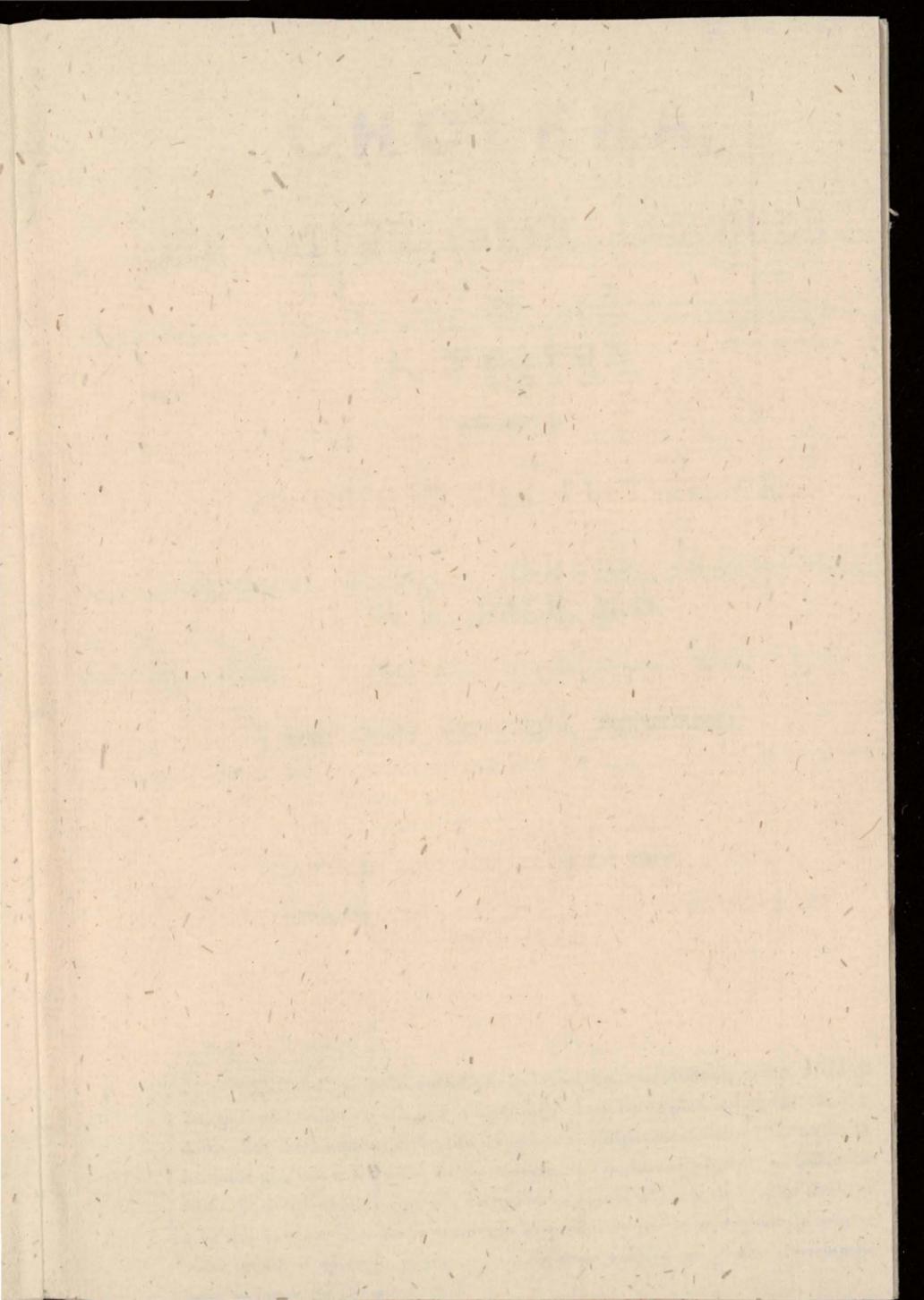
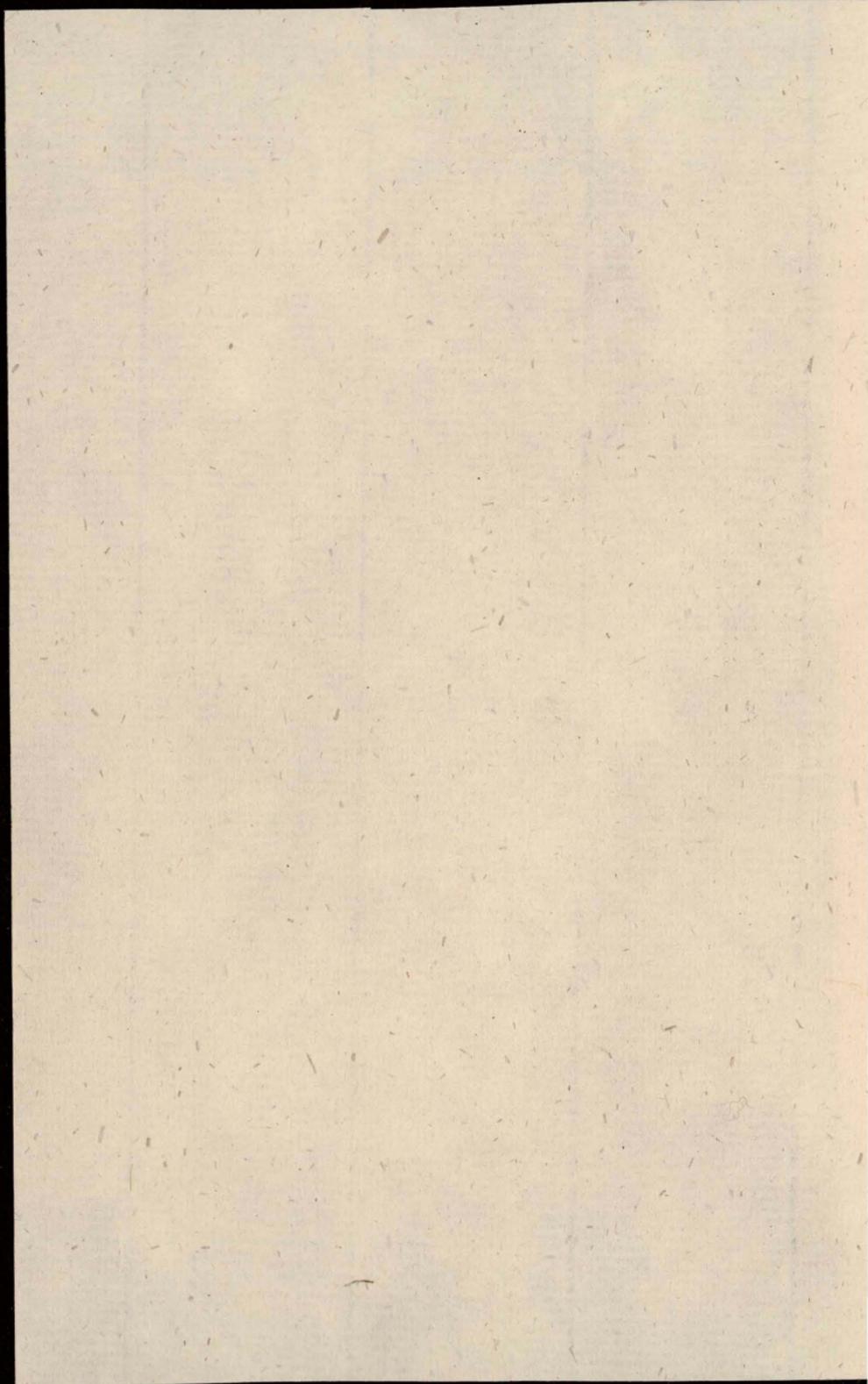


