where the patient complained of want of sensibility in the ear, I have found that the cotton and forceps were better suited for ascertaining the degree of sensibility than the probe; the application of the latter usually produced a pricking sensation, whilst the cotton merely gave a slight feeling of tickling. In some cases, however, the sensibility of the meatus and tympanum is so acute, even though no inflammation exist, that the slightest contact of any instrument occasions severe pain, and we are compelled to renounce all attempts of this kind.

When the patient has been in the habit of frequently introducing instruments himself, the case is different, and we may then employ the blunt probe; I have sometimes passed it all over the surface of the tympanum without occasioning the slightest sensation of its presence in the ear; this mode of examination, however, enables us to ascertain a fact which is rather connected with affections of the internal ear, and which seems to me destined to throw some light on the diagnosis of diseases of the vestibule and its annexes; I now allude to the curious fact that the power of hearing has been suddenly restored in cases of considerable deafness, by making pressure on the long process of the malleus, which pressure is transmitted along the chain of bones to the foramen ovale. I merely point out this fact, as it seems to me novel, and shall recur to it again.

By simple inspection, then, we can determine the general form, colour, transparency, and thickness of the tympanum. The remarks of the ancients, and of some modern writers on the tension and laxity of the tympanum, have been regarded as pure suppositions since the time of Itard; however, we cannot deny that the membrane may not be drawn inwards by the long process of the malleus, and thus rendered much more concave than natural; or pushed out and made convex by accumulations of mucus, pus, or even air, in the cavity of the tympanum. These circumstances demand all our attention, and are discovered by the greater or less projection of the long process of the malleus and the general form of the meatus at its bottom. forcible expiration, the mouth and nose being closed, is another mode of exploration which should not be neglected. The air is forced through the Eustachian tube into the cavity of the tympanum, distends the membrana tympani, and thus we obtain much useful information concerning its physical properties. Should the Eustachian tube be obstructed, we must introduce a catheter into it, and blow the air up; but in most cases the patient himself succeeds in forcing the air into the cavity of the tympanum. When the tympanum is perforated, this method enables us to ascertain the lesion with great certainty. We may often examine the external surface of the membrane with the utmost care, and discover no breach of continuity; but when the patient blows his nose, we see the bubbles of air escaping through the membrana tympani with a whistling noise, some pus or mucus is forced through into the external meatus, and no doubt remains on the nature of the lesion; if it be the anterior part of the tympanum which is perforated, the curve of the meatus will prevent us from seeing it, but the whistling noise of the air passing through the opening sufficiently reveals its existence. By this method we obtain in a very rapid and easy manner the knowledge which we require. It frequently happens, in hospital practice, that I

discover perforations of the tympanum in persons just recovered from typhoid fever, or consumptive, by merely holding the nose, and desiring them to make a strong expiration. Having determined the existence of an opening in the membrana tympani, we should endeavour to ascertain its exact position, size, and the quantity of pus or mucus which may pass through it. When the perforation exists at the superior and posterior part of the tympanum, it may be useful to pass a small blunt probe through it, and ascertain the condition of the neighbouring osseous surfaces, but this must be done carefully, lest the ossicula may be deranged.—*Gaz. Med. No. 34.*

SKETCH

OF

THE TREATMENT OF SMALL-POX,

By Senor MIGUEL MUNOZ of Mexico.

(Read by Dr. Black, at the York Meeting of the Provincial Medical and Surgical Association.)

HAVING lately been favoured, through the medium of a friend at Mexico, with some of Dr. Munoz's publications on small-pox, accompanied with some extracts from his book of cases, and also two late numbers of the *Journal of the Academy of Medicine of Mexico*, which contain a few articles on variola, I have been induced to present a short summary of their contents before this meeting of the association, presuming that some of the therapeutic means adopted by our Mexican brethren in the treatment of the disease may be interesting, if not altogether novel, to British practitioners, who have to treat patients, when afflicted with small-pox, under very different circumstances, as to original race, constitution, habits, modes of living, and also as to climate and temperature.

