

cure, as in the preceding group, was sufficiently satisfactory. The medicines which were found of most use were gentian or cheyretta, quinine, preparations of iodine, and occasionally mercurials.

[To be continued.]

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Original Communications.

REMARKS ON THE THEORY OF ELIMINATION IN THE TREATMENT OF DISEASE.

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[Read before the Harveian Society.]

It has been well said by one of the masters of our profession, that the development of a principle is like setting up a brilliant light in the midst of a large hall, which enables the eye to take in the whole in all its fair proportions; while the investigation of details is like exploring the same hall in all parts by the aid of a taper. The latter process is most necessary; without it there can be no safe ascent to higher ground, no sound induction; but yet it ought always to be conducted, as far as possible, under the guidance of some *informing* (shaping) idea, which may connect and colligate our facts, and enable us at last to arrive at a law or principle. I am much inclined to think, that of late years we have been over-busy in accumulating facts without sufficient reference to principles, or, to use Dr. Whewell's term, colligating ideas. Blood-globules have been counted, tissues have been scrutinised both healthy and morbid, secretions analysed, symptoms described, and râles defined minutely. Far be it from me to decry this painful labour; it has produced fruit, and will, I doubt not, yet more. But have we not, amid all these particulars, thought too little of the general truths which they contain, and which we ought to strive to educe? I believe strongly that each age has its mission, its more particular work to do; and the mission of our age may be the accumulation of facts, that of a succeeding age their interpretation. But still I would we had more workers after the example of an eminent member of this Society, lately passed away from among us, whose observations and experiments always went straight to a point. I need not say I allude to Dr. Marshall Hall.

The topic which I wish to bring before the Society to-night is the consideration of a principle of wide application in therapeutics; viz., how far, in various diseases I shall refer to, we ought to proceed on the view of endeavouring to eliminate or get rid of some *materies morbi* which we suppose to exist. In many disorders we have more or less certainty of the imbibition of a poisonous material; and it would seem a natural inference, that to get rid of this material should be the chief aim of our efforts. It appears to me that this conception, in a more or less distinct form, is extremely prevalent, and that there is some risk of its being carried too far, and prompting an injurious practice. Thus, Dr. Todd bases his treatment of scarlatinal drowsy on the elimination of the poison. Dr. G. Johnson recommends castor-oil in cholera to procure the excretion of the poison by the bowels, and regards Bright's disease as the result of the renal cells striving to remove morbid materials from the blood, and becoming damaged in so doing. Mr. Simon speaks of cancer as an "eliminative effort"; and Mr. Paget appears to take nearly the same view.

These are high authorities; and I fear I shall be considered guilty of heresy in presuming to differ from them. How far I may be justified, it will be for my audience to decide.

Let me ask attention, first, to one or two introductory remarks. When we meet with a case of poisoning from the ingestion of deadly drugs, such as opium, arsenic, corrosive sublimate, or with a case of snake-bite, we do not think much of trying to expel the poison from the blood, and so relieving the sufferer. We know this would be a vain attempt, and so we set ourselves to counterwork the virus, to stay its deadly action by remedies which have an opposite effect. The snake-bitten man imbibes brandy, arsenic, ammonia, etc., plentifully; and if the poison be not too potent, his system is rallied from the fatal prostration, and he recovers. The animal to which prussic acid or woorara has been administered is apparently lifeless, and if left to itself will soon be really so; but we use artificial respiration for a time, and at length the poisonous influence passes

by, and the respiratory muscles resume their play. So, also, in a case of opium poisoning, we oppose the tendency to fatal coma by artificial excitement. Here, then, are exemplars for us; we see clearly in these cases what course we must follow. We must aid Nature to get over the difficulty; we must not think to take her work out of her hands; but we must try to sustain her powers where they fail. In one instance, indeed, we can do more, and eliminate the poison by means of drugs. I refer, of course, to the detachment of lead from the tissues of the body, and its excretion in the urine, by the agency of iodide of potassium, as first rendered probable by M. Melsens, and recently confirmed by Drs. Parkes and Sieveking. This, however, is almost, if not quite, a solitary instance.

Another remark I will offer is this; that it seems of more importance to have a sound, vigorous vitality of the tissues, than that the blood should be of absolute purity. If the life of the solids is feeble and languishing, they can do little, even with the best blood. On the other hand, if they are vigorous, they will nourish themselves and function well, although their nutrient fluid be of inferior quality. Not long ago I had a patient who was markedly jaundiced, but who went about his business, ate and drank as usual, and had no sensation of illness. Another patient has long suffered from Bright's disease, with anasarca, and his urine is still highly albuminous; but for the last six months he has enjoyed exceedingly good health, has been free from dropsy, and looks robust and vigorous. In both these cases (and they are no very uncommon ones) the tissues nourished themselves well out of blood which was far from healthy. Again, with regard to miasmata: a weakly man is exposed to the infection of fever; he imbibes it, and after a time droops and sickens. A companion of stronger frame exposed to the same escapes altogether. What has made the difference in these two? Both must have received the poison into their blood as a matter of physical necessity; but the nervous system of the weaker has succumbed, while that of the stronger has resisted the poison. Or an army is retreating over a line of country pursued by a victorious foe. Both are exposed to the same influences; but the one, dismayed and depressed, is visited heavily by disease, while the other, exulting and confident, is comparatively healthy. Again, if two boats' crews go up the same African river, and are alike exposed to the miasma, while the one is protected by a daily modicum of quinine wine, which is denied to the other, it is notorious that the latter will be to a man smitten with fever, and that the former will almost, if not entirely, escape. The quinine, like the mental stimulus, increases the resisting power of the nervous system: so that the poison received into the blood is inoperative. Once more, when pus is injected into the veins of an animal, the effect depends much on the vigour of its system. A feeble animal—as a rabbit—dies surely; a stronger resists and survives.

