

## SOCIETY PROCEEDINGS.

### MASSACHUSETTS MEDICAL SOCIETY— SUFFOLK DISTRICT.

SECTION FOR CLINICAL MEDICINE, PATHOLOGY  
AND HYGIENE.

ALBERT N. BLODGETT, SECRETARY.

*Meeting of November 11, 1885.*

FREDERICK I. KNIGHT, M.D., IN THE CHAIR.

DR. S. C. MARTIN, of Roxbury, read a paper on  
THE INOCULATION, PROPAGATION, AND PRESERVATION  
OF THE VIRUS OF ANIMAL VACCINE. WITH A DE-  
SCRIPTION OF THE APPEARANCES OF KINE POX, AND  
DEMONSTRATION OF THE VACCINE VESICLE UPON  
HEIFERS.

Before entering upon the more practical part of his remarks, he said: It is important to define just what true animal vaccination is. I know of no better definition than that by my father: "The inoculation of a young selected animal of the bovine species from an original spontaneous case of cow-pox, from this, others and so on, in continuous and endless series, as the source and the only source of virus for the protection of the human race against variolus disease." This alone is true animal vaccination. Retro-vaccination, or the inoculation of animals with humanized virus, is an entirely different matter and has nothing to recommend it.

A few words in regard to some of the various stocks of cow-pox. On March 28, 1866, the famous case at Beaugency, France, was discovered. From virus derived from inoculation from this, Professor Depaul continued the propagation of animal virus at Paris, under the auspices of the Academy of Medicine. This was the stock introduced into this country by my father in 1870. Various other cases of spontaneous cow-pox have been discovered from time to time in Europe, with virus from which animal vaccination has been and is still carried on in a number of establishments, notably at Brussels, Amsterdam, Rotterdam and the Hague. After the first experimental inoculation of two calves, animal vaccination was not carried on at Beaugency, but was immediately transferred to Paris, and to that city the practice of the method in France was confined. A knowledge of this fact may, perhaps, in the future prevent a repetition of the ludicrous mistakes which we occasionally see in print, that various individuals have from time to time imported animal virus into this country from Beaugency. When in Paris in 1873, my father was assured by Professor Depaul that the Beaugency virus, sent to him in 1870, was the last which left the city before the siege in that year, and that during the siege, the "stock" was lost. The animal virus employed since the Franco-Prussian war, is from other stocks, discovered since that of Beaugency.

In February, 1881, a case of suspected cow-pox was reported to this society by Dr. E. W. Cushing, and was immediately referred to my father, who accompanied Dr. Cushing to his brother's farm at Co-

hasset. He there found several cows suffering from an eruption on their teats and udders. With virus from these, my father and myself inoculated several animals as well as children, obtaining undoubted typical vaccinal effect. This stock I have continued uninterruptedly since, and, as far as I know, it is the only authentic case of cow-pox in this country which has been preserved. I keep up three different stocks continuously, namely, the Beaugency, Cohasset, and the Esneaux stock imported from Dr. Warlomont, of Brussels; reserving the upper flank of the animal for the Cohasset, the lower flank for the Belgian, and the belly for the Beaugency, thus keeping the three stocks entirely distinct, and issuing the virus from all indifferently. They appear to be all equally typical in appearance and results.

It goes without saying that the animal to be vaccinated should be in perfect health and condition. This must be preserved by proper sanitary measures not necessary to detail here. The animals should be from six to eighteen months old. Too young animals are troublesome to care for and manage, and those too old and large are not only difficult to control, but, notably in the case of those which have borne calves, are probably not free from danger of tuberculosis. I use bulls and heifers indifferently. The animal is secured upon the operating table, portions of the flanks and belly are cleanly shaved, and scarifications are then made in precisely the same manner as in the human subject, not deep, but merely sufficient to produce a slight appearance of serum tinged with blood. These I make some three-quarters of an inch by half an inch in size, and place them at intervals of at least an inch and a half apart. The fluid virus taken directly from an animal, in which the disease has matured and lying upon an adjoining table, is then thoroughly rubbed into these scarifications. The disease matures at about the seventh day. In this, however, experience and careful inspection of the vesicles is necessary to determine the precise time, it depending somewhat on the condition of the animal and climatic influences. During the progress of the disease, the animal is but little affected, the temperature rarely rising more than two or three degrees. Occasionally in a very fine development of the disease, the animal may lose its appetite for a day or two.