Dr. Munoz, in his "Simple and Easy Method" of treating those afflicted with epidemic small-pox, when stating the nature, history, symptoms, and cadaveric appearances of the disease, which are not much different from those witnessed in this country, remarks that, in the benign climate of Mexico, the small-pox is not endemic but periodical, with intermissions of about sixteen years at least, and that he has sought for, and inquired in vain, in different places, for the vaccine or variolous pock being met with on the cow, since the establishment of the Spanish government.

After summarily detailing the phenomena of small-pox, both before and after death, Dr. Munoz proceeds to give his explication or pathology of the disease by stating, that it appears probable that the first action of the variolous miasma is of an irritant nature, affecting principally the external and internal surfaces of the body; that from the external surface the irritation is communicated to the nervous system, and to the arterial from both surfaces; that the combined irritations of the skin, lungs, nerves, and arterial system, evidently occasion inflammation of the several surfaces and of the blood, the gradual progress of which at length occasions the eruption, which he holds to be *symptomatic* and not *critical*. The respiratory organs being more susceptible to the irritative action of

the morbid gases, are also the first to feel the contagious miasma of the small-pox, and they are likewise the last to regain their normal state of health, from which arise the precursory symptoms of catarrh, hæmorrhages from the nose—the obscure pneumonia—the disposition to membranous angina—the redness and increased heat of the face, shoulders, and breast, which symptoms, along with the increasing sensibility and irritation of the skin, produce the restlessness, weariness, flying pains, anorexia, thirst, general fever; and finally, the eruption, which prevails most on the face, breast, and arms, from the greater irritation of the skin of these parts, and their proximity to the inflamed mucous surface of the lungs.

The particular form or kind of the small-pox, however varied they may be in different individuals, depends solely on the part of the body which they occupy, and the degree of the inflammatory action of the aeriform virus, without there being any difference in their essentially inflammatory nature, or of their capability of cure by resolution, in the same manner as other common eruptions, as boils, pimples, and pustules—all of which, notwithstanding their exterior difference, we endeavour to cure, in the same manner, namely, by reducing inflammation. For this reason, Dr. Munoz advises the same treatment in these contagious eruptions, whether they be small-pox or not; since the cutaneous phenomena are nothing more than a symptom, which is elicited only once during life in the variola, without the body, nevertheless, being still liable to many other irritations, arising afterwards from variolous poison, in such parts as the lungs and larynx. We have observed, he says, this recurrent irritation in the present epidemic, and there has scarcely been any person, whether vaccinated, or having previously gone through the small-pox, but has suffered angina, bronchial catarrh, with a dry and hard cough, general heat of body, principally towards the face, head, and shoulders, and what is most characteristic of the contagion, is the redness of the skin of those parts surrounding the chest, especially the breast, arising from the respiratory process being injured and impeded by the vitiated atmosphere. Thus we see that the skin, for repeated times, supports the irritation of the variolous atmosphere, though it suffers its virulent effects only once. Not so the lungs and the blood, which possess a more exquisite sensibility, without which they could not perform their important functions, which nature has destined them to do.

Treatment of small-pox.

As soon as the first symptoms manifest themselves, Dr. Munoz advises a copious use of barley decoction, gently acidulated with cream of tartar or lemon, and sweetened with a little white sugar. The adult should take this every hour by small cupfuls, and children equally often by spoonfuls. This beverage serves for food and drink, while the patient may be allowed the free use of pure water besides. When the eruptive fever declares itself, we should bathe the patient morning and night in tepid water, until the primary fever disappears or subsides, which will take place from the fourth to the seventh day, at which period some papulæ make their appearance, generally very benign, in consequence of the efficacy of the tepid baths in reducing the phlogosis of the skin. Dr. Munoz

does not mention the exact temperature of his tepid baths, but from his practical directions in ordering one part of boiling water to be mixed with four of water at ordinary temperature, it may be stated to be from 88 to 92 of Fahrenheit. The duration of each bath to be from one quarter to one half an hour for adults and young people, and from ten to twenty minutes for children at the breast.

