The true nature of Diphtheria is a subject that has, in late years, demanded & obtained a large share of attention from the heads of the profession. Every branch of the subject—viz., whether it attacks the respiratory, its etiology or its treatment—has been better for the most varied & opposite opinions. And it is hardly necessary to add, that there are few diseases in the whole range of the Practice of Medicine or of Surgery, that could better justify the attention Diphtheria has received.

Though the word diphtheria, from Gr. diphtherō, a coating, skin, or membrane, is of comparatively modern origin, being introduced by Bretonneau under the name of Diphtheria, in 1821, yet better in its true form, or in that of some of its allies, the disease has been recognized from the most remote ages. The "Egyptians" of Seneque, Cleopatra, &c., of Homer were of course but general terms, it included not only Diphtheria strictly so called, but also Pharyngitis, Laryngitis, &c.; &c.—Sickle Cell, &c.—as many of our most malignant Maladies, as cholera, plague, scrofula, small pox, &c. it has followed in the track of civilization from East to West. It appeared at Headly in 1878; thence travelled to Spain, going to the frequent communication between that country & America, it appeared at Kingston, England in the same Century. Its subsequent diffusion over the civilized world was accomplished in no long time; & on its first appearance in this Country about the middle of last Century, much confusion...
Naturally inclined regarding it among our physicians. Indeed it was not till the beginning of the present century, when the first English epidemic of 1818 appeared, that it came to be studied with the attention it deserved. Boolemeau's first memoir in 1821, describing the epidemic of 1818, was the first real attempt to establish the disease on a scientific basis. In this country, it was not till the Boolemeau epidemic of 1855, to the subsequent English epidemic of 1866, that British physicians began to study it closely. So that for the earlier descriptions of it, we are mainly indebted to the French. The names of Boolemeau, Billiet & Bichat, Delandre, Guerant, Froulaan &c. will now be remembered among the few appreciators of its true character. Though in later years, the subject has been more thoroughly examined by the Germans. Yet, the keenest controversy, even regarding its etiology, pathology, and treatment, to the present time, may be described as an attempt to bring one into clearer relief. These speculations regarding it, which are worthy of being preserved, or at the same time to sweep away those which may be found erroneous or misleading. Having had some little opportunity of watching the disease, I hope to bring forward some illustrations from my experience that may tend to elucidation in one or other of the above aspects, to whom I am mainly indebted.
Now the first of all logical processes is that of definition, and if it is to be made requisite to have a clear conception of terms in matters controversial, the only question is, from what department of the subject our definitions is to be taken. While it will be more in accordance with the spirit of modern medicine, it will also be most logically exclusive, if we define it by a reference, predominating, to anatomical appearance, and secondary to pathomorphomic symptoms, or theology. The mere search in vain among symptoms for logical definitions of disease, the very term "cough" not yet taught: such a vain to demonstrate at one time, is but too good an example of the fallacy.

The one cardinal point then in genuine Diphtheria is this: that there is an infiltration of round formed cells, as contrasted with the entire humus, an infiltration so abundant as to compress the vessels, to arrest the circulation. It is somewhat loose & unspecific to talk of this infiltration as a "Vaporige" or "Coagulable fibrinosis" or "Exudation" forming on the surface & also within the substance of the mucous membrane. For the Exudation is simply called fibrinosis, from the chief of the spontaneous coagulable substance, & as will be shown, the Exudation is really not fibrinosis but essentially formal. Now, while we cannot say that the nature of this diphtheritic inflammation in specific is distinct from the ordinary inflammation, yet
The death of the mucous membrane in diphtheria, with its consequences, is a fact sufficiently important to render necessary a distinction between the two forms of inflammation. The pathological, anatomical, and therapeutic differences will be discussed in detail under their own heads.

But let us now consider the anatomy of diphtheria more in detail. And the best means of thoroughly understanding its true character will be by a preliminary study of the condition of inflammation. It will be unnecessary to enter upon this question, as the condition of cellular inflammation, for these are not within the limits of the present controversy. Suffice it to say that we do have in the cellular inflammation, hyperemia & swelling, the essential difference between catarh & cough. Consisting in the products of this hyperemia & swelling. The contrary opinion that there was no hyperemia in cough, probably arose from its absence after death, a circumstance easily applicable to the large proportion of white filiform tissue in the parts. It should also be observed that the cervical glands may be swollen in mere catarh.