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CHOLERA,

ITS NATURE, CAUSE, AND CURE:

OR

A WEAPON

WHEREWITH

TO OPPOSE THE PESTILENCE.

BY W. DALE, M.D.

SECOND EDITION, REVISED.

WHEN DANGER COMES, ALL MEN SHOULD ARM.

KNOWLEDGE IS THE ARMOUR THAT SHIELDS THE HEART
FROM FEAR.

“The epidemic influence of Cholera does not arise from some new cloud of venom floating above reach and control, high over successive lands, and raining down upon them without difference its prepared distillation of death; but so far as scientific analysis can decide, it depends upon one occasional phase of an influence which is always about us, on one change of materials, which in their other changes give rise to other ills—these materials so perilously prone to explode in one or other breath of epidemic pestilence, *are the dense exhalations of animal uncleanness.*”—*Times*. 2d December, 1853.

CHOLERA
ITS NATURE, CAUSE, AND CURE

DEDICATION.

—o—

TO THE EXECUTIVE OF THE

National Medical Reform League,

THE FOLLOWING PAGES

ARE RESPECTFULLY INSCRIBED,

BY THEIR FELLOW-WORKER IN THE CAUSE OF MEDICAL REFORM,

THE AUTHOR.

KNOWLEDGE IS THE ARMOUR THAT SHIELDS THE HEART
FROM FEAR

WHAT DARKER GHOSTS ALL MEN SHOULD FEAR

The epidemic influence of cholera does not arise from some new cloud of
recondite miasma, but from the gradual, high over successive lands and raising
down upon them without lifting the general distillation of death; but so far as
scientific analysis can decide, it is a seasonal phase of an influence
which is always about us on our globe, and which is their other
give rise to other ill—these materials so thoroughly prove to exclude in one of
other part of epidemic cholera, as the clear explanation of actual cholera.



A LETTER

TO THE PEOPLE OF GREAT BRITAIN,

ON THE MOTIVES THAT HAVE LED TO THE PUBLICATION OF THE
FOLLOWING PAGES ON THE FATAL EPIDEMIC,

CHOLERA MALIGNA.

On the morning of December 21st, at six o'clock, I was called on by a working man to visit his wife, whom he described as having been taken with cramps about three o'clock the same morning. I went with him to his house, 115 Garscube Road, Glasgow. I found the woman scarcely breathing, and her breath cold, no pulse perceptible in the wrist—hands, arms, and legs cold, and a general blueness over the whole body. She had been purged a good deal, and was then vomiting rice-watery fluid. Nothing had been done for her, except hot irons put to her feet, for the man had no medicines in the house; a poor fire was on, and as soon as hot water could be got I gave some cayenne and brandy in hot water; this was vomited. I repeated it, with the addition of Botanic composition powder, after which she neither vomited nor purged. The medicine was given every half hour, until the patient dozed. Hot bricks to the feet, and flannel cloths wrung out of hot water to the abdomen, were applied: and it was attempted to give a hot salt bath, but from want of sufficient water and a tub large enough, this could only be applied to the feet and legs, hands and arms, with friction. She was laid in the bed again, and surrounded with warm things as far

as means at hand allowed, and she breathed a little better. I left her, and returned again in two hours with other medicine, after giving some of which she revived sufficiently to tell me she felt better. When I was about leaving her again, she asked for whisky, and as she seemed anxious for it I allowed her a little, and she fell into a doze. At eleven o'clock I again visited her, and found her expiring. From the colour of the body and the almost entire absence of pain and excitement, the colour and nature of the vomit, and the briefness of the illness, and the perfect coldness of the breath and surface of the body, and its clamminess, and the fruitlessness of our exertions to restore warmth and circulation to the extremities, I concluded this was a case of genuine malignant cholera, and in consequence felt somewhat alarmed and anxious for the safety of the family. I examined the house, and found the walls dark-looking and damp. The whole place had an air of discomfort; the woman had been washing for two days previous, and had been drying her clothes in the house; damp stockings were hung around the bed-place, and undried clothes on lines. I examined the close or yard, and found *one* wretched dirty old petty or closet for the whole pile of houses, and near to it some small houses where animals were kept, with much filth about them, and human excrement in the channel of the yard and near to the closet.

I found, on inquiry, that the woman had four children and five men to do for. No wonder that the children were not very clean, nor very warmly clad and taken care of. She bore the reputation of being a most industrious woman; but had she worked the whole twenty-four hours she could not have kept things as they should be, under such circumstances, with very small means. I gave instructions to the man to see about everything being cleaned, and how to use chloride of lime. Three days after I was called, at half-past nine, a.m., to go to his little girl, four years of age. I found her in a similar condition to the mother, except that she was in a colder room, *without any fire*. I ordered one to be made, and stayed with her, gave her medicine myself, and did what I could to get her warm. She neither vomited nor purged after she got the medicine, but she was too far gone to restore heat. She died about eleven o'clock. On the same day the man himself began to be unwell. He took some medicine, and felt a little better. Next morning he called on me, still feeling sickly, having

nervous and cold tremors running through him. I gave him a vapour bath and a vomit, and some anti-cholera powder after it. He felt better, and imprudently went to the child's funeral. The day was cold and damp. He was worse at night. I again was called to visit him. Whilst with him he vomited about two quarts of rice-watery fluid. He is a very big, stout man. I gave him some neutralising mixture, made him keep by the fire, ordered him to take more anti-cholera powder, and bethink him where he would go to, for I was determined he must leave that house. He soon felt better, and at half-past seven p.m. came down to see me. He did not know where to go. Nobody was willing to receive him. His father had been threatened with dismissal by his employer if he received him into his house. He found some place at last, and carried out my instructions. That night I was taken ill myself; but by taking the medicines and keeping close to the fire till I perspired freely, I soon got better. I was weakly in the morning, when I was again called to see the man. I did not go, but sent orders for him not to leave the fire, and to apply hot bran in flannel to his abdomen, and to keep on taking the medicines. He did this with the help of a young fellow, and at noon that day he was well; but one of his little boys had died during the night. It is of the highest importance that the remedies should be applied in the first stage of the attack, and that they should be applied vigorously; therefore every man in this case should be able to be his own doctor.

