THE BULLETIN

OF

The Vancouver Medical Association

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VANCOUVER MEDICAL ASSOCIATION
PROGRAMME FOR THE FIFTY-THIRD ANNUAL SESSION

Founded 1898; Incorporated 1906.

REGULAR MONTHLY MEDICAL MEETINGS

FIRST TUESDAY—GENERAL MEETING—Vancouver Medical Association—T. B. Auditorium.

Clinical Meetings, which members of the Vancouver Medical Association are invited to attend, will be held each month as follows:

SECOND TUESDAY—SHAUGHNESSY HOSPITAL STAFF MEETING.

THIRD TUESDAY—ST. PAUL'S HOSPITAL STAFF MEETING.

FOURTH TUESDAY—VANCOUVER GENERAL HOSPITAL STAFF MEETING.

FIFTH TUESDAY—(when one occurs)—CHILDREN'S HOSPITAL STAFF MEETING.

Notice and programme of all meetings will be circularized by the Executive Office of the Vancouver Medical Association.

VANCOUVER GENERAL HOSPITAL

Regular Weekly Fixtures in the Lecture Hall

Monday, 12:15 p.m.—Surgical Clinic.

Tuesday—9:00 a.m.—Obstetrics and Gynaecology Conference.

Wednesday, 9:00 a.m.—Clinicopathological Conference.

Thursday, 9:00 a.m.—Medical Clinic.
12:00 noon—Clinicopathological Conference on Newborns.

Friday, 9:00 a.m.—Paediatric Clinic.

Saturday, 9:00 a.m.—Neurosurgery Clinic.
edition, 1950.

ST. PAUL'S HOSPITAL

Regular Weekly Fixtures

TUESDAY—9-10 a.m.—PAEDIATRIC CONFERENCE

2ND TUESDAY of each month—11 a.m.—TUMOR CLINIC

WEDNESDAY—9-11 a.m.—MEDICAL CLINIC

2ND and 4TH WEDNESDAY—11-12 a.m.—OBSTETRICS AND GYNAECOLOGY

THURSDAY—11-12 a.m.—PATHOLOGICAL CONFERENCE
(Specimens and Discussion)

FRIDAY—8 a.m.—CLINICO-PATHOLOGICAL CONFERENCE
(Alternating with Surgery)

ALTERNATE FRIDAYS—8 a.m.—SURGICAL CONFERENCE

FRIDAY—9 a.m.—DR. APPLEBY'S SURGERY CLINIC

FRIDAY—11 a.m.—INTERESTING FILMS SHOWN IN X-RAY DEPARTMENT

SHAUGHNESSY HOSPITAL

Regular Weekly Fixtures

Tuesday, 8:30 a.m.—Dermatology.
Wednesday, 10:45 a.m.—General Medicine.
Wednesday, 12:30 p.m.—Pathology.
Thursday, 10:30 a.m.—Psychiatry.
Friday, 8:30 a.m.—Chest Conference.
Friday, 1:15 p.m.—Surgery.

BRITISH COLUMBIA CANCER INSTITUTE

Tuesday, 9:00 a.m. to 10:00 a.m. (weekly)—Clinical Meeting.

THE BULLETIN

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Reprints must be ordered within 15 days after the appearance of the article in question, direct from the Publisher. Quotations on request.
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VANCOUVER HEALTH DEPARTMENT

CASES OF COMMUNICABLE DISEASE REPORTED IN THE CITY

STATISTICS—JUNE, 1951

Total population — estimated	397,140
Chinese population — estimated	6,282
Other — estimated	640

	May, 1951	
	Number	Rate per 1000 pop.
Total deaths (by occurrence)	369	11.2
Chinese deaths	14	26.7
Deaths, residents only	326	9.8

Birth Registrations — Residents and Non-Residents:
(includes late registrations)

	May, 1951	
Male	534	
Female	472	
	906	27.4

Infant Mortality — Residents only:

	May, 1951
Deaths under 1 year of age	14
Death rate per 1000 live births	19.8
Stillbirths (not included in above item)	12

