No distinguishable artery was wounded. The body was quite bloodless, with the exception of the right side of the heart, which contained dark fluid blood. The organs throughout were perfectly healthy. Nothing was found in the room to explain the wound by her falling on it, except a chair, which possibly might, but not probably, if tilted up, still less any instrument by which a punctured wound might have been inflicted, and the character of the wound forbade such a supposition. The conclusion we came to was, that the wound was inflicted by her husband by a stamp with the heel or a kick with the toe of his boot; his boots were not heavy, nor marked with blood; but then the night was wet, and he had walked about afterwards. We also agreed that this violence would have produced the appearance we found if inflicted through, not beneath the clothes; that the punctured appearance of the wound was given by the division of the structure of the labium between the striking body and the bone, probably the edge of the bone. But we disagreed on the question whence the blow was delivered, whether from before or from behind, and the question is not unimportant; a man who inflicts such a wound, by kicking his wife in front when large in the family way, is guilty of a most ferocious act, if not of one plainly murderous in intention, for he can hardly do other than intend the blow for her belly, and would seem to aim at the life of both his wife and child; but, gross as such conduct may appear to those living in better society, a kick in the rump in his sphere of life would probably pass muster as fair conjugal chastisement.

The opinion of the other medical witness, that the injury must have been produced by violence from before, was rested on the position of the separated meatus urinarius, which was driven backwards into the vagina, beneath the arch of the pubes; and it was contended that, if the blow had come from behind, it would have been forced out and in front of the pubic arch. But in this view, I think, sight is lost of the relative position of the pubic arch, the anterior plane of which, in the erect posture, forms an angle of about fifteen degrees only with the plane of the horizon; that is, the arch of the pubes and the vulva are, in the erect posture, nearly horizontal; and if the woman be stooping forward, this angle will necessarily be lessened, and the position be still more horizontal. Consequently, in a kick from behind, the toe of the foot will strike the pubic inlet at something very much like a right angle, and thus would nearly necessarily drive the separated meatus beneath and within the arch. If, as the woman stoops, the legs be somewhat separated, the access from behind will be still easier; whereas a kick delivered from before in the last month of pregnancy could hardly escape being delivered on the greatly prominent abdomen. The accessibility of the pubic arch from behind is shown by the general practice in this country of delivering and, indeed, of operating generally on the vagina therefrom; and in cases which have come to me of contusion of the vulva from acknowledged kicks by the husband, it has been generally by a kick on the rump.

I have already mentioned several cases where wounds of the vulva were inflicted by what was intended as a kick on the rump.

The judge summed up for manslaughter, putting the point to the jury that the injury might have been caused by a kick behind. They returned a verdict of manslaughter, and the prisoner was sentenced to six years penal servitude.

I have since learnt, from authority on which I can entirely depend, that the prisoner stated that he had effected the injury by kicking his wife; but whether before or behind my informant could not say.

It is then evident from this that fatal hæmorrhage may occur from a kick in the vulva inflicting a wound closely resembling a punctured wound.

[To be continued.]

ON FÆCAL FERMENTATION AS A SOURCE OF DISEASE.

By C. H. F. ROUTH, M.D., Physician to the St. Pancras Royal General Dispensary; Assistant-Physician to the Samaritan Hospital for Women and Children; Vice-President of the Medical Society of London; &c.

[Read before the Medical Society of London, February 23rd, 1856.]

PART I.

IN the following paper, my object will be to direct renewed attention to a subject which has of late years been too much neglected, until Dr. Snow first recalled public attention to it. I allude to the fact that fæcal matters develop, under certain circumstances, a contagious poison, which becomes a powerful exciting cause of disease. I do not deny that those diseases to which I shall presently allude may be generated by the decomposition of other vegetable and animal matters, nor do I in any way assert that the fæcal poison is the *only one* which is in general operation; but I wish peculiarly to direct attention to this poison as a frequent cause in originating and continuing these diseases, and in afterwards rendering them fatally destructive. I also hope thereby to call the attention of our sanitary corps of officers to this source of disease, so that it may be tested by those facts, with which they will be sure to meet in the performance of their duties; so that both in regard to prophylaxis and treatment a broader and more general principle of action may be adopted. And because, in the same measures by which these fæcal poisons are withstood and counteracted, other vegetable and animal poisons are equally opposed and destroyed, so we may hope that the occurrence of many diseases, especially those of the epidemic and endemic varieties, may be prevented, or at least the type of such diseases may be rendered so much more benignant that their treatment will become, under Providence, comparatively easy and successful. It is, therefore, with peculiar pleasure that I find the subject of malaria as a cause of disease in this country has been selected by the Council of this Society for the Fothergillian medal of 1858, and I also trust that among the number of chemical students in the nation there may be found one or more able and courageous enough to grapple with the subject, and to overcome the natural repugnance to make investigations in such a department of science. If so, we may hope that the specific and chemical nature of some of these poisons may be found out.

