

The Canadian Journal of Medicine and Surgery

A JOURNAL PUBLISHED MONTHLY IN THE INTEREST OF
MEDICINE AND SURGERY

VOL. XII.

TORONTO, OCTOBER, 1902.

NO. 4.

Original Contributions.

THE SOCIAL PHASE OF SMALLPOX AND VACCINATION.

BY P. H. BRYCE, M.A., M.D.

PROF. SEDGWICK, of Harvard, in his recent work defines public hygiene as *the science and the art of the conservation and promotion of the public health*. Accepting this as a practical definition of the scope of public health, it is evident that we may very properly discuss the relation in which diseases, of which smallpox is the type, stand to the interests of society, whether as individuals in a social unit or community or as citizens of a nation which enacts laws for the government of its own people. Much argument may be had as to the extent to which individualism or *communism* in its exact sense should be the underlying principle in legislation; but practical common sense and general experience, as seen in every day business, in educational, municipal and religious affairs, teaches that what cannot be done so well by the individual alone, as by a number acting together for a common end, may properly come within the sphere of governmental and municipal action. The strength of this position may be pressed still further in any case where the action or inaction of one individual directly endangers the welfare or health of another. Such has been the subject of common action, even in those primitive communities, whether in past or present time, which have sacrificed a member of the tribe—even their choicest youth—to placate an offended deity, or who have put to death wendigos or witches, supposed to exercise malign influences whether upon men or cattle. We may then properly conclude that in the instance of a contagious disease, and especially of small-

pox, which to the most uneducated, as the western Indians, whose traditions tell of whole tribes destroyed by epidemics of it, is looked upon as so loathsome and terrible that armed men have been known to guard the banks of a stream to prevent men from an infected settlement crossing, the most primitive societies recognize that common action may properly be taken to avert what is or may become a general danger or calamity.

The postulating of such a principle for the action of society must seem to most people wholly unnecessary and commonplace in view of the facts illustrated by a hundred years of history; and yet, we have only to read extracts from the daily press, from many particularist magazines, and indeed from many so-called scientific journals, to learn the truth of that proverb: "Where there is no vision, the people perish; but he that keepeth the law, happy is he;" and to find medical officers of even large Canadian cities assuming reactionary attitudes with regard to the duty of the individual and of the community in dealing with outbreaks of this disease—if the cases be mild—by means of vaccination and prompt and thorough quarantine.

However commonplace it does seem necessary to recall a few facts culled from the pages of history. Dr. Brooke (1766 A.D.) says, in his *General Practice of Physic*: "Smallpox has been for ages, and continues to be, the terror and destroyer of a great part of mankind. . . . In the ordinary course and duration of human life scarce one in a thousand escapes the smallpox." Before this, indeed, Ben Jonson had written an epigram to smallpox beginning with:

"Envious and foul disease, could there not be
One beauty in an age, and free from thee?"

while at the beginning of the nineteenth century we are informed that 90 per cent. of all the inmates of hospitals for the blind in England were there on account of smallpox. Dr. George Bell, of Edinburgh, wrote in 1802 that the smallpox in Europe for more than 1,000 years has descended with undiminished violence from generation to generation, and every effort made hitherto to extirpate it has failed. Of epidemics in America we have statistics of Boston from 1721-1792 in which it is stated there were seven epidemic years, during which the average population was 14,714 and the average number of cases 5,600, or 38 per cent.; while Simon says of it in the 16th century: "In Mexico it even surpassed the cruelties of conquest, suddenly smiting down 3,500,000 of population and leaving none to bury them."

Such was the monotony of history and statistics at a time when Jenner made his memorable discovery, imitating, except in the source of his virus, the practice introduced into England from Constantinople by Lady Mary Wortley Montagu of inocu-

lation from a case of existing smallpox, and who wrote from Adrianople regarding the practice as early as 1717 A.D.

Of the effects of vaccination during an epidemic those in Montreal in 1885 may be given, wherein 30.8 per cent. of cases died in the unvaccinated and only 4.1 in the vaccinated. The results during the recent epidemic in London, England, have told



March, 1901.

No. 1.

Photo supplied by Dr. C. A. Hodgetts.

Shantyman in Tent Hospital, Sudbury. Illustrating the vesicular stage of orurition.

the same story. Thus, in the statistics for the week ending December 30th, 1901, we find that of 97 unvaccinated there were 60 per cent. of deaths, while of cases up to ten years in vaccinated persons not one death occurred, and only two between ages of ten and twenty.

Such are only a few illustrations selected from an unlimited

mass of materials showing what smallpox as an epidemic disease was, and would be to-day were its prevalence as great and our defences against it as limited as they were before 1796. One of the most pertinent questions which we may ask ourselves, however, is: "Granted all these facts, is it not true that in the Province of Quebec fatal epidemics of smallpox have not appeared since 1885, and that in Ontario the total deaths since 1882 have not much exceeded 200; and yet systematic vaccination has not been carried out by the people or the municipalities during the past fifteen years?"

The question has been posited thus clearly so that those doctrinaires who, in the matter of smallpox, would preach the expediency of a policy of *laissez faire* and of allowing outbreaks of the disease to be dealt with simply as ordinary diseases are by practising physicians, leaving the matter of quarantine and vaccination to the individual intelligence and sense of duty to the public, must accept the position either that such a course of action within their own experience or from the accredited evidence of history has suppressed outbreaks, has prevented an increase of the death-rate, has not produced destructive effects upon health as disfigurement of features or loss of eyesight, has not been disturbing to the public comfort and sense of security and has not been injurious to their own or the general commercial prosperity of any community. Are such prepared to accept and occupy such a position? But while they may not do this they may fall back upon another and say: "No, we are not prepared to go so far, since we admit that common municipal and governmental action has at times been necessary to suppress severe and fatal epidemics; but, nevertheless, there are diseases, and at present smallpox in America is such an one, which are so mild in their effects, so little fatal, and yet so difficult to control without great inconvenience and expense to the public that it were better to simply leave their management to the individual citizen and his physician. For the moment let us accept the position. It has been estimated that during a single year, 1900, there were in the United States at least 100,000 cases of smallpox; while in Ontario alone during a single year there were some 2,500 cases. The deaths in all were not greater than one per cent. in Ontario, and probably no more than this in the United States.

Taking that in Ontario as a type of the outbreaks it may be stated that not much less, probably, than \$500,000 has been spent by the municipalities and government in preventing the spread of the disease. With regard to the number of persons liable to the disease, owing to their not being protected by vaccination,—assuming, of course, for the moment, that successful vaccination in infancy is a protection up to ten years and very largely so up twenty years—we may roughly estimate that of the population



No. 2.

January, 1962.

Cases in Harwich Township.

Father and son infected from same previous case in family. Both had been diagnosed first as chickenpox.



No. 3.

Photo supplied through kindness of Dr. W. H. Tye, Chatham.

of Ontario, 2,182,947, the greater part of some 913,645 have been born since the fatal epidemic of 1885 in Montreal, during which vaccination was very general in Ontario. Since that year there have been a number of isolated outbreaks of smallpox in Ontario promptly stamped out; but not until 1901 did the disease become general, that is, having numerous centres, and as a result no general vaccination had been practised for upwards of fifteen years until the present epidemic. Assuming a relatively large number of persons in Ontario to be revaccinated in the 1,200,000 over twenty years of age, and it is apparent that the situation as regards the number in both age classes liable to the disease is very large and that the mortality rates which prevailed in London during the epidemic of last autumn and winter, or of the outbreak at present existing in New York, would have prevailed in Ontario had that type of disease been introduced, and had there been as many cases during 1901 and 1902 as there have been. There were in all some 3,500 cases in fifteen months, which, with an average mortality of 25 per cent., would have meant nearly 900 deaths. It has been already stated that at least \$500,000 is estimated to have been spent by provincial and municipal authorities in stamping out the epidemic, and that most active and drastic measures both of isolation and vaccination were adopted. What the extent of the outbreak would have been had such measures not been taken cannot, of course, be definitely stated, but several instances will serve to give us some idea. Owing to the disease in 1901 not having been early diagnosed and few measures of isolation and almost none of vaccination having been adopted, 550 cases occurred in settlements and camps in an area of 150 miles along the C.P.R. in a population not exceeding 25,000, between Sault Ste. Marie and Sudbury, within three months. In October, 1901, a case unfortunately diagnosed as chicken-pox, occurred in Dover Township, in Kent. For two months the disease had spread unchecked by any official action. Such, subsequently, for a time was not thorough. The total cases were nearly 400, not to mention many in neighboring townships arising from the Dover outbreak. In Osprey Township, in Simcoe County, in a most prosperous community, a mistaken diagnosis of the same kind in April, 1902, enabled the disease to get a start and resulted even with the most drastic methods subsequently in 76 cases. In Burford Township, an old-settled and intelligent community, some 200 cases occurred in 1901 because the disease had been first called chicken-pox, and the local physicians had taken no steps to isolate cases or prevent the convalescents from attending schools and churches. The disease was only stamped out with difficulty after thorough measures were adopted. Dozens of such examples, less notable simply because active measures for suppressing the disease were taken early, might be given; while the 10,000 cases in the six months of 1885 in

Montreal, most of which had occurred before active municipal measures for its suppression were adopted, illustrate the fact that, were a contagious disease present the average good sense of any community does not serve to prevent its spread, unless when crystallized into organized and systematic methods.

It has been, we think, fully demonstrated to what an extent the present epidemic of smallpox of a benign character, beginning in 1899 would have prevailed in Ontario had the views of the *laissez faire* school and of anti-vaccinationists been accepted; and when they turn to statistics and point to the low mortality after all our trouble, we ask them are they prepared with us to adopt drastic measures of every necessary kind when the disease with a high death-rate does really make its appearance? If they do—and this is the position of many believers in vaccination, both amongst physicians and municipal officers—they will have to explain by what conceivable means they are going to discover when an epidemic, like that from Japan in 1900, which killed nearly 50 per cent. of its victims, is going to appear, though even its first case in Port Arthur was so mild that it was not diagnosed, or at what moment virulent smallpox may arrive in Toronto from some hidden source in the slums of New York or Boston.* Perhaps it is natural that we, viewing these matters from the official standpoint, should seem to disregard personal inconveniences and even municipal expenditures; but it would seem that there can be no *via media*, no position which, as with some other diseases, can be adopted without the assumption of a responsibility as regards loss of life, family misfortune and commercial disaster, which none who recognize what an epidemic of smallpox means would care to assume. Probably by none must the mental perspective be more accurately maintained than by the physician; and this can only be obtained by the frequent readjustment of the instrument to a proper focus from time to time. Our memories are proverbially short and mental pictures grow dim with surprising rapidity, but we do well to remember that Nature is ever the same in her methods and her results, and if she seems at times to present herself in tranquil mood, as where the whole woodland is perfectly mirrored in the placid bosom of some northern lake, yet the time will speedily come when her rugged work must be done. He is, indeed, the wise mariner who looks well to staysails and masts, to keep his vessel afloat and return unscathed to the desired haven.

*In May, 1900, an outbreak of smallpox occurred infecting many persons at different points between Winnipeg and Montreal, caused from exposure to a passenger from Australia via Japan to Vancouver, thence by C. P. R. The gentleman sickened on the train west of Winnipeg, was taken to the Winnipeg Hospital and died, as at first thought from purpura hemorrhagica. It proved to have been smallpox, and caused twenty-two cases and deaths in Winnipeg. Persons exposed on the train carried the disease to Eastern points. The first case at Port Arthur was mild and was not diagnosed, and resulted in the infection at that point and Fort William of fourteen persons and six deaths, at Arnprior of one person and one death, in Carleton-Place of six persons and two deaths, in Montreal of six persons and two deaths, at Seine River of one case, at Sault Ste. Marie of one case and one death and at Wolfe Station of one person and one death.

SMALLPOX—A BRIEF CLINICAL DESCRIPTION OF 1,500 CASES.

BY CHAS. A. HODGETTS, M.D., L.R.C.P. LOND. (ENG.), TORONTO.
 Medical Inspector Provincial Board of Health.

The following clinical description is based on the observation of nearly fifteen hundred cases of the disease occurring in different portions of the province during the past three years. It is given to incite to a more careful study of what has been and still is the *hôte noir* of many a medical man, and that the student of medicine may take an interest in what has hitherto been passed lightly by, perhaps altogether unheeded until communities have been confronted with the disease in its severer forms and then epidemic in character, all of which could have been avoided if any intelligence had been shown in the handling of the initial cases.

The more the disease is studied, the more the observer becomes impressed with the fact of the following contentions that the epidemic of the past few years is something of the nature of a hybrid, whatever that may mean, or a disease required to be christened as one not hitherto referred to by medical writers. But on the contrary there is present even in the mildest case the specific infection of smallpox which sooner or later in its progress from individual to individual manifests virulence enough to satisfy the greatest skeptic of its true character. Further, the writer cannot agree with those who classify the mild cases under the head of "varioid," which term should be retained for cases, modified by vaccination only.

Without going into details, it may be briefly stated in introduction that the disease in this province had its origin from the neighboring States. It has been more prevalent during the fall and winter months, and old and young alike have suffered; its ravages have been almost entirely amongst the unvaccinated; its contagiousness is chiefly of a direct character, and very mild, being more marked during the periods of pustulation and scabbing. The period of incubation is rarely less than twelve days, but often extends to seventeen or eighteen days. The mild character of the first case in a family or community is no criterion of the severity of the next or subsequent cases, and there are noticed sudden exacerbations in the severity of the type, with succeeding remission in those attacked later—a case of so-called "Cuban itch," or chicken-pox, followed by one of confluent or hemorrhagic smallpox?

Initial Symptoms.—The onset is more or less sudden, though often not severe, and lasts the greater portion of three days, it is



No. 1.

Children in same family from same exposure, both unvaccinated. Illustrating extreme variations in type of disease.



No. 3.

Photo through kindness of Dr. J. R. Boyle, B.A., Casselman. Illustrating extreme variations in type of disease.

seldom prolonged to five days, but occasionally a patient will suffer from a feeling of *malaise* shortly after exposure. The most common symptom is that of headache, frontal, occipital or general, and of marked constancy, though not severe in character; indeed, moderate would convey a correct idea of the severity of the pains and aches usually complained of. Backache has not been so typical or frequent in the lumbar as in the sacral region, the pains extending from the latter locality to the thighs and legs. Vomiting even in children has not been marked; generally speaking, the stomach symptoms are mild in character, the tongue is but slightly coated and there is but little disturbance of the digestive apparatus, a large number complain of sore throat. The temperature ranges from 100 to 103 degrees F., pulse slightly accelerated, and respiratory system only occasionally presenting any symptoms. In children often there will be noticed drowsiness and slight restlessness and nausea, with a case now and again of convulsions.

Initial rashes have been but little observed, probably owing to the general mild character of the disease; where seen they have been mistaken for scarlatina or measles. They have been more marked on the lower portion of the abdomen and inner portion of the thighs, but may extend over the whole body.

The Eruption.—In the majority of cases the eruption appears on the third day and often in one crop, yet cases occur where it has not made its appearance until the fourth or fifth day. The maculæ are noticed first on the face, wrist or arms, these become papulæ often in the course of a few hours and synchronous with their appearance on the skin, they will be noticed on the mucous membrane of the hard and soft palate, and even in mild cases, on the conjunctiva.

Irregularity in the distribution of the rash and variation in amount, are particularly noticeable, from a single typical vesicle appearing possibly on the face, wrist or body; or a scattered dozen over the body generally, to a patient with scores, hundreds and thousands. The face, wrists, hands and body are the most frequent sites of the eruption, but cases are found where it is confined entirely to the face and neck, not extending below the line of the clavicle, or a few may be noticed only on the face and back, or extremities, or clusters in widely different locations will be noticed, which do not become confluent. Another interesting feature is the difference in the size of the vesicles, ranging from the size of a pin head to a little larger than a split pea.

In every case of smallpox, however mild, the eruption begins, as previously stated, as a minute red maculæ, faint in color, which, increasing in size, becomes a papule within a few hours, some of the maculæ, however, do not follow this course, but fade away and there follows a slight branny desquamation. The papulæ



No. 6.

February, 1902.

Illustrating in No. 6 inflammatory condition of subcutaneous tissues, and in No. 7 a discoido case in which pustules of face have collapsed and are

crusting, while pustules are still on hands.



No. 7.

Through kindness of Dr. J. R. Boyle, B.A., Casselman

becomes gradually larger, widening at periphery, and distended with serum, the limit of growth being attained in from three to five days. The uniform outline of a papule is circular, raised above the level of the skin and pearly in appearance. Very frequently the vesicles will be only partially filled with serum and consequently do not present the rounded border nor yet the umbilication.

During the days in which the vesicles are filling some of them dry up and drop off in the form of scales or thin crusts, particularly is this the case with those on the face, neck and back of the hands. Vesicles which reach their maturity show an areola of inflammation around their margins from their earliest appearance, it is more marked at the inner margin and fades off to the periphery. They are slightly raised in mild cases but more marked in the severe ones.

The usual period for the appearance of the successive stages from macule to pustule is generally twelve days, after which time the pustules rupture and form yellow scabs, yet it will be noticed that in many cases the transition period is hastened in the case of individual vesicles and thus there may be noticeable on the same patient the following interesting condition: (a) A clearing off of the face and backs of the hands about the eighth day, while on other portions of the body and limbs will be seen (b) yellow crusts which are shrivelled up, abortive pustules, mingled with (c) flattened reddish-brown scabs, the result of inspissation of unruptured pustules, particularly on the soles of the feet and palms of the hands; also pustules quite typical in character and pursuing a regular course, and later on rupturing in the centre, the pus escaping, drying and forming yellow crusts. After the falling of the scabs there is frequently following a branny desquamation. The base will present a flattened red new epidermis, of either a depression or elevation, which in fading may become brownish.

Constitutional and other Symptoms.—The premonitory symptoms abate altogether with the appearance of the eruption, though in some instances their disappearance is gradual. The temperature ranges from 99.5 to 103.5 degrees F., and its fall is coincident with the onset of the eruption. Secondary fever is rarely noticed in mild cases, the fever being proportionate to the number of pustules present and their size; where present, it reaches to 104 degrees F. with morning remissions and evening rises, reaching a maximum from the ninth to the twelfth day of the disease. The pulse is usually accelerated during the onset but becomes normal on the subsidence of the primary fever and is but little changed, except secondary fever occurs. The tongue is but slightly coated, bowels usually constipated, the action of the kidneys is slightly increased. Soreness of the throat is frequently

complained of, beginning with the onset of the eruption and continuing for a few days. In the majority of cases after the appearance of the rash the patient claims "never to have felt better in his life."

Modified Smallpox.—Varioloid.—Unfortunately, for clinical purposes, but a small percentage of cases in the present epidemic has been of this class, but in the instances which I have noticed the disease is materially modified after the initial stage, although no vaccination had been performed within ten years. There will always be found satisfactory evidence of successful vaccination, near or remote, and as a rule the more remote the less modified, although cases will be observed where vaccination had been successfully performed years ago (in one instance forty-five years) and where but one abortive pustule developed.

The premonitory symptoms seem to be as severe and characteristic as in the unvaccinated, and indeed in many cases the disease ends here—*variola sine eruptione*—a form which I have never noticed in the unvaccinated.

The rash appears within the first twenty-four hours from the appearance of the first papule and is not abundant; the maculæ are often so faint that this stage passes unnoticed, the papulæ being the first portion of the rash observed. Some of the papules abort and scale off. The vesicles attain their full growth in two or three days and are smaller than in *variola* and less uniformly circular. Umbilication is not so constant, the areola of redness being less distinct in the typical ones. The changes in the vesicle itself are more rapid than in *variola* and often the full stage of pustulation is not reached, and instead the vesicle appears opaque or cloudy, the contents becoming inspissated, forming a flat reddish brown deposit under the epidermis. The pustules arrive at their full stage of development within the first week of the appearance of the eruption and shortly after desiccate and fall off, leaving a reddened epidermis. The whole course of the eruption in the vaccinated may be described by the one word "abort" as compared to *variola*.

There is so little of the sequelæ of this mild type of *variola* that any detailed reference to the progress of the disease would be of little import to the subject, the chief interest centering in the appearance of the eruption and its erratic course as compared with smallpox as generally described.

Selected Articles.

EDWARD JENNER: HIS LIFE, HIS WORK, AND HIS WRITINGS.*

EARLY HISTORY.

