

**Illustrations of the effects of poisons : by George Leith Roupell ; the plates from original drawings by Andrew Melville M'Whinnie.**

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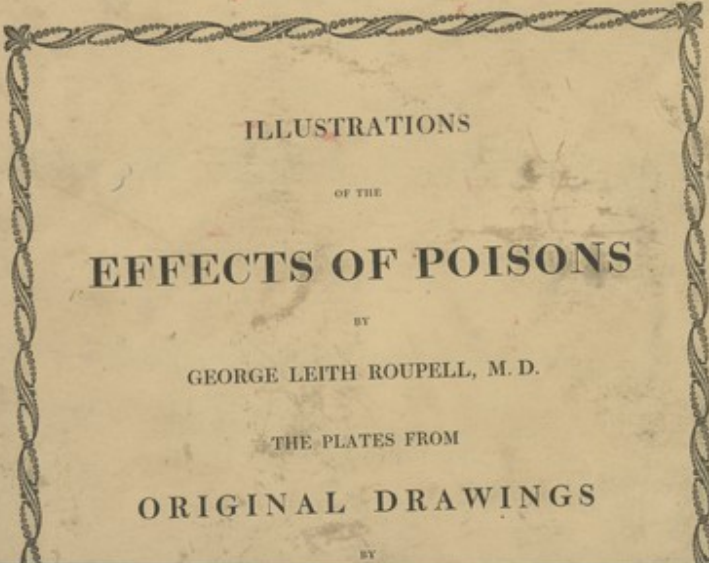
EFFECTS OF POISONS

—  
M'WHINNIE

—  
Parts I-II

1833

F.2296

A decorative border with a repeating rope-like pattern surrounds the central text.

ILLUSTRATIONS  
OF THE  
**EFFECTS OF POISONS**

BY  
GEORGE LEITH ROUPELL, M. D.

THE PLATES FROM  
**ORIGINAL DRAWINGS**

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OF THE  
**EFFECTS OF POISONS**

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THE PLATES FROM  
**ORIGINAL DRAWINGS**

BY  
ANDREW MELVILLE M'WHINNIE,  
MEMBER OF THE ROYAL COLLEGE OF SURGEONS.

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PART I.

---

G. AND W. NICOL, PALL MALL.

[*Eighteen Shillings.*]

F.2296

ILLUSTRATIONS  
OF THE  
**EFFECTS OF POISONS**

BY

**GEORGE LEITH ROUPELL, M. D.**

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, CONSULTING PHYSICIAN TO THE  
SEAMEN'S HOSPITAL, PHYSICIAN TO THE FOUNDLING HOSPITAL, AND  
LECTURER ON FORENSIC MEDICINE.

**THE PLATES FROM ORIGINAL DRAWINGS**

BY

**ANDREW MELVILLE M'WHINNIE.**

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, AND LATE HOUSE SURGEON TO  
SAINT BARTHOLOMEW'S HOSPITAL.

LONDON:

GEORGE AND WILLIAM NICOL, PALL MALL.

MDCCCXXXIII.

ILLUSTRATIONS

OF THE

EFFECTS OF POISONS  
ROBERT CHRISTISON, M.D.

BY THE AUTHOR

GEORGE SMITH HOPKELL, M.D.

WITH ILLUSTRATIONS BY GEORGE SMITH HOPKELL, M.D.

1854

The readings with which you have endeavored in my  
wish to publish this work, and the favorable opinion  
you have expressed of its utility, have given me a confidence in  
submitting it to the Public which I could not otherwise have justly  
entertained.

At the present time, when the study of medicine is  
pursued, scientific principles are so abstractly taught, and applied  
to multiply the experiments and history of the medical  
profession has not been hitherto in endeavor to improve our  
knowledge, and in its department have its efforts been more suc-  
cessful than in elucidating the nature and different branches of  
Medical Jurisprudence. Many diseases however still remain  
and with the view of supplying that of them I have undertaken  
these illustrations to exhibit to the public as they are





TO

**ROBERT CHRISTISON, M. D.**

DEAN OF THE FACULTY OF PHYSIC,

EDINBURGH.

DEAR SIR,

THE readiness with which you have acquiesced in my wish to dedicate this Work to you, and the favourable opinion you have expressed of its utility, have given me a confidence in submitting it to the Public which I could not otherwise have justly entertained.

At the present day when the cultivation of Science is so ardently pursued, when its principles are so diligently sought for and applied to multiply the conveniences and luxuries of life, the Medical Profession has not been backward in endeavours to improve our knowledge, and in no department have its efforts been more successful than in elucidating the intricate and difficult branch of Medical Jurisprudence. Many deficiencies however still remain, and with the view of supplying one of them I have undertaken these "Illustrations," which can be addressed to no one so

appropriately as to you who have taken a decided lead in all investigations connected with Forensic medicine, and have rescued our Literature from the charge of neglect on the subject of Poisons by a work which adds to all that is valuable in the extensive store of continental research much that is exclusively and entirely your own.

That you may long continue to enjoy the esteem which is especially due to an able teacher, to a distinguished contributor to science, and to a zealous benefactor to mankind, is the sincere wish of one who, though personally a stranger to you, begs to subscribe himself,

With the highest respect,

Your obedient humble servant,

GEORGE LEITH ROUPELL, M. D.

*August, 1833.*

*7, Caroline Street, Bedford Square.*

## PREFACE.

WHEN lecturing last year on the subject of poisons I had frequent occasion to regret, in speaking of the appearances resulting from their action, that my portfolio of drawings was so scantily supplied. During my course this season I was anxious to procure a more complete series of plates, but could not find on enquiry that any work containing delineations of the effects of poison existed either here or abroad. I was therefore under the necessity of instituting some experiments on animals to furnish illustrations of the different subjects of which I had to treat. With this view I obtained the co-operation of my friend Mr. M'Whinnie; and I willingly avail myself of this opportunity to acknowledge the valuable assistance which he has rendered me throughout in the prosecution of my design; as well in making the experiments, as in representing the appearances afterwards discovered.

Having thus obtained a highly interesting series of drawings exhibiting the effects of the most ordinary irritants on the mucous membranes, I determined to send them to the press, in the belief that such a publication would not only prove interesting to those who like myself were engaged in lecturing, and to the general Pathologist, but useful also to those members of the profession resident in the country who can meet with few opportunities of

witnessing such injuries and who may occasionally be called upon to give evidence in criminal cases. The plates are taken partly from the effects of poisons on man and partly from their effects on animals. Now it may be asked whether poisons exert the same action on animals as they do on man? and whether the effects of irritant substances differ so essentially from each other as to furnish distinctive indications?

In answer to the first of these enquiries I may quote the words of Professor Orfila, who says “ Nous pouvons assurer, après avoir fait plus de trois mille expériences sur les chiens, et les avoir comparées à ce que l’on observe chez l’homme, que la différence est nulle par rapport à la nature des symptômes et des lésions organiques que les poisons développent: qu’elle existe seulement dans les doses nécessaires pour porter la maladie au même degré, dans l’influence du moral, et dans la force relative des animaux, circonstances qui ne peuvent influencer que sur l’intensité des symptômes, et des lésions organiques, et par conséquent sur la durée de la maladie.”

I have thus the opinion of the highest authority, founded on experience sufficiently extended, as to the similarity of appearances in dogs and in the human stomach, an opinion confirmed by my own observation.

With regard to the other question, namely, whether the effects of different irritants essentially vary—I have only to state that

very many substances, and those most frequently employed as poisons, occasion certain changes (when their effects have been fully produced) capable of representation by which they may without difficulty be distinguished.

It is not presumed that the appearances met with after death by poison will supersede other modes of investigation, and exclude other kinds of proof, such as the study of symptoms or chemical analysis. My intention in undertaking this work is to afford to the Pathologist an additional means of recognising the consequences of injury of this nature. It is however interesting and important to establish the fact that the effect of certain irritants is peculiar; so peculiar indeed that under circumstances favourable to their action the appearances to which some give rise are evidence sufficient not only to prove the fact generally that poison had been swallowed but to satisfy us of the kind of poison actually resorted to.

One object on the score of humanity I have had in view, viz. by the fidelity of the representations to obviate any necessity for the repetition of these experiments; such as presented any unexpected result have been several times performed, and the appearances exhibited have thus been authenticated.