The vesicle on being opened, is wiped clean of any blood or pus, and gentle pressure is then applied. The fluid contained in the vesicle is of a light amber color, and should have an unctuous, smooth character. In animals where the disease is accompanied by excessive action, as shown by much tumefaction of the surrounding tissues, a large amount of thin, almost colorless fluid is poured out, due to an admixture of excessive flow of serum with the virus itself. I shall speak of this matter more at length in a moment. In some calves, from the finest vesicles it is impossible to obtain lymph without a certain tinge of color, due to the admixture of a minute quantity of blood. This, it can be readily seen, is not of the slightest importance in virus taken from the animal. It was always my father's custom, and is my own, to use those points most tinged, not only for vaccinating other animals, but also for human vacci-

nation. The sharp end of the ivory points is charged on both sides with the fluid virus as it exudes from the vesicle. When dried, the points are wrapped in cotton in packages of convenient size, then in paper, and finally are hermetically sealed in gutta-percha tissue. This effectually guards against moisture, and if care be taken to keep them cool as well, they will retain their efficacy for a considerable time. I have myself made vaccinations with points so kept for over a year, and have obtained perfectly good and typical results. This, however, is not recommended. Points should be ordered only in small quantities as required, and used within a few days or weeks. In this, and also in all the details of propagation, it is not what may perhaps suffice, but what experience has shown is safe and good beyond peradventure.

As to the form of virus, I recommend nothing but fluid lymph dried upon ivory points, prepared as above described. Crusts are likely to prove inert, and, unless used with the greatest care, may cause very bad results from partial decomposition ensuing after the crust has been moistened. They are apt also to encourage highly undesirable methods, such as inserting the dry, pulverized crust, or portions of the crust itself into punctures; also mixing with water, and allowing the mixture to remain too long exposed to the air. This was one very serious objection to the "solid lymph cones," formerly sold in large quantities, but now, it is believed, no longer in the market. These were composed of crusts and fragments of crusts, powdered, moistened and molded into cone-shaped masses. They were not only open to all the objections applying to crusts, but the mode of their manufacture rendered them peculiarly liable to dangers evident to any intelligent physician. Storing fluid lymph in glass capillary tubes has been found very unsatisfactory. It was at one time much in vogue, but experience has shown that virus so stored is extremely likely to prove inert, and unless sealed perfectly tight may become decomposed and dangerous. One great merit of points is, that it is well-nigh impossible to have serious complications attending their use, if they are charged with pure active lymph in the first instance. They either produce typical vaccinia, or, at the worst, prove inert owing to some accidental cause subsequent to charging. In distributing any form of virus, we must bear in mind that among so large a body of men as compose the medical profession, some will be found who will not use proper care on all occasions, and it is most important to issue only that form with which it is impossible to go wrong.

The propagation of animal virus, and its distribution to physicians, are at present, in several ways, in an unsatisfactory state. The *New York Medical Record*, in its issue of October 24th, 1885, editorially says: "At present in all large centres, bovine virus in vaccinating is largely used, and the steadily increasing demand for this has led to the formation of companies who undertake to cultivate and sell it, with a view primarily, to making money. These companies are not, as a rule, under any official supervision, and are at perfect liberty to disseminate worthless crusts or septic poison among the people.

We learn as an illustration that, with a lot of bovine virus recently sent to Montreal, there were one hundred and two trials and one hundred and two failures, while other specimens have produced badly inflamed arms. Here, surely, is a most anomalous condition of things. It is apparent at once that this cultivating and selling of virus should always be under some official supervision. Most States indirectly compel the vaccination of children, and they should in all justice see that this vaccination be made with pure and efficient material. But the public supervision of vaccine companies is not yet carried out as it should be, although it is a measure most imperatively needed for the security of the people."