On Sunday evening, December 25th, 6 p.m. I was called to visit a woman—Mrs. Miller, Tayfield Street—who had been ill about twelve hours. I found her daughter, 11 years old, a corpse in the house. Two doctors had been called to her, and she had died after sixty hours' illness. The mother, in order to warm the girl, had, very imprudently, got into bed to her; and now she was vomiting and purging every half hour or so, and her limbs were full of cramps. She had received some assistance, but with no apparent benefit. I had her laid on a mattress before as good a fire as could be raised, and applied the means as described in the following pages. She only vomited once after she got some medicine, and about two o'clock in the morning she had a complete change for the better. A little while after she took some tea and gruel.

The husband of this woman had applied to a district doctor, one appointed by the town to give medicine to the poor. The doctor said he had no authority to act, but said if he called again in a quarter of an hour he would trust him some medicine. The man thought the sympathy shown was too small for his acceptance, so applied elsewhere.

Now, because of the ignorance of the people, and because of such things as I have mentioned, the fatality of the disease, the necessity of promptness, the ignorance of many doctors with respect to this complaint, the timidity and indifference of others, where there is no great fee to be had, these are my reasons and motives for giving to all men the knowledge of the best means to be used.

I have given the prescriptions in plain English, so that the medicines may be obtained wherever there are Botanic Depôts or Herbalists. Had I not witnessed what I have lately witnessed I should not have published in so cheap a form so much useful information; and, as the medicines require to be made of articles of the best quality, I warn the people not to depend on Chemists or Druggists for them, as they have no knowledge of some of the articles, and those that they do keep are so much adulterated that no dependence can be placed upon them. It is villainous to adulterate food; but to adulterate medicines I think is doubly villainous, and I am astonished that the people of this country do not protest in such a way against this practice as to cause the government to inflict a heavy penalty for it.

For myself, I think there is an item in adulterated food which contributes to the production of epidemic diseases, or at least subjects the body to their influence, which is of more importance than it is generally considered to be.

Trusting that this little stone, thrown into the breach, may help to stem the torrent of the enemy, and that all men will lend a willing hand for the same object,

I remain, yours truly,

W. DALE, M. D.

THE NATURE OF CHOLERA,

AND THE CAUSES THAT PRODUCE IT.

In order to understand the nature of a disease, Cholera for example, it is necessary to take a view of the processes that are being carried on within the human body in a state of health, and to contrast these with the abnormal conditions that are presented under the influence of the disease—to observe the difference of the bodily circumstances in the one case and in the other. In health we find the body possessed of a certain temperature or warmth above that of the surrounding atmosphere—the respired breath of the body of a higher temperature than its surface—the lungs taking regular and full inspirations—the oxygen of the atmosphere inhaled combining with the elements of the blood—the blood circulating with full and regular force—the caloric (heat) of the body is kept up—a gentle warm vapour is given off by the skin—a warm agreeable mucus covers the mucus membrane of the mouth and throat—the stomach and bowels proceed in the performance of their respective offices without the individual being sensible that they are doing anything, or that he has such organs at work, until hunger admonishes him that they need a supply of material. The excrementitious matters are regularly evacuated, are of a proper colour, quality and consistence. From this condition and state of things let us look at what is going on when the body is under the influence of the disease we have under our immediate consideration.

In Cholera we find uneasy nervous sensations running through the whole body, and especially locating about the stomach and bowels—meal-time comes but no appetite—the mouth is colder than usual, and the mucus membrane lax, and from it oozes quantities of cold thin fluid; similar fluid is oozing into the cavity of the stomach and into the bowels—the stomach feels disturbed, there is slight pain and a deal of

uneasiness about what is called the *pit* of the stomach (immediately below the breast bone)—much cold wind or gas is belched up, and a feeling of general languor, prostration, and undefined alarm creeps over the body. As the disease proceeds, vomiting and discharge by stool of a blue-greyish thin fluid (called rice-watery) takes place—the surface of the body is colder than the atmosphere, and covered with a clammy damp; the lungs inhale the air slowly, not fully, and it returns or is expired as cold as it is inhaled—the oxygen does not combine with the elements of the blood to half the extent as in health—animal heat is not generated—motion almost entirely ceases—the extremities become perfectly cold—no pulse is perceivable in them—the eyes turn up—there appears to be no pain except the pains of cramp—no sighing, struggling, or signs of oppression, as in fever, which indeed there is not, for this disease is the opposite of that—and so the patient cools out as does a fire from which is excluded oxygen, the grand supporter of combustion.

Let us return to the consideration of the primary conditions of the maintenance of animal life. These are a constant supply of certain suitable food matters, and of oxygen in the atmospheric air. During every moment of life oxygen is absorbed from the atmosphere in the organs of respiration; when this absorption ceases, life ceases; when the capacity for effecting this absorption is diminished, the capability of living is diminished.

Lavoisier and Sequin, from experiments made with a view of ascertaining the facts, assume that an adult man absorbs into his system $32\frac{1}{2}$ ounces of oxygen daily—that is, 46,037 cubic inches 15,661 grains, French weight; and, further, that the weight of the whole mass of his blood is 24 pounds, of which 80 per cent. is *water*.

The oxygen absorbed does not remain in the body, but is given out again in combination with carbon and hydrogen, elements derived from the food into the blood, and passes off in the forms of carbonic acid and the vapour of water.

From the known composition of the blood, we know that, in order to convert its whole amount of carbon and hydrogen into carbonic acid and water, 64,102 grains of oxygen are required; in an ordinary state of health this quantity will be taken into the system in four days and five hours.

