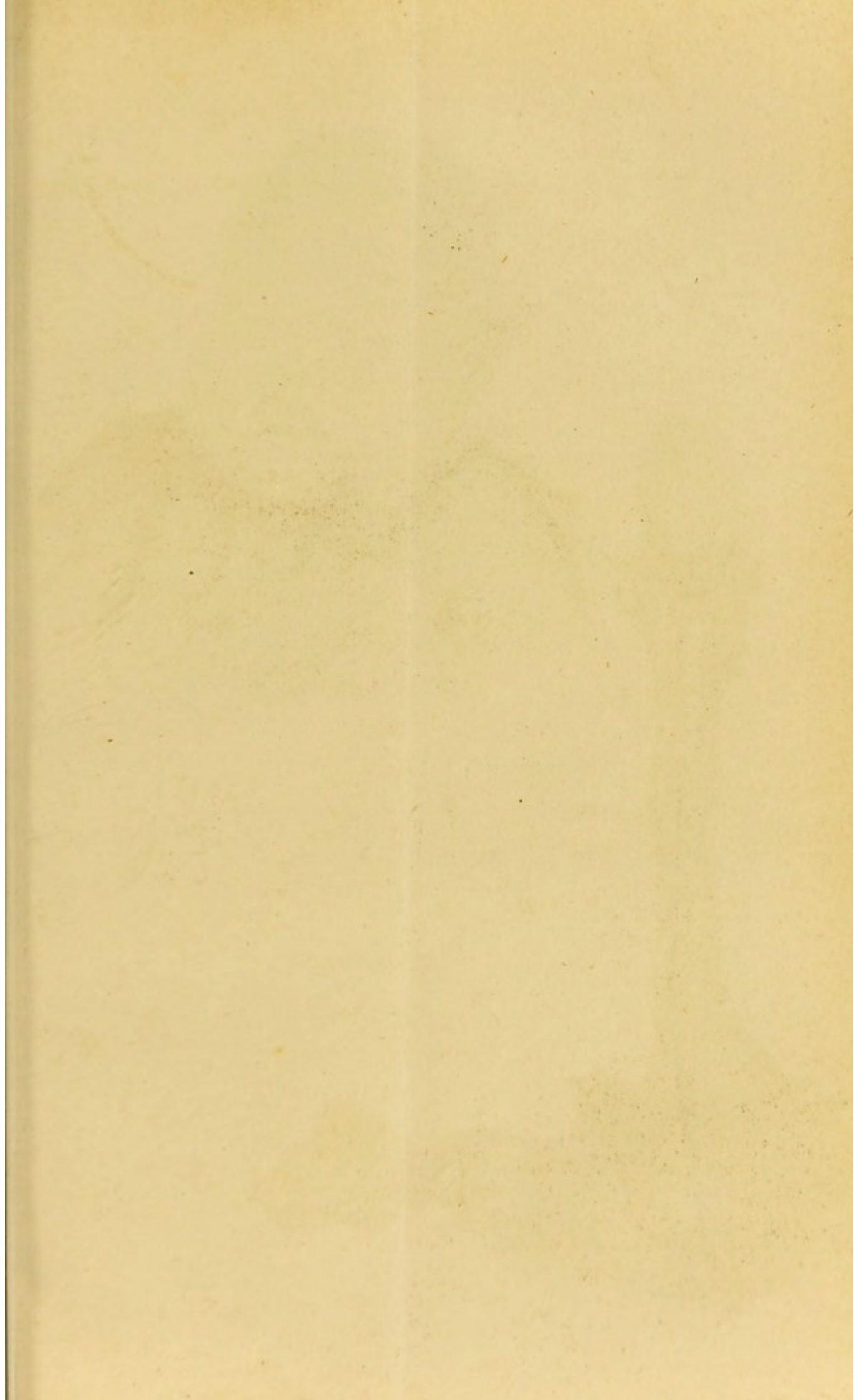
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C A S E
OF
CRIMINAL POISONING WITH OXALIC ACID,
IN WHICH
PERFORATION OF THE STOMACH TOOK PLACE.

BY
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IN December 1858 I was requested by the authorities to examine the body of an infant at the Maternity Hospital. The circumstances attending its death were stated to be very suspicious; and on inspecting the body, and hearing the statements of the two intelligent house surgeons, Drs Johnston and Taylor, I was convinced that the child had been poisoned.

