

contrary, it does not, as a rule, harm those who afford it shelter. Of 34 patients who have passed through our infectious wards at the Children's Hospital during the past six months, but seven have had anything resembling what used to be called diphtheria before the birth of the bacillus was announced in the journals, and two of these cases were caused by other germs. But I cannot doubt, that the bacteriologists who have given us so much of inestimable value during the past few years, will before long extricate us from the dilemma caused by our uncertainty of the sanitary status of a person who has only bacteriological diphtheria. Until this knowledge is vouchsafed us, we must continue to regard such a one as a dangerously indefinite quantity; and in an institution like the Children's Hospital, this implies the absolute rejection of a large number of cases, and the disaffection of many others, who cannot be admitted until reports of their cultures have been obtained; for after such alterations shall have been effected during the coming summer as will render the building safe, and immunization is no longer a routine, no case can be permitted to enter which is open to suspicion of harboring the bacillus.

Another thing: Are we justified in admitting a child on the strength of a single negative report? As to the reliability of these reports, there are defects in the present method of obtaining specimens for bacteriological examination (and very probably in any possible method) which render occasional errors unavoidable. I do not wish to be understood as questioning the skill and accuracy of the gentleman at the bacteriological laboratory who make the cultures. If there are no bacilli in the specimens handed in to them, we cannot reasonably expect positive reports; and I merely state an obvious fact when I say, that the wires used for obtaining specimens, may be justly compared with a hook which is lowered into a dark pool in the hope of jigging fish. If the fish are plenty, there is a strong probability of success — if scarce, the chances are fewer. And whether they are plenty or scarce, the element of luck must be taken into account. Of course, if membrane is present and the wire pushed under the outer edge, there is but little probability of failure.

To arrive at an estimate of the frequency of errors due to the uncertainty of bringing away bacilli on the wire when they are present, I have taken the bacteriological reports concerning patients in the infectious wards, from whom specimens were examined at short intervals, and called such negative reports erroneous as are immediately preceded and followed by positive cultures. Of 253 reports 26 were incorrect — a little more than 10 per cent. Under these circumstances I think two negative reports of specimens taken twenty-four hours apart should be obtained — nor can we then feel absolutely safe.

Some of the patients in the infectious wards were very slow in getting rid of their bacilli. One case was lodged and fed at the expense of the hospital for two months, for the sole reason that we failed to obtain two negative reports in succession. He was in robust health, and a particularly noisy and troublesome boy. Finally he was discharged, much to the relief of all concerned.

Various means were tried in cases of that kind to hasten the departure of the bacillus. Good results were finally obtained by atomizing strained lemon juice into the noses and throats six times per diem.

Cases which had resisted equally frequent applications of peroxide of hydrogen yielded promptly to this treatment. It is not a pleasant procedure. Children do not like it — but neither does the bacillus. At first it occasions considerable irritation about the nostrils and upper lip; but tolerance is soon established, and the end justifies the means. Since finishing this paper (May 13th) a sufficient number of injections of antitoxin have been given at the Children's Hospital, to bring the total close to five hundred, and with no fresh evidence to alter the views which I have expressed. I think that the fact that we have not had a single abscess resulting from so many injections, speaks well for the careful attention to cleanliness on the part of the internes of the hospital, Messrs. Hall, Wylie and Washburn, whose good and painstaking work deserves mention.

In conclusion, I wish to express my thanks to Drs. Ernst and McCollom for the unvarying courtesy with which they have borne the severe strain upon their patience which the many hundred cultures made at my request must have caused them.

INTRAVENOUS, MEDICATED INJECTIONS ACCORDING TO PROF. GUIDO BACCELLI'S METHOD.¹

BY RICH. HOGNER, M.D., BOSTON.

At the Medical Congress held at Rome in 1894, Professor Baccelli delivered a lecture² on intravenous — or as it is also called, endovenous — corrosive-sublimate injections, about which, among other things, he says that the method has been adopted widely in Italy, and that all who have had experience with it agree that it is "harmless, rapid and searching in its effects."