These general baths are found the more useful, and indeed absolutely necessary, at this early period, as the skin is the more hot, red, dry, and harsh; since, if it remains moist, pale, soft, and cool, we may omit the tepid baths, and trust to other remedies.

In the first stage, or that of incubation, the general tepid baths have proved so successful, that Dr. Munoz had not seen a single case in which they failed to effect the total resolution of the pox, even when all the symptoms of the confluent disease threatened to explode, of which beneficial effects there are in Mexico, he says, many witnesses, highly gratified for the recoveries which they received from their use. These baths are highly indicated and necessary, until the general fever, the pain of the head and throat, and the increased heat of the chest, disappear. This will take place in about six or seven days, after which the baths may cease to be daily given; only they may be repeated from time to time, according to the more or less phlogistic temperament of the patient, and the symptoms of irritation which may remain.

At night it is proper to exhibit a *lavage* of decoction of linseed and mallows, or of (atole) Indian corn ground into a pulp, in tepid water, after being softened by lime water. From the third to the fourth day, at which time the papulæ begin to appear, we must apply to the breast and right hypochondrium, each morning and night, cataplasms, at the heat of the body, made of *tianguis pepella* or lettuce, and a little purslain bruised raw, and placed between two warm linen cloths. If there be much fever excited from an increase of the eruption, and the face and throat swell with pain and difficulty of swallowing, leeches are to be applied to the neck and round the breast, and allowed to extract six to eight ounces of blood from adults, and three or four ounces from children. These affections become sometimes very troublesome, when the patient is not attended to in the first stage of resolution. Tepid syringing of the throat with mallows or linseed tea is useful, and warm cataplasms may be applied outwardly.

If there is no diarrhœa nor regular stools, a *lavage* to be given at night and in the morning—if diarrhœa, we omit the enema, and use no cream of tartar, but only plain barley-water without sugar. The patient may, however, keep out of bed by day, being lightly clothed, and not heating himself under any pretext. His room should be kept clean, and the door open, thereby admitting a free current of air during the day. The light, especially that of the sun, should be moderated, since it irritates and heats the body, and chiefly the eyes. Not more than one patient should, if possible, be placed in one room, that the contagion may be kept as diluted as possible. The linen should be changed, if possible, every morning, as the body is then cooler and less sensible to any change.

If the pustules have come forward and matured, it will be proper to reduce the baths to tepid for

mentations of the palms of the hands and soles of the feet, and to avoid rupturing or destroying the pustules when confluent, as the denuded or abraded parts suffer much irritation from contact with the atmosphere. As the pustules arrive at maturity, we may empty them by the fine points of small scissors, while the matter that exudes may be gently wiped away with fine white lint soaked in cold salad oil; and this operation may be repeated every morning, as long as necessary.

By this simple method we get over the first and second stage, viz. the eruption and suppuration, in each of which periods we must attend to the prevention of evil in the succeeding, since it is difficult to repair what is lost or omitted in any of the stages, and especially if the case should turn out very severe.

I have said nothing about treating the eyes in the course of the complaint, since, in my opinion, nothing is wanted. Water of natural coldness has the effect of blanching and opening the little pustules on the tarsi, and making them shed their contents over the delicate surface of the eyes. On the contrary, they do well without touching them, since they are not of themselves fitted to form pustules, and the dry and crusty ones of the eyelids cannot injure them by their proximity. From the twelfth to the fourteenth day, when the pustules begin to desiccate, the only useful remedy is free air, which alone dries and encrusts the pustules, without the inconvenience of those medicines which are often advised for this purpose.