EDWARD JENNER, the son of the Rev. Stephen Jenner, rector of Rockhampton and vicar of Berkeley, was born at the latter place, May 17th, 1749. His mother was daughter of the Rev. H. Head, a former vicar of Berkeley. His first school was at Wotton-under-Edge, where he was under the care of the Rev. Mr. Clissold; from there he was removed to the Rev. Dr. Washbourn, at Cirencester. Jenner's school career was of short duration. At about the age of thirteen he began his professional education under Mr. Daniel Ludlow, of Sodbury; from there he entered as a student at St. George's Hospital, where his name appears in the list of students for 1770, and when he was twenty-one he went as house pupil to John Hunter. Jenner had an innate love of natural history, and nothing could have been more fortunate than his falling under influence such as Hunter's. The young pupil came with a fair knowledge of both zoology and geology; the fossiliferous rocks of his native county had given him ample opportunity for studying geology, and the collecting of fossils was a hobby which he retained throughout his life. To a young man with these tastes Hunter's house with its menagerie and collection of specimens must have been a paradise.

HIS CORRESPONDENCE WITH JOHN HUNTER.

Between master and pupil an affection sprang up which was only terminated by Hunter's death. Unfortunately the letters from Jenner to Hunter have disappeared, but those of Hunter show that Jenner's opportunities in the country of getting specimens and carrying out experiments were always taken advantage of by Hunter and lovingly responded to by his pupil. These attentions of Jenner to Hunter were reciprocated by the latter making purchases for Jenner in town. "I have sent you the candlesticks as you desired," writes Hunter: "I hope you will like them. They cost five pounds and a shilling, so I owe you four shillings." Again, when Hewson's preparations were for sale, Hunter writes and offers to purchase any that Jenner may

*Reprinted from the Jenner Centenary Number of the *British Medical Journal*, May 23rd, 1906.

require. A subsequent letter shows that prices were too high for him to make any bargains. Hunter writes: "I could not buy a single preparation for you, they all went so dear—injections of the lymphatics of a turtle sold for guineas, an eye not injected fifteen shillings, and so of all the rest." In 1786 we read in one of Hunter's letters: "I have brought the print of Wright, viz., The Smiths, which is his best. There is one more I would have you have—I mean Sir Jos. Reynolds' of Count Hugolino (*sic*); it is most admirable, and fit only for a man of taste."

Jenner frequently asked Hunter's advice in professional matters, and also sent patients up to London to him. Hunter's replies to Jenner's queries were generally mixed up with requests for specimens or for experiments. In 1776 he writes: "I have but one order to send you, which is send everything you can get, either animal, vegetable, or mineral, and the compound of the two, viz., either animal or vegetable mineralized. I would have you do nothing with the Boy but dress him superficially; these Fungus's will die, and be damnd to them, and drop off. Have you large trees of different kinds that you can make free with?" Hunter offered him a share in the school of natural history which he purposed starting. Jenner refused this offer.

His love for natural history nearly robbed medical science of Jenner's discovery. He arranged and prepared the specimens brought home by Captain Cook in 1771, and was offered the post of naturalist to the next expedition, which sailed in the following year. This, however, he declined, and settled down into country practice at his native town of Berkeley. Here for some years he led the quiet life of a country doctor, with ample leisure for his natural history pursuits. Baron, in his *Life*, gives us a picture of Jenner from the pen of his great friend, Edward Gardner, of Frampton:

"His height was rather under the middle size, his person was robust but active and well formed. In his dress he was peculiarly neat and everything about him showed the man intent and serious, and well prepared to meet the duties of his calling.

"When I first saw him it was on Frampton Green. I was somewhat his junior in years, and had heard so much of Mr. Jenner, of Berkeley, that I had no small curiosity to see him. He was dressed in a blue coat, and yellow buttons, buckskins, well-polished jockey boots with handsome silver spurs, and he carried a smart whip with a silver handle. His hair, after the fashion of the times, was done up in a club, and he wore a broad-brimmed hat."

Baron's description of his first interview with Jenner is as follows:

"The simple dignity of his aspect, the kind and familiar tone of his language, and the perfect sincerity and good-faith mani-

fested in all he said and did could not fail to win the heart of any one not insensible to such qualities. . . . He was dressed in a blue coat, white waistcoat, nankeen breeches, and white stockings. We are grateful to him who told us that Milton wore large buckles and that Washington broke in his own horses, and in some future day the curious reader may be thankful for such particulars descriptive of the habits of Jenner."

It is from such contemporary descriptions only that pictures of the great men of the past can be completed; for this reason it is worth quoting a paragraph from the obituary notice of Jenner in the *Gentlemen's Magazine*, xciii, 104, evidently written by some one acquainted with him:

"In his housekeeping nothing was gaudy but all was good. The cookery was tastefully and fashionably set out, the wines commonly five or six kinds, old and of fine flavor. At a striking innocent trait of character the philosopher, as a keen observer, would smile cheerfully, but the writer of this never saw him indulge in what is called a horse laugh."

In 1778 Jenner was crossed in love; this he took very much to heart, and probably his correspondence with Hunter did not improve matters. Although not such a misogynist as his brother William, yet John had not very tender feelings towards the fair sex. He had evidently heard a false report as regards Jenner, for, with his usual disregard of grammar and spelling, he writes: "I was told the other day that you was married, and to a young lady with a considerable fortune. I hope it is true, for I do not know anybody more deserving of one." On hearing the truth, Hunter writes again: "I own I was at a loss to account for your silence, and I am sorry at the cause. I can easily conceive how you must feel, for you have two passions to cope with, namely, that of being disappointed in love, and that of being defeated; but both will wear out, perhaps the first soonest. I own I was glad when I heard you was married to a woman of fortune; but 'let her go, never mind her,' I shall imploy you with Hedge Hogs, for I do not know how far I may trust mine." There seems a continuous line of thought here, Jenner's future mistrust of the fair sex and Hunter's present mistrust of his hedgehogs.

FAMILY LIFE AT BERKELEY.

In 1788 Jenner was married to Miss Catharine Kingscote; although Mrs. Jenner was in delicate health she was able to do much for the poor and suffering in her neighborhood. In this she was efficiently helped by her husband. Jenner took an active part in all local work; he was a Justice of the Peace for the County of Gloucester, and performed the duties attaching to this office with great assiduity; in fact, Jenner's brother justices seem to have left a large part of the work to him; he also filled

the office of mayor of Berkeley. In Rudder's *History of Gloucestershire* it is stated that Berkeley "is called a borough, though it sends no members to Parliament, and has a mayor annually chosen at the courtleet, who has the tolls of the town and wheelage of all goods landed from the vessels in the river at 2d. a load; but the authority and privilege of his office seem to extend no further."

Jenner vaccinated all the poor in his neighborhood gratuitously; for this purpose he had a special place erected in his garden, which he called the Temple of Vaccinia. From one parish, however, he had for a long time but very few patients; all at once, from this same parish, people came in great numbers. On his making inquiry as to this sudden wish for vaccination, he was told that the churchwardens had been urging the people to be vaccinated on account of the great cost to the parish of the increased number of coffins due to death from smallpox!

There were three children born to Jenner—Edward, Catherine, and Robert. John Hunter stood godfather to the eldest boy. The following is his reply to Jenner's request that he would undertake this office:

January, 1789.

DEAR JENNER,—I wish you joy; it never rains but it pours. Rather than the brat should not be a Christian I will stand godfather, for I should be unhappy if the poor little thing should go to the devil because I would not stand godfather. I hope Mrs. Jenner is well, and that you begin to look grave now that you are a father.—Yours sincerely, JOHN HUNTER.

Edward was very delicate, and for his tuition at home Jenner engaged the services of a remarkable youth, John Dawes Worgan; he was a lad of great promise, and was preparing to go to Oxford with the view of being ordained. This he was unable to do on account of weak health, and he died in 1809 at the age of 19. A volume of his poems was published in 1810, with a preface by William Hayley. The book was dedicated to Jenner, and in the preface he is thus referred to: "To you, who animated the exertions of Worgan's life by your approbation, and who watched over the couch of his affliction with skill and sympathy of an affectionate physician, these his remains must be particularly interesting." Though Worgan died so young he wrote some essays in the *Gentleman's Magazine* in defence of vaccination over the signature "Cosmopolitus."

RETIREMENT FROM GENERAL PRACTICE.

In 1792 Jenner obtained the degree of M.D. from St. Andrews, and gave up general practice. This degree was obtained Gloucester, upon recommendation from J. H. Hickey, M.D., of and Dr. Parry, of Bath. The entry in the minute book of the *Senatus Academicus* is dated July 8th, 1792; Jenner's name is

wrongly written in the minute book, as the entry reads: "The University agree to confer the Degree of Doctor in Medicine on Mr. Edward Jennings, Surgeon of Berkeley, in the county of Gloucester, upon recommendation from J. H. Hickee, M.D., of Gloster, and C. H. Parry, M.D., of Bath." In the Roll of Graduates the name was originally entered as Jennings, but has been subsequently altered to Jenner.

ACCIDENTS AND ILLNESSES.

Three times Jenner had a very narrow escape of losing his life. The first was during the severe frost of 1786. He had to ride from Berkeley to Kingscote on an intensely cold day in a blinding snowstorm. The experience is worth recording in Jenner's own words: "As the sense of external cold increased, the heat about the stomach seemed to increase. I had the same sensation as if I had drank a considerable quantity of wine or brandy; and my spirits rose in proportion to this sensation. I felt, as it were, like one intoxicated, and could not forbear singing, etc. My hands at last grew extremely painful, and this distressed my spirits in some degree. When I came to the house I was unable to dismount without assistance. I was almost senseless, but I had just recollection and power enough left to prevent the servants from bringing me to a fire. I was carried to the stable first, and from thence was gradually introduced to a warmer atmosphere. I could bear no greater heat than that of the stable for some time. Rubbing my hands in snow took off the pain very quickly. The parts which had been most benumbed felt for some time afterwards as if they had been slightly burnt. My horse lost part of the cuticle and hair at the upper part of the neck, and also from his ears. I had not the least inclination to take wine or any kind of refreshment. One man perished a few miles from Kingscote at the same time and from the same cause."

In 1794 he had a severe attack of typhus, contracted whilst attending his nephew Henry's wife, and again in 1811 he was stricken down with the same disease.

Jenner's home life at Berkeley for many years was one of great happiness. This was afterwards much clouded by the illness of his son, Edward, which terminated fatally in 1810. Mrs. Jenner, too, was very delicate; the state of her health caused Jenner great anxiety for some considerable time before her death, which took place at Cheltenham, September 13th, 1815. Jenner had taken up his abode at the last-named place about five years previous to his wife's death. Immediately after this sad event he again went back to Berkeley, and, except for a day or two, never left his native place again. The marriage of his daughter Catherine in 1822 left Jenner still more desolate. This

lady died August 5th, 1833, having given birth to a daughter four days previously. His other son, Captain Robert Fitzharding Jenner, also survived his father.

In 1820 Jenner had a fainting fit in his garden. He was picked up insensible and carried to his house. Baron was at once summoned, and on his arrival found that his patient had rallied, and that there was no reason for apprehending immediate danger. From this attack he never thoroughly recovered. The state of his feelings is best described in his own words, which are quoted from a letter written to Baron, May 31st, 1821. The original is in the Library of the Royal College of Surgeons. "My nerves still vibrate too readily when touched by unnatural sounds. Nature built the brain and nerves, but glasses, plates, knives, forks, and spoons, are not of her manufactory. The sharp sounds elicited by the sudden contact of these bodies when forcibly brought together produce an effect like the splash when a stone, forcibly thrown into a pool of smooth water. The propensity to feel this and the violence of the shock is in proportion to the length of the interval between one shock and another. Hollow sounds, such as church bells at a due distance, I do not regard, nor the rumbling of a waggon, however near, nor thunder. The clatter of a dinner table is the worst of all, from the clickings of knives, forks, and spoons on earthen plates; and it is more annoying when there are only two or three at table than when there is a party—perhaps from my attention being more abstracted from myself."

DEATH AND BURIAL.

On January 24th, 1823, Jenner saw a patient whom he describes as being in "a state of paralytic debility." On the following day he himself was found insensible on a couch, in a like condition to the last patient he ever visited. Again his old friend Baron was sent for, but this time without avail, and Jenner breathed his last on the following day. On February 3rd he was laid to rest in the chancel of Berkeley Church, by the side of his beloved wife.

The vicarage at Berkeley, where Jenner was born, is no longer in existence. The illustration of his birthplace is taken from a painting in the possession of Mr. F. Mockler. The room in which he died is that with glass door and Venetian shutters next to the conservatory in the picture of the present vicarage, which was partly erected on the site of "The Chantry." The "Temple of Vaccinia" is still standing. The hide of the cow from which Jenner took the matter to inoculate Sarah Nelmes is now in the curator's room at St. George's Hospital; an inscription states that it was presented to the hospital on October 14th, 1857, by Jenner's son.

DISCOVERY OF VACCINATION.

The year 1796 is a memorable one in Jenner's history, as on May 14th in that year he performed his first inoculation with cow-pox. The subject was a boy, about eight years old, named James Phipps, and the matter was taken from the hand of Sarah Nelmes, a dairymaid who had become infected by her master's cows. This was an anxious time for Jenner. On July 1st variolous matter taken directly from a pustule was inserted, but no disease followed. At once he writes off to his friend Gardner to tell him of his success. After describing the inoculation he proceeds:

"Having never seen the disease but in its casual way before—that is, when communicated from the cow to the hand of the milker—I was astonished at the close resemblance of the pustules in some of their stages to the variolous pustules. But now listen to the most delightful part of my story: The boy has since been inoculated for the smallpox, which, as I ventured to predict, produced no effect. I shall now pursue my experiments with redoubled ardour."

This subject seems to have first attracted Jenner's attention when he was a pupil at Sodbury. A young girl came there for advice, and on smallpox being mentioned she exclaimed: "I cannot take that disease for I have had cow-pox." During Jenner's pupilage he mentioned this matter to Hunter, who does not seem to have been much struck with the idea, but he gave to his pupil one good bit of advice, "Do not think, but try; be patient, be accurate." On his return to Berkeley the idea was ever constant in his mind. He found that the opinion of the young girl at Sodbury was a general one amongst the milkers in and around Berkeley. To get at the truth of this opinion was his great object, but it was not until 1780 that he felt sufficient confidence in his conclusions to warrant his imparting them to others. It was to Gardner that he first made known his ideas on the subject of propagating the protective cow-pox from one individual to another, and so ultimately staying the plague of smallpox. "Gardner," said Jenner, "I have entrusted a most important matter to you, which I firmly believe will prove of essential benefit to the human race. I know you, and should not wish what I have stated to be brought into conversation, for should anything untoward turn up in my experiments I should be made, particularly by my medical brethren, the subject of ridicule, for I am the mark they all shoot at." In 1788 he brought the question under the notice of the profession in London, but he does not seem to have made much impression on anyone but Henry Cline. The period between this and 1796 was spent in experimental inquiries, and on May 14th in that year, as before stated,

he carried out his first inoculation with the cow-pox. Then for two years there was no material for further experiments, as cow-pox disappeared from the dairies in his neighborhood. The publication of the *Inquiry* in 1798 is referred to in the article on Jenner's works.

Just before the issue of the *Inquiry* Jenner went again to London, where he stayed for nearly three months; but to his great mortification, he was unable to find the person on whom he could show the benefit of vaccine inoculation. Cline, however, in August of the same year inoculated a child, and he writes to Jenner: "The cow-pox experiment has succeeded admirably. The child sickened on the seventh day; and the fever, which was moderate, subsided on the eleventh. . . . I have since inoculated him with smallpox matter in three places, which were slightly inflamed on the third day, and then subsided." Cline, satisfied with the truth of Jenner's discovery, tried to persuade him to leave Berkeley and settle down in London, and assured him of a large and lucrative practice if he would do so. Jenner was proof against this tempting offer, and decided to remain in the country. Later he did give in to the advice of his friends, and took No. 14, Hertford Street, Mayfair, on a lease for ten years; he found, however, that the expenses of a London house were not compensated for by the practice he obtained, and so gave it up before the expiration of his lease and returned to Berkeley, going up to London occasionally as business required his presence there.

The spread of vaccination at home and in foreign countries is dealt with in another article. Here it may be noticed that though honors fell quickly upon him at home his reputation was still greater abroad. On more than one occasion he was the means of obtaining the release of Englishmen detained in captivity abroad. With Napoleon he was a great favorite; on one occasion Jenner petitioned him to allow two friends to return to England; Napoleon was about to refuse the petition when Josephine reminded him that it was from Jenner. "Ah," said the Emperor, "Jenner, we can refuse nothing to that man." So great was his influence that a document signed by him was a good passport; Baron has preserved one of these for us. It runs as follows: "I hereby certify that Mr. A., the young gentleman who is the bearer of this, and who is about to sail from the port of Bristol on board the *Adventure*, Captain Vesey, for the island of Madeira, has no other object in view than the recovery of his health.—EDWARD JENNER, Member of the N.I. of France, etc., Berkeley, Gloucestershire, July 1st, 1810."

The principal honors awarded to Jenner at home and abroad will be found in a tabulated form at the end of this paper.

ATTACKS ON THE DISCOVERY AND THE DISCOVERER.

It was hardly to be expected that so great an advance in protective medicine could be made without opposition. Misstatement and misrepresentation Jenner had to put up with and combat. The caricaturists of the period were not slow to take the matter up; in many of these persons are drawn with horns and cows' heads growing from their heads as the result of vaccination. Nor was such grotesque falsehood limited to the caricaturists. Dr. Rowley published a tract called "Cow-pox inoculation no Security against Smallpox Infection;" in this he figured an ox-faced boy, the fact being gravely stated that this appearance was due to the young man having been vaccinated. Dr. Benjamin Moseley, too, was a most determined opponent of vaccination, and lost no opportunity of attacking it. Cases were published where smallpox had undoubtedly followed vaccination. These Jenner had anticipated. "I expect," he said, "that cases of this sort will flow in upon me in no inconsiderable numbers, and for this plain reason—a great number, perhaps the majority, of those who inoculate are not sufficiently acquainted with the nature of the disease to enable them to discriminate with due accuracy between the perfect and imperfect pustule. This is a lesson not very difficult to learn, but unless it is learnt, to inoculate the cow-pox is folly and presumption." Another cause of the so-called failures was the want of care in those who performed the vaccinations. Jenner investigated many of the cases, and found that smallpox matter had been inserted into the arm on the third and fifth days after vaccination. Some of the cases, too, had been vaccinated in the variolous atmosphere of the Smallpox Hospital. This institution was founded in 1746 for the purpose of isolation and for inoculating the poor; long after the benefits of vaccination had been clearly shown, smallpox inoculation was practised at this hospital.

It was hardly to be expected that Jenner's discovery would escape the *odium theologicum*; many sermons were preached to show the wickedness of vaccination, and one preacher went so far as to try to demonstrate that the cow-pox inoculation was Antichrist.

GRANTS TO JENNER BY THE HOUSE OF COMMONS.

On March 17th, 1802, Jenner presented a petition to the House of Commons. In this he drew attention to what he had done almost single-handed for vaccination, and asked the House to grant him such remuneration as in their wisdom should seem meet. Stress was laid upon the fact that the new discovery was made known to all, and that the author of it, instead of reaping any pecuniary benefit, had been put to considerable expense. The

petition was referred to a Committee of the House under the chairmanship of Admiral Berkeley. The three heads of inquiry were: (1) The utility of the discovery itself, which is the foundation of the petition; (2) the right of the petitioner to claim the discovery; (3) the advantage, in point of medical practice and pecuniary emolument, which he has derived from it. The Committee sat from March 22nd until April 26th, and examined forty-five witnesses, including all the chief practitioners of the day. The report of the Committee on the three points submitted to them was: (1) The result is that the discovery of vaccine inoculation is of the most general utility; (2) the whole of the oral depositions, as well as all the written documents from abroad, are uniform and decisive in favor of Dr. Jenner's claim to originality in the discovery; (3) he has not only reaped no advantage from his discovery, but he has been a considerable loser by the persevering attention which he has bestowed upon this one subject to the neglect of his other business. . . . What his gain might probably have been if he had been solicitous to keep the secret within his own practice and that of his immediate pupils, as far as medical men in great practice themselves can form a conjectural opinion, may be collected from the testimonies expressed in Nos. 7 (Dr. Bradley) and 30 (Dr. Baillie), in which no more than justice is done to the liberality and public spirit of the petitioner in pursuing the propagation and extension of this important discovery, and in rendering it rather of universal utility to the human race than of emolument to himself.

Dr. Bradley stated that Jenner might have expected, if he had settled in town and kept this secret to himself, £10,000 a year at the present time (1802) and £20,000 within five years. Dr. Baillie told the Committee that Jenner "might have acquired a considerable fortune." It was pointed out that not only had he suffered loss in the way mentioned by Dr. Bradley, but that he had been put to great out-of-pocket expenses. His postages, home and foreign, came frequently to over £1 a day. So great was the call on Jenner's time and pocket by those who, in all parts of the world, were anxious to obtain information about the discovery, that he dubbed himself "Vaccine Clerk to the World."

