

SMALLPOX.

Progressive eruption: papules, vesicles, pustules, crusts.

Lesion includes the lower layers of the derma. Hard to rupture. Multilocular.

Temperature high (103-105) till eruption appears. Then drops and does not rise again for a week, and not then in the milder discrete forms.

Eruptions quite uniform in size; has a reddened area at base; frequently umbilicated.

Painful to the touch; may itch.

Lasts 2 to 4 weeks.

Vaccination protects.

Pits when confluent on face; will occasionally mark in the discrete form.

Generally no complications.

High mortality in the severe confluent and hemorrhagic types.

Resolution by crisis.

CHICKEN-POX.

Vesicles and crusts.

Lesion very superficial. Easy to rupture. Unilocular.

Rises with the severity of the attack.

Not uniform. Also inflamed area about the vesicle, but less marked.

Not painful to touch.

Lasts 1 week to 14 days.

Does not protect.

Seldom unless infected.

No complications.

Nil.

Resolution by lysis.

VARIOLA.*

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MINNEAPOLIS, MINN.

This disease has prevailed so generally throughout the United States since 1897 that time spent in describing it might well be considered wasted. That it has been remarkably mild in type every one who has had any experience knows, but in spite of this fact experts are practically a unit in their diagnosis. I am aware that at Atlantic City a year ago a member of this Association presented a paper, with a title made up largely of interrogation points, in which he attempted to prove that the disease as he had seen it in Tennessee was not variola, but this paper had not a single convincing argument to those who have had an opportunity of studying the disease, that it was anything else than variola.

In spite of the fact that this disease of mild type was epidemic in Kentucky and other Southern States in 1897; was well described by Dr. Wm. M. Welch, of Philadelphia, in 1898; and that one state after another during the past four years has been compelled to fight against the epidemic, we still find individuals who with little if any knowledge beyond that gained from medical books are willing to place their personal opinions against those of experts the country over, and who insist that the experts are wrong in calling it by its right name. These mischief-makers are found in the medical profession as well as among the laity.

Recognizing the fact that it is no longer necessary to discuss with experts the question as to whether this is or is not variola, it is my purpose to present certain topics, that should be of interest, for discussion.

It may be apropos to state that in Minnesota during the past two years there have been 7211 cases of variola reported, with 49 reported deaths. I wish to emphasize the word reported as applied to deaths, for I have positive knowledge that there have been deaths from this disease in this state reported as due to other causes, or not reported at all. Some of these errors have been committed innocently; others intentionally. A similar

experience, I have no doubt, has been met with in other states.

It may be well in beginning this paper to ask whether the picture presented by the typical cases in this epidemic conforms with that given for variola in our medical text-books? There can be but one answer: It certainly does. Time after time during the past two years I have seen the classically described discrete, semiconfluent, confluent, and hemorrhagic forms, as also the variola sine eruptione. Can we be governed in our diagnosis of all cases in this present epidemic by the usual text-book descriptions of variola? Most assuredly no. We will in all probability find fairly typical prodromal symptoms, but the rash may vary in degree, in form, in type of progress and in final disappearance in a way that is described in but few text-books.

In Reynold's "System of Medicine" a mild form of variola quite similar to that of our present epidemic is well described. Various writers refer to the fact that an epidemic of varicella frequently accompanies an epidemic of variola. While this is possible, I am rather inclined to think that in the past the mild cases of variola have often been called varicella, and epidemics that have been said to represent two distinct diseases have in fact been only differences in degree of one and the same disease. It must be admitted that too often in the past have only the severely typical cases of various diseases been given their right name, while the mild cases of these diseases have been given some other name. This has been true of typhoid fever, of diphtheria, of variola, and even of scarlatina, in the past, and in each instance the result of such action has been to falsify and make much higher the mortality rates of these diseases.

Dr. Louis Leroy, of Tennessee, in his recent article on smallpox, draws attention to a mild type of variola described as early as 1827 by John Mason Good.¹

A little reasoning on the part of a fairly intelligent physician should enable him to clear up or correct his doubtful diagnoses in the present epidemic. It often happens that the first cases in any given community are mild in type and in consequence wrongly diagnosed. Later, however, with the appearance of one or more typical cases, the disease should be properly designated, and with the line of infection recognized as one and the same it becomes plain that the first cases though atypical must also have been variola. For example: In a village in Minnesota several cases of an eruptive disease, occurring among school children, were called varicella. However, a typical case of variola presented itself, the patient dying; thereupon the attending physician said, this case being one of variola and the line of infection for this and the so-called varicella cases having been one and the same, our first diagnosis must have been wrong; the cases must all have been variola. His reasoning was good and his conclusions correct. In this village there were in all 64 cases, with 3 deaths.

Occasionally we find physicians who have made a mistake in diagnosis and who persistently hold to their errors. This was notably true in Winona, Minn., last winter, when from first to last there were over 2000 cases of variola with probably 7 or 8 deaths.² Several of the Winona physicians still hold to the diagnosis

1. Study of Medicine, vol. iii, J. & J. Harper, New York, 1827.

2. Winona is one of the places that gave the returns of no deaths from smallpox, but I have good reasons to believe that my statement above is correct. In addition to the deaths there were undoubtedly cases of miscarriage due to the disease.

* Read in Symposium on Smallpox, in the Section on Practice of Medicine, at the Fifty-second Annual Meeting of the American Medical Association, held at St. Paul, Minn., June 4-7, 1901.

of varicella for their epidemic, in spite of sufficiently strong evidence to the contrary.

Does vaccination protect against this disease? Most assuredly yes. This has been thoroughly demonstrated. For example: Of 662 cases in 244 houses, but ten patients had been successfully vaccinated at any time prior to their infection, and of these ten, 30 years had elapsed since successful vaccination for two of them, over 25 years for four, 20 years for one, and 6 years for one. Only two of these ten were said to have had recent successful vaccination (three months prior) and in both of these the disease was mild. Of these 662 cases there was one who years ago had an attack of variola. In one family seven non-vaccinated individuals had variola; the one vaccinated member escaped. In one family four non-vaccinated members had variola, all the vaccinated escaped. In eight other families the vaccinated members escaped; while in each one of the eight families one, the only non-vaccinated individual, had variola.

