THE VANCOUVER MEDICAL ASSOCIATION

BULLETIN

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The Vienna School of Medicine

The "Poor Risk" Patient

JULY, 1927

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BULLETIN

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VANCOUVER MEDICAL ASSOCIATION

Founded 1898. Incorporated 1906.

THE 30th ANNUAL SESSION

GENERAL MEETINGS will be held on the first Tuesday of the month at 8 p.m., from October to April.

CLINICAL MEETINGS will be held on the third Tuesday of the month at 8 p.m., from October to April.

Place of meeting will appear on Agenda.

General Meetings will conform to the following order:—

8:00 p.m.—Business as per Agenda.

9:00 p.m.—Paper of Evening.

* * *

CITY HEALTH DEPARTMENT

STATISTICS — MAY, 1927

Total Population (Estimated)		137,197
Asiatic Population (Estimated)		10,576
		Rate per 1000 of Population
Total Deaths	141	12.1
Asiatic Deaths	22	24.5
Deaths—Residents only	109	9.4
TOTAL BIRTHS	296	25.4
Male 148		
Female 148		
INFANTILE MORTALITY—		
Deaths under one year of age	13	
Death rate per 1000 births	43.9	

CASES OF INFECTIOUS DISEASES REPORTED IN CITY

	April, 1927		May, 1927		June 1 to 15, 1927	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Smallpox	2	0	4	0	0	0
Scarlet Fever	21	0	7	0	3	0
Diphtheria	27	0	15	1	8	0
Chickenpox	12	0	28	0	19	0
Measles	365	0	134	1	9	1
Mumps	11	0	7	0	2	0
Whooping Cough	6	0	23	0	3	0
Typhoid Fever	1	0	0	0	0	0
Tuberculosis	8	19	17	14	6	–
Erysipelas	8	0	8	1	4	0
Cases from outside city—included in above						
Diphtheria	7	0	1	0	0	0
Scarlet Fever	1	0	0	0	0	0
Typhoid Fever	1	0	0	0	0	0

* * *

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EDITOR'S PAGE

We publish in this issue the charming address given before the Association by Colonel MacArthur. Those of our readers who were fortunate enough to hear the lecture will be glad of the opportunity to peruse it at leisure. It reads uncommonly well.

Osler says somewhere that there is, in the British school of medicine or in its best representatives, a scholarly tincture which is as distinguishable as it is unique. This observation recurred to our mind as profoundly true as we sat enjoying the lucid presentation, the apt quotation and the delightful irony of Colonel MacArthur's address.

The very considerable amount of work entailed in the preparation is, we understand, wholly original in that the speaker, over many years, has himself traced or verified the numerous references to persons, places and periods.

A little—as little as possible—of the address has been omitted through dimensional difficulties with the publishers.

We are grateful to Colonel MacArthur, we hope he will return to London this way. We shall then be able to show him both our gratitude and our appreciation by asking him to talk to us again.

* * *

During the week of July 18th, the University of Washington, our neighbours to the south, begin their annual course of post-graduate medical lectures.

There can be no question as to the standard of the course. The reputation of the University guarantees that, even apart from the excellence of the names appearing on the programme. By the time this date comes around, the nourishment derived from our own clinic should be well shaken down and we commend this further source of supply to our members.

* * *

The Library Committee desires to call attention to the new stamp on the Journals. This stamp registers the date of receipt and no Journal is allowed to be taken from the Library until one month has elapsed.

* * *

We would call our readers' attention to the fact that under the recent amendment to the Income Tax Act, every medical man practising in B.C. must render a return to the Provincial Government of his receipts of income for the six months ending June 30th. This return must be made not later than July 31st in order to avoid the penalty. We do not know what forms are necessary in connection with this return,

but they will probably be otainable at the Court House in the larger centres, or the Government Offices in other localities.

* * *

The next and succeeding numbers of the Bulletin will be largely devoted to the publication of some of the excellent addresses given before the recent Summer School.

That annual event has this year been even more successful and popular than ever before. The registration was, we understand, the largest in the history of the School and the attendance, which began in earnest at 8 o'clock on Tuesday morning, continued undiminshed until the end on Friday night. The selection of the Hotel Georgia as the place of meeting was a happy one. The acoustic properties of the hall were very satisfactory and the spacious lounge and rotunda formed convenient places for social relaxation.

We congratulate the hard-working Committee upon its undoubted success and vigilant attendance to all the details—and they are many—which make for the smooth working of such a function. Especially we were struck with the punctuality with which the lectures started, and, what is, perhaps, quite as important, stopped. No delay, no overlapping, and yet no lecture appeared to be unduly hurried.

We trust that the Committee is feeling comfortable in its financial department. While we cannot measure the success of these congresses by their balance sheets there is, nevertheless, a very satisfactory feeling when the balance is on the right side.

It has been a great pleasure to meet the various lecturers even in the brief manner possible at such a gathering. We hope they have enjoyed their short stay with us and will leave with kindly regret. The luncheon arranged conjointly with the B.C. Medical Association and addressed by Dr. Moffitt of San Francisco, formed a lighter interlude of friendly reunion.

While it will not be possible to print all the addresses, we hope to make such a selection as will be useful and instructive to our readers.

* * *

TYPHUS FEVER

Notes of an address delivered by *Lt.-Col. W. P. MacArthur, M.D., D.S.O.*, before the Vancouver Medical Association, at Shaughnessy Military Hospital, June 7th, 1927.

I feel very highly honoured at being asked to address you this evening. As the time at my disposal is short, and as every variety of tropical medicine is met with within the British Empire, I think it will be better if I talk to you about some of the epidemic diseases in their historical rather than in their purely medical aspect, and I will especially talk to you about typhus, and the old epidemics of this disease.

We have a great deal to learn from these epidemics of old times. Nowadays we are so interested in the marvellous discoveries of bacteriology that we are likely to forget that in the world of medicine there were heroes before Agamemnon, and that these old worthies very often saw the truth, perhaps through a glass darkly, but still the truth.

Before touching on the history of typhus, I should like to mention a few of the characteristics of lice in order to make my talk more intelligible to the non-medical members of my audience. The head louse and body louse of man are different varieties of the same species, the former representing the original stock from which the body louse branched off when mankind took to wearing clothing. These two sub-species now show certain differences in structure, the most obvious of which is the more slender antennae of the body louse. The head louse is of a much less irritating type, its bite is less irritating. There is never the least doubt about the bite of a body louse.

These insects are parasites and at no stage do they lead an independent existence. They are unlike all other insects which prey on man. When separated from their host they wander about in an aimless fashion and unless they secure another host they die; like a sunken ship's crew clinging to wreckage, unless they are rescued they cannot hope to survive. They jump not neither do they fly, they are transmitted by actual contact with the host or his clothing. Shakespeare says " 'Tis a familiar beast to man and signifies love." But given the necessary contact the beast transfers himself with remarkable rapidity. I remember the case of a nurse who found her little charge playing with some very dirty native children. She picked him up and carried him home and from the child's clothing she retrieved 145 lice.

Lice thrive best at a temperature a little lower than the body temperature. If the host develops a fever they become restless and given an opportunity they will migrate. Therefore, a person suffering with typhus fever transmits his vermin more readily than he otherwise would. This accounts for the high degree of typhus infectivity associated with beds and bedding which has been recognized for centuries. Some of the old chronicles recording the ravages of plague and small-pox mention the curiously named "disease of the bed," which, I think, refers to typhus.