When the desiccation has proceeded a little, we may entirely suspend the local as well as the general baths, and also the cataplasms. We then give a discretionary use of barley-water with sugar, but without any acid; the diet may be increased by pure milk and *atole*, with fruit, as oranges, apples, and pears, with sweet potatoes. From the fifteenth day, animal broth or soup, or rice well boiled, may be given, also milk and rice milk. Children at this stage may walk about, if there is no particular disorder to hinder them. When the pustules adhere together, and during desiccation form thick and broad crusts which are difficult to be thrown off, they are apt to corrode the skin and produce ulcerations and unsightly cicatrices. In these cases we may use the cerate of Galen, or in place of it a little cake of butter, either of which to be applied morning and evening, until the crusts fall off, after which, if any ulcerations remain, they are easily cicatrized.

From the twentieth to the twenty-fifth day, the health is generally restored, and the patient may return to his usual diet and mode of life, taking care not to expose himself in any manner to the strong irritative impressions of the variolous miasma to which he is liable for some time afterwards.

Such is Dr. Munoz's method of treating the disease of small-pox. I shall now give an extract of four cases out of sixteen, which he has detailed at length in his case-book, as illustrative of his practice.

CASE I.—The first case was that of Rosa Vasquez, aged thirty, not vaccinated, being on her admission eight days under the epidemic fever, with a confluent eruption about to enter upon the period of suppuration. Pulse small and quick; burning heat over the whole body, but especially over the arms, face, and breast, all of which parts

were intensely red, modified by the dirty and dusky colour of the skin, which is naturally gray; complains of chilliness; the papulæ are numerous and aggregated, without much elevation of the surface; the head is intensely hot in comparison with the rest of the body; throat painful from membranous angina; tongue thick and swollen, gray and mucous, with red margins—some thirst; no appetite; bowels confined, and complains much of wandering pains.

Ordered a tepid bath to the whole body, and to be repeated at midnight, with sweetened decoction of barley every hour, and a little *atole* (ground maize) at meal hours. A mattress of *bin* and linen sheets, free air, and the door to be kept open.

2nd day.—A temporary resolution of the general eruption took place after the bath, as if by a miracle, and remarkable decrease of the general redness and heat yet continues. Pain and uneasiness less; pulse small and regular; pulmonary and cutaneous transpiration natural; bowels were opened naturally with two liquid evacuations.

Ordered three general tepid baths during the day; drink, &c. as before.

7 P.M.—The febrile symptoms have exacerbated; as heat of body and velocity of pulse; skin more red, with appearance of more eruption, without any swelling; small petechiæ or spots only, like flea-bites, appearing, the colour and size of which vary much over the skin, but are larger and more numerous on the breast and sides. Another liquid and bilious motion; complains still of headache and general pains, with chilliness.

A refrigerant cataplasm to the breast and hypochondria, and a small quantity of cool *atole*, (ground maize.)

3rd day.—No general fever, pulse small and soft, redness moderate and unequal, existing partially on the upper parts of the body; the rest cool; respiration laborious, with some moaning, occasioned by inflammation of the left ear and throat. Spots are fewer and less in size, but all preserving an obscure redness. Tongue a little inflamed; had a serous and bilious motion early in the morning. Urine very high coloured.

Three general tepid baths, and in addition to food, drink, and cataplasms as before, the throat and ear to be syringed with tepid barley-water.

4th day.—Almost all the petechial spots have disappeared; heat of body and frequency of pulse less. Complaints of pain over the stomach and chest, with a disagreeable sensation of weight. Cough dry, frequent, and irritable, with some bloody sputa. In short, her complaint to-day appears to be an obscure pneumonia combined with gastritis.

Two general tepid baths, and to continue the rest as yesterday.

11 A.M.—Respiration painful and difficult, heat of the body increased, with coldness of the extremities. Pulse small, quick, and concentrated. Petechiæ dark brown towards the bend of the arms, on the sides, breast, and shoulders. Tongue thickened and moulded to the teeth, white, and loaded to the base, and red at tip and margins. Another serous and bilious motion; sputa mucous and sanguinolent; extreme immobility and sense of heaviness over the body. All to be continued as before prescribed.