I hope that what I have said will not be taken to mean that I consider it of no importance whether the blood be contaminated or not. I am as fully satisfied of the mischief which may ensue on blood-poisoning as the greatest humoralist can be. My only aim is to hold the balance even, and to set forth duly the resisting power of healthy tissues.

Passing on to the proper subject of this communication, let us first take for our consideration the *exanthemata*—variola, scarlatina, measles, erysipelas. What shall we regard as the true principle of correct treatment in these, so far as we find that we have any power? It is certain that the morbid phenomena depend on the reception of a poison into the system. Can we hope to neutralise or expel this? As to the possibility of neutralising the virus, medical science, we must confess, is wholly silent. As to expelling it, the opinion seems held by many that the exanthem is an eliminative effort, and therefore it would seem that, even if we prefer another channel to that selected by nature, we ought to pursue the same indication. But is it certain that the exanthem, or any other of the morbid phenomena that occur, are eliminative efforts? May we not just as well regard them as reactions of the tissues against the poison, as so many foci of irritation? Doubtless we must not suppress the cutaneous eruption, because it is better to have the skin inflamed than the bronchial or intestinal mucous surface. But neither do we get any good by increasing the eruption as much as possible. Take the case of *small-pox*; the cutaneous is not the only channel by which exudation of the infecting matter takes place. Dr. Copland states "the miasm of small-pox is given out from all the mucous, cutaneous, and excreting surfaces—the exhalations, the secretions, the excretions, the matters in the vesicles and pustules, and the scabs, all contain this poisonous material." Indeed, there is reason

to believe that the cutaneous elimination is a very imperfect one. For, examine small-pox pustules (as they are called), and it is evident that they are by no means minute abscesses which break and discharge completely. The exudation, or at any rate much of it, as it dries up into a scab, remains in contact with a most highly vascular, papilloid projection of the cutis, which seems eminently fitted to re-absorb the exuded fluid, and to some extent must certainly do so. The elimination from the pulmonary surface is probably far more complete. While, however, variolous matter is thus exuding everywhere, it is worth notice that neither much sweating, nor purging, nor salivation avail materially to procure a diminution of the morbid action. Sydenham especially regards violent sweats as of bad omen, because "they eliminate particles unfit for secretion", and interfere with the due rate of secretion and expulsion. Whether this is the true reason, whether the variolous poison is not quite ready for expulsion (could it be effected), at an earlier period, may well be doubted, seeing that in the practice of inoculation Dr. Gregory recommends the thin lymph of a fifth-day vesicle in preference to the well-coagulated matter of the eighth day. It seems to me highly improbable that the variolous poison is ultimately got rid of solely by expelling the whole of it from the body; it rather appears to be gradually destroyed in the blood, broken up by decomposition, and so changed as to lose its noxious properties. Indeed, if it did not cease to be formed in the blood there could be no end to the disease, except with death; and as during the progress of the disorder fresh blood is being made out of food, there would be evermore a generation of fresh poison, unless of itself it underwent destruction.

In *scarlatina* and *measles* we have as much certainty of the system having been affected by a poison, as in the case of *variola*. But is it not really a stretch of imagination to regard the cutaneous eruptions, the faucial, bronchial, and renal inflammations, as in any wise eliminatory acts? Are they in any wise essentially different from ordinary inflammations of the same parts, and is not our successful treatment of them in the main identical in both cases? One of the most eminent physicians of this metropolis, however, seems to regard all these phenomena as of eliminatory character, and shapes his practice in accordance with this view. So also Dr. Copland, in speaking of *scarlatina*, both as to its prevention and cure, lays principal stress on "such measures as promote the depurating action of the emunctories on the blood." Now my objection to this view, viz., that the elimination of the poison is the one great aim we are to keep before us, is, that it would mislead us in the most perilous cases. In ordinary ones the treatment it suggests will be appropriate enough, and will coincide with what would be recommended on other grounds, but in the more severe dangerous cases it would manifestly be unsuitable. Thus we should not hope to save a case of malignant scarlet fever by purging out the poison, nor a case of measles with broncho-pneumonic complication of sthenic character by the use of mere diaphoretics. In both kinds of instances we must follow common sense, and the safe old rule "to obviate the tendency to death" in whatever way that manifests itself. If the danger is from sinking and asthenia, then we must uphold; if from violent inflammatory action, we must deplete. Our task is not to get rid of the poison—that Nature will do of herself; but to sustain the system and guide it safely between the opposite perils of excessive irritation and overwhelming depression. The very marked success which has attended the steady use of quinine in Mr. Hood's hands in *scarlatina* for many years, is scarcely reconcilable with the view of elimination. It is true that he attaches great importance to a daily calomel aperient, but he regards quinine as his sheet anchor.