The mother, an unmarried woman, had been delivered twelve days previously. She left the Maternity Hospital on the 4th December; and on the 6th, accompanied by a neighbour, who carried the child, went to the West Church poorhouse for the purpose of soliciting support for herself and infant. As they returned, she was observed to loiter behind her companion near a druggist's shop in Nicolson Street, and she afterwards confessed that she purchased there a pennyworth of oxalic acid ($\frac{3}{8}$ ss.). The child was alive and apparently well about nine o'clock that evening, and about ten o'clock it was found dead in bed. A doctor was sent for from the Maternity Hospital, and Dr Johnston came. He asked the woman what she had been giving to her baby, and she answered, "Nothing but salt and water." Dr Johnston very properly removed the body of the child to the Maternity Hospital, and reported the case to the authorities. I found the body secured in a lockfast place in the Hospital. The appearance of the face, as depicted in the drawing, was very peculiar, and on the clothes in which the body was wrapped there were several suspicious-looking stains. I learned from the house-surgeons, that later in the morning they had been sum-

moned to the mother of the child, who had attempted to destroy herself by swallowing a quantity of oxalic acid. They had at once employed the stomach-pump and administered suitable antidotes, and she was soon out of danger. In the course of the forenoon she recovered so far as to be able to be conveyed without risk to prison. The matters she had vomited, and the fluid which had been removed by the stomach-pump, were carefully preserved. The body of the child was conveyed to the dead-house of the police office, and Dr Keiller and myself were requested to examine and report upon the case; which we did in the following terms:—

External Appearances.—The child was full grown, and in every respect well developed. It was fresh, and presented the usual post-mortem rigidity. The lips were of a blackish colour, and exhibited a puckered, corroded appearance. Towards the left angle of the mouth there was a slight scratch. On opening the mouth, the tongue was observed to be of a grey colour, and to be coated with a slimy fluid. The navel was nearly healed.

Head.—The head was well covered with dark-brown hair. With the exception of slight congestion of the surface of the brain, nothing unusual was observed.

Chest.—The lungs were fully expanded, crepitated on pressure, and floated freely in water. The right side of the heart was distended with dark coloured blood, partly fluid and partly clotted; the left side was empty, and well contracted.

Abdomen.—On raising the liver, the stomach was found to be perforated, and the surrounding parts were in a state of great congestion. The whole alimentary canal was carefully removed for more minute examination.

Tongue, etc.—The upper surface of the tongue had a grey sodden appearance, and was covered here and there with a pasty-looking matter.

Throat, etc.—The whole of the pharynx and the opening of the windpipe were highly congested. The gullet, from the pharynx to the stomach, was raised in longitudinal folds, had a macerated appearance, and near the cardia was of a deep ashy colour.

Stomach.—The large curvature of the stomach exhibited a perforation which implicated a considerable part of the posterior wall. The mucous membrane generally was of a dark colour, very soft, and could be easily raised from the muscular coat. The pyloric extremity and the duodenum were highly congested and softened in texture.

Intestines.—The small intestine, otherwise, appeared healthy; as also did the large intestine, as far as the descending portion of the colon, which, with the rectum, was congested on its mucous surface.

The stomach was empty. The mucous membrane of the small intestine was coated with healthy mucus, and the large intestine contained a mixture of mucus and ordinary feculent matter.

From these appearances, Dr Keiller and myself felt ourselves

justified in giving it as our opinion, that the death of the child had been caused by the administration of some highly corrosive substance.

On touching the inner surface of the stomach, and also the parts in the neighbourhood of the perforation, with litmus paper, evidence of marked acidity was obtained; and this circumstance, together with the appearance of the mouth, gullet, and stomach, would have led us to suspect that oxalic acid had been the poisoning agent employed, even if this substance had not been indicated to us by the general evidence in the case.

Before commencing any chemical investigation, I lost no time in obtaining from my friend Dr John Smith a very faithful sketch of the appearances presented by the tongue, gullet, and stomach, and also a portrait of the child, so as to give a correct representation of the peculiar discolouration of the lips.

The tongue, gullet, stomach, and duodenum, along with the spleen, were carefully washed in distilled water, and allowed to soak for four hours. The washings had a decided acid reaction. They were subjected to the process for the detection of oxalic acid as detailed by Dr Taylor in his work on Poisons, and satisfactory evidence of the presence of oxalic acid was obtained. It was estimated, from the amount of oxalate of lead precipitated, that nearly four grains of crystallized oxalic acid were present in the mucus coating the stomach, duodenum, gullet, and tongue, and in the washings of the parts. There could be no doubt that the child had died from the effects of oxalic acid, and it was not deemed necessary to subject the alimentary canal to any further examination.