From these facts we see that if the supply of food matters was entirely stopped, and the combustion, evaporation, &c. of

the body were to proceed at the same rate as though they were supplied, it would require four days or more to consume the combustibles and evaporate the water off the body; consequently that it would be this length of time before the operations of life ceased. But men deprived of food matters live about 14 days. This is because the processes of life proceed more slowly when the usual supplies are not continued, and because not only the blood but the muscular and nerve fibres are also consumed. This is a beautiful manifestation of divine wisdom exhibited in the endowment of our organisation!

A person attacked with malignant cholera dies, if he gets no assistance, within twelve hours—often within six hours of the attack.

From this we see that the absorption of oxygen from the air, by the respiratory organs, the lungs and skin, the combination of oxygen with the carbon and hydrogen of the blood—the generation of caloric and all the other processes of the body dependent on these—have not proceeded in their usual way—that the body has not been consumed.

The question that naturally arises from this consideration is, why have not the natural processes of life proceeded in their usual way?

The answer to this question involves an explanation of the causes that produce cholera and the pathology of the disease. The quantity of oxygen received by an individual through the respiratory organs not only depends upon the number of respirations, but also upon the condition of the respired air, and the complete dilation and expansion of the lungs. The weight of the air, and consequently the quantity that the same volume contains of oxygen, is not constant.

Air is expanded by heat, and contracted by cold; most material bodies are the same—the vapour of water, also, and other gaseous bodies floating in the atmosphere, displace its particles—an equal volume of hot and cold air, dry and moist air, contains, therefore, an unequal amount of oxygen. In summer atmospheric air contains more water in the form of vapour than it usually does in winter; but it also contains more caloric—that is to say, its temperature is higher.

The air is warmed during respiration, and acquires the temperature of the body by the time it reaches the cells of the lungs. It is colder and heavier in winter than in summer, consequently requires more heat to warm it; but it usually contains less moisture and more oxygen in a given volume, so that if more

heat is demanded, the element that supports heat is more liberally supplied. Say that in summer and winter we inspire an equal volume of air—that the volume of oxygen in a given volume of air is smaller in summer than in winter—we see by this that in order to introduce into the lungs a given amount of oxygen, a less number of breathings is necessary in winter than in summer; but as more caloric is required to warm this heavier, colder air, and to maintain the temperature of the body, when surrounded by air at this temperature, more oxygen is required from the air, and more carbon from the food, and less hydrogen from that in winter than in summer. And when these conditions of food and air are maintained, the body is as well circumstanced for maintaining its health in winter as in summer. But when the air is both cold and damp, contains much moisture and much carbonic acid gas, and some phosphureted hydrogen given off to it by decomposing animal matters, and by animal respiration, the amount of oxygen supplied to the lungs in a given volume of air is so much diminished that the necessary quantity for the combustion of the carbon, the evaporation of the hydrogen, and the maintenance of the caloric of the body, is not received. The complete oxydation of the blood under such circumstances is no longer effected.

“In the animal body heat is produced only in those parts to which arterial blood, and with it the oxygen absorbed in respiration, is conveyed.” Animal heat is produced in quantity in proportion to the quantity of oxygen absorbed, and is equally diffused throughout the body in proportion to the equalisation of the arterial circulation. In Cholera, the skin of the body becomes cold and lax—the mucus membrane of the whole intestinal tube becomes in a similar condition—there is no arterial circulation in the capillaries with which they are supplied—there is no caloric (heat) disengaged in these parts—the extremities, hands, feet, arms, and legs, become cold—no *pulse* is felt in them—their temperature is so low that if they are immersed in water, that feels to a healthy person but a little warmer than the hand, it feels to the patient burning hot; substances are hot or cold to our sense in proportion to the heat or coldness of our bodies.

What little arterial circulation is carried on when the disease is thoroughly established is mostly confined to the region of the heart and lungs, as the last organs that can do without it

The mucous membranes and skin, as all physiologists are aware, are in their nature and composition highly nervous—a lax flabby condition of these indicates a deficiency of nervous action—the cessation of their functions, as in this disease—the absence of the mucous secretion, and the vaporous excretion—proves how completely prostrate is the nervous system.

From consideration of the foregoing facts, what do we perceive the nature of this disease to be?

First, A loss of vital heat.

Second, Nervous prostration.

Third, A diminished capacity for the absorption of oxygen from the atmosphere, which is in an unfavourable condition for supplying it.

Fourth, A deficient oxydation of the blood.

Fifth, A deficient arterial circulation, manifested first in the capillaries of the membranes.

Sixth, Special prostration of membraneous action, and suppression of perspiration.

Such is the nature of this disease, and the manner in which the body is affected by it. And having seen what condition the body is in under its influence, we may turn our attention to the means of cure. But, previous to doing this, let us further consider the causes that produce Cholera. The remote causes that tend to produce Cholera are—impurity of the air, arising from dampness or moisture, from gases produced by animal respirations, and from the decomposition of animal and vegetable matters—impurity and poverty of diet, such as stale or diseased vegetables and animal substances,—weak sloppy broths, and the *too frequent* use of water porridge, sour milk, and acidous substances of any kind, unripe fruits, and of ardent spirits and beer, excessive labour, insufficient clothing, and whatever exposes the body to too much exhaustion, or prevents free and perfect respiration, such as uncleanness of person and clothing, damp beds, and damp clothes.

To avoid the consequences, avoid these causes as far as your means allow.

The immediate cause, as before stated, is loss of vital heat, or deficiency of vital circulation, which are identical.

The animal body, as a heated mass, may be regarded as bearing the same relation to surrounding objects as any other heated mass. It receives heat when the surrounding objects

are hotter, it loses heat when they are colder than itself. So that the colder the surrounding objects, the air for instance, the greater demand for heat on the human body, and therefore the greater necessity for rapid combustion: and this is the natural stimulus to combustion, for if the air surrounding a fire could be heated above the heat of the fire, the fire would quickly die out; and when the temperature of the body, from whatever cause, is reduced to the temperature of the surrounding atmosphere, the fire of life dies out.

The rapidity of cooling increases with the difference between the temperature of the heated body and that of the surrounding medium; that is, the colder the surrounding medium, the shorter the time required for the cooling of the heated body.