Similarly, if the host's temperature falls the lice become uneasy and very active so that a person recently dead will be seen to swarm with vermin which were not in evidence during life. Thomas a'Beckett was murdered in Canterbury Cathedral and the body lay there all night. The next day it was decided to remove his clothing and prepare him for burial. He was clad in an extraordinary accumulation of garments. Outside everything was a large brown mantle, next a white surplice, then a fur coat of lamb's wool, then a woollen pelisse, then another woollen pelisse, then the robe of the Benedictine order, next a shirt, and next to the body a closely fitting suit of coarse hair lined with linen, which, according to an old chronicler, was so infested with lice that it boiled over with them like water in a cauldron, and the bystanders alternately laughed and cried, between the sorrow of having lost such a head and the joy of having found such a saint.

Louse eggs are attached to the hair, or threads of fabric by a tiny drop of cement, absolutely indissoluble. Substances said to dissolve the cement have not the slightest action, they merely affect the hair so that the egg slips along it more easily. The top end of the egg is perforated with holes and the young louse emerges from the egg by drawing air through these holes, and swallowing it and ejecting it, and as the pressure of the confined air increases the young louse is propelled gently forwards, knocking off the egg cap and so emerges.

In old times most of the present day lousing methods were in use, moist and dry heat, fumigation with sulphur and so on, but sometimes employed with curious additions, for example the Book of Quinte Essence advises "For to destroy lice, take a little quantity of mercurie and mortify it with fasting spittle." Another treatment, which probably was very popular was for the infested person to take a little neat alcohol and drink a little at once. Thereupon the vermin released their hold and fell swooning to the ground which suggests to us that the mediaeval quinte essence had some of the potent principles of prohibition whiskey. The same book sums up the principles of lousing in one sentence, which I do not think could be improved upon today, after five hundred years, "The best is for to wash oftentimes and to change oftentimes clean linen.

Down through the centuries typhus fever does not leave the clear trail discernable in the wake of epidemics of plague, probably owing to the fact that the symptomatology has no feature as arresting as the plague bubo. Shakespeare, who showed a striking knowledge of the plague, makes no mention of the symptoms of typhus and the only reference to this disease in his plays is in Macbeth where he says of the besiegers beyond his castle walls "There let them lie, Till famine and the ague eat them up." Ague originally signified fever and had no connection with chills and rigors. In Elizabethan times the word was applied to typhus. Shakespeare's conjunction of famine and typhus were invariable concomitants and Shakespeare doubtless had heard of many an army first prostrated by famine and then devoured by the spotted ague.

The name typhus was not given to this disease until about the middle of the 18th century, though the word itself is an old one and signifies stupor or coma. Older names given to the disease were,—from its distribution,—gaol fever, prisoners' fever, hospital fever; from the rash-spotted fever; from its malignancy-putrid fever. The earliest description of the disease which is clearly identifiable without any question, dates from the year 1500, but centuries before that time we have records of great famine fevers universal throughout England, with always the same sequence of events—failure of crops, famine, fever. The Anglo-Saxon Chronicle, recording the great famine of 1087, says that such a malady came upon mankind that almost every other person was ill with fever. The writer does not give any definite name to the pestilence, simply calls it fever.

William of Newburgh in his chronicle of the great famine which devastated England in 1196 says that the hand of God was lifted against the people of Christendom and testifies of what he has seen. He describes

how the bodies of those dead of starvation corrupted the air, causing a most raging pestilence which did not spare even the rich. He says that the fever, which he calls the ague, seized so many in the course of a single day that barely sufficient people were left to look after the sick and bury the dead. The usual funeral ceremonies were abandoned and deep trenches were dug to receive the bodies because of the great number of the dead.

I do not want to weary you with the details of the famine fevers of 1315 and so on for they differed in no respect for the description given by William of Newburgh of the fever of 1196. These old pestilences are described in terms too general to allow of any clear identification, but the circumstances of their incidence and spread are exactly those of the famine fevers of the 17th and 18th centuries where we know quite definitely in each instance that the fever was, in the main, typhus, and I have no doubt that the earlier pestilences associated with famine were the same disease.

About one hundred years before the first clinical description of typhus we have records of a distemper associated with gaols. In a Survey of London Stow notes that in 1414 the gaolers of Newgate and Ludgate and 64 prisoners died. A few years later Henry 5th abolished the debtors' prison of Ludgate and had the prisoners removed to Newgate. Later in the same year Ludgate prison was re-established because "so many of the transferred prisoners were already dead by reason of the fetid and corrupt atmosphere of Newgate." We cannot doubt that the English prisons were hotbeds of typhus and from the accounts given by John Howard we might almost imagine that they were designed solely for the propogation of this disease. Howard, the great philanthropist who died of typhus fever, was appointed High Sheriff of Bedfordshire in 1773, and when his proposal to replace the gaolers' fees by fixed salaries was rejected in Bedford for want of a precedent, he visited several other prisons in the hope of finding the precedent required. He was so horrified by the conditions of the prisons he visited that he determined to continue his itinerary all over the country and his book on the state of the prisons in England and Wales contains an account of the horrors he found. The whole prison system was rotten from top to bottom. Some gaols were rented by the gaolers who reimbursed themselves by fees extorted from the miserable prisoners and their friends. Even in the state institutions the gaolers adopted the same methods. Against the law the prisoners were loaded with chains so that the gaolers could obtain bribes for removing them. Even prisoners found not guilty at trial were returned to gaol until all the gaoler' fees had been settled. The prisons were frightfully overcrowded and horribly filthy. In order to avoid payment of the window tax the gaolers had the windows built up. In many prisons there was absolutely no provision for what we call "sanitation." In some there was no water supply. In others, where there was a well inside the walls, the prisoners had no access to the water, as they were kept locked up. Many of the cells were underground dungeons with no light, heat or bedding, the starving prisoners huddling together on bundles of filthy rags and straw to keep themselves warm. In Plymouth three men were confined for two months in a cell measuring 15x8, so low that even a

short man could not stand upright, lighted and ventilated only by a small grating in the door. When Howard visited this gaol there was only one occupant in this cell, but the door had not been opened for five weeks. In many gaols the gaoler refused to accompany Howard into the gaol because of the fever raging there. Howard states that often after visiting a prison his clothing emitted so foul a stink that he could not remain in his coach but had to travel on horseback and even the flask of vinegar which he carried with him became offensive. Many untried prisoners lay so long in prison that in the end they would be carried into court and propped up in the dock dying of gaol fever. I like to think of one of these crying out like Samson "Remember me I pray thee and strengthen me this once that I may be avenged." If his prayer were heard, the Black Assizes might be the answer. The most important of these Black Assizes were the one at Cambridge in 1522, that at Taunton in 1730 and the Old Bailey in 1750. No description of typhus fever in its historical aspect can omit mention of these, and also the Black Assize at Oxford in 1577.