The last of the exanthemata group, viz., *erysipelas*, assuredly gives but small countenance to the idea of procuring recovery by expelling the poison. All our best experience shews that we must deal with the disease on ordinary principles, viz., if ever (*rara avis* in London at any rate) it be of sthenic character we must employ antiphlogistic means; if, as we almost always meet with it, it be of asthenic character, than we must strive to sustain the sinking powers.

I will here make one remark in passing from this hasty glance at the exanthemata; viz., that there seems much reason to believe that the poisons in them are not separate and distinct substances, which may be thought of as dissolved in the blood, but they are rather states of the blood itself. The whole albuminoid plasma of the blood, and all its exudations, are thrown into a peculiar state by an agency probably rather catalytic than fermentative. As long as this state lasts, all the emanations and effluvia from the body contain infectious matter;

when it is over, the virus has ceased. But this, as before stated, is dependent, not on the poison having been all excreted, but rather upon its being all destroyed, or having ceased to be.

Let us now look to *continued fever*, ignoring for the nonce distinctions of typhus and typhoid. Shall we think to see in the rose spots, or measly rash, in the intestinal glandular deposit, or the congestive pneumonia, eliminatory efforts? If so, much more may we consider the great increase which often takes place in the secretion of urinary solids as an evidence of the same, and indication for treatment. But if we look to the answer which the system gives to our therapeutic efforts, we find a decided condemnation and refusal of all formal evacuating treatment—at least in the fevers which prevail among us at the present day; though some thirty years ago, as high authorities testify, a different proceeding, involving even venesection, was not only borne, but required. Now we have often much ado to sustain the powers of life in its struggle against the depressing influence, and we take away blood even by leeching with some reluctance. The only kind of eliminative treatment that can be advised in fever (and this applies equally to *variola* and *scarlatina*) is the free access of pure air, which is certainly of very great importance. This doubtless favours pulmonary exhalation; but yet it can scarcely be considered as directly influencing the excretion of the poison, but rather as preventing the retention of other noxious effluvia in the blood. A mode of treatment which I have employed, with apparently good results, in a few cases, is diametrically opposed to elimination. I have given two or three grains of quinine, with six or eight drops of liquor opii sedativus, about four times a-day, administering wine and other support according to need. The intention is not to effect a cure, as Dr. Dundas affirmed he could do, but to prevent local congestions by toning the vasomotor nerves, and to aid in sustaining the nervous system under the depressing influence. Acknowledging myself an adherent to the views of fever so well expounded by Virchow and Dr. Parkes, and which are doubtless well known to the members of this Society, it seems to me a rational proceeding to address remedies of the kind I have mentioned to prop the failing power of those organs, the paralysis of which I believe to be the essential thing in the causation of fever. I am glad to be able to refer to the confirmatory experience of an eminent member of this Society, Dr. Fuller, respecting the benefit of quinine in low fever, as I saw it not long ago reported in one of the weekly journals. But many of our profession, if I mistake not, scarcely hold with this. Dr. Watson speaks of the administration of calomel and opium, or hydrargyrum cum cretâ, every six hours, in the early periods of the fever; and such was the common practice that I witnessed in my student days. Now, that some doses of grey and Dover's powder may not be decidedly useful in subduing a sub-inflammatory condition of the intestinal mucous membrane, I do not at all deny; but I would never give a patient of mine in low fever a particle of mercury on the view of eliminating by the bowels the morbid poison, as a physician of no ordinary attainments and position not long ago affirmed to me he did. The fact that quinine and opium can be given with advantage throughout the course of low fever, is a strong argument of itself that no eliminatory treatment is needful or desirable. Let me not be understood to say that I suppose all fevers would do well under such management as I have just mentioned. I have no doubt that, in other types, a very different procedure would be requisite, as tartar emetic and opium, or even venesection. Everything must depend upon the character of the symptoms, whether they run in the direction of violent inflammatory reaction, or in that of asthenia.

The great family of *malarious* diseases, including fevers, neuralgic, dysenteries, etc., are commonly regarded as depending on the reception of a poison into the blood. If this be true, how strong is the lesson they afford us as to the right way of dealing with analogous conditions! We do not attempt to purge out the poison, or evacuate it by skin or kidneys: we simply take no count of it, but brace and tone up the nervous and other systems to resist it. Quinine, arsenic, iron, strychnine, generous diet, good air, cheerful animating occupation,—these are the antidotes to the malarious diseases. Of course, if internal organs are engorged, or torpid in their action, this must be corrected; unhealthy secretions must be improved, otherwise there will be no opportunity for the curative effect of the real remedies. The point, however, for our notice at present is, that these are the very reverse of evacuating.

[To be continued.]