CASES OF COMMUNICABLE DISEASES REPORTED IN THE CITY

	May, 1951		May, 1950	
	Cases	Deaths	Cases	Deaths
Scarlet Fever	95	—	8	—
Diphtheria	—	—	—	—
Diphtheria Carrier	—	—	—	—
Chicken Pox	195	—	76	—
Measles	155	—	248	1
Rubella	99	—	509	—
Mumps	39	—	367	—
Whooping Cough	18	—	56	—
Typhoid Fever	—	—	—	—
Typhoid Fever Carriers	—	—	1	—
Undulant Fever	—	—	—	—
Poliomyelitis	—	—	1	—
Tuberculosis	38	8	39	12
Erysipelas	—	—	2	—
Meningitis	—	—	—	—
Infectious Jaundice	—	—	—	—
Salmonellosis	8	—	5	—
Salmonellosis Carriers	—	—	—	—
Dysentery	1	—	—	—
Dysentery Carriers	—	—	—	—
Tetanus	—	—	—	—
Syphilis	12	1	32	1
Gonorrhoea 0	147	—	146	—
Cancer (Reportable Resident)	80	42	165	51

CONNAUGHT

A new form of penicillin G . . .

ETHYL TYROSINE

Since the advent of crystalline sodium and potassium penicillins, the search for new salts of penicillin which exhibit unusual and useful properties has been intensively carried on. A number of such salts has been developed in the Connaught Medical Research Laboratories. Of these Penicillin G Ethyl Tyrosine has been selected by the Laboratories for distribution. This salt is a crystalline compound of penicillin G and the ethyl ester of the naturally occurring amino-acid tyrosine. Penicillin G Ethyl Tyrosine is exceptionally non-toxic, is stable and is but slightly soluble in water. It exhibits prolonged penicillin activity when suspensions are administered parenterally.

This new product of the Laboratories, Penicillin G Ethyl Tyrosine, is available as a suspension in oil for parenteral use and in the form of conveniently small tablets for oral administration, as follows:—

In Oil with 2% Aluminium Monostearate

Vial of 10 cc., containing 3,000,000 International Units

In Tablet Form, for Oral Administration

Tube of 15 Tablets, each of 50,000 International Units
Tube of 15 Tablets, each of 100,000 International Units

Vial of 100 Tablets, each of 50,000 International Units
Vial of 100 Tablets, each of 100,000 International Units

□

CONNAUGHT MEDICAL RESEARCH LABORATORIES
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Established in 1914 for Public Service through Medical Research and the development of Products for Prevention or Treatment of Disease.

DEPOT FOR BRITISH COLUMBIA

MACDONALD'S PRESCRIPTIONS LIMITED

MEDICAL-DENTAL BUILDING, VANCOUVER, B.C.

The Editor's Page

The week of Octber 1st, 1951 will be a busy and important one for organized medicine in British Columbia. It will be full of interest for every medical man in the Province.

In the first place, it will mark the opening of the new Academy of Medicine in Vancouver. This represents, in concrete and stone, the realisation of a dream which dates back many year. We do not know who first conceived the idea of this building, but it was probably the result of many men's thoughts, as it is the result of many men's work.

It is not a Vancouver building—though it happens to have been built in Vancouver. It is the Academy of Medicine of British Columbia, built by the contributions of every member of the College of Physicians and Surgeons of British Columbia: and designed for the service and use of every member of the medical profession of B. C., from Victoria to the eastern boundary of the Province, and from Prince Rupert to Cloverdale.

This building is the special work of the College of Physicians and Surgeons, and it will be opened under the auspices of this body on the first of October. Details will be announced later.

