Vol. V. JANUARY, 1929 No. 4

The Bulletin

of the

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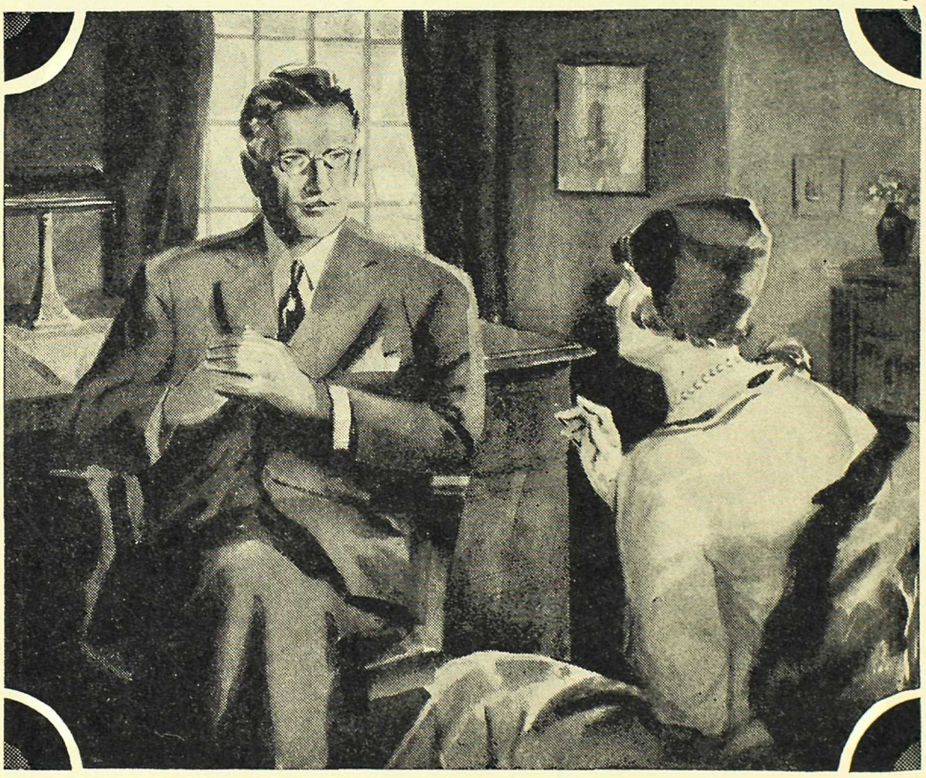

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THE VANCOUVER MEDICAL ASSOCIATION

BULLETIN

Published Monthly under the Auspices of the Vancouver Medical Association in the Interests of the Medical Profession.

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Founded 1898 — Incorporated 1906

PROGRAMME OF THE 31ST ANNUAL SESSION

GENERAL MEETINGS will be held on the first Tuesday and CLINICAL MEETINGS on the third Tuesday of the month at 8 p.m. from October to April inclusive. Place of meeting will appear on the Agenda.

January 8th—General Meeting:
Paper—Dr. Ralph C. Matson, Portland, Oregon: "Surgical Treatment of Pulmonary Tuberculosis."

January 22nd—Clinical Meeting.

February 5th—General Meeting:
Paper—Dr. R. P. Kinsman: "Focal Infections in Infancy and Childhood."
X-ray films to be shown by Dr. H. A. Rawlings.

February 19th—Clinical Meeting.

March 5th—General Meeting.
The OSLER LECTURE—Dr. H. M. Cunningham.

March 19th—Clinical Meeting.

April 2nd—General Meeting.
Paper—Dr. F. P. Patterson: Subject to be announced.

April 16th—Clinical Meeting.

April 23rd—Annual Meeting.

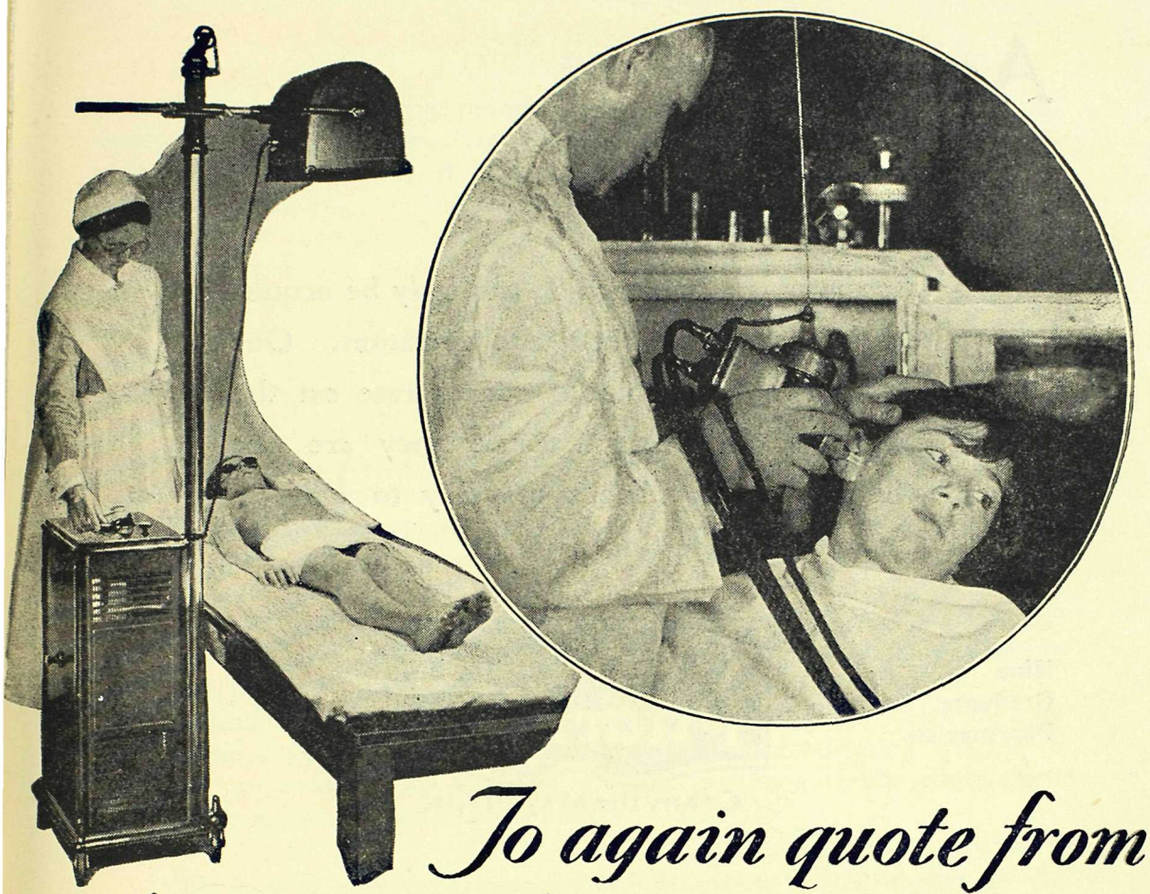
VANCOUVER HEALTH DEPARTMENT

STATISTICS, NOVEMBER, 1928

Total Population (Estimated)		142,150
Asiatic Population (Estimated)		10,940
	Rate per 1,000 of Population	
Total Deaths	151	12.96
Asiatic Deaths	19	21.19
Deaths—Residents only	112	9.61
TOTAL BIRTHS	234	20.08
Male 120		
Female 114		
Stillbirths—not included in above	12	
INFANTILE MORTALITY		
Deaths under one year of age	8	
Death rate per 1,000 Births	34.19	

CASES OF INFECTIOUS DISEASES REPORTED IN CITY

	October, 1928		November, 1928		December 1st to 15th, 1928	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Smallpox	29	0	36	0	14	0
Scarlet Fever	11	0	14	0	6	0
Diphtheria	76	3	101	2	35	0
Chicken-pox	24	0	84	0	21	0
Measles	0	0	0	0	3	0
Mumps	5	0	23	0	52	0
Whooping-cough	17	0	14	0	1	0
Tuberculosis	16	7	14	10	3	—
Erysipelas	8	1	10	0	1	0
Poliomyelitis	1	0	1	0	0	0
Typhoid Fever	3	0	3	0	0	0
Cases from Outside City—Included in above.						
Diphtheria	23	2	36	0	10	0
Scarlet Fever	2	0	5	0	0	0
Smallpox	2	0	0	0	0	0
Typhoid Fever	3	0	3	0	0	0