In June, 1802, a debate arose in the House of Commons on the report of the Committee. Admiral Berkeley, the chairman of the Committee, explained portions of the report, and proposed that a grant of £10,000 should be made to Jenner. He stated that personally he thought the amount too small, and he should leave himself quite open to vote for a larger amount if an amendment to that effect were submitted to the House. The gallant Admiral put the matter in a plain, business-like form, to show the moderation of his proposal. There was plain evidence, he said, that Jenner had been the means of saving 40,000 lives per

annum in the United Kingdom only; taking each life as worth only 10s., there was due to Jenner £20,000 per annum. Sir Henry Mildmay thought the sum proposed quite inadequate, and moved that £20,000 be inserted in place of £10,000. Mr. Bankes opposed the grant on economical grounds; he acknowledged the utility and general benefit of the discovery, but thought that Jenner had it in his power to remunerate himself by practising vaccination. In his opinion, Jenner had made a mistake in imparting the secret to the public. Mr. Windham answered the objections of Mr. Bankes; and Sir James Sinclair Erskine pointed out that Jenner had come to London at great cost to render his discovery more useful, and that he had sacrificed his practice at Berkeley for this purpose. The Chancellor of the Exchequer said that whatever sum was voted to Jenner, one thing was clear, namely, that he had already received the greatest reward that any individual could receive—the unanimous approval of the House of Commons. The right hon. gentleman pointed out that no money value could be put upon the discovery, as it was beyond all calculation. The difference between £10,000 and £20,000 was not the standard by which the Committee of the House judged of the merit of Dr. Jenner, but the question of the amount had a reference to the duty which they owed to the public. The Chancellor thought that the vote would largely increase Jenner's practice, and that he would be thus indirectly benefited. To this Mr. Grey replied that there was no reason to expect such a consequence when everything attending the vaccine inoculation had been rendered so easy by Dr. Jenner's generous conduct. After Mr. Wilberforce and Mr. Courtenay had spoken both in praise of Jenner, a vote was taken by which it was decided that the grant should be £10,000. The numbers were: For the retention of the words ten thousand pounds, 59; against, 56; majority, 3.

On July 29th, 1807, the question of giving recompense to Jenner was again brought before the House of Commons by the Right Hon. Spencer Perceval (Chancellor of the Exchequer), who proposed that a second grant of £10,000 be paid to the discoverer of vaccination. In doing this Mr. Perceval referred to the previous grant, and pointed out that the intervening time had strengthened the general opinion as to the efficacy of vaccination and as to its great benefit to the nation at large. Mr. Shaw Lefevre stated the case of the antivaccinists; his main argument was that cases had been reported which were not successful. He, however, added: "I certainly shall oppose this vote; at the same time I ought to add that I do not know that I shall always persist in opposing it, for that my great object is to gain time and further opportunity to examine the report of the Royal College of Physicians." A long debate ensued, in the course of which Mr. Edward Morris, M.P. for Newport (Cornwall), moved that

£20,000 be substituted for £10,000. The reason given by Mr. Morris for his amendment was that "during the progress, thus judiciously withheld for a great number of years, it is almost impossible that he (Jenner) could have followed the ordinary duties of his profession; he must have sacrificed a great portion of his practice as a physician, so that the time which he devoted to the discovery of this inestimable remedy may be said to be time devoted to the interest of the public, and entirely at his own risk." Mr. Wilberforce stated that on the previous occasion he had voted for the smaller sum, but "that was at a much earlier period of the discovery than the present." Instead of giving Jenner either £10,000 or £20,000, he was in favor of granting £1,000 per annum, "because it looks more like a memorial of the affection and gratitude of his country, and more likely to point him out as a person possessing and enjoying the affection and gratitude of his countrymen who entertain a proper sense of the benefits they have received from him." It was pointed out that as the House was in Committee of Supply it could do no more than vote the supplies for the year, so that Mr. Wilberforce's proposal could not be adopted. The Chancellor of the Exchequer spoke in favor of the smaller amount, but the grant of £20,000 was carried by a majority of 13.

In looking at the small majorities by which these votes were carried, it must be borne in mind that the question on each occasion was not whether a grant should be made to Jenner or not, but whether the amount should be £10,000 or £20,000. Had the former question been the one before the House, it would have been carried with scarcely a dissentient voice. No truer estimate of the high opinion which educated men held of Jenner's character can be obtained than that which is evident in reading the reports of both these debates. Even where a speaker disagrees with the vote, or has doubts as to the efficacy of vaccination, there is not a word to be found derogatory to Jenner's good name. No better evidence of this unanimity can be given than that of Dr. Moseley, who was Jenner's most bitter opponent. In his anger he writes: "It will not be credited by future generations that both these large sums were granted by Parliament without even a symptom of controversial discussion. Party tongues were dumb, and the spirits of contention, which on subjects of much less importance to the human race have so often shaken the empire, were here absorbed in sympathetic composure and unity."

Official red tape was well illustrated in the payment of the first grant; there was considerable delay in handing over the money to Jenner, and when this was done nearly £1,000 was deducted for fees and costs. To some extent this was remedied in the second grant, as the resolution of the Committee distinctly

stated that the amount was to be paid "without any fee or other reward whatever."

JENNER'S PERSONAL CHARACTER.

In forming an estimate of any public man's character there is generally a *via media* lying between the too enthusiastic praise of well-meaning but perhaps not always strictly unprejudiced personal friends and the bitter malice of opponents. In very few instances is this more a fact than it is in Jenner's case. Baron was so great a worshipper of Jenner that his statements are sometimes warped by his affection for his friend. On the other hand, those who are opposed to vaccination, and cannot or will not see the benefits which the human race has derived from it, can hardly find words hard enough to express their contempt for Jenner.

That he was a great man of the stamp of John and William Hunter probably no one would assert. But he was a patient observer with a great love of Nature; probably dilatory and unmethodical: Baron's picture of him with his fossils scattered about rather points to this.

Of Jenner's manual dexterity Hunter evidently had not a very high opinion. To carry out some experiments for Hunter, Jenner had asked for a thermometer; the former sent the instrument, but in his letter says: "You very modestly ask for a thermometer; I will send you one, but take care that those damned clumsy fingers do not break it also."

His perseverance with his investigations as regards the cow-pox is plainly shown; in season and out of season he talks of it to his friends; so much so was this the case at the local societies to which Jenner belonged that he was, by his fellow-members, looked upon as having a bee in his bonnet, and it was intimated to him that a little less about his theory would be very acceptable. But in Baron and Gardner he had friends who did not tire and who urged him on in his work by their sympathy.

As a friend and companion he was evidently much appreciated by his neighbors at Berkeley; in all local affairs he took great interest, and his time for this purpose was, so far as his professional duties would permit, always freely at the disposal of his fellow townsmen.

Jenner was a man with a deeply religious mind; in this he was undoubtedly greatly influenced by the example of his wife. Some of his last words were: "I do not marvel that men are not grateful to me, but I am surprised that they do not feel gratitude to God for making me a medium of good." His very last public act was to attend a meeting at Berkeley for forming a Bible Society; at this meeting he moved the chief resolution.

Jenner's ideal of professional honor was certainly greater

than that of some of his contemporaries. When he had written out the account of his improved mode of preparing tartar emetic, Hunter writes off at once and suggests that Jenner should give the preparation a new name, and he adds: "I would have you to burn your book, for you will have all the world making it." Jenner was proof against this temptation to reap reward from the use of a secret remedy, and published his paper in the *Transactions of the Society for the Improvement of Medical and Chirurgical Knowledge*. It was also pointed out by persons very competent to express an opinion on the subject that Jenner might have reaped a rich harvest had he kept secret his method of vaccination. Benjamin Travers, writing in 1804, says: "You should not have acted in the manner you have; your liberality and disinterestedness every one must admire and extol, but you are sadly deficient in worldly wisdom." Again he writes: "If you had undertaken the extinction of the smallpox yourself, with coadjutors of your own appointment, I am confident you might have put £100,000 in your pocket, and the glory be as great and the benefit to the community the same." As is well known, Jenner made public his discovery at once, and never for a moment hesitated as to whether he might not be a richer man by keeping his information to himself.

Jenner was exceedingly fond of music and poetry; some of his verses still live in printed collections. His two best-known poems are perhaps "To a Robin" and "Signs of Rain." The latter was written as an excuse for not accepting the invitation of a friend to make a country excursion, and consists of the popular signs of coming rain ingeniously strung together in rhyme. As four specimen lines we may take the following:

The walls are damp, the ditches smell,
 Clos'd is the pink ey'd pimpernel.
 Hark! how the chairs and table crack;
 Old Betty's joints are on the rack.

Although Jenner met with much opposition in the introduction of vaccination, and had to put up with misrepresentation and abuse in his own time, it has been reserved for certain persons in the present generation to speak of him as a charlatan, a shuffler, a fool, and a liar. Surely those who lived with him and knew all the circumstances of the case were better able to judge fairly of the character of the man than those who, living a century later, try to draw a picture of him by distorting facts, and by assigning some bad motive for all his actions. The debates in the House of Commons show clearly in what esteem Jenner was held by men of education in his own time. The bare fact that a man who was a simple country doctor, without any outside influence to assist him, should have risen to the position Jenner

held in his profession is a sure sign of the personality and character of the man.

The Medical and Chirurgical Society was founded by the *elite* of the medical profession, and amongst the names of the first Fellows we find that of Edward Jenner. Oxford University must have had a high opinion of his qualifications or the authorities would not have departed from their usual custom and granted him the Honorary Degree of Doctor of Medicine.

JENNER'S WRITINGS.

To the Medico-Convivial Society at Rodborough Jenner contributed several papers; one of these was on Angina Pectoris and another on Ophthalmia. Writing in the *Asclepiad*, vol. vi, p. 268, Sir B. W. Richardson states that "there is no written record bearing on these subjects left behind on which we can find any correct conclusions as to its originality." This is not quite correct, as Dr. Parry, in his "Inquiry into the Symptoms and Causes of the Syncope Anginosa," has given us a communication from Jenner on the subject. Dr. Parry writes as follows: "The substance of the following essay was originally read to a medical society in Gloucestershire. In that society the influence of the heart on the animal economy had often been the subject of discussion. It was generally admitted that many of the cases which are vulgarly called asthma originated, through different media, from diseases of that organ; and it was suggested by Dr. Jenner that the angina pectoris arose from some morbid change in the structure of the heart, which change was probably ossification, or some similar disease of the coronary arteries. To some questions which I have lately put to that excellent pathologist as to the series of observations which produced that opinion, I have received the following answer:

"The first case I ever saw of angina pectoris was that in the year 1772, published by Dr. Heberden, with Mr. Hunter's dissection. There, I can almost positively say, the coronary arteries of the heart were not examined. Another case of a Mr. Carter, at Dursley, fell under my care. In that, after having examined the more important parts of the heart without finding anything by means of which I could account either for his sudden death or the symptoms preceding it, I was making a transverse section of the heart pretty near its base when my knife struck against something so hard and gritty as to notch it. I well remember looking up to the ceiling, which was old and crumbling, conceiving that some plaster had fallen down. But, on a further scrutiny, the real cause appeared; the coronaries were become bony canals. Then I began a little to suspect. Soon afterwards Mr. Paytherus met with a case. Previously to our examination of the body I offered him a wager that we should find the coronary

arteries ossified. This, however, proved not to be exactly true; but the coats of the arteries were hard, and a sort of cartilaginous canal was formed within the cavity of each artery, and there attached, so, however, as to be separable as easily as the finger from a tight glove. We then concluded that malorganization of these vessels was the cause of the disease. At this very time my valued friend, Mr. John Hunter, began to have the symptoms of angina pectoris too strongly marked upon him; and this circumstance prevented any publication of my ideas on the subject, as it must have brought on an unpleasant conference between Mr. Hunter and me. I mentioned both to Mr. Cline and Mr. Home my notions of the matter at one of Mr. Hunter's Sunday night meetings, but they did not seem to think much of them. When, however, Mr. Hunter died Mr. Home very candidly wrote to me immediately after the dissection to tell me I was right. The appearances in Mr. Bellamy's case gave me the idea that the disease arose from a determination to the vasa vasorum, and that the concretions were deposits from the coagulable lymph, or other fluids, which had oozed out on the internal surface of the artery." Dr. Parry then proceeds: "With these observations of Dr. Jenner we were well acquainted in the society. Many of them were, indeed, communicated to us as they arose."

There is no printed collection of Jenner's poetry. Several pieces are printed in *Baron's Life*; there are others in the collection of Jenner papers in the Library of the Royal College of Surgeons of England.

Observations on the Natural History of the Cuckoo, in a letter to John Hunter, Esq., F.R.S., *Phil., Trans.*, vol. lxxviii, p. 219.

A Process for Preparing Pure Emetic Tartar by Recrystallization, by Mr. Jenner, surgeon at Berkeley, in a letter to John Hunter, Esq., read June 4th, 1784, *Trans. of a Soc. for the Improvement of Med. and Chir. Knowledge*, vol. i, 1793, p. 30.

In the Library of the British Museum there is a pamphlet entitled *Cursory Observations on Emetic Tartar*, wherein is pointed out an improved method of preparing Essence of Antimony by a solution of Emetic Tartar in Wine. Wootton-under-Edge, printed by J. Bence, bookseller and stationer. There is no date, but at the end the pamphlet is signed "E. Jenner, Surgeon, Berkeley, Gloucestershire," in Jenner's own writing. This work seems to have escaped the notice of previous writers on Jenner. The copy in question shows pretty conclusively that it ought to be included in the list of his books. The volume of tracts in which it is bound up at the Museum contains one pamphlet which originally belonged to Dr. Lettsom. It is probable that all the tracts were once his property, and that this one is a presentation copy; this would account for Jenner's signing it.

An Inquiry into the Causes and Effects of the Variolæ Vaccinæ, a Disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cow-pox, pp. iv, 75, 4 plates, 4to. London: 1798. Dedicated to C. H. Parry, M.D., at Bath. Preface is dated Berkeley, Gloucestershire, June 21st, 1798.

Again—2nd edition, pp. vii, 182, plates, 4to. London: 1800. Dedicated to "The King." Preface is dated Berkeley, Gloucestershire, December 20th, 1799.

Again—3rd edition, pp. vii, 182, 4 plates, 4to. London: 1801. The third edition consists of "The Inquiry," "Further Observations on the Variolæ Vaccinæ," "A Continuation of Facts and Observations, etc."

The "Inquiry" was also published in America, and translated into Latin and into nearly every European language.

There are two known manuscripts of the "Inquiry" in existence, one in the Library of the Royal College of Surgeons of England, and the other in the collection of Jenner relics belonging to Mr. Mockler. The former MS. is entirely in Jenner's handwriting, the latter in that of his brother-in-law, with notes and corrections made by Jenner himself. The College MS. has been examined by Professor Crookshank, who has come to the conclusion that it is the paper rejected by the Royal Society. This opinion is given mainly on the fact that Jenner had originally written in the MS.: "I shall produce many instances (I could produce a great number more), but the following, I presume, will be fully sufficient to establish the fact to the satisfaction of this learned body." In the MS. these last words are scratched out, and it is made to read "establish the fact very satisfactorily."

Before proving that this paper was rejected by the Royal Society, it will be necessary for the objectors to prove that it was ever received by that learned body. Undoubtedly Jenner originally intended sending the paper to the Royal Society, although Worthington advised him that it would be better to publish it as a pamphlet. What seems to have happened was that Everard Home took it to the Society and showed it informally at a Council meeting. It must not be forgotten that the theory was rather a startling one, and that at that time it was founded on one experiment only. There is not much to be wondered at in the Council referring the paper back to Jenner for further experiments to corroborate his views. Had the paper been formally presented by Home, and had it gone through the regular routine at the Society, there would be evidence of this in the Archives, but no one has ever been able to find any trace of it.

Professor Crookshank was evidently anxious to make the most of the Society which had "rejected" Jenner's paper. In the MS. at the College of Surgeons Jenner calls it "this learned

body." This Professor Crookshank, whilst professing to quote verbatim, has altered to "this very learned body."* This word "very" is again inserted in vol. ii, p. 9, where the differences between the MS. and the printed pamphlet are pointed out. Professor Crookshank states that this alteration is made "in a different handwriting." This is not so; the writing is undoubtedly by Jenner himself. It may be here noticed that the quotations from the MS. in Professor Crookshank's book are very incorrect. Jenner writes "malady," Professor Crookshank prints "distemper"; the MS. has "for the same purpose," this appears in print as "in the same manner." Many other instances might be pointed out.

Professor Crookshank writes (vol. 1, p. 264): "I was struck by the substitution, in the word *investigation* for *discovery*. Some friendly critic had evidently read the manuscript and made this correction, among others. Had Jenner made a discovery, and if so, what was it? . . . The correction of his critic was, therefore, fully justified." The page of manuscript in which this alteration is made is reproduced in facsimile, and it will be quite obvious to any one examining it that the word "investigation" is in the same handwriting as the rest of the manuscript, namely, in that of Jenner. The capital *I*, the peculiar *t* and the *g* in the middle of a word, are identical with similar letters in other parts of the manuscript. The "justification" of the critic thus falls to the ground. It may be mentioned that the alteration about "the learned body" is also made in Mr. Mockler's copy, which is somewhat earlier than the College one. This can be seen by comparing the two manuscripts. It is not necessary to labor the point as to whether this was the manuscript taken by Home to the Royal Society or not. Even if it could be shown conclusively that the Society did receive and reject the paper, the subsequent history of the work would prove, not that Jenner was wrong, but that the Council of the Society made a mistake in rejecting the paper.

Further Observations on the Variolæ Vaccinæ or Cow-pox, pp. 64, 4to. London: 1799. Dedicated to C. H. Parry, M.D., Bath. Dated Berkeley, Gloucestershire, April 5th, 1799.

A Continuation of Facts and Observations relative to the Variolæ, Vaccinæ or Cow-pox, pp. 42, 4to. London: 1800.

Instructions for the Vaccine Inoculation: a sheet. 1801. Printed by D. N. Shury, Berwick Street, Soho.

On the Origin of the Vaccine Inoculation, pp. 8, 4to. London: 1801. The preface reads: "I am induced to give the following concise History of the Origin of Vaccine Inoculation from my frequently observing that those who only consider the subject cursorily confound the casual cow-pox with the disease when

*History of Vaccination, vol i, p. 253.

excited by inoculation.—EDWARD JENNER, Bond Street, May 6th, 1801." This pamphlet is very scarce, and was printed in 1863 by Mr. J. Brendon Curgenven.

On the Varieties and Modifications of the Vaccine Pustule, occasioned by an Herpetic State of the Skin, pp. 13, 4to. Cheltenham: 1806. The preface is dated Berkeley, March 18th, 1806. Reprinted Gloucester, 1819. This was originally published in *Med. and Phys. Jnl.*, xii, 1804, p. 97, as a letter without any printed title; the headline of p. 98 is "Dr. Jenner, On the Effects of Cutaneous Eruptions;" on pp. 99 to 101. "Dr. Jenner, On Modifications of the Vaccine Vesicle."

Facts for the most part unobserved or not duly noticed respecting Variolous Contagion, pp. 15, 4to. London: 1808. Dated November 18th, 1808.

Observations on the Distemper in Dogs (read March 21st, 1809). (*Med.-Chir. Trans.*, i, 263.)

Two cases of Smallpox Infection communicated to the Fetus in Utero under Peculiar Circumstances, with Additional Remarks (read April 4th, 1809). (*Ibid.*, i, 269.)

Letter to William Dillwyn, Esq., on the Effects of Vaccination in preserving from the Smallpox. To which are added sundry documents relating to vaccination referred to and accompanying the letter. Pp. 20, 8vo. Philadelphia: Published by the Philadelphia Vaccine Society. 1818.

A Letter to Charles Henry Parry, M.D., F.R.S., etc., on the Influence of Artificial Eruptions in Certain Diseases incidental to the Human Body, with an Inquiry respecting the Probable Advantages to be derived from Further Experiments, pp. 67, 4to. London: 1822. This is dated Berkeley, 1821.

Some Observations on the Migration of Birds, by the late Edward Jenner, M.D., F.R.S., with an introductory letter to Sir Humphry Davy, Bart., Pres. R.S., by the Rev. G. C. Jenner. Read November 27th, 1823. *Phil. Trans.*, 1824, p. 11.

PORTRAITS OF JENNER.

Painting by Sir Thomas Lawrence, now in the possession of the Royal College of Physicians; half length, seated in chair. An engraving of this picture by W. H. Mote forms the frontispiece to the first vol. of Baron's *Life*, and is also the illustration to the Memoir of Jenner in Pettigrew.

Painting said to be by Sir Thomas Lawrence, in the possession of Mr. T. Malcolm Watson. On the back of the picture is the following written statement: "This original portrait of Dr. Jenner executed by Sir Thomas Lawrence was presented by him to his former pupil and intimate friend, Mr. Henry Wyatt, at whose death it became the property of his brother, Mr. Thomas Wyatt. The widow of the latter presented it to her sister, Mrs.

