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A SKETCH

OF THE

HUMORALISM OF THERAPEUTIC AND OTHER AGENTS,

OR THEIR MODUS OPERANDI THROUGH THE BLOOD.

By T. WILKINSON KING.

The Basis of Experience and Practice—General Laws of Medicine—Secondary Laws—Physical, Humoral, and Nervous Functions—Sympathies?—The Blood Infected—Mr. Blake's Inferences—The Changes of Nutrition and Secretion all Humoral—What causes Secretion—Absorption—Arrest of Secretion—Nutrition.

It is a notable difficulty for the empirics that, if we consult the records of experience, we can hardly fail of coming to the conclusion that almost any and every remedy is good for any and every disease, and at the same time we learn from the fashion of prescriptions that very few remedies are of settled value. For our own part, we make almost an exclusive choice of the few. The cream of all therapeutic experience is nearly comprised in the following catalogue:—Few and simple mercurials, purgatives, diaphoretics, diuretics, tonics, and anodynes; with bleeding, the use of heat and cold, simple mechanisms, plain diets and habits; an acid and an alkali, and perhaps half a dozen other favorite or specific resources, are the remedies of practical men. What are the resources of the literary? If it were possible to count the items and combinations of modern pharmacy, would it not appear totally beyond a single human experience to form any estimate of the value of one-tenth of the sum?

The physician of 300 remedies, and three times as many combinations, can have but little just experience of the use of any one, however he may affect to despise the simplicity of Hunter or Cooper. The truth is, however, that most practitioners, like the body of our profession, have favorite prescriptions in succession—a fact which should not be acknowledged without shame, for thus it would seem that no remedy is deserving of settled confidence. The error is first in a want of knowledge of the case in hand, and a fair discrimination of its actual stage; for, with these data, experience could not fail to furnish the proper remedy, or at least the proper palliative, if any be admissible.

It would certainly be well if every medical practitioner could give a direct reason for the remedy he prescribes in any given case. This, however, is not to be expected, and yet it is to be hoped that, from the present time, rational laws will continually gain ground in our profession, while the empirical principles decline. It is even a triumph of reason when the physician only confesses to himself, "There my reasonable views stop, and here my empirical adop-

tion of common practice begins; so far I conceive I have had rational notions of the disease and its treatment; but beyond this my fears, my deference, or my ignorance, induce me to pursue, at least for the present, the experience of my predecessors."

One of very limited means of observation must be said to have but little to reflect upon, yet, with attention and judgment, the fruit may be of the best; while others, continually engaged in practical things, may be altogether unable to form just and clear opinions; for a rapid succession of facts, or a great variety of them, as well as hasty views, are great impediments to mature judgment, which depends on strict selection and careful comparison. It is, moreover, but too true, and often evident, that the physician who has not been amply grounded in the fundamentals of anatomy, physiology, morbid anatomy, and pathology, is for ever unfit for just observations at the bed-side.

The following is the continuation of an attempt to link reason and experience, physiology and pathology, in common practice. The humoralism of remedies is only a part of humoral physiology and humoral pathology. The first is here designedly brought forward to assist in establishing the entire doctrine.

The fundamental principle—the initiatory law (so to speak) of medicine—declares the truths or involves the facts—

1st, That health consists in a certain natural state, and moderated action of the several parts of the animal frame;

2nd, That disease forms a perceptible departure from the healthful state; and,

3rd, That remedies have a power of modifying the disturbance or assisting the restoration.

Health consists in the balance of the functions—salutary oscillations and mutual compensations—periodic functions are essential supplementary acts.

Disease is disturbed balance, in the form of local affections, or combined, or general.

Diseases have a definite course, and mostly tend to spontaneous recovery. Variability is a peculiar character.

See a view "Of some of the First General Laws or Fundamental Doctrines of Medicine and Surgery:" London, 1840. We have never been forward to recommend the study of general laws to younger pupils, but have rather felt inclined to say to all—Wait, until you perceive the want of them in practice, and then, if more extended principles are not incompatible with the partial rules and empirical experience which you have attained, you may expect to find fresh corroboration and illustrations of your soundest views arising around you daily, and the satisfaction will amply repay the labor of the additional inquiry. Above all things, give your time to the elements of pathology and diagnosis.