This is the first time in its history that the College has undertaken any such project, and it is therefore most fitting that this day, October 1st, should be a day of celebration by the members of the College. It is not likely that we shall witness any similar event for a long time again, and each of us may well plan to set aside this day especially. For one day we shall be acting as members of the College, and not of any section or association. During the next four days the B. C. Division of the Canadian Medical Association will present its programme, which contains a scientific section, a meeting on Medical Economics, and a considerable programme of entertainment, climaxed by the Annual Dinner on October 5th. These days, from October 2nd to October 5th will be full of important things, and we should all do our utmost to take in everything, and to make this whole week a completely successful one. The Academy will be open for all our visitors to see, and we can take a keen pride in it. It has been well designed, to accommodate the College, the B. C. Medical Association, as well as the Vancouver Medical Association and its library, which will at last find a permanent abiding place.

This home of medicine in B. C. should, too, be a contribution of value to the community as a whole. It will be a centre, a focal point, to which the Province, as a whole, can look for the advancement of medicine, for the raising of medical standards of practice, for leadership in matters of health.

And in the Valhalla to which our departed friends of medicine have gone, there will be wassail and rejoicing. How some of our leaders of the past would rejoice to see this day! J. W. Pearson, and Alex Munro, and John Eden Walker, and Wallace Bagnall, and Jack McLachlan—yes, and Morris Thomas, that old fighter from Victoria, and many others, who saw ahead to a day when medicine in B. C. should have its own home: a building like this one—the first unit of a scheme which ultimately will embrace an auditorium, and perhaps other things, such as a museum, perhaps. Because this is not the end — it is just, as Mr. Winston Churchill would say, "the end of the beginning."

Hours During the Summer Months:

Monday to Friday ..... 9:00 a.m. - 5:00 p.m.
Saturday ..... 9:00 a.m. - 1:00 p.m.

Recent Accessions:

American Proctologic Society, Transactions, 1950.
Andrus, W. D. (editor), Advances in Surgery, vol. 1, 1949.
Dock, W. and Snapper, I. (editors), Advances in Internal Medicine, vol. 4, 1950.
Gates, R. R., Human Genetics—2 volumes, 1946 (Gift of Dr. R. A. Hunter).
Kelly, E. C., Encyclopedia of Medical Sources, 1948 (Historical and Ultra-Scientific Fund).
Medical Clinics of North America—Symposium on Obstetrics and Gynecology, May, 1951.
Pharmacopeia of the United States of America, 14th revision, 1950.
Sigerist, H. E., A History of Medicine, vol. 1, 1951 (Historical and Ultra-Scientific Fund).
Surgical Clinics of North America—Symposium on Genito-Urinary Surgery, June, 1951.
Willis, R. A., Pathology of Tumours, 1948.

BOOK REVIEW

THE TECHNIQUE OF PULMONARY RESECTION by R. H. Overhold and L. Langer. Springfield, Ill., C. C. Thomas, 1949 pp. 193 illus.

This is an excellent outline of the modern methods of pulmonary resection, emphasizing particularly segmental resection. However, the descriptions of segmental anatomy are rather difficult to follow unless one is accustomed to using the Overholt prone position.

Many of the details of the pre and post operative care and operative technique are helpful and interesting, but as pointed out by the authors in the Afterward, are undergoing rapid change.

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 V.M.A. LIBRARY AS SOON AS POSSIBLE:

American Journal of Medical Sciences, vol. 220, No. 943, October, 1950.
American Review of Tuberculosis, vol. 61, No. 3, March, 1950.
Bulletin of the New York Academy of Medicine, vol. 24, 1948 (bound volume).
Diseases of the Nervous System, by W. Russell Brain, 3rd edition, 1948.
Journal of Clinical Investigation, vol. 19, No. 4, April, 1950.
Minnesota Medicine, April, 1948.
Science v. 112, No. 2902, August 11, 1950.

BRIEF SERIES OF LECTURES ON PSYCHIATRY IN GENERAL PRACTICE*

W. DONALD ROSS, M.D., (Man.), F.R.C.P. (C)
Assistant Professor of Psychiatry, University of Cincinatti

INTRODUCTION

This short series begins with an adaptation for general physicians of psychiatry's most basic technique, interviewing, Then there is a diagnostic discussion, concerned with the recognition of the commonly seen emotional disorders. Treatment is touched upon with regard to the psychotherapy within the scope of general practice, and the management of acute psychiatric emergencies. Finally, the problem of psychiatric referral is considered. Two general reference texts are suggested (2) (3).

