respirations had increased to 62 per minute. Physical examination of the chest revealed the signs of consolidation of the lower lobe of the left lung. Another hypodermic injection of morphin relieved the pain. Delirium, which was slight before, now became very marked, casts were detected in the urine, diplococci were found in large numbers in the sputum, and friction râles were heard over the pericardium. In view of the hopeless character of the case under ordinary circumstances, it was determined to try the effect of the antipneumococcic serum, which was very kindly placed at our disposal by Dr. Joseph McFarland. Injections of 20 c.c. each were given every three hours, commencing at 7 p. m., March 10. Only seven injections were given, because of the lack of serum. The leucocytes, which on admission had numbered 6770, just before the first injection numbered 17,360 per cubic millimeter. A half hour after each succeeding injection they numbered 16,420, 15,120, 19,420, 23,760, 24,520 and 29,400 respectively. At 6 p. m. March 11, they numbered 27,300, at midnight 28,200, and shortly before the patient's death, which occurred at 8 a. m. March 12, they numbered 33,400. The necropsy, which was performed by Dr. Flexner, revealed acute fibrinous pneumonia of the lower lobes of both lungs, extensive bilateral fibrinous pleurisy, chronic adhesive pleurisy of the right side, acute fibrinous pericarditis, acute splenic tumor, cloudy swelling of the liver and kidneys, slight atrophy of the cortex of the kidneys, moderate arteriosclerosis, and softening of the bronchial lymph-glands. I can not persuade myself that the serum was of any material value whatever in this case, but I admit that in view of the necropsy findings it is not likely that any treatment with which we are acquainted could have been of the slightest utility. The action of the serum, however, seems favorable rather than otherwise. The patient's general condition appeared to improve a little after each injection, but this may have been fanciful, as the pulse-rate and the respiration-rate gradually increased; the former reached 148, and the latter 72 per minute. Delirium also became active and ceased only a short time prior to death, when extreme exhaustion supervened. The serum, however, seemed to exert a marked influence in the production of leucocytosis. I am not unmindful of the fact that this may have been more apparent than real. It may possibly have resulted from the reaction of the body to the infection of the second lung, which became involved a short time prior to the commencement of the injections. But this is not likely. The treatment seems to merit further trial.

DR. DELANCY ROCHESTER, of Buffalo—I rise to report a case in this connection of some interest because it bears upon the serum-therapy of pneumonia. About eight years ago, in the service of Dr. Charles Stockton, in the Buffalo General Hospital, there was a case of lobar pneumonia, and shortly after recovery another case entered the hospital. We were experimenting at that time and, with the permission of the patient, we blistered the convalescent patient and injected the serum thus obtained into the sick one. I do not remember the details of the case, but there was a decided improvement in the patient's condition for twenty-four hours. We were unable to obtain enough serum from the patient, but the evidence so far adduced in the use of the antipneumococcic serum points to the fact that we will yet have an agent of much value, when sufficiently concentrated, and when given in large enough doses. In the use of the antiphtheric serum good results follow large doses, and I think the same thing will apply if larger doses of the antipneumococcic serum be used.

DR. MCFARLAND, Philadelphia—We found that small doses of the serum did but comparatively little good; it should be administered *ad libitum* until a large total amount of the serum is given. We are by no means certain as to the nature of the serum, and at present there is no accurate way of measuring its strength. The serum is prepared by administering living cultures of the pneumococcus to the horse. The pneumococcus is a difficult organism to cultivate, and its virulence is so quickly lost that one is never certain of the nature of the culture that he is administering to the horse. The best method by which the pneumococcus is kept virulent is by growing it alternately on artificial culture-media and in animals. The nature of the serum is uncertain. It may be an-

titoxic or antimicrobial, probably antimicrobial. While it is true that the serum of diphtheria and tetanus are specific for the respective diseases, there are proofs that the antipneumococcic serum is not specific for pneumonia but may be equally operative upon other microbial infections. I can cite for you an interesting observation made upon a horse which was immunized to the pneumococcus for four to six months, and one day received by mistake a large dose of the streptococcus culture. The dose should have killed it, but no ill effects followed. This leads me to believe that the serum is not specific for pneumonia alone. It is difficult to estimate the strength of the serum and it is natural to conclude that the number of theoretical observations made depend on the serums used and on their different strengths. The early observations on the pneumococcic serums are entirely useless. To administer 10 c.c. of serum from a convalescent patient is perfectly ridiculous; the patient is not getting any appreciable amount of the antitoxin. I have hesitated to use the intravenous method of injecting the serum, on account of the fact that the increased coagulability of the blood in pneumonia might lead to thrombosis. Later on we may find that this is the necessary mode of treatment. The serum should be fresh. Dr. William Park, of New York, urged that the serum should not be kept longer than six weeks, on account of losing its germicidal power. At the present time the whole subject is a very vague one, but the result of animal and culture observations indicates that the subject is one deserving much future investigation.

PSEUDO (?) OR MODIFIED (?) SMALLPOX.*

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The diversity of opinions in regard to the eruptive disease that has prevailed throughout the United States during 1899, has attracted much attention. My having had a personal experience with at least two hundred cases in one of the large counties of Tennessee (Gibson), and a nominal supervision of fully one hundred more as county health officer, has induced me to report this epidemic as briefly as possible. My sole object is to provoke a discussion, in which we should be deeply interested, as smallpox has been regarded with no favor by medical men.

SOME FEATURES OF VARIOLA VERA.

Before entering directly upon the phase of the subject presented in this paper, I desire to review briefly some of the chief characteristics of variola vera. It has been defined as an acute contagious and infectious disease, communicable at any time from the first rise in temperature to the final desquamation of the patient, and even after death, by the body itself in the dead-room, or by the effluvia of the corpse, when disinterred years after burial. It may be communicated by the urine or feces of affected patients, or by the small particles of the cuticle or scabs thrown off during the desquamative, or desiccative period. It has been rightly termed one of the most communicable of all the eruptive fevers.

According to Osler, one of our best authorities on the subject, "The contagium develops in the system of the smallpox patient, and is reproduced in the pustules. It exists in the secretions and excretions, and in the exhalations from the lungs and skin." . . . "Smallpox is one of the most virulent of contagious diseases, and persons exposed, if unprotected by vaccination, are almost invariably attacked. . . . There are instances on record of persons unsuceptible to the disease." He adds, further, that in the fearful epidemic in Montreal, in 1885, 86 per cent. of the deaths were of children under 10 years of age, when there died in that city, of

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smallpox, within nine months 3164 persons. He holds that the nature of the contagium of smallpox is still unknown, and that it is a little remarkable that in a disease which is rightly regarded as a type of all infectious maladies, the specific virus should still remain undetermined.

Hartshorne, in "Reynold's System of Medicine," holds that the disease is communicable from the time of the initial fever till the last dry scale has disappeared; that in confluent smallpox the mortality is 50 per cent.; that in 2654 cases of the disease the mortality was 37 per cent., but that in this series of cases, the mortality in children under 5 years was 50 per cent., and from 40 to 60 years, 69 per cent., and from 70 to 90 years, 90 per cent.