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EDITOR'S PAGE

Once in each twelve months we pause in our Editorial labours to wish our patrons, readers, contributors and advertisers alike, the Compliments of the Season—A Happy New Year. In this, and to partake also of the blessing, we should include "the Staff" and the Publishers in gratitude for their exertions and with a lively sense of favours to come. We can assure our readers that without the heroic endeavours of "the Staff" this paper would not and could not appear with the regularity and snap with which, we flatter ourselves, it has hitherto burst monthly upon a waiting world. We feel guiltily in so doing, that we have grossly overworked "the Staff," but we continue to look forward hopefully to the time when the affairs of the Association and the will of the Executive permit us to make arrangements more in keeping with the growing work and importance of the Society. We can thank the Publishers for having with patience guided our infant footsteps into the path of editorial righteousness and for having made us free of the mysteries of their art and craft.

The language of the printing room is, in some respects, as a familiar tongue and our knowledge of what can be done in the way of overlooking errors in proof reading is greatly increased.

Considering the nature of our complex medical 'copy' with its long words and unfamiliar terms, not to mention the excruciating writing of some of our contributors we have no fault to find with the compositors and much appreciation for their ability.

* * *

We can at this time suitably call attention to the report of the Committee, printed in this issue, with which Dr. Monro has been prominently associated, on the sort of Health Department which will be required to regulate those affairs in the now greatly enlarged City of Vancouver. What we especially desire to emphasise is that whether the report be adopted or rejected, modified in whole or in part, the Association has assumed the lead in a public question in which if anywhere it may be presumed that the special knowledge of the members of the Society should carry weight.

This, in our opinion, is one of the important functions of the Association, and in line with the great work it has done in the past on such community affairs, as Hospitals, the Workmen's Compensation Board, Health Insurance, Proprietary Medicines, Life Insurance Companies, Education and the like. By our willingness to help the community and the state to solve problems of this sort, we can answer in a most legitimate way, the accusation so often levelled at the medical profession that its attitude is one of withdrawal and isolation. There may be two opinions as to the usefulness and advisability of public lectures or of newspaper articles; on such questions as we have mentioned and our participation in them there should be but one.

* * *

The Treasurer will much appreciate it if those members who refused to accept the drafts recently presented for annual dues and who promised to "pay direct" will send in their cheques at an early date. Under the by-laws the names of members whose dues are unpaid on January 1st will be posted in the Library.

NEWS AND NOTES

At the regular meeting of the Association held on November 6th, Dr. J. Minor Blackford of Seattle, was the speaker of the evening. His paper on "Some Clinical Aspects of Gall Bladder Disease" will shortly be published in the Bulletin.

At this meeting Drs. W. L. C. Middleton, G. A. Petrie and W. C. Whitteker were elected to membership in the Association.

A large framed print of the Council of the Royal College of Surgeons, England, presented by Dr. A. Wynter of Bristol, England, was accepted by the Association and a vote of thanks sent to the donor. The picture is hanging in the Board Room of the Vancouver General Hospital until we move into our new quarters in the Medical and Dental Building.

A notice of motion re the establishmeent of an Anatomical Section of the Association was given by Dr. A. C. Frost.

A letter was read from Dr. Routley thanking the members for the invitation extended to the Canadian Medical Association to hold their 1931 meeting in Vancouver.

* * *

The November meeting of the Clinical Section was held at the Public Hospital for the Insane, New Westminster ,on the 20th of the month. It was an innovation to have a clinical meeting of our association outside the city. About sixty members motored from Vancouver, a number going by special bus. There was a total attendance of 85.

Dr. A. L. Crease, the Medical Superintendent, and his staff, are to be congratulated on the splendid manner in which the clinic was conducted. They went to considerable trouble to make it a really interesting evening. Each case had been carefully chosen and much thought given in the preparation of each subject. The discussion which followed the presentation by each speaker was evidence of the great interest displayed by the members.

Our chairman, Dr. Appleby, opened the meeting by calling upon Dr. Crease, who welcomed us. He then spoke on "Traumatic Psychosis" and presented a very interesting case of a youth who a few years ago received a head injury. This was followed by a slowly developing paralysis on one side of the body and a definite psychosis. X-ray following intrathecal injection of air showed the left ventricle to some extent past the mid-line. Trephining was done and a considerable amount of straw coloured fluid withdrawn from the ventricle and chromic catgut inserted as a drain. Due to the operative procedures the doctor was able to show to us a young man normal mentally and with but slight physical defect as a result of his injury. This is but one of the interesting cases shown during the evening. As there were over twenty cases shown it would occupy too much space to give a detailed description of each. Suffice it to say that any of our members who were unable to be present missed a rare treat.

The programme was as follows:

Dr. A. L. Crease.....Traumatic Phychosis
Dr. Chas. E. Benwell.....Dementia Praecox
Dr. Edward J. Ryan.....Paranoia
Dr. Louis E. Sauriol.....Imbecility and Feeblemindedness
Dr. Benj. H. O. Harry..Neurological Conditions with Psychosis
Dr. Ultan F. Byrne.....Manic Depressive Psychosis
Dr. Jas. Edw. Matheson.....General Paresis
Dr. Arthur M. Gee.....Epileptic Psychosis

A vote of thanks was tendered the speakers on behalf of the Association by Dr. Vrooman and seconded by Dr. T. Lennie. Dr. Ryan, Assistant Medical Superintendent, replied on behalf of Dr. Crease, and invited us to return for another meeting, an invitation which will certainly be accepted by our Association. The meeting was then brought to a close and refreshments served.

* * *

At the regular meeting of the Association on December 4th, the speakers of the evening were Drs. B. D. and G. E. Gillies. Dr. B. D. Gillies presented the first paper discussing peptic ulcers from the medical side. At the outset he drew attention to the apparent rarity of duodenal ulcers in comparison to ulcers elsewhere prior to 1898 as evidenced by post mortem reports. The early preponderance which was noted in the female sex has now been reversed, the greater proportion of ulcers occurring in males. Blood dyscrasias, particularly chlorosis, once considered as important etiological factors, have now almost disappeared. The theory that cancer often develops upon the base of an ulcer is apparently abandoned. Supporting this, analysis of a large number of case histories has shown that the history of symptoms of digestive disturbances goes back only a few months in practically all cases of cancer. After discussion of the indications for surgical treatment a series of interesting plates from the speaker's own practice was shown to demonstrate the end results of medical treatment. This paper, which was listened to with great attention and interest, was followed by the subject of surgical treatment of peptic ulcer ably presented by Dr. G. E. Gillies.

Dr. G. E. Gillies said that the proper indications for surgical treatment were considered to be largely determined by skiagraphs and history. Those cases which did not respond to medical treatment and where pain is severe called for surgical interference. The case for and against partial gastrectomy as compared with gastroenterostomy, was gone into rather fully. The aetiology was further discussed and emphasis laid upon the role of nervous disturbance and also the fact of chronic appendicitis. The speaker described clearly how in the presence of chronic appendicitis carmine indigo injected did not follow the normal route from the lymph circulation of the appendix to the lumbar nodes, but made a detour by way of the duodenal lymph nodes, thus showing the route followed by infection from the appendix to the duodenum. The moral of these points was the necessity of removing the aetiological factors as far as possible before proceeding to work upon the duodenum itself.

(*Continued on page 83*)

British Columbia Laboratory Bulletin

Published irregularly in co-operation with the Vancouver Medical Association Bulletin, in the interests of the Hospital and Clinical and Public Health Laboratories of B. C.