To go over the whole subject, even in a cursory manner, in one paper, is to me at least impossible. I can only, therefore, to-night consider some points connected with the formation of fæcal matters, their subsequent decomposition in the production of particular poisons, the general laws under which these, in common with other poisons, act, and, finally, their effects when partaken of in substance by the lower animals, or by man, when this can be done. The effects of their ingestion or absorption in solution in water, and of the emanations therefrom in the production of disease, and the rules of prophylaxis and treatment, must form the subject of a second and a third paper. I must, therefore, claim your indulgence for the necessary imperfection of these remarks, and ask you to look upon this paper as only introductory to others, which, I trust, may prove of more interest, and in which I hope to develop the subject more fully and more practically.

One other point, and I have done with preliminary remarks. You must not expect much originality in a communication of this nature. The merit of the paper must be based on the number of facts collected from all sources. Nay more, the collection of evidence of this nature, because it is not mine, is more worthy of your credence. Otherwise, I might be open to the charge of moulding my facts to my theory; not that I believe you would think me capable of doing so willingly, but, even with the most mathematical construction of mind, it is often difficult to escape all bias in our convictions. The facts, moreover, may be all easily examined by each of you for yourselves,

as, wherever I can do so, I will give you chapter and verse for all I state. My honest wish is to get at truth, not to pervert it.

CHEMICAL ANALYSES OF FÆCES.

It is a remarkable fact that the analyses of excrement, and especially the human variety, as made by different observers, not only do not agree, but throw after all but a very little light on many interesting points in its composition. The best and the most recent analysis that I am acquainted with is that of Dr. Marcet (*Philosophical Transactions*, vol. cxliv, p. 265). From his inquiries, it would appear that fæces consist of—excretine, a peculiar animal matter; margaric acid; colouring matter like that of blood; a light granular substance, which he regards as a combination of phosphate of potash and pure organic matter; an olive-coloured acid; excretoleic acid. Lastly, there is no evidence of butyric acid.

Excretine contains both sulphur and nitrogen. It is not found in carnivora. Their fæces yield a substance like it, but not identical with it. Moreover, these contain butyric acid in their excrements.

Among herbivora, horses, sheep, dogs fed on bread, wild boars, elephants, deer, and monkeys, neither butyric acid, excretine, nor cholesterine, is found. The crocodile, however, forms an exception in regard to the cholesterine.

From an analysis by Fleitmann, the salts of fæces are very numerous:—

Chloride of sodium.....	58
Chloride of potassium	07
Potash	12.44
Hydrate of potash (or equivalent weight of carbonate of potash)	10.05
Soda	0.75
Lime	21.36
Magnesia	10.67
Sesquioxide of iron	2.09
Phosphoric acid	30.98
Sulphuric acid.....	1.13
Silicic acid	1.44
Carbonic acid	1.05
Sand	7.39

100.00

An ultimate analysis by Playfair gave the following results:—

Carbon	45.24
Hydrogen	6.88
Nitrogen (average)	4.
Oxygen.....	30.3
Ashes	13.58

100.00

As a general rule, human excrement is richer in nitrogen than that of animals, in which the proportion of 2 per cent. only obtains; and even among men it varies with the quality of food, being among those who live on vegetables about the same as among herbivora, and greater among those whose food is essentially meat. About 7 per cent. at least of fæces consists of the undigested residue of food, such as pieces of muscle, lignine, chlorophyll, wax, etc. There is, also (varying with accidental circumstances), more or less of the secretions of the liver, pancreas, etc. Many of the changes so brought about are chemical and mechanical changes occurring in the gut itself from the admixture of varied elements, left residuary during the transit through the intestines. Their occurrence is also best explained on this supposition. The production of fæces, viewed as such, is then simply one of limited oxidation or combustion. The fæces contain the unbruised substances of food, such as chlorophyll, wax, etc., which have suffered no change in the organism—the carbon, hydrogen, and nitrogen being small in quantity as compared with that in food. In fact, these indigestible matters may be compared to the smoke and soot produced when food is imperfectly burned in fireplace. (Playfair's *Liebig's Agricultural Chemistry*, fourth edition, p. 176.)