In one instance a physician who was at first in doubt regarding the disease before him, wrote me: "One thing is certain, if this is smallpox vaccination does not protect against it." I at once made him a visit, and together we went over his patients, with this result; some had misstated facts to him, and had said they had been successfully vaccinated when the reverse was the case; others had told him of vaccination, but had neglected to state that it had not been successful. It was fully shown that in all successful recent vaccinations the individuals were in each and every instance protected from this disease.

Dr. Ohage informs me that from May 1, 1899, to May 10, 1901, there were in St. Paul 104 cases of variola. But 2 of these cases had been vaccinated—one fifteen, the other twenty years prior to contracting the disease. There was not a single instance in which a properly vaccinated person contracted the disease.

Dr. P. M. Hall, of Minneapolis, informs me that of 191 cases of variola that came under his care between the dates of January 7 and May 8, 1901, but one had any evidence of a previous successful vaccination, and that was in childhood. The patient was about 40 years old.

Regarding the protection furnished by vaccinia against variola, the Chicago Board of Health makes the following statement: "Out of the total 171 cases of smallpox found in Chicago between Nov. 30, 1900, and April 10, 1901, 140 had never been vaccinated. Of the remaining 31 cases, 29 were adults showing faint, poor or irregular scars, claimed to be evidence of attempted vaccination in infancy or childhood—the most recent being 23 years old. Only 2 out of the 171 cases exhibited typical scars of successful vaccination. Of these, one was 35 years old 'vaccinated when a child'; revaccination was attempted three years ago, without result; vaccine lymph was probably inert. The other was 40 years old, also successfully vaccinated in childhood, but never revaccinated. These are the only 2 cases out of the total 171 upon whom vaccination was ever successfully attempted, and the most recent of these was over 30 years ago. Since vaccination was made compulsory in the schools of Chicago, smallpox has disappeared from them. The requirement was first put into effect in 1867, and from that year until 1881 there were only 17 cases all told of smallpox and varioloid in the schools, and these are explained by the health department as due to the imperfect inauguration of the compulsory

vaccination system. Since the latter date the disease has entirely disappeared. For twenty years the schools of Chicago have been immune from smallpox cases, for although four cases were reported last winter they were all pupils who had been let in on fraudulent certificates and who had never been vaccinated—a confirmatory proof of the efficacy of vaccination. Another significant fact of the same character is that since vaccination has been universally practiced by the police of Chicago the officers have been free from smallpox. The policemen go everywhere, into all the haunts of crime and disease, and are exceptionally liable to exposure. Yet though several thousand in number they enjoy immunity from the disease."

It may be well at this point to discuss the terms variola, varioloid, vaccinia and vaccinoid, and their relation to each other. There is an indefiniteness in these terms that is annoying. It would seem that there should not be two names for one and the same disease as presented by different degrees of severity, yet this is too often true in the use of these terms. People have such a dread of variola (smallpox), that a milder name is sought for. We thus too often find cases of severe type called by their right name, while the same disease under milder form is misnamed varioloid. This is a faulty, misleading and dangerous procedure. Under the term variola we should include all types of the disease in its unmodified form. Under the term varioloid we should include only those cases of variola which are modified by a previous infection. This, of course, should be recognized as not making of these two conditions two distinct diseases. So, too, of vaccinia and vaccinoid. The first presents to us a disease of typical form; the second a disease of modified form, the result of previous infection.

The nature of "previous infection" giving rise to varioloid or vaccinoid, requires some consideration, and to begin with we are confronted with the question as to the relationship of variola and vaccinia. Probably we are ready to admit that these two are in fact one and the same disease; that a successful and recent variola will prevent an immediate recurrence of this disease, or of an immediate successful unmodified vaccinia; so, too, that a recent successful vaccinia will prevent the immediate recurrence of this disease, as also of an immediate unmodified variola. It is not generally admitted, however, that a recent successful variola may be followed by a modified vaccinia called vaccinoid—quite the reverse. The statement is generally made by leading authorities that evidence of successful vaccination after an eruptive disease would positively exclude the possibility of the disease having been variola. In spite of the general admission of a possible varioloid after a recent successful vaccinia and the general denial of a possible vaccinoid after a recent successful variola, I venture to assert that vaccinoid may be present as the result of vaccination immediately following a successful variola as frequently as varioloid immediately following a successful vaccinia; in other words, that the appearance of a modified vaccinia (vaccinoid) following a recent variola does not disprove the disease diagnosed as variola to have been such. The possibility of having a second attack of variola (or varioloid) or of vaccinia (or vaccinoid) depends entirely upon the duration and degree of immunity conferred by a previous attack of variola or vaccinia. A recent vaccination is, in all probability, more marked in its protective action against variola than is an old variola.

The duration of immunity conferred by either variola or vaccinia depends upon the individual. In either case it may be for life, or for but a few months.

It is no uncommon thing to find those who insist that the present epidemic is not variola, trying to prove their point by following up the disease in a given individual with vaccination. Were such successful in securing vaccinia or vaccinoid, to me, they would not disprove the previous variola, but would rather establish the line of argument that I have just presented tending to show an insufficient immunity following a mild variola.

In passing, it may be well to draw the attention of those who are trying to disprove a variola by a subsequent vaccinia to the fact that there are opportunities of error which they must guard against most carefully. If vaccination is made during the progress of variola an eruption (variolus) will, in all probability, occur at the seat of scarification or irritation. This should not be mistaken for a successful vaccination. Even after the patient has fairly recovered from variola an appearance simulating vaccinia might be produced at the point of irritation. Dr. Pitblado, of Minneapolis, informs me that he has vaccinated a number of smallpox patients while in detention, and has in a number of instances succeeded in producing a rash at the point of scarification. But this rash was plainly that of variola. It is a generally recognized fact that the eruption of variola is apt to be confluent in form at any seat of special irritation, as along the line of a cut or scratch. Undoubtedly a modified variolus eruption at the seat of scarification for vaccination has been mistaken for a successful vaccination by not over careful observers who have shown themselves rather too zealous in their efforts to disprove the existence of variola among their patients. Still further, the eruption of variola and vaccinia may exist at one and the same time in a patient.