Firstly, with regard to the character of the 'candida,' in cough. It is yellowish white. In diphtheria, it is a darker grey, interspersed with red & green blood pigment. Tough & elastic, clearing up & swelling, fiber-like, by the action of acetic acid. Hence, on the other hand, becomes opaque & 25% by 5% acetic acid. This substance adheres tenaciously to the surface of the mucous membrane.
When it forms a most accurate cast.
The thickness of it will vary from a mere
efflorescence (the "boeroot" of Botsmanek) to
a line. No site of the larynx, inflammation
is, of course, the larynx for excellence,
then the trachea & pharynx, & hence the
true varieties: laryngeal, tracheal, laryngotracheal &
pharyngeal laryngeal (guf). Now not only
have we to distinguish diphtheria from both
of these, but we must also distinguish there
from each other.
1. Pharyngeal laryngeal (guf) in what is now
Commonly confused with diphtheria. The morbid
process is always visible at various points
of the faucial & surrounding parts, the white
white patches are seen after an intensely
hyperemic base. The edges are gradually covered
by suppuration, by the patch separates. But no
ulcer is left, & if let alone, there will be
no scar. The same path is never followed.
2. With regard to the constitution of the "San-
ditation" though microscopically filamentous, yet
it is composed of nothing but cells whose
protoplasm has degenerated to anywhere when
a subsequent process has taken place -
that the exact nature of this degeneration is
is unknown, but it may be provision-
ally styled a fibrinous degeneration.
The Diphtheritic membrane is no sanditation
at all, for that which is bound in the
process & leads to the formation of
the slough is situated in the mucous mem-
brane under the slough.

The following is Rindfleisch's description
Vertical section through a croupous plaque on the isthmus faciei, with the Cono fold on one side: it rests on a false membrane. C. normal mucosa. Membrane \( \frac{1}{300} \) (Riedesel).
of a vertical Section (see fig I) :- The Section embraces the entire thickness of a false membrane, together with the mucous surface and it lies. Originally spherical the elements have come into contact with one another, as various points, and have become welded together into a plump network consisting in a manner of "connecting pieces" only, without any trabeculae. All the more elaborate is the system of crescentic or branchy fissures, which permeate the false membrane, taking the place of vascular. In certain lights they appear dark, so might readily be mistaken for the positive part of the structure: the possibility of error can only be excluded by staining the preparation with carmine. The cells are of variable size: their dimensions increase as they approach the surface; and at the extreme periphery of the membrane, they are nearly twice as large as gastric cor. pules: further inward, they become smaller the smallest ones lying immediately upon the mucous surface; here too, the degeneration is less marked: they can hardly be distinguished from the normal cells, which are still imbedded in the parenchyma of the mucous membrane. Their gradual transition is hardly discernible, as the boundary line between the surface of the false membrane and though it never quite obliterate it. It forms most undeniably, however, that the false membrane is produced by the secretion of young elements when the irritated mucous surface, followed by their gradual stiffening
Ectrosis, gangry swelling, or whatever term we may choose to apply to their degeneration. Accordingly, the false membrane occupies the precise position which belonged to the epithelium, the degeneration in question taking the place of the former evolution of epithelial elements. What became of the original epithelial investment of the affected region? Has it been simply shed or does it, too, take part in the formation of the false membrane? Wagner has raised the participation of the epithelium in this mobil process to the rank of a certainty. He describes a very singular metamorphosis of the pavement cells (fig. 11) in consequence of which the protoplasm disappears at certain points, apparently preceding to certain branching lines, where it assumes a homogeneous aspect, refracting light more highly than ordinary protoplasm. The nucleus disappears; the entire cell being represented only by a network of great delicacy, resembling the annulus of a stag in shape. Senator, however, thinks, this description of Wagner's not quite satisfactory, as it would not sufficiently explain the manifold arrangement in layers of the membrane, which may be ten times as thick as the epithelial investment, in the lower part of the larynx. A debris, while the thin epithelial covering consists altogether of 250 more than three or four layers of cells. He also obli
ged to assume a succession of formations, a metamorphosis of the epithelium, of a meta-

(See face p. 81)
no trace of epithelium can be discovered in the mem-
brane, or if there be any enlargement of the epithelial cells, up to ten times their usual volume.