Still it cannot be denied that, in part at least, though to a very small degree in health, a portion of the fæcal matters are directly secreted from the mucous membrane of the intestines. In disease, and under extraordinary circumstances, this kind of secretion may be greatly exaggerated. Thus—

1st. Diarrhoea is often persistent, and, at the termination of some diseases, such as phthisis, will come on extensively, and yet after death there is but little fæcal matter found in the intestines. This matter must, then, have been secreted while life persisted.

2nd. In many cases, although the food taken is not greater than usual, the diarrhoeal matters voided are unusually abundant.

3rd. Liebig has shown that if fibrine, albumen, or caseine, or gelatine, be treated with solid hydrate of potash, and the heat kept up until all the nitrogen is given off as ammonia, and the hydrogen begins to be given off, and the residue be saturated with dilute sulphuric acid, and distilled, then a substance of fæcal colour, and of a horrible fæcal odour, which contains acetic and butyric acids, remains behind, which is, in fact, fæcal matter artificially prepared. "This odour varies with the nitrogenous substance employed, and thus we may have all the degrees of fæcal odour." (Carpenter.)

4th. Fæces differ in many respects in their odour from that evolved by animal substances during fermentation or putrefaction, this very odour disappearing on exposure, and the fæces themselves fermenting after such exposure. (Carpenter.)

5th. Besides the secretion of fluids, Magendie and Girardin have made an observation, which is confirmed by Frerichs, and which, at all events, proves the secretion of gas from the blood into the intestine; for if a loop of intestine in dogs, after being perfectly emptied of its contents, be tied at both ends, it is always found, after some time, filled with air. (*Lehmann's Chemistry*, Day's Translation, vol. ii, p. 132.) Copious gaseous secretions is often observed in fevers, when it gives rise to tympanitis.

The above view gives a ready explanation to many peculiarities observed in the production of fæcal matter during disease, and also to the great advantage which often follows copious purgation, which may be regarded as removing injurious matters from the blood precisely as other eliminants or evacuates; these matters having been probably often, at least in part, previously absorbed with the aliments in their progress through the intestinal canal.

FERMENTATIVE CHANGES.

The retention of fæcal matters in the body give rise to different diseases. Those where fæcal matters, from their quantity, act, as it were, mechanically, and thus prove injurious, do not properly belong to the subject of this paper. It is to those which may be produced by the development of animal poisons formed in their substance through chemical action, either while in the body or after its expulsion out of it, that I wish especially to call attention.

These changes are essentially due to fermentation, in the full meaning of the term, including those of both the words putrefaction and eremacausis; that is, changes effected by exposure to water or atmospheric air at certain temperatures—eremacausis being the effect of a low combustion taking place in atmospheric air, without production of odour, and putrefaction the same, with offensive odour. The changes which occur in fæces in the body in health, and out of the body under ordinary circumstances, are thus rather those of eremacausis; while those which occur in disease in the body, and under extraordinary circumstances out of it, are more properly those of putrefaction.

It is an admitted fact in the present day that many of the healthy changes in the body are the products of fermentation. All those different matters which constitute the food of animals are fermentescible substances. And all those varied substances which are capable of putrefaction, while in this state, have the property of acting as ferments. Thus, putrescent flesh, blood, bile, urine, the mucous mem-

branes of the stomach, intestines, bladder, etc., the skin, etc., may act as ferments. To each of these particular ferments a peculiar kind of fermentation belongs, which may not be produced by another; and each results in the formation of a particular product. All that is necessary in this process is exposure to oxygen, which is usually effected through the agency of the atmosphere or of water. Indeed, many substances require the presence of the latter before they can absorb oxygen. This fermentation will continue till the molecular dynamisation set up has been again quieted by the production of a new substance, and, as a consequence, a state of equilibrium: and this equilibrium will persist so long as no new disturbing ferment is introduced, to set up another kind of fermentation. The fermenting principle will be reproduced just as yeast is from wort, whenever, first, there is a substance present with which the ferment was formed, and, secondly, whenever there is a compound capable of being decomposed by contact with the exciting ferment.