Edward Wunsch, of Glasgow, from whom I received it as a New Year's gift on 1st January, 1862.—THOS. WATSON." The present owner is the son of Dr. Thomas Watson, who wrote the above note.

Painting by James Northcote, painted for the Medical Society of Plymouth and Plymouth Dock; seated, fur collar, etc., right hand on paper bearing legend "Pustules of the Cow-pox in its successive stages." Engraving of the above by W. Say.

Painting by James Northcote, exhibited in the Royal Academy 1803; now in the National Portrait Gallery.

Portrait in Medley's group of the Founders of the Medical Society of London. Jenner was not in the original picture, but was subsequently introduced. The engraving by Branwhite was partly finished before this was done, and a piece of copper had to be let in the plate, so that Jenner's head and shoulders might be engraved on a spot previously occupied by background details.

Painting by William Hobday represents Jenner seated; cloak with fur collar round him; left arm rests on volume lettered "John Hunter"; paper relating to vaccination lying on table. Engraving of the above "begun by the late William Sharp," finished by William Skelton. Whilst sitting for his portrait Jenner wrote the following verse:

Ere you finish your job, Mr. Hobday, you'd better
On each of his legs clap a bit of a letter,
Or the doctor will presently show you some fun—
Yes, start from the canvas and certainly run.

J. R. Smith, engraving in mezzotint. Jenner is represented leaning against a tree; milkmaid and cows in the distance.

J. Hazlitt, jun. C. Turner, sculptor. London: Published October 20th, 1808, by J. Hazlitt, No. 109, Great Russell Street, Bloomsbury.

Oil painting. Artist unknown. In Royal College of Surgeons of England.

In the collection of portraits at the Royal Medical and Chirurgical Society there is a small photograph said to be "from an original portrait in the possession of Mr. William Smith, of Chesterfield."

Portrait by Vigneron, lithographed by C. de Lasteyrie, 1824. This was reproduced in the *Asclepiad*, vol. vi, p. 250. Also lithographed by Engelmann.

Portrait of Jenner in a cocked hat. *Hicks sc.* Published by Henry Fisher. Caxton. London: March 1st, 1823.

Miniature by J. Robinson. Jenner with pen, ink, and paper in front of him; cow lying down in back. This is in Mr. Mockler's collection. There is an engraving of this by R. M. Meadows.

Head on large scale, drawn and etched by H. E. Shrapnell.

Oil painting, artist unknown. In Mr. Mockler's collection.

Medallion, J. B. Drayton, ad viv. del. Anker Smith, A.R.A., sculp. Published February 1st, 1823, by J. B. Drayton, Cheltenham, Gloucestershire.

Silhouette from the title page of Lettsom's "Hints Designed to Promote Beneficence, Temperance, and Medical Science," vol. iii, 1801.

STATUES.

Bronze statue by Calder Marshall, R.A., now in Kensington Gardens. This statue was originally in Trafalgar Square, but was removed to Kensington Gardens in 1862. The cost was defrayed by public subscription raised by a committee, of which Dr. Conolly was chairman and Mr. G. V. Irving secretary. The statue was unveiled by the Prince Consort in May, 1858. An interesting feature of this ceremony was that amongst those who spoke was the Marquis of Lansdowne, who, as Sir W. Petty, had proposed the resolution in the House of Commons for the grant to Jenner. There is an engraving of the statue by J. Brown.

Statue by Sievier at the west end of the nave of Gloucester Cathedral, erected by subscription.

Statue at Brunn, in Moravia.

Bust by H. Corbould. A lithograph of this bust by R. J. Lane forms the frontispiece to vol. ii of Baron's "Life of Jenner."

Bust by S. Manning. Lithographed by M. Gauci, published by N. Chater and Co., 33 Fleet Street, and Washbourn and Son, Gloucester, August 10th, 1823.

Marble statue by Monteverde. Exhibited at the Paris Exhibition of 1878. Now at Boulogne. Jenner is represented vaccinating a child.

There is also a memorial window in Berkeley Church with the following inscription: "The east window in the chancel was erected October, A.D. 1873, by voluntary subscriptions to the memory of the late Edward Jenner, M.D., the discoverer of vaccination, who was born in this parish A.D. 1749, and died at the Chantry, Berkeley, A.D. 1823, and was interred in the northeast corner of the chancel."

MEDALS.

The description of the medals in the following list is taken from an interesting paper by Dr. Storer in the *American Journal of Numismatics*, 1894 and 1895.

Obverse: Apollo presents a sailor who has been preserved by vaccination to Britannia, who holds a civic crown bearing JENNER. Legend, ALBA NAUTIS STELLA REFULSIT, 1801. *Reverse*: An anchor. Above, GEORGIO TERTIO REGE. Below, SPENCER DUCE (Viscount Althorp, First Lord of the Admiralty, and subsequently Earl Spencer). Presented to Jenner by the surgeons of the British Navy. Its locality is now unknown.

Obverse: DON. SOC. MED. LONDON. ANNO SALUT. 1773. INSTIT. E. JENNER, M.D. SOCIO SUO EXIMIO OB VACCINATIONEM EXPLORATAM. *Reverse*: Apparently blank (the medal cannot be traced). Gold. Presented by the Medical Society of London, March 4th, 1804. Baron calls this medal "Gold Medal of the London Medical Society." The minutes of the Society show that it was a Fothergillian medal. On October 10th, 1803, a resolution was moved by Dr. Lettson and seconded by Sir J. Hayes: "That it be recommended to a future meeting of the Council to consider the propriety of respect to the discoverer of vaccine inoculation." On November 7th, 1803, it was resolved, on the motion of Dr. Lettson, seconded by Dr. Bradley, to present to Jenner "a gold medal, value 10 guineas, struck from the Fothergillian die, and accompanied with a suitable inscription." November 21st, 1803: "Dr. Sims, Dr. Pinckard, Dr. Yellowly, and Mr. Aikin were nominated a committee to consider of an address to Dr. Jenner, and of an inscription for the medal voted by the Society to be laid before the Society at the ensuing meeting." November 28th: The report of the Committee was brought up and various inscriptions were proposed, all of which were referred to a future meeting. February 13th, 1804: It was resolved that the motto to the gold medal to be delivered to Dr. Jenner be the following: "E. Jenner, socio suo eximio ob vaccinationem exploratam." Dr. Lettson was requested to present the medal at the ensuing meeting, and "to add any remarks that may appear to him worthy of the attention of the Society." Jenner was unable to attend the meeting on March 8th, 1804, and received the medal personally. Dr. Sims was therefore appointed to receive it on Jenner's behalf. The address delivered by Dr. Lettson is printed in the *European Magazine*, vol. xlvii, p. 163.

Obverse: An allegorical group. *Reverse*: EDUARD JENNER, DOCTOR IN DE GENESKUNDE, GEBOREN DEN 17 MEY, 1749, TE BERLEY IN HET GRAAFSCHAP GLOCESTER IN ENGELAND EN ALDAAR OVERLEDEN, DEN 26 JANUARIJ, 1823, UITVINDER DER KOEPKINENTING IN HET JAAR, 1775, DOCH EERST IN 1798 DOOR HEM BEREND GEMAAKT. Copper. By A. Bemme, at expense of H. Westhoff, jun.

Obverse: Between a rose bush and a cornucopia an infant with rose in hand points to its arm. At right of bush: L(OOS). *Inscription*: EDUARD JENNER'S WOHLTHAETIGE ENTDECKUNG. *Energie*: vom 14 MAI 1796. *Reverse*: ZUM ANDENKEN AN ERHALTENEN UND MITGETHEILTEN SCHUTZ (a scroll) GEREICHT VON DOCTOR BREMER IN BERLIN. 1803. Silver.

As preceding, save upon reverse there follows after SCHUTZ —, and after Berlin: —

Obverse: Bust, to left. Beneath shoulder: F. LOOS. *Inscription*: EDUARD JENNER ENTDECKER DER SCHUTZ IMPFUNG. D.

14 MAI 1796. *Reverse*: An angel from clouds garlanding a cow around which seven children are dancing. Legend: EHRE SEY GOTT IN DER HOHE. Exergue: UND FREUDE AUF ERDEN. Silver, bronze.

Obverse: As preceding, save that engraver's name is in exergue. *Reverse*: Hygeia, with serpent upon her right arm, protects by a shield bearing a cow and infant against a flying demon. Legend: TRIUMPH! GETILGET IST DES SCHEUSALS LANGE WUTH. Silver, bronze, Berlin iron.

Obverse: A child between a rose tree and a rising sun exhibits its arm; at its feet a serpent. Legend: DANK DER GUTIGEN VORSEHUNG. Exergue: Kruger. *Reverse*: Within a pearled octagon: WOHL THATIGE ENTDECKUNG DER SCHUTZPOCKEN DURCH ED. JENNER. Silver.

Obverse: Bust, facing, within palm branches. Inscription: EDWARD JENNER. To left: HAMEL ET LECOMPTE. Beneath: 1749 (the date of Jenner's birth). *Reverse*: Between laurel branches: MEDAILLE DE 1^{RE} CLASSE. Inscription: COMITE CENTRAL DE VACCINE DU DEPARTEMENT DU NORD. Silver.

Obverse: Like preceding, but bust somewhat towards the left and on pedestal, on the base of which is the date. *Reverse*: A laurel wreath, beneath which: MEDAILLE DE 2^E CLASSE. Field vacant for name of recipient.

Obverse: Bust upon an oval shield between two females holding over it a crown. Beneath, an elongated shield upon which is a cow, to right. *Reverse*: Blank. Plaster-of-Paris.

Obverse: Bust, clothed, to left. Upon truncation: (T. R.) Poole, 1809. No inscription. *Reverse*: Blank. Of pink wax upon colorless transparent glass. (In Library of the Royal Medical and Chirurgical Society of London.)

LIST OF DIPLOMAS, HONORS, ETC.

Chronological list of diplomas, honors, addresses, presented to Jenner, compiled from the Appendix to Baron's "Life."

Several of these diplomas are in the collection of Jenner relics formed by Mr. Mockler.

1801. February 20th. Plymouth Dock. Address from Dr. Trotter and forty-four medical officers of the navy, subscribers to the Jennerian Medal.

May 29th. Address of respect and application for imbued threads, from the "Physician delegated" of the Department de l'Agogna (Cisalpine Republic).

16 Thermidor. Address from the Bureau of the National Institute of France, and thanks for the dissertation communicated to them.

September 14th. Diploma of Fellow of the Royal Society of Sciences at Gottingen.

1802. February. Certificate of the success of Vaccine Inoculation, and complimentary address thereupon, from the staff of the Manchester Infirmary.

February 20th. Diploma of Fellow of the Physical Society of Guy's Hospital.

February 25th. Testimonial and address from the Presidents and members of the above Society.

March 7th. Diploma of Fellow of the Royal Medical Society of Edinburgh.

24 Ventose. Diploma of Foreign Associate of the Medical Society of Paris.

30 Germinal. Official address from the Medical Society of Indre et Loire.

May 25th. Diploma of Fellow of the American Society of Arts and Sciences.

July 29th. Official letter of respect and congratulation upon the general success of vaccination in France, from the Central Committee of Vaccination.

August 10th. Letter from the Dowager Empress of Russia, signed "Marie," and accompanied by a ring set in diamonds.

2 Messidor. Diploma of Corresponding Associate of the Medical Society of Tours.

27 Brumaire. Appointment of Associate from a Society at Avignon.

1803. March 16th. Diploma of Member of the Society of Medicine at Avignon.

August 11th. Freedom of the City of London, presented in a gold box of the value of 100 guineas. The gold box mentioned was sold by auction on October 25th, 1893, by Messrs. Debenham, Storr and Son. It was described in the catalogue as "A magnificent 18-karat gold presentation snuff-box, beautifully enamelled, with the arms of the City of London and other subjects, and bearing an interesting inscription, date 1803, 11 ozs. 11 dwt." The inscription reads as follows: "Presented to Edward Jenner, M.D., LL.D., F.R.S., etc., by the Corporation of London, 11th August, 1803, in the Mayoralty of the Right Hon. Charles Price, M.P., as a token of their sense of his skill and perseverance in the discovery of and bringing into general use the vaccine inoculation." In describing it as a "snuff-box" the auctioneers fell into error. At the sale the casket fetched what it originally cost, 100 guineas. It is now the property of the Society of Apothecaries. The document originally contained in the box is in Mr. Mockler's collection of relics.

August 15th. Diploma of Fellow of the Royal Medical and Economical Society of Madrid.

August 31st. Diploma of LL.D. from the Senate of Harvard University.

September 14th. Diploma of Honorary Member of the Royal Humane Society of London.

28 Vendemiaire. Diploma of Foreign Associate to the School of Medicine in Paris.

21. Frimaire. Diploma from the Society of Medicine, Departement du Gand.

1804. March. Freedom of the City of Dublin.

April 7th. Diploma of Member of the American Philosophical Society.

October 31st. Freedom of the City of Edinburgh.

December. Diploma of Fellow of the Imperial University of Wilna.

1806. March 31st. Diploma of Foreign Associate of the Royal College of Physicians at Stockholm.

May 20. Diploma of Honorary Fellow of the Royal College of Physicians at Edinburgh.

1807. March 5th. Diploma of Honorary Associate of the Royal Economical Society of Valencia.

April 1st. Freedom of the Borough of Liverpool.

April 23rd. Diploma of Foreign Associate of the Royal Academy of Sciences at Stockholm.

November 8th. Address of the Five Nations of Indians assembled in Fort George in Upper Canada. With the address was sent a belt and string of wampum.

1808. March 28th. Diploma of Fellow of the Royal Academy of Sciences at Munich.

May 25th. Diploma of the New Hampshire Medical Society.

June 20th. Diploma of Corresponding Member of the National Institute of France in the class of Physical and Mathematical Sciences.

September 1st. Freedom of the City of Glasgow.

1809. April 27th. Freedom of the Burgh of Kirkealdy.

1810. April 27th. Diploma of Honorary Member of the Literary and Philosophical Society of Manchester.

1811. May 13th and 19th. Diploma of Foreign Associate of the Imperial Institute of France in the class of Physical and Mathematical Sciences.

1813. December 3rd. Diploma of Doctor of Medicine of the University of Oxford. This was a great honor to Jenner, as the granting of an Honorary M.D. by the University is a very rare occurrence.

1814. July 1st. Diploma of the Royal Society of Medicine at Bordeaux.

October 20th. Address of the Inhabitants of Brunn, in Moravia.

1815. January 20th. Address of Honorary Associate of the Physico-Medical Society of Erlangen.

1821. March 16th. Appointment of Jenner as Physician Extraordinary to H.M. King George V.

1822. August 30th. Diploma of Foreign Correspondent to the Medico-Chirurgical Society of Berlin.

VACCINATION AND COMMON SENSE.*

BY T. D. ACLAND, M.D. OXON.,

Physician to St. Thomas's Hospital.

LADIES AND GENTLEMEN,—A great responsibility has been imposed upon you, that of judging in what way you will endeavor to protect yourselves and your children against smallpox. It is a duty which you owe to the great community, of which each one of you is a member, to come to a right decision, and you cannot avoid the responsibility.

I can well believe that, with all the conflicting and inaccurate statements which are made about vaccination, you must find it difficult to arrive at any sound conclusion on the subject.

I thank you for the opportunity which you have given me of putting before you some of the evidence, which has been sufficient at any rate to convince myself, that of all the weapons which have been devised for fighting smallpox, vaccination is the most efficient and the least harmful, and that there is absolutely no known substitute.

It has been maintained that other means, such as sanitation and quarantine, are more effectual safeguards against the disease than vaccination, and that to these is due the diminution in the death-rate from smallpox which has taken place during the last century.

As I shall show you, this diminution in the fatality from smallpox is in this country mainly in the early years of life. If it were due to sanitation, the same beneficent results ought to be shown in the death-rate from other diseases which are rightly considered as infantile disorders. But this is not the case. On the contrary, although the share of smallpox mortality borne by children (under five years of age) diminished greatly between 1851-1880, during which years vaccination was made compulsory, there is no corresponding diminution in the share of the death-rate in children of the same age from other infantile disorders, such as measles, scarlet fever, diphtheria, etc. The actual figures are given in the following table, quoted from McVail, which shows how the contributions made by children under five years of age to the total mortality from each disease have altered:

*An address delivered at the Annual Meeting of the Subscribers to the Hospital Saturday Fund at the Mansion House on March 22nd, 1902.

Table showing that if the Death-rate as given at all Ages be taken as Unity, then the Death-rate for Children under Five Years of Age will be as follows:

| | 1851-60 | 1861-70 | 1871-80 |
|--|---------|---------|---------|
| From all causes..... | 3.0 | 3.0 | 2.9 |
| " <i>small-pox</i> | 4.7 | 4.0 | 2.2 |
| " measles..... | 0.8 | 0.8 | 0.8 |
| " scarlatina..... | 4.7 | 4.7 | 1.8 |
| " diphtheria..... | 4.0 | 4.1 | 3.9 |
| " whooping-cough..... | 7.2 | 7.2 | 7.1 |
| " fevers (including typhus, typhoid, and ill-defined)..... | 1.5 | 1.4 | 1.3 |
| " diarrhoea..... | 4.0 | 5.6 | 6.1 |

Calculated from pp. 112-114 of the Registrar-General's Supplement to the Forty-Fifth Annual Report, 1871-80.

It will be seen that whilst the proportion of deaths from small-pox contributed by infants has so greatly diminished, there is no corresponding diminution in the other infantile disorders mentioned, and in two the proportion is actually greater.

It would seem, then, probable, at any rate, that there must be some other agency than sanitation at work to account for the diminution in the infantile death-rate from smallpox. It has been suggested that quarantine and the isolation of all those who have been exposed to the infection of smallpox would suffice to stay a local outbreak; but in any large community such means are impossible and hopelessly inadequate, and must break down as they did under the very limited strain of the local outbreak at Leicester in 1893; and even if they were adequate, it is difficult to see why the protection should be exerted especially on the children and not on the adults, since smallpox was, and now is, amongst the unvaccinated, a disease falling with special severity on the earlier years of life. There must be some other factors at work. I will endeavor to lay before you some of the evidence there is to show that this factor is vaccination:

You will hear all kinds of bad things said about vaccination, of which I will tell you a few.

1. It is said that, as vaccinia and smallpox are totally distinct diseases, it is impossible for vaccination to protect against smallpox.

2. That vaccinia is nothing but smallpox artificially transmitted through the cow, and that statistics show that not only does vaccinia not protect against smallpox, but that it actually causes that disease.

Now, I think you will admit, in fact we must all admit, that these statements, being diametrically opposed to each other, cannot both be true; I will only, therefore, add a few words of practical criticism on each of them.

As to the first statement, "That vaccination cannot protect

against smallpox because it is a totally distinct disease," every one who thinks at all will allow that, if it can be shown that vaccination does in fact afford protection, this objection falls to the ground.

As to the second point, "That vaccination does not protect against smallpox, but actually causes the disease," I can speak with some confidence, since for seven years I was medical officer to the Royal Commission on Vaccination, and was engaged in making inquiries into vaccinal injuries throughout the length and breadth of the kingdom. During that period many millions of vaccinations were performed, and I have never seen or heard of an authentic case of small-pox resulting from vaccination in this country.

3. There is still a third objection which is frequently urged against vaccination, namely, that the harm done by it and the risks which it involves are so great that there is no justification for the practice productive only of evil and powerless for good.

If you will have patience with me, I will endeavor to show you how very far from the truth both these statements are. Before doing so, however, I should like to say that we know, even if all goes well, that a vaccinated child suffers something, and is an increased care and anxiety to an often overworked mother. No one can sympathize more than I do with the trouble and distress which may thus come to mother and child through the second week of even a normal vaccination. Sometimes, when all does not go well—when there is inflammation of the arm, or ulceration of the pocks—the burden thus imposed on the mother is heavier, and the suffering to the child is greater, and in some few instances the injury may be severe. It cannot be denied that in the case of a working man such trouble in the house may be a serious one, and it must be looked upon as a sacrifice, which he is asked to make for the good of the State as well as for the good of his child.

To return to the consideration of vaccinal injuries. Calculating from the cases which were brought under the notice of the Royal Commission on vaccination during the years 1889-96, and from the cases inquired into during 1888-91 by the Local Government Board, it would appear that there was death or serious injury in one case in about 14,000 primary vaccinations. You may say that even this amount of harm ought not to be, and the fact that it does occur is a powerful argument against vaccination. Before accepting this conclusion you must take into consideration that more than half (57.6 per cent.) of these cases resulted from preventable causes—that is, from one or other of the various forms of inflammation. Further, when you consider the ease with which the vaccine pocks may be injured, rubbed, or fouled, and when you consider the terrible conditions under which, unfortunately, thousands of our fellow working men have to live, it is hardly to be wondered at that an open wound like vaccination does sometimes go wrong.

