THE

# BULLETIN

Published By

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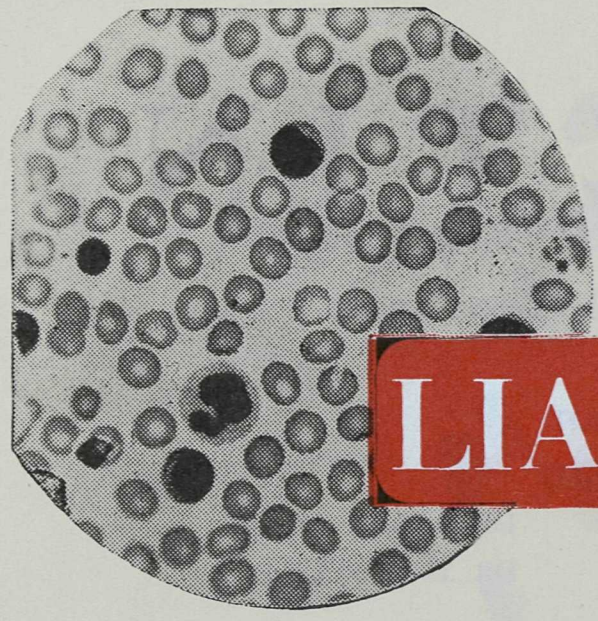

# *When it is difficult to categorize the anemia*

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# VANCOUVER HEALTH DEPARTMENT

## CASES OF COMMUNICABLE DISEASE REPORTED IN THE CITY

### Statistics — MARCH, 1948

| | |
|---|---|
| Total Population—Estimatel | 354,045 |
| Chinese Population—Estimated | 7,979 |
| Hindu Population—Estimated | 275 |

| | *Number* | *Rate Per 1,000 Population* |
|---|---|---|
| Total deaths | 411 | 13.7 |
| Chinese deaths | 10 | 14.8 |
| Deaths, residents only | 375 | 12.5 |

BIRTH REGISTRATIONS:

| | | |
|---|---|---|
| Male | 431 | |
| Female | 367 | |
| | 798 | 26.6 |

| INFANT MORTALITY: | March, 1948 | March, 1947 |
|---|---|---|
| Deaths under 1 year of age | 13 | 34 |
| Death rate per 1000 live births | 21.3 | 41.2 |
| Stillbirths (not included above) | 5 | 11 |

CASES OF COMMUNICABLE DISEASE REPORTED IN THE CITY

| | Number | | Rate Per 1,000 Population | |
|---|---|---|---|---|
| | April, 1948 | | March, 1948 | |
| | Cases | Deaths | Cases | Deaths |
| Scarlet Fever | 6 | 0 | 12 | 0 |
| Diphtheria | 1 | 0 | 0 | 0 |
| Diphtheria Carrier | 15 | 0 | 3 | 0 |
| Chicken Pox | 90 | 0 | 68 | 0 |
| Measles | 284 | 0 | 255 | 0 |
| Rubella | 21 | 0 | 8 | 0 |
| Mumps | 13 | 0 | 7 | 0 |
| Whooping Cough | 0 | 0 | 1 | 0 |
| Typhoid Fever | 0 | 0 | 0 | 0 |
| Undulant Fever | 4 | 0 | 2 | 0 |
| Poliomyelitis | 0 | 0 | 0 | 0 |
| Tuberculosis | 52 | 15 | 46 | 11 |
| Erysipelas | 2 | 0 | 2 | 0 |
| Meningococcus (Meningitis) | 0 | 0 | 0 | 0 |
| Infectious Jaundice | 1 | 0 | 0 | 0 |
| Salmonellosis | 2 | 0 | 0 | 0 |
| Salmonellosis (Carrier) | 0 | 0 | 0 | 0 |
| Dysentery | 0 | 0 | 0 | 0 |
| Dysentery (Carriers) | 0 | 0 | 0 | 0 |
| Tetanus | 0 | 0 | 0 | 0 |
| Syphilis (not available) | 40 | 2 | 75 | 0 |
| Gonorrhoea (not available) | 181 | 0 | 206 | 0 |
| Cancer (Reportable): | | | | |
| Resident | 90 | 0 | 104 | 0 |
| Non-Resident | 37 | 0 | 23 | 0 |

# PROCAINE PENICILLIN G IN OIL

## A New Development in the Use of Penicillin

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# The Editor's Page

At the recent Annual Meeting of the Canadian Medical Association, held in Toronto, there were two events which seem to us to have quite a far-reaching significance to the practice of medicine in Canada.

The first was the Lister Oration, delivered by that master surgeon of whom all Canadian medical men are justly proud, Dr. W. E. Gallie of Toronto. He dealt with the modern trend in surgical education in the training of a surgeon, and, we take it, his remarks apply to the training of other specialists. It is quite a business, in these modern days. After the completion of his medical course, the would-be surgeon, to meet the requirements of the Royal Canadian College, must put in at least four and possibly five more years, before he can be regarded as a competent and fully qualified surgeon. These years are gruelling years of intensive study and training—going through internship, junior and senior residencies, and so on, till at last the finished product is released.

It is not our purpose to deny that this may, perhaps, ultimately be the right plan. But it is a very far cry from the process through which Dr. Gallie himself reached his present eminence as a surgeon. In the early part of his address, he reminisced a bit, and gave us an anecdote or two of his own early beginnings. Unconsciously, he revealed some of the characteristics that led him to success, one was courage, and that peculiar type of courage, not untinged with a certain ruthlessness, and willingness to back one's own judgment, even though it means a bit of risk, that is, we think, an essential quality in the good surgeon—at least it has marked all the great surgeons we have known. Another is mechanical aptitude—the "hands" for the job; and nobody can deny that Gallie has this in full measure. Then there is judgment—surely based on long, hard-won experience and the ability to evaluate that experience—that can only come through years of practice. Again, all the great surgeons we have known have had that quality—almost intuitive it appears at first, till one realizes that it is not intuition but experience on which they really rely. And there are other qualities of head and heart, of sympathy and understanding, that can only come through long contact with the sick and suffering, who put their lives and fortunes in the physician's hands, and with them their faith and trust.

It is perhaps too soon to say that the new processes will not be as good—but one wonders nevertheless whether they will turn out as good men as the process which gave us a Gallie, or any of the other great names in medicine and surgery, whom we can all remember. Certainly they cannot do better.

The old way used to be to come to specialising through general practice. But if the new way is to be carried out as its present form would lead us to suppose, there will be no more of that. "Once a general practitioner, always a general practitioner" would seem to be the present slogan. The requirements for specialism are such that one cannot come back to them, after some years of general practice. If the young graduate wants to specialise, he must make up his mind before he leaves the training school.

There are many reasons why we think, ungenerately, that this is wrong. Some have been hinted at above. Another reason is the expense in time and money, the long, overlong, time that one must put in at merely learning. If one could be guaranteed an immediate practice after this training, it might be worth while even then. But we see every day that men who have had this training and have their certificates, are forced by the exigencies of daily life to take up general practice, for a while at least, merely to make a living. Only the well-to-do or the lucky or the outstanding can arrive immediately at success in their specialty. Perhaps, from the public's point of view, this is all to the good—the public needs and clamours for general practitioners—but it surely reveals the fact that there is a flaw somewhere.

Might it not be better to combine the two ideas? To encourage general practice as a beginning, to be followed by special training and diversion into the chosen specialty? This would ensure a constant supply of men for general practice—thus fulfilling a very great and very real need. It would insure, too, that a man would choose a specialty for which he has found by experience that he was fitted by ability and temperament, and that his choice would have a basis of tempered judgment, rather than of glamour and perhaps even less worthy considerations.

The other event, the formation of a General Practitioners' Section as one of the regular sections of the Canadian Medical Association, somewhat emphasizes the points we have made. During the animated discussion that took place at the meeting, there was a demand for a return to the point of view that considers the main needs of the sick, the necessity for more and better general practitioners, the improvement of their status and of their standards of practice. This we think is a healthy sign, and a wise step has been taken. It is high time that we considered realistically the needs of the public, and stopped encasing ourselves in an ivory tower of specialism, which seems to be what we are rapidly doing. Such action on our part is bound to bring about reaction.

Public opinion and the necessities of the case, the rapidly increasing cost of medical care, all these will combine to bring about changes, some of which may not be to our taste. It is high time we put our own house in order—and we are glad to see that the first move in this direction has been made.

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## LIBRARY NOTES

**SUMMER HOURS:** Monday - Friday ..... 9.00 a.m. to 5.00 p.m.
Saturday ..... 9.00 a.m. to 1.00 p.m.

**NOTICE:** Evening hours in the library will be discontinued during the summer months. This will be effective from July 5th to October 1st inclusive.

RECENT ACCESSIONS TO LIBRARY—

Quantitative Clinical Chemistry Interpretations, 2nd ed., 1946, by Peters, J. P., and Van Slyde, D. D.

Practical Physiological Chemistry, 12th ed., 1947, by Hawk, P. B., Oser, B. L., and Summerson, W. H.

Diseases of the Nose, Throat and Ear, 1946, by C. Jackson.

Amedican Diabetes Association—Proceedings of Sixth Annual Meeting.

Textbook of Histology, 3rd ed., 1941, by E. V. Cowdry.

Radiologic Examination of the Small Intestine, 2nd imp., 1945, by R. Golden.

Recent Advances in Endocrinology, 6th ed., 1947, by A. T. Cameron.

Renal Diseases, 1947, by E. T. Bell.

Eye Manifestations of Internal Diseases, 2nd ed., 1946, by I. S. Tassman.

Morphologic Hematology, Special Issue No. 1—Blood, The Journal of Hematology, 1946, edited by W. Dameshek.

Medical Research—A Symposium, 1946, edited by A. Smith.

Our Inner Conflicts, 1945, by K. Horney.

Charles Edouard Brown-Séquard, 1946, by J. M. D. Olmstead (Historical and Ultra-Scientific Fund.

The Ranks of Dealth (A Medical History of the Conquest of America), 1947, by P. M. Ashburn (Historical and Ultra-Scientific Fund).

Clinical Neuro-Ophthalmology, 1947, by F. B. Walsh.

Development Diagnosis, 2nd ed., 1947, Gesell, A., and Amatruda, C. S.

Atlas of the Blood in Children 2nd printing, 1945, by Blackfan, K. D., and Diamond, L. K.

Surgical Clinics of North America, Symposium on Blood Vessel Surgery, Neurosurgery, New York Number, April, 1948.

Diagnosis in Sterility, 2nd printing, 1947, edited by Earl T. Engle.

The Modern Treatment of Diabetes, 1946, by Collens, W. S., and Boas, L. C.

Technic of Electrotherapy, 1944, by Osborne, S. L., and Holmquest, H. J. (Gift of Dr. C. H. Bastin).

Injuries and Diseases of the Oesophagus (Hunterian Oration for 1944), 1946, by T. G. Grey.

## Library Books Wanted

Members are asked to make a careful check of their libraries to see if any of the following books or journals are in their possession and, if any are found, would they please return them to the Medical Library as soon as possible:

BOOKS—

Applied Psychology, 8th ed., 1945, by Samson Wright (No. 4.A.39).

Insanity as a Criminal Defence, 1931, by W. J. C. Meredith (No. 34.A.12).

Man Against Himself, 1938, by Karl A. Menninger (No. 10.O.37).

The Physiological Basis of Medical Practice, 1945, by Best, C. H., and Taylor, N. D. (No. 4.A.40).

Surgical Clinics of North America, Symposium on Neurosurgery (No. 23. A.35-164).

Recent Advances in Forensic Medicine, 1931, by Smith, S., and Glaister, J.