Mr. Joseph Perry has been engaged to execute the lithography and to colour the engravings, and it is but justice to him to remark that his part has been performed in a manner which must add

considerably to the reputation as an artist which he has already deservedly acquired.

The drawings, and such of the lithographic impressions as had been coloured, were exhibited at the meeting of the British Scientific Association recently held at Cambridge, when I received no less satisfaction from the approval of my project by the Medical Section than encouragement by a grant from the funds of the Association in furtherance of the extension of my views.

The plan I propose to adopt in prosecuting this work is to publish another fasciculus containing the same number of plates as soon as is consistent with their proper execution: the whole series will be completed in four parts, each of which will be equally well finished and contain subjects of the same interest and importance.

## ILLUSTRATION I.

EXPERIMENT TO SHEW THE EFFECT PRODUCED BY A LARGE DOSE OF ARSENIC.

At two o'clock P. M. on the seventeenth of January, having kept a large strong dog without food for twenty-four hours, I introduced a drachm of powdered arsenic into his stomach through an opening made in the œsophagus which was afterwards tied in the manner recommended by Professor Orfila, to prevent the rejection of the poison by vomiting. On removing his muzzle he displayed such determined ferocity and was so little affected by the operation, that it was necessary to confine him. In about ten minutes however he appeared faint, and in a quarter of an hour he made attempts to vomit.

When visited at four o'clock, two hours after the administration of the poison, he appeared to suffer extremely, frequently varying his position. Retching was urgent and constant, and numerous evacuations from the bowels took place. He continued nearly in the same state until eight minutes before nine, when he died; within seven hours from the time of exhibiting the arsenic.

Examination seventeen hours after death.

The limbs were rigid.

The lungs presented a red appearance which pervaded their whole tissue, but no change of structure was observed.

The peritoneal surface of the intestines had a rosy hue; the mucous membrane was inflamed in parts but not intensely.

The stomach and duodenum presented the appearances exhibited and explained in the next page.

## PLATE I.

REPRESENTS the stomach, part of the œsophagus and duodenum of a dog poisoned by a drachm of arsenic, laid open along their anterior part.

The contracted part towards the centre of the Plate denotes the situation of the hour-glass contraction.

The œsophagus is of a rose colour, which results partly from increased vascularity beneath the cuticular lining and partly from staining by blood effused into the stomach and brought into contact with the membrane either by vomiting during life or accidentally after death.

The peritoneal coat of the stomach and duodenum is red and streaked with numerous blood vessels, but is free from any deposition upon its surface.

Internally from the entrance of the œsophagus to the contracted part which marks the commencement of the pyloric extremity (two-thirds of its whole extent) the stomach is of a deep crimson colour, except in some spots which are covered with portions of yellow matter, these are the arsenious acid itself enveloped in mucus, and adhering to the rugæ but easily detached by the scalpel.

At the contracted part the deep crimson colour abruptly ceases, and the pyloric end of the stomach and the duodenum only exhibit a few portions of arsenious acid surrounded by a red areola. The diffused yellow tint is owing to the mucous membrane being tinged with bile.

This Plate exhibits clearly the simple irritant effect of arsenic. The larger end of the stomach where the hour-glass contraction had forcibly retained the poison in the greatest quantity is intensely and universally inflamed, and the smaller end of the stomach and duodenum, into which lesser portions of the poison had escaped, exhibit only circumscribed patches of inflammation around the spot where the arsenic is deposited.

The mucous membrane has undergone no chemical change by the poison. Neither ulceration nor sloughing has taken place, life was destroyed during the first process of inflammation.

The upper portion of the alimentary canal I have found chiefly inflamed when death has quickly resulted; the lower when life has been prolonged.



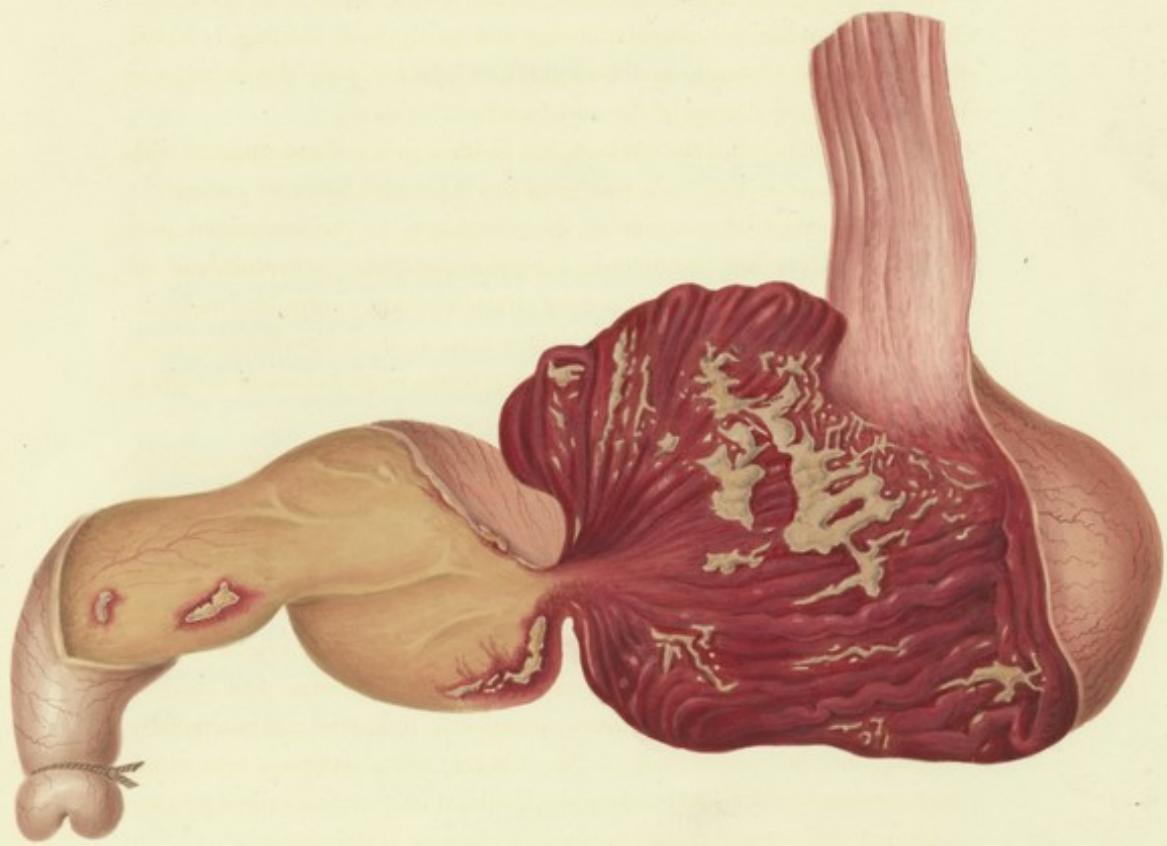


PLATE II

The figure shows the structure of the molecule of the compound in question. It is a complex organic molecule consisting of a central ring system with various substituents. The structure is shown in a perspective view, with the front and back planes of the ring system clearly visible. The substituents are represented by lines and dots, indicating their relative positions and orientations. The overall structure is highly symmetrical and complex, typical of a crystalline or semi-crystalline material. The drawing is a technical representation, likely from a scientific paper or textbook, used to illustrate the molecular structure and its properties.

## ILLUSTRATION II.

CASE TO SHEW THE EFFECT OF ARSENIC ON THE HUMAN STOMACH.

A YOUNG woman was brought into Saint Bartholomew's Hospital, who had taken arsenic with a view of self destruction.

She was vomiting and suffered acute pain at the epigastrium.

The case occurred some years ago and the quantity of arsenic taken and the time which subsequently elapsed before she was brought to the Hospital were not accurately ascertained. The stomach-pump was employed, warm water was repeatedly injected and withdrawn, and all the arsenic it was presumed was removed, but she died nine hours after her admission.

Dissection on the next day disclosed the appearances represented in the following Plate.

## PLATE II.

REPRESENTS the stomach part of the œsophagus and duodenum of a young woman poisoned by arsenic.

The stomach was opened by an incision made through the œsophagus and lesser curvature, and is represented as placed on its greater arch. It contained a small quantity of a dark brown fluid.

The mucous membrane in various places exhibits spots and patches of a deep red; near the cardia it is detached and reflected, and the surface from which it is separated is rough and of a dark green colour interspersed with red points.