11. Largego-Tracheal Membranes. This form begins primarily with a simple catarrh, or even in this stage, the swollen mucous membrane covered with its viscid mucous rich in cells may give rise to the most alarming symptoms (laryngeal angina). The mucous forms a thick, adhesive yellowish layer on the vocal folds, quite sufficient to choke the patient, but the viscid mucous is not necessarily fibrinous, though the two may coexist as is readily shown by the action of acetic acid upon them. The cons-
persive character of the sandatum is even more distinct here than in the pharynx. In
the false membrane presents a laminated structure, the consperscular layers alternating
at regular intervals with the layers of so-called "film" (fig. 31). These "films" layers form thin plates, with upward downward processes, which penetrate into the interstices between the contiguous cells, forming by their anastomoses a beautiful network whose meshes correspond very closely to the individual cells. (a)

It is a peculiarity of the mucous mem-
brane of the larynx that from the first level at some slight distance to the mucous surface, then to the false membranes, and thence to the vocal cords. The mucous surface is much smoother. (b)
The mucous follicles, more active, & their secretion accumulating underneath the false membrane Afr. 1st, they gradually succeed in detaching it. This indeed is one of the dangers of this form of cough, that the detached mucous membrane is not allowed to get up. The late Dr. Webster gave us in his possession a most beautiful Cast of the air passages consisting of a crouchy membrane that had been successfully ejected. But the membrane may also soften partly owing to a gelatinous transformation of the "fibrous" network of the cells, partly owing to a fatty granular, fibrous integration of the embedded cells. It is true it is true. Klein began in 1871, 1872 describes this Softening to fungoid Vegetations, & even goes so far as to say that after absorption of the fungoid Sense of the Cast of the tubuli winigeri are made up by masses of the fungi. Klein, also. Klein's Archiv. III. 493 & seq. How, though the elements of the mucous membrane are everywhere present, it is at certain spots, potuetaque foci - the presence most readily occurs, because these elements are here present not only always in great numbers but also in their most active state. In the mouth & throat, all places constitute a potuetaque focus, owing to the incessant play of the air over the parts. Every inflammation has a tendency to become supplicative. Especially as soon as the resistance of the mucous membrane to the entrance of the micrococci becomes diminished & the epithelium destroyed or blanched.
that on the contrary, the mucous membrane of the air passages from the nasal cavity downwards is so little disposed to diphtheritic inflammation is probably due in part to the fact that the movements of the larynx make it difficult for the micrococci to gain a footing to obtain a settlement: partly also to the fact that the air in the bronchial tubes is richer contains a large quantity of nitric acid gas, which is most certainly possesses antiseptic properties. On this point the comparative rareness of uterine bronchitis in females. It is interesting in this connection to find in Rosenthal's description of acute ulcerative endocarditis under Skrille's name of "acute diphtheritic endocarditis" that in this disease also an important part is played by the firmoid organism, and hence Bingel's name of "myocarditis endocarditis" of a separable membrane has certainly been described as existing in some cases in the diseased valves of Tissieau's Cyclopaedia. Even Pohlmann so long ago as 1852 gave his countenance to this view, when he said, though in somewhat general terms, that all the inflammatory processes on the mucous membrane of the air passages were frequently combined with similar processes on other mucous, or serous, membranes, from the development of the follicle, sympathetic glands, follicular apparatus of the intestinal mucous membrane in these cases, he conjecture that they originate in a disease or diphtheria of the whole mass of the lymph or blood.
iii. This laryngeal form is very rare. The laryngeal mucous membrane being intermediate in its structure between the Throat and Trachea, both surfaces of the Epiglottis to the true vocal cords are coated with a laminated pavement epithelium, which is not marked off from the connective tissue by any basement membrane; so that the false membrane adheres more closely here than to any other portion of the larynx. It is especially noteworthy that the disease exhibits great preference for the prominent parts of the mucous membrane. It is as though the larynx had been slightly burned over by some corrosive agent, or as though some irritant gas had been detained for a short time in the upper part of the respiratory passage. Indeed Petri has shown (Deut. Archiv. 1877, p. 242) that ammonia and other chemical irritants have set up a pseudo-membranous inflammation in the Trachea & Larynx, so that afterward micro cocci was found on the surface of the membranes.