JOURNALS—

American Journal of Digestive Diseases, Vol. 14, No. 1—Jan., 1947.

Blood—The Journal of Hematology, Vol. 1, No. 1—January, 1947.

British Journal of Surgery, Vol. 34, No. 135—January, 1947.

British Medical Journal, Vol. 1 1947—No. 4494 February 22; No. 4495 February 29; No. 4510 June 14; No. 4511 June 21.

Journal of Allergy Vol. 177 No. 6—November, 1946.

Journal of Laboratory and Clinical Medicine, Vol. 32, No. 8—August, 1947.

Surgery, Gynecology and Obstetrics, Vol. 85, No. 1—July, 1947.

# Vancouver Medical Association

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## SUMMER SCHOOL — 1948

The twenty-sixth annual Summer School was held during the first week of June this year, and the slate of speakers compared favourably in their lectures and clinics with the speakers of former years.

We were particularly fortunate in having Sir William Fletcher Shaw, formerly Professor of Clinical Obstetrics and Gynaecology, Victoria University, Manchester, England, as one of our speakers, and as our guest speaker at the luncheon held on the opening day. Dr. Laurence S. Fallis, Surgeon-in-Charge, Division of General Surgery, Henry Ford Hospital, Detroit, Michigan, presented an interesting surgical clinic at St. Paul's Hospital and his lectures were well received. Dr. James J. Waring, Professor of Medicine, University of Colorado, School of Medicine and Hospitals, Denver, not only presented an interesting series of talks, but also conducted the medical clinic at Shaughnessy Military Hospital in an interesting manner. The presentation of dermatological conditions by Dr. Samuel Ayres, Jr., Professor of Dermatology and Syphilology, College of Medical Evangelists, University of Southern California in Los Angeles, was very apt and of great practical value. Dr. Douglas Campbell, Assistant Clinical Professor of Psychiatry, University of California Medical School, San Francisco, gave to the general practioner a good conception of the psychosomatic conditions in medicine which are so very important at the present time.

The golf tournament was held at Peace Portal under the excellent management of Dr. G. Langley.

The registration this year was lower than other years, there being a total registration of 229. - Of this number 45 were out of town visitors, 9 of whom were from the U. S. A. It is regretable that out of a total membership of 480 in the Vancouver Medical Association, there was only 184 registered at the Summer School.

## SUMMER SCHOOL REGISTRATION, 1948

Agnew, A. M.
Arber, S. R.—Haney, B.C.
Arbuckle, J. W.
Armitage, T. F. H.
Austin, W. E.
Baird, Murray
Baker, H. G.
Baker, S. W.—Ladysmith, B.C.
Baldwin, S. G.
Baron, P. J.
Barr, H. P.—Penticton
Beach, D. W.—West Van.
Beecher, J. C.
Beck, R. E.—(V.G.H.)
Benwell, C. E.—Essondale
Berger, B.—Port Coquitlam
Bie, W.—(V.G.H.)
Blair, Murray
Black, J. H.
Boulter, W. L.
Boxall, E. A.
Brown, C. E.
Browne, C. C.—Nanaimo
Burke, Gordon C.
Burke, Gerald
Burwell, W. K.
Bryson, B. F.—Essondale
Caverhill, M. W.C.B.
Caple, H. H.
Campbell, C. G. (V.G.H.)
Campbell, E. A.
Caunt, T. B.—Essondale
Chipperfield, L. S.—New West.
Christopher, H. C.—Seattle
Christopherson, E.
Coddington, R. D.

Collison, D. B.
Coltart, J. L.
Cooper, Harry
Covernton, C. C.—Shaughnessy
Crofton, F. (V.G.H.)
Cleveland, D. E. H.
Dalrymple, T.
Davidson, G. A.
Davis, H. R. L.
DesBrisay, H. A.
Dempsey, G. R.—Seattle
Dickey, M. R.
Dodds, W. A.—Ladner
Dorrance, W. J.
Dowsley, G. A.
Drache, Victor
Dumont, H.
Duncan, B.—Dawson City
Dwyer, C. H.
Edgar, M. L.
Elliott, J. A.
Elliott, B. F.
Ellis, J. P.
Evans, S.—West Van.
Evans, W. G.
Farish, J. R.—Shaughnessy
Fister, W. P.—Essondale
Friesen, L.
Fraser, G. A. (Children's Hospital)
Frost, A. C. Gardner
Frost, J. W.
Frost, M.
Ganshorn, J. A.
Garner, M. K.
Gaudin, M. L.—New West.
Gilchrist, R. A.
Gould, Grant
Gould, C. E.
Graham, H. C.—North Van.
Grant, J. H. B.
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Greene, I. B.—Everson
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Hebb, Frank
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Henry, A. T.
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Hunt, A. L.
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Jackson, Irlma-Kennedy—West Van.
Jackson, Paul
Johnson, E. A.
Johnston, Fergus
Johnston, Gordon C.
Kanee, Ben
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King, D. M.
Kinsey, F. E.
Kirkpatrick, G. E. J.
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MacMillan, J. A.
McMillan, J. L.—(V.G.H.)
McNab, J. A.
McNair, A. Y.
McNair, F. E. (Essondale)
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Manson, A. B.
Mathieson, A. K.
Marteinsson, B. T. H.
Mathews, G. O.
May, Susan
Milbrandt, W. E. (W.C.B.)
Milburn, H. H.
Millare, R. D.
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Minorgan, G. A.
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Morrison, MacKenzie
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Murray, Fraser
Murray, M. (W.C.B.)
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Peacock, E.—West Van.
Peacock, K. A.—West Van.
Pearce, Lois
Petrie, G. A.
Rice, R. M. (Essondale)
Riedesel, A. W.—Aberdeen, Wash.

Roberts, W. H.—Sidney, B.C.
Robertson, Eric
Robertson, Rocke
Ruskin, S. G.
Ryall, D. B.—McBride, B.C.
Saunders, F. E.
Sauriol, L.—New. West.
Saxton, G. D.
Schilder, G.
Schreiber, M.—Port Coquitlam
Scott, Henry
Shallard, B. F.
Shuler, Ivan J. D.—Seattle, Wash.
Simpson, W. W.
Sinclair, J. A.—New West.
Sochowski, J.
Speelmon, Rex—Spokane, Wash.
Stanley, R. A.
Stanwood, R. A.
Steele, D. A.
Steiman, Iser
Stephenson, G. H. (Essondale)
Stoffman, I. W.
Story, Boyd
Strong, G. F.
Sylling, M. F.
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Smith, G. L.
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Telford, K.
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Trites, A. E.
Turnbull, Frank
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## SUMMER SCHOOL GOLF PRIZES

| | |
|---|---|
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| Second Low Net | Dr. W. G. Evans |
| Low Gross | Dr. G. E. Langley |
| Second Low Gross | Dr. P. W. Morse |
| Low Net (18 or over handicap) | Dr. G. H. McsLaughlin, North Vancouver. |
| Longest Drive | Dr. Gerald Burke |
| Nearest the Pin | Dr. Harry Cooper |
| Hidden Hole | Dr. J. A. McNab |

*Mr. McAlpine was gind enough to give us the following abstract of his address given at the V.M.A. Annual Meeting. Unfortunately, the written account necessarily omits many obiter dicta of Mr. McAlpine's stories, remarks that he made as he went along, and so on, all of which added to the great pleasure with which we listened to him. We advise all medical men to read this, and to pay special attention to the advice given at the end. Ed.*

# SOME ASPECTS OF LAW AND MEDICINE

Given by Mr. Claude L. McAlpine, K.C.

(Annual Meeting Vancouver Medical Association, May 4, 1948.)

From a cursory examination it seems to me that medicine and law have a common origin. Both surgery and law are as old as human needs. In the beginning battles were frequent and a certain skill in staunching wounds and in the extraction of arrows and the binding up of broken limbs with splints was common to man everywhere. And at the same time some kind of law must have existed which enabled armies to be assembled and orders obeyed.

The practice of medicine was carried on by the witch doctor who cured, if at all, by the use of certain herbs, but more particularly in the eyes of the tribe, by the incantations and mumbo-jumbo of his profession, and after reading a great many medical reports, as I have in the course of a number of years of practice, and after hearing medical testimony as to the nature of the injury, I have come to the conclusion that the mumbo-jumbo of medical terms does still mislead a trial judge to the extent of doubling the amount of recovery to which the Plaintiff is entitled, on some occasions.

I remember a case before Mr. Justice Murphy when a medical practitioner, when describing the results of a broken leg stated that the muscles of the leg had become atrophied. The learned judge then asked if that was due to injury to the nerves. To my amazement the reply was in the affirmative. I was, however, able to convince the Court that the atrophy in that case was due to disuse.

Medicine and surgery both reached a high degree of efficiency in Europe during the Hippocratic era, but England was unaffected by the continental developments and so we have with the Norman Conquest law and medicine in approximately the same stage of development, the superstitious period. No progress seems to have been made in surgery in England until the 17th century, until the advent of William Wiseman, the personal surgeon to the Stuarts. He is known as the father of English surgery. It was perhaps he who operated on Lady Pepys for stones in the bladder. I read some years ago an account of this operation. (Mr. McAlpine described the operation as he had read of it —a brutal crushing operation, from which the patient, *mirabile dictu,* made a complete recovery.)

Then until the early part of the 19th century the barber was the surgeon and the physician was the leech, and while there were schools of mdicine and surgery in Edinburgh and London, no advancements were made of any consequence until the middle and latter part of the 19th century.

Dr. Charles Eliot on his election to the office of President of Harvard University made a survey of the Harvard Medical School in approximately the year 1880, and thereafter came to the conclusion that the medical school was turning out on the unsuspecting public, as qualified physicians and surgeons, persons who could not even diagnose a case of measles. However slow development may have been in England and in the United States, there have been in the course of the last thirty years enormous developments both in medicine and surgery, due mainly to the research work done by medical scientists.

While law had its origin in superstition, as did medicine, it has not reached the stage of advancement that the medical profession has achieved. Starting with the Norman Conquest we find trial by ordeal. The guilt or innocence of an accused person, or a party litigant, depended not on the truth or faults of the facts, but on whether or not an arm plunged into boiling water or feet burned by walking over red-hot plough shares healed within a certain time. If those wounds healed a man was innocent. If they did not he was guilty and the penalties were imposed. This method of trial, of course, had its origin in the belief of divine intervention, that the Gods, whoever they might be, would see to it that the innocent would be healed within the required period.

With the advent of William the Conqueror and his Normans a new method of trial was either brought from the continent or developed by the Normans themselves. This was trial by battle. Its basic concept was, of course, the belief that God or the Gods would protect the innocent and make him victorious in battle. William the Conqueror was wise enough to permit the Anglo-Saxon to retain their own system—trial by ordeal. But it was not long before this latter was abolished, as the Anglo-Saxon took kindly and perhaps enthusiastically to the new method of settling disputes by battle. So it was that trial by ordeal was abolished in the 12th Century. In the early part of the 13th Century the system we now know as trial by jury began to develop. This was purely an English system. Jury, in the first instance, meant trial by witnesses. Any person who knew anything about the cause, whether criminal or civil, was chosen for the jury. They gave their verdict on the basis of the special knowledge that they themselves possessed of the facts. Gradually this system was changed, and trial by jury became to mean trial by persons having no knowledge of the facts in the cause.

When trial by ordeal was abolished, trial by battle was the constitutional right of all Englishmen, so it was necessary to obtain a litigant's consent before he could be tried by jury. Generally the consent was gladly given. Sometimes, however, the litigant would refuse to consent, whereupon he would be stretched out on his back on the floor of the prison and tied hand and foot. Weights would then be applied to his chest until he either consented to trial by jury or was crushed to death. If a man had no chance of acquittal he often preferred to be crushed to death rather than consent to trial by jury and suffer the severe penalties that were then in vogue. The last case of a man crushed to death for refusal to consent to trial by jury in England was in the year 1795.