Edited by
DONNA E. KERR, M.A., OF THE VANCOUVER GENERAL HOSPITAL LABORATORIES

Financed by
THE BRITISH COLUMBIA PROVINCIAL BOARD OF HEALTH

COLLABORATORS: The Laboratories of the Jubilee Hospital and St. Joseph's Hospital, Victoria; St. Paul's Hospital, Vancouver; Royal Columbian Hospital, New Westminster; Royal Inland Hospital, Kamloops; Tranquille Sanatorium; Kelowna General Hospital; and Vancouver General Hospital.

All communications should be addressed to the Editor as above. Material for publication should reach the Editor not later than the seventh day of the month of publication.

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EDITOR'S NOTE:

Due to the fact that almost the whole responsibility of the B. C. Laboratory Bulletin is carried by the staff of the Vancouver General Hospital Laboratory, where a considerable increase in routine work has crowded out everything of a progressive, scientific nature, it has been impossible to publish regularly this year.

During the first eleven months of this year over 27,000 diphtheria swabs were handled, an unprecedented number; also during this period there has been an increase over last year of about 10% in the Public Health work and about 16% in the Clinical work. This laboratory is being enlarged and rearranged which may relieve the situation sufficiently to permit of other than routine work. In the meantime the Bulletin will be published whenever sufficient material has accumulated.

* * *

DIPHTHERIA OUTBREAK IN A RURAL DISTRICT

G. A. Ootmar, M.D., Medical Health Officer, Kelowna, B. C.

In March, 1928, a case of diphtheria occurred in a not densely populated part of the district, 14 miles from Kelowna. The bacteriological findings confirmed the clinical diagnosis and immediately a search was begun to locate the origin.

As none of the members of the family had left the district to visit friends, etc., we could eliminate importation of the case as a source, and as none of them had paid a visit to other families in the district, except to neighbours, we had to consider the possibility of one of the family or of the neighbours being a carrier.

I visited the neighbours, swabbed their throats and when cultures were still in the incubator, three swabs from children with suspected throats, etc., were sent in by the attending physicians. Of the eight

swabs I took myself from the neighbours, two were positive, and so were the three swabs from the throats of the children.

As these three new cases of diphtheria were all in the neighbourhood of the first case we thought we were on the trail of the infection spread by a carrier. As our Laboratory is not equipped to perform animal tests we could not prove the virulence of the germs from the positive swabs we took. Investigating further in the houses of the neighbours I came to the house of a milkman, or perhaps it is better to say, to the house of one who delivered milk to the neighbours. Seven out of nine of that family proved to harbour diphtheria bacilli. Families in whose houses diphtheria was prevailing got their milk supply from that farm. Immediately the delivery of all milk, cream or butter from that farm was prohibited. The farmer was hard to convince that the source of the epidemic lay in the milk; he said he always took the utmost care in cleanliness; but when milking, he, a carrier, spit in his hands to make them slippery. Inspecting the cows, we did not find any lesions of the udder or teats of the cow which we considered eliminated any question of the cow being the source of the diphtheria bacilli.

As the number of cases did not increase (in total eleven) we thought that we had completely fixed the source. Then one morning in a far away part of the same district another case of diphtheria was diagnosed and confirmed bacteriologically. Investigating we found that there had been no contact with any child suffering from diphtheria and were nonplussed, but at the end of the interview the father himself remembered that he had delivered wood to a family living in the infected neighbourhood ten days before and had stayed in the house to take dinner. He delivered the wood on a Monday; on the following Thursday there was a case of diphtheria in the house where he delivered the wood, and ten days after his visit one of the children got diphtheria. This indicated a possible connection of this case with those of the milk outbreak. As the father did not have any complaint of a sore throat after the wood delivery and swabs from his throat and nose were negative, it was uncertain whether he had become a carrier and ceased to be so within ten days, or whether the infection of his child could be due to his infected clothes. Swabs of the other members of the family were negative too.

As his children had played with other children and more cases occurred in this neighbourhood we were afraid of the spreading of the disease and resolved to swab all the school children (170). Fifty-seven showed diphtheria bacilli in nose or throat, of whom twenty-seven showed evidence of inflammation of the throat.

All carriers were sent home and had to stay home.

In the meantime material for the Schick test had arrived and immediately the test was carried out on all the children attending school, teachers, janitors, etc., while at the same time the school children who were at home as carriers were tested.

Every child got a number when it was tested. Twenty-seven positives were found; twenty-six in children attending school; one in a carrier.

The readings of the test were made after 24 hours, 3 days, and 4 days; 4% of the tentative readings in 24 hours proved to be incorrect.

The numbering of the children was done for the following reason: We had made plans of the class room marking the place of every child in the class by its number. Years ago, in my native land, Holland, I had to fight against a diphtheria epidemic in a school of 600 children, and found that in the beginning of an epidemic the seat of a carrier in a classroom was surrounded by seats of children who were suffering from diphtheria or had brothers or sisters at home suffering from the same. These children were probably infected by the first carrier; and either became sick themselves or carried it home to their brothers or sisters. Here, in this district, we had the same experience. Around the seat occupied by a school child with diphtheria or of a carrier we found, in front, behind, to the left, to the right, positive ones (with more or less negatives between).

One has to work very fast. No time may be wasted because soon the disease is spread all over the school, and the location of original carriers is impossible.

In the primary division here we found the situation of the class room as follows. *D* means a child who has diphtheria or is home on account of diphtheria in its family. *C* means carriers and *A* are absentees kept home on account of the fear of the parents that the child might contract diphtheria. Of the three children who were absent the one between 23 and 24 proved to be a carrier.

C	25	19	14	8	2
31	26	20	15	9	3
C	27	21	16	D	4
33	28	22	D	C	D
34	A	23	17	11	C
35	29	A	D	C	C
36	A	24	18	13	C

All but one of the parents consented to have the positive children injected with the anatoxine Ramon (diphtheria toxoid) and soon we had also to arrange for clinics of the Schick test of children of pre-school age.

In one case the Schick test showed induration with an area of one and one-half inch of redness. The father insisted for very good reasons on having his child immunized. I consulted the attending physician and the injections (minute doses) were given without any ill effect at all.

No fresh cases of diphtheria developed and in May our last case of diphtheria was out of quarantine.

In September on reopening the school after the Summer holidays, we swabbed all the carriers again. No positives were found.

SUMMARY:

1. The disease was spread by the consumption of infected milk.
2. Prompt investigation in the schoolrooms showed that there were certain foci of infection in the classroom due to the position in the class of carriers.
3. We found many variations in the proportion of the morphological types of diphtheria bacilli.

4. What antitoxin has done in the past to improve the treatment of the disease it is now doing to improve the prevention of the disease by detecting susceptibles with the Schick test and protecting them by toxoid immunization.

I remember very gratefully the valuable help of our Public Health nurse during those so very busy days.

* * *

ON THE TECHNIQUE OF THE DETERMINATION OF THE SPECIFIC GRAVITY OF URINE

Donna Kerr, M.A., V. G. H. Laboratories.

There are two common sources of error in the simple procedure of determining the specific gravity of urine—one the inaccuracy and inefficiency of the urinometer and two, the carelessness on the part of the technician.

In taking the specific gravity of routine urines, the following procedure should be adhered to:

The urine specimens are received in this Laboratory in tubes eight and one-half inches in length and one inch in diameter. The urine tube should be placed in a steady upright position (usually in a rack). The urinometer should be thoroughly cleaned (washed in soap and water) and dried; it is then immersed in the liquid slightly beyond the point at which it floats naturally and allowed to come to rest before reading. In reading it the eye should be placed slightly below the plane surface of the liquid and then raised slowly until the surface first seen as an ellipse, becomes a straight line;—the reading is the point where this straight line cuts into the urinometer scale. Even with this care slight errors may occur through insufficient mixing, changes in temperature and contaminated surfaces (oil). These, however, under ordinary circumstances are negligible.