Now, there are some circumstances which, when in operation, favour putrefactive fermentation. These it may be as well to review, as a knowledge of them has a practical bearing to the subject under contemplation, more especially in regard to any prophylactic measures to be adopted. It was long since shown by Barckmann and Hildenbrandt that oxygen is most conducive to putrefaction; but its power is greatly increased by the presence of nitrogen, which, however, appears to exert no other action than that of separating the molecules of oxygen. An analogous fact is presented by hypophosphoric acid, which is formed very readily when its base is in contact with a mixture of oxygen and azote, but not at all when submitted to pure oxygen. Hildenbrandt found that meat putrefied completely in eleven days when exposed to this gas in a state of purity. Unmixed azote tends to retard rather than to favour putrefaction, hence this process is slow in privies. Hydrogen, carbonic acid, and nitrous acid are unfavourable, whereas electricity accelerates the process. Muscles subjected to electricity are, after a time, deprived of their salts, the oxides going to the negative pole, the acids to the positive. In the ordinary action upon animal matters, electricity most probably alters the composition of the proximate principles; thus, in milk, it develops acetic acid. Mathiei observes that portions of meat placed upon zinc plates remained fresh for a long time; the meat, being electro-negative, repelled the oxygen. Aqueous vapour is highly favourable. Gay Lussac found that he could retard putrefaction for a considerable period in a bell glass containing at the bottom of it chloride of calcium. Devergie attributes to the solvent power of water its agency in promoting putrefaction. A stream delays the change, probably by removing the putrid particles first formed, which, if remaining with the particles not decomposed, would hasten the process; and, at the same time, guarding the substance from the contact of air. Chlorine retards, by forming a white pearly compound almost imputrescible. Deutoxide of nitrogen has a similar influence by absorbing oxygen and sulphurous acid, by transforming the matter into a substance highly oxygenated (*British and Foreign Medico-Chirurgical Review*, p. 396-7, vol. ii). Stagnant water accelerates those stages of putrefaction entitled green, brown, and liquid. Putrefaction is less rapid in the water of privies. This is due, according to Devergie, to the presence of a large quantity of ammonia, which retards the liquid putrefaction, but favours the production of adipocere. He arranges the different media with reference to their power of favouring putrefaction in the following order: air, manure, the water of privies, stagnant water, running water, earth. (*Ibid.*, p. 400.) Smoke or carbon, in suspension in air, and creasote, have the same effect in arresting or preventing putrefaction. Animal matters in nitrogen, or chloroform vapour, do not putrefy, but will keep for an indefinite time, as shown by Dr. B. W. Richardson. Dr. Richardson also found that the presence of phosphorus in water, because it also absorbs oxygen, is also in great measure a preservative against putrefaction. Sea water favours de-

composition sooner than fresh water; particularly, I believe, when not in a concentrated state, i.e., if diluted with much water, and of specific gravity 1010.15 instead of 1027, as is evidenced by the rapid putrefaction of sewage matters when admixed with sea water. Indeed, the foul odours of drains at low water in summer, especially if the pipes conveying sewage are not carried out far at sea, are proverbial.

I have said that changes of a fermenting character occur in the body normally. Fermentation is, however, in amount small in the small intestines as compared with what it is in the large, and the reason is obvious; because the fermentation begun in the small intestines occurs with much greater rapidity in the latter, and is unimpeded by the presence of free acid. (Lehmann, *op. cit.*, ii, 130.) Marcet found that the constant reaction of fæces was alkaline. (*Op. cit.*) The experiments of Magendie, etc., confirm the statements made above. Magendie and Chevreuil found the following proportions in executed persons:—

In the Small Intestine.

	Carbonic acid.	Nitrogen.	Hydrogen.
No. 1.	24.39 ..	20.08 ..	55.53
No. 2.	40 ..	8.85 ..	51.15
No. 3.	25 ..	60.0 ..	8.4

Chevillot found 2 to 3 per cent. of oxygen in the air discharged from the small intestines by aged persons. The hydrogen in these cases is generated by the amylaceous matters undergoing the butyric acid fermentation.

In the Large Intestine.