The distribution of virus to physicians is now largely done through druggists and instrument makers. My father and I have for several years refused to supply virus except directly to physicians, or through the hands of local agents in Boston for the convenience of the profession. We continued this rule until it became evident that physicians would not take the trouble to procure it direct, but preferred to rely on the nearest druggist. This is all wrong. Vaccine virus is not a substance to pass through three or four intermediate hands before reaching the physician. It is peculiarly liable to deterioration, and, furthermore, the physician should know just who propagates the virus he uses. I fear that in many cases he is entirely in the dark as to this. Many propagators do not do business under their own names. Large numbers of "Companies" are advertising widely. Possibly, some of these are regularly incorporated companies and are conducted by competent men; but it is believed that some of them adopt the title merely as a convenient *nom de guerre*, like those of certain "Institutes" composed of a "Board of Physicians," in whose spacious laboratories skilled chemists and *savans* compound precious elixirs for the relief of noble but erring youths. I wish to emphasize this matter somewhat for the reason that physicians have become far too careless as to the source of their vaccine supply. The druggist naturally will sell the virus on which he can make the most profit. Animal virus, properly and honestly propagated, is not cheap. By improper methods it can be produced in immense quantities. The temptation to do this, particularly in times of great demand, is irresistible to men who have no professional reputation to sustain, and who look upon the matter as a "business or trade."

I have described and shown what I consider the proper method of inoculating the animal and preparing the virus. My father and myself after many experiments, found it to be the best. The number of points which an animal vaccinated in this manner will yield is comparatively small; but I consider that any attempt to increase the yield is fraught with certain dangers. In times of great demand (the time above all when only what is known to be the best should be practiced) certain propagators have found this method far too old-fashioned and "unbusiness-like" for their views. An animal must be made to yield 15,000 to 20,000 points, or more. To accomplish this the following expedient has been adopted.

A full-grown cow is usually selected on account of its size. Scarifications from two and one-half to three inches in length, by some two to three inches in width are made on the flanks at intervals of about an inch apart. These produce large inflamed surfaces, often coalescing, so that at the end of seven days, one large sore will often occupy the whole escutcheon of the animal. Upon this being opened, an immense flow of *colorless* fluid results, with which points are charged. I state the method to you, and say frankly that I utterly disapprove of it. Such extensive scarifications with the great attendant inflammation, must necessarily produce an excessive flow of serum, and it would be a bold man indeed, who would confidently pronounce the resulting fluid free from the products of inflammation. It will readily be seen that such immense sores will yield an almost unlimited supply of this fluid. It seems to me that the practice is fraught with dangers, evident to any intelligent physician. Suppose the only possible trouble to be apprehended from such virus was either failure to produce typical vaccinia, or the production of vaccinia, *plus* a certain amount of inflammatory action, greater or less.

Surely, there being a better way, it should be practiced in preference, even if not so profitable and even if it did not allow the propagator to be so "liberal" to agents and boards of health.

The wholesale propagation and distribution of improperly prepared virus have done infinite harm to the reputation of animal vaccination. My father introduced the method as an improvement on the existing state of things. It is an improvement, and a great reform, if properly and honestly carried on; but many reports, a few of which I read to you, tend to show that from certain causes it is capable of becoming the very reverse of a reform.

The Board of Health of Louisiana writes, May 16, 1882: "Failure with bovine points during the present season has been the rule rather than the exception." The Secretary of the State Board of Health of Arkansas writes, April 28, 1882: "The trouble in this State has been not so much from the bad effects derived from bovine virus, but rather, from obtaining ro effects at all. Reports have reached me from all parts of the State in regard to the worthless character of much of the bovine virus employed." The Secretary of the Medical Association of Alabama writes, April 30, 1882: "To sum up the whole in brief, the profession here to a man prefer humanized virus to the bovine lymph in any form, and have long since abandoned it." The State Board of Health of Minnesota writes, April 28, 1882: "There has been much complaint in all directions."

Dr. E. L. Griffin, of Fond du Lac, Mich., an intelligent and able propagator of virus, writes, February 8, 1882: "I fully sympathize with your views on what is being done during the boom to supply the demand, and greatly fear that animal vaccination will get a bad set back from the experience of this season." The same gentleman writes, March 6, 1882: "Those infernal 'cones' have done much mischief, I believe, in the West. The other day I got a sharp letter from the Secretary of the Board of

Health of a neighboring city, upbraiding me on the quality of my virus, saying that it did not give typical developments of pock, but produced enormous sloughs and sore arms, etc., and wished to know what I was going to do about it. Upon inquiry by correspondence, I found that they had been using cones, obtained from a druggist in Chicago, and that the stuff was represented as coming from me."