Rowland Jencks, living at Oxford, described, according to the opinion of the writer, as "a worthy man," or "a popish recusant," was arrested by order of the University for causing a scandal by speaking ill of the Government and staying away from Church. He was committed to prison and ordered to stand his trial at the coming Assizes (1577). In a few days we have the ominous information that several prisoners in Oxford gaol died in their chains. Jencks case aroused much interest and the Court was crowded. He was arraigned and condemned to have his ears cut off, which was duly done. Following the Assize, gaol fever broke out amongst those who had been present in Court. The two Judges, both the Sheriffs, six Justices of the Peace and nearly all the Jury died, also a hundred members of the University. The total death roll amounted to over five hundred. As long as gaol fever kept in its proper place within the gaols it was of little importance, but when it attacked Judges and other eminent persons, that was quite another matter. The Black Assize at Oxford created quite a stir, and the author of a poem called "The Dance of Death" took the opportunity of pointing a moral:

> *"I came and made the Judges all aghast*
> *And Justices that did appear . . . .*
> *Took many a worthy man that day*
> *And all their bodies brought to clay."*

Even Francis Bacon took time from composing Hamlet and Macbeth to consider the evidence and strangely enough he did not father his findings on some medical man, but published them under his own name. He holds the smell of the gaol entirely responsible, but goes on to say that it is not those stinks which the nose most abhors that are most pernicious, but such as have most likeness with man's body. Stow and other historians accepted this theory of Bacon's and state that the stench of the prisoners was so overpowering that the judges on the bench were overwhelmed there and then. But there were other explanations of a sectarian nature. Some regarded it as a judgment from God on an heretical court. The opponents contended that the whole affair had been arranged

by the Roman Catholics—that they had compounded diabolical and papistical blasts which had been secretly conveyed to Oxford and there let loose. Without enquiring into these questions of higher chemistry, it is interesting to record the views concerning the spread of this disease. The prisoners who were responsible for the outbreak could hardly have harboured sufficient lice on their persons to infect over five hundred fatal cases, to say nothing of the cases which recovered. So it would seem as if the members of the University of Oxford cannot be held guiltless of being themselves verminous. I remember reading a letter written by an old English lady who did not approve of James the First's accession to the English throne. She wrote that she attended Queen Elizabeth's Court for years and never saw a single louse there but that since King James and the Scottish lords came she could not go near the Court without being infested. But even the most Johnsonian of Englishmen could hardly hold the Scottish lords responsible for the Black Assize of Oxford. Papistical winds might blow from Louvain but Calvinistic lice from Edinburgh could hardly be held responsible. I may say that Roland Jencks, the innocent cause of the catastrophe, lived for 33 years after. The Black Assize at Exeter 12 years later resembled the Oxford Assize; there was the same death toll of judges and landed gentlemen, but at Exeter we are told that some of the prisoners were so ill that they had to be helped into Court by attendants or carried in on stretchers. The epidemic spread all over Devonshire and lasted for many months.

I must now speak of the Black Assize at the Old Bailey in London in 1750. By reason of the interest taken in one of the cases up for trial, the Court was crowded. Some days afterwards, gaol fever broke out and the distribution of the cases was very peculiar as practically only those who had occupied the left side of the Court were affected. There were six persons on the Bench, with the Lord Mayor in the middle, the jury were on each side. The Lord Mayor and the two men on his left all died. All of the jury on the left, except four, died, and forty other persons, who had all occupied seats on the left of the Court. One cannot do more than suggest a possible reason. Running round the Court was a gallery for the public. The gallery to the left probably held some person who harboured infected lice. He may have removed his wig and outer clothing owing to the heat and so shed a rain of lice on the people below. These lice wandering about would seize hold of any fabric which brushed upon them and soon penetrate to the wearer's body.

In fear of a distemper which did not spare even the Lord Mayor and Aldermen, the Corporation of London appointed a Committee to consider ways of preventing such outbreaks. This Committee decided that lack of ventilation was responsible and advocated a windmill-like erection on the roof of Newgate to abstract the foul air from the cells. The Corporation approved the scheme but nothing was done until another Lord Mayor had died of the fever. Sir John Pringle then visited Newgate and had the windmill put into operation. It was rumoured that when the first blasts of foul air escaped, two men working on the roof fell down dead. This story is credible, but not true, but it *is* true that two-thirds of the men engaged in building the apparatus contracted gaol fever. But however much the prisoners benefitted from the ventilation, the inci-

dence of gaol fever did not abate. After the scheme had been in operation several years it is recorded that gaol fever prevailed all over Newgate, sixteen prisoners dying in one month. Lind, who wrote about this time, stated definitely that ventilation would not check gaol fever. His opponents quoted the case of one of His Majesty's ships recently returned from a long voyage without a single case of typhus on board. This ship had been fitted with ventilating shafts to which this immunity was attributed. Lind disputed this *post hoc ergo propter hoc* contention and when the ship was overhauled it was found that the ventilation tubes had never been in operation.

> *The lecturer here gave a short biographical sketch of Lord George Gordon and the Gordon riots which he mentioned owing to Gordon having died of typhus in Newgate gaol where he had spent some time amusing himself, "sometimes with music and sometimes with the bagpipes."*

Continuing the lecturer said:

Just as typhus justified its name of gaol fever, so it equally deserved its name of ship's fever and camp fever. Lind, writing in the middle of the 18th century, says it was the most fatal and general cause of sickness in the navy. It was an invariable accompaniment of naval and military operations and when epidemics of other kinds broke out, typhus was usually engrafted on the original infection. This was seen during the great epidemic of the bloody flux, after the battle of Dettingen, when typhus broke out among the troops exhausted by dysentery. Half the sick died and over a third of the medical staff. Orders were given to transport some 3000 sick to Ghent. During the voyage typhus rose to such a pitch that more than half of the sick perished on the way. When the remainder arrived at Ghent there was an extension of the epidemic due to some old tents which had been used on the voyage and were sent to Ghent for repair. Twenty-three men were employed to repair these tents and seventeen of them died of typhus.

Until the campaign against the Jacobites in 1746, gaol fever and typhus were regarded as the same disease but proof was lacking until an outbreak in the Duke of Cumberland's army set the matter at rest. A French ship was captured off the English coast and on board was a number of deserters who had gone over to the French. These deserters were thrown into prison to wait an opportunity of sending them to Scotland for trial by Court martial. Afterwards they were put on board a transport conveying reinforcements to Nairn after the battle of Culloden. Within a few days after disembarkation 200 men of the regiment fell sick with gaol fever—they infected the hospital, and the epidemic spread to the civilian population of Inverness—all the train of events so familiar in hundreds of outbreaks of hospital fever, but, in this case, to the enlightenment of observers, arising in the first place from gaol fever.

With regard to the general population, epidemics of typhus occurred at intervals until the end of the 18th century and in Ireland for fifty years later, and over all this period we find symptomatic descriptions of

the disease which leave no possible doubt of its nature. Especially during the later epidemics like that of 1741 we find evidence of relapsing fever.

In the 17th and 18th centuries a curious change in the class incidence of typhus is noticeable. Under the Stuarts, although epidemics began among the poor and hungry, the rich and great enjoyed no immunity. Many examples of this are to be found in the records of the times. In a collection of letters published about 150 years ago entitled "The Court and Times of James the First," we find the names of many notable people affected by the great typhus epidemic in 1623. It is stated that the spotted ague reigns almost everywhere. The Duke of Lennox is dead of the disease and the Marquis of Hamilton and Lady North's youngest daughter. Owing to the danger, the opening of Parliament was postponed from September to February, but when February came round Parliament was again adjourned. Some thirty years later Pepys writes in his diary that the Queen's sickness is spotted fever and that she is as full of spots as a leopard, and he adds a note, with his customary prudence "to stop the making of my velvet cloak till I see whether she lives or dies." During the last years of the 17th and the early years of the 18th centuries the universal pestilential spotted fever was rampant until, in 1741, the death rate in London reached a figure only equalled by the plague in 1665. As the 18th century advanced typhus became more a disease of the poor, people in better circumstances escaping, except those whose duty brought them in contact with the destitute, a condition exisiting in Ireland within the memory of many people still living.