After Baccelli had reminded his hearers that it was he who "originated the idea of injecting medicament directly into the veins for malaria," he continued:

"Professor Nothnagel considers intravenous injections especially needless, inasmuch as one can treat subcutaneously with the same effect and without inconvenience, but Professor Nothnagel speaks without having had experimental acquaintance with the subject, while the tests up to this time, with their results, plainly show his *a priori* views."

Baccelli began with intravenous, medicated injections on animals; and when he found them not only harmless but to be "the most energetic, safe and rapidly working therapeutic agent against malignant diseases," he began in his clinic to apply them, in doubtful cases, to human beings, and with "fine results"; a success, moreover, which has been confirmed in the Italian clinics and in those of private practitioners in Italy. As there are only a very few reports of the use of the method in other lands, the following trial thereof may justly be described.

The intravenous medicated injections have been used by Baccelli, so far, only for malaria and syphilis — neutral solutions (ten per cent.) of quinine hydrochlorate, also corrosive-sublimate solutions (one to two per cent.); but Baccelli believes that the breach is opened, and that his method will spread widely, so much the more, as besides what has already been said

¹ Read before the Clinical Section of the Suffolk District Medical Society, March 20, 1895.

² Guido Baccelli: Ueber intravenöse Injektionen mit Sublimat, Berliner Klin. Woch., 26 März, 1894.

about the method, "it should not be ignored," he says, "that all pharmaceutical remedies finally are distributed — no matter how first applied — only by means of the circulating fluid in the body's organs."³

In favor of the intravenous corrosive-sublimate treatment for syphilis, may be mentioned:

(1) The small quantity of Hg used.

(2) The possibility of rapidly fighting the syphilitic symptoms which point to direct blood-poisoning.

(3) The prompt and searching effect on the walls of the vessels, which are the specially favorite place for syphilitic changes.

The technique of the method consists in choosing a vein, in the arm-pit fold, the hand, the leg or the foot — wherever, in fact, it is desired to make the injection. Bind the limb, centripetally, with a convenient bandage or rubber band, so that the vein will swell as much as possible. Make the fingers and the skin aseptic as for an operation, also inject, with a convenient syringe, the medicament solution chosen. From the beginning to the end, aseptic! "If the injection is made," says Baccelli, "after this manner, then no local phenomenon will appear." If one has injected corrosive-sublimate solution, the patient will get the taste of mercury in the mouth after a few seconds or minutes, and the salivation will result from a small quantity after five or six minutes.

The corrosive-sublimate solution used, is:

R Hydrarg. chlor. corros.	1.00 or 2.00
Sodii chlorid.	3.00 or 6.00
Aq. destill.	1,000.00

Of the weaker solution (one per cent.) one cubic centimetre, or one milligramme corrosive sublimate, is first injected; and then the doses are increased in strength — two, three, four, up to eight milligrammes corrosive sublimate at a time and in a day. With four milligrammes the strong solution is used, so as to avoid injecting too great a quantity of fluid. Of the stronger solution (two per cent.) one cubic centimetre contains two milligrammes corrosive sublimate, wherefore eight milligrammes — *dosis maxima!* — contain four cubic centimetres of the two-per-cent. solution.

Baccelli used immediately, in urgent cases, four to five milligrammes in his corrosive-sublimate treatment. With my experiments bandages were sometimes used after the injection, sometimes not; however, it is better always to use a little bandage afterwards.

The sign that the lumen of the vein has been reached, is, according to Baccelli, the cessation of pain from the injection and the absence of subcutaneous swelling.

A perivascular corrosive-sublimate injection is, moreover, so painful to the patient, that one would not willingly undertake so severe a treatment.