It is hardly necessary to refer to those who give an opinion of successful vaccinia when they have nothing upon which to base their opinion but the dry "scab" present as the result of too vigorous scarification. Yet in my own experience this condition has been pronounced a successful vaccinia and used to disprove my diagnosis of variola.

Since the epidemic in Minnesota first appeared, early in 1899, I have been closely watching for these reported "successful vaccinations" after variola, not for the purpose of disputing with those opposed to my diagnosis of variola, but in order to prove the line of reasoning already presented in favor of such possible occurrence. I might, therefore, be considered as one with prejudices favoring my antagonists' line of argument. In all my inquiries I have been able to find but one case that bears out the possibility of an immediate successful vaccination after variola, and this one case had vaccinoid, instead of vaccinia. Its history is as follows:

Early in the outbreak in Minneapolis, when the health officials of that city were denying the existence of the disease, a young woman in due time after exposure had mild prodromal symptoms and a very mild variolus eruption. When she had been released from quarantine she went to a physician and was vaccinated, her purpose being to bring suit against the city for wrongful detention in quarantine should she secure a successful vaccination, she having been informed that this would be absolute proof that she had not had variola. The physician who vaccinated her knew nothing of her inten-

tion. He revaccinated himself about this same time and secured the same result in both cases—a condition that would have been called a successful vaccination by some physicians, but which was undoubtedly vaccinoid, in the one case due to a previous variola, in the other due to a previous vaccinia. The young woman was pleased, and announced to her physician her intention to bring suit against the city. He, however, refused to accept the evidences of vaccinoid as sufficient to disprove a recent attack of variola.

The following cases demonstrate the possibility of a successful vaccinia following variola:

CASE 1.—Male, vaccinated about March 1; reported as successful March 16. This party states that he had variola thirteen years ago. Has smallpox scars from the first attack.

CASE 2.—Male, had variola in 1891. At the time was ill three weeks and was in quarantine seven weeks; was successfully vaccinated in March, 1901.

CASE 3.—Mrs. S., said to have had varioloid in 1885, vaccinated successfully in spring of 1900.

CASE 4.—Young woman, whose case has already been referred to in this paper, who was vaccinated immediately after release from quarantine for variola. She had vaccinoid.

CASE 5.—Policeman who had variola twenty years ago, was successfully vaccinated February, 1901.

CASE 6.—Paris case (20th Century, Vol. XIII, page 522). Woman had variola in 1868, at age of 32, and again in 1871; was successfully vaccinated in 1873, and upon six different occasions after this at intervals of six months. She was lost sight of after the sixth vaccination.

Every physician will admit that an individual may have variola more than once; also that there may be an attack of variola at some date following a successful vaccinia. Quite an interesting case of relapsing variola was reported to me March 25 of the present year. A young man had a typical history of variola and was about to be released from quarantine, when he was again taken ill with all the prodromal symptoms of the disease. He developed an eruption on the fourth day and was more seriously ill with this second than with the first attack. The physician in attendance assures me that he could not have been mistaken in his diagnosis of the first attack. Variola was epidemic in the village at the time.

The following are interesting cases as bearing upon immunity to vaccinia, but not to variola, or possibly to impaired immunity:

CASE 1.—Dr. O. C., aged 30 years, had vaccinia when a child. In 1900 he was attending cases of variola, but did not contract the disease from the first cases. He revaccinated himself, but without success. He therefore considered himself immune to variola. A short time after, however, he contracted varioloid from a variolous patient whom he was attending.

CASE 2.—Dr. P., aged 28 years, had vaccinia when a child. During the early part of 1900 he was in attendance upon cases of variola, but did not contract the disease. He vaccinated himself at this time, but without success. Shortly after this apparent immunity this physician, while suffering from septic infection received from a cadaver, was in attendance upon some severe cases (afterward fatal) of variola. He contracted the disease and was decidedly ill. His little boy, who had been apparently immune to vaccinia now contracted variola from his father and was seriously, although not fatally, ill. The physician's wife, vaccinated at the same time as her husband and child, had vaccinia and escaped variola.

CASE 3.—Dr. F., aged 30 years, was apparently successfully vaccinated in 1898 and again in June of 1900, when he was attending cases of variola. He had occasion to attend a woman ill with variola during her accouchement, and to resort to instrumental delivery for the child. Nine days later he began to feel ill. These symptoms were prodromal of a variola of severe type. His wife and children, who had been recently vaccinated escaped the disease.

CASE 4.—Mr. A., who had variola in 1880, was apparently immune to vaccinia in 1900, but not immune to a second attack of variola.

CASE 5.—Mrs. P., aged 39, had "cowpox" when a girl. In 1900 she was apparently immune to vaccinia, but contracted variola.

CASE 6.—Seven children in the family of Mr. G. were apparently immune to vaccinia, for repeated attempts failed to produce the disease. All seven of these children contracted variola, although resistant to vaccinia.

The following would seem to demonstrate immunity to variola, but not to vaccinia:

Dr. H. was successfully vaccinated at the age of 14 years, and again at 24. In 1900, at the age of 43, he had many cases of variola under his care. He revaccinated himself five times at intervals of about four weeks. He obtained "partial reaction" to the first four of these and a "good scar" the fifth time. He did not contract variola. It would appear that while the immunity conferred by vaccinia against variola is quite positive, it may be limited in duration, and also in degree. This is equally true of variola against variola, and of vaccinia against vaccinia. It must also be admitted, I think, that there may be an immunity due to a previous vaccinia against vaccinia, but not against variola; as also an immunity due to a previous variola against vaccinia, but not against variola.

It is not my wish through these statements of facts to belittle the protective powers of vaccinia against variola, for of these I have already fully attested. We must, however, recognize the fact that there are exceptions to the general rule of immunity as regards both variola and vaccinia, and that we must not be too positive in our statements regarding the absolute protection of a previous variola or vaccinia against a repetition of one or the other disease, directly or interchangeably.