	Carbonic acid.	Nitrogen.	Carburetted hydrogen.	Hydrogen.
Magendie and Chevreuil	43.5 to 70 ..	18.40 to 51.03 ..	5.47 to 11.6 ..	
Chevillot (aged persons, 2 or 3 per cent. oxygen)	23.1 to 93 ..	95.2 to 90 ..	2.28 ..	
Marchand, No. 1.	36.5 ..	29 ..	2.2 ..	13.5
Marchand, No. 2. (1 sulphuretted hydrogen.)	44.4 ..	14 ..	15 ..	15.8

Occasionally the amount of fermentation going on is excessive, as evidenced by the presence of copious frothy stools, and by the generation of unusual products. The changes here induced are thus explained by my esteemed friend Dr. Ayres, in a private letter on this subject:—"The decomposition of fæcal matters would much resemble that of the food taken, and would differ according to the nature of that food. On the supposition that the animal had been fed on flesh, then a limited supply of oxygen must be afforded. The nitrogen would combine with hydrogen, forming ammonia. Part of the carbon, phosphorus, and sulphur, would also combine with the hydrogen, forming respectively carburetted hydrogen, phosphuretted hydrogen, and sulphuretted hydrogen, and another part of the carbon with oxygen, constituting carbonic acid. All these products, except the phosphuretted hydrogen, were found in the colon by Marchand."

But occasionally, also, the fermentation is one of putrefaction. Thus, says Lehmann, "substances stagnating in the different parts of the colon undergo complete putrefaction, and their products, gaseous as well as solid, are precisely the same as those we observe out of the body. In the examination of such masses Frerichs found substances precisely similar to those Bopp obtained from putrefying protein bodies. If it were otherwise, fæcal matter would be an exception to all other animal matters." Apart from the specific substances it contains, there are the usual proteinaceous matters and *débris* of food, which, under circumstances of heat and moisture, will putrefy.

But, further, we may glean something on the nature of such changes by reference to manures, and some of the changes which take place in them. My friend Dr. Ayres, in a letter to me on the subject, writes:—"When night soil is mixed with water, and distilled over by a very gentle heat, ammonia and sulphuretted hydrogen come over. If the distilled substance be now freed from sulphuretted hydrogen by distillation with carbonate of potash, and from am-

monia by a second distillation with dilute sulphuric acid, a fœtid liquid is obtained, which gives a rose tint with nitric acid, and a beautiful lemon yellow when the acid liquor is supersaturated with ammonia; and if the original liquid be kept in a stoppered bottle, decomposition again occurs, and fresh ammonia is again generated."

The gases evolved in the atmosphere which surrounds common sewers may be likewise looked upon as produced by the putrefaction of fœcal matters. Thénard speaks of these as of two kinds: 1st. Atmospheric air, with hydro-sulphate of ammonia in it. Thus, the air of one of the common sewers of Paris gave for composition, viz., oxygen, 13.79; nitrogen, 81.21; carbonic acid, 2.01; sulphuretted hydrogen, 2.99; besides a small quantity of ammonia. 2nd. The other gas is more rarely met with, and consists of—oxygen, 2; carbonic acid, 4; nitrogen, 94; sometimes mixed with ammonia.

These different products are evidence of a different kind of fermentation, or at least a different stage and progress of it. But the particular changes beside those dependent on the escape of ammonia in the *solid matters*, and in the production of fœtid liquid described by Dr. Ayres, I believe, have never been accurately investigated: the animal proximate and ultimate substances formed are not known. On the changes which *excrete*—the principle of excrement—undergoes, Marcet himself is silent. Such an investigation (because we have here offensive matters, if I might use the term, *in essence*) would be most important in its results, and would doubtless greatly reward the patience of any inquirer who would not allow his zeal for science to give way before the disgusting details and the offensive odours which would surround him. Dr. Ayres has stated to me he hopes some day to attempt the task. I hope he will be spared to unveil a few of the mysteries of this branch of chemistry.

CHANGES OF FÆCES IN DISEASE.