Dr. Haygarth states that during his long attention to this subject, "Not a single instance had occurred to prove that persons liable to smallpox could associate in the same chamber with a patient with the disease without receiving the infection." "It is communicable in every way." "A single breathing of the air is sufficient." "It is communicable from the moment of the initial fever." It has been caught in the dissecting-room from dead bodies that have been prepared for use on the table. I might thus continue to cite authorities showing the infectious and contagious nature of variola vera; its fatality—the death-rate varying from 25 to 45 per cent.—the fact that the disease is especially fatal when it prevails among negroes; that with all classes in the extremes of life—infancy and old age—the mortality is very great.

Other points upon which all authorities agree are: the date of the eruption—the third day from the initial headache, backache and fever—the fact that this eruptive stage lasts about three or four days, and that the eruption is first papular, then vesicular, then pustular; that in the vesicular stage the points of eruption become flattened, generally umbilicated, and slightly shriveled—this condition being followed by a state of euphoria on the part of the patient; that on the eighth day of the eruption the contents of the vesicles become completely purulent, the eruption attains its greatest development and the vesicles become hemispherical and distended to their utmost, and the "suppurative, irritative or so-called secondary fever," begins, the temperature ranging from 102 to 105, or even higher; "that the mucous membrane of the mouth, fauces and larynx becomes most dangerously involved; that the vital forces of the patient are put to the severest test, and his life is placed in the greatest jeopardy"; that the cutis between the pustules becomes inflamed and the face, hands and feet swollen and disfigured far beyond that of the primary or eruptive stage; that pus begins to exude, and thick, yellow and dirty scabs and crusts form which, when removed, leave deep suppurating ulcers; that about the third day of the eruptive stage an intense itching sets in, and that this becomes almost unbearable in the suppurative stage when the crusts and scabs begin to loosen and fall off; that in the secondary fever we often have a muttering delirium; that it is frequently followed by deep-seated boils, and that most of the patients are left scarred and marked for life with pits at the sites of the points of eruption, especially on the neck, face and hands. These are points, as I have said, on which all authors agree.

THE EPIDEMIC AMONG NEGROES.

On June 1, 1899, I was called to Fruitland to see F., colored, aged about 35 years, supposed to have smallpox. I found the patient in one of the railroad section-houses sitting at a sewing-machine at work. I obtained

the following history: In the latter part of April, or the first of May, a negro man came to the section-house from Mississippi, stopping in Jackson, Tenn., from one train to another, in a part of the city in which there had never been a case of smallpox. A few days after his arrival in Fruitland he became sick, went to bed in an adjoining house, and, "broke out," as the woman expressed it, "just as she was, but more so." She also told me he suffered before the eruption with headache, backache and fever; when the eruption appeared he was perfectly relieved from fever and pain, and in about two weeks was well and ready to go to work; that about the time he recovered, his wife became sick in the same way, only she was worse than he, and recovered in about the same time; that all of the colored inmates of the two section-houses freely mingled with these two cases, and that the white family, separated only by a fence, made no effort to maintain non-intercourse; that the head of the white family saw both of the sick negroes several times, and that the white children at the fence were frequently close to those who had just been in contact with the cases. None of the parties had ever been vaccinated; this fact I ascertained by an inspection of the arms. This woman stated that about four days before she was suffering with headache and backache, and called on her physician for something to relieve her; that finding some "bumps" on her face, he gave her some medicine and told her to keep in the house closely, as he suspected smallpox; that on the following day she was free from pain and fever, but that the bumps were still present, and that it was reported that she had smallpox; that she was not suffering at all, was, in fact, as well as she had been for months, and that there would have been no report or alarm had she not called for relief for her head and back, as her case was similar to the two reported, but much slighter. The eruption was found passing into the vesicular stage, with probably not more pain, and was at work, as has been stated. The disease was regarded as suspicious, and all the inmates of the section-house who could then be found were vaccinated, but the section laborers were away, and escaped vaccination at that time.

All were cautioned to remain on the premises, but were not quarantined or guarded. On June 21 I was again called to the section-house. I found a negro man about 30 years old with a confluent case of the eruption mentioned in the first case. He gave a history of headache, backache, fever, swollen face, hands and feet; eyes closed by the intensity of the inflammation; the papules discrete, but as numerous as possible; then, the vesicular stage, in which the blisters coalesced, forming large blebs, in many places larger than a silver dollar, with still larger ones on his hands and arms. Some of the blebs were fully 4x6. They appeared to involve only the most superficial layers of the cutis, and were unicellular. The patient did not claim to suffer at all, except from the natural soreness of the parts, blistered, as they were. He had no fever, could have been up but for the condition of his feet, hands and buttocks. He was more comfortable lying down. He was then in the seventh or eighth day of the eruption. A week or ten days later I saw him again. He met me at the fence, and claimed to be well. He had no secondary fever nor any complications. To-day there is not a pit or mark on his person, except some few stains on his face and arms due to a deposit or accumulation of pigment material in the skin. A few who were vaccinated on the first visit had typical vaccinia sores. One of these escaped the disease, the balance were attacked. Case

after case occurred in the two section-houses, never more than two at a time, till all but one or two had the disease. The two last seen by me were an old man, fully 70 years old, and a child about 4 years old. The old man's case was a reproduction of the second one, already reported, whilst the child's case was very similar to the first one. The child had been successfully vaccinated by me on June 2, and developed the disease in August. The old man gave an undoubted history of a successful vaccination in childhood.

July 23 I was called to a negro family in another neighborhood. This family had contracted the disease from a negro man who had visited the cases in Fruitland. He considered the disease of no importance till he had fully developed the eruption in the vesicular stage. Two families or more had then been in close contact with him. The family which I visited consisted of a man, his wife and three or more children. The two of the three children had had the disease in a mild form, leaving only maculæ on the cutis. If the youngest child had developed the disease, it was so mild that they did not discover it. The mother had broken out slightly on the Wednesday preceding my visit, which was made on Sunday. She was at church that day, just the fourth day from the date of the eruption. The man was then in the eighth day of his eruption. The points were conoidal, not at all inflamed around the base, and were discrete. He said that aside from the eruption, he was well; there was no fever, no loss of appetite. He had suffered from nausea and a decided sore throat. None of these parties had ever been vaccinated. On a subsequent visit I saw two families. In one, where the hygienic surroundings were good, the house being large and roomy, all the cases, some seven in all, had been very mild. None of these had been vaccinated, and not more than two at a time had developed the disease. In the other house I found a family of nine. The disease had existed in that house for a month or more, it having been contracted from the party who visited Fruitland. In this house two cases at a time was the rule. There had been six cases at the date of my visit, including the one just entering the eruptive stage. In some of these cases the headache, backache and fever had been severe and the eruption abundant, but after the first case no physician had been called, the mother stating that as soon as she discovered that she had to deal with a case of "the eruption" she felt easy, knowing that there was no danger. The mother claimed that she would not have the disease, as she had been vaccinated, but before the last case recovered she and the old grandmother, who had also been vaccinated, had a mild attack. Later on, in the same neighborhood, I visited a negress about 35 years old, who was suffering from the confluent type of the eruption. She gave a clear history of vaccination in her childhood. There were four children in the family. All were vaccinated, though in one or two there was "no take," yet all had the disease in a very mild form, the successfully vaccinated one having a severer attack than the baby under one year of age. In this settlement there were about forty cases. None were very sick; none were in bed for a longer time than four days, except the confluent case, which was confined for one week. When the disease first developed in this neighborhood, the first case, one of the severe ones, was visited by a physician, who carried his son, aged 4 years—who had never been vaccinated—into the negro cabin with him, where both remained nearly a half hour; neither contracted the disease. The full-blooded negro, except in one instance, alone suffered. In the excepted