In the United States, in Massachusetts, in the year 1805 a man by the name of Sewell, a name now as old and respected as that of a Cabot or a Lowell, was crushed to death for refusing to consent to trial by jury.

(Definition of Massachusetts: I received my education in Massachusetts and perhaps the only thing I learned there was the derivative of the word "Massachusetts." It comes from Moses. You drop the oses and add assachusetts.)

The English Courts were startled about the year 1920 by a case where a tailor sued a Colonel in the British Army. The Colonel retained some smart solicitor, who apparently had been looking up his law. When the pleadings were filed, the defendant, the Colonel, by his solicitor, demanded trial by battle. As the Colonel was a big man and the tailor a small one, the plea was not accepted and the action was dismissed.

It is, I think, fair to say that certainly up to the latter part of the 19th century the law reverenced property more than human rights. The rights of property had more sanctity than the rights of the human being. It was not until 1827 that landlords were forbitten the free use of spring guns and mantraps to protect their game. Innocent trespassers who had lost their way in the darkness were often killed by these devices. Better, it was argued, that honest men who had never fired a gun should be exposed to death by spring guns or mantraps than that a country gentleman should have failed to preserve his game.

As you all know, at late as the time of Dickens minor crimes numbering approximately one hundred, for such things as the theft of a handkerchief or a loaf of bread, were punishable by death, and in the debate in Parliament on legislation brought in to abolish these extreme penalties a Lord Chancellor, the Keeper of the King's conscience,

foresaw a tidal wave of crime resulting in the complete destruction of law and order, with the passing of the Acts.

It was not until 1850 that a party to an action or the husband or wife of such a party was permitted to give evidence in a court of law. So if A assaulted B, and no one else was present, neither A nor B could give evidence. Nor, of course, could the prisoner in the dock. This rule was based on the false assumption or theory that any person who was a party to a lawsuit, whether civil or criminal, would commit perjury, and this at a time when the hell of fire and brimstone was the actual concept of all christian people. As an example of how unwilling people were to commit perjury I would like to cite you a case of litigation in respect to a will when Sir Henry Hawkins was cross-examining, and when the penalties for fraud and conspiracy were heavy and severe. (The speaker told of a case where a will was being offered for probate. It had ostensibly been signed by the testator while dying, and the two witnesses, who were beneficiaries, swore that he held the pen and made his signature. The counsel for the Crown noticed that each in turn used the same phrase, "he had life in him." As he questioned them more vigorously, it was discovered that the man was dead. A live fly had been placed in his mouth, and the pen placed in his hand, which was then guided over the paper by one of these men. They had no objections to conspiracy, but would not commit perjury.) The wonder in looking back at this state of affairs is that justice was ever done.

But in the last thirty or forty years the law has undergone a change. The emphasis today is not on property. Today the law is endeavouring to meet and make its rules applicable to the ultimate goal that human wants shall be satisfied.

1. No longer can a man cut his wife and children off by his will. Testator's Family Maintenance Act prevents this.
2. No longer are damages awarded for fault alone. The Workmen's Compensation Act awards compensation irrespective of blame.
3. No longer can the individual contract *without regard to remuneration and the welfare of the employee*. We have our Minimum Wage Act and the Hours of Work Act, and Acts governing the conditions of employment in various industries.
4. No longer is a workman or a workwoman subject to conditions of sweatshop labour. Perhaps the pendulum has swung too far the other way and the employer often now finds his employee the master.
5. In the last session of the local House an amendment was passed to enable a wife to file a claim against the marital home. Dower rights are thus being restored.

Compulsory insurance is in my opinion only a step toward compensation irrespective of fault.

So legal values have and are changing; rights over lands and private rights, which are anti-social, are being abolished and social legislation is taking its place.

Now what is the relation of medicine to law? It has had some effective results, but it can and must be more effective now and in the future.

It is not more than 150 years ago that insanity was no defence. The killer was not excused because he had lost his mind. He had committed a murder, consequently he paid the penalty. Then it was allowed in a Court of law within very narrow limits that insanity was a defence when the killer had so lost his mind as to be no more capable of understanding than the wild beast. This was known as the wild beast stage. Owing to public pressure the matter was crystallized in the McNaughten case in 1843, when McNaughten was tried for the murder of Lord Peel's secretary. The House of Lords, after conferring with the legal-medical men of the age, laid down the rules:

1. That all men are presumed sane until the contrary is proven.
2. The defence must clearly prove, in order to establish the defence of insanity, that at the time of committing the act he did not know the nature and quality of it, or if he did, he did not know that it was wrong. And so if a man cut off

his girl friend's head and then gleefully told his friends what fun it would be to watch her look for it when she woke up in the morning, the defence of insanity would be of no avail. He knew that he had done something mischievous and therefore could distinguish between right and wrong.

This rule of law is the law today. It is, of course, obsolete, as every doctor knows. One who commits murder under some uncontrollable impluse is certainly not morally responsible, although he may know that what he is doing is wrong. If he is not morally responsible he sould not be legally responsible.

With all the great developments that have occurred in the fields of psychiatry and psychology, while every one concedes that this definition of sanity has little relation to the truths of mental life, nothing has been done. This is not the fault of the Courts, for they are bound to decide the law as it is. The cure lies in legislation. It is the fault of lawyers, who perhaps have ignored this branch of the subject; but particularly it is the fault of medical men, for they are the persons who possess the special knowledge and can deal with the matter intelligently. Resolutions from bodies such as this Medical Association can bring enough pressure to bear on Parliament to enforce the needed amendments. There is, of course, always the danger that a definition may be so broad as to open wide the door to evasion and imposture. There is the case of the priest in the State of New York who was charged with the murder of his mistress. He pleaded insanity, stating that he heard the voice of God calling upon him day and night to sacrifice and slay her. He yielded to the call, believing it was his moral duty so to do. The lower Court held that his belief was no defence unless he did not know what he was doing was wrong. This ruling was upset by the Court of Appeal, and a new trial ordered. On the second trial he admitted under oath that the whole defence of insanity was an imposture and a sham.

The rule in McNaughten's case could without any difficulty be modernized and brought into line with the present-day knowledge of mental diseases. Committees of the Medical Association all over Canada (and I am sure the Canadian Bar Associations would give their fullest co-operation) could meet together and formulate a definition that would have some relation to reality, or the medical profession itself could call upon the Minister of Justice to appoint a Commission of specially qualified medical men to go into the question of what, if any, amendments should be made.

Apart from insanity there are many other crimes in the Criminal Calendar punishable by imprisonment, which in the opinion of men of science and even laymen, are not the acts of criminals, but the acts of persons suffering from metal disease. The exhibitionist who exhibits his person before children of tender years belong in a psychopathic ward, not in Oakalla. The man who toys with small children is in the same category. Specialists in mental diseases go quite far, and they may be right, in stating that many more crimes are the result of mental disease, rather than criminal acts. Here too the opinion of medical society publicly expressly to the law makers can effect a long-felt remedy. It is disgraceful to think that our Criminal Code is so out of tune with present-day learning.

Euthanasia is another problem that is primarily that of the medical men. There will, of course, be strong opposition from the church, but it is my earnest belief, as I think it is the belief of every man of common sense, that the incurable should be put out of his agony.

And there is a great deal of thought that must be given by the medical profession to the problem of punishment for criminal offences. There is no uniformity of sentence. The law lays down the maximum period of imprisonment, but the Judges are human beings, they do not think or feel alike. A great deal depends on their own beliefs and perhaps on the character of a particular judge, as to what sentence should be imposed. All other matters being equal, there should be no divergence in the length of a prison sentence for the same offence.

I have seen during my life at the bar two youths of 17 and 18 respectively sentenced to 15 years imprisonment for the rape of a girl of immoral character, with whom they

had each had sexual intercourse on previous occasions. She just did not feel like it that night so force was used. The Court of Appeal, of course, reduced the sentence to 3 years.

I have seen manslaughter penalties ranging from suspended sentence to 6 months and to 4 years with nothing on the record to account for the difference.

Some criticism a short time ago was levelled from the floor of the local House at a Judge who had given some rather severe sentences at the last Assize. I do not propose to discuss the question of whether he was right or whether he was wrong. The Judge himself on the last day of the New Westminster Assize in addressing the jury stated that respect for law and order and the administration of justice would be destroyed if Judges were to be subject to criticism for their actions.

I for one do not believe that an institution is worth being retained unless its darkest corners are open to the light of day, and free and untrammelled criticism is allowed to point out his weaknesses and defects. Any departure from the freedom to criticize either in the public press or in gatherings of lawyers or meetings such as this is the reversion to the time of Lord Jeffrey and the abuses of the Star Chamber.

There has been of late years a growing opinion in the United States, and there seems much to recommend it, that sentences should either be imposed by qualified medical men or if not, at least after consultation with qualified medical men. Judges are appointed from the ranks of practising lawyers. They have no special knowledge or qualifications to handle this important aspect of jurisprudence. In fact few of them make a study of punishment. The qualified psychologist and psychiatrist is, on the whole, much more capable of imposing a just sentence than any Judges on the bench. Research is now the cry of law schools such as Harvard, Yale, Columbia, Michigan and elsewhere. They are seeking to train scholars, the jurists who shall eventually be elevated to the bench. Not so long ago Johns Hopkins announced the formation of the Institute of Jurisprudence, devoted to research in law and nothing else. This group will study the law functionally to ascertain what rules of law are adapted to the present needs of life and what rules are obsolete and ready to be discarded.

With some trepidation I now approach my last topic—the rôle of the medical man in the witness box. A great many of you have had a good deal of experience and may think you need no pointers, so may I address myself to the younger practitioner and make a few suggestions as to his conduct and demeanour when called as a witness in a Court of Law.

1. Speak distinctly and slowly. The Judge as well as counsel want to take down what you say.
2. Direct your replies to the Judge and Jury, not to the examining counsel.
3. Take your notes with you. If you want to refresh your memory from your notes you can do so, but you can only refresh your memory from your original notes, not from typed copy or a report dictated from your notes.
4. Do not use technical language if you can avoid it. If you can't, then explain it in simple langue so that the judge will understand.
5. Never give evasive replies. You'll find it won't pay.
6. Remember that in medicine at least, almost anything is possible, so answer frankly.
7. Do not be an advocate, even though you are giving evidence for a patient who may also be your friend. When you go into the witness box you go as a man of science to relate

   first: the condition of the patient at the time you first saw him;
   second: your diagnosis and your treatment;
   third: your prognosis of recovery;
   finally: your bill for professional services.

   Your whole attitude should be that of a man of science, a professional man who calmly and serenely, without malice and without favour, has to relate the facts

and the honest opinions which he has formulated from his study of the case.

Those are to my mind the fundamental rules for all professional witnesses. Any prejudice or evasion will under skilful cross-examination weaken your evidence.

Last, but not least, it is generally not advisable to try to outsmart the lawyer. I say this not because the lawyer is any cleverer than you are, or knows more about the subject than you do, because obviously he does not, but you have come into his forum. He can ask you questions—you cannot ask him any. In addition he knows the rules and you do not. So if you want to cross swords with a lawyer, wait until you have him in the consulting room or on the operating table.

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# EXPERIENCES WITH VAGOTOMY IN PEPTIC ULCER CASES

LAURENCE S. FALLIS, M.D., *and* JAMES BARRON, M.D.

Read at Summer School, June, 1948.