Before closing it may be well to ask ourselves the question: Is the present mild type of variola an unusual occurrence? In the United States, possibly yes; although this is an open question. Undoubtedly in the past when little or no attention was given to quarantine methods, mild epidemics of variola were ignored at the time of their existence and soon forgotten when once passed. The epidemics in which the disease prevailed in severe form were the ones which made a lasting impression upon all. Even in my limited study of the unrecorded mild epidemics, I have been able to secure records from residents of Minnesota which go to show that within the past thirty years there have been at least two localized epidemics in which the mortality from this disease was little, if any, greater than at the present time.

I believe it is generally recognized that variola does at times exist in very mild form in tropical countries. Of this I have no personal knowledge. On the other hand, variola may occur in most virulent form in tropical countries.

DISCUSSION ON PAPERS IN SYMPOSIUM ON SMALLPOX.

DR. WILLIAM BAILEY, Louisville, Ky.—I am much pleased at the opportunity given me to open this discussion, although most of my remarks will pertain to the first paper read by my neighbor, Dr. Happel. I regard the teachings of the paper by Dr. Happel as unfortunate and hurtful, and I believe that its bad influence will not be confined to his own people, but to the people throughout the breadth and length of this country. It is difficult to control smallpox in Kentucky if we depend upon the teachings in Tennessee; whatever the disease may be in Tennessee, when it crosses the line into Kentucky it is smallpox.

Regarding his remarks about a farmer remaining a month without seeing a neighbor, I think that is a remarkable thing in Tennessee; at any rate, for a man to be in Tennessee with smallpox with no possibility of any man coming in contact with

it for a month, seems a remarkable statement. It seems to me that the consensus of opinion, even among the experts, is that the disease prevailing is smallpox; I am certain that it is nothing else but smallpox and, in many instances, the severe case can be traced to a mild case where it is decidedly typical. Therefore, we must regard the disease that is prevailing at the present time as smallpox and we should take such measures for its control as are radical.

DR. JAMES J. WALSH, New York City.—In discussing the question of modified smallpox, or pseudo-smallpox, it is well to remember certain advances that have been made in the recognition of exanthematous diseases in very recent years. During the last ten or fifteen years, the medical world has come to recognize the existence of a third disease in the measles and scarlet fever group of diseases. This new disease, German measles, is now admitted by practically all medical men to be absolutely independent of either measles or scarlet fever. Certain observations in England, especially during the last two or three years, seem to point to the fact that there is perhaps a fourth eruptive disease in this group, independent of measles and scarlet fever on one hand and also of German measles on the other.

It is perfectly possible then that a third disease, independent of varicella and variola, may be found in the smallpox group. Of course, board of health experts will not readily admit the existence of such a disease, if it does occur. They are paid to determine whether a disease is smallpox or chicken-pox, not to make observations on a possible third disease. Any hesitancy on their part might easily lead to serious dangers to the community. The mass of the medical profession, however, should not commit themselves to definite opinions on this subject. It would not be surprising to find many more exanthematous diseases. At the beginning of the century most of the eruptive diseases we now know were grouped together. For a long time measles and scarlet fever masqueraded as smallpox. We know that there are ten different kind of nutgalls in this country, all produced by the sting of different, but very closely similar insects and upon the same kinds of leaves. The possible characteristic reaction of the human skin are by no means exhausted, and we have recently learned from Professor Widál's work in Paris on cytodiagnosis in pleurisy that even the cells of the serous membranes react quite differently to different forms of microbic irritant.

It must be remembered that the Vienna school of dermatologists has never quite given up the idea that varicella and variola may be only modified forms of the same disease. Their influence is considered of so much importance in Europe that in the last important text-book of medicine, Professor Nothnagel's, the treatise on varicella begins with the discussion whether variola and varicella are due to the same cause and it takes up some six octavo pages. So acute a clinician as Senator has recently expressed the opinion that varicella and variola are due to the same cause and that varicella especially spreads at a time when smallpox has crept into a locality.

We have had some 30,000 cases of smallpox this year and the number is not diminishing. Opportunities are provided for the study of smallpox, such as we never had before. Careful observation of the disease as it exists at present should be made. Dr. Happel's work in calling attention to the differences which exist between the disease as he sees it in some parts of Tennessee, and classical smallpox is deserving of commendation, not condemnation. Further observation, not resolutions of medical societies, are needed to settle the vexed question of a possible third disease in the smallpox group.

DR. LOUIS LEROY, Nashville, Tenn.—I concur very much with what Dr. Leavitt said about people approaching the disease and having such a very uncanny idea about it. In regard to leprosy people have been taught to think of this disease as nasty, uncanny and horrible in the extreme. The same is true of smallpox and the popular notion has even extended to medical friends who have seen very little of it, and whose idea of this disease is vague and hazy, and who expect that the patient should stand fifty feet away in the open air lest they should be exposed to the contagion. The intensity of the infection certainly varies a great deal, but, I have seen patients with typhoid fever who

could not be made to take to the bed; also, cases of pneumonia and scarlet fever in children who could not be made to stay in the room; and yet, other children exposed to them, contracted the disease and died.

Why should we insist upon a dozen names for smallpox; there is but one smallpox. Giving the disease so many names has a vicious effect upon the public. Dr. Happel mentions that the severity of the disease following was not dependent upon the severity of the onset; that is certainly true, and I wish to call attention to the fact that text-books on practice say the same thing. The observations made are certainly in favor of smallpox rather than against it. As to the statement that there was no pitting, I would also call attention to what is said by many writers; they claim that, in the discrete types of smallpox, pitting is absolutely the exception. I was exceedingly glad to hear Dr. Bailey, of Kentucky, say that when the disease crossed the border line and got into Kentucky it became smallpox. I would like to say that there is no transition at that border line. I have had an opportunity of seeing a number of cases on that line and I have tried to prevent a good number of cases crossing the line. Near that Tennessee-Kentucky line there are a large number of light cases of smallpox. I made a diagnosis of smallpox at Clarksville, Tennessee, and I was ridiculed, but I had the State Board of Health behind me, and the case was quarantined. This year I traced this epidemic successfully to the Tennessee side; in the epidemic there was a mortality of 60 per cent. I have here a number of photographs taken of that case which was diagnosed as pseudo-smallpox at Clarksville and from which the epidemic was traced that gave a mortality of 60 per cent. If this is called "pseudo-smallpox" it is a term applied to something which should be killed before it becomes too common.