5th day.—Heat remaining in the breast and head, with a morbid coldness in the hands and

legs. Pulse very small, and nearly imperceptible. The dark-brown petechiæ small and fewer. Respiration painful and fatiguing. Dry cough, with pain in the chest and head. Sputa scanty and mucous.—Tongue moist, but edges less red and swollen. A liquid motion; body more easily moved, and is less oppressed than yesterday.

A general tepid bath morning and noon; cold *atole* from time to time; refrigerant cataplasms to breast and hypochondria.

6th day.—Heat of the body has gradually subsided; is now general and moist. Pulse is soft and fuller. Petechiæ still fewer and segregated: pain only in the ears. Tongue moist and mucous; bowels open.

Continue remedies.

7th day.—Heat moderate and diffused. Pulse nearly natural, petechiæ almost gone, no pain nor cough. Tongue moist, less red, and more flexible.

Continue remedies.

8th day.—No fever, nor redness, nor petechiæ on any part of the body. No pain. Respiration, digestion, and alvine functions natural. Sleep quiet; appetite increases, and the muscular and articular movements easy. There only remains for the patient to take care of a fair convalescence, that she might exhibit, to all interested, an example of the happy result of the method of curing, by *resolution*, the small-pox, after seven days' treatment.

CASE II.—Maria Ant. Martinez, æt. 12, said not to have been vaccinated, was received on the fourth day of the eruptive fever, with the suppurative rigor upon her. The papulæ are formed on the face, breast, and arms. Much nausea and vomiting. Tongue white, edges red. Headache, with wandering pains. Weariness and restlessness, along with much anguish, anorexia, and thirst. Skin rough and unequal.

Ordered—A general tepid bath for half an hour, and to be repeated at noon. Barley decoction every hour, and *atole* in small quantities at stated times. Bath to be repeated at night. To have plain water *ad libitum*. A mattress of bin, linen sheets, free air, and open doors.

2d day.—General fever less. Pulse small, but regular. Tongue red, and a mucous coating; no desire for food nor drink. Is adverse to be moved, and desirous to cover the face in the bed-clothes. Face, breast, and arms very red; pustules increased in size and numbers; bowels costive, urine natural.

A tepid bath as before, morning, noon, and night, &c.

3d day.—After some increase of heat and velocity of the pulse yesterday, there is now a notable subsidence of fever—more liveliness—some appetite—inclination to be moved. The eruption, without increasing, continues favourable.

A tepid affusion first to the head, then a general bath at 7 A.M., 1 P.M., and at night. Drink and diet as before.

4th day.—The body is now cooler, after an increase of heat in the upper parts yesterday afternoon. Suppuration in some of the pustules, and resolution in others.

A local tepid bath to the head for a quarter of an hour, then a general one for another quarter. The same to be repeated at noon and at night. Food and drink as before, and a lavement of barley-water.

5th day.—Heat and itchiness of skin. Papulæ have increased on the arms and face, with augmented heat, legs coldish, much restlessness and excitability; pustules hot; throat stiff; bowels confined; urine natural. Tongue red, with ulcerations on its edges; some thirst.

A general tepid bath three times a day. A refrigerant cataplasm to the neck; the rest as before.

6th day.—The pustules general over all the body, as well as on the arms and head. Heat of skin increased. Pulse quick. Mucous ulcerations of the lips, tongue, and palate. Much sickness and depression, with a desire to remain undisturbed, with the head covered up in bed. Bowels open, urine natural.

Baths as before, first to the head for a quarter of an hour, then generally for another quarter. Throat to be frequently syringed with barley-water. Another cataplasm, and lavement to be repeated.

7th day.—Heat moderated. Pulse frequent and soft. Pustules pale, but chiefly so on the face. Mouth and throat sensibly relieved.

Ordered—The same as yesterday, the patient may rise from her bed.