No. 1—INTERVIEWING PATIENTS FOR EMOTIONAL FACTORS IN ILLNESS

The usual methods of medical history taking, even when inclusive of many items for personal information, often serve to dissuade the patient from spontaneous confession of the emotional problems of greatest importance to him. An interesting experiment conducted at Harvard University revealed that senior Arts students were able to obtain from hospital patients a better account of emotional problems contributory to their illness than were senior Medical students schooled in history taking and in pathology. The ability to listen to the patient with interest in him as a human being is the most important quality for eliciting the presence of emotional factors in illness. Since it is necessary to do some formal questioning to make an accurate medical diagnosis, and since doctors are more comfortable with some scheme of history taking in mind, the following plan is suggested. This is only a guide, to be kept in the back of the mind of the physician, as to the range of information which may come from the patient. It is not necessary, or even advisable, that it be followed in toto, since such an exhaustive enquiry would obscure what is more relevant for each particular patient.

A PSYCHOSOMATIC HISTORY PLAN

A. PRINCIPLES

1. A biological approach to study the patient as a person who *has a body,* and is in an environment which is *both physical and mental.*
2. Order of procedure is *from the complaints* (usually somatic), *through questions of physical illness* which the patient is more ready to divulge, to personal data on which the patient may only converse as he gains confidence in the doctor, and sometimes not until a second interview. *This procedure is not to be maintained if patient readily digresses to personal problems* and if the presenting symptoms are such that a complete medical history is not needed in order to give the patient the most relevant help.
3. Observe certain conditions: privacy, *willingness to listen,* with adroit, and not abrupt, steering of patient into fruitful channels, avoidance of criticism or condemnation, acceptance as genuine the patient's complaints, giving no advice until the whole situation has been satisfactorily appraised, and avoidance of conclusions based on your like or dislike of the patient.

B. STAGES

1. *Complaints*—Let him begin with the main problem to him.
2. *Present Condition*—Analyze the symptoms. Make a preliminary impression of the diagnosis. For example, symptoms such as headache, back pain, indigestion, chest pain, diarrhea and so on, can be analyzed into the types of such symptoms that occur with:

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*Presented at the Summer School of the Vancouver Medical Association, May 28 - June 1, 1951.

(a) "Organic" disease entities.
(b) "Psychosomatic" disease entities.
(c) Accompaniments of or substitutes for mood change of anxiety or depression.

3 *Indirect mental examination*—The observation of the patterns of mental and emotional functioning of the patient begins with first meeting of the patient. The less the doctor interferes and the more he listens, the more clear will be the patient's own association processes. What is important to him and what else is associated with this can be noted if one realizes that the patient's utterances are not "irrelevant" even if they do not proceed according to the logic of the doctor. From several consecutive, but not obviously related, statements by the patient, one may "triangulate" to unverbalized feelings behind these statements, just as astronomers can measure the distance to a star indirectly. Some expression of understanding by the doctor of these unverbalized feelings of the patient will, if correct, lead the patient to more expression of the feeling behind the surface problems and symptoms. As the interview proceeds the doctor remains a conscious observer of how the patient proceeds with his own stream of talk, and how he responds to different suggestions by the doctor of what to talk about: i.e. what he is very ready to talk about and what he is inclined to avoid. These indicate particular anxieties of the patient and his habitual defences against anxiety. The feelings of the patient rather than the mere facts themselves must be constantly of interest to the doctor.

4. *Past Illnesses*—Don't accept only diagnoses. Get descriptions of previous illness, e.g. when he had his appendix out, the nature and duration of symptoms leading to this. Enquire especially for past episodes of present symptoms or of headaches, "sinus trouble" (get full description), digestive troubles, periods of diarrhea or vomiting or excessive fatigability, any fainting spells, or fainting at sight of blood or accidents, any enuresis after the age of 6, any nervous trouble or "nervous breakdown," any nervous tics or stammering, any sleep disturbances. As a child was there difficulty getting to sleep before important events, or any other excessive reactions to excitement such as gastro-intestional upsets or excessive fatigue? Was there any sleep-walking? Operations and accidents are focal points where patients may reveal anxiety or show avoidance of feeling.