family, the negroes were almost white, and their attacks were very slight. Later on I vaccinated five of these children, of which number one had escaped in a large family. In this one the vaccination was successful, though he failed to have the disease, being exposed to it for at least six weeks. In another neighborhood, among families known as the Johnson families, there were about 30 cases—all black negroes. Two of these cases were confluent, the others discrete, being milder in proportion to the decreasing age of the subject. In one of these families three children, nearly grown, who had been vaccinated in March, 1899, escaped the disease, but the mother, who had a good vaccin mark, had a mild attack, and a daughter, who had never been vaccinated, escaped with not more than a dozen papules and vesicles. About one month after the complete recovery of two children in this series of cases, I vaccinated them. The result in one case was a typical vaccin sore, and negative in the other. I have reported now as briefly as possible the epidemic among the negroes.

AN EPIDEMIC AMONG WHITE PEOPLE.

On October 21 I was notified of the appearance of a case of the disease in one of the best white families in Fruitland. The source of infection was traced through a negro child. Her case proved to be a very mild, discrete eruption. On the eighth day of the eruption, when I saw her, she said that she was well, except the conoidal vesicular eruption. She had no fever, and from that day on desiccation progressed rapidly, and when seen on November 1, all of the eruption had disappeared, except the red elevated nodular base of the vesicle. On my first visit an effort was made to vaccinate all the members of the family. Some were conveniently absent from home. On November 1, I visited the family a second time, and found two new cases, the son, who had never been vaccinated, and a daughter with a typical vaccin sore, both mild, but the son much the milder of the two. Two other cases appeared, one that had been successfully vaccinated, the other not. The son who had the disease was afterward successfully vaccinated.

October 22, 1899, I was called to see J. H. A passing physician eight days before had called when he was suffering from headache, backache and fever, and when the eruption was just beginning to become vesicular, and had diagnosed the case as measles. The family suspected a mistake, and kept the case quiet. The report having gone out that the case was measles, those neighbors who had had rubeola visited the family, so that six families were exposed from the time of the initial fever till the date of my visit, several persons having been in the house and in the room after the eruption had become vesicular. My visit was made on the ninth day of the eruption. The patient was free from fever and sitting up in bed, able to eat all he could get; he said that he was well except the soreness of his hands, feet and buttocks. The eruption on his face was flattening and desiccating rapidly; that on his body was conoidal in shape, and filled with an opaque lymph; there was no pus, no itching nor other complaint.

There were ten inmates in this house at the time of my visit, besides the patient. All of these were vaccinated and notified that they must stay where they were or go to a pest-house. All were adults except one—a child of about eight months—five males and five females. Only two had been previously vaccinated—one in the sixties, the other before the war. The latter had a typical mark, well pitted; the other had a glazed cicatrix on the site of the vaccin sore. Every family that had been at all exposed was vaccinated—a total of

thirty. Two days later I returned to see the patient, and found him rapidly improving. Five or six days later I found typical vaccinia sores on seven of the inmates of the house, but the remaining three had "no takes." The patient was out of doors, all crusts or scales had dropped, and nothing remained of his disease except red, elevated points, which had been the bases of the original papular eruption. On November 31 two members of the family began to suffer with headache, backache and a rise in temperature, two others with slighter pains and the baby became fretful, with no assignable cause. On November 5 a papular eruption made its appearance on five of the inmates mentioned, changing rapidly to a vesicular one. On Tuesday I visited the family and found the baby with not more than fifty points of a conoidal eruption, the mother with probably twice as many—vaccination having failed completely on these two—a discrete eruption scant on the remaining three, but much severer on the two young men. The three had typical vaccinia sores of a week's duration. The grandmother, who had been vaccinated before the war, and on whom vaccination had again taken well, suffered most from the localized pain in the bases of the eruptive points. Of the three who escaped, two had been successfully vaccinated, the other unsuccessfully. One of these quarantined persons had left the place, deeming it safe to return home, as his vaccinia had proved a perfect success, but on the same day, November 4, the initial fever developed, and on November 6, the eruption came out severely; but as soon as it fully appeared, he got out of bed and claimed to be well. None of the other inmates were confined to bed at all, except about October 28, when one of the young men remained in bed about thirty-six hours with a sick-headache and a sore arm. When I visited them, November 7, all were up and free from fever. Bear in mind that all of these parties, ten in number, were exposed from October 13, the date of the beginning of the fever of invasion, till October 22, the date of my first visit; that on this date they were all vaccinated; that on the 28th or 29th six of them had typical sores, and that no eruption appeared on any of them till November 5 or 6, just fourteen days from the date of vaccination; and do not forget that the mildest cases were the mother and child, on whom the vaccination did not take. Not a case appeared in any of the six families exposed. In every family, save one, there were some failures in vaccination; in one of these cases in which vaccination failed, the child had been exposed to the case several times during the febrile and early eruptive stage. On November 1 a case in another white family was reported, and was at once visited by me. In this case no contact could be traced with a case of this disease—exactly as it was reported by the patient J. H.

This last case, Mr. C., gave a history of fever, headache and backache, followed by an eruption, beginning on October 28, the fever subsiding on the appearance of the eruption. This man had never been vaccinated. The eruption was smaller and more irregularly shaped than in any of the other cases, and on the face, especially the forehead, it was almost confluent. On the arms and lower limbs it was discrete and conoidal. The eruption had not fully passed the papular stage on the hands and feet, though the vesicles had assumed an opaque appearance on the face. The patient was out of bed, with a temperature less than 100 F., feeling well, and ready to eat anything and everything brought to him. Five members of this family were vaccinated,

after many threats and much persuasion, and four had the disease.

These cases are reported in as brief a manner as possible, and sum up about eighty colored and eleven whites.

AN OUTBREAK IN ANOTHER PART OF THE COUNTY.