Cold moisture applied to a heated body is evaporated or rarified. This abstracts heat from, or cools the heated body to which it is applied, whether it be the internal or external surface of the animal body, or a piece of hot iron. Cholera maligna may be considered an acute disease, on account of its suddenness, energy, and quickness of termination; but it is not of that nature of acute diseases called inflammatory or febrile; on the contrary, there is total absence of fever: and the cause of death in cholera is the opposite of that in all chronic complaints. Liebig truly observes, that the cause of death in all cases of chronic disease is the same, namely, "the chemical action of the atmosphere" upon the elements of the blood, which, as it becomes exhausted of carbon and hydrogen, supplies itself with these elements from the fat of the body, and, when that is exhausted, from the very muscular and nervous tissues. Death in cholera, on the contrary, results from *non-combustion* or *non-oxidation* of the elements of the blood. I account for this in the following way: There are conditions of the atmosphere which are offensive to the sense of the respiratory organs—conditions of the atmosphere which are also exhaustive of the respiratory energy; when the body is exhausted from other causes, it is less able to combat with these atmospheric difficulties—the pores of the skin become closed and contracted—oxygen is no longer absorbed from the atmosphere through that membrane. The same effect is produced upon the membrane of the lungs—arterial circulation ceases in these tissues—no heat is generated in them—the air falls cold upon the skin, and it rushes slowly and coldly into the lungs, and returns from them at the same temperature that it goes in.

The blood, no longer oxidised, becomes homogeneous—in other words, the arterial and venous blood become mixed, and form one mass—the arterial system is unsuited to the circulation of this condition of the blood, and this condition of the blood is unsuited to the purposes of life. The *liver* makes a futile effort to cleanse it—throws out a quantity of half-digested bilious fluid, which soddens and relaxes the mucous membranes of the intestinal canal—they make a weakly effort to throw out the offensive carbonaceous and hydrogeneous matters; as they part with one quantity, another comes pouring in from the hepatic ducts and veins—the whole serum of the blood flows out—there is general collapse, and finally death!

In further confirmation of this theory, I may remark, that in this disease there is a complete suppression of urine, which proves that the kidneys, deprived of a supply of arterial blood, on which they depend for active energy, cease to act; thus the acidous particles of the blood, that form uric acid, the ammonia, &c. which are usually excreted in form of urine, as well as the acidous particles thrown off in form of lactic acid by the skin, are retained within the system, and contribute their quota in producing a dissolution of the blood, destruction of life, and rapid mortification of the body.

“The serum of the blood contains in solution sea salt and other salts of potash and soda, in which the acids are carbonic, phosphoric, and sulphuric.” These, in a state of health, are eliminated from the blood by respiration, the urinary secretion, &c. These excretions being suppressed, they are, consequently, retained in the blood in such quantity as to be poisonous to life. The sense of life resident in every portion of the body is roused to an effort of resistance, dislodgement, or expulsion, which becomes the greater as the ordinary roads of exit are the more completely cut off.

Under these circumstances, in place of the ordinary process of absorption being carried on from within and from without into the blood stream, a reverse action is excited; there is a general effort made to get rid of this portion of the blood itself, on account of its now poisonous nature, and, together with the poison it contains, it is poured into the cavity of the stomach and bowels. The fibrinous (in health the red) portion of the blood being deprived of a fresh supply of oxygen, its carbonaceous and nitrogenous portions not being removed as usual, becomes altered in character to a dark thick, greasy, carbonic, phosphatic mass.

As has already been said, animal heat is supported by combustion of the carbonaceous particles of the animal body, effected by the oxygen of the air. The animal fire, like the chemical fire of the coal, is continued so long as the conditions of fuel and air are supplied: with this difference, that the chemical fire may be continued for any length of time, whilst the animal fire can only be continued so long as the peculiar animated machinery within which the fire is carried on is capable of motion, and kept in motion. If we apply to a chemical coal fire a stream of nitrogen gas, the fire is extinguished or ceases immediately; in like manner, if an animal is by any means cut off from a supply of atmospheric air in its usual condition, or made to inhale carbonic acid gas, (choke damp,) the fire of life is immediately extinguished; but there are other causes that may extinguish the fire of life that will not extinguish the chemical fire, and the chief of these causes, and those I wish to call particular attention to, are coldness, or lowness of temperature of the surrounding medium and its moisture.

Now, any amount of coldness of the air will not extinguish the chemical fire so long as fuel is supplied—on the contrary, it causes it to burn the faster and brighter because of the increased supply of oxygen; but coldness will extinguish the animal fire, because the heat is abstracted from the warm animal body by the surrounding coldness, in proportion to its degree; and as the animal capability of generating heat is limited and defined, the demand may be greater than the capability of supply.

Moisture abstracts heat from the body in a similar manner, and it is not necessary that the temperature of the moisture should be very low to do this, for any moisture is evaporated by a heated body that is of a higher temperature than itself, and this evaporation abstracts heat from and cools it.

The more rarified the atmosphere, the fuller of moisture, and of foreign gases noxious to animal life, the greater the difficulty the body has to supply itself with a sufficiency of oxygen from the air; and the greater the effort it has to make for this purpose, the less able is it to resist other injurious influences.

In winter, when Cholera is prevalent, or immediately preceding its prevalence, the air is highly charged with moisture; there is very little motion in it, so that the gasses given off by animal respiration, and by the decomposition of animal and vegetable refuse, are very slowly removed from the surface of

the earth, or out of dwellings, courts, or alleys. In summer, the atmosphere is highly rarified, as well as highly charged with foreign gasses; there is an almost death-like stillness in the air—its circulation, indeed, seems for a time suspended. The former state exhausts the ill fed or unhealthy body, by abstracting from it animal warmth (caloric); the latter by relaxing the vital energies, and by exciting immoderately the cooling process of evaporation: both reduce the temperature of the body, and at the same time deny to it an abundant supply of oxygen, by which its combustion and caloric are maintained: The vital force thus exhausted, the arterial capillary circulation ceases, the venous blood encroaches upon the arterial domain, the pores of perspiration and of absorption close, a due supply of the indispensable oxygen ceases to be absorbed by the respiratory process, and this is the immediate cause of death in Cholera!

That this is the true pathology of the disease is proved by the symptoms before enumerated. When I come to speak of the means of cure, I shall show how they act in restoring the process of oxidation and renovation of the circulation, and through that a restoration of heat.

With the nature of the disease, and the causes that produce it before our eyes, we may look towards the means of cure, and the effect to be produced by them. This latter is the restoration of the capacity for absorbing oxygen from the air—of recovering and maintaining a due proportion of animal heat, by an equalised and complete circulation of the nervous fluid and blood.

When it is remembered that those who are first and most violently attacked by cholera are the poor, who have the least means of defending themselves against it, on account of the poverty of their circumstances generally, I think it will not be denied that the causes I have enumerated are the *chief* causes of this most terrible disease. From the arguments adduced, we perceive, in proceeding to the treatment of this disease, our object to be, the restoration of the capacity for absorbing the oxygen of the air, in the proportion required for the oxydation of the blood, the generation of heat, the vapourisation of the watery particles, the restoration of perspiration, and the maintenance of complete general arterial circulation!