After this description of the chronic inflammation, it will be seen how absurd some of the recent propositions are with reference to the homeo

ecature of the disease. True, the word "goop" has undergone many shades of meaning since the days when it was first introduced by Home of Edinburg. He used it vaguely to designate an "acute inflammation of the larynx or trachea." Heston mean says very plainly of
of Homer "Creatio ex nihilo" that it is difficult to conceive how a work which contains only a small number of isolated and scattered facts, was capable of elaborating the tracery of ancient tradition, & for half a century of preserving a great amount of influence over the theories of practitioners. But such is the fact. Struck into the most ordinary mode of terminating a religious narrative, Dr. Home persuaded himself that he had just met with an affection which had hitherto escaped the attention of his predecessors: he thought he ought to give it the popular name under which he found it designated in a Scotch province: the novelty of his discovery was widely diffused, & the new denomination so farinated all persons, that it prevented them from recognizing a disease derived from the most remote antiquity; & as, in our own days, is accompanied by all the symptoms, as it has uniformly exhibited. But to return, now that the word has ultimately assumed the definite anatomical meaning above described, it will be a most mischievous & retrograde step, were we to revive it. Sir J. F. Cormack, we have no need, simply as a symptom (Edin. med. Journal 1876, p. 777) and I am glad to find Dr. George Johnson (Cancer 1876, p. 66 n. 2) of the same opinion as myself. It will render confusion only worse confounded. But
Many authors have made the word unquestionable, but within late years it has been gradually settling down to mean the definite anatomical conformation above described, as it is seen at its best in the air passages. To quote, "true cough, as a sign of coughing for 'stridulous breathing' is? needs be a new idea. I could only increase the already too great confusion. The French physicians, also, by deficient observation at the outset, have done much toward, the said mixture of terms. They imagined that all "true coughs" inflammation of the larger spirovibratory to the pharynx while it has, tracheal. Shown that it is quite possible to have true enough anatomically bronchial inflammation in the larger without at all affecting the pharynx. Thus the distinction is rendered valueless. Moreover, Sir John does not state the French distinction with sufficient precision. They apply the words 'cough,' 'hoarseness,' 'tracheal diphtheria,' and 'false cough' to the non-membranous affection in which spasm in the 'stridulous breathing' is the predominating feature. But the real point in the French distinction was the accent on not into the pharynx of a genuine cough as above described. [See Riemeyer's "Practical Medicine," art. "Cough." ]
we are now in a position to appreciate the real characters of genuine "Epiglottitis," "Malignant Pneumonia," "Angina Maligia," "Typhus Caragia," "Pernicious," or "Diphtheria." Reference has been already made to the cardinal anatomical point of Diphtheria being the infiltration of partly formed cells into the subepithelial connective tissue, or the consequent death of the mucous membrane. It has hence been called the "Inflammation Membranacea," while Campy in the "Inflammation pseudomembranacea." This membrane of Diphtheria is not, of course, a deposit on the mucous surface, it is the mucous membrane itself. The condition is precisely the same as suppuration from a chemical irritant, or from corrosion, i.e., we can see a sharp line of demarcation, separating the living from the dead. The means of separation are inflammation and suppuration. The inflammation is reactive. The fluid collects between the throat and healthy tissue, and ultimately separates it. The ulcer is thus left, and then a cicatriz. A relapse may take place, and a new throat is formed. Fresh suppuration takes place, to fresh loss of substance, i.e., naturally, the size of the ultimate structure is directly proportional to the amount of previous ulceration. In the milder cases, which are rare, the disease is restricted to the surrounding pharynx, but elsewhere it does extend to the larynx, it is to
meriable to observe that the conjunctive and mesenchymal action only in these cases, the membrane here leaves the surface cells without being subject to the influence of the arrangement of structure of the mucous membrane of the different parts as well as of the thickness and quality of the epithelium. I differences also in its function. However, the danger must vary with the external source of mischief to the eye. The sinus, I suppose, is especially the agency, after which it must probably depend, whether an inflammatory is to be diphtheritic or not. And it is certainly not to be considered that the ulcerated portions of the mucous membrane of the throat with their pseudo membranes, through are very apt to become the seat of putrefactive changes, for nowhere more than here is their such a combination of all the conditions for putrefactive i.e. the partial decomposition of nitrogeneous material. Warmth, air moisture, decaying animal tissue, mucous and abundant secretion, possibly also some adhering remains of food. Can we imagine any combination more favourable for the production of putrefaction?