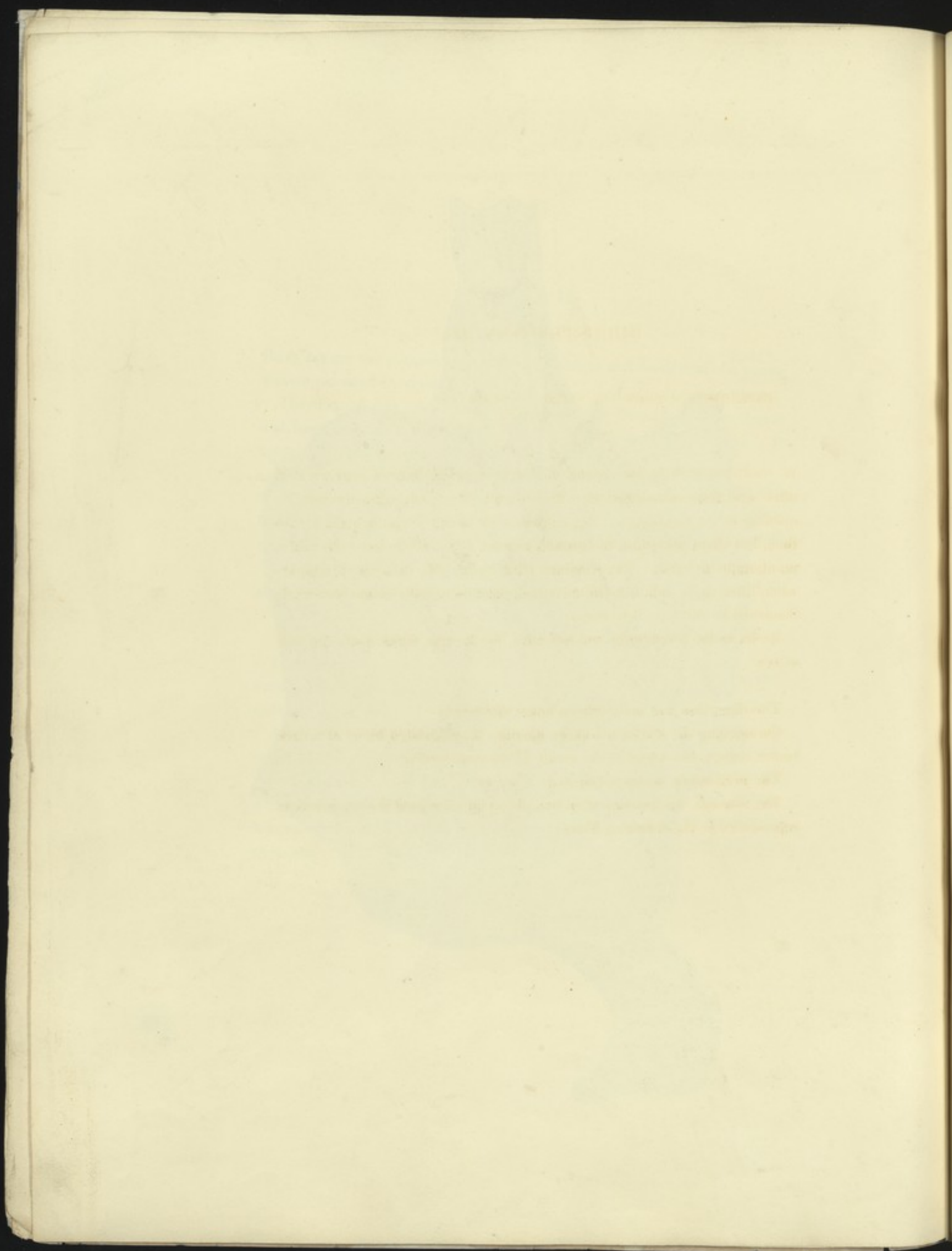
On the right, a portion of arsenic is seen adhering to the villous coat at the part where it is highly vascular.

No alteration of structure is apparent in the œsophagus or duodenum.

In this case it is to be remarked that a portion of arsenic remained in the stomach after repeated washings. The stomach pump therefore cannot be exclusively relied on for the removal of arsenic from the stomach.

It is to be remarked also that some of the appearances are the evident result of mechanical injury, and that the mucous membrane in the several places, where it is detached, was torn by the action of the stomach pump, which had then but lately come into use. Hence an obvious caution is suggested in all cases when the employment of that instrument may be necessary.





### ILLUSTRATION III.

#### EXPERIMENT TO SHEW THE EFFECT OF NITRIC ACID ON THE STOMACH OF A DOG.

At twelve o'clock on the second of March two drachms of concentrated nitric acid were introduced into the stomach of a young dog through an opening in the œsophagus. He exhibited no outward sign of pain at the time, but when placed on the ground he sunk as if exhausted. He made no attempts to vomit. He remained lying on his side in a sort of stupor, when lifted up he fell, but still gave no indication of pain except that when disturbed he uttered a low moan.

At six in the Evening he was yet alive, but he was found dead and stiff at ten.

The dissection was made fifteen hours afterwards.

On opening the abdomen a large quantity of coagulated blood of a dark brown colour, was found in the cavity of the peritoneum.

The peritoneum was not inflamed.

The stomach was perforated in two places and disclosed the appearances represented in the following Plate.

### PLATE III.

REPRESENTS the stomach, part of the œsophagus and duodenum of a dog destroyed by nitric acid.

The œsophagus is of a reddish colour.

The stomach is perforated in several places. The edges of the apertures are abrupt and jagged. The mucous membrane at the larger end is in some parts of a bright red; these portions were vascular and but little altered in structure, having been protected apparently by effusion of blood, coagula of which were adherent to them. The coats of the stomach immediately adjoining the perforations were black and thinned, though they retained a considerable degree of firmness.

All the coats of the duodenum and of the pyloric portion of the stomach, except the peritoneal, are of a green colour.

The mucous membrane of the duodenum exhibits its surface full of cracks and fissures. The whole intestine has an appearance of permanent distension, which results from the induration of its coats.

Here it is shewn that acute pain is not a necessary attendant on the most sudden and extensive injury of the stomach, and that perforation may take place and life still continue for many hours.

In this case the œsophagus escaped injury from the acid, which was introduced by a glass tube into the stomach, the redness is attributable to accidental staining.

The colour of the duodenum is owing to the action of the acid on membranes already tinged with bile. I have since this experiment repeatedly produced a similar effect on the dead subject. This is not however the peculiar effect of nitric but is common to all the concentrated mineral acids.



PLATE III



ILLUSTRATION II

The following table shows the results of the experiments conducted in the laboratory of the U.S. Bureau of Plant Industry, Washington, D.C., during the summer of 1911. The plants were grown in a glass house under the following conditions: temperature 70-80° F., humidity 70-80%, and light 12 hours per day. The plants were watered with distilled water. The results are given in the following table:

Plant	Height (inches)	Number of leaves	Number of flowers	Number of fruits
1	12	10	5	2
2	15	12	6	3
3	18	14	7	4
4	20	16	8	5
5	22	18	9	6
6	24	20	10	7
7	26	22	11	8
8	28	24	12	9
9	30	26	13	10
10	32	28	14	11

It is seen from the above table that the height of the plants increases with the number of leaves, flowers, and fruits. This is due to the fact that the plants are growing in a glass house under the following conditions: temperature 70-80° F., humidity 70-80%, and light 12 hours per day. The plants are watered with distilled water. The results are given in the following table:

## ILLUSTRATION IV.

### CASE SHEWING THE EFFECTS OF NITRIC ACID ON THE HUMAN SUBJECT.

A lad thirteen years of age, supposing he was going to drink beer, swallowed a mouthful of a fluid which proved to be nitric acid. Acute pain was felt in the mouth and throat. Magnesia was administered and vomiting was quickly induced. The matters rejected from the stomach consisted of a large quantity of food partly digested.

Great constitutional depression soon followed, but his chief distress arose from symptoms which bespoke inflammation of the larynx. The operation of laryngotomy was successfully performed by Mr. Arnott, some relief was obtained, but the boy died in thirty-six hours from the time of swallowing the nitric acid.

Examination of the body made sixteen hours after death disclosed the appearances represented in the following Plate, these appearances which are the peculiar effects of the acid were confined to the tongue, palate, fauces, tonsils, and lining membrane of the pharynx and œsophagus. Besides these a layer of coagulated lymph was found effused on the mucous surface of the trachea; this was owing to inflammation which had extended from the pharynx, none of the acid having entered the glottis.