8th day.—Some of the pustules subsiding, others swelling, and part are hardening and desiccating. Mouth and throat better, heat of body less, but unequal. Some appetite—little thirst—no pain.

Continue treatment.

9th day.—No fever nor areolar inflammation. Desiccation going on without ulceration or corrosive suppuration. No heat nor pain, nor restlessness. Some hunger with thirst.

A general tepid bath only for a quarter of an hour. The rest as before.

10th day.—Separation of some of the crusts from the face, through the patient's indiscretion. Skin smooth in these parts, from the blandness of the variolous matter. Signs of convalescence.

One bath; milk, *atole*, barley-water, and omit the syringing.

11th day.—Desiccation nearly completed, there only remaining some pustules on the legs to be dried up. No fever, nor heat, nor itchings of the skin, so common in those otherwise treated.

A short bath only. Diet and drink as before.

12th day.—General desiccation has finished, without heat, redness, or ulcerations in any part of the body. Convalescent.

To be removed to the convalescent ward of the Lazaretto for fuller diet, and that she may be seen by all interested, as an example of the mode of treatment by resolution in twelve days.

CASE III.—Maria Florentina de los Angeles, aged 10, not vaccinated; has had fever for two days. There are frontal headache, heat and redness on the arms, breast, and cheeks. Tongue clean and red. Appetite impaired. Thirst. Pulse full, soft, and quick. Bowels confined, urine natural.

A general tepid bath three times a day. Barley water, *atole*, and pure water, as in last case. Linen sheets, free air, open door.

2d day.—The febrile symptoms were all remarkably relieved last evening, and they continued subdued, only a little more heat than natural; some perspiration; slight headache.

Three general baths, and diet and drink as yesterday.

3d day.—Fever visibly less. Headache easier,

Redness of the skin persistent on the arms and breast, which are rather hot, while there is an unpleasant coldness in the legs. Appetite better. No thirst; urine clear, and belly confined.

Three baths in the day as before. Continue the rest.

4th day.—Fever subsides, and there is every appearance of the resolution of the disease. No pain. Appetite good. Tongue clean, rosy; without thirst. Urine natural. Some general perspiration.

Only one short bath, and a double ration of *atole*.

5th day.—Redness of the breast has disappeared; feels cool, and is lively. Appetite increases, and she desires to walk about.

6th day.—The resolution of the variolous inflammation is evident, and she promises a favourable recovery.

To have full diet, and remitted for inspection, as another example of treating the variola beneficially by resolution in six days.

CASE IV.—Jose de Jesus Arismendi, aged two and a half years, not vaccinated. Has had fever for two days. Pain of head and lethargy. There is much redness of the skin, especially on the arms, breast, and face. Tongue dirty, mucous, and edges red. Has flying pains, and is very restless. Mucous discharge from the nares, and hot tears from the eyes; moans much, and is thirsty.

A general tepid bath directly, and repeated at noon and night. Diet, drink, &c., as in former cases.

2d day.—More heat and redness of the skin. Appearance of some papulæ dispersed over the body.

Tepid baths, and the rest as yesterday.

3d day.—The papulæ proceed, and are more numerous, especially on the arms and face, without any general fever.

One tepid bath; the rest as before.

4th day.—Heat abated since last night's exacerbation. Pulse small and concentrated. Skin not very red. Some of the vesicles fuller. More liveliness, and less thirst.

Continue treatment.

5th day.—The greater number of the vesicles begin to coalesce, and there are some marks of suppuration in a few on the face. Has no apparent pain. Discharge from the nose and eyes ceased. Heat moderate; feet cold; thirst less. Pulse nearly as before.

A bath, and other remedies as before.

6th day.—Some swelling of the face; suppuration in some patches of the pustules, coagulation in others, and resolution of many. Lachrymation returned.

Continue treatment.

7th day.—Tongue and lips more swelled; pustules more defined from the resolution of the inter-pustular inflammation. Inspissation of many without suppuration, hardening in others, and suppuration proceeding in a few.