All things occasionally go wrong in this imperfect world, and wherever you turn you will find a certain amount of penalty has to be paid for everything we have, however valuable and beneficent it may be. Gas explosions, railway accidents, shipwrecks, fires, all contribute something to the sorrow and suffering of the world, yet no one in his senses would give up gas, or railways, or ships, or houses because some injury is caused and some lives are lost by their use. Surely it is a question of degree. It is no use in the presence of an enemy discarding a weapon because you fear it may not be absolutely free from danger to yourself, unless or until you have something better to substitute for it. In the case of smallpox there is no substitute, and if you discard vaccination you are left defenceless and without any protection but flight in the presence of a relentless foe. It cannot even be pretended that the practice of vaccination hinders the adoption of every other useful means of combating smallpox.

When first I began to consider these questions seriously, I cast about for something with which the risk caused by vaccination (infinitesimally small though it really is) might fairly be compared, and I came to the conclusion that the use of anesthetics (chloroform and ether) was on the whole the greatest blessing which my profession had ever been able to confer on suffering mankind. Now, as you are all aware, a certain number of deaths occur every year through the use of anesthetics; this is quite unavoidable. The percentage number of deaths from chloroform is nearly seven times as great as that from the complications or accidents of vaccination. The deaths from ether are considerably fewer than from chloroform, but, even so, the total directly traceable to anesthetics is considerably greater than that resulting from vaccination.

It is interesting to compare the numbers of vaccinal injuries with the fatality from smallpox (even in a mild epidemic) where the practice of vaccination has been allowed to lapse. In Leicester, during the outbreak of 1891-92, 100 unvaccinated children were attacked, of whom 12 died. Thus in this community (with an unvaccinated child population), with all the boasted safeguards of isolation and sanitation, as many children died from smallpox as, according to the calculation given above, might be estimated to die or to suffer from serious injury amongst a like number of children (100) in 1,680 years, or in about 169,908 vaccinations. During this same epidemic only two vaccinated children under ten years of age were attacked by smallpox, neither of whom died.

In a severe epidemic, such as that at Gloucester (1895-96), no fewer than 279 unvaccinated children under ten years of age died out of 680 attacked (41 per cent.). Such fatality would not occur in less than *three million* primary vaccinations, and a very

little calculation will show that the risk of a fatal issue amongst those attacked was just 6,000 times as great as from vaccination. Comment is unnecessary, but the facts are deserving of serious study. They seem to me to show quite clearly that, although there is a certain amount of risk in vaccination, the risk is so small that it is one which should be readily faced if it can be shown that vaccination is for the good of the individual and for the benefit of the State. A great deal has been written and said about the serious nature of the risks, but they are in fact very small, and are such as the members of my own profession readily incur for themselves, their wives, and their children, for though they know them better than anyone else can know them, they judge them to be, as they are, insignificant as compared with risks of smallpox.

It is the duty of every one of us, as far as in us lies, to prevent ourselves from becoming the centres of infection. As you are the judges in this case, and have to decide for yourselves whether vaccination is capable of affording protection against smallpox, it is only right that you should consider the credibility of the witnesses who bring forward their evidence for or against the practice. Every one will, I think, allow that if they want a good pair of boots they should go to a bootmaker, and if they want a good loaf of bread they should go to the baker; and similarly it might be expected that those who wish to learn about smallpox and its prevention would be wise to go to those likely to possess the most accurate knowledge of the disease, namely, those who have spent their lives in the practical study of smallpox.

You will find that the unanimity of opinion expressed by those who have so spent their lives as to the effect of vaccination is very striking, and that those who are opposed to vaccination are, almost without exception, those who have no very practical acquaintance with smallpox. There are armchair generals even in medicine, who prefer to sit at home and deal out what they consider destructive criticism to those who are in the midst of the fight rather than to be up and doing something for the good of the individual and the welfare of the community.

Means which might be adopted for Deciding the Question as to whether, and if so to what extent, Vaccination protects against Smallpox.

The question as to whether or not vaccination protects against smallpox, and if so in what degree, may be approached in various ways:

1. By vaccinating first, and inoculating with smallpox afterwards, a test which cannot, of course, be made in the present day, but I shall refer to this again.
2. By observing the effect of vaccination on particular groups

of persons exposed to the contagion of smallpox under more or less similar conditions.

3. By observing the comparative frequency with which smallpox attacks the vaccinated and unvaccinated in large communities, the degree of the severity of the attack in each of these classes, and the resulting death-rate.

4. By observing the effect of vaccination upon the age at which smallpox is most prevalent amongst those who have been vaccinated in infancy, and among those who have not.

May I here, in parenthesis, say what I mean by vaccinated, I mean efficiently vaccinated. It is well known that vaccination in infancy gives its most effective protection only for a certain number of years. It is necessary to bear this in mind, since there are many fallacies based on statements made to the effect that in adult life more vaccinated than unvaccinated persons suffer from smallpox. This statement is one of those falsehoods masquerading in the guise of truth, which, as I shall show later on, has but little justification, since a child vaccinated in infancy, although, in fact, vaccinated, does not continue to benefit to any large extent from the vaccination after from seven to ten years; and as regards liability to attack from smallpox, insensibly approximates to the condition of those who have not been vaccinated.

1. The method of testing the efficacy of vaccination by the subsequent inoculation of smallpox is, of course, now out of the question, since inoculation is forbidden by law; but it was frequently adopted by Jenner, who, in 1801, wrote "that upwards of 6,000 persons had been inoculated with the virus of cow-pox, and that the far greater part of them has since been inoculated with that of smallpox, and exposed to its infection in every rational way that could be devised, but without effect." This was, at any rate, an experimental inquiry on a sufficiently large scale, and, even if the problem was not capable of being finally solved in this manner, was sufficient to convince his contemporaries of the efficacy of vaccination.

2. The second method of attempting to estimate the utility or the reverse of vaccination is to study its effect upon limited communities living under approximately the same conditions. There cannot be any better illustration than the experience of the staffs of the various smallpox hospitals.

They are as follows:

In Highgate Smallpox Hospital, from 1836 to 1896—a period of no less than sixty years—one case of smallpox, and one only, occurred among the hospital staff, and he was the gardener, least exposed to infection, but not revaccinated. During the years 1883-1896 there were 137 nurses and attendants employed; 30 of these had previously had smallpox, but none of the others had suffered from the disease.

At the Sheffield hospitals the staffs numbered 143; of 80 who were revaccinated as adults, not one contracted smallpox, whilst of 62 who had not been vaccinated, six suffered from smallpox, as did one other who was not successfully revaccinated until he was sickening from the disease.

At Warrington, Homerton, and Fulham, the experience has been similar. I will not weary you with the details of these; it would not serve any useful purpose, since they merely confirm the conclusion that even the nurses, who are exposed to a concentrated form of infection, such as probably we never have to encounter, can be and are protected against smallpox by the simple expedient of revaccination.

To come down to quite recent experience. During the third week in February of this year a statement appeared in the daily press to the effect that out of a staff of 43 nurses employed in the Mile End Infirmary, 35 were revaccinated, and have not suffered from smallpox, whilst of the other eight who were not revaccinated seven had already contracted the disease.

Such a statement was not likely to be accepted without criticism and challenge, and, thinking it would be a good test case to put before you from the practical and common-sense point of view, I inquired into the facts, and I am sure that I may tender in your name, as well as my own, our best thanks to Dr. Harley Brooks, the medical officer of the infirmary, for the great amount of trouble which he has taken to reply fully to my inquiries.

The facts are as follows:

Early in January, 1902, there were forty nurses and two matrons on the staff of the Mile End Infirmary, and one nurse on sick leave, a total of forty-three; not one of them had had smallpox previously; of these thirty-one had been revaccinated at various dates up to two years before the outbreak. Four were revaccinated on January 28th and 29th (two of them unsuccessfully). None of these 35 contracted smallpox. Of the remaining eight, one was away on sick leave, leaving seven, who all suffered from smallpox. Of these, three were not revaccinated, and the remaining four all sickened with smallpox in two days (two cases), three days, and six days respectively after vaccination. Thus these four cases were incubating smallpox at the time they were revaccinated, and though it may not be strictly correct to say that none of the vaccinated cases suffered from smallpox, it is certain that none of the cases who were revaccinated before infection contracted the disease, and all the cases who suffered from smallpox were either unvaccinated or revaccinated only during the incubation period of the disease.

I may say here that vaccination within a short time after exposure to the infection of smallpox may be of some use in mitigating the attack, but that if delayed until the incubation period is

advanced it may be expected to exercise little or no influence on the result.

A similar and very striking object lesson may be learned from the records of the smallpox hospitals of the Metropolitan Asylum Board.

During the year 1901, amongst the patients admitted to these hospitals were twenty-one persons who had been employed in disinfecting work; not one of these had been revaccinated since infancy. I have made careful inquiries, and I am informed that not a single person, engaged in work similar to that of the twenty-one persons mentioned above, who had been properly revaccinated, is known to have been admitted during this period (1901). And further, that no official of the Board, all of whom were revaccinated when they commence their work, had suffered from smallpox during the year 1901.

Nine other cases were admitted to the Board's hospitals suffering from smallpox contracted in the discharge of their duties as sanitary inspectors, dustmen, and undertakers; of these, five had not been revaccinated, one was said to have been revaccinated four and one nineteen years ago, and one without success four years ago.

Further, during sixteen years, 1884-1900, more than 2,000 persons have been employed in the smallpox hospitals of the Metropolitan Asylums Board; of this large number—some few of whom, no doubt, were protected by a previous attack—only seventeen contracted smallpox, though constantly exposed to infection. Of these, four are known to have escaped revaccination, and the remaining thirteen are known to have been revaccinated after having been exposed to infection. From the dates at which the eruption appeared in these cases it is practically certain that every one of them had contracted smallpox before their revaccination could possibly have taken effect. Lastly, not one of the staffs of the hospital ships has ever died of smallpox, and not one has ever suffered from the disease for the last eight years (1893-1901).

During twenty years (1881-1901) the Board's ambulance service has employed over 1,250 persons; of these, four have contracted smallpox, one was unvaccinated and died, one had been unsuccessfully vaccinated and died, two had been duly vaccinated, they both recovered.

These are remarkable facts, and do not seem to me to justify any other conclusion than that these persons, constantly exposed to infection in a virulent form, were protected by the disease not by sanitation, not by isolation, not by any of the various remedies which have been suggested, but solely by efficient vaccination and revaccination such as is open to every one to obtain.—*British Medical Journal.*

BAD NAUHEIM.

THE first season at Bad Nauheim Springs has been a marked success, due to the wonderfully healing power of the Springs themselves, the natural beauties of the surroundings, and from the world-wide reputation of the Bath itself. The Baths have had, during the past year, a distinguished patronage from all parts of the world, especially from America, giving the Bath an international position not to be found in any other.

The grand ducal management expends upon the maintenance of all departments, the drinking springs, the Kursaal, the park, the seven bathhouses with their elegant cabinets, the promenades, the tennis and playgrounds, exceeding great care, which has always received the fullest recognition from and patronage of the guests.

The celebrated Karlsbrunn, newly inclosed in elegant quarters, is again in use. The greatest convenience for all patients now lies in the fact that the long wait for the preparation of the bath, which was in former years considered the greatest trial, has now entirely ceased.

This is on account of the new piping and other technical improvements in regard to the conduction of the water. The waters give a large amount of carbonic acid and are at a considerably higher temperature than formerly. The different forms of baths are the Sol, Thermal, Thermal-strom, Sprudei, and Sprudel-strom. The latter is well-known to be a healing factor of peculiar value not possessed by any other. There has been added this season the Thermal-sprudel bath, which has at once become very popular with the physicians.

The grand ducal Kurdirector has undertaken in the fullest manner to provide for the entertainment of the guests by arranging for frequent concerts, operas, etc.

Finally, a false report which has been spread abroad must be contradicted. Nauheim is not an expensive place; hotels and lodging houses are so numerous and so varied that everyone can be accommodated comfortably according to his purse.

DR. W. P. CAVEN, corner Gerrard and Church Streets, has decided to relinquish general practice and will from this date devote his time to consultation work.

DR. CAMPBELL MEYERS has this summer added a new wing to his Private Hospital for Nervous Diseases at Deer Park. This addition runs west from the main building, and adds much to the appearance of the place besides providing the increased room rendered necessary by the growth of this important work.

Proceedings of Societies.

CANADIAN MEDICAL ASSOCIATION.

THE thirty-fifth annual meeting of the Canadian Medical Association was held in the City of Montreal on the 16th, 17th and 18th of September, under the Presidency of Dr. Francis J. Shepherd.

As an evidence of the great success which attended this meeting, the fact that more physicians registered on the first day than at any other previous meeting, speaks volumes.

At the morning general session of the first day a resolution of regret at the recent death of Professor Virchow, which was at the same time one of appreciation for the great work of this eminent pathologist, was proposed by Professor Adami, seconded by Dr. Gardner, Montreal, and carried unanimously.

The meeting divided into sections, Dr. McPhedran, Toronto, taking the chair at the Medical Section, while Dr. O. M. Jones, Victoria, B.C., looked after the Surgical Section.

FIRST DAY.—MORNING SESSION.

MEDICAL SECTION.

Living Case, Splenic Anemia.—Dr. H. A. Lafleur, Montreal, presented a patient, a man in middle life. There was a tumor, a movable mass about midway between the lower ribs on the left side and the crest of the ilium, with pulsation, but not expansile, over the tumor. The first blood count, made in March, showed 75 per cent. hemoglobin, the red corpuscles 5,000,000; the white 6,400. A blood count was made again on the 15th September, 1902; showed 4,000,000, and 5,800 respectively. The tumor changed according to degree and distension of the stomach. There was absence of mobility.

Dr. Osler referred to the difficulty and the lack of complete mobility in diagnosing this case and of enlarged spleen being often clinically mistaken for something else. This was just one of those cases in which the diagnosis was more surgical than clinical.

Some Further Results in the Treatment of Tuberculosis.—Dr. J. H. Elliott, of the Gravenhurst Sanatorium, contributed

this paper. At a meeting of this Association in Toronto in 1899 a report was made upon 155 cases of pulmonary tuberculosis under Sanatorium treatment. This paper is a further contribution covering some 400 additional cases treated during the past three years. The nomenclature used in the classification of discharged patients is that adopted by Trudeau: "Apparently Cured;" "Disease Arrested;" "Much Improved;" "Stationary," and "Failed."

Five years' experience has shown that almost all of the patients discharged "apparently cured" remain perfectly well—of those with "disease arrested" many have progressed to good health at home by following the rules of life learned at the sanatorium, renewed activity of the disease, when occurring, having been as a rule due to unfavorable surroundings, or the necessity of again taking up unsuitable work.

Not the least important part of the work of a sanatorium is its educative influence. Each patient who returns home is a teacher of the value and importance of a hygienic life, to those who wish to retain their health, as well as those who are not strong.

Experience is demonstrating the immense amount of influence for good which results from a properly equipped and conducted sanatorium. It is unfortunate that there are not more of them. It is hoped that the attention of our philanthropists will be drawn to the crying need of such institutions, and that ere long we shall have a number of them in the various provinces of Canada.

Dr. Osler congratulated Dr. Elliott on the promising results which he has obtained. Two important points should be kept well in mind: First, early diagnosis, and, second, getting patient as soon as possible under proper professional control.

Dr. T. Walker, St. John, N.B., referred to the control the physician in the sanatorium had over the patient.

Dr. John Ferguson, Toronto, spoke of the positive advances that have been made along the line of the curability of pulmonary tuberculosis.

Dr. McPhedran, Toronto, emphasized training patients how to care for themselves at home. He believes, too, that it is true, that the neighborhoods of sanatoria are always areas where tuberculosis is always diminishing.

Pleurisy as Associated with Tuberculosis.—Dr. John Hunter, Toronto, read this paper. He first referred to the manner in which bacilli reached the visceral and parietal pleure through the sub-pleural, bronchial or tracheal lymphatic glands, and from the cervical mediastinal and peritoneal lymphatics; also from the tonsils. In arriving at a diagnosis of pleurisy, a vigilant search should be made for a possible tuberculous origin. One should not always consider the outlook gloomy, as with properly carried

out treatment, the progress is much more favorable than in pulmonary tuberculosis. In at least two-thirds of tubercular pleurisy it is a curable affection. The rapidity of the filling of the pleural cavity is especially characteristic of tubercular cases.

Dwelling upon treatment during convalescence, deep breathing should be practised very assiduously, and inflation with rubber bags is a valuable exercise. Then change to a suitable climate should be insisted on if the progress towards recovery be retarded.

Clinical Notes on Blood Pressure in Diseased Conditions.—Dr. A. E. Orr, Montreal. A. Gærtner's tonometer was shown and the manner of its use demonstrated. Four hundred patients at the Royal Victoria Hospital, Montreal, were experimented on. The normal pressure was found to be 110 to 120. Seventy cases of typhoid fever were recorded in different stages, showing an average blood pressure of 104.5 mm. It was highest, but still sub-normal, in the first week. There was only one death, which took place in a man of thirty-five years, when pressure was 105 on the tenth day, 110 on the twenty-first day; then three hemorrhages, and on the twenty-fourth day a fatal hemorrhage.

A large proportion of these had cold baths or cold sponging. Nineteen cases of chronic nephritis were recorded. Of this group the highest was 260; average 208.5. Of acute nephritis there were seven cases; only three of these showed high pressure. Of arterio-sclerosis twenty-seven cases were recorded; highest 110, sixteen being 150 and over; four from 130 to 145; three from 110 to 125; four sub-normal. The highest was in a man of seventy-two; glycosuria, no albumen.

Valvular disease of heart, forty-eight cases, including eleven cases of mitral regurgitation. In mitral stenosis eight cases were recorded, six being normal. Mitral stenosis with mitral regurgitation, fourteen cases. Eleven had practically normal tension. Aortic insufficiency, three cases. Myocarditis, four cases; one man aged sixty having pressure of 80. Hypertrophy and dilatation of heart of unknown causation, two cases, 120 and 110 respectively. There were eighteen cases with acute lobar pneumonia, with an average for the series of 92.7; only one death. Pleurisy, sixteen cases. Neurasthenia, eighteen cases; thirteen having normal pressure, three from 135 to 140; one of 160. In malignant disease, cancer of viscera, there were no high readings. Anemia, six cases, all being normal. Addison's disease, both in early stage; both normal. Purpura hemorrhagica, one case; normal. Puerperal septicemia, one prolonged case, ending in recovery, had extremely low blood count, 930,000; above normal. One gall bladder case with suppuration—a blood pressure of only 50 ten days before death.

One lead poisoning; three of jaundice; one of tubercular meningitis; two of diabetes; two of exophthalmic goitre; eight of acute articular rheumatism, heart not affected; chronic articular rheumatism, four cases, all normal; gonorrhoeal rheumatism, eight cases, six normal; rheumatoid arthritis, sixteen cases, six normal; gout, four cases.

There was one case of hemiplegia and fourteen of tabes dorsalis, eleven normal pressure; cerebral tumor, eight cases; general paralysis of insane, one case; Friedreich's ataxia, one with albuminuria, 140; one acute ascending paralysis, 140; two cases tic douloureux, one 130 during the attack. There was one case of epidemic influenza and thirty-six miscellaneous cases.

In discussing this paper, Dr. Osler considered it to be the best contributed article on the subject.

On the Technique of Recording the Venous Pulse.—Dr. W. S. Morrow, Montreal, gave a practical demonstration on the blackboard and presented a living subject on this topic.

SURGICAL SECTION.

Amputation of the Upper Extremity for Sarcoma of the Shoulder Joint, Living Case.—By Dr. J. Alex. Hutchison, Montreal. The patient—a young woman—presented by Dr. Hutchison, gave a history of previous injury to the shoulder, followed by the development of a growth in the head of the humerus, accompanied by intense pain. An X-ray of the parts revealed the presence of a large growth which invaded the joint, and involved the scapula. The patient was in an extremely unsatisfactory condition for operation, and presented evidences of marked cardiac disease. The incision extended from the middle of the clavicle in front down over the pectoral regions to the lower part of axilla, and behind, passed over the scapula down to meet the anterior incision.

After severing the middle of the clavicle, the great vessels were ligated, the brachial nerves divided high up, the muscles divided and the scapula freed from its attachments. There was little hemorrhage, and the wound healed readily. Microscopic examination of the growth showed it to be a mixed spindle—and round—celled, myeloid sarcoma.