5. *Family History*—Begin with medical chronic illnesses and incidentally ask about nervous illness requiring hospitalization, epilepsy or severe headaches, but do not stress nervous or mental llness. If either of parents dead, age of patient at the time. Any symptoms in family similar to those of patient. Do not cut off any tendency to digress on personal descriptions of parents or siblings. Note ages of siblings in relation to patient.

6. *Physical Examination*—Note objective signs of anxiety: tremor of outstretched hands or flutter of eye lids, moist palms, or axillary perspiration, increased deep reflexes, bitten finger nails. Any signs of depression: furrowed brow or psychomotor retardation. Note general attitude to being examined: any excessive modesty or exhibitionism.

7. *Review of Symptoms*—Can be done during physical examination to save time. Include present sleeping habits. If sleeplessness—is it before going to sleep or waking early? Be sure to include symptoms common to neurotics: headaches, dizziness, palpitation, back pain, fatigability. At this stage the subsequent stages can be postponed to a second visit, possibly after some laboratory tests.

8. *Personal History*—Preliminary explanation may or may not be necessary such as: "In order to help you with this problem I need to know more about you as a person."
   (a) *Earliest memories* are valuable as indications of the emotional make-up of a person who would retain the memory of one kind of event in comparison with

another even though the events are not obviously important. They also provide a starting point for a biographical recitation leading up to the present.
(Doctor): "Let me know about some of the earliest things in your life you can remember from early childhood perhaps before we remember many other things."

(b) Relationships to parents and siblings. Father's occupation, economic situation in the home, mother's and father's attitude to the children, relationships between the children, illnesses or alcoholism in the family, quarreling or broken home, and siding with one parent, with possible identification in character or symptoms with either parent, may all be revealed.

(c) Childhood symptoms not previously elicited, such as specific fears of the dark, of water, etc., may come out at this point.

(d) Childhood relationships outside of the home will be revealed as attention is directed to early school history, sports and hobbies and participation in group social or aggressive activities, including presence or absence of truancy or delinquency and of "tomboy" or "sissy" tendencies.

(e) Occupational history may begin with reason for leaving school and feelings around this, especially toward parents or other authorities if ambitions were thwarted. Subsequent work history including military service will tell much about the patient's broad social adjustments.

(f) Religious background and history may give an indication of important conflicts, especially with "mixed marriages" in the family or conflicts between parental attitudes about religion and social activity and those of patient's contemporaries. Feelings that parents were excessively strict or excessively permissive may be important.

(g) Sex history may be divulged more freely if one does not probe until the patient has become aware that the doctor's attitude is neutral on this subject and if questions are put in a matter-of-fact way, relating sexual feelings to broader relationships with people of both sexes. The onset of menstruation in women and of physical effects of puberty in men can be the starting point for inquiry into childhood and adolescent information and inhibitions about sex. From where did sexual information come? Did mother explain menstruation? what were the attitudes of the girl to the signs of femininity? In men the question, "How old were you when you started to masturbate?" may enable the patient to recount freely his adolescent and later sexual experiences and anxieties. Pre-marital, extra-marital, and homosexual experiences may be revealed as of emotional importance if the doctor is refraining from indicating any moral judgments. The question as to whether the patient has ever had any venereal disease might be left to this point instead of with past illnesses, for its usefulness in eliciting attitudes about sexuality.

9. *Recent personal events* may have been mentioned in the patient's own digressions, and questions will be suggested to the doctor from the understanding of the patient he has obtained up to this point. The patient may not make a direct connection between personal problems and physical symptoms if asked by the doctor if anything has been worrying him recently, whereas inquiry about personal feelings of *worry* or *discouragement* recently may give the doctor data from which he can construct a time relationship between events disturbing to this kind of person, and the development of a physiological or psychological disorder in the patient.