We do not propose to determine which is the foremost of all secondary laws in medicine, but, for the present, we shall assume it to be the following:—

In physiology, pathology, and therapeutics, that is, in all that relates to the healthy or disturbed balance of the bodily functions, we have at least three different series of agencies—physical, humoral, and nervous.*

A cut, a suppression of urine, and a fright, may severally represent these influences, and when we see a cut repaired by molecular deposits from the circulating fluid—a dysuria relieved by bleeding and mercurial purgatives, &c.—and the syncope of fear first induced by muscular relaxation, and then relieved by the horizontal position—we may perceive something of the intimate mingling of these three different kinds of influences. We perceive a necessary dependence of all parts upon each of them, and we see the necessity of correlative and compensatory actions between them all, both in health and disease. It is the humoral doctrine which we conceive to be most easily illustrated by therapeutic considerations, while it seems to extend and corroborate humoral principles in pathology generally; and, although our plan may seem contracted, we have a hope that it will gain somewhat of precision and force by this confined method of examining a doctrine which, if made good with reference to remedies, must, of course, stand good in physiology, &c.

The study of the humoral acts of remedies will help to clear up the current notions of sympathy. The following appears to be the main basis of the Hunterian doctrine in an amended form.

Sympathy—consent of parts, correlation of functions “actions as it were, playing amongst themselves,” healthy or morbid, “each becoming a *stimulant* to the other, or each being *affected* by the other”—“sympathy is one part taking part in the impressions, affections, and actions of another part”—“sympathy between one local disease and another, and between an universal and a local disease.” It is by no means pure sympathy if, with general deterioration, a slight local disorder induces excessive disturbances elsewhere. “Sympathy of the actions of life,” nutrition, &c.; “sympathy of the nerves” (excito-motor?) “sympathy of mind” (tremor of fear?) “I suspect that all those which would appear to be sympathies of sensation only, without action, are a delusion of the mind—a wrong reference of the mind to some other than the part affected, which I shall explain when upon the subject of delusion.”—Hunter, p. 319.

It is absolutely hopeless to construct one theory for all sympathies.

Mr. Hunter's lecture on sympathy we deem only highly interesting. Excito-motory acts are not distinguished, humoral effects are not recognised, many fallacious and doubtful statements are admitted, even simply nervous and physical results are erroneously set down as sympathies. On the whole, therefore, we have concluded, to our great relief, yet not without regret, that it is best to give up the entire doctrine of sympathy as it there stands. We firmly believe

* We have applied this law by way of general illustration to be “Nature and Treatment of Toothach.” See *Med. Gaz.*, anuary, 1842.

Chapter X of the new edition of the lectures to be totally useless, except as furnishing part of the rough materials for a new structure. Hunter has here labored admirably to analyse an unhappily false idea—an hypothetical principle. He shows clearly enough that he could find no order or scheme for a systematic arrangement of his views. The editor, Mr. Palmer, is an exemplary Hunterian, yet we fancy he may be almost willing to throw the said chapter, or rather the doctrine, overboard. The following note of his is not satisfactory:—“Thus toothache and tic douloureux will occasion pain or inflammation of the face; diseased hip will produce pain of the knee, *and*, as I have frequently seen, inflammation of that part; gonorrhœa will occasion pain or inflammation of the testicle; disease of the bladder, pain or morbid change of structure in the kidneys.” Is it not evident that the inflammations here may be casual, or of mechanical as well as humoral origin? Our progress will at least assist to unravel the principles or rules of those acts attributed to sympathy.

“The usual mode of explaining the actions of medicines after their absorption is that, when they have got into the blood, they are carried in the ordinary course of the circulation to the heart, thence to all parts of the system.”*

It is an incontrovertible elementary rule of therapeutics, that matters, whether fluid or solid, nutrient, medicinal, or poisonous, have various ways of gaining access to the circulating materials. They may be injected into the veins, received by the stomach, by the rectum and colon, by the natural and abraded surfaces, or by inhalation.

We may say, then, that the blood is a vehicle, or that it is deteriorated—that we have the humor altered, and its effects on the body must of course be proportionably anormal.