TREATMENT OF CHOLERA MALIGNA.

Place a mattress or bed on the hearth, near to as hot a fire as you can quickly raise—lay the patient on the mattress as near to the fire as he can bear—shield him from the surrounding cold air that naturally rushes towards the fire, by means of dry warm blankets, and if a screen can be placed around him by means of chairs, from the backs of which is hung down to the ground a counterpane or coverlet, let it be done. Let the patient be placed a little towards that side of the fire from the door so that any draught of air will not fall upon him. This being done, put to the back of the patient a bottle of hot water or a hot brick wrapped in a flannel cloth—place it as near to him as he can endure it—put another to the feet and legs—prepare a quantity of thick porridge, spread it on a petticoat or large piece of flannel, cover the surface of the porridge with good ground ginger or cayenne pepper, and apply it to the abdomen (the region of the stomach and bowels) next the skin, as hot as it can be borne. In place of this, if it can be readier got, heated bran in large quantity inclosed in flannel will answer the same purpose. To know when the poultice is as warm as it can be borne, let the attendant hold the back of the hand upon it for a minute. Instruct the patient to inhale the warm air as much as possible, and give the following medicines:—

ANTI-CHOLERA POWDER.

(Formula on Page 18.)

Of this powder put a teaspoonful, if for an adult, with as much sugar, into a cup—pour on it a cupful of hot water—stir it up, and give as warm as it can be taken.

Repeat this dose every half hour, until the vomiting and purging stops, and the patient breaks out into a warm perspiration, and the breath becomes of a natural heat and the cramps cease. When these effects are produced, the patient is in a favourable way to

recover, and the medicine may be given at intervals of an hour for three or four hours, unless the patient feels disposed for sleep and the full warmth of the whole body justifies it being allowed. If the patient does sleep, let some person watch by him, and if the surface of the body becomes cold, wake up the patient and give more medicine, and repeat the porridge or bran poultice. These, under any circumstances, should be repeated as often as they cool, until the apparent comfortableness of the patient justifies their discontinuance. After the medicines have been repeated once an hour for three or four hours, they may be given to keep up the warmth once in two or three hours, and then the anti-Cholera powder alone twice a-day, for a few days, until the patient regains strength.

NEUTRALISING CORDIAL.—This is prepared by pouring on one ounce of the Powder half-a-pint of boiling water, adding a quarter of a pound of loaf sugar and a quarter of a pint (a Scotch gill) of best French brandy. Cover over till cold, then strain through a piece of muslin or fine calico, and keep corked up in a bottle ready for use. Dose for an adult, half a wine glass every half hour till the vomiting and purging ceases.

If these medicines be given to young persons, the dose will be for a child of six or eight years, half the quantity; twelve to fourteen, two-thirds; between three and six, one-third; a child of two and under, one-fourth of that for an adult. It will be understood that if the attack be violent the medicines must be given alternately every quarter of an hour; that is, each medicine every half hour. If the attack be only mild, the medicines taken each three times a day, for a day or two, will be sufficient to cure it or any case of dysentery or diarrhœa.

The vomiting and purging are almost certain to stop within about two hours after this treatment is commenced; if, however, in any case they do not, a pint of infusion of the anti-Cholera powder should be prepared from a large tea spoonful, and given *blood-warm* by injection, for which purpose a large syringe or an enema should be used; or if thin gruel can be had, a tea spoonful of the anti-cholera powder may be stirred into about a pint (mutchkin) and given in the same way.

All that is required in giving an injection is a steady, firm hand.

Friction with warm flannel—corners of the blanket—as the patient lies by the fire, applied to the feet and legs, hands and arms, will be of service. I have tried friction with tincture of cayenne, but have not seen any more benefit result from it than from dry warm friction in this disease. The friction may also be extended to the spine with some advantage, or a mustard plaster may be put over the spine betwixt the shoulders for a short time.

When the patient is convalescent, food will generally be asked for; give spiced flour gruel, sago, arrow-root, or boiled ground rice, or rice milk, with either sugar or salt; the latter will mostly be preferred; but take care that it is spiced for a few times at first with either ginger, cloves, cinnamon, nutmeg, or cayenne, or with two or three of these. Toasted bread and a cup of tea may be given, and after a day or two anything else the patient wishes that is not cold and sour. It sometimes happens, after the disease, is overcome that the patient, from weakness and irritability of the stomach, is unable to retain food within it: this would soon prove as fatal as the disease itself; the kidneys also generally remain inactive: no urine is passed. To relieve these difficulties, and to keep up the circulation generally, infuse for the stomach half an ounce of peppermint plant, and quarter of an ounce of Botanic Nerve Powder, in half a pint of boiling water. Cover closely the infusion till cool enough to drink. Dose, half a cup, sweetened and milked, every hour till it is taken, or till the stomach will retain a little food, which give in small quantities at first.

For the kidneys, prepare half an ounce each spearmint, hyssop and clivers, and a teaspoonful of ground ginger in one pint of boiling water. Dose, a cupful, sweetened, three times a-day at equal intervals.

FORMULA OF ANTI-CHOLERA MEDICINE.

The Botanic Anti-Cholera Medicines are all made from similar ingredients—some contain more, some less of the same kind of ingredients, but the principles of the medicines are the same. The original is

DR. THOMSON'S CHOLERA SYRUP (FORMULA).

Cholic Root, Bayberry Bark, Valerian (American) Golden Seal, each one pound, all pulverised. Pour on a gallon of boiling water—keep hot for several hours—pour off, and add half a gallon more—steep again—mix this with the other—strain the whole through a fine sieve.

Add one gallon of molasses, one gallon of West India rum, in which has been steeped for ten days 2 oz. cayenne, and 1 oz. cloves, one gallon of brandy tincture of myrrh—add the whites of two eggs beat up—scald it over the fire, and skim off the risings. This last scalding reduces the spirit. When cold, bottle. Dose for an adult, a table spoonful, repeated at discretion. For children—for whom he particularly recommends it in Cholera infantum and other bowel complaints—1, 2, or 3 teaspoonfuls—repeated.

When Dr. Coffin formed a medicine in England for Diarrhœa, English Cholera, and Cholera in general—being an advocate for medicines without spirits in them—on the forementioned base he built the following superstructure, which, with slight alteration, or without any alteration, has been used ever since by nearly all the Botanic doctors in England and Scotland.