10. *Direct Mental Examination* may be necessary at this point to complete the doctor's assessment as to whether he can help the patient best by simple reassurance, by emotional support in repeated interviews possibly accompanied by physical therapy or other methods within the scope of general practice, or whether referral is indicated to a psychiatrist, to a family agency or to religious or legal guidance.

(a) Assessment of *mood* is important. How anxious or how depressed is the patient? Are there suicidal inclinations? Is the expressed mood of the patient in keeping with his life situation or does he have an abnormal absence of mood or inappropriatness of feeling?

(b) The presence of disorders of *thinking* may require further investigation. Special preoccupations, obsessional thoughts or actions, delusional ideas or hallucinatory experiences may be inquired for if trends in these directions have been revealed.

Dreams, recently, or repetitively in earlier life, may throw further light on unconscious emotional problems or may provide a wedge into hypnogogic or other hallucinatory experiences.

(c) *Activities* of the patient to direct observation or from inquiry about daily routine may reveal abnormalities not spontaneously volunteered.

(d) Assessment of *intelligence* is made roughly from school and work record and directly by the span of digits which the patient can repeat as well as the choice of language in interview.

(e) Assessment of *recent memory* and retention are important if organic brain disease is suspected. The simple tests are the retention of the names of three objects over three minutes and counting up to some number close to 100 without forgetting when to stop.

C. BASIS FOR DIAGNOSIS

A positive diagnosis of psychoneurosis or "pschysomatic disease" is based on:

(1) Characteristic symptoms.

(2) Appropriate relationship in time and severity between symptoms and personal events.

(3) Confirmation from previous neuropathic traits and previous symptoms. These provide the link needed to judge appropriateness of symptoms to person and environment.

If symptoms not explained as a biological interaction by the facts revealed, then look further for either physical or psychological disease. Remember that psychoneurosis and "organic" disease can co-exist but that "organic" disease is unlikely if symptoms are fully explained by the personal reaction, if there are no abnormal signs on physical examination, and if the symptoms are not characteristic for an "organic" disease entity.

Again it is emphasized that this outline is not to be submitted to the patient in question and answer form. The readiness of the patient to talk about emotional problems of relevance even to physical diseases is illustrated in an article on a method of interviewing called "The Associative Anamnesis," by Felix Deutsch, who was a cardiologist before he directed his interests to psychosomatic medicine and psychoanalysis (1). Any physician can learn to use this method, and the plan which has been presented here is a steppingstone to more effective personal interviewing, from the familiar ground of medical history taking. Another useful reference on interviewing is a small book by Annette Garrett (4).

* * * *

No. 1—COMMON EMOTIONAL DISORDERS ENCOUNTERED IN GENERAL PRACTICE

Psychiatrists are sometimes accused of using unfamiliar words for everyday phenomena. This accusation may be justified, but, after all, each specialty in medicine and surgery has a technical terminology by which things are labelled more precisely. That doctors in general may be more familiar with the technical language, in, say, ophthalmology or obstetrics than that in psychiatry, may be based on how psychiatry was taught to them, or it may be based on a lack of interest in psychiatry as a specialty, in spite of an awareness that emotional problems are important in the general practice of medicine. This lecture will be essentially a discussion of the diagnostic terms for

various disorders commonly encountered in medical practice. Most of the terms will be known to you already. I want to refresh your memories about them, and be sure that you are clear about the distinctions between the conditions labelled by these terms, for the sake of use which may be made of some of the terms in subsequent lectures. I also want to give you a general frame of reference by which these diagnostic entities can be linked to the common sense handling of patients' feelings by the doctor. A good short text book presenting diagnostic discussions in more of the perspective for general practice than most text books of psychiatry is that by Curran and Guttman.[1]