8th day.—Many of the pustules have desiccated and hardened much, becoming also flatter. Salivation and lachrymation have diminished. Infantile vigour returns. Throat and mouth better.

Two tepid baths, the rest as formerly.

9th day.—Pustules more firm and hardened. Appetite and cheerfulness return. Eyes and throat nearly well.

10th day.—Desiccation complete—leaving hard, smooth, and defined scabs, without any purulent crusts, ulcers, or tumors. Convalescent.

Such are a few examples of the mode in which M. Munoz treats small-pox, especially with reference to the use of tepid bathing; and for the degree of estimation in which his practice is held and been put in force by his brethren in Mexico, I shall make two or three extracts from Papers on Variola, published in the "Periodico del Academia de Medicina" for the months of October and November last year.

Senor Alfano, a medical surgeon, in speaking of the treatment of the disease, says—"Bathing, though at times recommended for the small-pox, has only been put in practice by D. Miguel Munoz, who, in the epidemic of 1829, used the baths extensively under different forms, and at various temperatures, among the poor patients. The employment of this agent was then reckoned an absurdity, not only by the common people, who still have a repugnance to it in certain diseases, but also by medical men. As far as they have been used in a general manner, they have given rise to several questions, which may be reduced to two principal ones. 1. Is bathing useful in the small-pox? 2. Does the cold bath hinder the eruption, and can it be so impeded without danger to the individual? To resolve these questions, it is necessary to know the action of bathing according to the temperature, and thence to deduce its exact effects; for this purpose we must have recourse to the only fountains of truth, experience and reason. The importance of bathing in all the phlegmasiæ is generally acknowledged, whatever may be the cause which has produced them; but baths should not be applied at indifferent temperatures, and this is the important matter to decide. With the exception of the extremes of temperature to which man is equally sensible over the whole world, in the intermediate conditions, the temperature ought to be proportioned to the individual. A bath of 73 deg. Fahr. will be for some cool and for others warm, and one of 56 deg. or 66 deg., does not produce the same effects in all climates, nor in a tin bath, as in a river or a cistern. All these considerations are necessary, before applying baths as a remedy; and for the better examination of the question, let us see what is the effect of a cold bath upon the animal economy. All the phenomena attending a bath below the temperature of 56 deg., or even 66 deg., unequivocally indicate a temporary congestion of the fluids towards the internal viscera. According to some physicians, both the circulation and respiration are debilitated, since it is observed that the movements of the heart are less strong, and the respiration is accelerated; some believe that this last effect is owing to the exercise which the patient makes within the bath. Reason is so far opposed to the use of the cold bath in small-pox; for if, in health, congestions are easily formed from the cold bath, in the internal viscera, with more reason will they be produced in patients under this disease, when to a disposition to congestions, there is added the repulsion of phlegmasia of the skin by so energetic an agent. Again, on this point, experience does not assist me, for I have never used the cold baths in small-pox, though we ought not to forget that lotions of cold water to the eyes prevent the eruption of the pustules

there, and I have remarked that they not only do not break out on the eyes, but on the other parts of the face, where the cold water has accidentally run. Would the same take place from a general bath?

D. Miguel Munoz says, he has used in his practice the cool bath. To me this expression is vague, for, taken in its hygienic strictness, it means water at a temperature of 66 deg. to 79 deg. Fah. In such a bath of the latter temperature, there is felt, on first entering, a slight chilliness by those who have not been in the habit of using it, or if they immerse themselves by slow degrees; but this sensation quickly goes off, and an agreeable one succeeds, in proportion to the extent of the previous heat and febrile excitement. The skin becomes soft, the circulation for the instant is accelerated, but the pulse soon subsides, and a comfortable state of calmness is felt. No injury can result from the employment of such baths. Reason and experience agree on this point, and there are few physicians but have used them in the late epidemic. Along with saline purgatives, when necessary, and a moderated diet, I have used the cool baths from the beginning to the end of the disease, exhibiting them once or twice a day, according to the circumstances of the patient. Some authors advise them only in the latter period of the disease, to promote the softness of the skin, forbidding them in the first and second stages, in which periods I think them the more necessary. In the first stage they moderate very evidently the humoral movement which is tending towards the skin, and they ameliorate while they accelerate the eruption. In the second, they subdue or lessen the inflammation which attends the eruption, with more promptitude than naturally takes place; and they preserve, moreover, the body in that state of cleanliness which is no less necessary. During the epidemic, the sick, from being prejudiced against the baths, become very favourable to them from witnessing their good effect in so many instances.