## PLATE IV.

REPRESENTS the tongue, tonsils, pharynx, and a part of the œsophagus of a boy poisoned by nitric acid.

The basis, edges and tip of the tongue with the lower part of the œsophagus are seen to be deprived of their cuticular lining. What remains of this lining adherent to the rest of these parts and to the tonsils and pharynx is of a citron colour. The portion which covers the tongue is ragged at its edges, that which covers the pharynx and œsophagus is dry, corrugated, and marked with longitudinal and transverse lines. It was every where capable of being readily stripped from the parts beneath; these are vascular but not in a high degree.

The edges of the entrance of the glottis are extremely swollen. The epiglottis is shrunk so as to be scarcely recognised.

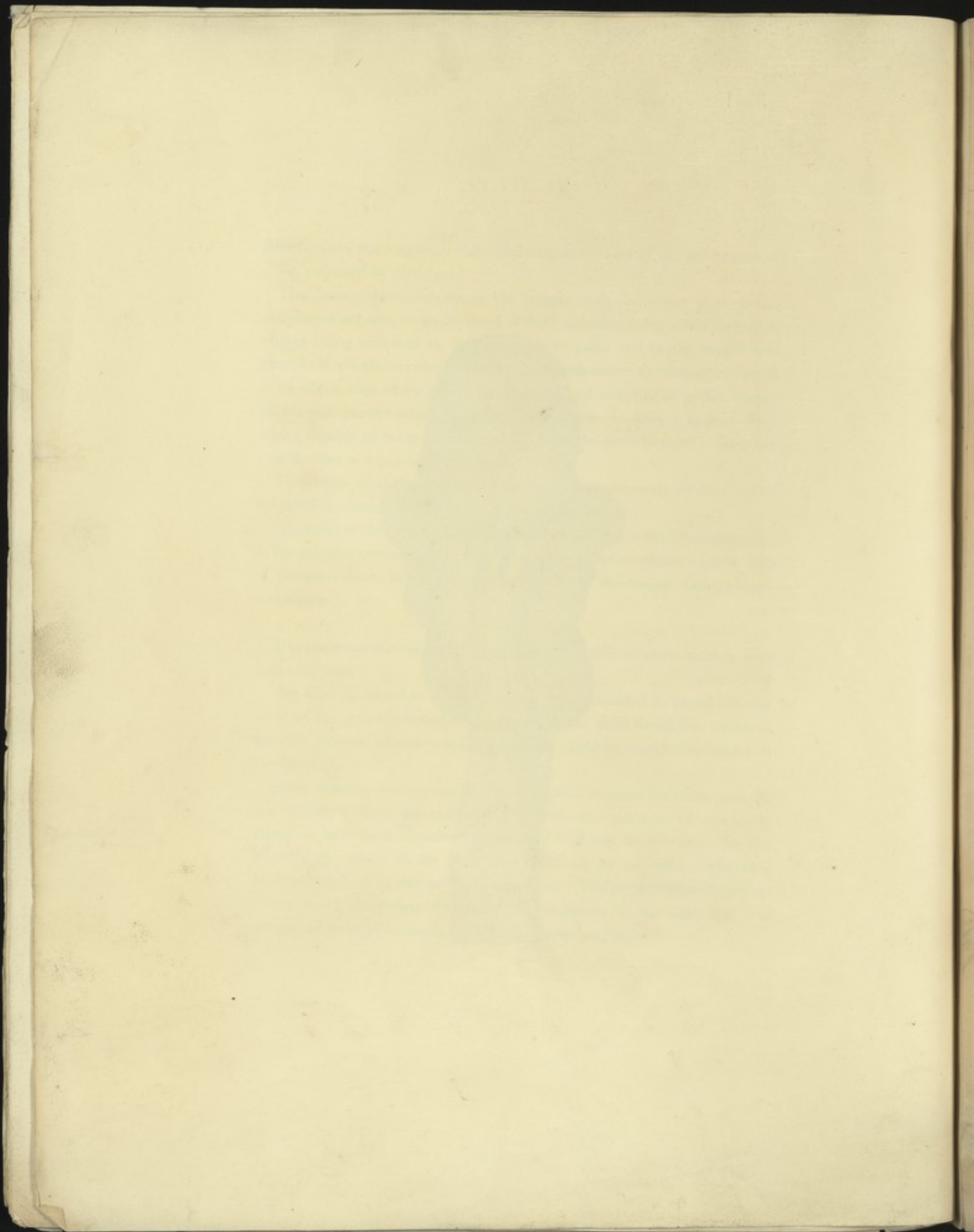
No traces of the effects of the acid were discovered in the stomach except at the pyloric extremity where the orifices of the mucous glands were stained of the same citron hue as the cuticular lining of the tongue, pharynx and œsophagus.

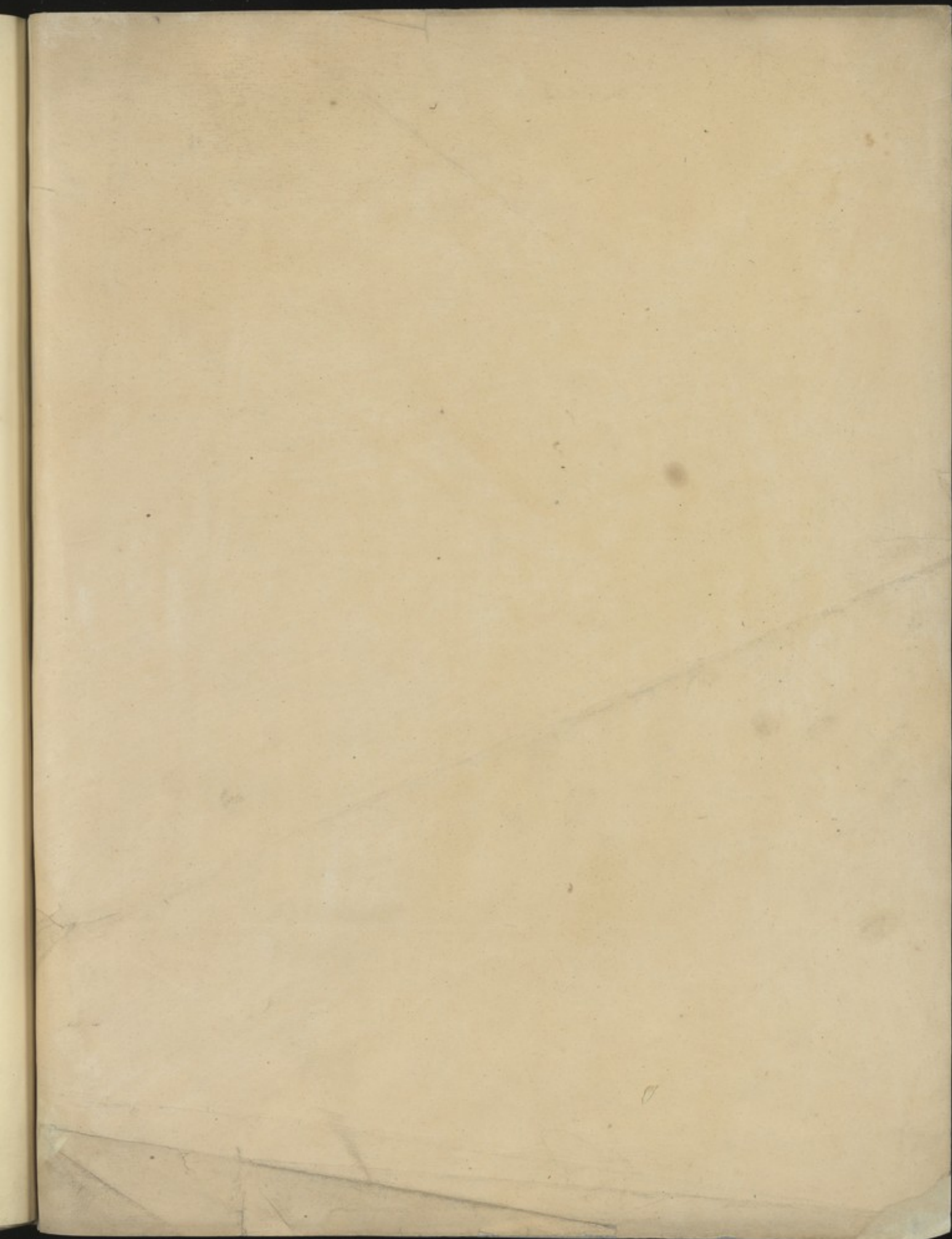
The characteristic colour produced by the action of nitric acid is here well exhibited.