I have just used Baccelli's intravenous corrosive-sublimate injections in the case of a woman living in East Boston. She is twenty-seven years old, thin but rather strong, and the wife of a working-man. She has been married seven years; has had two children, who are six and four years old; also has had a miscarriage at the seventh month, in September, 1893, as she said, without apparent cause. In the beginning of pregnancy, brown "rosy spots" broke out all over her body, but disappeared in time, before the miscarriage, after which the body was said to be "white" again. At the time of delivery she was attended by

³ Not "all," not the insoluble ones; for example, bismuth for gastritis, etc.

an "old woman." The husband and the rest of the family showed no signs of syphilis. A month after the miscarriage another eruption appeared on the fore-arms, face, neck and legs — the chest was comparatively free — in size from a half-dime to a twenty-five-cent piece, in color reddish-brown on the skin, which here and there became confluent in still larger pigmentary spots, varying greatly in form and located on both the flexor and extensor sides of the arms and legs. The skin was not scaly, was without increased secretion, and did not itch. No other disease symptoms, except some swollen glands, were apparent. No sore on the genitalia or anus. Two months later a dimness appeared before the eyes. On examination, on the 24th of January, 1894, besides the above-named symptoms, numerous synechia on the capsula lentis. Ordered hydrargyri iodidum rubrum .01+ gm., and potassi iodidum .50 gm., three times a day; and after the patient had continued a while with this without the eruption growing paler, ordered daily inunctions of two grammes Hg in four grammes lanoline per day. The iritis had besides been treated with atropia and tepid wet dressings.

The patient was not seen for several months, not till the 15th of June, when she said she had used 60 packages (120 grammes) Hg, during several interruptions, necessary for mercurial stomatitis. The condition on the above-named day was as follows: Almost unbearable pains in the legs, especially at night. The parts of the body before named were covered for the most part with irregular, more or less pale, brownish pigment spots. On the forehead, under the roots of the hair, and under the outer corner of the right eye, besides an increased brownish-red, somewhat scaly, papulous eruption; also on the outer side of the right forearm. On the outer side of the right lower leg was found a somewhat excavated granulated sore the size of a half-dime, and on the front of the left leg a similar one about the size of a fifty-cent piece, also, immediately under it, a sore of the size of a cent, resembling an ulcer, which had undergone a deep scraping a few days before. There was a greater or less reaction of all sores, but they showed slight tendency to heal. Aside from a slight stomatitis and a lack of appetite, there was nothing further noticeable in the patient's condition.

As the case in question showed great obstinacy in yielding to the anti-syphilitic treatment so far employed, then, following Baccelli's advice, to "use the intravenous injections of corrosive sublimate in such forms of syphilis as showed themselves passive towards the usual specific treatment," and gaining the patient's consent, we decided to begin with injecting corrosive sublimate directly into the blood and ambulatorially.

June 15th. After making my hands aseptic with lysol solution, the patient's left elbow (upon which a vein shone forth through the skin) was cleansed with lysol, then with corrosive-sublimate solution (two per cent). An elastic band, cleansed in lysol, and as thick as a quill, was placed so tightly around the arm that the cubital veins swelled to their greatest extent. A common Pravatz syringe was then cleansed in lysol solution and in Baccelli's weaker corrosive-sublimate solution, very carefully; after which the syringe (one cubic centimetre) was filled with the same solution (one milligramme corrosive sublimate). The needle was then inserted in the vein, and a few drops of blood escaped around the needle; then the liquid was in-

jected very slowly but continuously. After one-half of it had been injected, the patient complained of numbness in the arm. The band was removed, after which the numbness disappeared and the rest of the liquid in the syringe was injected. No attendant subcutaneous swelling appeared. The injection was painless. The liquid injected was at summer heat ($+30^{\circ}$ to $+32^{\circ}$ C.). No taste of mercury in the mouth; no salivation. When the needle was withdrawn, another drop of blood followed. No bandage was placed on the arm. It may be added the patient's subcutaneous veins were unusually small and were with difficulty caused to swell.

