

nation, and the froth that forms when organic fluids are operated upon, more readily falls. Secondly, the electricity enters by means of a number of pointed wires instead of pieces of platinum foil, and thus the decomposition of the suspected fluid is more quickly effected. I need hardly say that the analyst must be careful that the *negative* electrode, or zincode, of the battery, is connected with the gas-receiver, otherwise the arseniuretted hydrogen that may be evolved will be lost. The oxygen is allowed to mingle with the fluid in the outer vessel.

I confess that I have not found any agent that liberates such minute quantities of arsenic as sulphuric acid does; therefore, when this can be obtained *absolutely pure*, I should prefer it: yet as much of this acid now met with in the shops contains arsenic, from iron pyrites being used in its formation, it is extremely desirable that some other agent should be substituted.* After trying a great number of substances, I find that pure potash, or its carbonate or nitrate, may be advantageously made use of instead. The advantage is, that the arsenite of potash formed is much more soluble than arsenious acid. About two drachms to a pint of the solution I have found sufficient.

The plan to be pursued in cases of suspected poisoning by arsenious acid is thus rendered sufficiently simple. It is this:—portions of the stomach that have been corroded by the acid, or the contents of this viscus, or parts of any other organ in which the poison accumulates, are to be boiled for half an hour in distilled water, to which some potash or its carbonate is to be added. The solution being placed in the galvan-arsenical apparatus, it is to be connected with a galvanic battery. The one I have used in my experiments is on Smee's principle, having ten pairs of plates, five inches square, and excited by diluted sulphuric acid in the proportion of one part of acid, by measure, to fourteen parts of water. A Wollaston's answers very well. The first portions of gas that are given off, being principally hydrogen mixed with the atmospheric air in the tube, may be allowed to escape. That which is subsequently disengaged is to be tested in the ordinary way. Orfila considers it sufficient that the metallic spots are dissolved in excess of nitric acid, which converts the arsenicum into arsenic acid; to this nitrate of silver being added, a brick-red precipitate is thrown down—the arseniate of silver. M. Lassaigne proposes to make the arseniuretted hydrogen pass through a solution of pure nitrate of silver;

* In twenty fluid ounces of this acid examined by Mr. G. O. Rees, he found 22.58 grains of arsenic; and Mr. H. H. Watson, in the like quantity of another sample, calculated the existence of no less than 97.416 grains.

which becoming decomposed, the silver is precipitated in black flakes, and arsenious acid is produced, mixed with the excess of nitrate of silver. This excess of nitrate of silver is to be decomposed by hydro-chloric acid; and the chloride of silver thus formed, and the metallic silver, are to be separated by filtration. The filtered liquor being heated, the nitric acid which it contains reacts on the arsenious acid, and converts it into arsenic acid; the properties of which are to be ascertained by the usual methods. Lassaigne is of opinion that by this means one grain of arsenious acid may be detected when dissolved in eighteen gallons of water, or in the proportion of one-millionth part. It would be very easy to cause the arseniuretted hydrogen to pass up through a solution of the nitrate of silver, by removing the jet, and attaching a flexible tube to the stop-cock in its place.

Trusting that the above apparatus may prove available in the hands of the medical jurist for its intended purpose, I beg to subscribe myself, most respectfully, yours,

W. J. T. MORTON.

Royal Veterinary College,
May 1, 1841.

OBSERVATIONS ON EMPIRICISM.

By WILLIAM FREDERICK BARLOW, Esq.,
Surgeon, Tonbridge Wells.

“Miracles appear to be so according to our ignorance of nature, and not according to the essence of nature.”—MONTAIGNE.

IF it were an easy task to eradicate those errors, the glaring absurdity of which is palpably demonstrable, the faith which is placed in the nostrums of empirics would be soon withheld, and they would be rightly regarded as odious inventions to serve private ends, under the specious pretence of benefitting the public. But, unfortunately, in proportion to the intensity of a folly, is too often the difficulty of abolishing it; and those who have once embraced it still cling to it, in spite of every argument, with an unaccountable pertinacity. Absurdity is courted and adhered to, simply because it is unintelligible; and the very circumstance which should destroy it, is the cause of its prosperity. The irrational fury of a fanatic increases the number of his followers, who admire and venerate him for those monstrous excesses which occasion the reproaches of reason, and the smiles of ridicule. The unknown tongues, once heard in certain chapels, owed their wonder-working influence to their being incomprehensible, and the wild and frantic ravings of humanity were by some mistaken for the awful and mysterious inspirations of Heaven. It is needless to enter into the history of fanati-

cism, to show how excessively it has thriven upon its madness, and how credulity has adored it in its worst of forms. I venture to allude to this subject here, because that same boundless credulousness which believes that fanaticism is religion, believes also that empiricism is science. And why? because it *professes* more. Yes, the *professions* of empiricism confer upon it an importance in the estimation of many, which the *performances* of science do not possess. There is nothing which quackery dreads so much as investigation and inquiry; and numbers who have thought it attractive on a superficial view, would be undeceived by an attentive examination, for they would fail not to perceive its detestable deformities.