In a little girl, only fifteen days old, and in whom the pox was very confluent, I used nothing else but the bath (*fresco*) twice or thrice daily. In the latter stages, in all cases to keep the bowels free, I have only used emollient lavements. In two cases where I used the nitrate of silver to prevent the eruption from coming forward, I found that it extended and proceeded with more rapidity on those parts than elsewhere.

The *second* extract is from a statistical and therapeutical paper on the disease, by Manuel Romera, medical surgeon. He gives three tables containing the return of 159 afflicted with small-pox, whose ages varied from fourteen days to twenty-three years; of these only 15 were vaccinated, 68 had confluent pox, 139 were cured, and 20 died; being about 1·7 of the recovered: 128 of them were treated by the tepid bath, according to Munoz's plan.

Senor Romera also says, "I have not been able to assure myself of the *absolute resolution* of the small-pox by the baths, but I observed that those patients who began to use them as soon as they were attacked by the primary symptoms, only underwent the variolous fever, or the pustules proved to be very few and small, so that they recovered more speedily, and none of these died." "I ought to mention," he says, "that though I have proposed to follow the same curative method

among private patients and those in the public charities, yet I could not ensure the effect of the baths in the former class; for there remained in one family or another some prejudice against this therapeutical mode of treatment, notwithstanding its general and happy results in this epidemic. I, however, fervently hope that the regulated use of this powerful agent, in all inflammatory and eruptive diseases, will be found, in future, to be one of our principal resources against such complaints."

Senor Romera also mentions that Professor Munoz and he, being desirous to ascertain whether the variolous virus would acquire the vaccine properties, by being inoculated on the cow, as Mr. Ceely has asserted to have observed many times at Aylesbury, they inoculated, on the 19th of April, 1840, a young heifer, under all the conditions which were recommended, but they could not observe that any effect took place from inoculations that were made in the course of fifteen days, notwithstanding all their care in inserting and selecting the virus which they used.

The *Third Extract* is from another Statistical and Medical Report on Small-pox, by D. Ladislao Pascua of Mexico, who, from his report, seems to have had medical charge of the poorest and most dirty districts of Mexico. His three tables contain the entries and results of 163 persons afflicted with the disease, from birth to the age of thirteen years. Of these 163, there recovered 123, and 40 died—being about 1 to 3·3. 140 were cases of confluent pox, and various grave diseases, as typhus and pneumonia affected many of them at the same time.

As to treatment, Dr. Pascua says,—“The treatment which I have adopted for all the patients has consisted in tepid baths, refrigerating drinks, emollient lavements, or a few doses of a drachm to half an ounce of cream of tartar; and when there was much costiveness, substituting proportional doses of sulphate of soda or magnesia. Among the first patients whom I attended at the hospital, I used general blood-letting, one while for constitutional action, at another for pneumonia, but the issue in all was fatal. In all I ordered injections of the throat, with vinegar and water, and emollient cataplasms to the neck. I have also practised the pricking the pustules with a needle or fine scissors, and pressing them with soft linen; and I have thus effected to preserve the skin afterwards smooth, and without any pits or marks from the disease.”

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In the endeavour to reduce the mortality from insanity, much must necessarily depend upon the general management of those suffering from this disease. Where this is calculated to produce or