June 16th. No reaction from yesterday's treatment. After the same preparation as then, an injection of three cubic centimetres (of three milligrammes corrosive sublimate) was made in a right cubital vein, with a ten-cubic-centimetre graduated syringe, armed with a fine morphine needle. The needle was not withdrawn immediately after the injection, but was left in the vein some seconds, while the patient was questioned as to how she felt; for the intention was, if possible, to inject a few more milligrammes of sublimate. In the mean time, a bloody liquid forced its way into the syringe. Consequently, the injection was not continued, but the needle withdrawn.

June 18th. Injected three milligrammes corrosive sublimate. In all respects the same as yesterday, including the penetration of blood into the syringe at the close of the injection.

June 19th. Injected four cubic centimetres of the weaker solution, that is, four milligrammes corrosive sublimate. As soon as two cubic centimetres had been injected a little pause was made, in order to change the direction of the needle, upon which blood forced itself into the syringe; it seemed to coagulate into the minutest particles, not instantly, but after several seconds. Was somewhat undecided as to continuing the injection; but as in Italy the method was proven harmless, and as it seemed to me at the moment probable that the injected corrosive-sublimate liquid had, though being very slowly injected, a similar effect on the blood in the walls of the vein with which it came in contact, two cubic centimetres more corrosive-sublimate solution were injected, on which a cloudy precipitate followed, also some uncoagulated blood. The corrosive-sublimate solution entered more quickly than the blood. All of the blood from the vein (about one-third of a cubic centimetre) followed the lower wall of the syringe; and although the syringe was held inclined from below upwards, it was impossible not to inject some of it as the operation continued. There was no disadvantageous results from the injection.

June 20th. The symptoms have not altered. The pains at night are particularly severe. The dose was increased to six milligrammes corrosive sublimate, or three cubic centimetres of the strong solution. Six hours after the treatment yesterday, the patient had slight chills and perspired freely, also felt weak. (The heat has been oppressive, and nearly every one has been affected by it.) Patient slept unusually well during the night.

June 21st. Injected three cubic centimetres two-per-cent. solution, or six milligrammes corrosive sublimate. The instant the needle entered the vein, blood appeared in the syringe. Before it was visibly coagulated it was injected together with the named quantity

of the solution. She had again felt pain in the legs during the night, but felt well otherwise. As the syphilis did not appear to be especially affected by this treatment, ordered simultaneously potassii iodidum, per os.

June 22d. So far the injections had been made into different veins in the elbow folds, and twice in precisely the same spot with intervals of times between. Injected now four cubic centimetres strong solution (eight milligrammes corrosive sublimate) into a vein in the right wrist, volar side. The needle appeared to be in the vein, yet, though the syringe was held inclined from below upwards, and the solution was not instantly injected, no blood was seen, as happened so often before, to enter the syringe. Accompanying the injection was a swelling alongside the vein, for about two centimetres, and the patient complained of pain. As it was evident the needle had come perivascularly, the injection was suspended after half a cubic centimetre, (one milligramme corrosive sublimate) had been used.

June 23d. After yesterday's treatment an appreciable swelling appeared on and around the spot pierced, also the skin was "black and blue." Injected to-day nine milligrammes corrosive sublimate in a vein in the left wrist. No inconvenience from it, more than a "queer taste" in the mouth about half an hour later, which lasted several hours.

June 25th. Complained of pain in the right elbow, where one of the veins, which had received two injections into almost the same point, felt rather hard for the distance of one centimetre with the ligature around the upper arm, scarcely any swelling of the vessels where a former injection was made is noticeable. An unused vein on the back of the left hand, swelled enough, however, and here an injection of five cubic centimetres strong solution (ten milligrammes or one centigramme corrosive sublimate) was made. Stronger metallic taste in the mouth than formerly; otherwise about the same as yesterday.

June 26th. No tenderness in the teeth. The gums redder, without being swelled, however. No diarrhea. General condition good. Syphilitic symptoms show a good tendency to disappear, although one cannot call the condition satisfactory in consideration of the strong treatment. The patient, who has been for some time taking one and a half grammes potassii iodidum per day, has to increase the dose to two grammes per day.