To eliminate errors due to inaccurate and unsatisfactory instruments, we test all instruments before putting them into use. Our first difficulty lay in obtaining satisfactory instruments. The common small sized urinometers stick to the side of the tube and even when one is dexterous enough to get it floating it is difficult to read. When the urinometer sticks to the side, it is possible to get a wide range of readings. This type we have discarded entirely. Until just recently we have been using a very accurate instrument, but it is rather large for routine urines as frequently there is insufficient urine to make a satisfactory reading with so large an instrument. It makes it necessary to have the urine tube almost full and even then a reading at the top of the scale may be difficult. To cover the range of most urines, two urinometers are required,—one reads 1.000-1.030, and the other 1.030-1.060. The scale is two and one-half inches and graduated in thirty divisions, making it quite easy to read.

This year we were fortunate in obtaining smaller urinometers of the same type. There are again two instruments covering the ranges 1.000-1.025 and 1.025-1.050. These are two and one-half inches shorter and the scale is one and one-half inches long garduated in twenty-five

divisions, making it still possible to read one-half a significant division which of course is finer than is required for clinical work.

These urnometers are tested as follows:

Four dilute solutions of sulphuric acid were made up intended to give two readings on each urinometer. The specific gravity of these were determined by weight for a temperature of 19° C. These were poured into suitably sized tubes and overflowed so as to have a fresh surface; the temperature was adjusted to 19 degrees and the urinometer (clean and dry) immersed just below the approximate level at which they are expected to float. Then they are allowed to come to rest and the reading taken. The tube is again overflowed and the temperature adjusted and a second reading taken. If the two readings agree within 0.0005 a mean is taken. If not, readings are made until the results agree.

Table 1 shows the calculated readings, the observed endings, and the difference.

URINOMETERS RANGING 1.000-1.025

No.	*Calculated*	*Observed*	*Difference*	*Calculated*	*Observed*	*Difference*
1	1.0105	1.0105	0	1.0213	1.0216	.0003
2	"	1.0105	0	"	1.0210	.0003
3	"	1.0100	.0005	"	1.0210	.0003
4	"	1.0105	0	"	1.0220	.0007
5	"	1.0090	.0015	"	1.0213	0
6	"	1.0105	0	"	1.0220	.0007
7	"	1.0105	0	"	1.0220	.0007
8	"	1.0105	0	"	1.0220	.0007
9	"	1.0100	.0005	"	1.0215	.0002
10	"	1.0100	.0005	"	1.0215	.0002
11.	"	1.0090	.0015	"	1.0213	0
12	"	1.0102	.0003	"	1.0218	.0005
13	"	1.0100	.0005	"	1.0215	.0002

URINOMETERS RANGING FROM 1.025-1.050

No.	*Calculated*	*Observed*	*Difference*	*Calculated*	*Observed*	*Difference*
1	1.0308	1.0308	0	1.0395	1.0398	.0003
2	"	1.0305	.0003	"	1.0395	0
3	"	1.0308	0	"	1.0398	.0003
4	"	1.0308	0	"	1.0398	.0003
5	"	1.0310	.0002	"	1.0400	.0005
6	"	1.0310	.0002	"	1.0400	.0005
7	"	1.0310	.0002	"	1.0400	.0005

Table II gives some readings of an ordinary urinometer, which covers the whole range 1.000-1.050, being considerably smaller in length and diameter. The whole scale is squeezed into less than one and one-half inches. Great difficulty was encountered to keep it from clinging to the side. However, these readings were taken while it was floating.

TABLE II.

	Calculated	*Observed*	*Difference*
1	1.0105	1.0100	.0005
	1.0213	1.0200	.0013
	1.0305	1.0300	.0005
	1.0395	1.0390	.0005
2	1.0105	1.0120	.0015
	1.0213	1.0230	.0017
	1.0305	1.0330	.0025
	1.0395	1.0410	.0015
3	1.0105	1.0120	.0015
	1.0213	1.0230	.0017
	1.0305	1.0330	.0025
	1.0395	1.0420	.0025

Table I gives readings of twenty urinometers the largest difference from the calculated value being 0.0015 and that only occurred twice in the forty readings taken. One showed a difference of 0.001, while the rest of the readings showed a difference of less than 0.001. Twelve gave the same readings as the calculated. This was not the case with the small urinometer,—the largest difference here was 0.0025 and of the twelve readings eight showed a difference greater than 0.001,—none were exactly the same. In the ordinary routine urines a difference of 0.0025 would not be of much significance but it is very difficult to get as good readings with this small urinometer and certainly impossible when one is required to work rapidly. The length and shape of the bulb seems to have some effect on whether it floats easily or not. The satisfactory instrument in our experience has a long cylindrical-like bulb tapering suddenly at the ends.

* * * *

NOTE ON BACILLUS ABORTUS INFECTION IN MAN

In the recent literature several cases of fever attributed to infection of *bacillus abortus* have been reported.

This organism is usually associated with cattle, producing a condition which the name implies.

It is interesting to note that in this laboratory blood tests were being carried out on four men from a dairy farm. As an experiment, agglutinination tests were done using the *Bacillus abortus* and two of the men gave positive results, in 160 dilution. One of the men was interviewed and found to have worked among cattle most of his life and had attended cows that had been attacked with contagious abortion. He himself had not suffered from anything, the history of which might suggest the clinical results of infection of the human with *B. abortus*, i.e. undulant fever or like conditions.

W. POTTINGER.

(*Continued from page 76*)

Indications for and details of the various operative procedures were then outlined. The speaker was opposed to partial gastrectomy except when it became imperative for certain reasons or when the ulcer was so near the pylorus that great sacrifice of healthy tissue was not necessitated. The operation is one involving high mortality and an unnecessary sacrifice of a large part of healthy stomach tissue. The speaker stated his series of 150 cases in the last ten years had included all the complications known to surgical literature. Some of these were enumerated and illustrative cases related. The speaker closed by placing particular emphasis upon the necessity of after care, since treatment did not cease with the completion of the operation.

* * *

The time allotted for business at the meeting on December 4th was taken up with a discussion of Dr. Monro's report as Chairman of the Public Health Survey Committee. A special meeting was called to consider this on November 23rd, but owing to the absence of a quorum nothing could be done. The report of this Committee is printed in full on another page of this issue. Considerable discussion took place and ultimately the plan proposed for immediate adoption was endorsed by the meeting and the remainder of the report, including the plan allowing for future development , was accepted as in the nature of an interim report; the Committee was retained in office to report later to the Association.

The motion re the establishment of an Anatomical section of the Association was unanimously carried as follows:

"That an anatomical section of this Association be formed with power to charge members wishing to join such section such initiation and maintenance fees as may be found necessary."

The following were elected to membership:

Drs. Harold Caple, W. J. MacKenzie, C. J. Roach, D. J. Sweeney and E. Zito.

Dr. Seldon presented his report as Chairman of the Committee appointed to enquire into the feasibility of the establishment of three years of the medical course at the University of British Columbia. The report showed that such a scheme was financially impossible at the present time.

* * *

The second meeting of the Osler Reading Society was held at the Georgia Hotel on November 21st. The first paper on "Syphilis in Pregnancy" was excellently presented by Dr. W. L. Boulter and gave rise to much discussion, indicating the wide interest in this subject. The second excellent paper was given by Dr. A. Y. McNair on the "Evolution and Involution of the Human Breast."

* * *

We congratulate Doctor and Mrs. Hatfield on the birth of their daughter recently in Grace Hospital.

Another defection from the sadly dwindling ranks of bachelors (of medicine) in the Vancouver Medical Association occurred when Dr. J. E. Harrison was married to Miss Lucille Stanwood Waugh, a graduate of the 1927 class of the Training School of the Vancouver General Hospital. The marriage took place at the First Baptist Church on November 22nd. The groom was attended by Dr. E. Hall of Nanaimo, and among the ushers was Dr. G. O. Matthews. A wedding trip was made to California and "all points south" as the groom was heard to remark. Feeling references were made to this event at the Annual Dinner of the Association on November 29th.