In the early 19th century, due to the temporary prosperity during the Napoleonic wars, though typhus fever still persisted, there was no extensive prevalence of the disease, but with the peace after Waterloo, there came unemployment and a lowering of wages. Several bad seasons spoilt the crops. This was followed by fever, bad in England and Scotland, worst in Ireland, the poorest country of the three. In England and Scotland the epidemic was relapsing fever, but in Ireland this was quickly swamped by typhus. Even in prosperous years the poor Irish are never much above hunger level, but at the time of which I am speaking, when the potatoes were green in November, the peasants were faced by actual famine. On account of the heavy rains the peat could not be dried and even those ordinarily clean could not cleanse themselves and quickly became covered with vermin. In Ireland there was no poor law nor relief as there was in England. Hordes of starving families wandered over the country seeking for assistance. Dysentery, relapsing fever and finally typhus broke out, and a single focus served to infect whole villages and many peasants fell a victim to their kindly custom of never refusing to any wanderer the poor shelter they could give. Thousands died until the good harvest of 1818 slowly brought famine and fever to an end.

In the great famine which began in 1847, the mortality was still more awful. The census gives the dead from fever and dysentery as 290,000. The total mortality in Ireland due to fever and famine amounted to probably half a million. England experienced nothing so bad, where the number of deaths from typhus in the worst famine year

only reached 30,000. A curious difference is recorded of the case mortality of the peasants as compared with the wealthy classes. Although the total mortality was appalling, the recoveries among the peasants far outnumbered the deaths, but of the doctors, clergy and others attacked the great majority perished. It is also to be noted that when people of this class came into contact with the fever stricken peasants, they escaped the relapsing fever and contracted typhus.

Typhus lingered on in England with occasional exacerbations during years of shortage, (as during the cotton famine at the time of the American Civil War). Even today typhus is not extinct in England and in the last ten years' returns there is only one year where the typhus column is blank.

We cannot read these old accounts of this disease without being struck by the profound knowledge of typhus shown. Indeed clinical descriptions written two hundred years ago are better than we sometimes read in our modern textbooks: the early resemblance to a commencing cold in the head; the quickened pulse; the suffused eyes; the tremulous hands; the parrot tongue and so on are all emphasized. The characteristics of the rash are noted. These old writers noticed that the face was not involved, that the rash might appear on the 4th or 14th day or not till after death. They noted many cases without any rash at all. In cases without a rash the effect of a ligature tied around the arm in producing petechiae was noted by Pringle centuries ago. They also recognized an atypical variety of typhus like Brill's disease very difficult to diagnose because of its mildness and they recognized the "disease of concentration" as they called it; when such cases were crowded together into hospitals or prisons, the infection assumed a malignant character and was very fatal. They knew of the complications, the deafness, the eye lesions including late cataracts, inflammation and suppuration of the parotid and sub-maxillary glands, orchitis, adenitis, gangrene of the feet and of the skin and of the intestine, even the softening of the brain with paralyses. Indeed, I do not think there is a single complication mentioned in Danielopolu's monumental monograph that cannot be found recorded by the old writers, and their teaching was far better than that which I received myself as a student. Their observations on the spread of the disease were amazingly accurate. They knew that naked persons transmitted the disease less readily than those who were clothed. Army doctors when taking the pulse were warned to step forward, pick up the patient's wrist, and step back as quickly as possible. They found that typhus patients if thoroughly cleansed and given fresh straw could be nursed amongst others without danger, and if such measures were taken hospital fever would not break out. Once, during the Seven-Years' War, when the army doctors were unable to isolate their typhus patients, they kept them scrpulously clean and managed to nurse them in the general wards without any spread of the disease. Monro introduced this practice into St. George's Hospital on his return, with complete success.

Even the louse as a possible conveyor of typhus was not overlooked. Lind, while recommending sulphur fumigation for infected clothing, pointed out that sulphur does not destroy lice, from which we might be

led to imagine that contagion is not propagated by animalcules. Probably, in his experience, the sulphur killed the active forms of lice and ended the disease, but the eggs hatched out later, so the clothing, though disinfected, was not loused.

Lind's recommendations for preventing gaol fever could not be improved on today. He advised that all prisoners should be stripped, cleansed, and their clothing fumigated with sulphur or baked. He pointed out that these measures would not only check gaol fever but would louse the prisoners. To prevent outbreaks in the navy he advocated depot ships where all drafted men could be stripped, cleansed, and given fresh clothing. If his advice had been followed the navy would have been spared many epidemics of ship's fever during the American and other wars. But his advice was not heeded and ship's fever continued for many years. Smollett in "Roderick Random" says it was surprising not that sick should die, but that any should recover.

But my time is nearly up and in this short address I fear I have, like Mark Antony, talked right on and only told you that "which you yourselves do know." It might have been better, perhaps, to have restricted the field and delved more deeply. I might have enlarged on the habits of lice, most interesting creatures, though not generally esteemed a subject for drawing-room conversation. We might have discussed house-flies. Even these creatures of filthy and repulsive habits may be mentioned without offence, but any reference to the clean-living louse would be considered absolutely scandalous. Why? I'll tell you. If in some family of your acquaintance you find the subject of capital punishment studiously avoided, or if the subject is introduced, there is a sudden uneasy silence with a quick change of conversation, you will probably find, on enquiry afterwards, that the grandfather had been hanged by the neck till he was dead. And that is why the subject of lice makes people so uncomfortable and self-conscious. It is so short a time since they themselves were liable to be infested and they are still touchy. I know people who would not quote Robbie Burns about seeing ourselves as others see us if they knew these lines were addressed "To a Louse." We were not always so refined. The Tudor ladies carried long-handled combs to scratch their backs. The Stuart gentlemen shaved their heads and wore wigs—not always with success, for Pepys examined his new wig and found it full of nits. When the Countess of Holland quarrelled with Theodore Hook she said he was not worth three skips of a louse. Hook retaliated with a verse worth repeating:

> *"Her ladyship said when I went to her house*
> *That she did not esteem me three skips of a louse;*
> *I freely forgave what the dear creature said,*
> *For ladies will talk of what runs in their head."*

Typhus has a personal interest to us here tonight for it has taken heavy toll of our profession. From the time when Thucydides wrote that physicians were among the first victims down to the German prison camps, we cannot read the story of any outbreak of typhus and not see the souls of them that were slain, surgeons, hospital orderlies—they died

in their tens, in twenties and even in hundreds. In Ireland alone out of 1200 doctors attached to institutions, 550 died of typhus in 25 years. And so the total mounts up, a great multitude which no man can number. And there is yet another list. The recent Polish Commission dedicated their report to the memory of the research workers who had died of typhus fever contracted in the course of their research work. Hardly was that dedication written when one of the dedicants, A. W. Bagot, of the Lister Institute, died of this vile disease. And since then another, Major Cragg. Tragic, lamentable, but most noble deaths "*Homines enim ad Deos nulla re propius accedunt quam salutem dando.*" In no wise can mankind more nearly resemble the Deity than in bestowing health.

A vote of thanks to the lecturer was proposed by Dr. A. P. Proctor, and carried unanimously.