Dr. D. A. McLean, of Stanton, Mich., writes, May 8, 1882, in regard to his experience with points from the notable vaccine company before referred to, whose virus was propagated by farmers. This virus he obtained through a druggist, supposing it to be that propagated by the gentleman who exposed the fraud, as narrated before. Dr. McLean writes:—"The remaining 1400 cases were vaccinated with points obtained from that institution. A large proportion of these cases were very severe, the fever high and very frequently confining them to the house for a week or more. The local manifestations were great swelling, redness, pain, in fact all the symptoms of vaccinia greatly intensified, and frequently resulting in a deep, foul, and very offensive ulcer. These were very slow to heal; in fact, at this date, nearly three months after the vaccination, I am told that some are not healed. In a large number of cases, I am satisfied that no true vaccine pustule was formed, merely a septic sore, and these were the worst cases to heal, and the constitutional disturbances were the greatest. From my experience I am led to believe that the virus was not pure, that is, proper care had not been used in propagating and preparing it; that pus from ordinary suppurating sores had been used to charge the points, or at least had become mixed with the vaccine virus."

Dr. Benj. McCluer, of Dubuque, Iowa, writes, July 7, 1882: "I used one 'cone' during my vaccinations last December and January. I became fearful of them, as also of the points. The vaccinations were so severe in development, such immense ulcerations occurred in apparently healthy children, that I became doubtful in regard to the propriety of vaccination at all. In fact, I lost all confidence in the integrity of the parties dealing in vaccine matter, and felt that they were actually trifling with the health and lives of the community, as well as the character and honor of the profession which was procuring the supply of vaccine matter from them. I do hope that some way may be developed by which in the future the profession may be able to secure pure vaccine."

Dr. John B. Weston, of Chester, Pa., writes, October 6, 1882: "Part of the time I used a cone which came in a metal box with a file. Part of the time I used a crust. My experience with the cone was vexatious in the extreme. Erysipelas was not infrequent, and I am afraid that the fever and disturbance in one case, if not in two, caused a child's death. The sores in most cases were horrible, and many told me that they would rather have variola itself than what they had gone through. It was not due to any carelessness on my part, for I did not use any a second time, or mix one day's filings with another, so I know the fault was not mine."

Dr. T. S. Hopkins, of Thomasville, Ga., writes to the *National Board of Health Bulletin* of March 4, 1882, describing the effects of vaccination with virus in the form of "cones:" "The result has been fearful. Nearly every one vaccinated has suffered severely from erythema, or erysipelas, the arm swollen from shoulder to wrist, and the point of puncture presenting the appearance of a sloughing ulcer discharging freely sanious pus. Many of the cases have been confined to bed with high fever from five to ten days, requiring the constant application of poultices, and the free use of morphia for the relief of pain. It (the virus) 'takes' in all cases, regardless of previous vaccination as shown by well-pitted mark, and the inflammation begins frequently on the second day. Those who have tried it tell me they would much prefer to have small-pox."

I have reports of many more similar groups of cases, but will not prolong my quotations to a tedious length. The above are merely selected as being well-marked instances, showing clearly the symptoms of septic poisoning in a greater or less degree. It will be observed that the above are groups of cases, showing precisely similar symptoms in a large proportion of the persons vaccinated. Single isolated cases of even severe complications, the result of accident, or in unsound or sickly subjects, prove nothing; but such instances as given above are unmistakable. The vaccinia induced by heifer-transmitted virus is characterized by a certain intensity of action which might be startling to one accustomed to seeing only the effects of the enfeebled virus of long humanization; but this intensity is not to be deplored, and is only what is necessary for proper protection against variola. It should run a regular course, the vesicle should not break down except through exposure to violence, and, finally, the crust should fall, leaving a healthy, thoroughly healed cicatrix.