About November 15, a new point of infection was reported in the county, in an incorporated town. I was sent for; I reported to the authorities that the disease was what we had had in the southern part of the county; that the State Board of Health called the disease smallpox; that I didn't consider it *variola vera*, but in deference to the health authorities, advised isolation and vaccination without quarantine. The first cases were, as elsewhere, negroes. The families were vaccinated successfully, and kept in their own premises, but every one of them developed the disease.

The local authorities next discovered the disease in a white family that could not account for its presence. These were detained for about fourteen days at home, but refused vaccination, and one-third of the family developed the disease, the later cases being milder than the first. No further efforts were made to prevent the spread of the disease, and it was reported that nearly every negro in the town had the disease, and not less than twenty-five whites, making in all about 100 cases, with no deaths; though one old lady 76 years of age died from congestion of the lungs while suffering from a very mild eruption. The disease appeared in the only hotel in the place, all of the proprietor's family being attacked, but business was never suspended, the traveling public being received.

In a country district just east of this incorporated town the epidemic held undisturbed sway. I was never called in; nor were many vaccinated. They preferred the disease to vaccination, so they reported officially to me. Here, too, the disease ran its own course, gradually growing milder, killing no one. There were forty or fifty cases in that district.

In another town three colored families became infected. After the first case all were vaccinated, except the babies, but not one escaped the disease, the mildest cases being the unvaccinated babies. In one family two cases of a severe type developed twenty-one days after vaccination, followed by a typical vaccinia sore. Here there were seventeen cases, with no deaths.

At another point, in a family of twelve negroes, there was only one case, and this was not discovered till the fourth day of the eruption, which, while discrete, was severe. The family had been constantly in contact with this patient, but during the day lived largely out of the house. The man went to his work on the fifth day, and so continued till he was turned loose. He is now spotted, but the maculae are rapidly disappearing. Living in another house was a family of three men, one woman and a baby. One of these men contracted the disease from the same source as the last case reported. All were successfully vaccinated except the baby. All had the disease, the baby in a milder form than did any of the others. These cases were at the county seat, and had been mingling with other negroes till the appearance of the eruption, and yet no other cases developed. In another negro family with the disease, all unvaccinated except the father and mother, this disease was so mild that the children were sent home from a crowded schoolroom during the vesicular stage of the eruption, and returned before desiccation and desquamation had been completed. I personally inspected some of these cases; only one member of the family had been in bed,

and that for only one or two hours, when they thought she had a chill. The vaccinated mother finally had the disease as severely as any of the others.

The disease finally ceased in the county, without any special efforts to check it, save the isolation of the families. There were in all about 300 cases, the large majority of them being negroes. In those cases where the whites contracted the disease they appeared to suffer more than did the negro. The last cases in the county were negroes who had had the disease in their families for weeks before it was discovered. When at last found out they were transferred to a house of detention. There on April 26, 1900, I visited in person and closely examined them. One man, who had contracted the disease on April 10 or 12, was nearly well. His was reported to have been one of the most severe cases. It was claimed that he had secondary fever, but this was disproved fully. His face was thickly marked with dark, almost black, spots. The next case, a colored male, a syphilitic, was in the eighth day of the disease. The scales were already dropping off. His face presented a variegated appearance. His nose was almost double its natural size. Crusts were abundant, but no thick scabs, and no pus anywhere. His temperature and pulse were normal. This was a severe confluent case. When seen he was very busy disposing of a full breakfast of rice. Of the fourteen cases in the house, not one was in bed. The cases ranged from two days to two weeks in duration; the patients were from 1 to 50 years of age. They were about equally divided as to sex. With this number in a room just before it had been aired and swept there was not the least odor. The eruption varied in size from a grain of wheat to a large vesicle. The cases of the children were mild in proportion to their ages. All were hungry. Not one complained of anything except of being detained in the house. There was no itching. It has been my experience further, in two large families, where all the inmates had been unrestrictedly allowed to mingle with the one case of the disease up to the fourth day of the eruption, to have had no case except the first in either family. One family, with the exception of two or three members, was successfully vaccinated; the other unsuccessfully. One was white; the other colored. In another family the only two members who had contracted the disease had had variola vera in their younger days—one being well pitted. The epidemic has shown a decided preference for the colored race, and the history of these cases has shown that it is more easily communicated from one to another among negroes than among the whites; but this is easily accounted for by the difference in their hygienic surroundings.

CHARACTERS OF THE EPIDEMIC COMPARED WITH SMALLPOX.

The points of similarity in these cases and true smallpox have been brought out in the clinical histories. There is in some the same backache, headache and initial fever, papular eruption, followed by the vesicular, then becoming opaque, but in the large majority of cases having none of the appearance of pus. These vesicles have in many cases flattened, but lacked the peculiar umbilication, and when full of opalescent fluid were conoidal, not hemispherical, in shape. There was no puckering around the eyes. None of them ever had creamy pus in them, and in no case was there ever an ulcerated surface left upon the removal of a crust. The vesicles, no matter how confluent, went through a process of desiccation, not of suppuration—only the epi-

dermis and a few superficial layers of the cutis being involved. There were no crusts, only thin scales. In not a single case was there any secondary fever, the highest temperature on or after the eighth day not reaching 100 degrees, though the family physician reported secondary fever on the sixth day before the eruption had fully matured, with a temperature of 100.3 degrees. In no case at the time the secondary fever should have developed was there any inflamed margin around any of the so-called pustules, nor even in the confluent cases was there any inflammation about the skin after the eighth day. The cutis between the sores on the body and the extremities was normal in appearance, and there was no inflammation about the face or hands after that date.

In every case with the appearance of the eruption the fever subsided, and the patient got out of bed, and so remained, except in a few confluent cases mentioned, where the patients were more comfortable in bed on account of the condition of the feet and hands. After the eruption appeared the appetite returned in all of the cases. In not more than 5 per cent. of the cases was there nausea or vomiting. Itching was absent in nearly all, especially was this so in those patients whose skin had been kept clean. In not more than a half dozen cases was there any pitting, and in these few cases the marks were due to the patient rubbing off the vesicles to hurry up the process of recovery, as they supposed. In the few marked cases, the skin is rapidly assuming a normal appearance. The cases are chiefly marked by maculæ, in the negro, caused by an undue deposit of black pigment in what had been the base of the papules; in the whites this pigment is reddish or purple. This gives to the face a spotted appearance, but, as in the case of the pits, the pigment is rapidly disappearing.