With regard to the other lesions in diphtheritis, the most important are undoubtedly those of the kidney. The second will be noticed under the pathology of the disease, but we may conveniently allude to the peculiar kidney degeneration. It
is not exactly the ordinary form of acute inflammatory Bright's disease, as it is ordinarily seen in febrile cases, but it takes the peculiar form of the parenchymatous degeneration of the kidney, whose character may be briefly noticed. The kidneys are flabby and bloodless, some shrinkage, from the cortical surface we can scrape off a quantity of grayish pulp. This pulp consists of epithelial cells, which have escaped singly or in connected tubes like grass. The cells, especially in the cortical portion, are swollen by albuminous infiltration, look cloudly & granular; they are rarely covered with fine fat globules, & undergo molecular disintegration. Such a condition is not to be ascribed to true parenchymatous inflammation or to simple renal hyperemia. It is true that the epithelium of the tubules swells, under fatty degeneration, & breaks down in parenchymatous nephritis; but the latter differs so greatly from the affection as under consideration, not only in the intensity of its onset, but also in its independent character, in its unmistakable inflammatory nature, that it is impossible to regard the disease as identical. To like manner, it is equally impossible to suppose that hyperemia, which be the cause of parenchymatous degeneration of the kidney, as this affection is called, for want of a better name.
The fever of diphtheria is not so genial as follows, somewhat the course of a typhoid chart with morning remissions; as in that disease the height will vary directly as the amount of the lesion. It has been noticed however, that in the most comfot cases, the temperature has not a constant relation to the danger to life. Here, the prognosis must depend more on the degree of Localised Sudden to the whole as has been already noticed in speaking of the anatomy, it may take very little to bring on this fatal asphyxia; the mere collection of a little moisture or shred of sandation on the local cords being quite enough to provoke fatal, if relief be not afforded. But in a rule, the tendency is to the formation of more and more membrane, the carbonic acid poisoning increases, the death is often preceded by unconsciousness, owing to influx of the pulmonary residue, the consequent escape of air under the pleura, into the mediastinum & cellular tissue of the neck. The asphyxia is of course aided by bronchitis or pulmonary complication. The pneumonia, as in the other form, is nowhere circumscribed, owing to broken particles finding their way into the lung, driving in & filling. One well marked case of this I have seen in a child who died in the Edinburgh Royal Hospital for
Sick children. It was a case of Diphtheria. The left lung was adherent, & the pleural cavity contained about 3/4 of fluid. Both lungs were much congested, & each contained tubercular patches of pneumonia, each about the size of a walnut.

This is the ordinary form of death, but it may also happen from Septicemia, or possibly from uncontrollable hemorrhage if the gangrenous process be extensive. Now it is not only in these severe cases where we have the severe inflammatory symptoms that we have the severe secondary symptoms. Even in mild cases these might not even have been a rigor, where the fever may have been almost absent, & the general health good, so that the patient is able to be about all the time, & the disease in short runs its course in the mildest form. Even here dangerous accidents may occur, & we may have the subsequent paralysis most severe. The fact that albuminuria will occur during these cases, shows that the parenchymatous degeneration of the kidneys is not due to excessive increase of the body temperature, but is a direct result of the infection with diphtheritic poison. This idea, however, does not seem to commend itself to Senator, who thinks that as a rule, the albumen will come to disappear in 2 or 3 weeks, I therefore imagine, that its importance is somewhat overrated.
He acknowledges, at the same time, that the parenchymatous nephritis is a most common cause of the albumen. Doubtless some of these cases can be accounted for by the severe renal states caused by the typhus, others by the ordinary acute inflammatory process of scarletina.

As regards cutaneous diphtheria, it is well understood that, as in the case of many other blood poisons, it is essential for its development to rapid disease, that the skin be stung by its efudemias; accordingly, we see it frequently developed in regions where, as at the foot of the peak, the skin by successive statures, is forced in almost perfect contact with itself, it then becomes quite analogous to the mucous integument. And thus the reason why we see cutaneous diphtheria commence on the mouth, ears, feet, in because these points have not as many others, are frequently exoriated in consequence of eruptive diseases, crops, or uncleanliness. In these cases, as Horsineau & Bouloueme have particularly observed, round the wound, an epidermic, black & swelling, attaching the edges of the wound, as well as some scattered phlegmatism; in the case with which I record in this theory, the same thing was observed in form of the edges of the cutaneous wound. I looked upon it, however, as the natural consequence of the putrefactive changes going on underneath the epithelium of the tube, & I found it gradually to disappear.
as soon as I got the wound purified with carbolic oil. In no situation, I believe, have antiseptics more difficulties to contend with than in the operation of tracheotomy, owing to the incessant play of air over the parts. Yet there are few cases were we ought to employ antiseptics than to the best of our power.