No. 1.—ANTI-CHOLERA POWDER, DR. A. I. COFFIN'S—1 lb. each Quassia, Raspberry Leaves, Oak Bark, and Gum Myrrh; 2 lbs. each Bayberry Bark and Ginger; 3 lb. Tormentil; $\frac{1}{2}$ lb. Valerian; $\frac{1}{4}$ lb. each Cloves, Allspice, Cayenne, and Cinnamon,—all pulverised, and well mixed and sifted.

I believe that this powder has done an immense deal of good. The dose is a teaspoonful infused in a cup of boiling water, stirred up and drank warm.

Dr. Coffin also recommends an emetic of lobelia, cayenne, and valerian, when the patient has become warm, which he says may be repeated every two hours if necessary; but he does not say what symptoms or state indicates the necessity. I object to the vomit, unless it be given in the first stage of the disease, and even then, unless the patient be a vigorous person. In 1850, I tried this treatment, with a little difference, in the first stage of the disease. It did well.

As I give another formula for Anti-Cholera Powder, it may be

asked, if I have used the previous one and found it good, why do I so?

My answer is, that all artists who are thinking artists, and are acquainted with the principles of their art, use their instruments and means with some difference, in order to produce similar effects; and perhaps I have made some slight observation which has led to the slight alteration which escaped even the watchful eyes of my predecessor.

No. 2.—ANTI-CHOLERA POWDER, DR. DALE'S.—Bayberry Bark of Root, Goldenseal Root, Pinus Canadensis Bark, Tormentil Root, British Oak Bark, Turkey Gum Myrrh, Jamaica Ginger Root, American Valerian Root, American Sculleap Herb, 1 lb. each. Cayenne, $\frac{1}{2}$ lb., Cloves, 6 oz., Cinnamon, $\frac{1}{2}$ lb., Allspice, 6 oz. All finely pulverised, thoroughly mixed and sifted. Dose—A teaspoonful in a cup of hot water, hot gruel, peppermint tea, or Raspberry leaf tea, sweetened—the same by injection, if necessary. Before drinking this, a teaspoonful or two of best brandy may be added by those who prefer it. Whoever tries this in case of Cholera or Diarrhœa, or General Debility with looseness of the bowels, will have reason to be satisfied with it. That those who prefer Dr. Coffin's may be accommodated, both are kept ready prepared in our Botanic Depots and Stores.

NEUTRALISING CORDIAL, DR. BEACH'S.—One ounce each pulverised peppermint, Turkey rhubarb, and salætatus. Pour on the whole one pint and a quarter of boiling water, stir well up, add a half pound of loaf sugar and a half pint of the best French brandy, strain through a fine cloth, and keep ready for use in a corked bottle. Dose, Half a wine glass every half hour, as before directed. For Diarrhœa, 3 times a-day. These medicines are generally sufficient to cure in a day or two, if the person keeps warm.

DYSENTERY.—This disease is very different in many respects to the one I have fully described, but it is cured by the same means, less energetically applied. It results from membranous irritation, and as these medicines neutralise and remove the irritating agents they naturally cure the disease. Nearly all cases of this disease

may be cured by taking half a tea-spoonful each of Botanic Composition and Nerve powders, in a cup of boiling water, sweetened and milked if it be preferred, repeated every two or three hours till the irritation abates, which it does generally in a day, or two, at most.

I must now say a few words on the nature and action of the medicines herein recommended. The anti-cholera powders are powerfully stimulant, astringent, anti-septic, carminative, stomachic, and sudorific. In addition to these properties, No. 2 possesses those called Diuretic and Nervine; their action is certainly universal, but at the same time more powerfully directed to the organs most affected by the disease. There is no stimulant known equal to cayenne for rousing arterial circulation—in Cholera, this circulation is so deficient in the mucus membranes, and, in consequence, the sense of taste so deadened, that the proportion of this article in the powder is scarcely perceived by the palate, whilst in health few who are not much accustomed to taking cayenne can manage it easily. This medicine stimulates and astringes the whole of the mucus membranes, and, in consequence, arrests the immoderate flow of serous matter from them. It excites, by stimulating the nervous action, the breathing process of the lungs, and the body being sheltered from the cold air, and being supplied with dry warm air, the caloric it contains being also a powerful nervous and membraneous stimulant, the blood is called back to the capillaries in the lungs and skin, and the process of oxydation of the blood is resumed. Heat is generated within and absorbed from without, and when an equilibrium of circulation and heat is effected, perspiration takes place, and the patient is past immediate danger. The nervine property of the medicine steadies the nervous action, and the diuretic property excites the kidneys to the performance of their depurating functions. These objects effected, with a dose or two of bitters in the day, and such other medicine as before recommended, the patient recovers rapidly. The Neutralising Cordial has a different action. The vegetable alkali in it, neutralises the acidous matter in the stomach, and so relieves that organ from a source of irritation. The rhubarb excites muscular action of the bowels which is contrary to the lax

condition they are in, and by this means the offensive matters are removed from the system. This action, excited by the rhubarb, is also contrary to the vomiting, and so assists to prevent that, whilst the brandy, peppermint, and sugar, act cordially and agreeably to the stomach sense, and allay the organic nervous irritation. I have tried this medicine without the brandy, and it does not act so well and agreeably.

How readily caloric (heat) is absorbed from the hot air around a fire I need not insist upon. It is a matter of popular experience. That it also excites capillary and nervous action in a high degree is well known to all, by the redness and fulness of the hands or feet, or face, when held a short time near the fire; and the only seeming inconsistency is, that as the air is higher in temperature than the body of the patient, there is no danger of life being extinguished; but this vanishes at once when it is remembered that it excites nervous action, membraneous capillary action, and increased respiration, by which, increased heat is generated, whilst at the same time the body momentarily absorbs the caloric so abundantly diffused over it.

From all that I have said, and from the abundant successful proof that all who have tried these means have had, it is quite clear that the internal and external applications herein recommended act harmoniously in producing a restoration of the grand circulation *en equilibrium*, which is, or ought to be, the object of all medicinal applications, as it is *the* condition of health.

Notwithstanding the abundance of evidence existing corroborative of this theory, and demonstrative of the efficiency of this and similar treatment, the Faculty refuse to turn their attention to it. It is astonishing the amount of supineness that prejudice and pride give rise to, and equally astonishing the amount of ignorance, incompetence, and presumption, that custom will tolerate in those dressed in a little brief authority. My advice to the poor who can afford a shilling—and God help those who cannot—for such a purpose, and to the reasoning of all conditions, is, provide yourselves with a little of the Botanic medicines in case they may be needed, and use them as herein directed. Keep your bodies clean by a brisk wash all over once a week. Spend less money in drink, and more in coals. Petition for enforcement of sanitary regulations, and

enforce them in your own houses. Use public washhouses, in place of washing and drying your clothes at home; and if there be not enough of accommodation of that kind, ask for more. Put stockings and shoes upon your feet in winter time. Get as good wholesome food as your means will allow. Be merry by your ain hearthstane; and, with the blessing of God, defy the Cholera, and keep clear of doctors' poisonous drugs.