Vaccination has not seemed to exert any protective influence whatever, but as so few of the negroes have been vaccinated, it is difficult to draw any conclusions on this point, but I would especially call attention to the results of my experiments in vaccinating those who have had the disease. In one instance, when two were vaccinated there were a "take" and a failure, and in the second lot, where five were vaccinated, one, who had escaped the disease through a period of six weeks' contact with it, showed a typical sore, and another one a slight "take." Again, in parties who in childhood had been vaccinated, two of them had a confluent attack, and in at least two instances, children who had been vaccinated about one month previously contracted the disease. Lastly, where of ten vaccinated persons, with seven typical sores developing six days after vaccination, and where three of the same lot of cases entirely failed to "take," fourteen days after the vaccination and seven or eight days after the appearance of the vaccine sore only three had escaped the disease, one of these being one on whom vaccination had no effect, and the two mildest cases of the eruption being the baby and wife of the first case, the two having failed to show any vaccine sores at all. Again, two cases with vaccine sores twenty-one days old had severe attacks of the disease, and still again, of a family of ten persons, all of whom were vaccinated at the development of the first case, not one escaped the disease; and there was a duplication of this in another family. You answer that it has frequently been reported that parties who have had smallpox have been successfully vaccinated. "It is to be observed, however, that the smallpox has been experienced, in most cases many years before." It is admitted by

all that the more recent the vaccination, the more protective it is. Yet I found persons vaccinated a month and those vaccinated two weeks before the appearance of the disease equally affected. In my last series of cases, one that had a typical cicatrix, and was again vaccinated successfully, with the vaccin sore fully matured, conditions in which, according to Dr. Hare, protection is most easily afforded, had just as severe an attack as did any of the others in the house. The primary vaccination should have perfected it, yet the disease appeared, while one who had never been vaccinated, and on whom vaccination had failed in this group of cases, escaped.

Smallpox is communicable in every stage of the disease, while this disease becomes communicable only in the late vesicular, opaque lymphoid or pustular stage. This fact has been demonstrated in every case with which I had to deal. I have already cited families exposed in my last cases. Is this disease that has been so widespread true variola, such as we have met with for years—a disease having a death-rate of from 25 to 50 per cent., while this has none?

I find in examining medical works of old as well as recent dates but little reference to any eruptive disease corresponding with this. In Good's Study, published in 1829, Mr. Marshall reports what is called Kandayan Epidemic. While several cases made a near approach to varicella, all of them so far deviated from the ordinary character of the variolous secretion as to be devoid of a creamy and consistent pus, and rarely exhibited more than a whey-like matter, whether the eruptions were distinct or confluent, or the fever mild or severe. In other respects, Mr. Marshall observes, "the disease did not materially differ from the description given of the smallpox by systematic writers." These were mostly cases that had been preceded by vaccination.

Van Swieten has described a spurious or bastard variola under the name of *Steen-pochen* (Stone-pox), which he claims to have seen as frequently epidemic as the genuine variola, indeed, running apace with the latter, and sometimes succeeding it.

Reynolds,² under the head of "Variola Benigna," refers to Van Swieten's description "of natural smallpox under the title of Variola Verrucosa, or Cornea, Stone-pock, horn-pock and wort-pock, which we sometimes see in these days, and in which the disease is of a mild, modified character." He says: "These are examples of a mild, natural smallpox, such as have occurred no doubt at all periods to a few favored individuals, and in which, fortunately for the subjects attacked, the disease leaves no trace behind."

CONCLUSION.

Can this disease be called variola vera? The initial fever, backache and headache are the same, but all eruptive diseases have the same train of symptoms to a greater or lesser degree. In a large per cent. of cases of variola in this stage we have nausea and vomiting, with an inflamed condition of the mucous membrane, whilst in this epidemic this state of affairs has been the rare exception. In variola the eruption is, as a rule, more regular in its development. In this I have seen cases as late as the sixth day with vesicles still appearing. In variola the eruption is, as a rule, in the pustular stage, hemispherical; in this, in the third stage, conoidal in almost every case. In smallpox the rule is that the patient begins to fight for his life on the eighth day, but in this he begins to recover. There is no suppurative stage, but a stage of desiccation, and when the scales

are removed by force there are no ulcerated bases seen even in the confluent cases. This eruption has never in a single case been followed by boils or phlegmonous swellings, which are too common in smallpox. Smallpox is prevented by vaccination, this is not, nor even, so far as my experience and experiments go, modified, as I have seen milder cases in the same house among the unvaccinated than among those whose arms had a vaccin sore, 8 or 10, or even 21 days old. Smallpox, as a rule, stamps its indelible imprint on its victim; it is the exception to find one "pitted" with this disease, and when pitted at first, the skin rapidly becomes smooth. There is no mortality in this disease, but in smallpox about one-fourth of the cases die. In this disease there have been neither complications nor sequelæ, but in smallpox they are the rule. In the cases which I have seen, and they have been many, not a dose of medicine has been given. Nature has not been interfered with, and all have recovered, whether in the hovel, hut or comfortable house.

You ask what I call the disease—I answer frankly that I do not know.

DISCUSSION.

DR. J. J. WALSH, New York—It must be remembered that the great Vienna school of dermatologists have never admitted that there is an essential distinction between varicella and variola. Prof. Senator, of Berlin, said not long ago that while at first in his medical career he held with the Vienna school in this matter, later he came to disagree with them, and yet now goes back to his former opinion and thinks the two diseases have some very intimate connection. In Berlin, when an epidemic of varicella appears, Prof. Senator always looks for a true case of variola somewhere in the vicinity.

Dr. Happel's observations, so carefully made, are very valuable as showing, perhaps, an intermediate stage between varicella and true variola. In children-hospital practice it is possible to have with varicella, severe fever, 104 F., perhaps, and, after two or three days, umbilicated vesicles, pustulation and minute pitting, very much resembling smallpox. The study of the two diseases, and especially of cases that seem to occupy a place between them, is most interesting. Dr. Happel is to be congratulated on the faithful observations he has made and on his delay in making a diagnostic conclusion until he was assured of the true character of the disease he had to deal with.

DR. JAMES, Missouri—I was much interested in the paper, because in Missouri we have been enjoying this epidemic in a somewhat exaggerated form. We have been fortunate enough in having but few deaths from variola, or discrete smallpox. In our state we have had to fight for an opportunity to demonstrate the benefits of vaccination. We have also had an opportunity of demonstrating the peculiarities of some of the medical profession, and the mistakes of a great many of the profession who depend too much on their knowledge as clinicians. We are called to see a case that is supposed to be smallpox or chickenpox and we, on the impulse of the moment, diagnose the case, possibly in the stage of desquamation or inflammation. It is chickenpox. We are too bigoted and too bright to acknowledge our error; it is chicken-pox and the whole locality is so informed. In the western portion of Missouri several thousand cases of this form have appeared in certain localities, and the board of health of which I have the honor to be a member has been invited to pass upon the disease. In one locality, in a town of 15,000 or 20,000 people, I was informed that the disease prevailing was chicken-pox, passed on by men of vast experience in that disease during the Civil War. The locality begged for help. I called and found that this town had from 150 to 200 cases of discrete smallpox, with possibly 4 or 5 cases of the confluent form. In another locality there was a case which was brought to Kansas City; immediately I was invited to visit the case. I isolated it and vaccinated the people who had been exposed, with the result that we had no further development of the disease in that locality.

² Reynolds: System of Medicine, 1880, p. 32.