Nevertheless, it is by no means unusual that abraded surfaces will take on this Diphtheric action. The pus may not necessarily form a clump, but may dry up so as to form a green viscous coating, to conglomerate in flakes, or threads. There may be, moreover, a superficial fibrinous exudation, a true croup membrane, consisting of fibrin and pus conjugated. But all this is not Diphtheric, unless a dense epithel of the surface of the wound forms another, or adheres as a pseudo. Membrane to the deeper portions in the form of a greasy discolored clump. (Sensit.)

In the convalescent stage of the disease, even though all may be appearing going well, it is a well known fact that the patient sometimes collapses suddenly from paroxysm of the heart. The pulse becomes frequent, or weak: the skin becomes pale and cool: the patient dies apparently from syncope, with oedema of the lungs. On examination this is usually found; fatty degeneration of the heart, or fat in the lungs. No combination of the heart and lungs frequently occurs. The nervous lesion is usually supposed to exist in the
inhibitory nerves running in the channel of the pneumogastric. As this paralysis, if left, is the patient is very pale & weak. They begin as a rise in the throat. The soft palate is first affected, then the hard palate & teeth are no longer shut off from the mouth by the action of swallowing. The arch of the palate & uvula become relaxed, & are not raised at an attempt to swallowing. Here the nerves of the larynx get involved, & good fibers into the lungs, setting up pneumonia. The nerves of the muscles of the eye, may also be affected causing defective accommodation. (Cf. Hutchinson Case 1871, 1, 13.) When a mixed nerve fibers are affected as in the extremities, we find disorders of sensation or numbing, and also ischemic pain, but these latter are rarely seen, whereas, numbness, paresis. Moreover, the disorders of sensation disappear much sooner than those of motion. Electricity frequently yields the results Characteristic of peripheral lesions in a certain degree. The diminution of the thermic conductivity of the muscles with normal or even increased galvanic conductivity a draft chilling (Deer. Archiv. TX. 123) is indicative of the peripheral origin of the paralysis, but many authorities look on the opposite view. They however, all a favorable prognosis, despite that of the heart.
Artillery.

These are two chief ways in which diphtheria may arise: (1) by direct contact with infected bad drainage, etc., etc.; (2) by contact with others. However, in the last century, examples of the contagiousness of the disease were given by Dr. George Johnson in the Lancet, 1873, Jan. 2. One of the best of which is the following: taken from Johnson's report to the Privy Council. In the case of diphtheria, had never been seen at Folkestone during my time, until Isabella D., aged 42 years, arrived at Honley on the evening of July 2, 1856, being there in an advanced stage of the disease. She died on the following day. On July 3, Catherine B., her sister, aged 45 years, was attacked. But she had never been in France; she had always resided at the East Cliff, Folkestone, in the same house as the doctor. Her dying sister was brought four days previously. One other case occurred in the same house, three days after, and they all terminated fatally. In the district where I was practising, epidemics occurred almost yearly in the spring of different tients, the damage of the place being in a notoriously bad condition. This spring, the epidemic has been accompanied by several cases of typhoid fever, two remarkable cases of acute blood poisoning; the details of one of these are:

A little girl of 12 was caught one,
afternoon in a drenching rain. She had but few clothes on, & no umbrella: but had her clothes changed as coming into the house - this was about 7 p.m. of the course of the evening. She felt 'not-right', I feel no appetite, but the parents simply gave her some opening medicine, not thinking it worth while to send for the doctor. She had rather a restless night. But in the morning she was seen to be much worse. She was delirious, in semiconscious, but in high fever. She was no pulse.

Thinking, however, that she was suffering from some one or other of the common maladies, she was ordered diazephenic, & hot blankets to bring on a rash of fever. She was at 9 am. At 12 noon she was covered with a few bluish-purple blotches, but was quite unconscious. At 3 pm she died.

The illness only lasted 18 hours. What was it? Looking at the case by itself, one would be inclined to the idea of scarlet fever. In Blije, it is perhaps the prevalent high-fever epidemic wards favor that view; on the other hand, there was also a small pox epidemic prevailing. To the medical gentleman in connection with me, seemed to lean to the idea of influenza. Small pox, especially as he had had a case ten days previously of which however lived 3 days, was accompanied by hemorrhage from the skin, causes of other kind. I must leave.
It has been sometimes urged that there are many sickly horses who are
never visited by Diphtheria, though to the outward eye everything seems in its
favor. But as Dr. Johnson really says,
"Every powder containing Charcoal is
not fungous;" in other words, it is re-
guise to have a certain combination
of local & atmospheric conditions to
produce the Specific Diphtheria poison.