"Every man," says Locke, "carries about him a touchstone, if he would make use of it, to distinguish substantial gold from superficial glitterings, truth from appearances." Let this touchstone be applied to empiricism, and it would appear the deluding phantom which it is. The wise and humane would have to regret no longer the countless evils of which it is the parent. But what is its condition now? Flourishing beyond expression. It is based upon error, yet has it an ample and a crowded edifice, the chief pillars of which are credulity and folly. No ray of science penetrates the dark mysterious dwelling, yet numbers throng it with their presence and enrich it with their gold. Here Ignorance rules triumphantly, filling the ears of her listeners with unmeaning sounds, delusive promises, and false narrations. Self-interest prompts the language of deceitfulness, and the bright image of hope, which she parades before her dupes, is an unsubstantial pageant which serves her to misguide. There are found, not the vulgar only, but the fashionable; not the untutored only, but the learned;—all descriptions of persons bow the knee together to this most ridiculous and grotesque of idols. The advice of the qualified practitioner is derided; his education, study, and attainments, weigh nothing in the balance against empirical advertisements. Consult the quack, say those, who prefer a St. John Long or a Morison, to a Sydenham or a Hunter, for his remedies have a speedy and a certain action; he has a phial which contains a medicine which he secretly prepares, the powers of which have been attested by the cures of maladies of every species—it might aptly be denominated the elixir of life.

The quack has only to publish that he cures, that he has cured those who have been deemed incurable; that, be his patients near or distant, seen or unseen, old or young, of either sex, whatever be their maladies, acute or chronic, nervous or vascular, he can still cure them; that he has discovered the universal remedy for all diseases, so that those who are hopeless should hope again, and those who are dying may yet recover, to

succeed in one thing at least—the acquiring thousands of purchasers of his nostrum, and a wide profit from its sale. The degree of his arrogance is the measure of his success; let him but promise miracles, and the public will give him credit for their performance. The infinitesimal dose, the mesmeric manipulation, will be acknowledged efficacious, if he will declare them so. Let him, if he would succeed, be perfectly unscrupulous; let his imagination be active in inventing favourable terminations of serious maladies; let his language depict them in glowing colours; let him aver that no infirmity to which man is heir to can baffle or defeat him, and his effrontery will be well repaid. Let him stoop to explain nothing; mystery is his warmest friend, and if he sever the link which unites him to her, his fabric will fall into ruins—the charm is dissolved, he will be powerful no more. Knowing nothing of life, let him speak of vital actions; nothing of the digestive organs, of digestive maladies; nothing of the nervous system, of affections of the nerves, let him search for hard words, and apply them with no meaning; let him assume a demeanour which will be considered evidence of his vast profundity by the many confiders in his potent art, though it may remind a discerning few of Shaftesbury's observation, that "gravity is of the very essence of imposture."

Such is the course which, monstrous as it is, renders so many affluent. The scientific practitioner will not pander to the folly of the multitude, nor purchase the degradation of quackery with its gold: his weapons are not magniloquent promises and ostentatious descriptions of imagined cures, but knowledge, experience, observation, and judgment; he does not adapt maladies to prescriptions, but prescriptions to maladies, and his practice varies as cases change. The value of remedies is more in their application than in their kind, and the difficulty consists as much in knowing when to withhold as when to administer. That a careful examination of the patient must be necessary, would be a fact too plain to be stated, did not quacks assure us that they can arrest diseases which they have not investigated, and prescribe for a fever across the Atlantic. Neither can anything be clearer than that a knowledge of functions *must* be needful to the understanding of their derangements. No one in his senses would deny so plain a truth. Have quacks this knowledge? Is life of so little value that it should be carelessly entrusted to the tricks and experiments of these daring pretenders, ignorant of every art, but that of getting rich? No one can even understand where health terminates and disease commences, unless he pay the cost of all real knowledge, study, and thought. A person uninformed as to the matter, might listen to the chest, and mistake the normal respiratory murmur