DR. CHAPMAN, Ohio—In Ohio during the last year or two, there has been quite an epidemic of this disease. I have also had to contend with the doctors in regard to the name of the affection. In some communities, hamlets or villages where I have personally inspected the patients, I have found 30 in a population of 102 in bed with the disease. In the majority of cases they were adults and very sick. A great many cases occurred in those who had been vaccinated and who bore the well-known marks of pseudo-vaccination. None of them had been vaccinated recently or had any mark of recent vaccination. I wish to call attention to one point. The disease varicella or chicken-pox is not a disease of adult life. It is a disease rarely found in adults. I beg to differ with the writer of the paper regarding his views. I have failed to see a case develop where vaccination had run its course. I object to vaccination after the disease has developed five or six days, because you then would have two diseases running. I do not believe that this is varicella. Formerly varicella and variola were considered alike. In a community of 102 there were 4 deaths from this disease. I believe that if it be left to run rampant there will be more deaths. I believe that if we, as health-officers, do not do our best to isolate the cases and vaccinate the community we shall get a severe epidemic of smallpox such as has never been seen. The majority of doctors have never seen a case of smallpox, and yet they know more about smallpox than those who have.

DR. CORLETT, Ohio—Twenty years ago I studied smallpox in London, and since that time I have studied the disease in various countries, and especially in this country and in the State of Ohio; we get different epidemics, differences in virulence and in clinical features. That is well recognized by all writers on this disease. During the past few years we have had in the State of Ohio a visitation of smallpox, which first started in a small town from an alleged case of chicken-pox. From those few cases the disease has gradually spread over the whole state. In Cleveland we have had a great many cases, hundreds of them, and during this time I have taken the occasion to make photographs of the disease, which I hope to exhibit to another section, showing the differential diagnosis between smallpox and chicken-pox. In Cleveland we have had a number of fatal cases; we have had an opportunity of showing the value of vaccination. I believe that many cases of supposed vaccinations, reported as typical vaccination marks, were due to other pathogenic organisms gaining access. When tubes are used with proper antisepsis a typical lesion occurs and it is devoid of the formation that is so common in a more careless vaccination. I am still of the opinion that we have chicken-pox and smallpox, which differ in severity, and that vaccination is the only safeguard against smallpox.

DR. WOODRUFF, Ohio—I know vaccination is a protection. I know of one family of eight people, a dirty, filthy family, all had the disease but the mother and she had been protected by vaccination. I know of another family, where a young man, well to do, had a case of smallpox; he had the pustular form, with much fever, and he was very sick. In that family there were three others, two sisters and a mother, who were protected by vaccination and none of them took it. The stand taken is wrong, for we know that from the disease occurring in a town the whole country may become infected.

DR. STEWART, Philadelphia—In an epidemic a few years ago in Philadelphia we had as high as 255 deaths in one week from smallpox. There was no mistake about the diagnosis of the disease at all. Any man who went through that epidemic can not fail to recognize the differences between varicella, varioloid and variola. They are as distinct as can be. There could be no mistake in diagnosing the three forms. In regard to the paper read here I do not think from the evidence given that it is any form of variola at all. It comes under eruptive diseases, of course, but I should think it was some form of vesicular exanthem of some kind, due to climatic conditions.

DR. MCCORMACK, Kentucky—The cases from Tennessee were cases of genuine but mild smallpox, and may have been the cause of the violent outbreak that occurred there where the death-rate was 60 per cent. [Dr. McCormack then moved the

resolution which was published in the official minutes of the Section in THE JOURNAL, June 23, p. 1630.]

DR. T. J. HAPPEL, Trenton, Tenn.—I think the resolution is a gross injustice. Dr. McCormack never saw a case of the disease coming from Gibson County, and no case of the disease has been reported as going from Gibson County into Kentucky and none of the Kentucky or Ohio authorities know anything about these cases. I consider a resolution of that kind a gross injustice.

DR. GEORGE DOCK, Ann Arbor, Mich., Chairman—The resolution is out of order.

DR. HAPPEL (continuing)—I must say that many have misrepresented the intent of the paper. I have nowhere argued against protection against variola. Ninety-five per cent. of the persons living in my town were vaccinated under an enforcing ordinance drawn up by myself. Taking the position that I have in the paper, I wish to say that I have no axes to grind. I have succeeded in doing what I expected to do. Personally I have this to say. My first experience in the practice of medicine was with smallpox, and I have met with it time and time again. The cases reported have none of the typical appearances of true smallpox. I am not alone in this statement. I regret that the time allowed me does not permit my enlarging on this point. Whenever this disease has appeared there has been this same difference of opinion as to its identity with variola vera. The older practitioners, as a rule, who treated smallpox twenty years ago, constitute a majority of the doubters. The text-books written from twenty to fifty years ago do not describe any epidemic of smallpox where, as a rule, there was no secondary fever, no pustular stage, no pitting and no mortality. Some of our more recent works on practice have been rewritten on the subject of variola vera and have been made to conform to many of the features of this disease.

One of the most nonsensical arguments, or rather, statements, made in regard to this present epidemic is that continued vaccination through several generations has so modified the systemic conditions of the people that this epidemic in its mild form is easily accounted for. This statement is completely negated by the fact that there has been no systematic vaccination of the negro population since 1860, and but little up to that time, as the Southern planter depended on isolation to protect his slaves, and not on vaccination. In the South the negro has borne the burden of this epidemic, representing fully 75 per cent. of the reported cases. In Tennessee vaccination, outside of the cities and incorporated towns, has been almost entirely neglected since the war of the sixties, owing to the reports of suffering brought back by returning soldiers who had been vaccinated.

Now, in conclusion, permit me to repeat and emphasize the fact that there is no stronger advocate of repeated vaccinations in this Association and no greater believer in its efficacy and protecting influence against variola than I am, but the point that I make in this discussion is that vaccination has not protected against this disease, as has been proved in the cases reported by me and in the letters received from different sections of our country, which I herewith submit and make a part of this paper.

In addition to what has been already said, I desire to present a few communications in regard to this disease that I have received from different parts of the South when the cases first appeared. I desire to show that I am not alone in the views presented in my paper. The first is an extract from an article by Dr. J. P. Fletcher, of Lonoke, Ark., sent me when I first began the preparation of my paper:

Much discussion has been had at the bedside of the patient, as well as at the offices of the physicians of our town and surrounding country, about an eruptive disease which has been lingering in our midst since August 17 last. The history is as follows: About August 1 last, one of our citizens visited Little Rock, Ark., and was detained over night, which he spent at a private boarding-house. Upon returning home he was taken with a chill on the morning of August 17, which was followed with a high fever, pain in the head and back, lasting thirty-six to forty-eight hours, when a full crop of papules made their appearance on the face, followed by a full crop on the body. The fever subsided with appearance of

eruption. Patient up in five or six days. No secondary or recurrent fever followed. Desquamation leaves a discoloring of the skin, but no pits, but rather a prominence. This gentleman's family consists of wife and three little boys from 5 to 9 years of age. The boys took it in the course of the following twenty days. The wife and mother escaped entirely. The attending physician diagnosed the case chicken-pox, confirmed by the president of the State Board of Health. . . . I will now give you a brief history of the most interesting and mystifying case that has come under my care. Dr. J. F. O., who was well vaccinated two years ago, was taken ill December 14 or 15, with all the symptoms of all the other patients. There was a full crop of eruption, representing all the stages of full pustule—umbilication excepted—to the minute papule, winding up without a single pit. Up to the 12th inst. his face was still covered with papules, which were gradually fading, leaving the surface smooth and natural. His family consists of father, mother, wife and two little girls. The elder of the little girls was vaccinated when her father was, some two years ago. Both children and grandmother had mild attacks. Grandfather and wife escaped entirely. What is this disease? From the teaching of our latest and best writers I can not think it smallpox. I have been exposed to it from the commencement, and am not an immune from smallpox. Up to this writing have not had any symptom of the disease. I have treated thirty-two cases. We have had, in all, possibly sixty cases in town, with only one death.