The complications spoken of above, as well as the woful lack of success, are not due to the *practice*, but to the *malpractice* of animal vaccination. With animal virus properly and honestly propagated, the chances of failure or serious complications are exceedingly small. Practically the only guarantee which the physician has that the substance on the end of an ivory point is pure virus, or, indeed, that it is vaccine virus at all, is the reputation, skill and honesty of the propagator. So long as physicians and boards of health will buy and recommend virus simply because it is cheap and produces a "sore arm," utterly regardless of the source of supply, or whether the propagator is a physician or not, so long may we expect a reckless increase in production, the keenest and most dishonest competition, and such results as I have shown above. Animal vaccination is too efficient a safeguard against a loathsome disease, to have its good name injured by ignorance or knavery. The remedy is in the hands of physicians. They should inform themselves of the source of supply of the virus they use, and if abuses arise, should denounce them fearlessly, and not leave the disagreeable task to persons whose pecuniary interest in the matter renders their motives liable to misconstruction and willful misrepresentation.

The discussion was opened by DR. S. W. ABBOTT, Chairman of the Massachusetts State Board of Health, who stated that he had been interested in the subject of vaccination as a protection from small-pox for many years. During the late Civil War, the source of the virus obtained for the army was from retro-vaccination from the human species to the bovine, and from this source many thousands of soldiers acquired immunity from small-pox. Dr. Abbott entirely agreed with Dr. Martin in the necessity of the greatest care to preserve the purity of the bovine virus, and in the importance to the medical profession and to the entire people that the business of propagating vaccine virus should be intrusted only to such persons as are well known, responsible, and honest; besides possessing the necessary medical knowledge required for the safe and scrupulous management of so delicate a pathological process as is that of the vaccine disease in cattle.

The virus of vaccine is subject to many dangers even when most carefully produced and most thoroughly protected. From the moment the lymph leaves the parent vesicle in which it was formed, it is undergoing a process of deterioration. Under some conditions, the best virus may become quite useless as a protection against the ravages of small-pox. I have known this to be the case in many parts of the United States, and to some persons, it has been the cause of a loss of confidence in the utility of vaccination as a prophylactic measure. Dr. Griffin, who is one of the pioneers of vaccination in the West, has observed the same failure in regard to the protective power in the virus, which he traces to the following causes: *First*, the great distance from the source of the virus, which necessarily exposes this delicate material to many undesirable changes of temperature, and to a longer period of time between its production and the time of its use for protective inoculation. All virus is exceedingly perishable, and is constantly suffering from the moment it leaves the heifer. There is no doubt that ivory points are much to be preferred for the preservation of the virus, as they are smooth, shapely and convenient, and are beyond question the most useful carrier ever employed.

The use of crusts resulting from vaccine vesicles, or any portion of the dried scab, should be utterly abolished, and these substances should be entirely discarded in the protective and prophylactic treatment of variolous diseases. Many accidents have occurred from their use for purposes of vaccination, and not a few unfortunate complications, such as erysipelas, abscess, sloughing of the skin of the arm, and occasionally, septicaemia and death, have followed the introduction of the scab, or crust, or the so-called "cones," or parts of these substances into the human system. Of all these materials for inoculation, the "cones," which were formerly more extensively employed than now, are undoubtedly the most dangerous, as they were manufactured from scabs, crusts, and other products of the vaccine process, together with the frequent admixture of manure and other forms of filth and decomposition.

The proper time for preserving the virus for inoc-

ulation is at a period before the crust is formed. After this time, the contents of the vesicle become purulent, and the resulting scab or crust is formed in part at least, of the dried and changed pus of the later stages of the vaccine sore. When a scab is used, the pus is introduced into the system. The results of infection of the system with the products of septic suppuration are too well known and of too grave a character to warrant the employment of a method involving the needless exposure of human beings to the unnecessary perils of so grave and unscientific a procedure under the guise of hygienic protection from a loathsome infective disorder.

The use of capillary glass tubes containing lymph is also to be discouraged, as the fluid contents are very easily decomposed and may be already in a putrid condition when employed for vaccination. The tubes may also contain many foreign germs, which certainly contaminate the virus and may entirely pervert its usefulness. The contents of the tubes is also often diluted with glycerine or some other fluid, sometimes, no doubt, as a means of preserving the virus, but frequently, also, it is to be feared for purposes of fraud in "extending" the virus. Dr. Abbott spoke of the incongruity of terms designating variola in the cow as a "spontaneous" disease. When we ask ourself, "what is a 'spontaneous' disease?" it seems hardly logical to include among such diseases one so highly infectious, so thoroughly marked and so definitely limited as is cow-pox. Is it, indeed, possible that an infectious disease can arise spontaneously?