A cloak (of a loose greyish material) in which the child had been wrapped was stained in various places, and the colour had changed to a light yellow. Several of these stains, on being cut out and digested separately in distilled water, were proved to be caused by oxalic acid.

Finally, the matters removed from the stomach of the mother by the stomach-pump, on being boiled with carbonate of potash and filtered, gave all the reactions of a soluble oxalate.

These various experiments were detailed in a report by Dr Keiller and myself; and the mother, Margaret Macdonald, was indicted for the murder of her infant female child, "in so far as she did wickedly, maliciously, and feloniously administer to, or cause to be taken by, her female child, then of the age of twelve days—the said child being illegitimate—a quantity of oxalic acid, or other poison, mixed with water or some other liquid, and in consequence thereof, and immediately or soon after taking the same, the said child suffered severe illness, and died on or about the 6th day of December, and was thus murdered by her."

The trial took place on the 23d of March 1859, when evidence of the most conclusive kind was adduced for the Crown. For the defence it was urged that the prisoner was an ignorant, ill-educated

person, and that she had given the poison by mistake for common salt. The evidence need not be detailed, as it presented nothing of more than ordinary interest. I add, however, a few notes of the addresses of the counsel and the judge so as to complete the history of the case.

The *Solicitor-General* (Mure), in addressing the jury, referred to the probable line of defence—that oxalic acid had been administered to the child instead of salt—as altogether untenable, and disproved by the evidence. He maintained that it was plainly substantiated by the witnesses, and admitted by the prisoner in her declaration, that she gave the child something which she knew would be injurious to it, and which actually caused its death. If the jury thought it at all probable, from her ignorance or stupidity, or the other circumstances which had been brought forward for the defence (referring to the seduction and desertion), that she had done this recklessly and culpably, but without any deliberate design to take away the life of her infant, then it was competent for them to find her guilty of culpable homicide. He feared, however, looking to the facts of the case—that she secretly purchased the poison at a druggist's shop, that she at first said she had merely given the child salt and water, but after its death admitted having given it the "bonnet stuff," and afterwards took a dose of the same poisonous acid herself, for the too evident purpose of committing suicide—it was impossible to escape from the conclusion that she was guilty of the capital charge.

Mr Burnet, for the defence, was willing to assume that the death of the child had been caused by a quantity of oxalic acid administered by the prisoner, but contended that none of the circumstances which had been established by the evidence were inconsistent with the theory that it had been administered by her in mistake for common salt, which she had seen several times used in the poor-house to relieve children from pains in the bowels. He denied that anything amounting to felonious intent had been proved against the prisoner, and maintained that the theory submitted by him was more probable than either of those—deliberate murder or culpable homicide—suggested by the *Solicitor-General*. Referring to the treatment received by the prisoner at the hands of the seducer and her own relatives, he said, less might have deprived a person of stronger mind of reason; and, indeed, it was only after the most careful deliberation that he had resolved not to record a plea of insanity, which, had it been established, even assuming the theory of the Crown to be correct, would have exempted the prisoner from punishment. He was, however, entitled to argue, and he did so with some confidence, that the vexed, perplexed, and distressed state of mind to which she was reduced, rendered the mistake which she committed all the more natural and the less extraordinary. He contended, in conclusion, that the statements in her declaration, viewed in connection with the fact that she could not read, and with her general gross ignorance, were quite reconcilable with the belief that she gave the child the acid by mistake, or at least that she was not aware of its deadly and poisonous character.

The *Lord Justice-Clerk*, in charging the jury, said that the case was one of the most distressing which had come under his cognizance for a long period. He went minutely over the evidence, commenting on the different views of the case which had been urged by the counsel on either side, and concluded by telling the jury that they had three courses, any one of which they could follow: either to absolve the prisoner, or to convict her of the crime of murder with which she was charged; or, thirdly, it was in their power in cases of mixed evidence like this, if they saw their way to it with safety, to return a verdict of culpable homicide.

The jury retired about five o'clock, and returned to the box after an absence of a quarter of an hour, and by a large majority found the prisoner guilty of culpable homicide.