A Fatal Case of Secondary Hemorrhage Four Days Following the Removal of Adenoids.—By Dr. Perry G. Goldsmith, Belleville, Ont. This paper deals with the case of a child operated on by Dr. Goldsmith for obstructive deafness due to enlarged faucial tonsils. The operation was not unusual, and the condition of the patient, on the second and third day after the operation, was apparently satisfactory; on the fourth day, however, repeated and alarming attacks of hemorrhage set in, resulting fatally in a

few hours. There was no history of hemophilia. The patient was under the care of the family physician at the time of death, and as no post-mortem could be obtained, the cause of the hemorrhage remained unknown.

Occlusion of Posterior Naris.—By Dr. H. D. Hamilton, Montreal. The patient was a young man, aged seventeen, who complained of constant discharge from right naris, with complete obstruction of the same side. Duration of the condition, about twelve months. On examination, the patient presented a complete bony partition occluding the right side. Family and personal history was negative. Treatment: The bony wall was perforated and the opening further enlarged by graduated bougies.

On the Use of the Subcutaneous Injections of Paraffin for Correcting Deformities of the Nose.—By Dr. G. Grimmer, Montreal. Dr. Grimmer spoke briefly of various other deformities which had been corrected in this manner. In the preparation of the paraffin, it is first sterilized by subjecting it to high temperature. It is then injected by means of a sterilized syringe. In the case of the nose, the inner canthi of the eyes should be protected from the spreading of the paraffin by firm pressure applied to the sides of the nose by an assistant's fingers. After injection, the parts are molded by the operator as required.

After treatment: Collodion is to be applied to the needle puncture, and cold compresses, to control edema of the nose and eyelids.

Some possible dangers from the treatment are, paraffin embolism, and necrosis of the skin over the parts.

Dr. Grimmer exhibited two patients successfully treated in this manner; also two rabbits which had been subjected to similar injections.

The Telephonic Properties of the Inflamed Abdomen; a Sign not Hitherto Described, Due to Paralysis of the Bowel in Peritonitis.—By Dr. Geo. A. Peters, Toronto. In auscultating the abdomen with a view to ascertaining whether there was paralysis of the bowel in cases of appendicitis, typhoid perforations, traumatism, and other conditions which stand in a causative relation to peritonitis, Dr. Peters has observed that where the gurgling sounds due to the passage of gas and liquid in the bowel are absent from paralysis, the heart sounds are invariably very plainly present over the whole abdomen. In intense cases, particularly in children, both inspiratory and expiratory breath sounds may be heard. Dr. Peters' explanation of the phenomena is, unlike the healthy bowel—where the gas is retained in certain well defined and circumscribed compartments, each constituting a complete retainer in itself, with vital walls possessing a muscular tonicity under nervous control—the paralysed bowel, by reason of its

faccid and atonic condition, permits an entire change in the disposition of the contained gas; the entire distended abdomen becomes, practically and acoustically considered, a continuous column of air or gas, of the precise principle of the stethoscope. The effect of this is further heightened by the rigid abdominal wall, which acts as a sounding-board. The prognostic significance would seem to indicate an unfavorable termination in those cases where the sign is very well marked in cases of septic origin.

A Case of Filariasis in Man Cured by Operation.—By Dr. A. Primrose, Toronto. A man from the West Indies suffering from lymph scrotum presented himself for treatment and gave a history of attacks of fever which suggested the presence of filaria. On examination of the blood one found the embryos present in large numbers. The embryo filariæ were found in large numbers at night, but disappeared from the blood during the day. An operation was performed and a large portion of the scrotum removed. The excised tissue was carefully examined by teasing it in salt solution, and a parent worm was discovered and removed alive. This proved to be a female, and it was subsequently fixed and mounted in a suitable manner for microscopic examination. Subsequent to the operation the filaria embryos entirely disappeared from the blood, and the inference was that the parent producing the embryos had been removed by operation.

The parent worm was afterwards carefully studied by Dr. J. H. Elliott, M.D., Toronto, (late of the Malaria Expedition to Nigeria from Liverpool School of Tropical Medicine), and a report of his investigations with drawings of the worm formed a part of the paper as communicated by Dr. Primrose.

FIRST DAY.—AFTERNOON SESSION.

GENERAL SESSION.

Address in Surgery—The Contribution of Pathology to Surgery.—By Dr. John Stewart, Halifax, N.S. Owing to the unavoidable absence of Dr. Stewart, this paper was read by Dr. J. W. Stirling, Montreal. In his able address Dr. Stewart, in commencing, compared the struggles of the early surgeons for a scientific knowledge of their craft to the daring exploits of the early navigators of the fifteenth and sixteenth centuries—a parallel not altogether fanciful might be drawn between those pioneers of ocean travel and the early masters of our craft. They worked on two lines: the long, weary, and often fallacious track of empiricism, and the ample, but often disconnected road constructed by those whose chief aim was, in the words of him who led the vanguard, to “study and search out the secrets of Nature.”

The first advance came with the anatomist, Vesalius, "and day dawned with William Harvey, the Columbus of modern medicine," when he instituted the application of experimental methods to biological questions.

Finally came John Hunter, "The Father of Scientific Surgery," of whom Bilroth says: "From the time of Hunter to the present, English surgery has had something of grandeur and style about it."

But a great advance came from the study of plant life, and the researches of Schwann and Schleiden paved the way for the cellular pathology of Virchow, the basis of our present system of pathology. "And," said Dr. Stewart, "a shadow falls upon us gathered here, as we realize that the veteran master, the undisputed leader of pathological thought and progress for over fifty years, has fallen, and we unite in the desire to lay our spray of cypress on the tomb of him whom we all considered the greatest German of our time."

While with all these new acquisitions the pathologist went on his way rejoicing, the surgeon still lingered with anxious mind and heavy heart, for the question of questions to him was still unanswered,—the healing of wounds was the enigma of surgery.

By the close of the eighteenth century many scientific workers were satisfied the solution of this problem lay in the existence of pathogenic microbes; but it was reserved for Schonlein to prove in 1839 that tinea was due to the growth of a fungus. Later came Davaine and Chaveau, with their demonstration of the bacillus of anthrax.

And finally came Lister, "and," said Dr. Stewart, "the dark hemisphere rolled in one grand movement from its age-long penumbra into noon-day. Surgery, modern surgery, was born. In the chronology of our craft, time is divided into before and after Lister."

Lister, like Hunter, united in himself the pathologist and the surgeon, and, like him, worked on the lines of experimental pathology.

President's Address.—On the evening of the first in the Arts Museum Dr. Francis J. Shepherd, of Montreal, delivered the Annual Presidential Address. After welcoming the members, Dr. Shepherd spoke of the Dominion Registration Bill, which had been so ably pushed through, in face of many obstacles, by Dr. T. G. Roddick, and expressed the hope that no one province would decline to act in accord with the almost universal desire to see the bill finally made law. After a brief resume of medical progress, the speaker entered a protest against the freedom with which syphilitics are allowed to mingle with the community at large, often causing the innocent to suffer more than the guilty. "It is time," said Dr. Shepherd, "that the profession took this

subject up and educated the public to a better knowledge of sanitary laws." Passing on to the subject of modern laboratory teaching, the President said, after referring to the large sums of money that have been spent on the erection and endowment of laboratories for the encouragement of research work, "One danger of this great multiplication of laboratories is that it induces men to pursue original investigation who have not the true scientific spirit, and who are utterly unfit for such work. They frequently collect and publish a mass of useless and undigested material and therefrom draw inaccurate conclusions. All this will not redound to the credit of medical science. But," continued Dr. Shepherd, "I do not wish it to be inferred that I am opposed to the addition of modern laboratories to our medical schools, they are all necessary, but they must not supplant other work quite as important to a man who wishes to become a practicing physician or surgeon. Again, we must remember that the millennium will not be brought about by laboratories, nor will all scientific problems be solved by them. There is one laboratory which is not so much frequented now as when I was a student, I refer to the hospital wards. Students, while perhaps more scientific—I say scientific because nowadays every one who spends much of his time getting a scientific training—I may say that students, while perhaps more scientific (microscopical and mechanical), have not the intimate personal knowledge of disease which continued observation at the bedside gives them, so that when started in some out-of-the-way place without their scientific machinery, they are like fish out of water. It may soon be that they will not be able to diagnose a fracture without the X-rays, tuberculosis without getting bacilli in the sputum, and so on without end. Students are not taught to observe so accurately the evident symptoms of disease, and, as I say, are becoming mere mechanics who need an armamentarium, which only a great hospital or university can possess, to make an accurate diagnosis of an ordinary disease, the higher and more intellectual means of drawing conclusions by inductive reasoning are almost neglected. Mind you, I do not wish to disparage laboratory teaching, it is essential; but we can have too much of a good thing, and laboratories nowadays take up too much of the student's time in the latter years of his curriculum. The ordinary student should have a good working knowledge of laboratory methods, and this should be obtained chiefly during his first two years, but the refinements, if insisted upon, will be required at the expense of some more useful and practical information, for the average student can only hold so much knowledge—it is hopeless to attempt to put a quart measure into a pint pot."

Speaking of specialism, Dr. Shepherd held up the ideal of all-round knowledge. He thought all doctors should acquire a good

working knowledge of all specialties, but an excess of time should not be devoted to any one. A year or two of hospital work, followed by some experience in general practice, should be managed by anyone who wishes to become a broad-minded specialist. Referring to modern quackery and the inadequate ideas of many superficially educated practitioners, Dr. Shepherd said, "Many of the doctors who write to papers like '*The Alkaloidal Clinic*,' the '*Medical Short-Cut*,' and others of such a character, have a most misty idea of their profession, and apparently are ignorant enough to deceive themselves as well as the public. I fancy they practise all the pathys; one man from Texas asks the Editor if he had anything that is a 'dead-shot' for eczema, another asks what is the most 'up-to-date scientific caper' for goitre, and so on."

At the close of his most interesting address Dr. Shepherd paid a high tribute to the late Dr. Wyatt G. Johnston, Dr. Wm. S. Muir, of Truro, and Dr. Brunelle, of the Hotel Dieu.

SECOND DAY.—MORNING SESSION.

A general meeting of the Association opened with a discussion on *Diseases of the Gall Bladder and Bile Ducts*. Dr. Alexander McPhedran, Toronto, introduced the medical diagnosis in this discussion. He mentioned the fact that the gall ducts are narrower at their entrance to the bowel than in other parts of their lumen, and as they lie nearly horizontally the outflow of bile is easily retarded or obstructed. The ducts are much exposed to infection from the intestinal tract. Of the cardinal symptoms in these cases Dr. McPhedran considered jaundice the most common, while pain varies, but is generally intense. The attendant fever is generally due to toxic absorption. The main diseases to be considered in differential diagnosis are catarrhal and suppurative cholangitis and acute yellow atrophy. Most catarrhal conditions are infective, but the chills and fever may occur without pus formation. The most common germ present is the common colon bacillus. In the gangrenous cases the symptoms are often ill defined. A most characteristic sign of gall stone is the recurrence of the attack.

Dr. A. D. Blackader in discussing the treatment of gall bladder affections said he would confine himself principally to catarrhal forms of the disease. He considers the condition more commonly due to altered secretion of the bile ducts, the altered mucus causing inspissation of the bile. Infection of bile, he thought, takes place in two ways, through the bile ducts and through the portal circulation. In the matter of treatment he considers that no drugs stimulate the flow of bile to the same extent as the bile salts. The flow is increased by exercise and deep breathing. Diet should be carefully considered, should be

simple and as far as possible should contain a large amount of fat. Such patients should drink plenty of pure water or mineral water. The patient should also have due regard to a proper method of dress, no corsets or constricting clothing should be worn.

Surgical Diagnosis was introduced by Dr. James Bell, of Montreal. He said it was common to find early vague symptoms of gastro-intestinal indigestion, which were often found to be present for a long time before an acute attack was precipitated. He spoke of the colon bacillus and the typhoid bacillus as common causes of infective conditions.

The subject of *Surgical Treatment* was introduced by Dr. J. E. W. Ross, of Toronto. In commencing his paper Dr. Ross expressed a certain lack of faith in the so-called medical treatment of gall stones. Speaking of some details of gall-stone operations Dr. Ross advocated drainage through Morrison's pouch. He laid great stress on the free use of gauze packing to prevent leakage into the peritoneal cavity. In gangrene and empyema of the gall bladder he does not advise removal of the gall bladder but prefers opening, flushing, and draining. In many cases of cystic enlargement of the gall bladder, however, he advised entire removal of the viscus. It is well to remember, after removal of the gall bladder, that gall stones may form in the liver and be passed out into the intestines. He considers mucous fistulæ which occasionally follow operation as the most troublesome, and said the evil should as far as possible be prevented by the use of a small drainage tube. He also drew attention to the importance of being sure that the drainage tubes did not become blocked.

The discussion of the Surgical Treatment was led by Dr. G. E. Armstrong, Montreal, who recognizes and recommends the employment of medicinal treatment first in gall stones, etc. He does not advise removal of the gall bladder for stone in the cystic duct. He recommends lavage of the stomach before operating on all gall bladder cases, and as it is difficult to know what the surgeon may encounter on opening the abdomen he advises the administration of calcium chloride before and after operation to prevent possible hemorrhage.

Dr. Dudley Allan, of Cleveland, Ohio, next spoke on the "Importance of Early Operation on the Gall Bladder." He considers, in view of the fact that an accurate diagnosis is often impossible, an exploratory incision at least should generally be made early, when, he claims, it is often found that many obscure cases are quite amenable to surgical treatment, and, in fact, would fail to recover if we were to temporize. He recited a number of cases where the diagnosis was uncertain, where he had made an exploratory incision and had often been gratified with the results.

The subject was further discussed by Sir William Hingston, of Montreal, and Dr. Alex. H. Ferguson, of Chicago.

On Foreign Bodies in the Vermiform Appendix.—By Dr. James Bell, of Montreal. In this paper the writer expresses his opinion that appendicitis never depends on the presence of foreign bodies in the lumen of the appendix. There is little doubt, however, that when foreign bodies gain entrance accidentally into the appendix they aggravate an otherwise septic infection. Among the foreign bodies which he has found in the appendix are: In two cases pins, in two cases seeds, in one case wood fibre, in one case gall stones, and in another case a fish bone.

Dr. Bell's paper was further discussed by Mr. Irving Cameron, of Toronto.

SECOND DAY.—AFTERNOON SESSION.

MEDICAL SECTION.

Kernig's Sign. The Frequency of Occurrence, Causation and Clinical Significance.—By R. D. Rudolf, Toronto. This paper contained the results of an investigation carried out in the different hospitals of Toronto. A large number of patients of all ages were examined suffering from diverse troubles and the angle at the hip and knee accurately measured in over 200 of them. In 162 Kernig's sign was present in 97, that is, in over 60 per cent. It was always absent in perfectly healthy children. Dr. Rudolf considers that a more convenient plan is to extend the knee and then flex the hip as far as possible. Sometimes there is more than the usual degree of stretching of the ham-string possible, and this extra flexion can, by the writer's method, be exactly measured when Kernig's sign could not show it. Of the 97 cases in which Kernig's sign was present in 59, an angle of less than 165 degrees at the knee could only be obtained, and of these in 10 cases the angle was 135 degrees or less, showing a very marked degree of the sign. These 59 cases were of all kinds and only one of them was meningitis. Dr. Rudolf then went on to state that none of the theories of explanation of Kernig's sign were satisfactory as to its occurrence in meningitis.

Multiple Sarcoma. Report of a Case.—This case was reported by Drs. F. N. G. Starr and J. J. MacKenzie, of Toronto. Dr. MacKenzie read the notes on the case. No autopsy could be made of the case. The patient was a female, thirty-eight years of age, a seamstress. The personal or family history had no bearing on the case. For a number of years before 1901 the patient had a goitre, which, under treatment, almost disappeared in the winter of 1901. In April, 1901, a lump about the size of a pea was noticed slightly to the left of the middle line of the

abdomen near the symphysis pubis, hard but painless and subcutaneous. In May two or three appeared in the middle line an inch above the umbilicus; then two or three were discovered in the back. In June two others appeared to the right of the middle line of the abdomen. In July several additional lumps were discovered in the right breast, in size from a pea to a bean. Loss of weight occurred. In August the liver was noticed to be enlarging. Commenced taking arsenic in September. In October a large tumor appeared in the left breast, and a small one was also noticed in the left thigh. Patient began to suffer from rheumatic pains. In November and December the tumors appeared in enormous numbers over the chest and back, abdomen, thighs and arms above the elbows, neck and over back, sides and top of head. In January, 1902, chains of tumors, bean sized, were noticed in the cervical region, submaxillary and suboccipital regions. By March the 8th she had thousands of tumors, most quite hard. Excisions were made and microscopic examination revealed a type of spindle-celled sarcoma, in which the prevailing cell was very long. As regards treatment, the patient took arsenic with no influence on the condition. Thyroid extract produced slight diminution in the size of the tumors. Patient died. Without autopsy one cannot say where the primary seat of the disease was, although from the great involvement of the liver, that might be the source of the disease.

On Some Points in Cerebral Localization, Illustrated by a Series of Morbid Specimens and Some Living Cases.—At an early morning session held in the Royal Victoria Hospital. Dr. James Stewart conducted this clinic.

On the Asylum—The Hospital for the Insane and the Study of Psychiatry.—Dr. Stuart Paton, Baltimore, Md., advocated hospitals or wards in insane asylums for proper treatment of acute cases. He also pointed out the benefits to be derived from having medical men to form a consulting staff to an asylum.

Anesthetic Leprosy.—Two very interesting patients, father and son, were presented by Dr. C. N. Valin, Montreal, according to whom, they proved to a certainty the contagiousness of this disease. From the way they had progressed under treatment Dr. Valin considered the cases hopeful.

SURGICAL SECTION.

Report of Three Cases of Congenital Dislocation of the Hip.—By Dr. A. E. Garrow, Montreal. The etiology of this condition is not well established, but heredity seems to play a part. Dr. Garrow spoke of two methods of reduction: (a) bloodless method, (b) through an incision. The chief obstacle to reduction is generally due to fibrinous stricture of the lower part of the capsule. Dr.

Garrow's experience has been mainly by the open method. This paper was further discussed by Dr. Shepherd, of Montreal.

The Operative Treatment of Goitre, with a Report of Cases.—By Dr. Ingersoll Olmstead, Hamilton, Ont. As the medical treatment of goitre is very unsatisfactory, an operation is recommended in the following conditions: First, as soon as a goitre becomes dangerous, that is, when attacks of dyspœa or inflammatory changes occur, or there is the slightest suspicion of a malignant degeneration. Second, all enlarged thyroids having a tendency to grow towards the aperture of the thorax, even if they are movable. Third, goitres that have reached considerable development from the formation of single large colloid nodes. Fourth, when with a moderate goitre, symptoms like those of Basedow's disease appear, accompanied with an increased development of the goitre. The operation advised is the one usually performed by Kocher and is done under cocaine anesthesia. It consists of a transverse, symmetrically bowed incision, with its convexity downwards, from the outer surface of one sterno-mastoid muscle to the other, higher or lower according to the position of the goitre. The skin, underlying platysma and fascia of the sterno-hyoid and sterno-thyroid muscles are reflected upwards. The fascia joining the muscles in the median line of the neck is then divided as well as the outer fibrous capsule of the gland. The half of the gland which is most involved is then shelled out of its capsule, the superior and inferior thyroid arteries tied, the isthmus cut with goitre clamp and ligated. The remaining attachments are then ligated and portion removed. The wound is closed with subcuticular wire suture without drainage.

Twelve cases operated on during the past year were reported. The average stay in the hospital was seven days. The resulting scar was very slight and little or no pain was complained of during the operation.

The Pathologic Prostate and Its Removal Through the Perineum.—By Dr. Alex. H. Ferguson, Chicago, Ill. In opening his paper Dr. Ferguson said he proposed to discuss more particularly hypertrophy of the prostate. Some of the microscopic changes in the hypertrophied prostate are: First, increased weight, may be up to eight or nine ounces; second, greater size; third, any part or the whole of the gland may be involved. Shape varies very much. Microscopically Dr. Ferguson found all hypertrophied prostates were benign in character. He also found frequent evidences of inflammatory changes. The effects produced may be stated as, first, the prostatic urethra is contracted and elongated; second, the vesical meatus is often rendered patulous and sometimes obliterated; third, the ejaculatory ducts are also often patulous, allowing regurgitation of the semen into the bladder, and they are also often obstructed. The effects of obstruc-

tion on the kidneys and bladder are too well known to require discussion. *Treatment.*—Dr. Ferguson's method of removal is by the perineal route. He uses a prostatic depressor introduced into the urethra, then elevated in such a manner as to press the prostate down in the perineum. The fingers of the left hand are passed into the rectum as a guide, and then he makes one bold incision through the perineum down to the prostatic capsule. Dr. Ferguson exhibited some special instruments devised and used by himself in this operation.