June 27th. Injection of five cubic centimetres (one centigramme corrosive sublimate) in the right foot's dorsal vein. Some drops of the fluid came, in the beginning, perivascular.

June 28th. Patient says her foot was very painful after treatment yesterday. Foot was very swollen and red on her arrival home. She felt later creeping and cramp in her body, and wanted to sink down every time she rose; had nausea; felt numbness in her body; had something like trembling in her face, hands and legs. Teeth tender (but not loose). Has stomatitis to-day; feels weak, but only the symptoms of the foot and mouth—of those already named—remain, the former of which is red, swollen on the back and tender up to the tibio-tarsal joint and above, precisely as during an acute, mild phlegmon. Ordered no corrosive-sublimate injection, no potassii iodidum. Lying still. Lead water compress.

June 29th. All symptoms decreasing. Patient takes potassii iodidum again, but in small doses, because she appears not to tolerate large ones.

July 6th. Foot no longer red; some swelling and tenderness in the tibio-tarsal joint. The pain in the left leg, which disappeared a while, has returned since. The potassii iodidum mixture was exhausted four days ago. The old papulous eruption seems to have disappeared, but new eruptions appear to be coming. Ordered hydrargyri iodidum rubrum and potassii iodidum in pills.

July 16th. Has not taken any pills for three days, because diarrhea set in. The more recent syphilids are worse than two weeks ago, and, besides, small balls and holes appear in the right leg. The right foot is perfectly free from tenderness or swelling. Began again with intravenous corrosive-sublimate injections, without accompanying iodine treatment. Injected five milligrammes corrosive sublimate into the left-arm fold. Immediately following the insertion of the needle, blood appeared in the syringe. By holding the instrument much inclined downwards, the solution (which was at once injected and hindered the entrance of more blood to the syringe) could be injected without the blood—which kept to the lower side of the syringe—entering the vein again; anti-septic bandage afterwards.

July 17th. On the middle of the left forearm injected four cubic centimetres, strong solution (eight milligrammes corrosive sublimate), of which nearly half came perivascularly; followed by swelling. Massage; bandage.

July 18th. Upper half of the left forearm swollen, red and with increasing local temperature. The facial papulae were cauterized with solution corrosive sublimate in alcohol (one to five); besides this no other treatment than cold compresses on the forearm.

July 21st. Patient, who has had to remain for three days on account of the swollen arm, and so did not have any syphilitic treatment, was found better in the left arm, but new eruptions had appeared on the right cubital region. After putting the band round the right upper arm, a vein on the middle of the under arm appeared somewhat swelled. On attempting to penetrate the vessel, a little blood entered the syringe through the needle; but when the liquid was injected, perivascular swelling appeared, for which reason the needle was instantly withdrawn and a new attempt was made with a vein on the back of the left hand, with the result that five cubic centimetres (ten milligrammes, that is one centigramme corrosive sublimate), could be injected without pain and which expanded the vessel nearest above the needle to considerable extent, but which disappeared after some seconds. The swelling, therefore, was not perivascular or subcutaneous, but depended on the injecting fluid not being carried away quickly enough, hindered by the band which strangled the upper arm and which was not removed till the injection was entirely finished. Bandage applied. Patient said afterwards that she got the metal taste in her mouth immediately after leaving office. After a few hours, headache and diarrhea, which latter continued the following day a little. After coming home (making it an hour after the treatment) the patient noticed that her *right* forearm was swollen, but no pain was felt. The left hand and arm seemed to be normal.

July 23d. The right arm very slightly swollen, and several ecchymoses in the skin where the band sat, also for some distance down.

As all veins suitable for injection seemed to have

disappeared the intravenous treatment had to be given up entirely. Some improvement, though very slight, has taken place in all respects. Ordered potassii iodidum.

August 19th. The sore on the left leg is half healed, but new eruptions of small gummata have appeared on the right leg. Ordered syrup Giberti in increasing doses, as large doses as possible.