NOTE:—The substance of this address is also published in the Journal of the Royal Society of Tropical Medicine for April, 1927.

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SYMPOSIUM

"THE POOR SURGICAL RISK"—*Continued.*

(3) *R. E. Coleman, M.B.,* Vancouver General Hospital Laboratories.

Of the various aspects of the poor operation risk, the clinical pathologist is most conversant with those which are associated with laboratory findings. Unfortunately any detailed discussion of all such aspects would require all of the time of all of the speakers tonight. I will, therefore, assume that the careful surgeon has in every case availed himself of the suitable, well-established analyses, for there is really no legitimate excuse for omitting them. Experience has thoroughly established the high mortality from tonsillectomy, etc., in bleeders, and the risk to every such bleeder can be determined prior to the operation. Also it has been long recognized that operations on patients with haemoglobin below 50% have a high mortality rate. Today with transfusion of whole blood, a daily procedure, such a blood condition is seldom present at operation. This does not mean that every operation should be preceded by a transfusion, for it is very questionable whether the risk of operative interference is ever improved when the haemoglobin is over 80%. Operative interference when the non-protein nitrogen is over 50 mg. per 100 cc. of blood, increases the risk very materially, more especially when the operation is of a genito-urinary nature. In cases of thyroid toxicity with a basal metabolic rate over plus 50%, thyroidectomy should not be considered until every method has been attempted to reduce it. Of course, the risk of operating on a diabetic has been so long recognized that it need hardly be mentioned. Today we do assume the risk but only after the diabetic condition has been brought under control. I will therefore assume that the careful surgeon has availed himself of every one of the established laboratory procedures, insofar as they are applicable to the particular case. Even with every precaution, however, the surgeon may

consider that the case is a poor operative risk but necessity compels him to proceed with the operation. What, then, is there new to offer him?

The possibility of applying some of the more recent advances in pure physiology to just this problem, has attracted me for several years. It was not until last fall, however, that I was able, with the co-operation of Dr. Hugh Macmillan and Miss Donna E. Kerr, to commence any investigation. To clinicians, of course, it is entirely unnecessary to emphasize the close interdependence of the innumerable metabolic factors. Neither is it necessary to draw attention to the paucity of information in this direction. Every physician looks forward to the day when laboratory analysis will enable him to investigate completely the entire scheme of disturbed metabolic processes involving the poor surgical risk, but in the meantime we must content ourselves with fragments here and there. It was with the hope of adding one small unit to the sum of knowledge that our investigation was commenced. I will therefore briefly outline to you our general premises and then detail the various therapeutic proceedures indicated.

The introduction of basal metabolic determinations has had one rather unfortunate result, in that it has tended to connect this form of laboratory investigation with a single disease in the mind of the clinician. It has made him prone to forget that the metabolism of the individual is but the rate at which the individual is using up energy. Though in the treatment of all diseases the clinician is constantly attempting to meet the demand for free energy on the part of his patient, he seldom seems conscious of the fact that life is but the struggle for free energy and that failure to achieve it means death. It has been the factors controlling the patient's struggle for free energy during operation that we have been investigating. Briefly, the problem has been, why in presence of ample reserves of potential energy in the form of fat and protein and often of carbohydrates, does the patient fail to produce it rapidly enough? Why we assume such a failure would require another paper in itself but I think that even this brief discussion will show you that it, at least, is a possibility.

In any consideration of the body as a mechanism for producing energy at a variable rate, the active principal of the thyroid gland is not the only factor determining this rate. On the contrary, the various other factors taken together are of much greater magnitude. One immediately thinks of such factors as muscular work which may increase the rate of demand to many times the basal rate. It is true that hyperthyroidism may double the basal rate but this is not common. On the other hand, in the absence of all thyroid activity such as occurs in myxoedema, the basal metabolism is not reduced to half, showing that even at rest the thyroid secretion does not account for even half the normal demand at rest. Clearly, then, the general metabolic demands on the part of the body for energy are considerable and must be met.

It is true that the energy demands in the poor surgical risk are less than those of a normal individual but the same factors that mark clinically a poor risk usually indicate a potential deficiency in the production of even that little energy.

A brief consideration of the recent work by A. V. Hill and others suggests the sequence of events. These workers have shown that when a normal muscle works, glycogen is first converted into lactic acid. This first stage of the reaction is explosive and anaerobic, i.e., it takes place in the absence of oxygen. The second stage is accompanied by the reconversion of part of the lactic acid into glycogen with the simultaneous further oxidation of the remaining lactic acid into CO_2 and water. Thus there are two chemical stages which synchronize with the normal muscular contraction and its liberation of free energy. The first stage requires an adequate supply of preformed glycogen and the second stage requires an adequate supply of free oxygen for the oxidation of the lactic acid.

It therefore remains for us to consider what the factors are which control, first, the supply of preformed glycogen and, second, the supply of oxygen to the tissues. The factors controlling the supply of preformed glycogen are the supply of glucose and of insulin in the blood. In the presence of an adequate supply of insulin the glucose is converted into glycogen, in the individual cells. Therefore, in the presence of an adequate supply of both glucose and insulin, there will be an adequate supply of preformed glycogen. The chief factors controlling the supply of oxygen are the oxygen tension of the respired air (constant at sea level); the concentration of haemoglobin in the blood; the H ion concentration of the blood; the concentration of CO_2 of the blood; and the rate at which the blood flows past the cells, as determined by the pulse rate and the volume output of the heart.

My reason for laying so much stress on the chemistry and physics of muscle metabolism is, first, because we know so much more about it than we do of any other type of cellular metabolism; second, because the muscular system makes up such a large part of the actively metabolizing cells of the body; third, because there are indications that much of the remainder of the body cells carry on a very similar type of energy metabolism. In the poor operation risk, however, it is not the muscular system so often that fails as the nervous system, so I will establish certain relations between these two systems. The nerve cells per gram carry on a much more active rate of energy metabolism than the muscle cells, but being so much smaller in mass than the total muscular system, no stimulation of the nervous system could be expected to materially affect the total metabolic rate. When the organism fails, this rate of energy demand on the part of the nervous system becomes of prime importance and when we look for the source of supply of preformed glycogen for the nervous system we find that the nerve cell is very much handicapped, as compared with the muscular system, in that it has little or no reserve of glycogen stored in the cell itself. The nerve cell is such a highly specialized cell that it has no room for a store of energy and it is possible that the individual nerve cell has only enough glycogen for a single explosive reaction. The nerve cell, therefore, is probably dependent from minute to minute on an adequate supply of glucose in the blood and also an adequate supply of insulin to convert this glucose rapidly into glycogen in the nerve cell. It is, therefore, necessary that we consider where the glucose for the blood is stored. We find that normally this supply

is in the liver and this large organ with its large reserve readily yields its glycogen to the blood as glucose. Therefore, a depleted glycogen supply in the liver is synonymous with a depleted glycogen supply to the central nervous system. Such an inadequate supply of glycogen in the liver may result in the poor surgical risk arising from a general deficiency of preformed carbohydrate in the body as in starvation, or from an inefficient hepatic function such as is associated with a fatty liver in which a large portion of the liver cell is occupied by fat.