DR. ABBOTT stated that he has seen no less than twenty cases of cow-pox among the cattle belonging to farmers in Massachusetts. The nature of the disease was tested by inoculation of children, in whom it produced sore arms. True vaccination will not "take" on animals which have had this disease during at least two years. Those milking such diseased cows will frequently acquire the disease upon the hand, from contact with the cow's udder. One cow has often proved a source of infection for others of the same herd, by transmission of virus from one to another by means of the hands of the milkers. This has been successfully prevented by the simple precaution of milking the diseased animal after the others. Such cases among domestic cattle have been observed in Lexington, Woburn, Saugus, and some other towns, and were considered both by the farmers and the State Board of Health to be undoubted cases of cow-pox. The production of animal virus is accompanied by much sacrifice of time and money, and much disappointment and vexation, owing to the spasmodic character of the demand for it as a protection against variola. During the times of epidemic small-pox, the demand for virus is very large, while in time of absence of the disease, the demand for virus is almost nil. It is therefore highly important that the production of vaccine virus should be in the hands of trustworthy and responsible men, in order to insure the integrity of its propagation in time of peace, as well as the integrity of quality in periods of epidemic small-pox.

The medical profession of the United States should recognize the laudable efforts of Dr. Martin to main-

tain and propagate pure and efficient virus, and support him in his beneficent work as they supported his father before him. Vaccination can be made thorough and protective only by observing accurate methods in its employment. One of the chief disappointments in vaccination is due to the advanced age and consequent deterioration of the virus employed. A complaint was recently made by a physician in a distant part of the State, that the vaccine obtained for use in that town was quite worthless; and produced no appreciable result in any case. Investigation revealed the fact that the physician derived his vaccine from the local druggist, who had obtained a supply some time before from a wholesale drug store in Boston. In this case the virus had passed through several hands before it reached the physician, and much time had elapsed between the charging of the points from the heifer and the vaccination for protection from variola. It would be desirable if all packages were dated so the physician might be sure that the virus was of a recent production. Otherwise the whole process of inoculation as a protection from small-pox might be justly described in the words of a distinguished French physician who said, "Vaccination is a deceptive operation performed with hypothetical virus." It may be added, that if due attention were given to the source from which the virus is obtained, and proper care is exercised in the operation of vaccination, there would probably be much less or none at all of the excited sentiment and frequently also open opposition to preventive inoculation for small-pox; and anti-vaccination riots would be no longer known.

DR. J. H. MCCOLLOM, City Physician of Boston, stated that he entirely agreed with Dr. Abbott in the importance of employing only the virus procured from well known and honorable sources, as we otherwise have no guarantee of its power as a protective, or of its freedom from foreign and dangerous contamination. Dr. McCollom has used virus procured from Dr. Martin as well as that coming from other sources. He has occasionally seen the virus produce very sore arms but has never observed bad results. He now unqualifiedly recommends bovine virus. Human virus was formerly very generally employed, and this too without any bad results, but the protective power of humanized virus is infinitely less than that of bovine virus. One of the greatest curiosities in vaccination is the influence of the vaccine disease upon true variola. This was recently illustrated in the case of a man who was exposed to small-pox and two days later was vaccinated with cow-pox. The eruption of variola appeared, as did also the vesicle from the vaccination. The two diseases progressed, but the vesicles of small-pox *never became pustular*. The entire disease was checked at the vesicular stage. The importance of vaccination after exposure to small-pox is therefore even greater if possible than before exposure to that disease. The virus obtained from the inoculation of young heifers is preferable to that from cows, owing to the liability of the latter to tuberculous disease. In the light of recent studies in tuberculosis it is important to avoid the possibility of infecting the human body with germs of this disease.

DR. S. L. ABBOTT asked if it were the experience of the present season that the inoculation with bovine virus is followed by unusually severe results. In many cases there is much constitutional disturbance. Is it possible that the existence of small-pox at this time provokes an unusual reaction in the system after vaccination?