A young lady was sent to Brighton to drink artificial Carlsbad waters for an obstinate and variable pustular state of the face. There was half an hour's walk to the spahouse. Then seven beakers (three to a pint) were drank off, with a rest of a quarter of an hour after each. Then half an hour more to walk home, and one hour to wait for breakfast. After five weeks this patient returned to London transitorily relieved and looking plump; her hands pitted excessively on pressure.

The experiments of Dr. Blake (*Edinburgh Med. and Surg. Journal*, Oct. 1841) are, we think, sufficient to justify the following *humoral* conclusions:—

“1. That a constant ratio exists between the time required for a poison to act, and the rapidity of the circulation.

“2. That the time required by a substance to permeate the capillary vessels may be considered as inappreciable.

“3. That in those animals on which experiments have been made, a sufficient interval always elapses between the introduction of a poison into the vascular system, and the symptoms of its action, to allow of the blood with which the poison has been mixed reaching the capillaries of the tissue on which the poison exerts its deleterious effects.

“4. That the interval elapsing between the absorption of a substance by the capillaries, and its general

* Pereira—*Elements of Materia Medica*, second edition, p. 1

diffusion through the body may not exceed nine seconds.

"That an interval always more than nine seconds elapses between the introduction of a poison into the capillaries or veins, and the appearance of its first effects.

6. That, with those poisons which act on the nervous system, the closer the part of the vascular circle at which a poison is introduced is to the nervous centres, the more rapid is its action; and also, that the contact of a poison with a large surface of the body does not give rise to general symptoms, as long as its diffusion through the body is prevented. No doubt the same applies to any other organ (as well as to the brain), in cases where the material transfused is prone to affect a particular organ.

We then see a substance producing its effects only where it is present—affecting the heart only when brought into contact with, or circulating in, its parietes—deranging or destroying the functions of the nervous tissue, only when it impregnates it—exciting secretion when circulating in a gland, and paralysing a muscle or arresting respiration by directly affecting the capillaries of the parts concerned—we see that a substance introduced into the blood primarily affects the functions of an organ by its direct contact with that organ, and we naturally conclude that these effects are the result of changes produced in the organ in question. In brief, poisons permeate the coats of capillaries almost instantly, and thus, as quickly as by venous transfusion, they are generally diffused in nine seconds, and not till later do we see signs. Sent more directly to the brain, they act more quickly; but, however freely applied to a surface, they have no action unless circulated. Dr. B. fairly establishes one class of poisons containing those salts that destroy the irritability of the heart as soon as blood containing them is circulated through the parietes of this organ; and another class containing those substances, which, without diminishing the irritability of the heart, prove fatal by arresting the pulmonary circulation, apparently owing to an action that they exert on the capillaries of the lungs.

From all we know of humoral principles, we must infer that poisons only act when applied directly to the tissues they affect. Dr. Blake also shows that poisons which arrest the heart all materially modify the chemical composition of the blood.

It is not fairly a matter of surprise that the effects of poisons, &c., should be experienced with great rapidity in a very few seconds after the matter has reached the blood. Animals under experiment have a most rapid circulation, and even a respiration that often cannot be counted quickly enough. The dog, rabbit, and cat, which are so often selected for experiment, are remarkable too for a naturally quick circulation, and one that admits of no delay, having no proper safety valve action, and for the most part but few and small vessels.

The circulation of blood under a poisoned surface, or around a poisoned centre, is much more like tea stirred about a lump of sugar than we are aware of. It may become a very little wonder that, after purging, the blood should drink up a dropsy.

There is a remark, with respect to the inhalation of poisons, &c., which may naturally enough have oc-

curred to many before, although I have not known it hinted at. The (so called) sudden death of animals, imputed to the simple application of prussic acid to the tongue (whose nerves have been thought capable of propagating destruction), is, I conceive, referable to the free access of the fatal vapor into the lungs and pulmonary veins.

In health, neurine, oil, and bone are respectively deposited in their proper places, and mucus, urine, and bile, the natural stimuli of their respective secretors, pass off by their natural outlets, and thus particular food, medicines, or accidents, determine peculiarities of local humoral action; witness, 1, gout and scurvy; 2, the actions of squill and antimony on the kidney; and, 3, the effect of cold to the skin, and the sudden obstruction of one kidney. As it is from the capillaries that all nutritions and secretions are supplied, so the *humoral effects of nutrient, remedial, or poisonous agents have but one course.*

Let us reason freely on this view, but let us avoid all the doubtful or casual facts on which it is too common to ground therapeutic arguments. Let us have nothing to do but with the settled and habitual effects of medicines, and thus, however we may err in hypothesis, the discovery of the error will be near and easy.