The *Lord Justice-Clerk*, addressing the prisoner, said—It is a very great relief

to the Court that they have not to deal with this case now as a case of murder, and you may consider that the jury have taken a very merciful view of the evidence in returning the verdict they have done. If a verdict of guilty of murder had been returned, there would have been no power in the Court to award any sentence against you, except sentence of death. Most happily we are relieved of that most painful duty; but while that is so, we have still to deal with an exceedingly heinous offence, committed under circumstances which, while they have been found to negative the idea of an absolutely murderous intent on your part, do yet leave a very grave criminal responsibility on you. This is not the case of a woman causing the death of her child in the course of its birth, or immediately after its birth, when perhaps she can hardly be responsible for all her actions; but the deed was committed at a time after you had recovered from the pains of labour, and from the illness consequent upon it, and had been restored to your ordinary place in the world, carrying your child with you. You may have been in circumstances of some degree of trouble and temptation, but these never can be taken into account as any justification of crime, and certainly the crime of which you have been found guilty is nothing less than that of taking the life of your own child; for though it has not been found to be murder, it is the killing or homicide of your own offspring, under circumstances bringing home to you full criminal responsibility for that act. In these circumstances, the Court have no alternative but to pronounce a very severe sentence. The sentence of the Court therefore is, that you be subjected to penal servitude for the period of fifteen years.

The case, in many respects, is worthy of notice. The substance employed to cause death is, comparatively, rarely used as a poison even in this country, which contrasts remarkably with the Continent, where oxalic acid poisoning is almost unknown. Professor Casper, of Berlin, states:—"I cannot from my own experience confirm the statement that this extremely dangerous poison, which may be very readily taken by mistake, is particularly fancied by suicides, especially by such as work in cotton-printing establishments, where it is employed as a bleaching agent, *since not one single case of poisoning by oxalic acid has ever come before me, though Berlin possesses the most extensive cotton factories in Germany. Throughout the whole monarchy also, cases of poisoning by oxalic acid are extremely rare, and official position enables me to state this confidently; while in England such cases are said to be extremely frequent.*"¹

With us oxalic acid is also much used in the preparation of leather, and especially in the cleaning of straw-bonnets, for which it is extensively employed by individuals among the lower orders. Its taste, however, is repulsive, and the quantity required to produce speedy death is large; so that, unless during sleep, or insensibility from intoxication, or injury to the head, it would be impossible to administer it secretly to an adult person of sound mind. With infants and children of a tender age it is very different; the most nauseous substances, and those—such as the concentrated mineral acids—the slightest touch of which causes acute pain, may be administered with facility by any one, and especially by the mother. Hence it is a rule in medical jurisprudence, that in such cases accident and suicide are

¹ 3d Edition, vol. ii., page 425.

out of the question, and that the poison must have been *administered*. In the present instance, the abrasion near the mouth, and the appearance of the lips, indicated a certain amount of struggle on the part of the infant; and the stains on the cloak might have been caused either by the rejection of the fluid poison as it was administered, or by subsequent vomiting. There was no doubt that the acid had been given in a highly concentrated solution. This was proved by the post-mortem appearances, by the speedy death, and by the stains on the cloak. The exact quantity cannot of course be accurately determined: much may have been rejected by vomiting, or lost in the administration; and it would certainly require but little of such a highly energetic poison to kill an infant only twelve days old. The post-mortem appearances were characteristic of the action of oxalic acid. As these hardly admit of correct description, I have had the remarkably faithful sketch by Dr Smith reproduced in coloured lithograph. It will be observed that the tongue, entrance of larynx, gullet, and stomach, manifest well-marked effects of the poison. And in addition, the stomach is perforated. This has rarely been observed in poisoning with oxalic acid. Indeed, doubt has been thrown upon the few cases in which this lesion has been reported, and it has been hinted that the perforations were produced by incautious handling of a viscus already softened by the action of an acid which exercises a solvent action on animal structures.