Speaking of the individual who went to school with an eruption on the body, I have one question to ask: If it was in the knowledge of the health officers that this case was one of smallpox or any other disease possibly contagious, what was the physician doing when he allowed this person to mingle with the school-children?

DR. HAPPEL—The health officer knew nothing about it until the disease had been there.

DR. LEROY—How about the school teachers?

DR. HAPPEL—The school teachers were negroes.

DR. LEROY—As to the statistics of vaccination I beg leave to read the following, taken from one of my former articles: "In one series of records made by the writer this year, 1100 miners were examined, variola having been prevalent in that locality for a year previous. Of that number 800 had been vaccinated and had passed through the epidemic unscathed. Of the remainder, 100 had suffered from the disease and 200 had neither had the disease nor been vaccinated. Of 30 odd cases suffering at the time in their midst not one had been vaccinated. Only in four instances did any of those who had had the disease show evidences of previous vaccination, and in one of these the mark was over twenty years old; the other three gave evidence of having been only septic sores and not typical vaccine scars."

DR. WILLIAM THOMAS CORLETT, Cleveland, Ohio—I am impressed with the fact that there is a great waste of energy here this year. Yesterday we showed a large collection of slides, in the Section of Dermatology, which would well illustrate many of the phases of variola described this morning. I consider myself fortunate in being able to hear the papers read, and I heartily concur in the general soundness of the views expressed. I had hoped, however, that I could congratulate myself on not hearing such a paper as was read last year at Atlantic City, which I believe has done much injury. In Cleveland we have a very extensive epidemic of smallpox, which has increased to 1000 cases since last January, and which I believe was brought about by the fact that many did not recognize the disease as being smallpox. Physicians who had had experience with the disease in former times ridiculed the idea that the pest-house contained a true case of variola. So far as I have been able to observe the disease which has been recognized as smallpox during the past twenty years presents a distinct entity, just as syphilis does. In regard to Dr. Leroy's

method of vaccinating by means of the hypodermic syringe, I consider it a good one, although I have never used it, but it will bear further consideration. Another point made was that variola was often followed by a successful vaccination. About a year ago Dr. P. asked me to investigate this subject, but as I have always regarded the occurrence of a successful vaccination following variola as evidence of a mixed infection, the subject did not seem to me to be of sufficient importance to call for further investigation. Dr. Bracken says that he has seen successful vaccination following variola, and I must agree with him.

What I shall now say I know will be unpopular because of the great difference of opinion which prevails. I began the study of diseases of the skin by entering a smallpox hospital in 1882 in London, and during my time there I saw nothing but skin diseases and I never saw a case of varicella occurring in a person over 15 years of age. I do not deny that it sometimes occurs in adults; John Hutchinson has seen one, possibly two cases, of varicella in adults. Dr. J. Louis Smith has seen one case of varicella in an adult which he has referred to in his work. Still another case was referred to by Dr. Austin Flint. Therefore, when a case presents itself to me with a supposed diagnosis of varicella, in an adult, I am inclined to do as is recommended by the author of the paper on smallpox in Zeimssen's *Cyclopedia*, in cases of supposed varicella occurring in an adult—to always treat the case as one of smallpox.

DR. F. S. RAYMOND, Memphis, Tenn.—I want first to endorse Dr. Leroy's practice, as detailed in his paper, with reference to the management of smallpox hospitals. His paper is up to date, and such rules as he lays down should be carried out in the conduction of smallpox hospitals everywhere.

With reference to the papers of Drs. Spalding, Leavitt and Bracken, I must say they were all most excellent; the gentlemen have arrived at the same conclusions from the same line of reasoning which I have and which I believe to be correct. I endorse the three papers entirely, except Dr. Leavitt's statement that chicken-pox is a child's disease and never seen in the adult. I have seen a number of cases in adults, and even in people past middle age.

I beg pardon for consuming the time of so intelligent a body of men and women, discussing the only feature of this subject about which there is a discussion, namely, the diagnosis of this almost national epidemic of variola vera, and I hope such a discussion will not occur in this Association during the next fifty years, if I am so fortunate as to be in attendance at that time. I feel sure that 95 per cent. of all intelligent physicians, who have had opportunities to study this disease, believe and in fact know it to be genuine smallpox.

From personal observation, the disease and the special cases described by Dr. Happel in his paper are just such cases as we have been treating in our smallpox hospital near Memphis for five years, and I know that many of our cases have been employed as nurses and other helpers in our hospital for months after recovery and we have never had a single instance of such persons contracting any like disease in a severer form.

While Dr. Happel claims faith in vaccination against "smallpox," he states that the negroes in his county have not been and will not be vaccinated. Every physician conversant with the subject at all, knows that in the South 90 per cent. of all cases occur in the negro race, which to my mind is the best evidence that Dr. Happel's pseudo-smallpox is variola vera; as it is a well-known fact by everybody that the whites are much more generally vaccinated than the negroes. Dr. Happel mentions persons who had been seemingly successfully vaccinated, having the disease. I take it that every one knows that to have had a sore arm leaving a scar is not proof positive of thorough vaccination, rendering immunity.

Dr. Happel is health officer of his town and county, and as such will he say to this body that he does not require physicians to report mild cases of diphtheria and scarlet fever, and that he does not require the usual precautions as isolation and disinfection in mild cases, that I am sure he does of the severer forms of both diseases? If not, then why not take the same

view with reference to handling mild diphtheria and scarlet fever that he does of so mild a form of smallpox?