* * *

The Eye, Ear, Nose and Throat Section of the Association this winter inaugurated a new plan to keep the section alive and make the meetings worth while. Fortnightly luncheons are held in the private dining room of the Hudson's Bay Company and four speakers, chosen alphabetically, are notified that they may be called upon for a five minutes' talk. The subjects must be submitted to the Chairman of the Section three days in advance of the meeting so that proper discussion may be arranged. At the meeting on December 14th the section had the privilege of a talk from Dr. McCool, of Portland, Oregon, on "Some personal observations on Ophthalmic Surgical Technique. We understand from Dr. Ainley that the attendance at these meetings has so far been in the neighborhood of 90%.

* * *

Dr. M. T. McEachern on his recent visit to Vancouver expressed unstinted praise and approval of Grace Hospital. Dr. McEachern is in charge of Hospital Standardization for the American College of Surgeons, and said that as a result of his inspection Grace would certainly be in the list of approved hospitals for Canada and the United States for 1928. He added that this institution was in the front rank of Canadian hospitals. The staff organization is most efficient and functioning in a proper manner for the scientific advancement of the institution and the best care of the patients.

We would remind our readers throughout the Province that Grace Hospital has beautifully equipped private maternity rooms for paying patients, which help to carry the cost of the rescue work carried on in this institution.

* * *

We understand that Dr. R. E. Coleman is resigning his position as Assistant Director of the Vancouver General Hospital Laboratories on the 1st of January, 1929, after being associated with that Institution for thirteen years. It is the doctor's intention to open a laboratory in the City. We note his resignation with great regret. His keen interest in his work has helped to build up an institution upon the help of which we call daily, without, perhaps, much thought of the labour involved in the demands we make upon it. We wish Dr. Coleman every success in his new venture.

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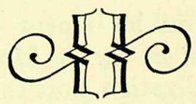

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The Annual Dinner of the Vancouver Medical Association was held at the Hotel Vancouver on the 29th of November. It was a very successful and pleasant function, as all who attended it seemed to think. The attendance was fairly large, though we feel that there were many away whom we should have been glad to see with us. However, it is proverbially difficult to get a quorum in our meetings, and even the prospect of a dinner will not attract everyone.

The dinner went with a swing. The programme was ably arranged by the Dinner Committee, which, under the chairmanship of Dr. E. M. Blair, worked hard to make a success of its task, a difficult and onerous one. This Committee deserves great credit for the smooth efficiency which characterized the whole dinner. The programme of entertainment was evidently to the taste of those present, was not too long, and those whose duty it was to put it on, did excellent work. Especially must we mention the genial Commissioner, and his able Counsel, who have, in one capacity or another, borne the chief load of entertaining us for so many years. But all were good, and it is a matter for rejoicing that much new talent was uncovered, a fortunate omen for later dinners.

For the first time, all formal speeches were omitted. We think this is wise, as neither does the speaker receive a fair return of attention for the time and labour he expends in preparation, nor do the other parts of the programme fit well with serious matter. One speech, however, was made and was the hit of the evening. Combining, as it did, wise advice with extensive personal experience, it deserves to be written in letters of gold and hung on the walls of the Library. We refer to Dr. J. G. McKay's delightful impromptu speech, excellent in matter, as in manner of delivery and of exactly the right length. We shall hope to hear from him again.

Financially the dinner was self-sustaining and in fact the final audit shows a small balance on the right side.

* * *

If we may judge by a Christmas card recently received from London, England, Dr. Lewis Smith is still enthusiastic over his trip to Canada last summer. The card contains a snapshot of the genial Doctor and Mrs. Smith on the beach at Campbell River with the 53½-lb. Tyee salmon which the Doctor landed during the last day of his visit there, and his pride is evidenced by the broad British smile. We hope to welcome Dr. Smith in Vancouver again, both as a fisherman and as a lecturer to our Association.

* * *

REPORT OF COMMITTEE—
RE
PUBLIC HEALTH SURVEY *of* GREATER VANCOUVER

Your Committee appointed May 16th, to make a survey of the Public Health situation in Greater Vancouver, begs to report as follows:

Immediately following the appointment of the Committee, steps were taken to gather all necessary data and information generally, respect-

ing the organization and working of Health Departments in other cities. Early in July, at an interview with Dr. H. E. Young, Provincial Board of Health, it was suggested that the Committee in preparing its report, would indicate by a primary plan, the necessary steps required to effect the amalgamation of the Health Departments of the three units composing Greater Vancouver and a secondary report, outlining the plan of organization that would need to be developed within the next few years to meet the needs of the greater city.

A meeting was called early in September, at which the Medical Officers of Health of Vancouver and South Vancouver were present, Dr. Blackwood of Point Grey not being able to attend. In addition, there were present, Dr. Covington of the Rockefeller Foundation, Dr. H. E. Young, Dr. H. W. Hill, Dr. H. White, Medical Officer to the Vancouver Schools, and Dr. E. D. Carder. At this meeting the purpose of the survey was outlined and a free expression of opinion took place regarding the various kinds of organization in operation in other cities.

Without entering into details regarding the type of organizations prevailing in such cities as Montreal, Toronto, Baltimore, Los Angeles and Berkeley, Calif., the merits of each being fully discussed, it was decided that Dr. F. T. Underhill, with the assistance of Dr. Young and Dr. Hill, be requested to formulate, first a plan to go into immediate effect January 1st, 1929, and a second plan which would form the basis of the organization to be developed for Greater Vancouver in the immediate future.

REPORT BY DR. F. T. UNDERHILL
PRIMARY PLAN

"In view of the approaching amalgamation of the City of Vancouver and the Municipalities of South Vancouver and Point Grey, when it will be necessary to take over and co-ordinate the work of the several Health Departments, I have the honor to give you herein what in my opinion are the minimum requirements for health services for the whole district.

In drawing up my recommendations, I have not lost sight of the fact that there are certain medical services, for which the City pays, which do not come under the control or direction of the Health Department, nor do I suggest that they should do so at the present time, as they are separate and distinct services, although under the larger scheme which I am also submitting to cover the further eventual needs of the amalgamated area, it may be necessary to include these. They are as follows:

ROTARY CLINIC FOR DISEASES OF THE CHEST

This is under the direction of Dr. H. A. Rawlings, who is a specialist in tuberculosis and chest diseases. The Clinic is governed by a joint-committee of the City Council and the Rotary Club, under a special agreement entered into at the time the Clinic building was erected.

I would recommend that this arrangement continue for the time being, with only such changes as will lead to greater co-operation and follow-up work for prevention as well as cure of this disease.

In the larger scheme also submitted, this clinic and its co-relation with the proposed Bureau of Communicable Diseases should be more intimate, and probably it ultimately should be incorporated with that Bureau. Thus the contacts exposed to infection of cases found at the clinic would come directly under the Health Department and the prevention of the disease as well as its cure be provided. Curative measures alone provide only for the sick individual without reducing the disease. Only by preventive measures can the constant inflow of new cases be diminished and the expense in cash and lives be reduced.

SCHOOL MEDICAL DEPARTMENT

This is under the direction of Dr. Harold White, who is specially trained in Public Health work. The work of a school medical department is very highly specialized, and it appears to me that, for the present, it can best be carried out under the Board of School Trustees. In the larger scheme as designed for the future, this should be entirely a Health Department matter.

The responsibility for the control of infectious diseases, however, both in the school and elsewhere, remains and must remain the duty of the Health Department.

RE BACTERIOLOGICAL LABORATORY

In view of the fact that the Provincial Laboratory at the Vancouver General Hospital is overloaded with work and has no room to expand, and is therefore unable to carry out all the work required by the Health Department in the bacteriological examination of samples of milk and water, I suggest that a small Special Committee of the Council-elect be formed to discuss with the Provincial and Hospital authorities the advisability of conducting these examinations in the City Health Department Laboratory.

CO-ORDINATION OF STAFFS

In view of the policy of the various Councils that the employees already in office in the various districts should be taken care of as far as possible, all present incumbents, where suitable, who are engaged anywhere in the area in public health work, will be used in whatever capacity they are best adapted for.