LONOKE, ARK., Nov. 29, 1899.

Dear Doctor:—With great pleasure I have watched the proceedings of the Tri-Medical Association during its late session. I was very much interested in your paper on smallpox diversion. The *Commercial-Reporter* gave only a synopsis of your paper, but sufficient for me to comprehend your position in the matter of the disease. In August, 1898, the first case occurred in our town and during the summer and fall we had from 50 to 75 cases, in which we had but one death, and that was a young lady of very delicate constitution, who was also suffering from menstrual trouble. We were informed by an expert, so-called, that as soon as cold weather set in the disease would spread rapidly and be attended with great fatality. During the cold weather, however, there were but few cases, and these very mild, so much so that few called a physician or even consulted one. Up to May 1 of the present year we had 150 cases in the town and surrounding country, with but the single death mentioned above. Another remarkable feature of the disease was that the only fully confluent cases which came under my care were those that had been vaccinated a year or two before. Again, in families of from 5 to 8, 2 to 6 cases would occur, and the rest escape. There was no odor nor recurrence nor secondary fever or pitting after desquamation. My experience with this disease, so-called smallpox, is that it is evidently not even moderated by vaccination, but rather intensified. It is still lingering in our state and it seems to be a concurrent opinion with the profession that it is smallpox, except a few independent thinkers who have the backbone to express their convictions to the contrary. I hope some learned expert will soon find a name for the intruder.

Yours fraternally, J. P. FLETCHER, M.D.

SOUTH BOSTON, VA., Dec. 1, 1899.

Dear Doctor:—I am heartily in favor of abandoning the old name of smallpox as applied to this mild or pseudotype of the disease. We have had some 75 or 100 cases here, and they all seemed to get along all right without even the attention of a physician; some kept at their ordinary duties until detected by the health officer. Not one case was sick enough to require special attention. Many of them were negroes, and, according to our best writers, this race usually suffers most. In this instance the negroes suffered least; many of them never stopped from their usual labors. I am unable to understand why we should have such a mild type of so fatal a disease. Vaccination seems to have but little effect in preventing or modifying the attacks. Hence I am at a total loss to know what to call the disease that is contracted from those who have previously undergone thorough vaccination. There does not seem to be any difference in severity in those who have and those who have not been vaccinated. Do you think genuine smallpox can be contracted from varioloid? Fraternally,

BITTLE C. KEISTER, M.D.

COLUMBIA, TENN., March 15, 1900.

Dear Dr. Happel:—It is currently reported here that you have backed down from the position you took last year in re-

gard to this thing that every little four-by-six doctor is calling smallpox. We have it here, and have hundreds of cases, and not a single scar or death from it yet, nor a single case that has been sick enough to give any concern; any number of them running their course in four to seven days and none lasting longer than fourteen days; never any true pustules or crusts nor any secondary rise of temperature. It occurs as readily and as often in persons recently vaccinated as those not. Vaccination takes as readily after the attack as in those who have not had it.

It occurs as severely in those that have previously had true smallpox as in any other class, as I have had an opportunity to observe in two cases. The patients are sick only one or two days and often not then. In other words, it has nothing in common with true smallpox, and I am very sure it is nothing akin to the genuine article. Please write me if you have changed base in the matter. Your sincere friend,

W. K. SHEDDON, M.D.

COLDWATER, MISS., Jan. 11, 1900.

Dear Doctor:—This is to obtain a knowledge of your views relative to a very prevalent skin disease simulating smallpox that is scattering all over several states in the South. We have it in this town and prominent physicians are very much divided in opinion as to what it is. It is unnecessary to give you symptoms in detail, as I learn that you have the same trouble in your county. But very few of my cases pit, and none seem to be protected by vaccination. The mortality is very low. I am not of the opinion that it is true smallpox. But many of my older colleagues are very friendly toward the variola idea, yet none have ever seen a case of smallpox before the appearance of this disease. If you have named the trouble please write me full particulars. Yours truly,

GEO. H. MCCAIN, M.D.

MCKENZIE, TENN., March 24, 1900.

Dear Sir:—Our town is just now having its first experience with the so-called smallpox, so pronounced by Dr. Albright, Secretary of the State Board of Health. Dr. R. D. Given, one of our oldest and ablest physicians, stoutly contends that it can not be smallpox. He has been attending the patients daily and has treated old-fashioned smallpox several times during his practice. It has been told here that you contended for a long time that the disease that has been called smallpox by the state health authorities in your county was not smallpox, but that you had recently changed your views and are now convinced that you were mistaken in the opinion you formerly held. For my own satisfaction, and for that of others, I would like to know if this is true. Very respectfully,

J. T. BURNS.

HICKMAN, KY., May 13, 1900.

Dear Doctor:—Have you had any experience with the cutaneous eruption that has infested this country for the past twelve months or more? If so, do you think it is smallpox as it has appeared in this country before, or as it is described by the authors on the subject? Do you think it likely we could have at this place over a hundred cases of smallpox—most of them negroes—broken out from head to foot—many of the lumps so close together as to compress each other like peas in a pod and not have a case of secondary fever? A few of the cases had chills; most of them had chilly sensations, headache, backache and fever. Eruption appeared on third day. Patients feel ill on the fourth day; some of them on the fifth. After that the appetite is good. They claim to feel as well as ever, and go to work if you allow them. The eruption remains out for weeks in some cases. There is a little milky fluid under the cuticle about the fifth or sixth day. If the cuticle be rubbed off, the lump is smooth and oval, and is removed by absorption at the base, remaining oval on the apex—unless scratched or irritated—until it disappears, leaving no pit whatever. Some of these cases have quite sore throats for two or three days. One of my cases had marked photophobia, with inflamed lids. In all the cases—I have seen over thirty—I have prescribed a gargle in four only, and solution of boracic acid for the eyes in one. That is all the medication they received, except cosmolin over the exposed parts. If we admit this to be a mild type of smallpox, do you think it would have been advisable to have placed all these cases in a small pest-house? Might it not have aggravated the type? I had guards put at the houses, and isolated them the best I could in that way. But after the fifth day it was almost impossible to keep them confined in any place. Yours, etc.,

ALEX. A. FARIS, M.D.