Let us regard the blood as liable to contain, in countless ways and degrees, agents which

1. Excite secretion,
2. „ absorption,
3. Arrest secretion,
4. Excite nutrition.

Of course, the mechanical and nervous effects of remedies are not to be denied. They will be only casually adverted to in this place.

Organic deteriorations, or settled disorganisation and their consequences, so far as they are not fatal, and admit of treatment, involve the most complicated cases in which mechanical, humoral, or nervous derangements, or all of these at once, as they cannot be cured, require to be palliated, or compensated for.

Excito-secretory agents are sometimes applied directly, but it may be that even in such cases their action is specifically the same as when they are first infused into the general circulation. Contact, solution, and transudation, are probably necessary when snuff excites nasal secretion. Tobacco in the blood excites only more general secretion. A saline solution in the bowel may have a simple power of appropriating water from the circulation, but this can scarcely be deemed a humoral change in ordinary cases.

We hold a wide distinction between the act of secreting and the discharge of secretion by excito-motory acts, as in the case of the urine and semen, and perhaps the gall-bladder.

It is said that irritations at the orifice of the ductus choledochus induce secretion as by nervous influence. This we by no means admit, although there is some apparent foundation for the supposition. After the infant has partially emptied the mamma, there is a sudden sense as of the afflux of blood to the organ; but such an occurrence may result to a mother with a recently emptied breast, after drinking and absorbing a glass of porter. Similar consequences may attend any excretion. It is not, we think, mere irri-

tation that causes lachrymation, but motions and pressure.

The accumulation of solid fæces tends to excite mucous secretion; but when an artificial anus lets out the contents of the ileum at the groin, the large bowel only yields, after intervals of months, a little mass of whitish mucus, as if in the absence of physical stimuli, the only excitement to secretion kept up were that depending on a material in the blood destined to be excreted, and to excite especially the follicles in question.

Capillary injection from local stimulation is always confined to the part affected and its immediate vicinity. If the inflammation spread, it is because the capillaries suffer from defective blood. The limited redness round a repairing wound indicates that an equal extent of the capillary system has been deprived of its due share of nutrition. How long a scar remains red in cachexia. If contiguous sympathy be more widely manifest, it is because the blood is failing of due nutritive power. If morbid deposits occur, it is because the blood supplied is still more seriously perverted.

As to salivary secretion, motion alone is often insufficient to produce it; yet it is the first cause, to which capillary injection follows; and it is of course essential to the exudation that the blood should be prepared with fluids to part with. Those who have dined off dry food, or labored in the tropics, will perhaps admit both force and truth in this remark.

It is not plain that mental sympathy with pressure will make tears ooze out or saliva. Drinking, fear, or cough, may cause perspiration.

It is probable, or at least possible, that the action of purgatives (as such) is much more simple than it is usual to teach. The peristaltic action of the bowels depends, first, on the presence of sufficiently massive contents; and, secondly, on the due nutritive excitement of the muscular fibres. The action of the heart itself is regulated by distention and nutrition, and perhaps such stimuli as wine. We know nothing of purgatives which specifically increase the peristaltic action of the intestines, and even the effect of bile in this respect is at least doubtful.

The common property of purgatives is that of exciting secretions, but this effect is not confined to the track of the bowels. The kidneys, the skin, or the bronchial membrane may share in it, or even be at times solely affected; and the stomach, the small intestines, and the colon are singly and especially liable to be acted upon by particular secretory stimuli in the blood. It is true that certain matters directly applied excite fluid secretions in the mouth, as in the nose, and so, perhaps, throughout the bowels. When purgatives disturb the system (not by depletion), and excite other than bowel secretions, is it not by absorption? Purging from cold, ischuria, or inunction seems also of humoral origin. There is no case in which solution, and transudation, and a free circulation of the purgative may not take place. The more certain catharsis of larger doses—as of turpentine, antimony, &c.—may be referable to directly excited secretion. It seems natural that secretion being very active in one part, other emunctories should be almost quiescent. A more equal action is, however, often observable.