September 3d. Patient improving very little.

It cannot be denied that Baccelli's treatment of syphilis with intravenous corrosive-sublimate injections showed itself harmless, even in this case. The maximum dose should not exceed eight milligrammes.

The patient received, however, one centigramme three times; twice without any injury at all, but once when one centigramme corrosive sublimate was injected on two following days, the latter injection of one centigramme was accompanied with alarming symptoms of mercurial poisoning. The symptoms, however, decreasing very soon.

Several times, in spite of all attentions, the injections became perivascular instead of intravascular, with the consequent pain and swelling, which sometimes compelled the suspension of the treatment; but finally the marvellous fact appeared that the veins became smaller and at last were not large enough or available for injections, which perhaps shows, as Baccelli says, "the prompt and searching effect on walls of the blood-vessels," although in this case almost too strong.

In the case before us, the intravenous treatment did not act so "quickly" or "powerfully," but the patient seemed to be able to bear very much, almost one centigramme corrosive sublimate intravenously. She did not get salivation or stomatitis after nine milligrammes, only a taste of mineral in the mouth, which quickly disappeared, which, however, is so much the more remarkable, as she got diarrhea after comparatively small doses of mercury and potassii iodidum per os. We have clearly a case of very rebellious syphilis, rather refractory against mercury; but the intravenous treatment showed itself, however, to be of use, and, finally, although slowly, caused a change in the disease for the better.

There is do doubt but the intravenous, medicated treatment of diseases is a step forward, and to be resorted to in some cases, when other methods fail.

Dr. Kezmarsky⁴ has recently published two cases of venous sepsis, treated with intravenous injections of corrosive sublimate, one to eight milligrammes, *pro dosi*, and, as it seems, with good results.

Last November I had a similar case:

Mrs. A., forty years of age, delivered by a midwife from her fifth child, took ill the following day with fever and very great pains in the *articulationes ileo-sacrales*. She was given a pelvic girth and (per os) some phosphorus, and was getting along better every day, when on the sixth day she got chills and (suddenly) increase of fever. When I saw her at this time she had all the symptoms of venous sepsis, with almost no local symptoms by palpation and touch of the pelvic organs. Lochia were normal or perhaps a little fetid. The tenderness in the joints was gone. The condition of the patient was half soporous, and so bad that I found it hopeless and too dangerous to curette. She was given an intra-uterine washing of lysol solution, one per cent., and an intravenous in-

⁴ *Centralbl. f. Gynäk.*, 1893, No. 38.

jection of corrosive sublimate (three milligrammes à la Baccelli).⁵

The seventh day of the disease no washing, because the lochia were not fetid at all, intravenous injection of five milligrammes corrosive sublimate; the eighth and ninth day of eight milligrammes. The eleventh and twelfth days diarrhea. No corrosive-sublimate injections; quinine, ergot, opium. The thirteenth day eight milligrammes corrosive sublimate intravenously, and an intra-uterine washing, because of a little fetid lochia. During all these days the temperature was very irregular, from $+38.5^{\circ}$ to $+40.5^{\circ}$ C. Pulse 124-130; very weak. The patient sometimes had chills. She was weaker for every day, but somewhat less soporous.

The fifteenth day, no injection. The temperature at 6 P. M. $+38.6^{\circ}$ C. Following morning $+40.6^{\circ}$ C. When I could not find any especially good result from the intravenous corrosive-sublimate injections, I omitted them, especially as they could be made only in the dorsal veins of the hands, which swelled in the case more than the cubital veins, and it was very difficult always to prick on the same vessels.

As the very poor patient had no nurse and no help in her home, she was on the seventeenth day sent, although much weakened, to the hospital, where she died after four days. The autopsy gave "grayish" endometrium with numerous colonies of staphylococcus and some other bacilli therein and in the liver, the blood, etc., also in the infarctions of the kidneys, spleen and valvulæ cordis.