In conclusion, let me say a word of warning to those who think themselves too strong for disease to subdue, and so neglect their colds, and despise cold shivers, and uneasiness about the bowels. These may easily be removed when first perceived, but if neglected they grow in size and strength, and soon are difficult to deal with.

The herbs to be used for coughs, colds, catarrhs, and quinsies, are hyssop, angelica, horehound, yarrow, and ginger. A decoction may be made of one ounce of any of the first four, with half ounce of the fifth, by simmering them in three half pints of water down to a pint, sweetening with golden syrup, honey, barley sugar or Spanish juice. A man, for a big sweat, may drink the whole on going to bed; a woman the half, and next morning sponge the whole body briskly over with salt water, and rub dry with a coarse towel. This will prevent the taking of fresh cold. For uneasiness of the stomach and bowels, slight diarrhœa or dysentery, one ounce of anti-dysentery powder is sufficient; it costs sixpence; it is within the reach of the poorest; what folly then to risk an attack of the Cholera when so little will prevent it, or to take opium and magnesia, which do sometimes arrest the discharge by the bowels but do not equalise the circulation, and, in consequence, do not remove the cause of the complaint; this is proved by the factory people, upon whom it has been extensively tried, they still feel the cold shivers and the abdominal uneasiness.

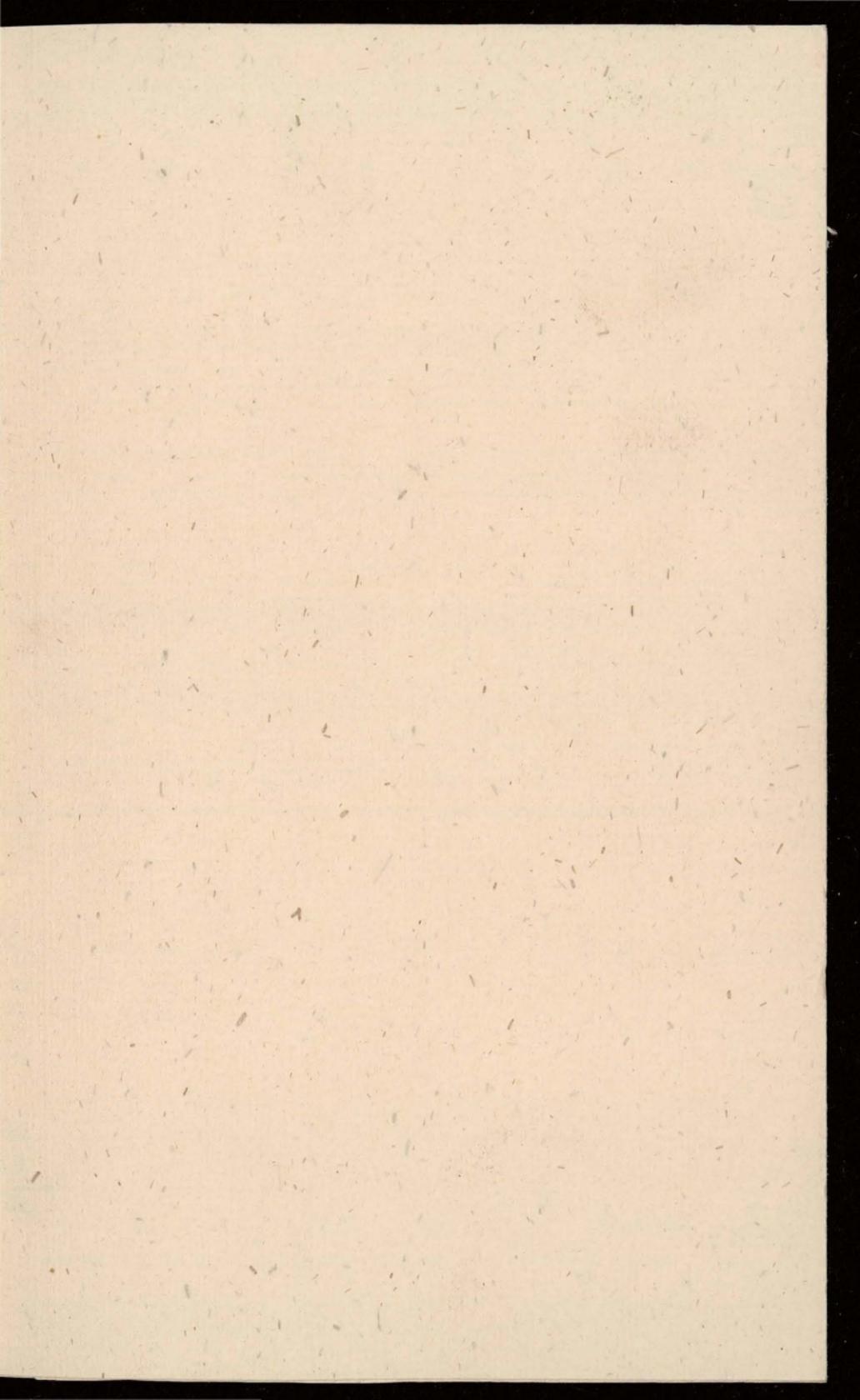
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ADVERTISEMENT.

The Medicines recommended in this Work may be had at the following places:—

- GLASGOW:Dr. DALE, 270 Buchanan Street.
WHOLESALE AND RETAIL.
- EDINBURGH:Mr. BOYLE, 42 London Street.
- AIRDRIE:Mr. A. LAWSON.
- BAINSFORD, by Falkirk: Mr. W. WATSON, Sen.
- CHAPELHALL:Mr. HENRY THOMSON.
- ALVA:Mr. ALEXANDER BAIN, Upper Bridge.
- ALVA:Mr. CHAS. THOMSON.
- MAXWELTOWN:Mr. S. HENRY, 36 Glasgow Street.
- STENHOUSE MUIR:Mr. WILLIAM HODGE.
- GREENOCK:Mr. D. JOHNSON, 8 Inverkip Street.
- FALKIRK:Mr. BINNIE, Parkfoot.
- TILLICOULTRY:Mr. ROBERT SHAW.

And all Medical Botanists throughout England.



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