DR. J. F. MARCHAND, Canton, Ohio.—The relations of the health officer and the physician to a community are of a two-fold nature; first, the best interests of the community demand that this disease be called by its right name; second, the commercial interest of the entire community should not be neglected. If this disease that is prevailing is smallpox, call it smallpox, and, if it is smallpox, it ought to be quarantined. I am sorry that Dr. Happel read that paper; at Atlantic City, last year, he read a paper that was hurtful and harmful. Gentlemen, the time is at hand when everyone should unite in endeavoring to crush out smallpox, and there should be a united action on the part of every state and territory, and some plan of action should be formed. I have watched with great interest the spread of this disease all over the country, and it seems to me that there is no diminution of its prevalence in the rural districts, because there the physicians often hesitate in calling it smallpox. In the cities the only successful way of dealing with these cases is in municipal hospitals. I am glad to hear the papers read telling us how to protect the interests of the community. I visited the eastern section of Ohio last year to help out in some doubtful cases in diagnosis, and there was one thing that I emphasized, that is, treat all suspected cases as cases of undoubted smallpox.

I think, gentlemen, that the time will come when the science of medicine will demonstrate to the whole world that instead of 50,000,000 people in Europe alone dying in 100 years before the days of Jenner, the disease will almost be obliterated from the face of the earth. If the mortality is low in this form of the disease, which has been prevailing so long in the United States, it does not prove that this disease is not smallpox.

DR. D. B. PRITCHARD, Winona, Minn.—During the past seven months I have had a large experience with this disease in an epidemic where we had 1758 cases of smallpox; of this number there were but 17 that had ever been vaccinated, only 3 of these being recent, the balance having been vaccinated from ten to sixty years ago. There were 646 houses quarantined, and in 152 houses there was but a single case of the disease. In these houses only the unvaccinated members of the families caught the disease.

DR. J. A. BARR, McKee's Rocks, Pa.—I should like to raise the question as to what constitutes a "successful vaccination." This subject came up two or three years ago, during an outbreak of smallpox. The school board said that every child should present a certificate of successful vaccination. The secretary of the school board came to my office, when I refused to grant a certificate to one of the children, and asked me why I did this. I said: "Suppose that I give your children a certificate of successful vaccination, how are you going to view it?" He said: "I would believe that the children would be immune from smallpox." I replied: "Exactly." I also told him that statistics showed that, out of 6000 cases, 14 per cent. or more died after having been vaccinated; and out of the same number, that had been vaccinated twice, over 4 per cent. died; and of those that had been vaccinated, three times, only 1.75 per cent. died; and of those that had been vaccinated four or more times .75 per cent. died. Therefore, in order to render these children immune, I said that they should be vaccinated four times. People should be taught that immunity is not conferred by one vaccination; that, according to statistics, it takes at least four vaccination scars, well marked, to produce successful vaccinations. On this account, I refused to sign the school board's certificates.

A VOICE—Why not vaccinate four times at once?

DR. BARR—That is the German idea.

DR. E. H. MARTIN, Clarksdale, Miss.—When the recent epidemic of smallpox made its first appearance it was in such a mild form that it was only by means of certain cardinal symptoms that it could be recognized as the smallpox of the textbooks. There naturally followed a very widespread sentiment of doubt, among the profession and the laity, with regard to the disease, as it then appeared, being the genuine article. However, since during the past year so many malignant cases have occurred, that doubt has been swept away. No one could

treat a dozen, or even one, case of confluent smallpox and fail to recognize its identity. And when it is at the same time observed that those who had had the disease in its earlier, mild form are protected from the malignant form there is no longer room to doubt that the disease has all along been real variola. Nevertheless, it is equally certain that there are distinct varieties of smallpox, as well as various types of each variety. In observing several hundred cases during the past two years I have recognized at least four distinct varieties of smallpox. The individuality of each variety is established by the fact that persons contracting the disease would develop the same variety of smallpox as had the patient from whom the disease was contracted. This was true when as many as three varieties, brought from three separate outside foci, were prevalent in the same locality at the same time. In short, each variety breeds true to seed. It is needless to state that these observations were made where unvaccinated parties contracted the disease, and in cases where it could not have been modified by vaccination, otherwise the observations would be of no value. The fact that each variety is really variola vera is proven by the immunity which each variety gives to itself and all other varieties. Isolated instances of a lack of immunity after one of the mild forms proves nothing, as we have just as many instances in which severe types of the disease gave no immunity. They are merely the exceptions. As to the claim that vaccination does not protect against all of these varieties of smallpox, such claim is absurd when coming from a member of the profession as universally and as satisfactorily protected as the members of the medical profession have been by vaccination. One hundred thousand doctors have probably been exposed to smallpox in this country during the past two years, and those contracting the disease would probably not number a dozen.

What we can claim in behalf of the public and as an excuse for the cranks who are doing antivaccination talk, is that much of the virus now on the market has been so attenuated that it is practically useless. It may be well enough to use attenuated virus for routine vaccination of children in the absence of variola; protection may be gradually acquired by repeated vaccinations with such virus. But in the troublous times of an epidemic it is more important to give protection to the greatest number than to try to avoid a few bad arms, especially as secondary infection can not be always avoided even when the mild virus has been used.

It may be worthy of note to observe that the only "single-scar" cases of protection are every one from arm to arm vaccinations done fifteen or twenty years ago. We can not return to that method, but we, at least, should have a more highly vital virus on the market than is some of that most used.

DR. G. W. GOINS, Breckinridge, Mo.—As a scientific body I think we do Dr. Happel an injustice; as scientific men we ought to recognize the fact that as yet the exanthemata can not be scientifically diagnosed and until further research has been made in those diseases there is still room for doubt. I think this Section, as a scientific body, in attacking Dr. Happel so vigorously does him a great injustice.

DR. C. F. DWIGHT, Minneapolis.—The question for discussion is: What can be done? We are practically all agreed that smallpox prevails throughout the country and that it can be prevented in 99 cases out of 100 by successful vaccination. Therefore, I think the question before us is: What is the best course to pursue to get all the people in the country vaccinated?