Since Dragstedt and Owens[1] in 1943 reintroduced vagotomy for the treatment of duodenal ulcer, there have been many reports on this procedure. Dissatisfaction with partial gastrectomy or gastroenterosotmy, because of the development of jejunal or marginal ulcer, has led surgeons to search for a procedure which either alone or in combination with previous forms of treatment might eliminate some of the complications of surgical treatment.

Today, as a result of increasing experience, certain results of complete bi-vagotomy are fairly well established. Post-operative x-ray examination reveals atony of the gastric wall with shallow irregular contractions and definitely decreased motility. There is a lowering of gastric acidity and a decrease in the amount and acidity of the night secretions. Grimson[4] reported an average volume of twelve-hour night secretion before operation of 888 cc. and after vagotomy 340 cc. The patients in the great majority of cases are promptly relieved from ulcer distress. Evidence is accumulating to indicate that just as in dogs, in man the ability of the stomach to secrete acid returns (Moore)[2]. Dragstedt and others feel that the cephalic phase of acid secretion remains abolished. So far, no anatomic proof of regeneration of the vagus nerves in man has been shown.

Diarrhoea has been a rather frequent finding in these cases following operation. This has not been completely explained. Alvarez[4] et al have shown that after bi-vagotomy in

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rabbits there was an overly active bowel with abnormally frequent peristaltic waves. The incidence of diarrhoea has varied with different authors. Grimson[4] reports that about thirty-five per cent of his cases suffered with temporary severe diarrhoea, and that in a few cases this became chronic. It is usually true that any pre-existing constipation is relieved following operation. Some workers believe that jejunitis or bacterial infection due to altered acidity and stasis may be the main factors causing the diarrhoea.

## *Source of the Data*

This report covers a series of eighty consecutive cases of vagotomy done for peptic ulcer. The first of these was done in March, 1946. The period of time during which these cases were done extends from March, 1946, to January, 1948. Fourteen or 17.5 per cent were marginal or jejunal ulcers and the remainder were duodenal ulcers. All cases in this series had either a transthoracic or subdiaphragmatic vagotomy either alone or in conjunction with other surgery.

### *Age*

In sixty-eight per cent of the cases the age was in the 30-49 year group; 7.5 per cent were in the 20-29 year group and 34.5 per cent were in the 50-69 year group; 42.5 per cent of the patients were in the 40-49 year group as one would expect for this condition.

### *Sex*

Eighty-seven per cent of this group of eighty cases were males and thirteen per cent were females. This illustrates that peptic ulcers with their complications are most commonly found in the male sex.

### *Duration of Ulcer Symptoms*

In the eighty cases operated upon, the duration of ulcer symptoms was found to be less than one year in only one patient. In this instance, the patient was a chronic alcoholic who had been subject to repeated haemorrhages and epigastric pain. Thirty-two per cent of the cases gave histories of ulcer existing for 2 to 5 years. Sixty-seven per cent gave histories of ulcer distress or complications present for five years or more and here forty-one per cent had existed for more than ten years. In general, the patients who had the symptoms less than five years were patients who had perforations or haemorrhage.

### *Symptoms*

Nearly every patient at some time gave a history rather typical for ulcer, such as epigastric distress, etc. In this series of eighty patients, forty (50 per cent) had been subject to bleeding, and many of these had bled on more than one occasion. 8.7 per cent of them had been operated on previously for perforation of the ulcers, and twenty-four per cent had symptoms or x-ray evidence of obstruction due to the ulcer.

### *Medical Treatment*

In eighty-three per cent of the cases, the patients had been on what was considered to be adequate medical treatment at some time prior to surgery. In th seventeen per cent who had been on inadequate treatment, many were patients who refused to follow any medical plan or else they came into the hospital with evidence of obstruction or repeated haemorrhage. In our opinion, if possible, all patients with peptic ulcer should have the benefit of a trial of medical treatment. We feel that all gastric ulcers should be looked upon with great suspicion, and that operation is the treatment of choice in these cases because carcinoma cannot be ruled out.

### *X-ray Diagnosis*

X-ray diagnosis was accurate in all except three of the duodenal ulcers in this series. The diagnosis of jejunal or marginal ulcer frequently depends on a clinical evidence of which bleeding is the chief symptom, rathr than by x-ray methods. However, x-ray diagnosis was positive in seventy-nine per cent of the marginal ulcer cases.

### *Previous Operations*

Seven cases (8.7 per cent) of this series of eighty cases had previous operations for closure of perforated peptic ulcers. Eight or 10 per cent of this group had marginal or jejunal ulcers following a previous gastroenterostomy. Six cases (7.5 per cent) had jejunal or margin ulcers following a previous partial gastrectomy. This makes a total of 17.5 per cent of the cases with marginal ulcer following previous gastroenterostomy or partial gastrectomy. In all, a total of twenty-one cases (26.2 per cent) had had previous surgery of some type.

### *Operations*

In fourteen cases (17.5 per cent) vagotomy only was done. In eight (10 per cent) of the cases a transthoracic vagotomy was performed. In six cases (7.5 per cent) a subdiaphragmatic vagotomy only was done. In general, we are now doing few operations in which a vagotomy only is done. We do feel that in cases of jejunal or stomach ulcer, one

may be justified in doing only a vagotomy if no obstructive findings were present. We also feel that subdiaphragmatic vagotomy is to be preferred because here one has the opportunity to examine the lesion and to do any further surgery indicated. We have in this series five cases (6.2 per cent) of subdiaphragmatic vagotomy plus gastrojejunostomy. Seven (8.7 per cent) cases consisted of gastroduodenostomy plus subdiaphragmatic vagotomy. Fifty-four (67.5 per cent) cases in this series had a partial gastrectomy plus subdiaphragmatic vagotomy. Thirty-six (45 per cent) had a Hofmeister Finsterer type of resection while eighteen (22.5 per cent) had a Finney-Von Haberer type of resection. In cases where no surgery or else a gastro-enterostomy had been done previously our preference was to do a partial gastrectomy with lysis of the previous gastro-enterostomy plus a vagotomy.

*Anaesthesia*

Fractional spinal anaesthesia was used alone in thirty-one (38.7 per cent) cases and was supplemented with some other anaesthetic in thirty-four (42.5 per cent) cases. Thus, fractional spinal anaesthesia was used in 81.2 per cent of this series. A general anaesthetic was used alone in fifteen (18.8 per cent) cases.

*Technic of Subdiaphragmatic Vagotomy*

We have found that the subdiaphragmatic approach to a vagotomy is not difficult, and that the vagotomy can be done without dividing the triangular or left coronary ligament. We prefer to approach these nerves by first dividing the left or lateral margin of the gastro-hepatic ligament (lesser omentum). Then the stomach is retracted downward and by blunt dissection the anterior and posterior or left and right nerves are located. It has been our practice to clamp and ligate these because a vessel could be present with the nerve or else one could mistake an artery for a nerve. In forty-four (55 per cent) of the cases, we have removed a segment from each of the nerves for microscopic examination. The upper ends of the vagus nerves retract into the mediastinum when released. Actually the sectioning of the vagus nerves done in this way is supra-diaphragmatic. Our opinion at present is, that the vagus nerves can be sectioned quite satisfactorily from the abdominal approach and because of the fact that the actual pathological condition can be examined and more surgery done if needed that there are few, if any, indications for the transthoracic approach.

*Duration of Postoperative Gastric Suction*

In all cases in this series, a gastric tube was placed in the stomach prior to operation, and suction was applied to this tube postoperatively. All patients were allowed to take sips of clear liquids when desired as long as the suction was working properly. It is our opinion that gastric suction is of great benefit in these cases. On the fifth postoperative day, we begin to check the residual fluid in the stomach following the drinking of measured amounts of water with the suction tube clamped. When this four hour residual does not exceed one hundred to two hundred cc., the tube is removed. In fifteen cases (18.7 per cent) the tube was removed before the fifth postoperative day. In forty-eight (60 per cent) of the cases, the tube was removed from the stomach on the fifth or sixth day. In eight (10 per cent) of cases, the tube was removed on the seventh day, and in nine (11 per cent) of the cases, the tube was removed after the seventh postoperative day and these cases represented those with the most marked delay in emptying.

*Days in Hospital Following Operation*

Fifteen (18.7 per cent) patients were discharged between the eighth and tenth post-operative days. Thirty-four (42.5 per cent) of the cases were discharged on the eleventh, twelfth, or thirteenth post-operative days. Thirty-one (38.7 per cent) cases remained in the hospital for fourteen days or longer.

*Complications During Postoperative Course*

Twenty (25 per cent) of the cases had diarrhoea of varying degrees. In many of the cases, the diarrhoea seemed to appear soon after the stomach began to empty well.

Twenty (25 per cent) of the cases had gastric retention of varying degrees. Two of these were classed as severe ten as moderate and eight as slight. All of these improved with the passage of time. Many of the patients complained of slight epigastric fullness after eating. All patients were cautioned against overloading their stomach with liquids or food. Four (of the eight) transthoracic vagotomies complained of chest pain following the operation, and three (of them) developed hydropneumothorax. Phlebothrombosis developed in four (5 per cent) cases. Wound disrupttion took place in two cases. Atelectasis was present in one case. Wound infection was present in one case. There were no deaths in this series.

*Follow-up*

The first case in this series was done in March, 1946. The most recent case in this series was done in January, 1948.

All except three (3.7 per cent) of these cases have been followed for varying periods of time following the operation. Only one patient has been subjected to another operation. In this case, a subdiaphragmatic vagotomy was done, first. This was followed by marked gastric retention. Six months later, this patient had twenty per cent gastric retention at the end of forty-eight hours. She also had intermittent diarrhoea. A partial gastrectomy was done with marked improvement in gastric emptying.

In four cases (5 per cent) the diarrhoea persisted. In one case, the diarrhoea, with abdominal cramps, was severe and still bothers the patient eight months after surgery. In three cases (3.7 per cent) the diarrhoea now present is slight or moderate in degree.

In no patient has there been any proof of recurrence of the ulcer, ulcer complications or the development of a jejunal or marginal ulcer.

We have divided the present status into good, fair and poor results. We have classed four (5 per cent) as poor results. One of these has persistent diarrhoea and abdominal cramps. Two cases continued to complain of epigastric distress and abdominal cramps. In none of these have we been able to demonstrate an ulcer. One case was partially relieved following partial gastrectomy which was done six months after the original subdiaphragmatic vagotomy. Marked gastric retention was present in this case. We have classed eleven (13.7 per cent) as fair. In this group of cases, the patients are following normal activities. Some of these have slight diarrhoea, some have epigastric fullness after meals, some have occasional abdominal cramps. Anorexia is present at times in these cases. One has occasional faintness after meals.

In sixty-two cases (77.5 per cent) the results to date can be classed as good. By this, the patient is eating well, gaining weight, free from distress, and is well pleased with the result.

We realize that the follow-up is short in most of this series. However, the cases for the most part have presented peptic ulcers with complications. To date, we have not been able to demonstrate any recurrence of the peptic ulcer, ulcer complications or any development of a jejunal or marginal ulcer.

*Conclusions*

1. Insufficient time has passed to justify any definite conclusions.
2. Marginal ulcer is the one rather clear indication for vagotomy.
3. The subdiaphragmatic approach makes a definite diagnosis possible.
4. We are not yet convinced that partial gastrectomy will be replaced by vagotomy.

At present we are combining partial gastrectomies with subdiaphragmatic vagotomy in the majority of our peptic ulcer cases.

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# THE DIAGNOSIS AND TREATMENT OF COMMON ANORECTAL CONDITIONS

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The prevalence of lesions involving the anal canal and rectum may be best appreciated by stating that fully one-third of the patients presenting themselves at the surgical outpatient department of the Henry Ford Hospital complain of symptoms referable to this region of the body. This state of affairs prevails because these patients comprise two groups, one with complaint of actual discomfort in the anorectal area and the other where the history of frequent stools and the passage of blood or mucous provide the indication for complete rectal examination.