The result might perhaps have been different if the intravenous corrosive-sublimate injections had been given earlier and from the beginning stronger. It cannot be denied, however, that the idea may in some degree be a rational one, that to sterilize the blood, or rather to somewhat weaken the bacilli as to the organism itself, is more easily to overcome the infection; and it seems to me that the scraping and antiseptis of the endometrium combined with intravenous corrosive-sublimate injections, perhaps may at present be the most rational treatment of puerperal fever; so much the more as the intravenous injections do not seem to destroy the antibacillar or antitoxic power of the blood, but only co-operate to overcome the infection.

As we know, Baccelli first employed intravenous injections, namely, neutral quinine hydrochlorate solution, for malaria, with very good results; and when cases of febris intermittens pernicioso, defying the usual treatment, are found, as talked of in our Section last spring, then this treatment may be vouchsafed for in some words.

In a letter to me, dated Rome, July 5, 1894, Baccelli gives the following formula:

R Quininae hydrochlorati,	10.00
Sodii chloridi	0.75
Aque distillate	100.00

Adding that the solution should be warmed to boiling point, then cooled to $+37^{\circ}$ or $+38^{\circ}$ C.;⁶ also be injected to the amount of five grammes of liquid (0.50 grammes quinine hydrochlorate). The injection is performed as above described.

Baccelli's closing words about the subject, "Attenzione alla antisepsi," are to be remembered.

⁵ All the following injections were made without inconvenience with a solution of chamber temperature, that is, of about $+18^{\circ}$ C.

⁶ A little under this temperature the quinine is mainly precipitated.

THE CAUSES OF SUDDEN DEATH.¹

BY THOS. M. DURELL, M.D.,

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IN the discharge of his official duties the medical examiner is called upon to view the bodies and to examine into the cause and manner of the death of such persons as are supposed to have come to their death by violence. A large proportion of the number of cases that are investigated each year by the examiners are cases in which a simple view of the body is made, without autopsy. This is an unfortunate state of affairs; still it is the law, and we must abide by it. On this account the matter of post-mortem diagnosis is of vital importance to us; and it is for this reason that I have presumed to bring to the notice of this Society a matter which has been discussed and written upon until one may fairly ask, What new can be said upon it? For all this, one can never be called upon to view a dead body without being confronted by the same difficulties that have annoyed the medical expert for all time.

The saying of Dr. Holmes upon the subject of phrenology is often suggested to me in this connection; you will remember that he said "that one could tell about as much about what was inside a skull by feeling of the outside, as one could by feeling of the outside of a bottle without smelling of the cork."

We have all felt for a long time the almost uselessness of views without autopsy; but under the existing laws we are obliged to do the best we can; and I think that experience has shown that the examiners have become wonderfully expert in this direction with the limited means at their disposal.

The language of the statutes is very wise, and has suggested a means of solving a part, at least, of this difficulty. I refer to that part which I have already quoted, namely, "to examine into the cause and manner of the death."

A careful inquiry into the manner of the death is of the utmost importance; for this manner of death is the real clinical history of the case, if I may be permitted to use that term as applied to a death history. By these means we have been enabled to learn some few things, and I trust that I may in this paper add my mite to the grand total.

It is a popular belief, not only among the laity but among the profession as well, that the cause of sudden death is either a disease of the heart or an apoplexy; but we certainly know now that there are very many other causes than these, and we also know that persons do not die very suddenly from a cerebral hemorrhage, and that in these cases there is always a period, longer or shorter, of unconsciousness with stertorous breathing.

The causes of sudden death as given by Tidy, are as follows:

(1) Disease of the heart (especially fatty and brown degeneration), aortic regurgitation, interstitial abscess, rupture of the heart or of its valves, diseases of the pericardium.

(2) Diseases of the blood-vessels (especially aneurism and thrombosis), large effusions of blood into the brain or its membranes (cerebral and meningeal apoplexy).

(4) Pulmonary apoplexy and hemothorax.

¹ Read before the Middlesex South District Society.