DR. HAPPEL, closing the discussion—I had no idea a physician living in a town of 2500 or 3000 inhabitants could stir up so much discussion as I have done; there must be something in it. I do not wish to be misunderstood or misrepresented, as I have been, upon the question of vaccination. There has never been said by me anything in opposition to vaccination; on the contrary, I have ever been an earnest advocate of compulsory vaccination. In the city in which I live, under an ordinance which I drew myself, no child is permitted to attend our public schools who can not make proof of recent vaccination. So much has been done along that line that 90 per cent. of our

population has been vaccinated. Had the same zeal been displayed in the cities in which the "bosses of the State Boards of Health" live, not only in Tennessee, but in other states, smallpox would long ago have been a thing of the past. Our cities are the breeding places of the disease. Had as much gas been used around our legislatures, as has been wasted here this morning, helpful legislation could have been gotten long ago.

You call this disease "mild" smallpox; the Illinois State Board of Health calls it "modified" smallpox; then why should not a different adjective, "pseudo," be applicable?

I know nothing of the disease seen by Dr. Bailey, in Kentucky. He says it was smallpox, and I suppose that to be the case. He saw none of the cases reported by me, nor have any of the members of the Tennessee Board of Health. The papers claimed that the infection in those cases was carried by dogs, and the authorities had the dogs killed, but I suppose that the real scapegoat was the poor "nigger," but he was not killed.

In reply to the gentleman from Minnesota in regard to the "interrogation points" in my former paper, I have only this to say, that interrogation points give more evidence of study and thought than quotation marks, and many of the things that have been read here to-day should be properly inclosed in quotation marks. Nearly all of many of the papers can be gotten from any of our text-books on Practice.

One other point in regard to experts. We are being told almost daily that no one, except an expert, can give a positive opinion upon any subject. I asked a member of the Tennessee State Board of Health for a definition of an expert, as bearing upon this epidemic of so-called smallpox. He answered me that an expert was "a man sent to see and report." In view of the work done in Tennessee by the Board I readily accepted that definition of an expert. Now, if that is what is meant by an expert, God save us from experts. In some instances it can be proven that these experts, not only in the State of Tennessee, but in other states, have visited these cases, and looked at them through windows, and in other cases have examined them from afar with the aid of opera glasses.

I believe that any honest practitioner can recognize a vaccine mark when he sees one, but the teaching of to-day is that an expert is needed for even that purpose. If a vaccinated person contracts this disease (and the records and reports show numbers of such instances), we are at once told that the vaccination was not properly done. Dr. Runyon, cited in my paper, reports thirty-seven cases where persons who had been vaccinated contracted this disease. My position in regard to these cases is that they are not cases of genuine variola vera, and in this position and opinion I have been sustained by physicians in the city of Nashville, Tenn., eminent in their profession, filling the chairs of some of the medical colleges in that city, as well as by others, who, like my distinguished friend, have also passed the 400-mark in the number of cases seen by them. They saw the cases in person, as I did, and not as has been done by some who have occupied the floor here to-day, through the eyes and reports of others.

The consideration of the commercial aspect of the case has been brought into this discussion. In the State of Tennessee, thousands of dollars have been spent to no purpose. One county paid out as much as \$32,000 in a vain attempt to crush out the disease, even being aided by the wisdom of the State Board of Health, and then failed. In my own county we spent less than one-sixteenth of that sum, and have kept the epidemic under perfect control, except when some other county furnishes us with a fresh supply.

As to the management of these cases without guards or pest-houses. When I am called to see one of these cases, I put out a yellow flag, and notify the inmates that they have a contagious disease, and must stay on their own premises till I give them permission to leave. The same notice is given to outsiders about going about the quarantined house, and all parties are emphatically informed that any violation of this notice will be punished by a heavy fine. These orders are never violated, and I have never had the disease spread from its starting point. I do not mean to be understood that you could manage in the same way in the large cities. I have so

far found no need for guards or pest-houses. The most of our cases are among the negro population, but few occurring among the whites.

I do not care to reply to the gentleman who referred to my last case reported in my paper read, as apparently one of spontaneous origin. I regret that he should have, in the presence of ladies, illustrated his meaning as he did. A lady is or should be a lady, and is entitled to be treated as such, even though she be engaged in the practice of medicine.

Speaking of the resolution offered to declare this disease smallpox, I have only this to add: Your resolution amounts to nothing. It says to the public that those of you who vote for it are of the opinion that the cases reported, which you have never seen, are cases of variola vera. It carries with it no weight so far as the minority vote is concerned. Such action reminds me of my early day readings in Greek, where an account is given of an assemblage of the citizens of Athens held for the purpose of discussing the management of one of their many wars, by their at that time numerous generals, who were made or unmade by popular vote. After a lengthy discussion of the merits and demerits of the then general, a suggestion was made to elect another general in his stead. A motion to amend was offered that they vote all their asses horses. The one offering this amendment was laughed at, but proceeded to explain that if they could create a general by a vote of the assembly, then they certainly, in the same way, could change their asses into horses. The adoption of this resolution will come as near convincing the general public that this disease is variola vera, as would the adoption of the amendment offered in the Grecian meeting have had in changing their asses into horses. The chairman of this same section last year very properly ruled this same resolution out of order, and it is as much out of order now as then.

Mr. Chairman, there are many more things that I would have liked to have considered in my closing talk, but my engagement with the Board of Trustees prevents my remaining longer.

DR. SPALDING, closing the discussion—Dr. Happel favorably refers to the control of epidemics of smallpox by leaving the patients in their homes. In Tennessee this method resulted in permitting five cases to escape to Chicago. No case came to us from Kentucky. Regarding the question of vaccination as a protection against smallpox: In our hospitals over 200 students were admitted in order that they might study the cases. Every student admitted had to have three vaccinations. In not a single instance did a student contract the disease.

DR. LEAVITT, closing the discussion—In reference to the diagnosis as made by Dr. Happel, it struck me while he was reading his paper that some of the cases he saw and described were cases of varicella, particularly in the vesicular stage.

DR. BRACKEN, closing the discussion—Dr. Happel speaks of the terms used—mild smallpox, modified smallpox, etc.—and asks why not use the term pseudo-smallpox. The reason is that those who speak of a mild or modified smallpox speak of a variety of a given disease, and all who speak of it in this way recognize the fact that vaccination will protect against the mild or modified smallpox. Dr. Happel, on the other hand, makes a point that vaccination will not protect against the disease which he calls pseudo-smallpox.