Too much emphasis cannot be placed on the necessity for carrying out thorough investigation of both the anal canal and rectum, for despite its accessibility routine examination of this region is frequently omitted. The practice of attributing all affections to "piles" and of prescribing ointments and suppositories without even looking is inexcusable. Equally culpable is the perfunctory examination which results in twenty-five per cent of patients with carcinoma of the rectum being subjected to haemorrhoidectory.

A careful history is of the utmost importance before attempting an examination of the anorectal region, for a great deal of information can be obtained from interrogation of the patient. The passage of bright red blood with the bowel movement but without pain suggests internal haemorrhoids. The presence of pain nearly always indicates that the lesion is limited to the anal canal. Conditions arising at a higher level cause vague discomfort but not actual pain since the rectum is not supplied by sensory nerves, and, like the remainder of the intestinal canal is sensitive only to distention or pulling on its mesentery. Also, the scope of the investigation indicated often may be obtained from the history, e.g., a history of passing blood and mucus, or blood and pus makes proctoscopic examination mandatory, for these are the symptoms of malignancy or ulcerative colitis. If proctoscopic investigation should prove negative a barium enema must be given, for early diagnosis of both these conditions must be made if treatment is to be effective.

*Equipment*—A satisfactory examination of the anorectal region does not entail the use of elaborate equipment. A good light is essential but need not be elaborate; the ordinary office gooseneck light is sufficient. The room should be darkened by drawing the shades. Inspection of the anal canal is facilitated by the use of an anoscope supplied with either direct or indirect light. This and a short proctoscope are all the instruments necessary. A 10 cc. syringe and 0.5 per cent novocain should be available for occasional use.

*Position of the Patient*—There can be little question but that the inverted position is the most satisfactory. Special rectal examination tables make the investigation easy but the knee-chest position is preferable to the knee-elbow because of greater stability. Patients who cannot be put in the knee-chest position because of arthritis or feebleness may be examined in the lateral or Sims' position. The lithotomy position is relatively unsatisfactory because of the accompany engorgement of the haemorrhoidal and perianal veins.

*Conduct of the Examination*—The old adage that incorrect diagnoses are due 90 per cent to not looking and 10 per cent to not knowing is well exemplified in conditions affecting the anal region, for there it is possible to visualize the whole length of the anal canal without the use of instruments.

There is a great deal more to a rectal examination than the insertion of a gloved finger into the anal canal and, yet this manoeuver passes for a rectal examination on many occasions. Most individuals with anorectal conditions have a spastic external sphincter muscle, thus, the passing of an examining finger through a tense anal canal often results

in the patient's losing confidence because he is hurt, and in the examiner's gaining little information of value. Five cc. of 0.5 per cent novocain solution injected into the external sphincter on each side of the anal orifice will permit examination without distress. This, however, is necessary only when dealing with an unusually sensitive or nervous patient.

Conduct the examination in a routine manner. First, inspect the perianal skin for evidence of pruritus ani, as shown by maceration and excoriation. Search for signs of a fistulous opening. While most fistulas have a well marked external opening or openings, it occasionally happens that the orifice is pinpoint and will escape casual scrutiny. Palpate the ischiorectal fossae for evidence of tenderness or of scar tissue indicating previous inflammatory reactions. Examine the external skin tags and be certain that the external haemorrhoidal tag lying in the posterior commissure is not a sentinel pile indicating the presence of fissure-*in ano*. Gently evert the anal mucosa and if the manoeuver is difficult or painful it usually means that one is dealing with a fissure-*in ano*. When a fissure-*in ano* or anal ulcer is present, digital or instrumental examination inflicts unnecessary pain on the patient since all the information can be obtained by everting the anal mucosa. If in these cases further examination is necessary, do not proceed without anaesthetizing the anal canal by the injection of novocain. Test the tone of the external sphincter by gentle pressure with the index finger on the anterior commissure. If the sphincter muscle is spastic, suspect fissure, anal ulcer or cryptitis and papillitis. The sphincter should be relaxed by pressure on the anterior commissure before attempting digital examination, if one wishes to retain the confidence of his patient. Ask the patient to strain down so that the anal canal is threaded over the examining finger instead of forcing the finger through the canal. Adopt this same manoeuver when passing the anoscope or proctoscope. This procedure will enable one to accomplish many digital examinations that would otherwise be unobtainable. Do not hope to gain much information by digital examination other than detecting low-lying carcinomata of the rectum or palpating enlarged anal papillae and polypi. Do not expect to palpate haemorrhoids unless they are thrombosed, for haemorrhoids are only varicose veins, and being collapsible, cannot be felt.

When pain is the chief symptom one can be reasonably certain that the involved area is in the anal canal. Spasticity of the external sphincter ani musle is the hallmark of affections of this region. Investigation is simplified further by the realization that practically all the pathologic processes causing symptoms arise in the crypts.

The diagnosis of these various conditions depends primarily on complete visualization; and this can be attained only by anoscopic examination. Before inserting the anoscope, it is well to relax the external sphincter by applying firm pressure to the muscle in the anterior commissure and by gently insitnuating the examining finger into the anal canal, at the same time exerting pressure on the levatores ani muscles since in their tonic state they present the greatest barrier to entering the rectum. These manoeuvers then will permit the anoscope to enter the anal canal with ease. If the external sphincter muscle is spastic and digital examination provokes pain, inject 5 cc. of 1 per cent novocaine solution into the external sphincter before attempting instrumentation.

Proctoscopic examination should be carried out even if some of the bleeding appears obvious because two conditions may be present, for example, internal haemorrhoids and carcinoma or fissure-*in-ano* and ulcerative colitis. Finally, if the course of the haemorrhage is still undetermined, a contrast barium enema is indicated.

*External haemorrhoids*—So-called external haemorrhoids are really not haemorrhoids at all but common usage by both the laity and the profession has determined the continuation of this term. These perianal skin tags have little in common with internal haemorrhoids. Their structure is largely thickened skin and scar tissue with only a minimum of vascular tissue consisting of a small artery and a more or less obliterated segment of the perianal vein, whereas internal haemorrhoids are purely vascular tumours with only a minimum of supporting tissue and a thin covering of mucous membrane. Moreover, the vascular tissue of internal haemorrhoids is part of the portal venous

system while the perianal vein involved in external haemorrhoids drains into the systemic venous channels. External haemorrhoids develop in three ways. The first is from treated or untreated localized thrombosis of the perianal vein, the so-called thrombosed external haemorrhoid. Rupture of a segment of the perianal vein usually occurs from straining at stool and varying amount of blood extravasates and clots. The loose perianal skin over the clot becomes oedematous, adding to the size of the swelling. These clots usually bring the patient to the doctor because they are painful both at bowel movement and on locomotion. The diagnosis is simple since the blood clot is seen easily, but treatment is often unsatisfactory because of misguided attempts at replacement of the swelling through the anal canal under the assumption that thrombosed internal haemorrhoids are present. Treatment consists of evacuation of the clot under local anaesthesia followed by repeated Sitz baths and provision for insuring soft stools. Untreated, resolution gradually occurs with the laying down of fibrous tissue and persistence of a skin tag or external haemorrhoid.

The second method of formation is due to gradual stretching of the perianal skin from repeated prolapse of internal haemorrhoids. The perianal skin is drawn down in folds corresponding to the groups of internal haemorrhoids which prolapse so that the internal and external haemorrhoidal masses are confluent, thus presenting the common clinical finding of mixed haemorrhoids. A third and less common mode of origin is the edematous skin tag that forms at the lower limit of an anal fissure or ulcer, the so-called sentinel pile.

The treatment of external haemorrhoids is surgical removal. Ellipses of skin radiating out from the anal orifice and including the base of the skin tags should be removed. No attempt should be made to cover the defect by suturing the resulting skin margins since adequate drainage is necessary for sound healing. External haemorrhoids are not suitable for injections because, since they are not vascular no benefit can accrue and sloughing is likely to occur.

*Internal Haemorrhoids*—Internal haemorrhoids are simply varicosities of the terminal branches of the inferior haemorrhoidal veins. Usually three groups are present, left lateral, right anterior and right posterior, corresponding to branches of the vein. Supplementary smaller groups may be present in the anterior and posterior commissures.

Bleeding and not pain is the chief symptom of internal haemorrhoids. Three degrees of haemorrhoids are usually described: degree I, in which the haemorrhoidal masses are seen only on instrumental examination; degree II, in which the haemorrhoids prolapse on straining but easily return to their former position; and degree III, in which the masses are prolapsed permanently. Pain is a rare symptom which occurs only with thrombosis secondary to strangulation of a prolapsed mass.

Treatment.—Degree I requires no treatment, unless bleeding, other than attention to bowel movement. Injections are satisfactory to control bleeding. Degree II in young patients may be relieved from prolapse and bleeding by injections. Older patients however, usually require operation. Injection treatment should always be looked upon as a palliative measure which may require subsequent reinjection or operation. Degree III always should be operated upon because they are unsuitable for injection treatment. Degree II or degree III haemorrhoids always are complicated by the presence of external hamorrhoids. Much better results will attend operative intervention if the two types of haemorrhoids are treated separately. Deal first with the internal haemorrhoidal masses as though the external haemorrhoids were not present. Then, when the internal tissues have returned to their normal position, proceed with removal of the external skin tags. In this manner a much better plastic result may be obtained than when both masses are removed in one section.

*Pruritus Ani*—This most distressing and intractable complaint is fortunately easy to recognize when the chief complaint is itching and, on inspection of the perianal skin, pigmentation, maceration and excoriation are found. In long-stading cases the normal folds of the skin may be accentuated and the deep furrows may be ulcerated. Almost any treatment, provided it is different from what the patient has been receiving, will

help for a time but permanent relief is difficult to obtain. There is almost always a nervous element present so that mild barbiturate sedation is indicated. The dermatitis itself should be treated by using cotton seed oil instead of soap and water for cleansing the perianal skin and the substitution of absorbent cotton for toilet paper. Calamine lotion and dusting powder reduce the discomfort, but ointments should be avoided because they increase the maceration. These measures yield relief but usually more active treatment is necessary. Subcutaneous injection of normal saline gives results in some cases. Long-lasting local anaesthetics such as diothane or procaine often will give welcome temporary relief to these harassed patients. These injections may be repeated at intervals and if the itching recurs injection of ½ cc. of 97 per cent alcohol, with the idea of destroying the perianal sensory nerve, may be necessary. Vaccine, roentgen ray, therapy and even sectioning of the sensory nerves have proved efficacious in certain stubborn cases. Local conditions in the anal canal, of course, may require correction but usually anoscopic examination yields little of note.

*Infection of the Anal Canal.* Cryptitis and Papillitis.—Infection of the crypts is the commonest cause of rectal discomfort and it usually remains undiagnosed because the anal canal is not inspected. Acute cryptitis should be suspected when a patient complains of mild rectal discomfort accompanied by a constant desire to go to stool. The external sphincter is usually spastic and attempts at digital examination provoke so much pain that injection of novocain is necessary if the investigation is to be completed. Under direct vision a variable number of crypts are seen to be swollen and discharging pus. The papillae are edematous. Under a regime of Sitz baths, sedatives and suppositories, the acute phase usually subsides but evidence of the attack always persists in the enlarged and clinically edematous appearance of the papillae. Thus cryptitis and papillitis always coexist. These enlarged papillae may continue to elongate until they are extruded through the anal canal and become long enough to be designated as anal polyps. The infected crypt does not always resolve without complications. The external wall of the crypt may rupture into the anal canal forming one variety of anal ulcer which is very intractable. The infection may spread upward under the rectal mucosa forming a submucous abscess and leading to the condition of the so-called blind internal fistula. This abscess and fistula readily clear up following internal drainage.