The Surgical Treatment of Enlarged Prostate.—By Dr. G. E. Armstrong, Montreal. Dr. Armstrong exhibited a specially constructed suprapubic vesical speculum, devised by himself, with a lateral opening, which allows the prostate alone to come well into view in the speculum. The speculum can be packed around with gauze to protect the parts from possible burning, the offending lobe or lobes are then cauterized with the thermocautery. Dr. Armstrong reported seven cases successfully operated on. One point of advantage in this operation lies in the fact that the cauterized surface does not admit of septic absorption. He urges this method in early stages of prostatic hypertrophy.

The paper by Dr. Ferguson and also that of Dr. Armstrong was discussed by Dr. James Bell, Montreal; Sir William Hingston, Montreal; Mr. Irving Cameron, Toronto, and Dr. Elder, Montreal.

SECOND DAY.—EVENING SESSION.

At the evening session of the second day the *Address in Medicine* was delivered by Dr. Wm. Osler, Baltimore. In opening his splendid address Dr. Osler spoke of the noble ancestry of our profession. The broad foundations of our professional dignity were laid on the Hippocratic oath. The solidarity of the medical fraternity is pre-eminent. Our profession is distinguished from all others by its beneficence; witness, for instance, anesthesia, sanitation, *et al.* There is no limit to the science of medicine. The outlook for the profession was never brighter than to-day. Many of the diseases of our grandfathers are vanishing. Dr. Osler then put forward a strong plea for the unity of the profession. A sense of self-satisfaction is all too common in the medical ranks as in other walks of life. Chauvinism is an enemy to progress. Dr. Osler mentioned four forms of Chauvinism, namely, national, provincial, parochial and individual. Nationalism is apt to become a widespread vice in so far as this concerns the medical profession; however, international medical congresses have done much to dispel this spirit. Dr. Osler strongly advised young men to go abroad for post-graduate study, especially those who aspired to teach. If this were not possible he strongly recom-

mended the study of foreign medical literature. "It helps a man," said Dr. Osler, "to be a bit of a hero-worshipper." Continuing he said, "there is a remarkable homogeneity of the profession on this continent, still, there is no little provincialism among the profession. Witness the various provincial medical councils in Canada and the various state boards in the United States." He considers it an outrage that a graduate of Ontario cannot practice in Quebec, or a graduate of Quebec in Manitoba; it is democracy run riot; it is provincialism. The solution of this problem rests with the general practitioner. Dr. Osler here paid a high tribute to Dr. Roddick for his indefatigable energy in pushing through the Dominion Medical Bill. Passing on to speak of parochial Chauvinism Dr. Osler considered we are all tainted with it to some extent. A good method of counteracting this is to encourage professorial interchanges. Chauvinism in the unit, however, is of much more interest and importance. "The consultants do the writing and the talking—and take the fees," said Dr. Osler, "the backbone, however, of the medical profession is the general practitioner. But he should preserve his mental independence and keep up with the times in literature and appliances. "Diagnosis, not drugging, is our chief weapon of offence," said Dr. Osler. "Lack of systematic personal training in the methods of the recognition of disease leads to the misapplication of remedies, to long courses of treatment, when treatment is useless and so directly to that lack of confidence in our methods which is apt to place us in the eyes of the public on a level with empirics and quacks." One should not degenerate into a mere dispenser of quack nostrums like the drug clerk, who has a specific for everything from the pip to the pox. Beware of the huge manufacturing chemical concerns and of the "drummer" of the drug-house. Passing on Dr. Osler said that learning alone is not sufficient, culture is the bichloride to keep him from intellectual deterioration, and lastly, charity among the profession: make the golden rule our code of ethics. Adopt the motto of St. Ambrose: "If you cannot speak well of your brother, keep silence." The word of action is stronger than the word of speech.

The X-ray as a Therapeutic Agent.—By Dr. C. R. Dickson, Toronto. Dr. Dickson said, the explanation of the rationale of the X-ray is at best as yet but a hypothesis; fortunately we have a practical proof of its utility as a therapeutic agent in many conditions. Dr. Dickson has used it successfully in the following cases: Nevus, lupus vulgaris, tubercular joints, scleroderma, subacute articular rheumatism (it relieves pain in many cases), neurasthenia, carcinoma of the stomach (this patient gained weight), and in carcinoma of the rectum, which case is also improving.

Dr. G. P. Girdwood, of Montreal, read a paper on *The*

X-rays, *Diagnostic and Therapeutic*, and exhibited a number of photographs.

The *X-ray in Cancer* was the title of a paper by Dr. A. R. Robinson, of New York. A strong plea is that the X-ray largely does away with the knife, and leaves little scar. It is probable that all superficial cancers can be removed by the X-ray if seen early. In a delicate locality, such as the eyelid, the rays should always be used as paste or the knife will do more harm. When malignant growths have spread deeply, the X-ray may be considered our best treatment.

THIRD DAY.—MORNING SESSION.

SURGICAL SECTION.

The first paper was *Remarks on the Sympathetic Ophthalmia*.—By Dr. G. Herbert Burnham, Toronto, followed by a paper on the *Ocular Manifestations on Systemic Gonorrhoea*, by Dr. W. Gordon M. Byers, Montreal.

A paper on *Excision of the Cecum* was read by Dr. O. M. Jones, of Victoria, B.C. Dr. Jones cited four cases operated on. The first case lived about two years after. A *post mortem* proved that the cancerous growth had not recurred at the point of the original operation. Symptoms in all cases were griping pains in the abdomen, loss of weight and irregular action of the bowels, together with the presence of a mass in the region of the cecum.

On Three Cases of Perforating Typhoid Ulcer Successfully Operated on.—Dr. F. J. Shepherd, Montreal, reported these cases. First, as to technique. Dr. Shepherd has always made use of the lateral incision and has usually found the perforation near the ileo-cecal valve. By this incision the site of the perforation is more easily found than by the median. He has always closed the incision by turning in the bowel and making use of a continuous Lembert suture, employing fine silk. Other ulcerations in the neighborhood are treated in the same way. Rubber drainage is employed. There is always suppuration in these cases, and usually a hernia as a result. General anesthesia is always used in these cases. Early and rapid operation, seeing that there are no others likely to perforate. The first case was in a woman of thirty with ambulatory form. The second was a woman twenty-eight years, admitted on about the eighth day. It is of interest in this case that although perforation had taken place there was no leucocytosis. The third was a male, aged thirty, in the third week, seized with severe pain and one hour after there was obliteration of liver dulness and marked leucocytosis. All are quite well with the exception of hernias.

Dr. Laphorn Smith, of Montreal, presented a paper on *A*

Case of Total Extirpation of the Urinary Bladder for Cancer. General considerations; evolution of the operation in Europe and America; methods employed; results in 100 reported cases. In the author's case there had been previous removal of fibroid by myomectomy. This was followed by cystitis, which was treated first by medicine, then by injection, and afterwards by drainage by permanent catheter, and then by button-hole operation; when the cancer was detected by the finger. Extraperitoneal removal of bladder and affected part of ureter and pelvic glands. Recovery from operation, but death on the seventh day from exhaustion.

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THIRD DAY.—GENERAL MORNING SESSION.

Election of Officers.—Dr. T. G. Roddick, M.P., Chairman of Nominating Committee, presented the report of this committee. London, Ont., was selected as the next place of meeting.

President—Dr. W. H. Moorhouse, London, Ont.

Vice-Presidents—Prince Edward Island, James Warburton; Nova Scotia, John Stewart, Halifax; New Brunswick, W. C. Crockett, Fredericton; Quebec, Dr. Mercier, Montreal; Ontario, Dr. W. P. Caven, Toronto; Manitoba, Dr. McConnell, Morden; Northwest Territories, J. D. Lafferty, Calgary; British Columbia, C. J. Fagan, Victoria.

Local Secretaries—Prince Edward Island, C. A. MacPhail, Summerside; Nova Scotia, Dr. Morse, Digby; New Brunswick, J. R. McIntosh, St. John; Quebec, R. Tait McKenzie, Montreal; Ontario, Hadley D. Williams, London; Manitoba, J. T. Lamont, Treherne; Northwest Territories, D. Low, Regina; British Columbia, L. H. McKechnie.

General Secretary—George Elliott, 129 John Street, Toronto.

Treasurer—H. B. Small, Ottawa.

Executive Council—Drs. Moore, Eccles, and Wishart, London, Ont.

Dominion Health Bureau—Dr. E. P. Lachapelle, Secretary of the Board of Health of the Province of Quebec, moved the following resolution, seconded by Dr. J. R. Jones, Winnipeg, which was carried unanimously:

“Whereas public health with all that is comprised in the term “sanitary science,” has acquired great prominence in all civilized countries; and,

“Whereas enormously practical results have been secured to the community at large, by the creation of health departments, under governmental supervision and control; and

“Whereas greater authority and usefulness are given to health regulations suggestions when they emanate from an acknowledged Government Department;

Therefore, be it resolved, that in the opinion of the Canadian Medical Association, now in session, the time is opportune for the Dominion Government to earnestly consider the expediency of creating a separate department of public health, under one of the existing ministers, so that regulations, suggestions, and correspondence on such health matters as fall within the jurisdiction of the Federal Government, may be issued with the authority of a Department of Public Health.

"That copies of this Resolution be sent by the General Secretary to the Governor-General in Council and to the Honorable the Minister of Agriculture."

Treasurer's Report.—Dr. H. B. Small presented this report. Three hundred and seventeen members had been in attendance, nearly one hundred larger than any other previous meeting. All outstanding indebtedness had been paid and there was in the treasury \$325 to the good of the Association. This announcement was received with the greatest satisfaction. Votes of thanks were passed to Mr. and Mrs. James Ross, of Montreal, in whose handsome grounds had been tendered a garden party on the afternoon of the first day; to the Local Committee and Transportation Committee, special reference being made to Drs. C. F. Martin and J. Alex. Hutchison, for their indefatigable efforts for the success of the meeting; to the Treasurer, the President, and the profession generally for their hospitality. Thus was closed the greatest meeting in the thirty-five years of the Association, and it is to be hoped that the profession throughout Canada will still further take an active interest in the national organization.

ANNUAL MEETING OF THE ASSOCIATION OF MEDICAL HEALTH OFFICERS OF ONTARIO.

The Seventeenth Annual Meeting of the above Association, which was held in Berlin, September 9, 10, was successful in point of attendance, forty-four members having registered. Dr. Kitchen presided at all the sessions very acceptably. We subjoin a list of the papers read: The Public Water Supply of Berlin, Herbert J. Bowman, C.E., Berlin; Report of Special Committee on Vaccination, Prof. W. T. Connell, M.D., Kingston; Bearing of the Complications of Bovine Vaccination upon its Unqualified Acceptance by the Profession and Public, J. J. Cassidy, M.D., member of the Provincial Board of Health, Toronto; Control of Smallpox Outbreaks in Cities, R. Law, M.D., Medical Health Officer, Ottawa; Fowl Diphtheria—Is it Contagious to Man? Prof. F. C. Harrison, Agricultural College, Guelph; Control of Outbreaks of Diphtheria, J. S. Wardlaw, Medical Health Officer, Galt; Historical Illustrations of Variations in Type of Communic-

able Disease, C. A. Hodgetts, M.D., Medical Inspector Provincial Board of Health, Toronto; The President's Annual Address, E. E. Kitchen, M.D., Member Provincial Board of Health, St. George; Social Phase of Hospitals and Sanatoria for Consumptives, William Buckingham, Chairman Hospital Board, Stratford; The Ethical Value of Education in Preventive Medicine, P. H. Bryce, M.D., Secretary Provincial Board of Health, Toronto; Sewage Disposal, J. A. Amyot, M.D., Bacteriologist Provincial Board of Health, Toronto; Results of Recent Experiments on Treatment of Excreta with Moss Litter, Thos. Macfarlane, Chief Analyst Inland Revenue Department, Ottawa; Practical Scope and Operation of the Factory Act, J. Y. Burke, Provincial Inspector, Toronto; The Duties of a Medical Health Officer, G. H. Bowlby, M.D., Medical Health Officer, Berlin.

The members of the Association were entertained at a very enjoyable informal concert in Concordia Hall on the evening of September 9. There was also an excursion by trolley to Waterloo, Bridgeport and the Sugar Refinery.

The officers for the ensuing year are as follows: President, Thomas Macfarlane, Esq., Ottawa; Vice-President, G. H. Bowlby, M.D., Berlin; Secretary-Treasurer, P. H. Bryce, M.D., Toronto; Executive Council, Dr. M. J. Arnott, Berlin; Dr. R. Law, Ottawa; Dr. Lane, Mallorytown; Dr. Langrill, Hamilton; H. J. Bowman, Esq., Berlin.

It was suggested that Peterboro should be the meeting-place for 1903, but the selection was left to the Executive Council.

THE first polo match in Eastern Canada was played in Montreal on September 6th between the club team of that city and the team from the Toronto Hunt Polo Club. The Toronto team consisted of Dr. Campbell Meyers (captain), Major Williams, Capt. Elmsley and Mr. Ewart Osborne, with Mr. Alfred Beardmore as umpire. The game was fast and well contested, but, as the score, seven goals to nothing, shows, the Toronto team was at no time in danger of defeat. The Montreal ponies were, on the whole, of finer quality than those of the visiting players but were not as handy and well broken to the game. The return match was played on the new polo field at the Toronto Hunt Club on Wednesday, September 24th, resulting in another magnificent victory for the Toronto team by 10 to 2. We exceedingly regret the accident which Captain Campbell Meyers sustained during the match resulting in a fractured clavicle, but feel glad that he is progressing favorably and will be around very soon again. The Toronto Hunt polo grounds will compare favorably with any on the continent, being very beautifully situated on the banks of the lake. A gymkhana will be held later on the same grounds.

The Canadian Journal of Medicine and Surgery

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Surgery—BRUCE L. RHODAN, M.D., C.M., McGill University, M.D. University of Toronto; Surgeon Toronto General Hospital; Surgeon Grand Trunk R.R.; Consulting Surgeon Toronto Home for Incurables; Pension Examiner United States Government; and F. N. STARR, M.B., Toronto, Associate Professor of Clinical Surgery, Lecturer and Demonstrator in Anatomy, Toronto University; Surgeon to the Out-Patient Department Toronto General Hospital and Hospital for Sick Children.

Clinical Surgery—ALEX. PRINROSE, M.B., C.M. Edinburgh University; Professor of Anatomy and Director of the Anatomical Department, Toronto University; Associate Professor of Clinical Surgery, Toronto University. Secretary Medical Faculty, Toronto University.

Orthopedic Surgery—B. E. MCKENZIE, B.A., M.D., Toronto, Surgeon to the Toronto Orthopedic Hospital; Surgeon to the Out-Patient Department, Toronto General Hospital; Assistant Professor of Clinical Surgery, Ontario Medical College for Women; Member of the American Orthopedic Association; and H. P. H. GALLOWAY, M.D., Toronto, Surgeon to the Toronto Orthopedic Hospital; Orthopedic Surgeon, Toronto Western Hospital; Member of the American Orthopedic Association.

Oral Surgery—K. H. ADAMS, M.D., D.D.S., Toronto.

Surgical Pathology—T. H. MANLEY, M.D., New York. Visiting Surgeon to Harlem Hospital, Professor of Surgery, New York School of Clinical Medicine, New York, etc., etc.

Gynecology and Obstetrics—Geo. T. McKEOUGH, M.D., M.R.C.S. Eng., Chatham, Ont.; and J. H. LOWE, M.D., Newmarket, Ont.

Medical Jurisprudence and Toxicology—ARTHUR JUKES JOHNSON, M.B., M.R.C.S. Eng.; Coroner County of York; Surgeon Toronto Railway Co., Toronto; W. A. YOUNG, M.D., L.R.C.P. Lond.; Coroner County of York, Toronto.

Pharmacology and Therapeutics—A. J. HARRINGTON M.D., M.R.C.S. Eng., Toronto.

Medicine—J. J. CASSIDY, M.D., Toronto, Member Ontario Provincial Board of Health; Consulting Surgeon, Toronto General Hospital; and W. J. WILSON, M.D., Toronto, Physician Toronto Western Hospital.

Clinical Medicine—ALEXANDER MCPHEDRAN, M.D., Professor of Medicine and Clinical Medicine Toronto University; Physician Toronto General Hospital, St. Michael's Hospital, and Victoria Hospital for Sick Children.

Mental Diseases—EZRA H. STAFFORD, M.D., Toronto, and N. H. BEEMER, M.D., Mimico Insane Asylum.

Public Health and Hygiene—J. J. CASSIDY, M.D., Toronto Member Ontario Provincial Board of Health; Consulting Surgeon Toronto General Hospital; and E. H. ADAMS, M.D., Toronto.

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Doctors will confer a favor by sending news, reports and papers of interest from any section of the country. Individual experience and theories are also solicited. Contributors must kindly remember that all papers, reports, correspondence, etc., must be in our hands by the fifteenth of the month previous to publication.

Advertisements to insure insertion in the issue of any month, should be sent not later than the tenth of the preceding month.

VOL. XII.

TORONTO, OCTOBER, 1902.

NO. 4.

Editorials.

THE COMPLICATIONS OF VACCINATION.

OCCASIONALLY, even when vaccination is carefully performed, one or more additional vesicles are formed at a little distance from the point of inoculation, and, rarely, there is a general vesicular eruption, due to absorption of the lymph. An erythematous rash is also not uncommonly observed after vaccination and appears, if at all, about the sixth day. Erysipelas occurs as a rare complication. Its appearance in a case would indicate that the vaccine used was infected with the streptococci of erysipelas and phleg-

mon. Dr. Gustave Futterer, professor of physical diagnosis in the Chicago Polyclinic, stated in the *Journal of the American Medical Association*, that about 13 per cent. of the vaccine points of commerce were infected with the streptococci of erysipelas, while about 73 per cent. revealed the presence of such organisms as the streptococcus aureus. An ulcer may form which may be weeks in healing. In scrofulous children the ulcer sometimes persists for two or three months. Eczema and other skin affections are usually aggravated during the course of vaccination.

It is even possible for syphilis to be acquired by vaccination; but this complication has been effectually barred out by the general adoption of non-humanized virus. In view of the danger of causing septic infection by the use of impure vaccine, strenuous efforts have been made by the owners of vaccine farms in America to obtain an article which will convey nothing but vaccinia. To accomplish this purpose, in addition to securing great cleanliness in all the appointments and fittings of their stables, the vaccinifers are kept in a very clean condition, while the stablemen, the members of the staff who inoculate the animals, those who collect the lymph, and also those who put it up for distribution are obliged to use aseptic precautions throughout their work. Glycerinated calf lymph has also been employed. The latter product has, however, been abandoned by many practitioners, because, as Dr. McWeir stated in the *British Medical Journal*: (1) The percentage of failures was very high; (2) very bad arms resulted; (3) a diffused papular eruption was very common. The *Sanitary Review* (England) of March, 1901, said: "Laboratory workers have come to the conclusion that it is, at present, impracticable to produce a sterile vaccine. The results of the use of this so-called 'germ free lymph' have not been to secure freedom from the inflammatory complications of vaccination. On the contrary, it is the general testimony, given by those who have experimented at length with such lymph, that inflammatory reactions occur in about the same proportion of cases as before the lymph was introduced."

The following is from an editorial in the *London Lancet*, January 7, 1899: "Up to the present, of glycerinated lymphs derived from eleven or twelve sources, it is found in one instance only was the lymph really good. . . . One sample of lymph

was exceedingly bad, another brand was good on one occasion and bad on another; and another which was fairly good on one occasion was bad when examined a second time."

Tetanus is not a frequent complication of vaccination, a total of ninety-five cases being collected in the literature of medicine from 1854 up to the present date.

Dr. Joseph MacFarland, professor of pathology and bacteriology in the Medico-Chirurgical College, of Philadelphia, thinks that the recent American and Canadian cases of tetanus were due to the use of various vaccine viruses, though an overwhelming proportion occurred after the use of a certain virus, denominated in his report as "E." He thinks that the tetanus organism is in the virus in small numbers, being derived from the manure and hay. He thinks that the future avoidance of vaccinal tetanus is to be sought for in the preparation of the vaccine virus. He expresses the opinion that the bacillus of tetanus does not enter the wound subsequent to vaccination, but that having been implanted with the virus its development is delayed until other conditions favorable to it arise, in consequence of the vaccination lesion itself.

No matter whether humanized or bovine lymph be used in vaccination, an erythema may develop or an eczema be started. Anders thinks that the germ of erysipelas will not be inoculated with humanized lymph unless the disease happens to be prevalent in the house. Should such be the case vaccination ought not, as a rule, to be performed; if deemed necessary, great care should be taken to ensure cleanliness.

While it is true that syphilis may be inoculated with humanized lymph, such an accident could only occur through carelessness, and, in any case, the responsibility for the act could be made to rest on the vaccinator, who ought to know the source of the vaccine he uses. If the vaccine lymph is taken from a characteristic vaccine vesicle (from the fifth to the seventh day of its development) of a healthy child, and applied directly to the arm of another, no danger of inoculating syphilis need be feared. Humanized virus may be dried and preserved for use as in the case of bovine virus.