The question, however, arises, whether the
infectious material of Diphtheria Bacteria
in the mucocoele &c. are found in cer-
tain products of the disease, or whether
therefore the anatomical changes are
the direct or indirect effect of these
organisms. Proceed is the effect due
to specific Diphtheria micrococci, or to
the non-specific organisms of putrefaction.

But there are inquiries that have as
yet baffled all chemists & physiologists;
nothing satisfactory has been
obtained by inoculation.

Now, with regard to Crop, it cannot
be denied that in by far the great ma-
ajority of cases of the common inflammation &
the cases of a febrile, accompanying them
a specific Epidemic so that the general
symptoms now in that that "Crop" &
Diphtheria are very symptoms of one
malady. But this does not amount
to saying that they are the same disease.
It is regarded from their anatomy, his
tory, or treatment, and I cannot finite
Giving here the pithy answer of Dr. Mason to Dr. Johnson's identity argument:

He has seen false membranes, he says, identical with those in question, caused by a child drinking scalding water. Several such cases have been recorded. Now he says, unless we are to believe that in these little things, the Diphtheria was in them, when they went to the tea-leaf, it was only waiting for the boiling water, so that it might bite them, we have evidence in these children that common vitiation will produce the membranes Dr. Jenner & Johnson say are only produced by Diphtheria. Can we really say that when the little things drink out of the teapot, the Diphtheria-bit into unsuspected - is lying quietly in them waiting for the boiling water?

Dr. William Erving of Boston, says he has never seen two cases in one family either occurring simultaneously or in immediate succession, if no precautions or isolation were adopted or necessary. He has never seen it followed by pneumonia, or the disease never invaded the pharynx, fauces, or nose. Coughs again usually begin with nasal or bronchial Cataracts, & the inflammation spreading to the larger leads to the formation of membrane. Diphtheria has no antecedent Cataract. But to take any one side of this question with depreciation, would be quite at variance with the liberal spirit of medical enquiry.
Treatment.

Much diversity of opinion exists on this branch of the subject as well as on the others. But every one agrees that in an epidemic, isolation should be practised as much as possible. And the success of this measure will depend greatly on external circumstances, of occupation. The value of the ordinary hygienic remedies will vary much with the severity of the epidemic. In the most severe epidemics the very best remedies may be perfectly useless, while in the milder it is possible to achieve very fair success. In the mild epidemic cases! I have had an opportunity of witnessing. I have almost invariably found that Chlorate of Potash and Sal, if taken sufficiently early and sufficiently frequently have proved equal to check the disease. The boy whose case is hereafter recorded, requested to take the medicine as he was ordered, & hence the necessity for Caution. While his father, who was at the time equally bad, took the medicine, & recovered. Everything must be given with a view to build up in this consumptive disease: Even to the end, if collapse set. Threaten, anæsthesia will be had recourse to, much laughter & strong wine. Much of course will be definite at libitum, but caution must be exercised in the use of beef tea, for I am much inclined to favor it.
George Johnson's opinion as to the curative influence produced by an exclusive milk diet both in albuminuric and apoplectic cases [Handwritten: Dec 16, 1876]

As to local applications, the best form I believe is by inhalation or spray. Of these, the former, before water or steam is by far the most valuable; it may be medicated by many things, but the water is really the most valuable. The spray may be loaded with sulfuric acid, boracic acid lotion, or weak carbolic. The great objection, however, is that it is practically impossible to keep the part antiseptic; the left irritating our antiseptics are the better, for the inflammation is only too ready to spread to the larynx, even if left alone. And it is mainly on this account that the cauterization treatment has been almost entirely abandoned, at least in Germany. As soon as these are symptoms of extension to the larynx, a heavy enema should be given at once if repeated as occasion requires. The enema always gives relief, and in calomel frequent continuance leads directly to recovery; in the other forms, of course, the relief is only temporary, & the obstruction may soon be repeated.

With regard to fractured bones, I shall hardly be inclined to perform it so early as American or the French School will have us do. It is an operation...
whose chance of success is so small, that we ought to wait the time when we can try: if the operation is not done now, it is by conviction the child will die: if this conviction will be based mainly on the consideration as to whether there are secondary changes in the lungs, or else if there is the patient's guarded breath, and though the case is in this case where the patient is rescued from the jaws of death by treachery, since they are unfriendly frequent to encourage languid after even to the end. The details of the operation will I must be sufficiently brought out by the record of the following case:

A little boy, Joshua M., four years of age, was the son of a very stricken mother. Four members of the family had died from strumma in one phase or another, so only 3 were left. The house in which they lived was always looked upon as unhealthy, the smell both inside and out being at times very offensive. The natives of the neighborhood were in a notoriously bad condition.