*Pectenosis.*—Subacute infection in the crypts may cause increased fibrosis in the pecten band leading to the condition of pectenosis which may complicate any of the rectal infections. Failure to recognize and treat pectenosis is responsible for many poor results after otherwise adequate treatment for many of these conditions. Pectenosis is easy to recognize. Ordinarily, under anaesthesia, the anal canal is quite distensible but when the pecten band is fibrosed the canal will barely admit two fingers. The obstruction may be recognized as being due to a tense band surrounding the upper limits of the canal and lying in the interval between the external and internal sphincter muscles. A clean incision with a sharp scalpel exactly in the midline posteriorly will sever this band, the white fibers of which then may be easily recognized.

*Fissure-in-Ano.*—The pain and distress produced by fissure-*in-ano* is out of all proportion to the size of the lesion. Fissures usually have their origin in a crypt either from spread of an abscess to the mucocutaneous junction or to the tearing open of a crypt wall by the passage of a hard faecal mass. In either instance healing is prevented by sphincteric movement and by edema of the skin margin. This swelling of the skin increases until a definite skin tag appears forming the so-called sentinel pile. The diagnosis of this condition is easy and can be made without discomfort to the patient. Spasm of the sphincter is always present and this alone should lead the examiner to make a careful inspection of the posterior commissure. The finding of a sentinel pile will suggest the diagnosis which can be verified by gentle eversion of the mucosa to bring the fissure into view. On no account should digital or instrumental examination be attempted without the injection of a local anaesthetic. The patient's discomfort may be alleviated by injection of one of the long-lasting local anaesthetics, but permanent relief is obtained only by operation. The secret of successful operation is the provision of adequate

drainage by saucerization of the involved area, which means the removal of a generous wedge of skin and mucous membrane from the posterior commissure including the sentinel pile and base of the fissure. Infected crypts should be curetted, enlarged papillae should be excised and the pecten band should be incised if contracted.

*Ischiorectal Abscess.*—When the pus in an infected crypt erodes through the rectal wall, the ischiorectal space is invaded and an abscess results. Deep-seated pain is the first symptom and later on evidence of abscess formation presents itself in the pararectal tissues. Treatment consists of incision and drainage but this should not be delayed until the abscess points, for early operation is the best protection against subsequent fistula formation. Care should be taken to open the abscess wall forward to avoid injury to the nerve supply of the external sphincter muscles. Patients should always be informed that the condition is likely to be followed by a fistula-*in-ano*, otherwise they may claim that the fistula was due to unskilful surgery. A fistula tract does exist at the time the abscess is opened and some of them heal without further trouble, but the development of a fistula-*in-ano* is the rule rather than the exception.

*Fistula-in-ano.*—An anal fistula always develops from an ischiorectal abscess. The tract is simply a contracted abscess cavity, thus accounting for its tortuosity. The internal opening is in a crypt and the external opening is where the abscess was excised or ruptured. Multiple external openings and tracts may exist, but they always have a common internal opening which usually is close to the posterior commissure. The tract passes behind or through the fiber of the external sphincter; therefore, section of the sphincteric fibers external to the tract is essential to promote healing.

The treatment of fistula-*in-ano* is operative. When multiple tracts or openings exist, stage operations are indicated. At the first operation all the tracts should be reduced to one lying opposite the posterior commissure and, when healing has occurred, the single remaining fistula is dealt with in the usual manner. Fistulectomy implies excision of the fistulous tract plus section of the external sphincter muscle. Patients have a great horror of being incontinent after such a procedure. However, since only one-half of the sphincter is, or should be, sectioned at one time, the worst that could occur would be partial incontinence because at least one-half of the sphincteric apparatus is left to function. Much of the hazard of cutting the sphincter can be removed by performing the operation in two stages. At the first sitting the fistulous tract is excised in its entirety and the external sphincter is denuded of its mucous and skin covering in the portion overlying the excised tract. One week later the muscle is incised under local anaesthesia by which time oedema of the tissues has fixed the muscle so that after sectioning, the margins separate very little. Healing then occurs from the bottom of the tract up through and including the ends of the severed muscle. I have never seen incontinence develop when this method was used. Repeated packing of the tract is unnecessary, for in addition to being painful it retards rather than promotes healing. A single haemostatic pack at the time of operation is all that is necessary, for if the operation if complete, further packing is unnecessary, and if incomplete, will accomplish little.

*Perianal Abscess*—Abscesses developing in the subcutaneous tissues outside the anal orifice are known as perianal abscesses. They too can have their origin in an infected crypt when the pus tracks downward and, not erupting at the muco-cutaneous junction as it does in the formation of a fissure-*in-ano*, continues out under the skin to develop in the subcutaneous tissues of the perianal folds. Perianal abscesses may develop also from injury and infected hair follicles. They are recognized easily and usually heal readily after incision and drainage.

*Anal Sinus.*—Sometimes a perianal abscess develops a secondary opening at the muco-cutaneous junction and healing does not occur because of the development of a sinus. The tract is superficial to the external sphincter and so its cure presents no problem. Occasionally the picture may be obscured by the sinus tract passing through the base of a skin tag or external haemorrhoid. Treatment consists of excision of the tract and surrounding redundant skin.

*Summary and Conclusion*

1. The importance of routine ano-rectal investigation cannot be over-emphasized.
2. Perfunctory examinations are just as indefensible as no examination.
3. When the chief complaint is pain, the cause is not likely to be haemorrhoids.
4. The passage of blood per rectum should invite the suspicion of carcinoma, and demand thorough investigation of the anal canal and the rectum and the colon.
5. No surgical procedure should be performed on the anal canal or rectum without proctoscopic and sigmoidoscopic examination.

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# ACUTE PANCREATITIS

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The recognition of this entity depends primarily on whether or not the clinician considers the possibility of acute pancreatitis when faced with an abscure abdominal condition. The reason for this is not difficult to understand, for unless the doctor is especially interested in affections of the pancreas[1] his knowledge of the disease is likely to the limited to the occasional surprise laparotomy discovery of evidence of pancreatic disruption or the equally unexpected neuropsy finding in a patient who has died soon after the onset of an overwhelming intra-abdominal catastrophe.

Brief reference to the embryology, anatomy and physiology of the pancreas is essential to an understanding of the problem.

## *Embryology*

The pancreas like the liver with which it is intimately associated, arises from an outbudding of the foregot and receives its blood supply from the celiac axis.

## *Surgical Anatomy*

The pancreas is entirely a retroperitoneal organ lying on the border of the twelfth dorsal and first lumbar vertebrae and extending from the concavity of the duodenum to the hilum of the spleen. Its anterior surface is covered by the peritoneum of the posterior wall of the lesser peritoneal sac. The main blood supply of the body and tail comes from the splenic artery which arises from the celiac axis, while the head is supplied with the duodenum by the superior pancreaticoduodenal artery, a branch of the gastro duodenal, and by the inferior pancreaticoduodenal, a branch of the superior mesenteric artery. The portal vein is formed posterior to the neck of the pancreas by the union of the splenic vein which has already been joined by the inferior mesenteric vein with the superior mesenteric vein. The superior mesenteric artery and vein course posterior to the neck of the pancreas before crossing the third part of the duodenum. The topography of the pancreas corresponds to the transpyloric plane which crosses the long axis of the body at the level of the upper border of the first lumbar vertebra, and is outlined on the surface by a line drawn across the body midway between the umbilicus and tip of the sternum. The main pancreatic duct or duct of Wirsung opens at the bile papilla. In about twenty per cent of individuals there exists a common sphincter which can convert the biliary and pancreatic duct into a common channel. However a septum exists between the two duct systems in all but five per cent of individuals, so that the chance of a biliary calculus occluding the ampulla and causing bile to regurgitate into the pancreatic system is very remote, though it does occur. An accessory duct known as the duct of Santorini sometimes opens into the duodenum proximal to the bile papilla.

## *Physiology*

The pancreas plays a dual physiological role since it produces both internal and external secretions. The endocrine secretion is concerned largely with carbohydrate metabolism through the production of insulin formed in the islands of Langerhans. The func-

tion of the external secretion is digestive in character. The alkaline secretion helps to neutralize gastrict acidity and contains three principal ferments, amylase or starch spritting, lipase for fat-splitting, and tryptase or protein-splitting.

### *Definition*

Acute inflammation of the pancreas is of two types, edema of the pancreas, also described as acute interstitial pancreatitis, and acute haemorrhagic pancreatitis or acute pancreatic necrosis. Both types in all probability represent different stages of the same pathologic processes. The degree or extent of involvement accounts for variation in the clinical picture.

### *Etiology*

The exact cause of acute pancreatitis remains unsolved, probably because there may be several etiological factors. Various theories have been propounded. The one receiving the most acceptance is the common channel theory. Obstruction of the ampulla of Vater by a calculus or spasm of the sphincter forces bile into the pancreatic ducts, where it is supposed to activate the protein splitting ferment, trypsin, thereby causing autodigestion of pancreatic tissue. Experimentally this reaction occurs only if bile is forced into the pancreatic ducts under sufficient pressure to damage the acinar tissue. The infective theory cannot be ignored, because of the frequency of association of acute pancreatitis with biliary tract disease (75 per cent of the cases). It is not illogical to assume that infection could travel via the lymphatics from the gallbladder to the pancreas.

### *Pathology*

In the mildest cases edema and swelling of the gland may be the only gross finding, while in fulminating cases the entire organ may become disorganized. The area of involvement may be limited to the head, the tail, or body of the pancreas, thus accounting for the moderately severe clinical cases. Autodigestion, whatever its etiology, causes necrosis and gangrene of the pancreatic tissue with haemorrhage from erosion of the blood vessels and areas of fat necrosis in the peritoneum from the liberation of lipase. Blood stained fluid in the peritoneal cavity and localized areas of fat necrosis are pathognomic of the disease. Fat necrosis appears as tubercle-like areas in the omentum, the mesenteries of both large and small intestine, and elsewhere in the peritoneal cavity. These areas are formed by the action of lipase which converts the fat molecule into fatty acid and glycerine. The fatty acids unite with calcium to form the characteristic white plaques.

### *Clinical Features*

C The signs and symptoms of acute pancreatitis correspond to the degree of involvement of the gland. In those cases of edema or acute interstitial pancreatitis, the attack will often resemble biliary colic and will be diagnosed as gall bladder disease or escape detection unless the observer is alert and obtains a blood diastase estimation. The classic picture in a fulminating case of acute pancreatic necrosis is that of the sudden onset of excruciating and unbearable upper abdominal pain radiating to the back, coming on after overindulgence in food or alcohol. Repeated emesis is the rule. Circulatory collapse with severe prostration comes on quickly, the patient presenting all the signs of pronounced shock with lowered blood pressure, rapid thready pulse, cyanosis, etc. The temperature, subnormal at first, usually rises to 101° or 102°F. A leucocytosis of over 20,000 is usually present. Clinical jaundice is evident in 25 per cent of the patients. The urine often contains albumin, emphasizing the toxic nature of the disease. Sugar in the urine is more common than formerly supposed.

The absence of muscle spasm is noteworthy. The upper rectus muscles are barely on guard, and frequently tenderness is elicited only on deep pressure. The maximum point of tenderness is usually in the midline, though it will vary with the area of the pancreas which is involved. When the body and tail is attacked, tenderness will be to the left of the midline and to the right when the head of the pancreas is bearing the brunt of the disease. Occasionally in subsiding cases the swollen gland can be outlined through the

abdominal wall in thin patients. Abscesses and pseudo cysts developing from the products of pancreatic disruption are usually easily palpable.