It is highly important to consider that, when one emunctory is already excited, it may be more susceptible of excitement than any other, even by agents which do not usually affect it. Thus alcohol becomes particularly diuretic, water a diaphoretic, antimony a purgative. Thus temperaments, temperature, and habits, modify humoral actions, retard or accelerate, sometimes with advantage, sometimes fatally. The physician is required to understand the complicated balance, and the causes of disturbance, and to take advantage of them. Various medicines, which seem to act on the kidneys, are recommended in renal diseases, and some with an apparent refinement of reason; but, for our own part, we consider that the over-acting organ should only be relieved, that one actively perverted in function is hardly to be set right by irritation, and that a gland *contracting* after excitement is best left to itself. Spare the sick horse to do what it may.

In some experiments, which we not long since witnessed under the directions of Dr. Addison, half a drachm of strong prussic acid was put into the stomach of a rabbit, and, in two cases, at about the 45th second, there was some spasm of the respiration; at the 70th, convulsions; and, at the 100th, death. In a third experiment the porta was tied, and the œsophagus, and the same dose injected, as before, directly into the stomach. The animal died in the most quiet manner possible in the course of 6½ minutes.

This result, we conclude, was produced by the very gradual transmission of the poison into the blood through the coats of the stomach and the surrounding tissues.

The researches of Dr. Addison and Mr. Morgan have, perhaps, been of much greater service than is commonly allowed. The experiments they relate are particularly ingenious. The blood being contaminated by poison, and all functions rapidly involved, whatever subsequent explanations have arisen, and whatever the course and result of many subsequent experiments, very much, if not actually guided by the labors of these gentlemen, is at least happily illustrated by their truly original contribution to the department of science in question. Their facts are new and good, although we now infer that it is by circulating in the capillaries that poisons and remedies have their especial agency.

In the month of June, 1836, a lady, about fifty years of age, who had more than once been anasarous, but was at the time tolerably well and active, became suddenly seized with hemiplegia. Rather active bleedings and purgatives were employed for four days, when some pyralism was induced, and the chief disturbance consisted in impeded deglutition. She readily helped herself in and out of bed. In consequence of the absence of alvine evacuations, an enema of oil, water, and flour, was now employed; but this not being returned, a second was administered on the following day, and also another on the third day, with the addition of about a tablespoonful of turpentine. On the fourth day the only defecation was a little whitish, pasty matter. The urine had been copious and dark, and not albuminous. Others have seen, as well as myself, a terebinthinate enema causing excessive diuresis or dysuria.

Emetics.—Air, or water, or food, distending the stomach, acts as an emetic. Vomiting may begi

from tickling the fauces, or reverted peristaltic action in the strangulated ileum. Fright, pain, venesection, or a blow on the head, act as emetics. Mustard or caustic in the stomach, and medicines in the stomach or the blood, cause emesis. Copious secretions in the mouth and stomach are among the general effects of antimony in the blood. The general signs of depression we attribute in part to the same cause; they may pass off without vomiting, after the several excretions have abstracted the circulating evil.

In a case where it was desired to induce faintness, eight grains of tartarised antimony in divided doses were administered in the course of six hours, at the end of which time little or no effect had been produced, and the whole antimonial wine and water seemed to be simply rejected. The subject of this attempt was a somewhat delicate middle aged lady. The like plan on the following day, avoiding the few drachms of wine, had the same result. Here appears to have been little or no absorption, and consequently almost no general disturbance. Subsequently in bed this patient had a little diaphoresis and evacuation by the bowels.

The modus operandi of expectorant remedies is probably simple enough, although their name is scarcely just. In the wide sense they are medicines which relieve bronchial obstruction, whether depending on turgescence, inflammation, or secretion. As the horizontal position induces bronchial congestion, so the upright position alleviates it. Inflammatory injection is relieved by all the means of depletion, of which the exciting of general or remote secretions (as expectorants do) is doubtless a material part. In chronic states, continued exercise determines general activity of functions, mechanically and humorally, and so the chest is relieved. All excito-secretory agents which affect one or many organs out of the chest, ease respiration. Abstinence and diluents may both act as expectorants. The tripartite theory of therapeutic and morbid acts is touched upon in a set of papers on Angina, in the "Medical Gazette," 1841.