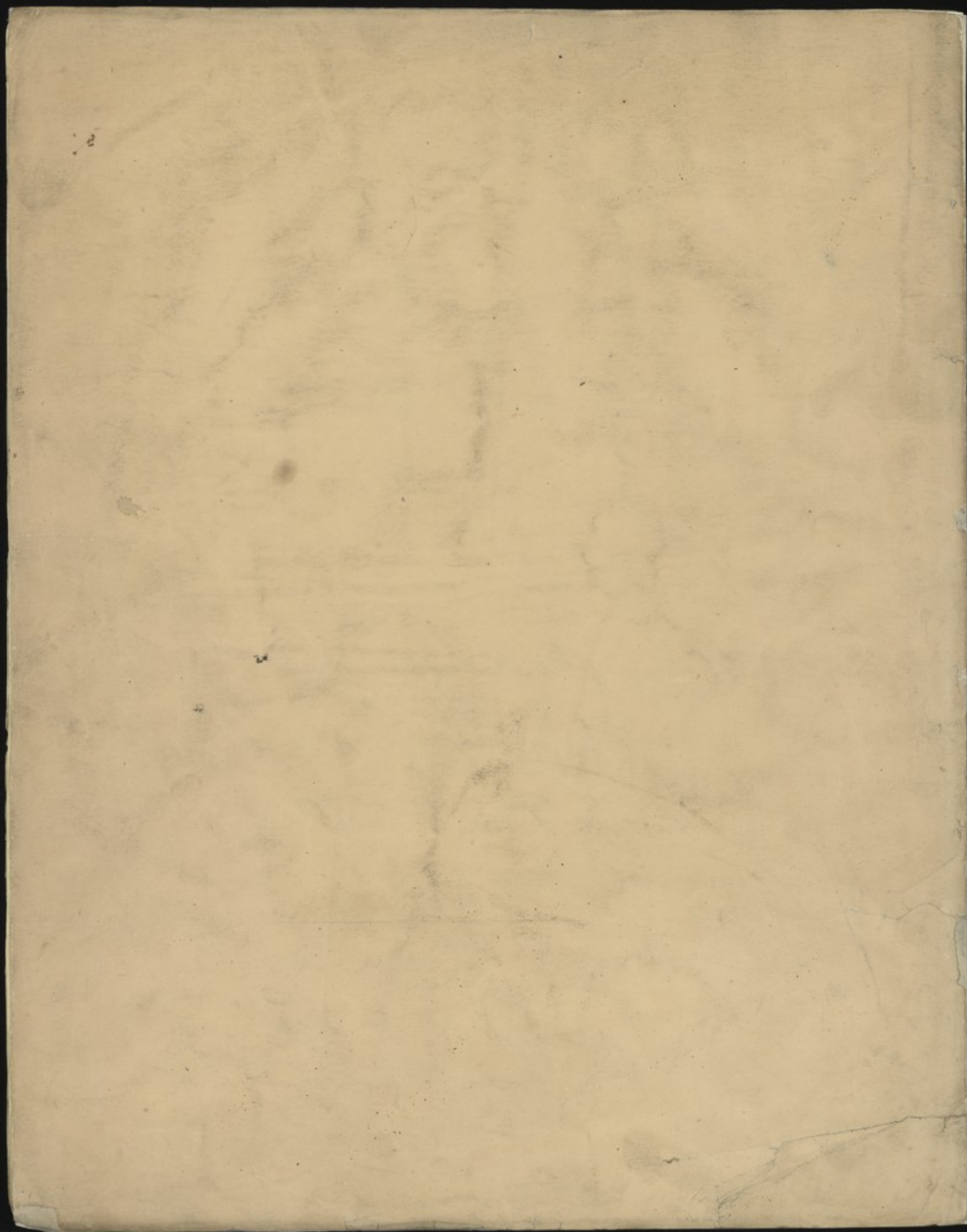
The food contained in the stomach probably defended its coats, but that some of the poison entered it was shown by the stain which was observed near the pylorus, but which was thought too slight to require delineation in this plate.

From noticing the appearances and morbid changes here detected, we may readily believe the account of the extensive portions of membrane stated to have been detached when nitric acid has been taken. In this instance the whole of the membrane acted on by the acid might have been stripped off in one continuous portion. The performance of laryngotomy is an interesting feature in the treatment in this case, but it is no part of my plan to discuss this on the present occasion.

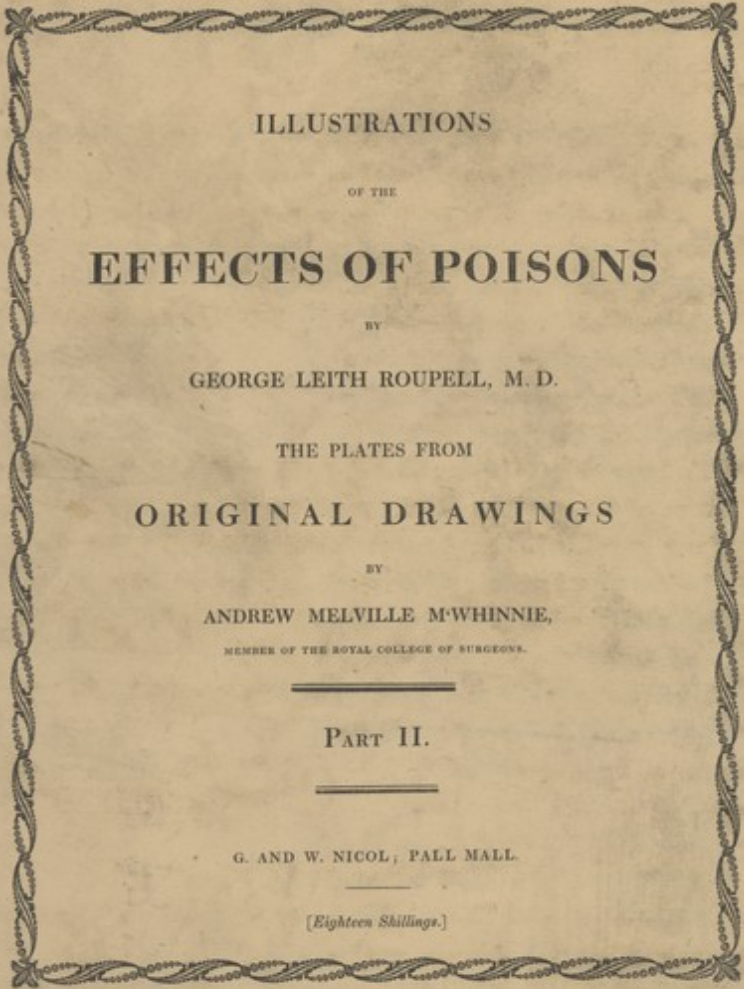












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PART II.

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G. AND W. NICOL, PALL MALL.

*[Eighteen Shillings.]*

F.2296



## ILLUSTRATION V.

### CASE SHEWING THE EFFECT OF CONCENTRATED SULPHURIC ACID.

BENJAMIN MORBY, aged two years and a half, drank some fluid which he found in a small stone bottle, thinking it to be ginger beer. It proved, however, to be strong sulphuric acid, left there inadvertently. Immediately after swallowing the poison, he fell on the floor; when raised, his tongue was swollen and protruded from his mouth, and he complained of acute pain at the epigastrium. Medical assistance was quickly procured. The carbonate of magnesia was given, which occasioned active effervescence in the mouth. Castile soap in solution was afterwards administered; vomiting then came on, and acid matters, partly composed of food, were rejected from the stomach, followed by a large quantity of black grumous blood. Leeches were applied to the epigastrium. No re-action followed the depression, which resulted from the injury to the stomach and œsophagus. The skin was cold. The pulse scarcely perceptible. The little boy remained perfectly sensible and in a state of comparative tranquillity until his death, which took place within twelve hours after the accident.

The external marks, resulting from the action of the acid, which were discovered by examination after death, consisted in vesication and discolouration of the lips and in a hard and brawny patch on the left cheek, about the size of a half-crown and of the colour of parchment.

The tongue and inner part of the mouth were of a dirty grey colour. The injury inflicted on the stomach is represented in the following Plate.