for a morbid sound. A quack cannot distinguish the one from the other; yet he impertinently affirms, that he can treat diseases of the breathing organs more successfully than a Laennec: one phial or one pill-box may contain the remedy which he constantly resorts to upon all occasions. See what a little renders him infallible! Not a few imagine that it is the easiest of all things to treat diseases properly, whereas it is the most difficult. Not previous knowledge, not an acquaintance with every discovery in medicine, can render a practitioner equal to all emergencies. The lawyer may be guided by precedents, but the physician cannot be directed by the judgments of others; he must rely upon his own resources, and the light of nature must principally be his guide. No one has so much need of self-reliance as the physician; a parade of learning cannot make him an observer, or cure a complaint. It must be puerile to condemn reading in a physician, for to neglect it would be as foolish as to depend upon it entirely; yet it is confessedly the fault of many to read too much and observe too little. Who would not prefer an acute thinker to a living encyclopædia, or an accomplished classic, as his medical adviser? Unschooled and uneducated was the sagacious Hunter. Most aptly did Lavater exclaim, upon seeing Sharp's beautiful engraving of this great inquirer, "This man thinks for himself." "Practical medicine," says a celebrated essayist,* "is less indebted to books than any other liberal art;" and he who has witnessed the Protean forms of maladies, the complications which obscure them, the multifarious circumstances which may modify them, must admit the justice of this remark. No science requires such perseverance in study, such caution in practice, as that of medicine; yet quacks prescribe without either, as if they could attain by invention what others arrive at only by labour, the labour not seldom of vigorous minds. Is the treatment of maladies the only thing in which incapacity is to be looked on as a high pretension? It would seem so. The theologian is not valued for his ignorance of scripture, nor the lawyer for neglecting the study of the law. People select the most able and eloquent of advocates to plead their causes—*property* is concerned; but they submit themselves to the treatment of the most illiterate pretenders—*life* is at stake. It would be really an amusing task to read over the various newspaper advertisements, which are devoted to the extension and support of quackery, to mark the ridiculous and mendacious statements which are dressed in the inflated language of bombast, did not the feeling of ridicule which is excited, yield to a regret deep in proportion as the mind which entertains it is humane; that all

this folly is mistaken for philosophy, all these impossibilities for indubitable truths, and all these barefaced devices to answer selfish ends, for philanthropic attempts at alleviating and eradicating the infirmities of man. What can be more absurd than the inconsistencies of empiricism! *Each* of its disciples cures after *his own* fashion, yet *each* pretends to have discovered the *special* remedy for *particular* complaints, or the *universal* nostrum for *all* affections. Opposed in their hypotheses and differing in their practice, they are completely uniform in one respect, the assigning unrivalled powers to their drugs. From the most contrary of positions, a single prospect is alike presented, the prospect of a cure. One is puzzled at the numerous methods which are adopted; there are the pills of a Morison and the prayers of a Hohenlohe; the latter are, perhaps, the most advisable, since, if they do not relieve the malady, they will not augment the mischief, by adding fuel to the fire.

I wonder that men can bring themselves to believe the absurdities and fallacies of quackery. I would as soon admit that the Ethiopian can change his skin, or the leopard his spots, as give credence to its imputed miracles. But credulity knows no limits; it has an insatiable appetite; it is omnivorous, and can swallow anything: and those who practise on it are often careless of the miseries they occasion; they are as deaf to the voice of humanity, as are their victims to the suggestions of reason. What cares an empiric for the consequences of his delusions, so long as he gratifies his thirst for lucre; he may console himself for any obloquy that may befall him by the gains which he acquires, exclaiming to himself exultingly,

"at mihi plaudo
Ipse domi, simul ac nummos contemplor in arca."