Discoloration of the skin in the flank (Grey-Turner's sign) or around the umbilicus[2] (Cullen's sign) will be found in about 10 per cent of patients with acute pancreatitis. The dicoloration, bluish at first, gradually fading through green and yellow, is due to the rerto-peritoneal spread of the blood stained products of pancreatic disruption. This is one of the few definitely diagnostic clinical signs of acute pancreatitis.

The most valuable laboratory procedure is an estimation of the blood diastase, since elevated readings confirm the diagnosis of acute pancreatitis in clinically suspected cases. Amylase or diastase is the starch splitting ferment of the pancreas. It has been repeatedly proven by animal experimentations that the blood diastase is increased when the pancreatic duct is ligated and decreased when the pancreas is removed. In the early stages of acute pancreatitis both the blood and urinary diastase are increased, but it is important to make the estimations early since the levels return to normal after seventy-two hours. The normal reading of blood diastase with the Meyers test is fifteen. This unit represents the starch splitting activity of a given amount of blood. Readings above twenty are suggestive but confirmative evidence of acute pancreatitis should not be accepted with readings under thirty-five. In moderately severe cases readings of sixty or seventy are not uncommon. It is essential to bear in mind that normal readings may be obtained in the presence of complete disruption of the gland and in any case coming under obsercation late in the disease.

### *Diagnosis*

Severity of the pain is the outstanding feature of pancreatic disease. Usually more than one injection of morphine is required to alleviate the distress, while with biliary colic one injection usually suffices. Many diagnoses are missed because the observer does not think of acute pancreatitis. The extreme prostration often suggests coronary occlusion, but this condition can be ruled out by an E.K.G. examination. Likewise, perforated peptic ulcer often can be excluded by a flat film of the abdomen revealing the telltale bubble of air under the diaphragm. The final diagnosis of course rests on the blood amylase estimation, since the test has proved entirely reliable. A Somogyi[3] reading above 200 or a Meyers[4] reading above 25 or 30 is clearly indicative of pancreatic involvement.

### *Treatment*

Immediate operation has, until recently, been the procedure of choice in acute pancreatitis, even though it carried an almost prohibitive mortality of forty per cent. The modern trend[5] is toward conservative or non-operative treatment, if the diagnosis can be established. In case of doubt it is wiser to perform an exploratory operation under local anaesthesia than to overlook a perforated peptic ulcer by embarking upon a non-operative regimen. When the diagnosis is definitely established, full doses of morphia are required for relief of the intolerable pain. A duodenal tube is of great value in alleviating the almost constant nausea and vomiting. Continuous hot stupes bring grateful relief to these patients. Full support with blood or plasma is indicated in cases of circulatory collapse. Fluid levels are maintained by sufficient introvenous fluids to produce a urinary output of 1000 cc. daily. When operation is undertaken during the acute phase, simple drainage of the lesser peritoneal cavity is all that should be attempted. Coincidental operation on the biliary tract, while of theoretic value, adds materially to the mortality rate.

### *Prognosis*

The mortality of the operative cases is forty per cent. Reported series of cases under conservative management show a mortality rate less than ten per cent.

### *Complications and Sequelae*

The outlook is very poor in diabetics who develop acute pancreatitis, and in patients with acute pancreatitis who develop diabetes during the acute attack. All patients suspected of having pancreatitis should have repeated blood sugar estimations in order to

initiate prompt treatement of the actual or potential diabetic.

In the majority of patients with mild or moderately severe attacks resolution of the gland occurs rather promptly, with appropriate treatment, but when large areas of the gland have been destroyed the product of pancreatic disruption may collect in the lesser peritoneal cavity to form a pseudo cyst. Infection of the cyst contents produces abscess formation which manifests itself by high fever, elevated leucocyte count, and the presence of a palpable upper abdominal mass. Drainage of the abscess usually results in cure of the patient.

There is a definite tendency for the attack to recur, or for the disease to lapse into chronicity. This indicates the advisability of performing elective surgery in the biliary tract when the indications are clear, but surgical intervention should be delayed for from four to six months.

### *Summary and Conclusions*

1. The diagnosis of acute pancreatitis is often overlooked because the observer does not consider it as a possibility.
2. The acute episode frequently follows dietary and alcoholic indiscretions.
3. Elevated blood diastase readings provide valuable confirmatory diagnostic evidence.
4. Conservative treatment gives a lower mortality than operative intervention.
5. Recurrent attacks of the disease are common.

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# ACUTE DIVERTICULITIS OF THE COLON


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### *Introduction*

Multiple diverticula of the colon are found in approximately five per cent of adult patients subjected to barium enema examination. This condition known as diverticulosis of the colon is usually symptomless, and it is only when infection of the diverticula occur that the clinical entity of diverticulitis arises. Geddes[1] states that of the patients who exhibit diverticulosis by x-ray about fifteen per cent subsequently develop inflammatory changes. Some idea of the incidence of this disease is gained by considering the frequency of the disease as indexed at the Henry Ford Hospital. In a registration of 500,000 patients acute diverticulitis appeared in a ratio of 1-1500. Acute appendicitis was diagnosed thirty-eight times as often in the same period.

### *Etiology*

Acute diverticulitis of the colon arises as a complication of diverticulosis. A solitary diverticulum is usually congenital, while multiple diverticula are of sporadic origin. The latter develop in the following manner according to Poate[2].

It is generally accepted that "the point of vascular penetration through the musculature of the bowel wall constitutes a point of weakness. General factors influencing the health of the individual, or tending toward loss of muscle tone may increase the divarication of muscle fibers at this point. Fatty infiltration may also play part as may chronic constipation or spastic colitis with either of which gaseous distension is of common

occurrence. No single factor can explain the origin of acquired diverticula in the colon, and it is much more likey that the process results from a summation of these several factors.

Diverticula frequently insinuate themselves into an appendix epiploica since here the peritoneum surrounds the appendices epiploicæ, and is not directly applied to the bowel wall at this point.

Weirda[3] has been able to produce one or more diverticula of the colon in each of three rats fed a high fat diet for ninety weeks or longer. Te concluded that the regularity of their position and the similarity in their walls seemed to indicate a uniform response to given conditions. These diverticula were produced in the most tortuous part of the colon, which in the rat, is that part near the cecum.

In reviewing solitary diverticulitis of the cecum and ascending colon, Carroll[4] felt that fecoliths were important in the etiology since they were demonstrated to be present in seventy-six per cent of the forty-four such cases reported. Certainly, with obstruction of the neck of the diverticulum by a fecolith, conditions would be at the optimum for causing secondary inflammatory changes in the diverticulum and the surrounding tissues.

### *Pathology*

Diverticula are always multiple and seventy-five per cent occur in the sigmoid colon. Rarerly the cecum or rectum is involved. The bottle-necked saccular pouches penetrate the muscular wall of the colon through apertures corresponding with the point of entry of the blood vessels, and frequently become imbedded in the fat of the appendices epiploicæ. Inflammatory reaction in the diverticuluc is initiated by retained fecal contents. This reaction to infection varies from edema of the diverticulum to abscess formation. The infected diverticular contents may then perforate into the free peritoneal cavity causing generalized peritonitis or become walled off forming a localized pericolic abscess. Small abscesses confined to the sac of the diverticulum as well as abscess cavities outside the colonic wall[5] may rupture through the wall of the colon and be evacuated. In other patients pericolic abscesses rupture into the bladder, small intestine or other hollow organ resulting in internal fistulas. External fistulas appear only after surgical intervention. Again the inflammatory process may resolve without proceeding to abscess formation or the reaction may become chronic with the resulting fibrosis causing stricture of the involved bowel wall.

### *Age and Sex Incidence*

Acute diverticulitis is a disease of late middle life. The average age of patients studied at the Mayo linic was fifty-six years. Males are more commonly affected than females on the ratio of 3-2, and what is more significant, complications requiring surgery occur twice as frequently in males.

### *Clinical Features*

Acute diverticulitis has ben described as left-sided appendicitis because of the similarity of the physical findings. A typical attack is ushered in with fever and a vague sensation of discomfort in the lower abdomen which increases in intensity.

Pain is usually referred to the left lower quadrant directly over the lesion, but if the proximal colon is distended, the greatest intensity of the distress may localize in the right lower quadrant from over-distension of the cecum. This feature may mask the real condition, and confuse the issue to the point that a diagnosis of acute appendicitis is made. While bloating, belching of gas, and passage of flatus are constant complaints, abdominal distension is pronounced in only about sixty per cent. This finding varies with the severity of the disease. Increase in distension is usually indicative of abscess formation or spreading peritonitis. The initial distension is due to gas in the large intestine proximal to the spastic area of involvement, but later in the disease pronounced distension may be associated with localized ileus of adjacent loops of small intestine from localized or spreading peritonitis. Infrequently, sub-acute obstruction of the colon occurs from tumefaction of the involved area of the colon, and more rarely still, com-

plete obstruction may supervene. It is of the utmost importance to estimate accurately by means of repeated scout x-ray films of the abdomen, the source of the obstructive manifestation. Relief from distension of the small intestine may be expected from the use of the Miller-Abbott tube, but transverse colostomy or cecostomy may be necessary to relieve the more advanced stages of large bowel obstruction. Unnecessary operations may be avoided by careful differentiation, for decompression of the large intestine has no place in the treatment of small intestine ileus.

Muscle spasm with localized tenderness is noted in approximately one-half of the patients. Since the sigmoid colon is the portion most frequently involved, tenderness and rigidity are commonly found in the left lower quadrant. These findings are indicative of peritoneal irritation and are dependent on the pathologic process at the time of examination. A change in the area or degree of intensity is of value in estimating the progress of the disease. Rupture of a diverticulum into the free peritoneal cavity is indicated by a diffuse spread of muscle spasm while a decrease in localized tenderness shows that resolution is taking place.

Gross blood is rare in diverticulitis though two patients in our own series were admitted after severe and almost exsanguinating hemorrhages, both recovered and have remained well, following resection of the involved area of colon. Occult blood in the stool is common, in fact it is found just as frequently in diverculitis as in carcinoma and thus is of little diagnostic significance.

### *Diagnostic Aids*

1. *Laboratory Findings*: An average leucocyte count of 15,000 per cubic mm. was obtained in a series of cases recently reviewed. Higher counts occurred with frank abscess formation and spreading peritonitis. Occult blood was found in forty per cent of the stool examined, therefore it is of little significance in the differential diagnosis of carcinoma and diverticulitis.

2. *X-ray examination*: This valuable procedure often has to be delayed until the acute phase has subsided. Thus its value often is more confirmatory than diagnostic. The introduction of barium into the diverticular sacs often appears to have a beneficial effect for it is not uncommon for patients to claim that they feel better after a barium enema. X-ray examination is helpful in the differential diagnosis of carcinoma and diverticulitis but this decision may tax the skill of the most experienced rœntgenologist.

3. *Sigmoidoscope examination*: Visualization of the rectum and sigmoid is the best safeguard against overlooking a malignancy. In the acute or subacute phase little positive evidence is obtainable. Indirect evidence such as the passage of mucus, spasm of the sigmoid or inability to advance the instrument owing to inflammatory fixation is the usual finding. When the disease is quiescent it is often possible to visualize the mouths of the diverticula.

### *Diagnosis*

A tentative diagnosis of acute diverticulitis may be made when confronted with a middle-aged overweight patient complaining of fever, bloating and the gradual onset of pain in the lower abdomen, usually more pronounced on the left side. Additional evidence is furnished by a history of previous, similar colon disturbances, especially if there has been rœntgen evidence of diverticula. All of the patients in our series with known diverticula when the diagnosis of diverticulitis was considered were subsequently proven to have been suffering from the disease, on the basis of either operation or positive x-ray findings. Muscle spasm and tenderness in the lower half of the abdomen more particularly on the left plus a temperature elevation of 100°-102° F. with a leucocytosis of 12,000-15,000 and PMN of eighty per cent plus, provide confirmatory diagnostic evidence.