## PLATE V.

REPRESENTS the stomach, part of the œsophagus and duodenum of the little boy poisoned by concentrated sulphuric acid, laid open anteriorly.

The inner lining of the œsophagus was puckered, dry, hardened and brittle; it was readily detached from the parts beneath and came off in small scale-like portions.

The coats of the stomach were thin and allowed the contents to be seen through them. When opened the whole of the mucous membrane was of a dark colour, apparently stained by a bloody fluid, four ounces of which were contained in the stomach.

The large end was in no respect altered in texture, but the whole circumference of the smaller end, about midway between the œsophagus and pylorus, was black, irregular, rough and thickened. The change which had taken place here was the destruction of the mucous membrane and the effusion of blood from the injured portion, some of which had coagulated and adhered to the part acted on by the acid.

There was no perforation of the coats of the stomach in this instance, nor was there any inflammation of the peritonæum. Life was apparently destroyed by sympathy of the brain with the injury to the stomach and œsophagus.

This Plate exhibits well the effect of sulphuric acid, and affords a striking contrast to that of nitric acid already given: no where in this case is the peculiar yellow stain to be detected, so remarkable in that instance.

To Mr. Godrich, of Little Chelsea, my acknowledgments are due for the opportunity of making an examination in this interesting case.





## ILLUSTRATION VI.

EXPERIMENT TO SHEW THE EFFECTS OF A LARGE DOSE OF OXALIC ACID.

Two scruples of oxalic acid, dissolved in an ounce of water, were introduced through a glass tube into the stomach of a small dog, by an aperture being made in the œsophagus, which was tied as in the former experiments.

In a few minutes the dog made urgent attempts at vomiting; these were interrupted by cries of distress, and renewed with very little intermission until its death, which resulted in half an hour from the administration of the poison. In this case the animal remained curled up in the basket into which it had been placed after the operation. (Another dog, to which a drachm of the acid was given, exhibited nearly the same symptoms: vomiting came on in five minutes; in ten minutes the hind limbs were paralyzed, and death resulted in twenty minutes. Muscular contractility was nearly destroyed in this case, the heart scarcely contracted on the application of stimuli, though made immediately after death.)

The animal was examined twenty-four hours after death.

The stomach was vascular externally and presented internally the appearances exhibited in the next Plate.

PLATE VI.

REPRESENTS the stomach, part of the œsophagus and duodenum of a dog poisoned with oxalic acid, opened in the same manner as in the former instances. The hour-glass contraction was manifest.

The œsophagus was natural in appearance.

The stomach contained about four ounces of a dark coloured, thick, tenacious fluid at the larger end, which had stained the mucous surface. The coats were generally pulpy, softened, and had a white transparent appearance, but no perforation had taken place.

The duodenum was red, and presented dark coloured lines corresponding with the projecting rugæ, which had the appearance of being charred.

The black matter contained in the stomach was, in all probability, effused blood, altered by the acid; for healthy mucus, as well as a portion of sound intestine, left in a strong solution of the acid, underwent no change of colour; the latter, however, became gelatinous and pulpy.





ILLUSTRATION III

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PLATE VII

### ILLUSTRATION VII.

EXPERIMENT TO SHEW THE EFFECT OF A LARGE DOSE OF CORROSIVE SUBLIMATE.

A DRACHM of corrosive sublimate was introduced as in the last experiment into the stomach of a dog and the œsophagus tied.

The animal exhibited little outward sign of pain, was greatly depressed, but remained tranquil. It was alive between four and five hours after the administration of the sublimate, but was found dead when seen afterwards.

Examination took place twenty-two hours after death and the appearances exhibited in the next Plate were discovered in the stomach.

## PLATE VII.

REPRESENTS the stomach, part of the œsophagus and duodenum of a dog poisoned with corrosive sublimate.

The stomach, externally, was highly vascular. It contained several ounces of a thin, dark coloured fluid.

The œsophagus was natural.

The whole of the inner lining of the stomach was of a leaden hue ; this was the mucous membrane which appeared to be universally in a state of slough, but it was in no part detached.

The duodenum, at its commencement, presented a mixed appearance, partly red, partly of a lead colour, as if the irritant and corrosive effects of the poison were here blended ; the mucous membrane was thickened and had a roughened aspect.

The whole of the small intestines were inflamed, a thick, white mucus being generally effused upon their mucous membrane.

The quantity of corrosive sublimate administered in this case was larger than could probably ever be swallowed, from its nauseous taste and irritant action. The appearances produced by this poison in ordinary cases more nearly resemble the effect here produced on the duodenum.



ILLUSTRATION VIII

ILLUSTRATION VIII

The following is a description of the objects represented in the preceding illustration, and the manner in which they are arranged. The objects are arranged in a regular order, and are numbered in the margin of the page. The objects are arranged in a regular order, and are numbered in the margin of the page. The objects are arranged in a regular order, and are numbered in the margin of the page.

### ILLUSTRATION VIII.

EXPERIMENT TO SHEW THE EFFECT OF ALCOHOL ON THE MUCOUS MEMBRANE.

AN ounce of rectified spirit, mixed with an ounce of water, was introduced in the same manner as in the preceding experiments into the stomach of a large dog.

The animal shewed no symptoms for the first few minutes; it then ran about in a hurried manner, rubbing its neck on the ground, uttering a bellowing sound, and occasionally making attempts at vomiting. In ten minutes it was quite intoxicated, reeling and staggering about; it then became unable to stand and laid down. Its eye was bright and there was nothing of suffering in its look. In half an hour it rallied but appeared averse to moving.

Next day it had so much recovered, that it was doubtful whether any morbid appearances would be found. It was killed by a blow on the head and examined immediately. The appearances discovered in the stomach are exhibited in the next Plate.

PLATE VIII.

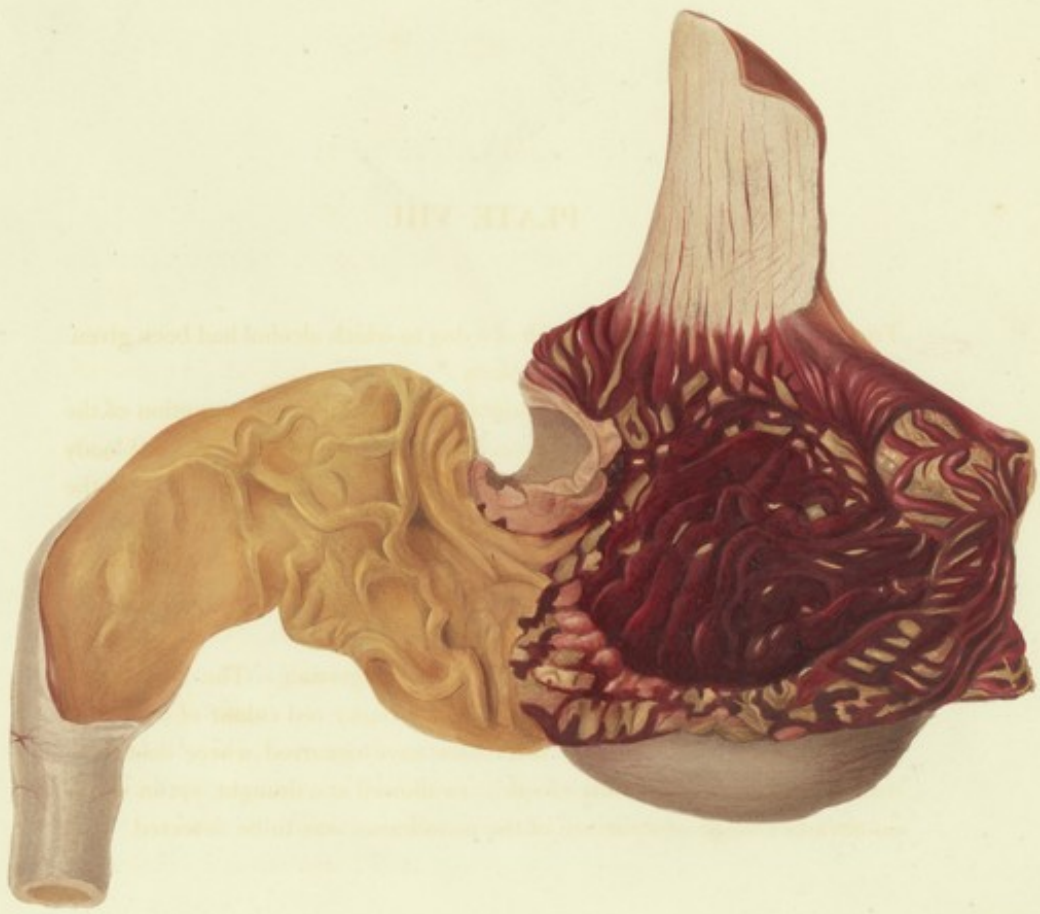
THIS Plate represents the stomach of a dog to which alcohol had been given.