It is not a little remarkable, that rare as this lesion is, in the last case of oxalic acid poisoning which has been published in Edinburgh, the stomach was perforated. I refer to the interesting case of suicidal poisoning reported by Dr Alexander Wood, in this Journal for March 1852. The late Dr Stillé of America, in noticing Dr Wood's case in his work on *Medical Jurisprudence*, p. 404, rather hastily remarks, "As sufficient details of the dissection are not given, and the viscera do not appear to have been examined *in situ*, it is possible the hole may have been artificially produced." So far from this being the case, the description is clear, although concise. "The stomach," says Dr Wood, "presented a large irregular aperture on its upper and anterior aspect, nearer the cardia than the pylorus. From this opening a dark gelatinous-looking matter, resembling coffee grounds, escaped in abundance on handling the stomach. The aperture in the stomach seemed at first to be of a size sufficient to admit the point of the finger. On handling it, it tore of a larger size, and eventually presented the appearance of two large openings, separated by a narrow band." And in his subsequent remarks Dr Wood speaks "of the perforation which was found on the post-mortem examination." I have since learned on the best authority, viz. on that of the gentleman who conducted the examination, that the viscera were examined *in situ*, and that the perforation was detected before the stomach was touched. Dr Keiller and myself being cognizant of Dr Wood's case, and of the facility with which the stomach gave way on being

handled, examined the abdominal viscera of this child with the greatest care, and on cautiously raising the liver, the stomach was observed to be collapsed, the edge of the perforation was detected, and mucus was found extravasated, similar to that which adhered tenaciously to the mucous membrane of the stomach.

Oxalic acid generally kills too speedily to enable us to determine with certainty whether the perforation occurred during life or after death from the prolonged contact of the acid with the coats of the stomach. In the recorded cases there was no peritonitis; but in Dr Wood's it was noted that "the peritoneal surface of the uterus and small intestines was much injected," and in the present case "there was well-marked congestion of the surrounding parts,"—appearances which support the opinion that in both cases the perforations occurred before death. The objection may be urged as regards an infant, that the perforation, from its appearance and position, was due to the solvent action of the gastric juice, aided by the presence of oxalic acid; and in all the instances of perforation, it existed at the cardiac extremity. But in the present case the aperture was different from that found in undoubted post-mortem softening of the stomach in infants, its edges were much more abrupt, and there was none of that transparent ramoillissement so often met with as a result of the action of the gastric juice. On the other hand, there was the clearest evidence of the administration of a corrosive acid—its effects could clearly be traced from the lips along the whole course of the gullet to the stomach; and I hold it is but a reasonable supposition, when we find that portion of the stomach on which this powerful acid must have finally rested, perforated by corrosion, to ascribe this lesion in the stomach to such an active agent.

So far as I can discover, there are but four cases recorded of perforation of the stomach from the action of oxalic acid. The first is referred to by Dr Christison in his work on Poisons. It appeared in the 6th volume of the first series of the *London Medical Repository*. A young woman, aged 25, took by mistake for Epsom salts one ounce of oxalic acid. She died in a quarter of an hour. A quarter of an ounce of the oxalic acid was afterwards found in the cup. The following is the account of the dissection: "The body was opened three days after death. The cuticular coat of the œsophagus peeled off with the slightest effort; the blood-vessels of the inner coat of the stomach appeared as if injected with a carbonaceous substance; the stomach itself was in some parts so completely perforated, that its contents had escaped into the cavity of the abdomen; whilst the other part was so tender, that it tore with the slightest force. The rugæ were just visible, but were converted into a pultaceous mass, and could be wiped off with the finger." "The spleen at that part next the stomach, meeting with the acid, had also become in part destroyed." The second case is that recorded by Dr Letheby in the 35th volume of the *Medical Gazette*, or rather vol. i. for 1844-45,

p. 49. It is referred to by Dr Taylor in his work on Poisons. The subject of this case was also a female, æt. 22. The quantity taken could not be ascertained, but Dr Letheby found in the contents of the stomach which could be collected, "about three drachms of oxalic acid." The case is very shortly reported, and there is no mention whether the deceased had vomited. Mr Garret, who conducted the post-mortem examination, had great difficulty in removing the stomach and contents on account of "the corroded and softened condition of that organ." "The stomach was very much blanched, except in two or three places where there were small black spots, as if blood had been effused and acted upon by the poison; and here and there a blood-vessel might be seen ramifying, with its contents similarly blackened. The tissue of the stomach was so softened and disorganized, that it could scarcely be handled without tearing; indeed, at the cardiac end, it was reduced to a pulpy or gelatinous consistence, and had numerous perforations in consequence." Dr Taylor is inclined to ascribe the perforations in this case "to long contact of a large quantity of the acid after death." The third in point of order is that of Dr Wood's, which I have already quoted. The fourth case is the subject of the present paper.

In all the cases the dose was apparently large. In two there is no mention of vomiting; in Dr Wood's the vomiting was not copious; and in the case of the child, the stains on the cloak, as I have said, might have been caused by spilling during the administration. It is somewhat remarkable that all the subjects were females.