DR. MARTIN replied that true animal virus is characterized by a certain intensity of action more than is observed from humanized virus. Instead of a mild vesicle at the seventh day, we observe a well-marked disease which may last from twenty-one to thirty-two days. The areola appears at the ninth to tenth day and the fever also appears at that time. A crust is formed after the fall of the scab from the original vesicle. The process affects the entire thickness of the skin and not simply the epidermis. The intensity of the reaction is a valuable indication of the protective power of the virus. Indeed the earlier observers of this process judged the success of the inoculation from the degree of fever produced. The bovine virus induces a distinct disease which protects the animal system from an invasion by small-pox, which humanized virus does not. The arms of servants and laborers are more sore on account of their occupation which necessitates exposure of the limbs to various insults, as well as to sudden change of temperature, both of which doubtless cause increased severity in the vaccine disease. The term "spontaneous" cow-pox is certainly a misnomer. It is used simply as a convenient expression in cases where the source of infection of the cow cannot be traced. "Spontaneous" infective disease is doubtless derived from some tangible source, but it is impossible to discover its origin. If Dr. Abbott has seen so large a number of cases of genuine cow-pox, he has certainly been far luckier than Dr. Martin. There may be isolated cases, but they are certainly not generally known. The only indisputable case now recognized as occurring in this country is the Cohasset case, which has since been propagated by Dr. Martin in uninterrupted succession. There are many known cases of spurious disease which make the hands of the milkers sore. Such cases have long been observed, and were reported by so old an authority as Sir William Jenner himself, but this disease is not cow-pox, nor has it any similarity to the true disease in the way of protection against small-pox.

#### MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

*Stated Meeting, November 11, 1885.*

WM. G. PALMER, M.D., TEMPORARY CHAIRMAN,  
IN THE CHAIR.

DR. BERMANN presented a patient with  
A CYSTIC GOITRE.

and read the following history of her case:

Miss —, aged 23 years, consulted me about a throat affection which had been troubling her for several years. She spoke in an unnatural falsetto tone,

and was subject to frequently recurring attacks of aphonia. Laryngoscopic examination revealed complete paralysis of the right vocal cord; a condition evidently due to the existence of a cystic enlargement of the thyroid gland, which was principally developed upon the corresponding side of the neck. I treated her for some time with the customary remedies, giving iodide of potassium in large doses, combined with iron, as she was chlorotic. External application of tincture of iodine was employed, as well as faradization of the larynx.

This line of treatment having failed, I resolved to try a method recently recommended by Dr. A. Weiss, of Meiningen (*Berl. klin. Woch.*, No. 2, January 12, 1885). This consists of cauterization of the integument covering the goitre. After three applications of the galvano-cautery, I observed a decided diminution in the size of the goitre, as well as softening of the contents of the cyst. I have no doubt but that after a few more applications the goitre will entirely disappear. Her voice is improving very much, and there is every reason to believe it will be fully restored after the cause of the trouble will have been removed.

In reply to a question from Dr. Hagner, Dr. Bermann said he did not believe there was any hysterical element in the case.

DR. J. FORD THOMPSON read a note on

#### THE HYPODERMIC USE OF COCAINE.

He said that his early experience with cocaine had not given satisfactory results. The reason for this, however, was not to be found in the drug, but in the mode of using it. He believed that it cannot be relied upon when merely applied externally to mucous surfaces, skin, or other tissues. It seems to have its greatest power when applied to the eye and the respiratory tract. In other localities it has often failed him. He had used it on the male and female urethra prior to an operation, and there was no anæsthetic effect. He had sought to use it before closing an enlarged meatus urinarius, but the man suffered as much as if water alone had been applied. He endeavored to dilate the urethra of a young lady in order to search the bladder. Before doing so he painted the urethra, in fact, filled it, with a solution of cocaine, but without avail. He was compelled to give ether. He then began to use cocaine hypodermically (four per cent. solution), and was well pleased with his results. When it failed, he believed it was his fault in not waiting long enough for the action of the drug. He had used it successfully in operating upon internal and external hemorrhoids, in opening abscesses, in operations upon the upper jaw, in circumcisions, in removing splinters and toenails, in lancing a bone felon, in removing a tumor from the neck, and a fatty tumor from the scalp, in restoring the perineum, in aspirating an abdominal tumor in a child, in external urethrotomy, and in many other cases.

On November 9, however, he unsuccessfully injected it before using the actual cautery. He attributed the failure, though, to his not waiting long enough for the action of the drug. A few moments later, the patient complained of numbness in the