In an unhappy case which we witnessed some years since, the enema tube of Dr. O'Beirne pierced the rectum, and the salts and senna were injected, as we must presume, into the peritoneal cavity; the patient suffered extreme distress, and survived only about three quarters of an hour. There were traces of active inflammation, and but small remains of the injection in the pelvis. The subject was an old man in whom the taxis had returned a hernia with its sac and all. As to the absorption from the peritoneum, there are, doubtless, numerous and more accurate, though not more impressive examples. The rapid and ceaseless washing along of soluble materials, by the surrounding capillary circulation in the stomach or pleura, may be understood with very little reflection. The causes which determine, expedite, or retard or prevent absorption in a given case, are probably very complicated.

The quantity of the blood, its constitution, the activity of excretory organs, the freedom of the heart and lungs, the ready control of these organs by the brain, the external temperature, are so many decided modifying regulators of absorption. Compress a venous trunk, and dropsy begins; remove the pressure, and absorption has play. Leeches to the

cheek in a leucophlegmatic may cause local dropsy without a blush.

With regard to direct local remedies we would observe that there appears great want of precision on almost every side. In the case of superficial affections the remedies may, and often do, act chiefly constitutionally; and with respect to deep disorders, whether we use cupping, blistering, heat, cold,* iodine, or mercury, how can we sanction the inference of successful treatment but by general actions on the body? It should be remembered that many cases require only the simplest local application (rather the exclusion of external agency), and also that many depend on constitutional treatment; after these considerations, the use of local applications as specifics may be deserving of attention. In the use of cold and friction, the greatest mischief may be effected for want of a just appreciation of the whole influence.

We know little of medicines *which specifically promote absorptions*, and atrophy of new or original growths. The result seems to depend specifically on the state of the general system. Pressure is a direct means of exciting absorption; abstinence and depletion are indirect means; and exercise, as it wastes the circulating mass, acts in the same way. A combination of these resources, including some of the most general evacuant remedies, is most powerful. On the other hand, these same agents, carefully regulated, with a view to restore the balance of health when it has been seriously disturbed, possess a tonic and even nutritive tendency. With plenty of good blood, frictions and use induce hypertrophy of parts.

It does not yet appear that mercury, iodine, purgatives, or venesections, have any but one mode of inducing absorption. The effect of either of these may be very various in different cases, whether we regard the blood, individual secretions, or particular disorders of the body. To diminish the former, remove its fluids, and alter its constituents, may be only distinct depletory acts. Declining nutrition differs from absorption only in degree. To attempt, by medicines, to dissolve a solid tumor within the body, is like striving to melt the centre only of a mass of ice.

Remedies which diminish secretion, when they are needed and prove effectual, are called tonics, but, as they are not specific local agents, they are liable to prove quite the reverse of tonic; fever, increased discharges, and debility may result from their use. If they arrest several secretions, we should expect that the result may be the aggravation of one already too active—as inflammatory diarrhoea. The tonic effect here spoken of does not seem very obscure. A fuller and more equable humoral distribution approaches a restoration of the healthy balance of all functions. The mode in which mercury arrests a diarrhoea seems to be by exciting other secretions; when balance being restored, all subsides together, and new nutrition re-establish health.

By exciting various excretory organs we may establish a balance of actions which subsequently may maintain itself; so ipecacuanha acts. Free diaphoresis or a hard ride shall even absorb the liquids of the rectum, as many are aware. Much in

* We have referred to the humoral effects of temperature in recent "Considerations on Climate," in this Journal.

this case, as in the rapid removal of a bubo, depends on the actual condition of the frame. The tonic or astringent circulating in the blood, in the first hours of diarrhoea, aggravate the disorder; not so the mercurial; but when the affection is chronic, variable, or ready to decline, the opium or kino is much more flattering to the skill of the physician. Even wine and a walk (well clad) shall put an end to certain cases of gripes and looseness.

The first effect of alcohol on the capillaries in which it circulates may be of an astringent or tonic kind, to which succeed arterial delay and increased cardiac impulse. A strong, and at the same time equitable, distribution of blood with but tardy diminution by excretion or nutrient deposit is for a time quite consistent with a sense of vigor, and this depends more on the state of the whole than on that of a part of the brain. As the venous blood gets diluted or depurated by secretion (or both), capillary relaxation should succeed, with as much nutrient deposit as the blood can spare, and as much of different secretions as there are specific matters in the blood to determine. Lastly, comes the hungry need of renewed stimulus. Palor and tremor are not merely nervous. Every fibre and tube is wrong for lack of due nutrition and support.