Another party speaks of the different varieties of the disease. I think you may recognize as many varieties as you please so long as you keep within the limits of the varieties of the one disease.

Dr. Happel refers to the expense. If the sentiment of this meeting had been in support of Dr. Happel's paper, this would have been the most expensive paper read at this meeting of the American Medical Association. Such a paper would have cost Minnesota many thousands of dollars.

The period of infection of this disease is during the desquamative stage. I do not take the position that it is not infectious from the beginning, for I remember a case in a hospital with a diagnosis of typhoid fever. The patient was placed in a private room. The next morning the eruption of smallpox made its first appearance. There were only two or three persons who had been in this room prior to the time

when the diagnosis of smallpox was made. The patient was removed as quickly as possible to the quarantine hospital. One nurse, who was not nursing the patient, but who was in the room but a few minutes, contracted smallpox. This shows the possibility of infection during the early stages. I have in mind another case of a young man, who, in probably the first day of the eruption of the disease, picked up a child and carried it a short distance. This child, his nephew, was in due time taken down with smallpox, the result of this exposure.

NOTE.—The following resolution was adopted by the joint Sections on Practice of Medicine and Hygiene and Sanitary Science, after the above discussion:

“Resolved, By the joint Sections on Practice of Medicine and Hygiene and Sanitary Science, That the disease now prevailing extensively in the United States and called in some instances ‘pseudo-smallpox’ is genuine smallpox, and should be so treated with vaccination and quarantine by all health authorities. Carried.”

CANCER OF THE UTERINE NECK.

WITH COMMENTS ON THE PRESENT-DAY TEACHING.*

J. M. BALDY, M.D.

PHILADELPHIA.

Cancer of the neck of the womb is practically incurable. This statement is made advisedly and the proof of its correctness lies in the reports of results of treatment from all quarters of the world. At the present time there is no cure for cancer short of surgery, and it is no abuse of language to state that this disease is surgery's disgrace. Such statements I am well aware will be called radical by timid men or by men of little knowledge, they will be called bold by even men of knowledge and experience, but it will be a bold man indeed who can conscientiously call them untrue. I repeat that cancer of the neck of the womb as far as results go to-day is practically incurable. It is a reproach to our art, nay it is even a reproach to ourselves, but still unpalatable as the statement may be, it is the full truth. No amount of juggling with figures or facts will alter this state of affairs, nor will spurious nor exaggerated claims make matters better for those of us who want the truth and not garbled statistics. It will do little good to ostrich-like bury our heads in the sands of self-complacency, accept statements made from any and every source and sit with our hands folded whilst our patients die. What man of large experience can look over the past dozen years of his practice and put his fingers on any considerable number of patients who have suffered from this disease and are alive to-day? Who but can count the dead by scores, and this despite any and all methods of treatment known to us?

It is not possible to state with any degree of accuracy the exact proportion of such cases which it is possible to save, but judging from the past it is an absolute, although lamentable fact that it is less than 5 per cent. The best statistics on this subject with which I am familiar in this country which pretend to sufficient accuracy to be of any value have come from Johns Hopkins Hospital. Their cases cover all which have come to that institution since the institution began its work. On the face of these statistics 20 per cent. or more of such patients are cured—and this is a small claim as such claims go—at least such is the impression given the profession, although the facts are there and any one can deduct the real truth from them himself if he so chooses. As these statistics are a fair representa-

tion of all other reliable reports both from home and abroad, it may be well to examine them somewhat critically and draw our own and probably different deductions as to percentages. The facts are there and we are just as capable of judging the results and forming conclusions as are their compilers.

Seventy-three cases of cancer of the cervix were operated upon: 15 cases, or somewhat over 20 per cent. are alive to-day. But then, 68 cases were rejected as non-operable—incurable—all of whom are of course dead to-day. Consequently, when we draw our own conclusions they are that a little over 10 per cent. instead of over 20 per cent. of cases of cancer of the uterus which have come to that institution are alive to-day.

Nor is this all. It will be recalled that Johns Hopkins Hospital has available a magnificent pathological department and that all gynecological cases passing through that institution have a thorough and systematic overhauling by men specially trained and skilled in this work. Patients are freely examined under ether, all curette specimens are examined microscopically and every safeguard as far as can be is thrown around the diagnosis. The consequence is that a diagnosis is not infrequently made in cases where the disease is so early as not to have been suspected and in a few where the diagnosis is even then (after the microscopic examination) doubtful the patient is given the benefit of the doubt. It is no news to the pathologists to state that there is often a wide difference of opinion amongst them as to what is and what is not cancer in the very early stages of the disease. Not infrequently we find men claiming certain minute changes as *surely malignant*; whilst others say *perhaps* (but not certain) and still other say *not at all*. What is the practical deduction in all this? Simply that the man who operates as the result of the microscopic examination and gives his patient the benefit of any doubt, occasionally operates on a case which is not cancer and which of course has no recurrence. This is exactly what they do (and properly so) at Johns Hopkins. Is it then out of the way to think that probably there may be a case or two (or even more) amongst the 15 patients of that institution who are still alive who would come in this category? If even a single such case exists in that group what then becomes of the 10 per cent. of cures?

Nor is this all; probably the most serious aspect of the danger of these statistics remain to be considered. Fifteen cases are reported alive. Analyse that statement for one moment and see what a false impression it gives. Of these 15, 9 have only passed from 10 months to two and one-half years since their operation. Only 6 cases alive from 3 to 6 years after their operation. Who can say that every one of the 9 cases under two and one-half years will not die of the disease in the next two and one-half years. Even the 6 who are alive after three years are by no means safe. These same statistics report a number of cases who have died four and one-half and five years after the operation.

What now becomes of the 10 per cent. cures? Am I too radical when I state that less than 5 per cent. of cases of cancer of the womb are cured? I would probably be nearer the real truth if I said 2 per cent. In view of these facts am I not justified in my opening remarks that “cancer of the neck of the womb is practically incurable?” The same analyses of the recent statistics from Germany gathered and reported by Winter shows almost exactly the same results, although reported for entirely the opposite effect.

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee of the Section: Drs. A. H. Cordier, W. E. B. Davis and Henry P. Newman.