Any additional appointments, however, that may be made, or any replacements, should be made only on the recommendation of the Medical Health Officer, with special reference to technical and other qualifications as already provided for in the Consolidated City By-Laws, all such appointees to be specially trained and possessed of qualifications in Public Health work.

To avoid any misunderstanding, I would point out that the following medical services are not the function of a Health Department, which is concerned with preventive work only and not with the treatment of disease:

POLICE SURGEON AND INSANITY COMMITMENTS

These are not the duty of a Health Officer, but require the services of a physician specially trained in this class of work. The practice has been to call upon the Health Department for assistance in commitments,

and for that reason I suggest that the Police Surgeon be empowered to engage a specialist in mental diseases as consultant in all cases for commitment to the asylum.

MEDICAL ATTENDANCE FOR INDIGENT SICK

This now comes under the direction of the Relief Officer and should remain there. The care and medical attention of the indigent sick is not the function of a Health Department.

The Relief Officer, by investigation, assures himself as to the circumstances of the sick person and then, if necessary, directs a physician to make the visit. This feature of the City's medical service can best be handled by the Relief Officer.

SECONDARY PLAN

As the City of Vancouver grows in size to a population of 500,000 or more, which may reasonably be anticipated within a short period of years, it will be necessary to develop a larger and more comprehensive scheme for the organization of the Health Department so that it will include all the various preventive services under one head, who shall be the City Medical Health Officer.

The attached chart indicates in brief how the different branches of the Department would be organized and the work that would fall to each sub-head.

Each sub-head would have his assistants and would be responsible to the Medical Health Officer for the proper performance of the work allotted to him, and for the duties of those under him.

The sub-departments proposed are as follows:

1. Bureau of Communicable Diseases.
2. Bureau of Child Hygiene.
3. Bureau of Public Health Nursing.
4. Bureau of Laboratories.
5. Bureau of Sanitation.
6. Bureau of Vital Statistics.

No attempt has been made to enter fully into the details of the duties as it is sufficient, for preliminary discussion, to indicate the broad outline of the activities which would fall to each sub-head.

I am of the opinion that the principle of operating the Department from a central authority, as outlined above, is the correct one to adopt.

It is further suggested that the City should be divided into Health Districts and that a whole time district Medical Health Officer, specially trained and qualified in public health work, should be placed in charge of each district and made responsible to the City Medical Health Officer for the operation of every branch of the work in his particular district."

These plans were laid before your Committee on November 6th, and after being discussed and some additions made, the two were approved and adopted by your Committee.

Your Committee is of the opinion that the plans as presented by Dr. Underhill, and being the result of a detailed study by experts in public health work, should receive the endorsation of this Association.

It is the intention of Dr. Underhill, who has been requested by the Council-elect to prepare a report on the amalgamation of the Health Departments of Vancouver, Point Grey and South Vancouver, to present the plans as before outlined, and it will strengthen his hands greatly with the Council-elect if this Association stands behind him by their endorsation of his plan of re-organization.

Your Committee feels that this is an appropriate time to draw to the attention of the incoming Council the inadequate salary paid to the Chief Medical Officer, and which should be remedied at once in view of the very much increased responsibility that will attach to his office.

The attention of the incoming Council is also especially directed to the necessity of providing in its budget, and adequate amount to take care of the necessary development of the Health Services of Greater Vancouver as outlined in the secondary plan of organization and which plan should be adopted by the Council as the basis of future development in this department.

Your Committee also, at this time, desires to draw the attention of the incoming Council to the fact that Vancouver was one of the first cities in Canada to appoint in charge of its Health Department, a full time medical man, qualified in public health work. This has been of inestimable value to the city of Vancouver inasmuch as a very complete organization has been in operation for many years under the charge of Dr. F. T. Underhill and which permits of the amalgamation of the combined Health Services under his direction without unnecessary sacrifice of existing personnel and dislocation of services.

At the various conferences held with the Public Health experts, the principle was stressed time and time again, that the Health Services should always be preventive in character and that treatment, in any way, shape, or form, does not enter into the work of the City Health Department.

Recommendations

This Committee recommends that the time has arrived when the City Medical Health Officer should be relieved of his duty of supervising the City cemeteries and that this work should be placed under the Parks or Public Works Department.

This Committee also recommends that a full time resident Medical Officer be appointed to the Infectious Diseases Hospitals, his duties to be fixed by mutual arrangement between the general superintendent of the Hospital and the City Medical Health Officer and that his salary be paid by the City.

In conclusion your Committee desires to express its sincere thanks to all those members of the profession who co-operated and gave their valuable time and services in assisting in the preparation of this report.

All of which is respectfully submitted.

(Signed) A. S. MONRO
S. PAULIN
A. B. SCHINBEIN

B. C. MEDICAL ASSOCIATION NEWS

A clinical meeting of the Fraser Valley Medical Society was held at the Royal Columbian Hospital on October 23rd, with Dr. O. Van Etter in charge. This was perhaps the most successful clinical meeting ever held in New Westminster, seventeen members being present.

* * *

A meeting of the Fraser Valley Medical Society was held on November 9th at the Royal Columbian Hospital, when Dr. J. W. Arbuckle spoke on "Puerperal Infection." A good attendance was present. It was decided at this meeting that each member of the local Association should take an active part in the clinical meetings held each month.

* * *

On November 13th, the Medical Referee and Medical Members of the Workmen's Compensation Board, Drs. Ney, Bastin and Murphy, addressed a well attended meeting of the Fraser Valley Medical Society at the Royal Columbian Hospital, giving some very interesting facts on the medical work of the Board.

* * *

Dr. R. A. Gilchrist has gone to Ladysmith to assist Dr. H. B. Maxwell.

Dr. Wesley Prowd, Radiologist of St. Paul's Hospital, addressed a well attended luncheon meeting of the B. C. Medical Association on November 14th, choosing as his subject "Impressions of Recent European Tour," including impressions of the International Radiology Congress at Stockholm.

At the close of Dr. Prowd's address, Dr. Wallace Wilson, President of the Association, who was in the chair, called upon Dr. A. S. Lamb, of the Provincial Health Department, for a speech. Dr. Lamb had just returned from Europe the previous day, where he had attended the T. B. conferences, and his brief impromptu sketch of his impressions and experiences proved most interesting.

Out-of-town doctors present included Dr. H. E. Ridewood of Victoria, and Drs. W. A. Clarke, T. B. Green, and W. J. S. Millar of New Westminster.

* * *

Dr. J. F. Haszard of Kimberley has been gazetted Medical Health Officer for Kimberley and district, and Medical Inspector of Schools for Kimberley, Chapman Camp, Marysville, Meadowbrook, and Sullivan Hill.

* * *

The marriage of Miss H. McLeod to Dr. G. A. Lawson of Port Alice took place on November 31st, the ceremony taking place at the home of Dr. and Mrs. Lachlan Macmillan, Vancouver.

The November meeting of the Victoria Medical Society was largely attended, and Dr. R. L. Miller, the newly elected President, introduced Dr. Theo. Lennie of Vancouver, who presented a paper which dealt in a most interesting and instructive way with the "Problem of Goitre," dis-

cussing the classification and treatment and defining the selection and preparation of cases for operative treatment. This paper was freely discussed, and Dr. Lennie kindly answered many questions. On motion of Dr. George Hall a vote of appreciation and thanks was passed to Dr. Lennie for having come from the mainland to provide such a splendid evening for the Society.

* * *

Dr. E. L. McNiven has recently opened offices in the Union Building, and has established practice in Victoria.

* * *

THE MANAGEMENT OF BURNS

READ BEFORE A MEETING OF THE OSLER SOCIETY

BY DR. D. M. MEEKISON

INTRODUCTION

Until 1925, no medical man was called to see a badly burned patient without misgiving, since it was so often a story of death or disfigurement for life. In that year a tremendous advance in the treatment of burns was made by Davidson of Detroit, with the introduction of tannic acid therapy. It has revolutionized the treatment, the mortality has been greatly reduced and the incidence of disfigurement has been appreciably lessened. A review of the literature in connection with this problem reveals how the bio and pathological chemist, the pathologist and the clinician, by their combined efforts and writings have led up to the institution of such a treatment.