The mother had just been confined; her baby had just died from strangury of the renal, and baffled all attempts at purification. Of the children of the family seemed to be reached when two of their children were laid down with Diphtheria. Chlorate of Potash & I ox was administered most
literally. The little girl was very
sick. I took her medicine regularly.
The boy was not well. I tried to
persuade the father to get it down his
throat. His disease accordingly progressed; his
"emaciation" was of the peculiar dark
gray color, interspersed with the red
dark greenish blood pigment. He was ex-
tremely anemic. There was albumen
in his urine, so it was not long
before the laymen showed signs of
implication. Twenty ill 20 per-
manent food, if the symptoms were
becoming to urgent that bloodletting
was 20 to be required. This was
in the morning of the 8th of January.
I later on in the same day, I was
summoned hastily as the Child was
said to be dying. I went immedi-
ately. I dying. Sure enough he was.
As it was unusual, the asphyxiated
condition had come on suddenly.
The pulse was imperceptible, the lips
blue, the eyes glazed, the lower jaw
had fallen away from the upper, a
dry breath seemed as if it would
be the last. I got immediate per-
mission however to operate, as I did
at once. Somewhat hastily.
The venous oozing was profuse for
a time but was checked by the
pressure of the shield. It seemed
however, as if I was too late. He
refused to breathe. I started with

official respiration, first by Sylvester, then by Marshall Hall's method, much to the discomfort of the patient, who thought I was simply disrespecting to the corpse of his dead boy. It was only by allowing him to put his ear to the stethoscope, and letting him hear the beating of the heart, that I was allowed to proceed.

However, the artificial respiration did not look at all promising for a while, but then had returned to the cold douche, I tied tickling the tongue with a feather. Ultimately we were rewarded by a breath; another followed, and in about 20 minutes from the opening of the trachea, he was breathing plentifully through the tube. He was fast into a quiet sleep; we let him sleep on. In about an hour he awoke, scratched his ear, as if wondering where he had been. Brandy and milk were now administered; he was transferred to a steam chamber by the fire side, formed of screens covered by blankets, with the little bed inside formed of chairs with a plank across them. An india rubber hose was fixed to a kettle and conducted to the chamber, and therein, full of boiling water, were placed where the chairs. Thus the temperature of the apartment was kept constantly between 70° & 80° F.
The breathing soon became easy, & the breath felt dry. Milk & lime water. The sandation solution came up the tube was picked away as it came off the smaller tube was also taken out frequently & cleaned. He was still ordered to continue with 10 minims of dig. Jec. Perchlor. & 8 grains of Pot. flor. every 2 hours. If this he was compelled to take partly by forcing partly by threat.

9th Jan. He has had a wonderfully quiet night, & I was not sent for till early morning. I thought pains on account of a violent paroxysm. which was relieved by taking the smaller tube out & cleansing the inner one well with a feather. The tongue still very furred, & sandation still extensive on the pharynx. The secondary symptoms in the lungs. Viz. high much more swollen, evident from glandular irritation.

10th has again had a fair night, but the sandation still came up, the tube is very tenacious, I then used 10 per cent. solution of Hig. Potass. down the tube. This was used whenever any piece seemed to stick in the tube, & gave it a very stiffened, soaply feel for the time being; but it was noticed that after it was stopped, the sandation was rendered much more viscid. A
Change was accordingly made for a spray of sulphuric acid. If this was found to answer much better.

11th. He seems very low tonight, has not taken so much milk. Tongue much coated. P. 144. urine contains 1/4 albumen.


12th. The erythema in the neck seems to spread, & the large tube is accordingly removed. A considerable ulcer is found below the hole, caused by the pressure of the shield of the tube. It looked very dirty, I was smeared with 1/5 carbolic oil, I dressed with 1/20 on a piece of lint covered with gutta-percha, with a hole in it through which the tube passed. Albumen left.

13th. The throat has been difficult to manage both to is now brought in by a lead pipe, lodged into a hole in the top of a pan. There is no sufficient air coming through the mouth to enable him to blow out a candle.

14th. Albumen diminishing. Saline draughts, though separating much, erythema left.