CROCKETT MILLS, TENN., May 26, 1900.

Dear Doctor:—I am desirous of obtaining your ideas on an "eruptive disease" which we are having at present in this part of Crockett County. I have been informed that you have had considerable to do with a malady of this type in your county, hence my writing you. I will relate the history of a typical case which, with two others not so typical, has been under my care and observation. The patient, male, white, aged 17, was taken sick the 10th inst. with slight fever, headache, malaise, etc., as the history was given me on Saturday, the 12th, which was the first time I saw him. At this time, the third day of his illness, he complained of frontal headache, general malaise, constipation and some muscular pains; his temperature was 101.2 F. No chill had preceded these symptoms, nor was there any nausea or vomiting or lumbar pains. There had been also in the same family, about two weeks previous to the case in question, some eruptive trouble, which I did not see, but which was diagnosed by the attending physician as "biliousness and impetigo contagiosa." This patient, a girl, remained in bed only two days, so I was informed. Knowing that there had been a "suspicious case" in the family before the boy was taken sick, I took particular care to examine his entire body for some sign of an eruptive trouble, but found none. I inferred therefore that the case was one of la grippe. On the following morning I called again, at which time the boy was covered from "head to foot" with a vesicular eruption, each having a "halo." His temperature at the time was normal, all discomfort had disappeared, and, to use the boy's words, "he felt like being out." These vesicles were on all parts of the body, but more particularly on the face and hands, and not more than one in a hundred were umbilicated, and then only slightly so. On pricking them with a needle they at first would collapse, but later would not, showing that they were reticulated. They remained in the vesicular stage for four days, when they assumed the pustular form, going on to scab and desiccation during the next twelve days. As before stated, there was no pre-eruptive rash of any description, neither was there even a papular stage preceding the vesicular, and his temperature stayed at normal from the appearance of the eruption till the end of the attack. Three representative physicians of this county saw the case with me during the lactescent stage of the eruption, and they unhesitatingly diagnosed the case as one of true, discrete variola. From this diagnosis I dissented, for the reason that there was not and had not been anything characteristic of this malady any of the time, except the vesicular eruption, which was then present; and because the temperature, as in the other case, was normal, and remained so all the balance of the time. Neither was the beginning of the attack characteristic of variola—no chill or chilliness, no nausea, no "backache," and above all, no pre-eruptive rash, followed by papules, giving the "shotty feel" on palpation. In fact, there was absolutely no indication of an eruption until the crop of vesicles appeared. You will notice, too, that from the initial stages until desiccation was nearly complete only sixteen days elapsed, and there was no "secondary fever." I am sure the case was not varicella, because the eruption came too late for that, came out suddenly, and there was not the characteristic phenomena of papules, vesicles and crusts appearing on the same parts of the body in proximity. I omitted to say that the eruption appeared scantily on the tongue and the pharynx.

There have been more than fifty cases of this trouble in Crockett County, with no deaths, and in many instances the parties having the disease did not go to bed, or only stayed there two or three days. I can hardly bring myself to believe this to be variola; if so, I have been misled by the most eminent authorities, viz., Osler, Anders, Tyson and the American Text-book (Pepper). Now, Doctor, I have written you with no other motive in view than obtaining information, or rather obtaining your ideas on the subject, which I may say without any degree of flattery, I am sure are as good as I can obtain, believing, as I have a right to do, that you have seen similar cases and are competent to give me something definite on the subject. I shall hold what you say "sacredly confidential" if you desire it. The cases in question were never vaccinated.

W. T. REDMOND, M.D.

SALT LAKE CITY, May 23, 1900.

Dear Doctor:—I see by the program of the American Medical Association that you are to read a paper on "Pseudo (?) or Modified (?) Smallpox." This subject intensely interests me, as we are having an epidemic of modified (?) smallpox (?) in the West—Utah, Montana, Colorado, Oregon and Wyoming. The profession is at sea and many good men differ as to a diagnosis.

Yours,

H. N. NAYOR, M.D.

PSEUDO, MODIFIED, OR TRUE SMALLPOX—WHICH IS IT?

H. M. BRACKEN, M.D.

MINNEAPOLIS, MINN.

The first term is in common use at the present time. Let us analyze it. It is applied indiscriminately to a mild eruptive disease prevailing quite generally throughout the southern and middle states and, to a limited extent in other parts of the country. This disease is admittedly like smallpox in many of its characteristics, but those who use the above term in describing it insist that certain characteristics of smallpox are absent. I presume no one will dispute the fact that the disease prevailing so generally, whether accompanied by slight or severe symptoms, is one and the same when the line of infection is clearly continuous. It is therefore all smallpox or not smallpox. Let us consider carefully some of the arguments used against the diagnosis of this epidemic disease as true smallpox.

First, the mildness of the disease! It is absurd in this day of advanced knowledge to put forward such an argument. We all know that there may be mild epidemics of diphtheria, in which the majority of cases may show but little membrane; that often diphtheria prevails as an epidemic under the false name of tonsillitis until a few deaths arouse the lethargic physician, or a microscopic examination reveals the presence of the bacillus of diphtheria. Who would say that an epidemic sore throat with the specific bacillus of diphtheria present was not diphtheria because the disease was of a mild type, and had none of the dangerous symptoms of malignant diphtheria? Again, we have probably all seen an epidemic disease with many of the characteristics of scarlet fever but varying in degrees of intensity from the mildest rash, characterized by the old-woman doctors of both sexes as scarlet rash, to the severest type with the accompanying fatal sequelæ. Would any intelligent physician of modern days say that the cases with the mild symptoms and those of the severe type were not one and the same? It was not many years since it was considered necessary to have the typical history of typhoid fever before we were willing to call a fever by this name, but now we know that there may be a mild typhoid fever with very few of the classic symptoms of that disease. Let us be reasonable then and admit that while it is the rule to have a mortality of from 25 to 50 per cent. with smallpox, it may be possible to have the disease in mild form with a very low mortality.

The eruption is said not to conform to the book description of smallpox. Are we such slaves to books that we can not make a diagnosis of smallpox without all the cases having an ideally-formed eruption? It is no uncommon thing to find grouped together cases with the typical eruption at one extreme and the non-eruptive cases at the other, with all grades of eruptions between. Would any one with the history of a common infection say that some of these cases were smallpox, and the others not? What would those who need a classical eruption in order to make a diagnosis do with the most fatal of all, the hemorrhagic cases? I presume they would call them purpura hemorrhagica instead of hemorrhagic smallpox.

The temperature is said to be too mild in the majority of cases. Why should not the temperature be mild if the infection is mild? It certainly would be a freak of nature to cause a prevailing fever out of all proportion to the degree of infection. The secondary fever is said to be absent. The physician who has to wait for the