The following paper is based on a review of all available literature on burns and on the writer's personal clinical experience gained while serving as Dr. R. I. Harris's house-surgeon in the Hospital for Sick Children, Toronto. The writer's opinions are his opinions, and the writer's experiences are his experiences carefully moulded by him in his capacity as an excellent student and remarkable teacher.

By the system of admissions at present followed at the Hospital for Sick Children, a particular attending surgeon receives all the admissions of any particular condition in which he may be interested. All burns were admitted under Dr. Harris and were directly under his care. In a twelve year period, there were admitted five hundred and sixty-seven patients severely burned. The result of a study of such a series must be valuable.

DEFINITION

Burns from electricity or chemicals will not be considered. These, while having much in common with the usual variety, have their own peculiar problems which we will not discuss. The discussion will be confined to burns produced by heat either dry or moist. Whichever it may be, the clinical problem and treatment are the same. A burn may be defined, then, for the purpose of this paper, as a destruction of skin by heat.

CLINICAL STAGES

First of all let the fact be emphasised that in dealing with burns one is not only concerned with the local lesion, but with the general

reaction of the organism. With this fact in mind, then, the course of an extreme burn may be divided into five stages. Each stage is clearly defined and recognizable. Each presents its own pathology and each its own therapeutic problem. In their proper sequence these are:

1. Primary shock.
2. Secondary shock or toxaemia.
3. Sepsis.
4. Repair.
5. Late contractures and deformities.

All burns do not go through the five stages. The burn may be mild and not show any shock and no ultimate deformity. It may be severe and the patient dies before toxaemia or sepsis is reached.

The clinical stages and their problems will be considered in turn and then the question of treatment will be taken up.

SHOCK

The primary shock of a burn in no way differs from the ordinary surgical shock. It appears within a few minutes and usually lasts from eight to twelve hours. One finds the usual sub-normal temperature, small rapid pulse, low blood pressure, cold clammy skin, shallow respirations, and thirst. It rarely causes death and then only in the most severe and extensive burns.

TOXAEMIA

This phase is the one with which this study is mainly concerned. In the present state of surgical knowledge it is believed that this secondary shock is due to a specific toxin. This complication is peculiar to burns, is found in no other surgical condition and constitutes the greatest problem in treatment, leading as it often does, to a fatal issue. The onset of toxaemia takes place usually at the end of about twenty-four hours and lasts from four to five days. The onset is manifested by a clear-cut group of symptoms—pyrexia (105°), vomiting, muscle twitchings, and convulsions. They are presumably the result of the actions of the toxins on the central nervous system. Seventy-five per cent. of the mortality in burns is due to this toxaemia. Pathologically, one finds evidence of widespread action of the toxin, in the form of haemorrhage and focal necrosis. Very careful studies by Weiskotten in 1919 and Pack in 1926 have contributed extensively to the knowledge of the pathology. The picture is very similar to that found in deaths from diphtheria. All the findings can be adequately explained by the presence of a specific toxin circulating throughout the body and resulting in damage to nearly all the parenchymal organs of the body. The suprarenals have been especially mentioned in the literature. Macroscopic damage here is extremely rare, as is the duodenal ulcer so frequently spoken of in connextion with burns. On the other hand microscopic degenerative changes in the suprarenals are the rule. Only one case was to be found in this series of one hundred and thirty-eight deaths in which there was gross haemorrhage into the suprarenal capsule and a duodenal ulcer was definite. This case is being reported by Dr. Harris.

SOURCE OF TOXIN

It is now reasonably certain that the burned area is the source of the toxin. Bruce Robertson and Boyd produced the toxaemia experimentally.

Excision of the burned area within eight hours prevents the onset of toxaemia. Transplantation of the burned skin to an unburned animal resulted in toxaemia in the latter, while the former remained free. Willis treated a series of eight cases by debridement with prevention of toxaemia.

MANNER OF PRODUCTION AND NATURE

The manner of production of this toxin is hypothetical and will not be discussed. Suffice it to remark that from the fact that toxaemia appears slowly, it must be of vitalistic origin. That is to say, the presence of the burned skin must incite its production in living tissues. If it were the result of the action of heat on the skin, the toxaemia should appear at once. The question naturally arises, then, why should not the presence of dead tissues, such as a gangrenous foot, result in a similar toxaemia. Two reasons may be tentatively advanced. Firstly, it may be true that the products of epithelial digestion are more toxic, and secondly the area of contact of living with dead is much greater in toxic burns. As far as the nature of the toxin goes, it is believed to be a protein derivative, probably a proteose.

SEPSIS

The third or septic stage somewhat overlaps the toxaemic. Infection is present in every burn in which there has been any considerable destruction of tissue. It cannot be treated by applications to keep it aseptic. The dead skin moistened by dressings or secretions provides an excellent medium for bacteria. Locally there is found a foul-smelling purulent discharge and a recurrence of fever. Septicaemia may supervene with a fatal issue, but sepsis is not a common cause of death. The septic stage lasts until the sloughs are separated and free drainage is established. This is usually the end of the second week. In persistent sepsis amyloid disease may become a fatal complication.

REPAIRS

When the sloughs are separated, sepsis ends and repair begins. There now remains the ordinary surgical condition of a healing ulcer. This stage goes on until the ulcer is covered with epithelium. It is here that the degree of the burn is important (Dupytren's Classification). First and second degree burns involve no destruction of epithelium and there is hence no problem of repair. In third degree burns, only the epithelium over the tips of the papillae is destroyed while in the valleys between the epithelium is intact. When the slough separates off, there is to be found a myriad of tiny ulcers in a sea of epithelium, each of which heals from its own margin and repair is rapid and complete in a few days. In burns of the fourth, fifth, and sixth degree, all the epithelium is destroyed and healing, necessarily from the margin of the large ulcer, is necessarily slow. Contracture of the scar tissue hastens healing by drawing the margins together, but it results in deformities. The scar is produced by the oldest granulation tissue being transformed into scar tissue, due to the prolonged period of healing. Evidence of this may be seen in the puckered margin of every deep and extensive burn.

It must not be forgotten that most burns are composite. A fourth degree burn looks exactly like a third degree, and it is not until the dead

skin has separated that the degree may be determined. When one has a fourth degree burn, one usually finds areas of all the other milder degrees.

LATE CONTRACTURES AND DEFORMITIES

These occur only in those cases in which the burn has been extensive, of fourth degree or greater, and in which healing has been slow. Scar tissue near joints results in contractures. Scar tissue in lax areas results in great distorting deformities as is seen in burns of the face and neck. No amount of care during the stage of healing can do more than minimize these deformities. Further, the contracting scar impairs the blood supply to the thin epithelium which covers it and as a result slight trauma often produces ulceration in these areas.

TREATMENT

Treatment falls under two general headings. In the first two stages it is constitutional and in the last three it is local.

SHOCK

The treatment of the primary shock is the usual treatment of any surgical shock. The surgeon's vade mecum is morphia, while heat and fluids are his right and left hands. Occasionally transfusion is necessary. Treatment of the burned area should be withheld until the shock has passed off.

TOXAEMIA

The treatment of the toxaemia is the one that next demands attention. Here, of course, prophylaxis is the key-note. One has an extensive burn. Unless steps are taken to prevent it, toxaemia, frequently with a fatal issue, is inevitable. In the development of the treatment which will be emphasised many observations have contributed. The first clue to its prevention was the result obtained by excision of the burned area. The result as far as the toxaemia is concerned, is excellent, but in every other way there are grave objections to its employment. Firstly it necessitated the use of anaesthesia, contributing further to shock. Secondly no one has any means at hand, of distinguishing the depth of a burn, particularly between third and fourth degree. Finally, in burns about the face, excision of the burned area is out of the question.