There is, however, another very potent factor which may materially affect the supply of insulin and this is one that we have been clinically investigating in our laboratory. We have confirmed the observations of others that during a major operation the blood sugar rises considerably with the onset of the ether anaesthetic. We have also found that this effect, though it lessens with the cessation of the administration of the anaesthetic, does not return to the normal for a period of over 24 hours. We have also found that the effect of the operation and the anaesthetic can still be demonstrated at the end of seven days when the patient is clinically comparatively normal. This clearly indicates that, to the already impaired function of supplying the body with energy, we add a further burden in the anaesthetic and in the operative trauma.

Turning now to the oxygen factor, it is obvious that a decrease in the haemoglobin of the blood will impair the body's capacity to oxidize the lactic acid formed in the first stage of the reaction. If the haemoglobin is below 50% experience shows that this extra load may lead to untoward results. If the blood is inclined to the acid side of neutrality the blood cells will not be as efficient in absorbing the oxygen in the lungs. Also, if the heart is unable to compensate by increased pulse rate or volume output, the rate of supply of oxygen may be inadequate.

What, then, are the indications for meeting these various factors in the poor operation risk, since by our definition we have selected those cases which are likely to show a marked weakness in one or more of the above very briefly outlined factors? First, with a haemoglobin below 50%, the operation should be preceded or accompanied by a transfusion of whole blood; second, with a high metabolic rate the patient should be brought into a condition with a minimal rate of energy demand; third, measures should be taken to ensure an adequate supply of preformed carbohydrate; fourth, an increased oxygen tension may increase the efficiency of an otherwise impaired function; fifth, the use of an anaesthetic which has a minimal effect upon the activity of the insulin-producing cells of the pancreas; sixth, every means should be taken to conserve the rate of energy demand on the part of the body, by keeping the patient warm, etc.; seventh, our experiments to date, though not complete, suggest the possibility of counteracting the unfavourable and inadequate glycogenic function.

(Part 4) *By Dr. A. B. Schinbein.*

You will notice that I appear last in this symposium. This was done intentionally so as to impress upon you the fact that this is the position whoch surgical interference takes in the handling of these cases.

The term "bad surgical risk" is self explanatory and needs no definition. We use it daily. A patient may be a bad surgical risk either

(1) on account of the disease itself for which surgical interference is necessary

(2) or the patient may be handicapped by physical defects and must submit to operation for another condition otherwise in curable.

The most important groups are:

(1) Diabetic
(2) Depressed heart and circulatory system
(3) Aged
(4) Hyperthyroidism
(5) Peritonitis and septic cases
(6) Obstructive
    (a) Stomach
    (b) Intestine
    (c) Biliary
    (d) Urinary
(7) Traumatic cases.

To prepare these patients for operation, to carry them through the operation and through the stormy first post-operative days requires the application of every method of restoration and conversation at our command. It is not a one-man job.

There must be the closest co-operation, a pooling of the knowledge and therapeutic resources of the internist, the laboratory, the anaesthetist and the surgeon and the nursing staff, if we would carry treatment to a successful termination in the handicapped patient.

The laboratory is most essential in these cases. It aids us in our diagnosis. It gives us an estimation of the degree of disturbed function and the ability of the patient to acquire a resistance. Blood chemistry is now necessary to the surgeon. We must have basal metabolism for the goitre case; vital capacity for the thoracic case; blood urea creatinin and non-protein nitrogen for renal function; blood urea, plasma CO_2 volume, blood chlorides, for the alkalosis of stomach retention and intestinal obstruction; blood sugar for the diabetic. It provides the proper donor for blood transfusion, etc.

Dr. Brown has very thoroughly given us the pre-operative examination and care of these cases. The chief cause of poor surgical results is incomplete examination. I can only again stress the necessity of very careful examination and attention to every detail as he has outlined them.

The selection of cases for operation in very important. There will be cases in every one of these groups where operation will be absolutely contraindicated. The surgeon must not be stampeded. Judgment and a conscience are necessary.

Operating at the proper time is a most important factor to success.

Dr. Freeze has dealt with anaesthesia in these cases and I wish here to congratulate him on the principle of using interstitial saline so freely in his service.

The Diabetic.—Today the mortality rate of general operations on the diabetic can be reduced almost as low as the rate on the non-diabetic. It is fortunate that the majority of diabetic cases can be brought to the operating room fully prepared, as Dr. Brown has outlined. There is, however, the acute case which demands immediate operation, the surgical condition deserves precedence and the treatment of the diabetes is commenced immediately after. Foster states that major operations performed while the blood sugar is above 350 mgms. and the CO_2 combining power of the blood below 35 volumes per cent. end fatally.

If we should have such high chemical findings the risk can be considerably lessened by waiting 2-3 hours during which radical measures are adopted. Large doses of insulin with quantities of glucose and saline can be given.

Clinical experience teaches that infection is more rampant in the presence of hyperglycaemia.

One of the commonest complications of diabetes is gangrene, usually in patients over 50. This is due to sclerosis of the vessels diminishing the blood supply.

Partial foot amputations court disaster. While one foot may be saved in this manner, many lives may be lost. Amputation above the knee is the operation of choice. However, if the patient is relatively young and there is a well pulsating popliteal artery and no infection in the leg, amputation below the knee may be done. The choice should be that of the surgeon and not the patient.

Hyperthyroidism.—Since the use of Lugol's solution has been introduced and the treatment as outlined by Dr. Brown carried out, it has been found that multiple operations are not so often necessary, the gland being removed at one sitting. However, cases do arise in which it is advisable to do ligations followed later by removal of the gland in one or more days.

Peritonitis.—Fortunately today, due to early diagnosis and operation for acute appendicitis and ruptured duodenal and gastric ulcers, we are getting comparatively few cases of general peritonitis. However, when we do get one we certainly have a "bad risk case."

Drainage of the general peritoneal cavity surgically is most unsatisfactory, in fact, is impossible. Patients have a better chance if no operative interference is done at this time.

Fowler's position, morphine in sufficient amounts to keep the patient quiet, the respirations 15-18 per minute.

Glucose and saline interstially or intravenously, 2500-3000 c.c. daily. Gastric lavage. Hot fomentations to the abdomen. The patient

in this way is given the best chance to fight his infection and to localize it. Operation should be reserved to the draining of localized collections of pus.

Obstructive cases.—In a great many of these bad risk cases, a two-stage operative interference is necessary to give the patient the best chance, more often in cases of obstruction than in any of the others, the first operation being to secure drainage and thus relieve the patient of his toxaemia and the second to remove the cause.

Pyloric obstruction.—This never requires immediate operation. These cases can always be brought to the operating room after a period of preparation and then drainage secured by either a gastroenterostomy or a resection of the pylorus, if indicated. I would like again to draw attention to the alkalosis of pyloric and intestinal obstruction and to impress upon you, as Dr. Brown has done, the necessity of giving chlorides in these cases.

Intestinal obstruction.—We now have very little trouble with strangulated inguinal or femoral herniae. In these cases the patient can feel the mass and localize the site of the obstruction and the doctor is called early and the case dealt with soon after appearance of the initial symptoms. if we could diagnose and secure our other cases of intestinal obstruction as early we would have just as little trouble. Such, however, is not the case, and the mortality of intestinal obstruction still remains high.

If the patient is operated on before he becomes toxic and dehydrated, with his intestine greatly distended and waterlogged, then we can deal with the obstruction just as in a strangulated hernia. If, however, we only get them late, when the patient is very toxic, dehydrated and with a greatly distended intestine, then what procedure shall we adopt? Dr. Brown has told you that these patients must be filled with fluid and sodium chloride. Drainage of the upper portion of the small intestine must be obtained. Under local anaesthesia, a small incision is made through the left rectus muscle above the umbilicus and a loop of jejunum as close to the duodeno jejunal junction as possible, is brought up and an enterostomy done. Later, when the patient is in good condition, the cause of the obstruction can be dealt with. The enterostomy opening will close in the majority of cases without any interference.