The effects of opium resemble the above; they are by no means confined to the brain. The more these agents act universally, the less is there danger from the oppression of any one organ. A large juicy frame, a copious digestion, abundant activity, may save the kidney or the liver from being especially acted on and overwhelmed. With alcohol and much clothing a coachman may protect his kidneys from being overtaken by cold; but when excessive and deteriorated renal function has commenced, what clothing will prevent alcohol from aggravating the evil? Still we dare not disregard the wants of all the organs which long habit may have rendered it imperative to allay.

In delirium tremens it might seem that the abrupt diminution of habitual stimulus leaves the circulation and excretory acts devoid of indispensable support. Depurations fail, and digestion also, and the body is more affected by cold and the like. We need not wonder, then, if inflammations, effusions, or delirium should supervene.

The blind outcry against spirits, is but very partial wisdom. The poor cannot buy wine, and they need support. There may be no more precious and generally required prescription than a dram to a crude meal or a basin of gruel. If any would exclaim about the danger of certain truths, let them be as busy as they will to prove it. Shall we make the weak suffer more, for fear lest the strong should suffer as much? A poor sickly, laborious, mother has "taken the pledge," and she must keep it, but in our judgment a good deal of rum would not have distressed her so much, nor have destroyed her so soon. We give her tinctures and opium, and her duties are made easy, and her heart should be thankful. The pride of abstinence is often but another intoxication.

Nutrients.—These are direct or indirect. The direct consist in good food, to which are essential natural digestion, circulation, and excretory depurations. The

indirect are those which restore health either by retarding undue secretions or by stimulating tardy emunctories.

Moderate degrees of pressure, friction, mechanical exertions, or even secretory or nervous excitements, lead to increased capillary supply of parts; and if the blood abound in the specific nutritive matter required by bone or gland, increased development results, or atrophy, or worse, may be the consequence of humoral deficiencies.

Bodily exercise, kneading, and stretching every part (shampooing), induces an universal call for nutrient and secretory changes, and thus is a powerful means of affecting the constitution of the blood. In moderation, it invigorates and equalises all function. In excess, it exhausts. With depletion or debility, it only aggravates the evils. With undue repletion, it oppresses the system, or rather certain parts, physically. In particular diatheses, or different cases of local affections, exercise acts in various ways, humorally, or physically, or otherwise, which the physician should consider carefully if he would employ it safely and well.

To close our sketch for the present, we may sum up various changes in the blood which affect the condition and action of all the organs of the body—consistently with health, the essence of disease, or inducing recovery, there are humoral agents. The right use of them must form a great part of the resources of the physician, who would not foolishly interfere with the intricate œconomy of the living body in the season of difficulty.

36, Bedford-square.

CASE

OF

ASPHYXIA FROM HANGING, TREATED BY BLEEDING.

By E. J. SHEARMAN, M.D.,

Licentiate of the Royal College of Physicians in London, &c.

On the 16th ult., at half past one o'clock, p.m., a very powerful, athletic man, named John Williamson, with his wife, were committed to Wakefield, by Henry Walker, Esq., to take their trial at the next quarter sessions, for stealing a silver spoon from the house of the Rev. Mr. Speare, of Kimberworth. At two o'clock the same day the man was found by the gaoler's wife, apparently dead, hanging by his own handkerchief to the grate of the prison; only forty inches from the ground. He was cut down. I saw him half an hour after the occurrence, and recovered him from the immediate effect of his suffocation, but he died at nine o'clock the following morning, without any sufficient evident cause. An inquest was held on the body on the following Saturday, and a verdict of temporary derangement returned.

When I first saw him he was apparently lifeless; he neither breathed, moved, nor had any perceptible circulation. He was lying on the straw bed in the prison, his face and neck much swollen, and of a blackish color, the ecchymosed mark of the cord being immediately below the thyroid cartilage, his fingers bent, and hands nearly clenched. I immediately had his head raised, the windows and door opened, and opened a vein in his arm (in preference to