Many forms of therapy have been advocated with the idea of fixing the toxins, depressing enzymatic activity, or constricting the base of the burn to prevent absorption. Soda bicarbonate dressings as used in Edinburgh were, at the Hospital for Sick Children, very disappointing. These were supposed to chemically inhibit enzyme activity. The action of adrenaline as a base constrictor is too evanescent and is followed by a period of congestion. Absolute alcohol as a fixative is difficult of application and is painful. Picric acid as a fixative, was a step in the right direction, but it fell far short of being ideal. Aluminium aniline has met with little approval. In the much heralded paraffin protective treatment, the course of the toxaemia is in no way affected. Where the toxaemia is well-established, the operation of exsanguination-transfusion of Bruce Robertson has been of inestimable value. It is virtually a "washing-out" of the blood stream. It has certain limitations in so far as only a portion of the toxins are removed, and the highly technical nature of the operation requires it to be carried out in a well-equipped operating room by a

competent team of surgeons. This will greatly limit its use. Details of the technique are available in the Archives of Surgery, for July, 1924.

TANNIC ACID

To Davidson of Detroit must go the credit for the introduction of the greatest advance in the treatment of burns that has yet been seen. One should mention a friend of his, E. C. Mason, of the same city, who pointed out to Davidson the similarity between tannic and phosphotungstic acid in regard to their property of precipitating protein. The latter was investigating the possible use of phosphotungstic acid as a coagulant. It was his idea that it might be possible to alter the burned skin so as to render it insoluble by the enzymes, or at least acted upon with such difficulty that the elimination of the toxins would be as rapid as their formation. For this purpose he used tannic acid, the most powerful precipitant of proteins known. Tannic acid therapy reduces the toxaemia to an astounding degree. In most cases it prevents it. The few cases in which it fails to entirely prevent toxaemia are probably due to the mechanical difficulty of tanning a deep burn through its entire thickness.

SECONDARY ADVANTAGES

The reduction of toxaemia is the great function of tannic acid, but there are other advantages of inestimable value in its use. Firstly it precipitates protein only in faintly acid media. Burned tissue is faintly acid in reaction. Living tissues are faintly alkaline. Hence it acts only on the burned skin. Then again, it obviates the use of dressings. The burned skin is actually tanned to a black, dry, non-sensitive sheet of leather which effectively protects the underlying living tissues. Until the slough separates on the seventh to tenth day, no other dressing is required. Third, all third degree burns and some fourth degree are completely epithelialized when the slough separates. Finally, the leather is a poor medium for bacteria and sepsis is greatly reduced. These many virtues establish tannic acid as the best treatment for burns yet devised.

TECHNIQUE

The technique that has been worked out in the Hospital for Sick Children as the most convenient and effective may be indicated as follows. As soon as possible after admission the patient's clothing is removed and the burned area cleaned with gasoline and ether to remove any grease that may have been applied. Blebs are opened at this juncture.

The burned area is then sprayed with a freshly prepared 10% aqueous solution of tannic acid. This is repeated every half hour for twenty-four hours by which time the area is usually thoroughly tanned. The patient lies completely unclothed in what is termed a "burn-bed." This is simply an ordinary bed covered in with blankets wherein the temperature is maintained at around 98° F. by a number of electric lights burning inside. The patient's eyes are protected from the glare

of the lights by a curtain. The light bath is an important aid in producing an effective tan, since its drying action produces a firm, parchment-like sheet of leather. When the stage of sepsis appears at the end of a week or so, the slough is removed by means of scissors or scalpel. Fluids are exhibited freely from the onset, intravenously if necessary.

SEPSIS

The most important factor in the treatment of the sepsis is the removal of the dead skin. This establishes free drainage and the resulting ulcer can be effectively treated with antiseptic dressings. No dressings are of any value over the slough. In all fourth degree burns moisture collects beneath the necrotic skin and becomes infected. From the end of the first week the slough should be examined daily and loose edges trimmed off with scissors or scalpel. When the slough has completely separated, antiseptic dressings are employed. The chlorine dressings (Eusol, Dakins) have been found to be the most effective.

TREATMENT IN STAGE OF REPAIR

This consists in the use of antiseptic dressings to reduce the infection to a minimum. In short it is the surgical treatment of an ulcer. When the wound is clean it is to be decided as to whether skin-grafting will be necessary or not. All extensive fourth degree burns should be covered with Thiersch grafts as early as possible. These should be autogenous. Grafts from donors are a failure, as are whole thickness grafts. Scar formation is thus greatly reduced. Paraffined mesh gauze tacked to the margin of the wound supplies the necessary pressure for a successful "take." Late deformities may be mitigated to some degree in this stage by maintaining affected limbs in positions of greatest usefulness.

TREATMENT OF CONTRACTURES

These occur in certain cases in spite of careful treatment. The only satisfactory method of handling them is to remove the scar. In some cases this may be accomplished by excision and saturing of the margins after undermining. More often it requires the employment of pedicle skin flaps to the areas from which the scars have been excised.

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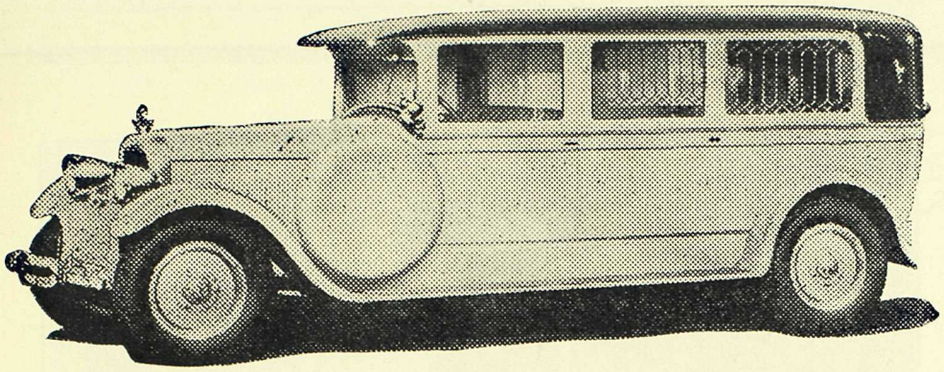

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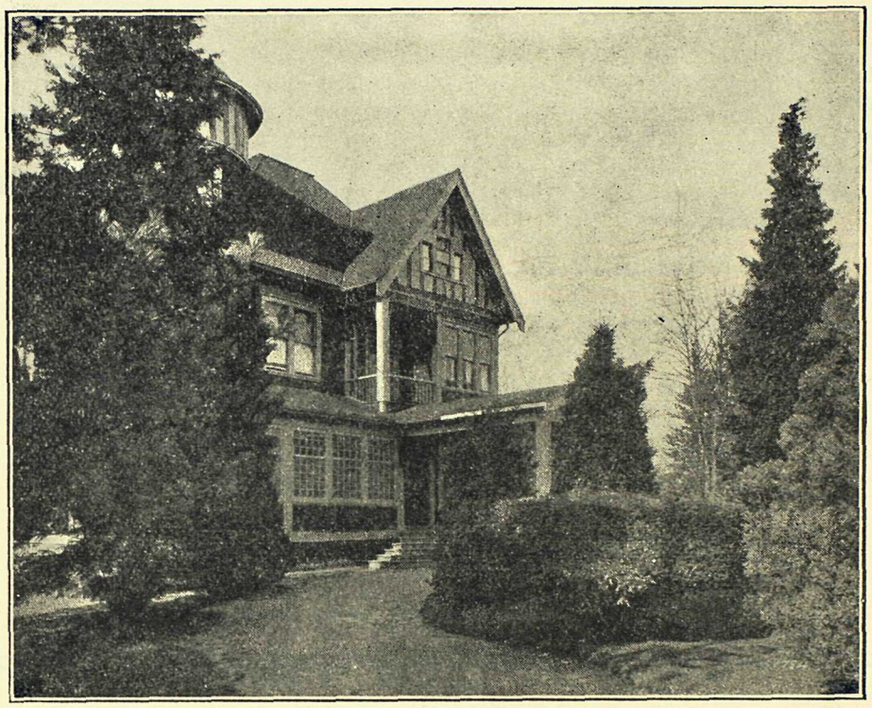

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