Biliary obstruction.—I would like to quote from Crile to whom we are indebted more than to any other person for our knowledge of how to deal with a bad risk case. He states that "in cases of biliary obstruction it must be borne in mind that we are encroaching upon an organ of vital significance. As jaundice means not only a bile pigment present in the blood stream but," and this is of more significance, that "the liver cells themselves have been affected by the damming back of the bile."

Dr. Brown has dealt with the preparation of the patient with biliary obstruction. He stressed the necessity of giving these patients large quantities of carbohydrate before operation and also of increasing the coagulation of the blood on account of the increased danger of haemorr-

hage due to the increased clotting time of the blood which results in the presence of bile cells. The calcium is given by mouth, 10 grs. of calcium lactate every four hours for from 3-4 days or, if the blood clotting time is more than five minutes, 5 c.c. of a ten per cent. solution of calcium chloride intravenously once a day for three days.

If the obstruction is due to stone in the common duct, this can be removed. If due to a growth at the head of the pancreas, then a cholecysto-duodenostomy or cholecysto-gastrostomy will be indicated. If inflammatory, such as secondary to cholecystitis, then drainage of the gall bladder should be done. I would state here that if the gall bladder has been drained, in most cases it would be advisable to remove the gall bladder a few weeks later. It is now the opinion that cholecystectomy is advisable rather than a choletcystostomy in cases of gall bladder disease.

As stated above, however, in some cases a two-stage operation will have to be done.

Urinary obstruction.—Ten years ago I had a man who had a large stone in the bladder. I did a suprapubic cystotomy, removed the stone and left in suprapubic drainage. Three days later my patient was dead from uraemia. Such a catastrophe would not happen today. In such a case we would know what the nitrogen retention is and what the kidney function, and we would not operate until the case was as safe as possible by the means Dr. Brown has outlined. In these cases we would now put in a catheter securing constant drainage and wait.

Prostatectomy is never an emergency operation. I want to mention the danger of emptying a distended bladder at once. A distended bladder should always be emptied very, very gradually.

Traumatic cases.—We learned how to deal with traumatic cases from our experience in the war. Cases in shock should be treated for that shock, given morphine, the application of heat, intravenous glucose and saline and blood transfusion and operative interference should only be done after recovery from shock.

(Dr. Schinbein cited cases illustrative of each of the groups mentioned.)

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B. C. MEDICAL ASSOCIATION NOTES.

The Annual Meeting of the B.C. Medical Association was held at the Hotel Georgia, Vancouver, on June 22nd. Dr. H. E. Ridewood, of Victoria, assumed office as President, and the following other officers were elected: Dr. Wallace Wilson, Vancouver, President-elect; Dr. W. A. Clarke, New Westminster, Vice-President; Dr. Theo. H. Lennie, Vancouver, Secretary-Treasurer.

The following doctors were elected to membership on the recommendation of the Credentials Committee:

Byrne, Ulton Patrick; Bleecker, George Harry; Brummitt, Redvers Buller; Blair, James Harold; Carson, Julius Harry; Cousland, Phillip Alexander Clyde; Gomm, William Edward; Gung, Edward Basil; Gunn, William George; Grimson, Julius C.; Kelman, Geo. Alexander; Kelman, Geo. Arthur Edward; Lang, Benjamin E.; Laing, Jack Wilfred; Mitchell, William Eric Marcus; McEown, Frank; McKee, Josiah; McDiarmid, J. M.; Pitts, Harry Herschel; Richardson, William Augustus; Steele, John Taylor; Sauriol, Louis Edward; Turpel, William Nicholson; Thornton, Norman McLeod; Underhill, Ambrose Stanley; West, Christopher Hurfield; Wride, Reginald John; Wilson, Percy Milton; Wilson, George Hudson.

Full particulars of the meeting will be published in the next issue of the Bulletin.

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The first meeting of the new Executive of the B.C. Medical Association was held immediately after the Annual Meeting, when Chairmen of Standing Committees were elected as under:

Dr. Geo. Hall of Victoria, Legislative Committee; Dr. A. J. MacLachlan of Vancouver, Industrial Service Committee; Dr. A. C. Frost of Vancouver, Constitution and Credentials Committee; Dr. Lyall Hodgins of Vancouver, Publicity and Educational Committee; Dr. A. W. Bagnall of Vancouver, Ethics and Discipline Committee.

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THE VIENNA SCHOOL OF MEDICINE

Contributed by Dr. Neil McNeill.

After having visited various countries and numerous hospital centres during the past year, I have been invited by "The Bulletin" to write something of a practical nature regarding the clinics of Vienna. I have decided to do so, thinking that what I may say will be of interest and, perhaps, of some value, to members of our own Association who may be contemplating post-graduate work abroad.

The University of Vienna, the second oldest German language University, was founded in 1365; the medical school, however, not until a little later, the first records dating from the end of the 14th century. Soon after its inauguration, it began to attract attention, but it was not until the latter half of the 18th century that its fame spread beyond the borders of Austro-Hungary.

In 1754, a clinic was established similar to that at Leyden and in 1784 this clinic became the Allegemeines Krankenhaus (General Hospital) which immediately forged ahead in medical research, so that by 1845 it had reached a high pinnacle of fame as a great medical centre.

As a result of the collaboration of various men of the time in the several branches of medicine,—Hyrtle, the anatomist, Rokitansky, the

pathologist, Skoda, the clinician, Politzer, the otologist and Billroth, the surgeon,—a complete revolution was wrought in the conception of disease processes and their clinical manifestations, and thus, logically, in their diagnosis. In this work these pathfinders followed in principle the Paris school of medicine, but soon passed far beyond anything at that time achieved there. The founders of the Vienna school have been followed by men in whose keeping the best traditions of the past are held sacred, so that today the same searching for new methods and new truths is still an integral part of the routine of the Faculty. It is, therefore, no wonder that Vienna is still the city toward which all medical men, young and old, turn to renew their knowledge and learn new methods.

Vienna today affords unsurpassed opportunities for the post-graduate study of medicine and the facilities for operations on the cadaver are unequalled at any medical centre that I have had the pleasure of visiting. All courses are given in English except where German is specified and one doesn't have to take these to get good work as there is usually a junior covering the same work at another clinic who does speak English. However, after being over there for a while, one finds that he can usually get a good deal out of a case or specimen being shown, even if German is the language used.

In surgery, Professors Eiselberg and Hochenegg at the Allegemeines Krankenhaus, (the largest hospital in Europe with 6000 beds), although both getting old, (the former 72 years), are very often in the clinic and at work at 7 a.m. In fact, work in all the hospitals begins about that time of day.

The results being obtained by Prof. Finisterer at the Franz Josef Ambulatory, in his abdominal operations under splanchnic anaesthesia, were new to me. Finisterer is one of those who favour radical resection for gastric and duodenal ulcer, and the low mortality and excellent remote results lend weight to his opinions.

Prof. Frankel, Piham clinic, although also getting old, has not lost interest in the wonderful pathological organization that he has, through long years of hard work and study, built up around him. Concerned, as he always has been, in endocrinology, he is today, perhaps, more specially interested in the effect of altitude on the thyroid gland. In this particular line he hopes to have something new for publication, perhaps next year.