But it is said, look at results; one fact is worth all your theories; persons take quack medicines and recover. They also take quack medicines and die; and a coroner's inquest has occasionally brought the sad fate of a maltreated patient before the public eye. As to adverse terminations empirica are silent—*requiescant in pace*; but the successes of these inspired gentlemen(?) are lauded to the skies in no measured terms. But does it follow, that because a disease ends favourably under empirical treatment, that, therefore, it was cured by it? By no means; for it might have thus terminated, not *from*, but in *spite of*, the means adopted. "Nothing," says Archbishop Whately,* "is more common than to hear a person state confidently, as from his own experience, that such and such a patient *was cured* by this or that medicine: whereas all that he absolutely *knows* is, that he took the medi-

* Dr. Knox,

* Elements of Logic, p. 229.

cine, and that he recovered." I do not pretend to say that quack medicines may not sometimes be of service; but surely even if they were judiciously compounded, the indiscriminate mode of exhibiting them must frequently be followed by much mischief. They may endanger, either because they aggravate, or because having no influence over a complaint themselves, they prevent proper measures being taken to subdue it. A quantity of calomel may be given, at a venture, to ten sick people; the tenth may be benefitted by it, but are the nine to be injured for the reason that no inquiry was instituted into their diseases? To prescribe medicine without the guide of diagnosis is a farce; it is worse than a farce, since such rashness may bring life into peril, or produce a fatal termination, which might have been easily averted.

It must be observed, also, that there are a vast number of happily-concluded maladies, the issue of which has not been owing to the action of the medicines which have been said to cure them. Time, nature, and a mind at ease, perform more than half the cures which empiricism claims. Who that is a physician can deny the power and the value of time? Who that has seen a case of necrosis will not acknowledge the marvellous agency of Nature? The surgeon may amputate a limb, but he cannot unite permanently the edges of the very smallest incision. The effect of mental influence is too well known to be discussed at length; it has endowed the amulet with its magic property; it has rendered efficacious the metallic tractor, and performed all the credible feats of mesmerism. He who raises the spirits and revivifies hope, accomplishes often what no tonic can perform; and a result is frequently attributed to its influence, which is entirely dependant on a *faith* in its power. The mind is so intimately united with the body, that it is impossible ever to estimate the effects it can produce on it. It plays upon the nerves of the frame, even as the musician upon the strings of his instrument, who can elicit, at his pleasure, harmonious or discordant sounds. It can derange functions or allay their disorder; it can depress or exhilarate; strengthen or enfeeble. But my desire to be brief will not permit me to pursue the subject further. I must repeat once more, that did man reason upon quackery, instead of wonder at it, there would be a multitudinous desertion from its ranks. They would agree with one of the most acute and observant of our poets, who has well remarked,

"Ill do what Meade and Cheselden advise,
To keep these limbs, and to preserve these eyes."

How long shall so many err with such unpardonable thoughtlessness in a matter so important? How long shall they prefer the

errors of empiricism to the truths of science? Shall they, allured by the scales of the serpent, embrace it till they are bitten by its fang?

Tonbridge Wells, May 23, 1841.

UNIVERSITY COLLEGE HOSPITAL.

DISLOCATION OF THE WRIST.—FRACTURE OF THE OPPOSITE RADIUS.

T. C., aged 9, was admitted on May 12. He states that yesterday, about four o'clock in the afternoon, he was out bird's-nesting, and had climbed to the top of an elm, thirty or forty feet high, when the branch on which he stood gave way, and he fell to the ground. He alighted on the palms of the hands.

He was brought into the ward at half-past six, and on examination Mr. Taylor, the house-surgeon, readily detected dislocation of the left wrist. The carpus formed a considerable projection on the back of the articulation, while the styloid processes of the radius and ulna were distinctly felt in the palm; these bones could be traced through their whole course, and were found to be entire. The forearm much shortened and deformed.

On extending the parts, and at the same time moulding the wrist into shape, the bones returned into their situation suddenly, and with a snap, the patient immediately regaining the use of the joint.

The right wrist next demanded attention. There was some deformity from effusion into the sheath of the flexor tendons, and great pain on motion. On careful manipulation a fracture of the radius, close to the styloid process, was detected. The general appearance of the wrist had some resemblance to a dislocation such as described. Fomentations were applied to the left wrist.

The right forearm was now extended slightly, with the hand inclining downwards: pasteboard splints, padded with tow, were placed on each side, and retained by rollers. On the following morning the same apparatus was applied to the left arm.

INDOLENT ULCERS, HOSPITAL GANGRENE.

This patient was a stout subject, rather corpulent, and of plethoric habit. He was admitted for ulcers of the leg of considerable standing, with an unhealthy state of the cellular tissue; a number of circular excavations with a sloughy surface, and undermined skin, occupying the lower third of the leg. The treatment consisted in elevation of the limb, the cleansing of the surface by poultices, and the after-use of the water-dressing. This, however, failing in its effects, the *potassa fusa* was unsparingly used. The slough formed by this application separated under the use of poultices;