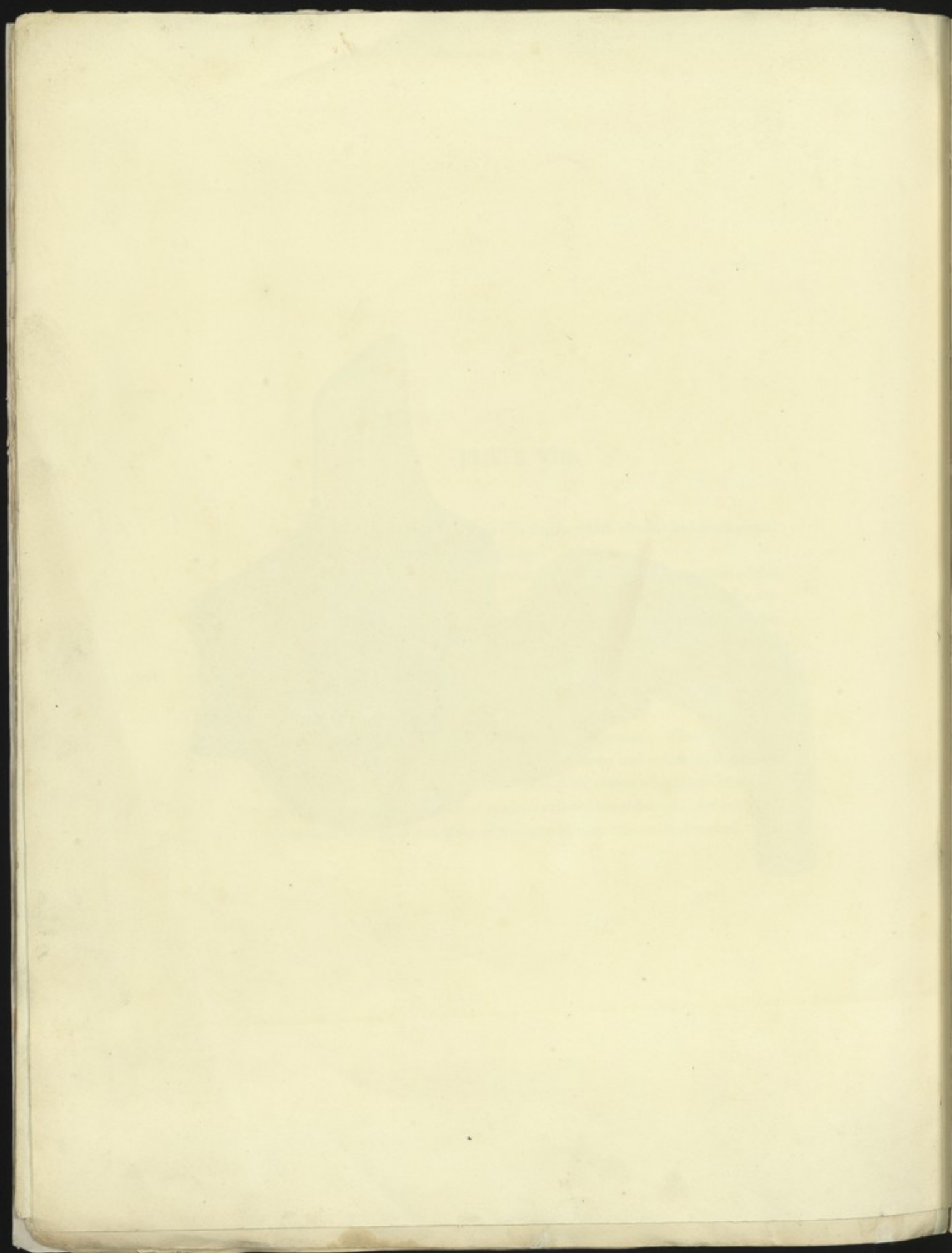
There was slight external vascularity.

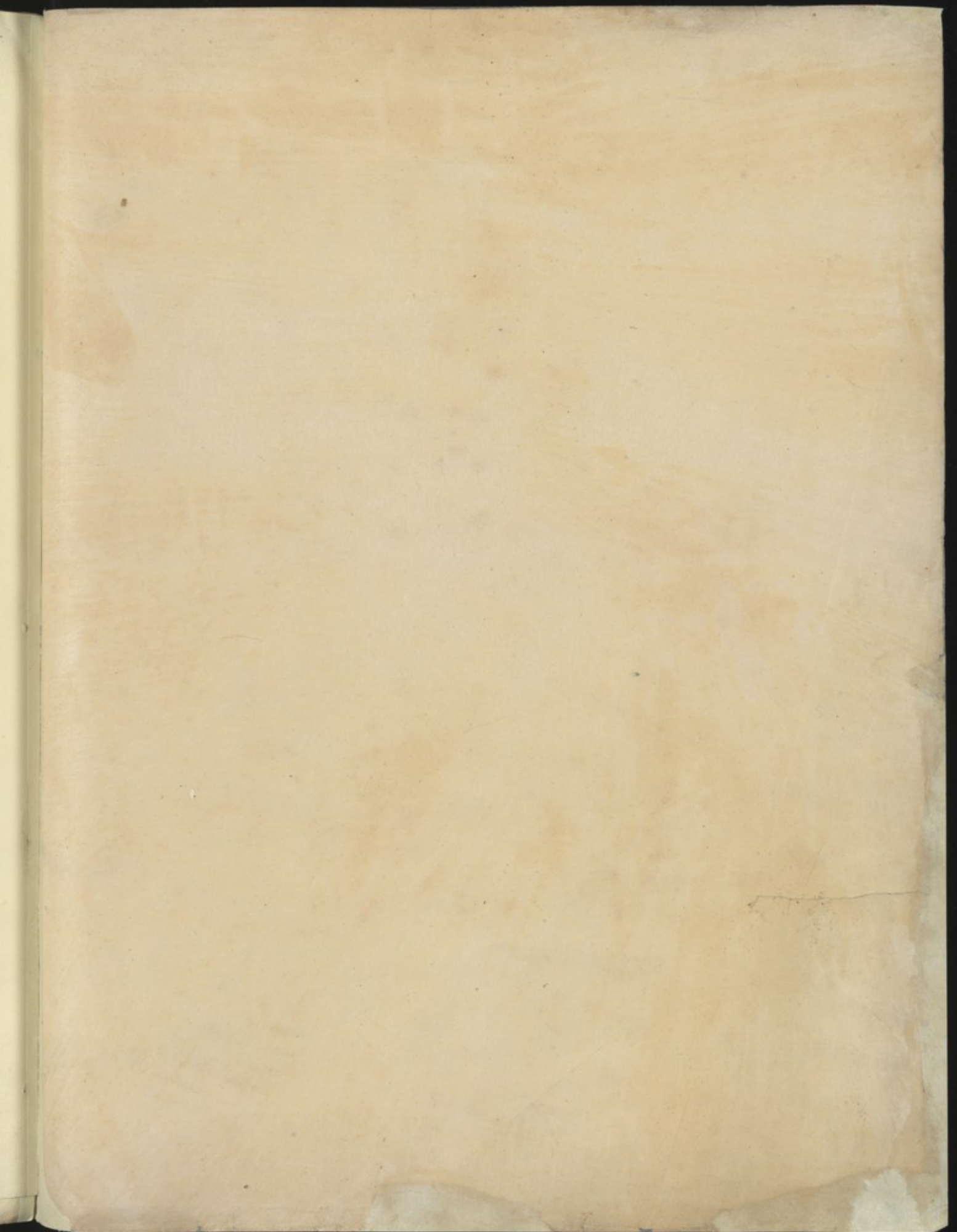
The œsophagus was perfectly natural. The hour-glass contraction of the stomach is well marked. The stomach contained an ounce of a thin bloody fluid mixed with frothy mucus. The rugæ were prominent, and those of the large extremity were almost universally covered with patches of ecchymosis of a deep crimson colour. The intervening portions of mucous membrane retaining their healthy appearance.