There can be no doubt that fœcal matters undergo very remarkable changes in disease, even *when yet in the body*. Independently of those which are visible to the naked eye and the microscope, as when blood, pus, pieces of fibrin, albumen, or other foreign matters, are detected in them, there are those of reaction and smell—sometimes intensely acid, sometimes neutral. But the smell is to me the most characteristic. If its occasional absence altogether be proof that the ordinary changes in the fœces have not taken place, the offensive odour is sometimes far more so—a smell so foul that even the ordinary odour of fœces, bad as it is, becomes in many cases a perfume compared to it. How frequently is this foul odour in them observed in infantile diseases, especially the *typhoid* varieties of exanthema and remittent fevers, so characteristic as even to be noticed by the undaunted attendants of a sick room, and to be commented upon as a foul corruption, "smelling like a corpse". Indeed, the term *cadaveric* is the best epithet which I can find to express the character of this odour. Speaking of the smell in teething cases, Dr. Osborne, in a paper on the Examination of the Fæces in Disease (*Dublin Journal*, xlv, 109), remarks:—"Sometimes it acquires a pungency almost intolerable, as is observed in cases even of slight diarrhœa, when, after the more solid contents of the colon and rectum have passed, they are succeeded by dark coloured fluid motions, consisting of fresh arrivals from the cæcum, of such overwhelming potency that even the most experienced and apathetic physicians are compelled to a speedy flight," etc. Dr. Osborne compares this odour to that of an ulcerated bony surface. Be this as it may, this peculiarity of odour is also noticed in many of our worst malarious fevers. In dysentery, this odour, according to Schönlein, is very characteristic. "In yellow fever," says La Roche, "in the first stages, and especially when obtained by purgatives, the matter discharged from the bowels has an offensive odour, emitting, indeed, in some cases, an intolerable and dreadful fœtor, alike repulsive to the sick and attendants." (La Roche on *Yellow Fever*, i, 263.) This cadaveric odour I look upon as evidence of

the poisonous nature of such stools, as I shall show presently; and it is interesting to notice, in connexion with this advanced state of putrefaction, that the worst kinds of typhus are usually preceded by the most obstinate constipation. So also, "in the very large majority of cases of yellow fever," says La Roche, "constipation of the bowels constitutes a predominant feature in the early stage, proving in some instances as obstinate as in any known disease, and resisting at times the action of powerful cathartic medicines. This condition of the bowels is found to prevail more generally in the severer and more concentrated forms of disease." (*Op. cit.*, i, 260.)

[To be continued.]

Reviews and Notices.

DIE LEICHENVERBRENNUNG ALS DIE GEEIGNETSTE ART DER TODTENBESTATTUNG; oder Darstellung der verschiedenen Arten und Gebräuche der Todtenbestattung aus älterer und neuerer Zeit, historisch und kritisch bearbeitet. Von J. P. TRUSEN, M.D., Preussischer-Oberstabsarzt. Breslau: 1855.

ON COMBUSTION OF THE CORPSE AS THE BEST MEANS OF DISPOSING OF THE DEAD; or the different Modes and Usages at Funerals in Ancient and Modern Times. An Historical and Critical Essay. By J. P. TRUSEN, M.D.

Dr. TRUSEN in this book has brought together most of what is known or recorded of graves, graveyards and their exhalations, of apparent death, of the time for burying, or for performing the *post mortem* examination. He devotes a chapter to the consideration of the necessity of the death of every individual being certified by competent persons, and is desirous of introducing the use of dead-houses into general practice. Embalming and burying are then successively considered; and, in the last chapter, combustion of the dead is recommended. Nine-tenths of the work are extracts from works and periodical publications which come under the head of popular literature. In this respect the author might have bestowed more care upon his compilation or collection; and, instead of quoting magazines, might have given us the unadulterated description of the author and observer from whom the writers of the magazines borrowed the matter of their articles. Notwithstanding this, the work is very useful as a great mass of facts, from which argumentative writers may without great trouble pick what seems best adapted for practical purposes: yet it is not very practical; and if the author recommends combustion of the dead, he only does so in the abstract, and we learn no more from his book regarding the particulars of the proceeding than we know of the temperature of purgatory. The fact is, that the proposal is as impracticable as its author is impractical. If he had only given us an estimate of the quantity of coal, coke, or wood, required for burning to ashes one human body, we might then have gone on to construct a stove for the operation. An apparatus for catching the products of this dry distillation could have been constructed by one of our chemical manufacturers; it might have been estimated whether the sal ammoniac obtained would partly cover the expenses, and whether the gas companies might fill their meters from the distillery on the churchyard. But we are left to guess, and, we believe, ever shall be, the nature of the author's ideas, or the manner in which combustion is to be effected.

We cannot pass over in silence the manner in which the author occasionally speaks of the customs of this country. The report of a traveller who, in the Isle of Wight, saw the burial fee paid in the churchyard during the reading of the service by the clergyman, he takes as a *bond fide* specimen of the business way in which the English bury their dead. These short-sighted absurdities are ill fitting an educated man; they are as much the consequence of Silesian prejudice as of individual ignorance, of