### *Differential Diagnosis*

1. *Acute Appendicitis*: Diverticulitis occurring in long sigmoid loops may present maximum point of tenderness in the midline or even the right lower quadrant. Also distension of the cecum secondary to obstruction lower in the colon due to diverticulitis

draws attention of both the patient and medical attendant to the appendix region. In five of ninety-four patients (5.3 per cent) an erroneous diagnosis of acute appendicitis was made and the true state of affairs was revealed only by laparotomy. It should be helpful to recall that appendicitis occurs in the younger group of patients, that vomiting is constant, that the pain is generalized at first and finally localized in the right lower quadrant, and that a bowel movement of passage of flatus seldom benefits the patient, while in acute diverticulitis great relief is experienced.

2. *Carcinoma of the Colon*: Differentiation here is often extremely difficult even after the abdomen is opened. In favor of carcinoma is a history of good health with no previous colon difficulty, loss of weight, and blood in the stools. Moreover colonic distension is more likely to occur with carcinoma than with diverticulitis. Laparotomy is definitely indicated when there is any question of malignancy and if at operation there is still doubt resection of the involved segment is clearly indicated.

3. *Pelvic Inflammatory Disease*: A patient recently operated upon with a diagnosis of tubo-ovarian abscess was found to be suffering from acute diverticulitis. Exteriorization of the mass followed by a Mikulicz resection and subsequent closure of the colostomy effected a cure.

### *Treatment*

The treatment of acute diverticulitis is primarily medical[6] but surgical intervention becomes necessary when complications develop.

*Medical Management* consists of general supportive measures such as maintenance of fluid balance as indicated grossly by a daily urine output of at least 1000 cc., correction of anemia, etc. Hot stupes and the indwelling Levine tube will alleviate abdominal distension and help to localize the ineffective process. Nutrition is kept up by a bland low-residue diet supplemented as indicated by intravenous, glucose and amino acids. Liquid petrolatum one ounce three times a day promotes bowel movements by lubricating the colon. Cathartics should be avoided, but warm oil retention enemas followed by saline irrigation of the colon administered slowly by the gravity method are permissible if bowel evacuation is delayed. Specific treatment consists of succinyl sulfathiazole 4 grams four times daily and penicillin units 100,000 intramuscularly every three hours. This regimen in the average patient will induce resolution as evidenced by abatement of symptoms.

### *Surgical Management*

In the acute phase of the disease the chief indications for surgical intervention is perforation as indicated by the onset of generalized peritonitis. In the subacute stage localized abscess may require drainage or rarely decompression is necessary to relieve acute colonic obstruction. After the acute attack has subsided operation has to be undertaken, for resection of the diseased segment of colon to cure chronic obstruction, external or internal fistulas, to avoid repeated inflammatory attacks, or hemorrhage, and to remove all doubt as to the coexistence of carcinoma. Regardless of the phase of the disease at which operation is undertaken, complete defunctionalization of the bowel by a right transverse colostomy is the operation of choice. When indicated drainage of the pelvis in generalized peritonitis or a localized abscess may be done at the same time. After a 3-6 month interval resection of the involved colon with restoration of intestinal continuity can be carried out with a high degree of safety. Later the transverse colostomy is closed. The alternate method of exteriorization may be a matter of expediency in some cases, but it is definitely inferior because often insufficient bowel is available for removal and the resulting colostomy is exceedingly difficult to close because of infection and fibrosis of the bowel wall. For the same reasons primary resection of the colon should not be a routine procedure.

## SUMMARY AND CONCLUSIONS

1. Evidence of diverticulitis is obtained in five per cent of adult patients subjected to barium enema examination, and of their number fifteen per cent develop inflammatory change.

2. The ratio of the incidence of acute appendicitis to acute diverticulitis at the Henry Ford Hospital is 38-1.

3. Approximately 75 per cent of acute diverticulitis involves the sigmoid colon.

4. Acute diverticulitis is a disease of late middle life.

5. The distension in acute diverticulitis may be due to associated ileus of the small intestine.

6. Treatment is primarily medical.

7. When surgical intervention is indicated defunctionalization of the colon by right transverse colostomy is the procedure of choice.

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## NEWS AND NOTES

Dr. P. A. McLennan was the guest of honour at a dinner at the Hotel Vancouver recently. This function, a spontaneous tribute to one of British Columbia's best-known and best-liked surgeons, was attended by doctors from towns and cities in many parts of the northwest.

Dr. G. A. Sutherland of Vancouver and Dr. J. W. Lennox of Victoria, attended the convocation ceremony of the University of Toronto in June this year in order to receive a degree of Doctor of Medicine. Dr. Sutherland graduated in 1898 and, at that time, received the degree of Bachelor of Medicine. Dr. Lennox also graduated in 1898 receiving the B.M. The degree of Doctor of Medicine was conferred upon them by the Right Honourable Vincent Massey, Chancellor of the University of Toronto.

Dr. W. J. Knox of Kelowna has received the honour of being made a Senior Member of the Canadian Medical Association, at the Annual General Meeting of the C.M.A. in June.

Dr. J. M. Tedford of Windermere has left for Chicago, Illinois, to do post-graduate work in dermatology.

Dr. W. R. LaCroix, formerly of Vancouver, is now residing in Penticton.

Deepest sympathy is extended to Dr. C. R. McKinnon on the death of his father.

Dr. C. C. Covernton has left Shaughnessy Hospital to take post-graduate work at the Royal Victoria Hospital in Montreal.

Congratulations and best wishes are extended to Doctor and Mrs. J. R. Farish on their recent marriage.

Dr. W. D. Marshall who has been doing post-graduate work in obstetrics and gynæcology has returned to British Columbia to take up practice in Victoria.

Dr. P. G. Margetts is leaving Campbell River to do post-graduate work.

Dr. A. E. Farwell of Ruby Creek is now residing in Chilliwack.

Dr. Richard Murphy is going to Campbell River in association with Dr. N. B. Hall.

Dr. F. W. Brydone-Jack is leaving Vancouver to take up practice at Qualicum Beach.

Congratulations are extended to the following doctors and their wives on their recent good fortune;

Dr. and Mrs. T. J. Agnew—a daughter
Dr. and Mrs. L. F. Brogden—a daughter
Dr. and Mrs. L. S. Chipperfield—a daughter
Dr. and Mrs. S. H. Fishaut—a son
Dr. and Mrs. N. L. Richardson—a daughter
Dr. and Mrs. F. W. Tysoe—a son

## DR. W. R. SUTHERLAND GROVES

### Obiit. May 6, 1948

The recent death of Dr. W. R. S. Groves of Vancouver removed from our midst a picturesque figure, a man who managed to inject into the practice of medicine a remarkable sense of adventure, even to the point of recklessness. His name has appeared more than once in the public press, as figuring in aeroplane flights undertaken to rescue or aid men who had been injured or had taken dangerously ill in lonely, inaccessible parts of the coast. One of these he undertook when he himself was just recovering from injuries received in an auto accident and had his leg in a cast.

Dr. Groves was 49 years of age. He was a graduate of the University of Toronto (1935), and had practiced in B.C. for twelve years. He was well known in Vancouver and well liked, both by his colleagues and his growing clientele of patients. He leaves a wife and two children. We extend our deepest sympathy to his family.

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## DR. B. D. GILLIES

### Obiit. July 7, 1948

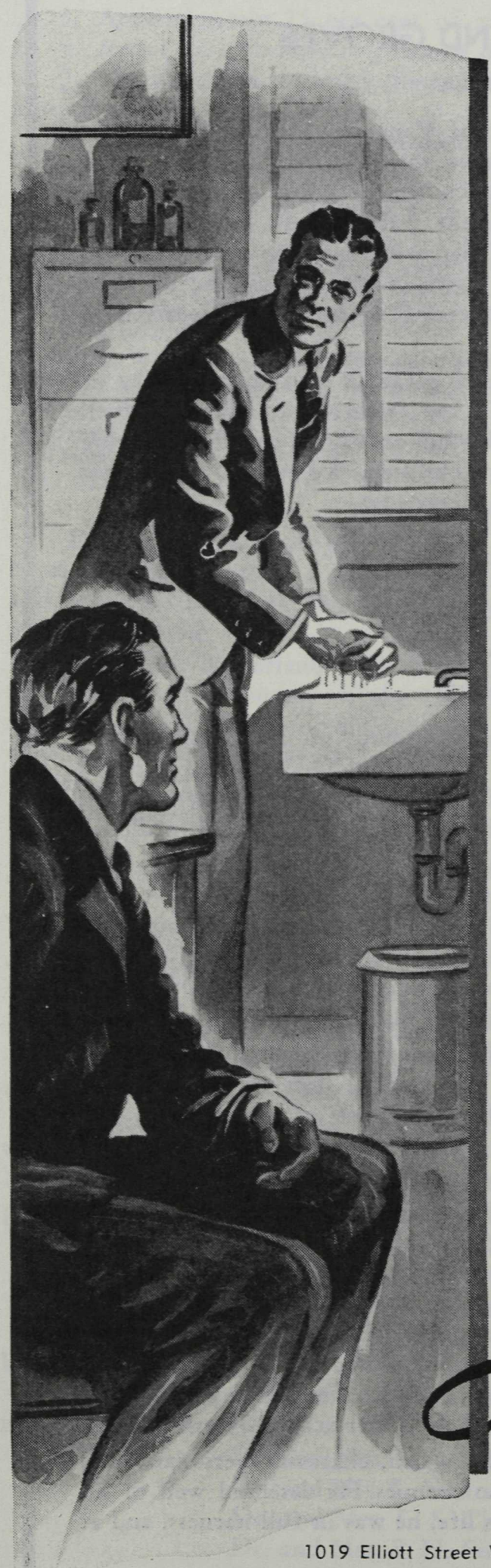
The medical profession of Vancouver, and, indeed, of British Columbia, has lost one of its most eminent members in the death of Dr. Gillies. For many years of active practice, forty-two to be exact, he has been an ornament to the profession, and had built up a very high reputation as an internist in medicine.

Dr. Gillies graduated from McGill fifty years ago. He had a rigorous training in medimine under Lafleur and others, and in pathology with J. G. Adami. He was pathologist at the Montreal General Hospital, where he had interned. He came out to Vancouver in 1906 and was associated with Dr. R. C. Boyle, one of the city's leading surgeons. Later he was associated with Dr. P. A. McLennan till his brother, Dr. G. E. Gillies, joined him in practice.

He has been intimately connected with the Vancouver General Hospital, of which he was a life governor, was chief of the medical staff for many years, and helped greatly in the development of the staff work of the hospital. He was a pioneer in electrocardiography, and organised the present Heart Station.

Dr. Gillies came from a family of doctors, and he showed always the attributes of the good physician. Apart from his learning, which was great, and his preeminent style as an internist, he had the characteristics of heart and mind which mark the highest type of physician. He viewed his patients as individual entities—he thought of them as his friends, which indeed they were—and their interests were his interests. Cool, patient, deliberate in all he did, he was not to be led into hasty or ill-considered action, and could not be stampeded into decisions which had not had his fullest consideration. His pathological knowledge was outstanding, and he was one of the Osler school of medicine.

We shall all miss him. A good friend, and a warm, charming personality, he was beloved by all who knew him and had no enemies. He deserved well of his country, and served it well. Till the end of his life, he was in full harness, and at work. In that we count him fortunate.



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