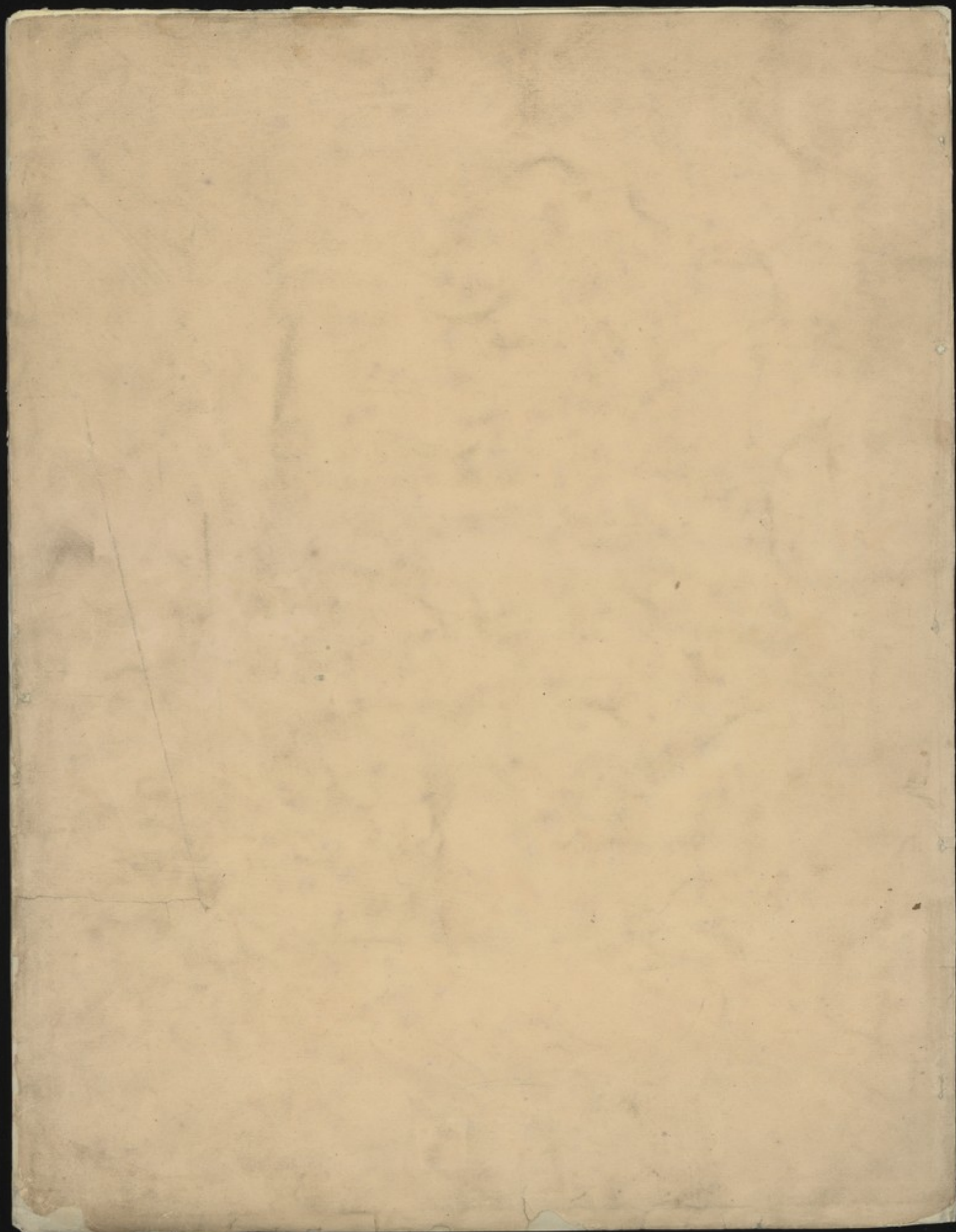
The changes here appear to be intense congestion. The more usual appearances, after taking spirits, consist of a dusky red colour of the membranes, though I may observe that cases have occurred where death has resulted from a large quantity of spirits swallowed at a draught, yet in which no obvious change of structure of the membranes was to be detected.

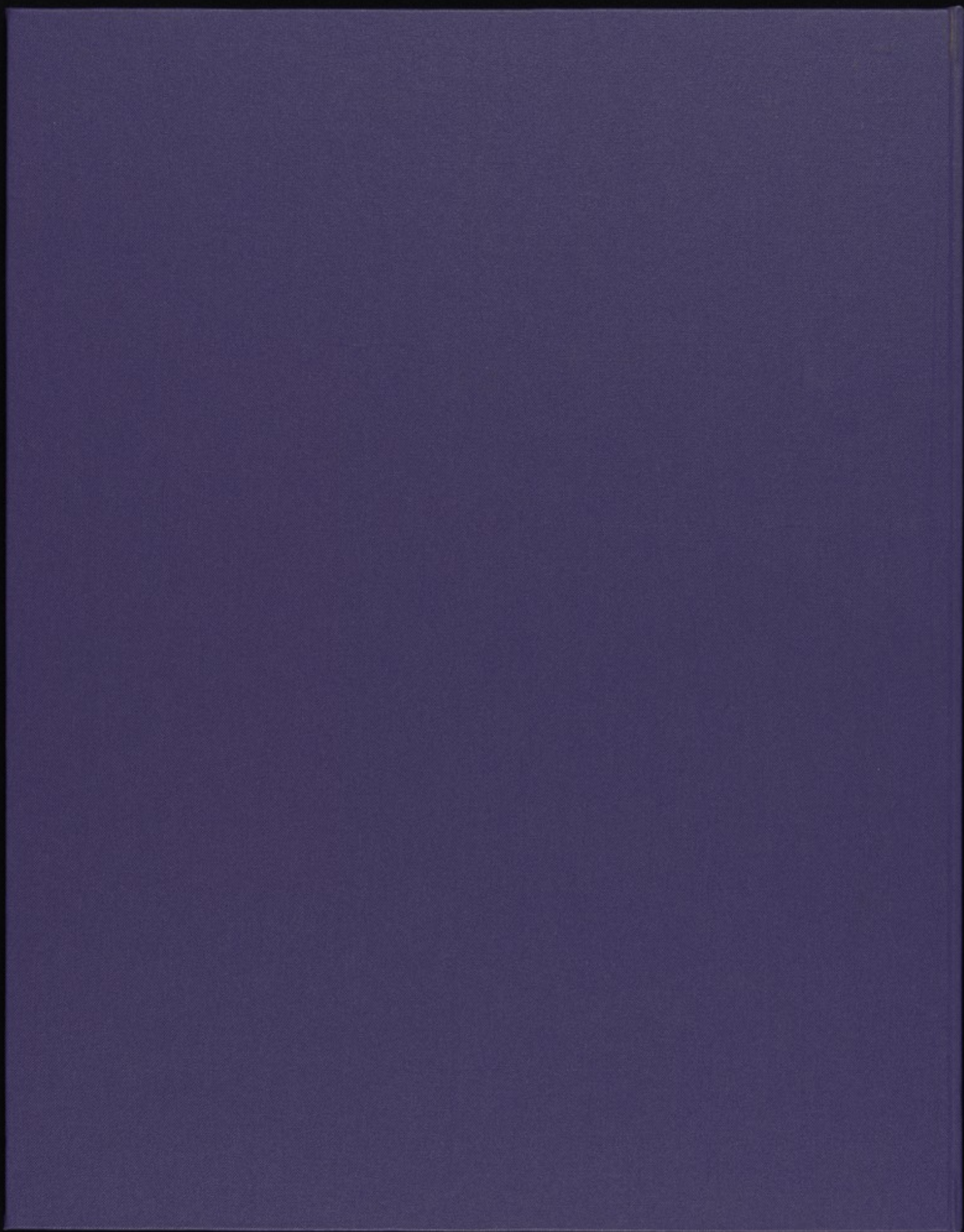














ILLUSTRATIONS  
OF THE  
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BY  
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THE PLATES FROM  
**ORIGINAL DRAWINGS**

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PART I.

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G. AND W. NICOL, PALL MALL.

[Eighteen Shillings.]



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EFFECTS OF POISONS

—  
M'WHINNIE

—  
Parts I-II

1833