Should a vaccinated person be inoculated with the germ of tetanus through the use of improperly prepared vaccine, the responsibility for the crime unfortunately rests with no indi-

vidual, although a grave injury has been perpetrated and medical science is seriously compromised.

It is absurd for editors of medical journals and members of health boards to urge the necessity of general vaccination, if the practitioner is advised to use vaccine, which may produce tetanus. Whatever material other than vaccinia may be present in a sample of vaccine, and it is confessedly difficult to exclude undesirable pathogenic germs, the organism of tetanus should be barred out. In saying this we do not wish to throw any discredit on the vaccine farms of America and Canada, many of which have been established at great expense, and most of which are carried on according to the methods most approved of by medical experts.

It is to be hoped that we have heard the last of vaccinal tetanus in America and Canada. Should its presence be noted again, many practitioners will feel constrained to demand governmental supervision of the vaccine output or else will escape from the dilemma by resorting to the use of humanized lymph. J. J. C.

THE SPOROZOON OF SMALLPOX.

IN *La Presse Medicale*, August 6th, 1902, Dr. A. Clerc writes interestingly of the sporozoon of smallpox, his article containing among other valuable information, an abstract of a recent paper by Ishigami, of Osaka, entitled "Ueber die Kultur des vaccine-resp. Variolaerregers," which was published in *Centralblatt fur Bakteriologie*, 1902, Bd. XXXI. No. 15. We have translated this portion of Dr. Clerc's article and herewith present it to our readers.

"The recent researches of Ishigami, of Osaka, made in Kitasato's laboratory, give precision to the facts acquired by his predecessors and superadd a datum of capital importance, the cultivation of the parasite in a special medium.

Ishigami, who declares that he has studied this question since 1893, divides his paper into several chapters.

The first is devoted to the means of investigation. He says: "If you wish to seek for the parasite in the tissues, you inoculate a heifer and each day you cut out from the scarified spot a fragment of the animal's skin, which you split into layers. You may also use vaccinal lymph, smallpox lymph or dried crusts, but in

any case the material employed for the investigation should be steeped in a solution containing carbolic acid to prevent the ulterior development of bacteria. Heat is the best means of fixing dry preparations, ferric hematoxylin is the best nuclear colorizer; eosin, fuchsin, thionin, methylene-blue color parasitic cysts in a most intense manner.

In the second chapter Ishigami describes minutely the lesions developed at the point of inoculation. Numerous ameboid corpuscles may be observed, which penetrate into the epithelial cells, in which they can multiply; the epithelial cell swells, then disappears, at the same time a common envelope forms and the parasitic cyst is constituted. The ameboid bodies are found in the blood and the organs of the body, but they are then extracellular.

The third chapter contains a very precise description of the parasitic agent. It may be described under three forms. As an ameboid form it appears like a small round body (2-5 μ), brilliant, of a greenish tint, without an enveloping membrane or nucleus and capable of exhibiting, when placed on heated platinum, movements of translation peculiar to itself. In the succeeding stage it acquires a colorable nucleus and protoplasm, separable into an endo and an ectoplasm, after which its contents become granular and one may observe the development of a cyst. These cysts (15 to 20 μ), generally of an oval form, contain from twenty to forty small corpuscles, which represent sporozoites. These different stages do not necessarily succeed each other, and the sporozoon may either divide itself directly or, on the other hand, become encysted. In the latter case its nucleus first divides, then afterwards its protoplasm and the sporozoites are formed. Ishigami has been unable to form positive conclusions as to the presence of spores properly so called.

The fourth chapter is the most important, because it contains details relating to the culture of the parasite. Unfortunately these details are lacking in completeness, owing to their brevity, for the author does not give the composition of his culture medium. He simply states that it is a liquid into the elements of which healthy epithelial cells enter. Fresh vaccine is sowed in such a liquid, free from bacteria, and it is placed in an oven at a temperature of 100-2-5 F. The sporozoon develops with characteristics almost identical with those previously described. However,

its multiplication is less rapid in the tissues and it takes from five to nine days to reach the cystic period.

Not content with cultivating the parasite, Ishigami has injected its cultures into heifers and he has shown that pustules appear on them, followed by complete immunization to any ulterior vaccination. The contents of the pustules injected into other animals cause the same lesions and the same immunization. Besides, a microscopic examination of the tissues has enabled him to discover the same protozoa. Other experiments have revealed an extremely important fact. Ishigami has caused the appearance of immunizing pustules by the injection of variolous cultures; but the contents of those pustules injected into man have not exhibited the same virulence. Variolous virus is therefore attenuated after having passed through the organism of the heifer. Hence vaccinia can be only an attenuated variola.

For more details Dr. Clerc refers the reader to the original article in which the slightest morphological particulars will be found completely discussed. Dr. Clerc thinks that Ishigami cannot be accused of any lack of clearness or precision, but considers it regrettable, however, that he has not revealed the exact composition of his culture medium. He has thus suppressed all means of testing the accuracy of his experiments, and experimental researches have no definite value unless when they can be verified. Dr. Clerc continues: "An analysis of recent papers on the parasite of variola shows a remarkable unanimity among authors as to the nature of the pathogenic agent. It is a sporozoon, which, by its characteristics, is related to the microsporidium bombycis (Ishigami). One may observe the same concordance in what relates to the identification of vaccine and variola, so long discussed, which has been admitted by Jenner, Pfeiffer, Eternod and Haccius and denied by Chauveau. Ishigami appears to have demonstrated that human variola, after its passage through animals of the bovine species, loses its old-time virulence for man."

Dr. Clerc concludes: "Without wishing to take either side on this last question, one cannot avoid being struck by the positive orientation of the subject given by authors working independently of each other, and it appears permissible to hope that their opinion may soon become that of the majority of scientists and that bacteriologists will finally obtain variolous cultures of an undeniable morphology and of a specific character."

J. J. C.

SOME OF THE ADVANTAGES OF VACCINATION.

PHYSICIANS who have not seen cases of smallpox, and nowadays there are many such, are not in a position to appreciate the horrors of that disease. The only real method of estimating the ravages of smallpox is to see an ordinary case of it which has not been modified by previous vaccination. The swollen head and unrecognizable features of the sufferer enable an observer to form a truer idea of the case than the diligent reading of literature, even of the illustrated variety. But your confirmed anti-vaccinationist, even if he were privileged to see such a case, a glass partition separating him from the patient, would still ejaculate: "Yet, why vaccinate? Can you not depend upon isolation, cleaning up, and disinfection—measures that, when thoroughly enforced, have robbed all epidemics of their terrors, not excepting Asiatic cholera, yellow fever, and bubonic plague?"

His interlocutor, a patron of vaccination, might reply: It is not denied that the preventives you mention are potent and that they help to limit the spread of smallpox. As practised, even in civilized lands, they are inefficient, while in barbarous or semi-civilized lands they are not employed at all, or else in a half-hearted way. In the homes of the poorer classes in Canada, and even in those of the higher, absolute isolation cannot be carried out successfully, and, in view of this fact, special, well-equipped hospitals must be provided for the reception of the disease. This necessity makes the management of a smallpox epidemic expensive. The expense is increased by the fact that without a general enforcement of cleaning up and disinfection the spread of smallpox cannot be prevented. Even if all these measures are enforced fresh cases of smallpox will crop up, because, prior to the discovery of smallpox in his person, a smallpox patient may, by contact or proximity, convey the poison with resulting variola in the person thus exposed. The distance to which the contagion may be carried through the air is considerable, and all authors are agreed that it is one of the most infective diseases with which we are acquainted. Besides, it is contagious from the earliest active stage to the end of convalescence, and, according to some observers, even during the stage of incubation. The avenue of entrance for the poison into the system is not known; but it is

most probably the respiratory tract, the poison being inhaled and thence taken into the general circulation. The poison also adheres to clothes, body, or bed linen, etc., and retains its pathogenic power for a long time. Its vitality is retained after death and the room, which may have been occupied by a patient, the bedding and articles of furniture, all serve to convey the disease. Isolation is applicable to recognized cases of smallpox, but is powerless against smallpox patients in the earlier stages, who may light up infection in exposed persons, by contact or by the transmission of formites before the true nature of their complaint is discovered. Cleaning-up and disinfection may not be employed until the mischief is done.

The best all-round means of preventing smallpox is to render every person insusceptible to the infection of that disease, which can be accomplished by vaccination.

An instructive method of convincing oneself of the value of vaccination is to observe the immunity of nurses and physicians in smallpox hospitals, who could not escape the infection were they not protected by vaccination or revaccination. On this subject a writer in the *Sanitary Record* (England) said recently: "During the past seven years 630 cases of smallpox have been admitted in the Liverpool Smallpox Hospital. During that time 434 persons have been variously employed in this hospital in different capacities; six of them had had smallpox before joining; of the remaining 428 of this large staff two contracted smallpox, and these two were ward-maids who had entered the wards before vaccination. One hundred students and doctors attended these patients and none caught the disease; all of them had been revaccinated. . . . We do not get this immunity in the fever wards, for twenty-six members of the staff in the Fever Hospital took these diseases."

Many other equally convincing statistics and observations taken from the military, naval and civil service reports of different countries could be given, if necessary, to show the uniform behavior of vaccination and revaccination in protecting exposed persons from smallpox. It is well, however, that examples such as the one we have quoted should be related from time to time, for the anti-vaccinationist is abroad in the land. If the ordinary citizen will but listen while there is yet time he may obtain, with but a trifling inconvenience, protection against smallpox, by means of

vaccination, rather than run the risk of getting as much, through the effective but highly perilous teaching of smallpox itself.

J. J. C.

THE MEETING OF THE CANADIAN MEDICAL ASSOCIATION AT MONTREAL

Judging by the attendance at the Annual Meeting of the Canadian Medical Association this year, an indelible mark as a reminder around the dates September 16, 17 and 18 must have adorned the calendar of a goodly number of our medical practitioners. The actual number present exceeded that of any former year, the members registering totaling about 325, a source of thanksgiving and pleasure, no doubt, to the Treasurer, Dr. Small. The improvement is slow but sure, and we hope, ere many years pass, to be able to place on record double the number, for 325 seems but a poor expression of the loyalty of our men to their united best interests as represented in the Canadian Medical Association. A little more manifested enthusiasm and a general understanding that our convening means first a few hours for Jack to work and then a time for Jack to play, and surely, from town, city and country physicians would gladly make a yearly pilgrimage and so as a unit pay tribute at the shrine of Æsculapius.

Montreal has ever been deemed an ideal convention city. The largeness of its widespread commercial interests, its fine university buildings, its surroundings, show places, and its burned-out volcano, and last and best, the kind hospitality of its citizens, and at our recent meeting the thoughtful opening of their homes and the many invitations "to take turkey with them" of the resident physicians make even the oft-voiced thanks of those attending the 1902 Association seem utterly inadequate to express their feeling of appreciation for the delightfully courteous way in which Montreal extended its welcome. The city seemed "teeming" with conventions and every second man one met was labelled by a badge bearing one or another device. The Windsor Hotel might fittingly have hung out the sign "breathing room only," and at the Place de Viger the dentists were fighting it out for standing room, and all other hotels were packed from deck to topmast. The arrangements made as to the use of the different lecture rooms of the Medical Department of McGill University by the Associa-

tion were very complete. The exhibits of surgical instruments, pharmaceutical preparations, etc., were arranged attractively and the ample space at the disposal of the exhibitors made possible the gaining of artistic effects. The local committee must have worked very hard to make the meeting such a success. The President's address, the evening of the first day, was very much to the point, and Dr. Shepherd received a warm reception. The Address in Medicine by our esteemed fellow-countryman, Dr. William Osler, of Johns Hopkins University, Baltimore, was indeed a masterpiece and added (if such a thing were possible) to his already well earned and enviable reputation as a scientist. The list of papers was exceedingly comprehensive. Among the contributors (outside of Canada) were Dr. A. R. Robinson, of New York, and Dr. Paton, of Baltimore.

A report of the meeting by Dr. George Elliott will be found in this number which will prove of interest to those unable to attend. A *conversazione* at the Art Gallery, "A Smoker," A luncheon at Victoria Bridge and run down the Rapids, and a very largely attended Garden Party at the beautiful residence of Mr. and Mrs. James Ross, with a glimpse at their few but rarely beautiful pictures, were some of the many ways in which the short hours were quickly passed. We congratulate Dr. Moorehouse, of London, upon his election as President for next year, and hope all those who have pleasant memories of the good time the Association spent at the Forest City a few years ago will be present next year, and as the old-fashioned camp-meeting evangelists in the South used to say, "let every one coming bring two sinners right along with him."

W. A. Y.

EDITORIAL NOTES.

Psoriasis and Vaccination.—Weinstein (*Wien. med. Woch.*, January 25th, 1902) points to the rarity of the occurrence of psoriasis on vaccination cicatrices and the still greater rarity of the eruption first beginning in that situation. A soldier, aged 22, was vaccinated with calf lymph in two places on the left arm, about the middle of October, 1900. The vaccinia pustules were succeeded by red scars. Early in February, 1901, they became covered with white scales, which became more and more marked,

until they presented all the characters of psoriasis. For a month the two scars were the only parts affected, but the disease then spread to the left elbow, and from thence to other parts of the body. Weinstein has collected twenty-four cases in which psoriasis appeared at varying intervals after vaccination. In most of these the patients were healthy, and no history of previous attacks of psoriasis was obtained. Most authorities deny the possibility of psoriasis being inoculated by vaccination, especially if calf lymph be used. Psoriasis is unknown in calves. Vaccination probably acts, therefore, as a simple injury, for the occurrence of traumatic psoriasis, after the application of iodine, cantharides and other chemical irritants, after thermic stimuli—cold or heat—and after a variety of mechanical lesions is well known. The regions which are typically affected, the elbows and tuberosities of the tibia, are exceedingly exposed and liable to injury. Psoriasis also picks out parts habitually exposed to pressure, such as the waist in women, the apex of a scoliotic curvature or the skin beneath tight garters. It has been known to follow the operation of tattooing, the bite of a horse, and excoriations due to riding.

The Buffalo as a Vaccinifer.—Having failed to get good lymph from heifers in the Far East, Calmette in 1892 vaccinated buffalo calves and obtained fine pustules, the lymph from which, when inoculated in man, produced successful results in 100 per cent. of the cases. Since that time the buffalo calf has been regularly used as a vaccinifer in the French colonies of Indo-China. The French vaccine institute at Saigon has developed very much and is considered to-day the finest of that kind in the East. Dr. Simond states that in 1898, 327 buffalo calves were inoculated there, producing lymph enough for 1,300,000 vaccinations. The French article has also been exported to the English and Dutch colonies, to Siam, the Philippine Islands, and to the coast of China. Buffalo vaccine is said to be very active. It has even produced generalized vaccination in some children; besides it offers a stronger resistance to high temperatures than calf lymph.

J. J. C.

No Longer an Antivac.—The following excerpt from the Indiana State Board of Health report is instructive and will bear repetition: "Mr. W. D. Radcliff, of Algiers, Pike County,

has had experience lately with smallpox and, while he once did not believe in vaccination, now he sees and believes. In a letter dated at Algiers, Indiana, he says: 'I have just recovered from an attack of smallpox which was very severe and which kept me from business twenty-two days. I said that I would rather have smallpox than be vaccinated: I got my wish. However, when I went down I permitted the doctor to vaccinate my wife, two children and the hired girl. All vaccinations took except on my oldest daughter. We waited a week and vaccinated her again, but it was too late, she had already taken smallpox; but the vaccination worked and she had smallpox very lightly. My wife and other child, and also the hired girl, lived in the house with us two smallpox patients, came in daily contact with us and went scot free. I now believe in vaccination, and I advise others not to be foolish as I was and prefer smallpox to vaccination.' "

Extreme Virulence of Smallpox in French Indo-China.—It has been proved that, among adult natives in Indo-China, smallpox as well as vaccination confer but a feeble and brief immunity, as can be proved by fresh attacks of smallpox and successful vaccinations. This phenomenon explains why during an epidemic of smallpox when the virulence of the poison is intensified, all the native inhabitants, young and old, whether they have had the disease before or not, become the prey of smallpox, so that the whole population of a region may be almost entirely swept away. The confluent form destroys the greatest number, and the hemorrhagic variety is not uncommon. Many who do not die of the disease are mutilated—large, retractile or keloid cicatrices, chronic suppurative adenites, arthrites followed by ankylosis, amyotrophies, and chronic nephrites are sequelæ which render life a burden to the unhappy survivors. The most formidable of all the sequelæ of smallpox is blindness. The blind are quite numerous in Indo-China, and their condition is largely due to smallpox.

To Regulate the Sale of Vaccine Virus, Antitoxines, etc.—We notice in the *New York Medical Journal*, July 12, 1902, that the United States Senate on June 30th enacted a measure to regulate the sale of viruses, serums, antitoxines and analagous products in the District of Columbia, and to regulate interstate traffic therein. We should be pleased to see similar legislation

introduced into Canada under the auspices of the Public Health Department, Ottawa.

Inoculation Practiced in French Indo-China.—The practice of inoculating people with variola prevails in French Indo-China, and serves to maintain smallpox in an epidemic condition in that country. A Chinese physician scarifies the child's arm with the point of a knife which has been smeared with variolous matter, taken from a selected patient. Large pustules are produced which leave scars as big as a 20 cent silver piece. The natives pay 50 cents for each inoculation.

ITEMS OF INTEREST.

International Congress of Gynecology and Obstetrics.—Two professors of Laval University, Montreal, Drs. L. N. Delorme and M. T. Brennan, are attending the Fourth International Congress on Gynecology and Obstetrics at Rome, Italy. Five American physicians are also present.

Death of Dr. Price.—The death of Dr. Nelson Price, of St. John, N.B., is announced, at the early age of twenty-eight years. Dr. Price had gone to South Africa with the hospital corps of the Canadian Mounted Rifles, but contracted typhoid fever shortly after his arrival, of which he has since died.

Equine Eddyism.—The latest reported victory of Eddyism over disease is reported to be the wonderful restoration to health and activity of a noted racing stallion, scheduled to race next week. Commenting on this, one trainer sagely remarked: "It's better to nerve the beast than give him a drop of rye."

Calgary for Consumptives.—Dr. James Stewart, Professor of Medicine at McGill University, Montreal, who has returned from an extended tour of the Canadian North-West, was much impressed with the climate around Calgary, and considers that the neighborhood of Calgary offers exceptional advantages for a consumptive sanatorium.

A Magnificent Donation.—Lord Strathcona and Lord Mount Stephen's joint prince gift of \$80,000 yearly to London hospitals, excites enthusiasm and admiration, and is the subject of editorials from most of the journals, with romances of the success afforded by

the lives of the donors. The fact that both made Canada the land of their adoption is taken to emphasize Canada's practical loyalty and affection for the Mother Country. The gift, they say, proves of the highest service for advancement in the healing science.

Honors to the Memory of Pasteur.—A fine portrait statue of Pasteur has been erected at Dôle, his birthplace, and a committee has been appointed to raise funds to purchase the house in which he was born, as a permanent memorial. Besançon has also recently dedicated a bust of Pasteur as a memorial of the three years he spent there as pupil and then teacher in the lycee.

British Columbia Medical Association.—The third annual meeting was held at Vancouver, August 29th and 30th, under the presidency of Dr. R. F. Walker, of New Westminster. Dr. J. M. Pearson, Vancouver, acted as Secretary. Dr. E. C. Dudley, of Chicago, contributed a paper on gynecology. The Association will extend an invitation to the Canadian Medical Association to meet at Vancouver in 1904.

A New Bellevue Hospital Demanded.—The recent report of the trustees of Bellevue Hospital, New York, makes public what has long been only too familiar to the medical profession in that city, namely, that despite all that has been and can be done toward improving the present ramshackle building, now known as Bellevue Hospital, it will remain unsanitary and wholly unsuitable for carrying on its great work. As the work of the hospital cannot be interrupted, the new buildings must be erected in sections, and the mayor is urged to take the first steps at once.

Pautauberg's Solution (Hydrochlorophosphate of Lime and Creasote).—This combination of creasote with phosphate of lime and hypochloric has been proposed for the treatment of bronchial catarrh and pulmonary tuberculosis, and instances are cited in which while creasote could not be tolerated or else did little good this form gave favorable results. Pautauberg's solution is of the color of a dilute solution of perchlorate of iron with a marked taste and odor of creasote. On the addition of an alkali such as ammonium hydrate the calcium phosphate is precipitated. Good results in various affections of the respiratory organs are recorded in French clinics. The preparation is a decided pharmaceutical success in presenting creasote in a far less objectionable form than is commonly the case, and its association with tonics is another important advantage.—*Lancet*, July, 1902.