Prof. Lorenz Bohler at the Webbergasse spital, a fracture hospital of some 1200 beds, is a young man with the physique of a Hercules who speaks only broken English. He is, to my mind, about to revolutionize the work by what he calls "the functional treatment of fractures." He treats a broken bone as if it were a plant or tree by rest, warmth, food from secretions of body and extension. Local anaesthesia is used in the treatment of all fractures and dislocations. Few compound fractures are opened up. No Dakins or any other solutions are used for irrigation purposes, if possible to avoid them. All compound wounds are cut out at once and sewed up. In his laboratory he has a working model in wood of almost every conceivable kind of fracture, which is studied, if necessary, at the time of treatment.

Dr. Plenk, first assistant surgeon at the Jubilaums spital, is a young man of 35 years, who, according to his own story, has dissected on a cadaver every day for the past 15 years and operated on the living subject almost every day for the past nine years. He is a regular wizard at work, and as a demonstrator of gross anatomy, I know of none better. He is one of the men over there of whom we shall probably hear more, for, I understand, he is being brought to one of the large clinics on this side of the Atlantic this summer.

All the men I met in Vienna were very kind and if one showed any interest at all in any particular line of work, there was nothing that they would not do to see that you obtained that which you were looking for.

The American Medical Association of Vienna was established in 1903 and the objects of the Society are to promote the scientific advancement and the social intercourse of its members and to provide information as to the scope and relative values of courses. At its foundation the Association had only 35 members, at the present time there are 4000, more than 1000 having joined in the last two years. Men are coming and going daily. There were about 150 working there at the beginning of this year, mostly Americans, many of whom stay from one to two years. There were 15 Canadians, several from the British Isles and other parts of the world. The latest achievement of the A.M.A. of Vienna is its official organ "Ars Medici," published monthly in Vienna, giving abstracts and reviews of all branches of foreign medical literature, especially Viennese and German. All physicians are invited to enrol their names in the registration book and to become members, the fee for which is approximately ten dollars of our money.

Work in Vienna can be obtained in two ways, either through the A.M.A. of Vienna or by private arrangement, the latter costing from $3 to $10 per hour. All courses controlled by the Association are called book courses, and the right of priority to enter a book course is established by the date of registration, so that it is wise to register early and avoid a possible future delay in getting in on a course you want to take. The A.M.A. of Vienna is recognized by the medical faculty of the University of Vienna to be the official organization for arranging courses for its members. The cost of a course is divided between the students—a typical example of which is General Diagnosis, ten hours—each student pays $12.50 for the entire course.

It is difficult to estimate the whole cost of post-graduate instruction. It depends on the character of the work, the number of limited or private courses—in fact, on the individual needs of the student. A general average might be made with a minimum of $50 and a maximum of $200 per month. There are opportunities for appointment to internships, or as "hospitants" in many of the medical or surgical clinics. Qualifications, duration of service, fees, etc., vary in different places, choice of applicants and arrangement of duties being determined by the chief of the hospital or clinic.

The University of Vienna will grant for post-graduate work done there, a certificate to a physician who proves to the dean, by diploma or

official certificate that he is a graduate of a reputable medical school recognized by the A.M. Association. These certificates are granted only to those who have taken courses covering a period of not less than three months under the teaching staff of the University.

Physicians arriving in Vienna usually have no difficulty in obtaining work as the Association is in a position to rapidly orientate new members. The cost of furnished rooms in the neighbourhood of the hospitals ranges from $10 to $30 per month. Furnished rooms do not usually include light and heat. The Continental breakfast of coffee and two rolls is served in one's room for a slight additional charge. Dinner and supper cost, in any of the numerous cafés and pensions, from 50 cents a meal up.

This, I think, is a fair and, I believe, correct statement of conditions as I found them in Vienna. I hope they may prove of service to some poor brother journeying in search of information so far afield. To him I would say that no matter what particular branch of medicine he is interested in, he will find in Vienna plenty of material, and teachers only too ready and anxious to help him use it. At the same time on coming back from a post-graduate course of this sort, one has again a return of the conviction that it ought not to be necessary for us in Vancouver to go so far and so often to obtain this instruction. When we think of the thousands of patients who are from year to year passing through our own hospitals and the great variety of disease manifested there, when also we consider the number of doctors in the city and province anxious for post-graduate study, but for one reason or another, unable to obtain it, one wonders why some action has not been taken with the idea of utilizing some of this wealth of material for the purpose of instruction. There are men on the staffs of our hospitals who, I am sure, know their work as well as some of those teaching at large medical centres. These, if given the right opportunity, might well develop into men of international reputation and in so doing build up around them a teaching centre which in time to come might even rival Vienna.

* * *

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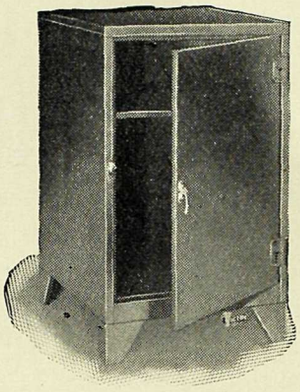

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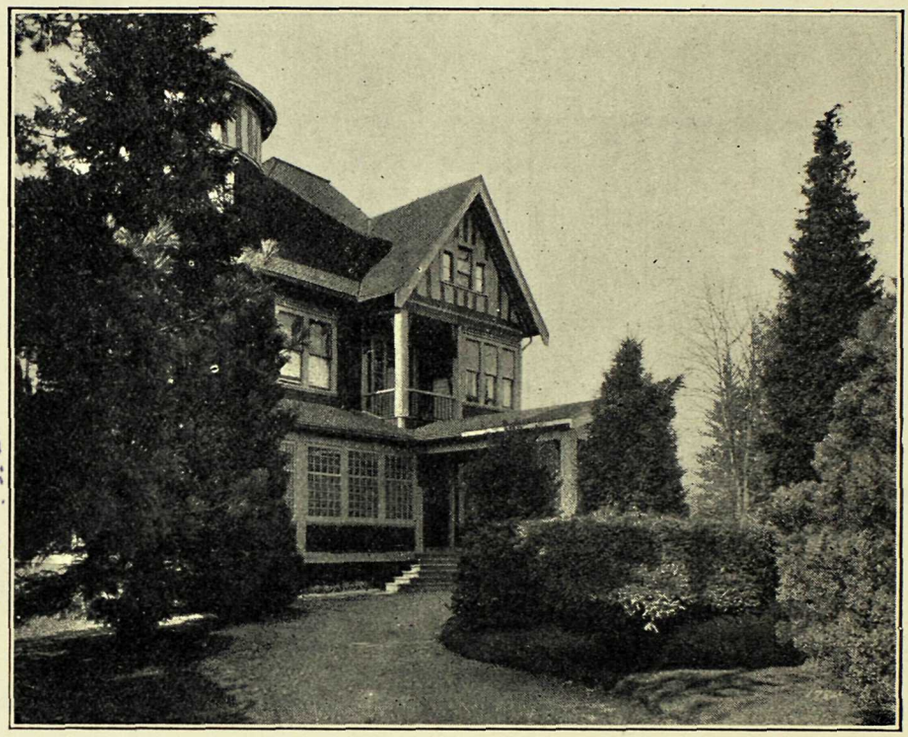

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