ANXIETY AND ITS DEFENCES

The general frame of reference is based on the universal occurrence of anxiety as an important human experience. No one is completely free from anxiety, but whether it produces pathological effects is dependent upon the balance between the intensity of the conflicts giving rise to anxiety and the defences which the individual has for controlling anxiety, and whether these defences are healthy or unhealthy. It is useful to think of the patient psychologically as having three layers: (1) The surface layer of overt behaviour, and the subjective symptoms reported to the doctor, whether these are psychologically motivated, represent a layer of defences against anxiety; (2) The second layer is that of anxiety itself, which may present symptoms due to the physiological disorder accompanying anxiety; (3) The third layer represents the patient's basic potentialities for health, which can be realized with understanding help from the physician. The usefulness of this three layer approach lies in the fact that it may enable the physician to recognize that even objectionable characteristics in the patient, as part of the first layer, can be understood as an attempt by the patient, perhaps mistakenly, to protect himself from anxiety. Even complaining dependency, provocativeness, or rebellion against medical authority, have their motivations stemming from the patient's own life experience. If the doctor is not upset by these he can tolerate them, recognize the anxieties behind them, and give support to the patient in realizing his potentialities for health, or in erecting more healthy defences. I shall not give an account of the various defences against anxiety. These can be read in some book such as Menninger and Leaf's, "You and Psychiatry."[3] Some of them will be mentioned as they play a part in the various diagnostic entities commonly encountered.

DIAGNOSTIC ENTITIES:

Anxiety neurosis is a condition in which anxiety, or the symptoms of physiological disorder accompanying it, is directly manifest, i.e. the second layer is exposed to the surface. The symptoms of anxiety are familiar to you as the symptoms produced by the physiological disorders with fear. If we heard that an armada of planes had been sighted, approaching Vancouver from the North, we might all experience them, at least transiently: palpitation due to tachycardia, perhaps precordial discomfort, shallow respiration with intermittent sighs, possibly diarrhea, or even nausea, maybe frequency of urination, or symptoms due to tension in skeletal muscles, such as some types of headaches; many bodily systems would be disordered. These symptoms would be accompanied by a general feeling of apprehension or impending peril. In anxiety neurosis such symptoms may be chronic, with the individual in a tension state most of the time, having insomnia and fatigue added to his woes, or he may have them in recurring sudden acute attacks. I dwell on what you know, to remind you that these "neurotic" symptoms are very real, and physiologically produced. The patient with anxiety neurosis may not be aware of the source of his anxiety, or even that his symptoms have a psychological component. Then the physiological symptoms have become the defence, or the surface layer, and the patient presents himself to you thinking he has "heart trouble," etc., and it is your job to understand his anxiety. One warning, however: anxiety neurosis is over-diagnosed in general practice. Manifest symptoms of anxiety may be present with other disorders which should be recognized by the doctor, such as depression, or a psychosis, and an understanding of the nature of the anxiety will prevent errors.

Depressions can be understood as involving a particular kind of defence against the anxiety about a separation or a loss. It is the defence of turning in on one's self the

resentful feelings involved in the loss. This principle applies to the mild *reactive depressions,* which are classified with the neuroses, and to the severe *psychotic depressions,* although the loss may not be so easily recognizable in the latter, since it has to do with an unconscious giving up of someone or something rather than a loss apparent in the history. The physical symptoms of depression include a slowing up of vegetative functions, with loss of appetite, constipation, possibly diminution or cessation of menstruation or of sexual feelings, persistent insomnia, general sluggishness and feeling of fatigue. These may be accompanied by increased deep reflexes, due to the state of tension. Insomnia may be marked by early morning waking, in contrast to the difficulty in getting to sleep of the anxiety neurotic. If agitation is present in addition to depression suicidal risk is increased.This is especially true of the depressive state of *involutional melancholia* or of the recurring depressions described as *manic depressive.*

Conversion hysteria involves the defence mechanism of dissociation and conversion. Instead of anxiety the patient presents a loss or change of a function, usually one innervated by the so-called "voluntary" part of the nervous system. He forgets how to use a part of his body or he "dreams up" symptoms resembling almost any illness. Physicians are often intolerant of this kind of defence because of the secondary gain which the patient may appear to have from being ill, but the "dreamt up" symptoms are no more subject to conscious control, if the condition is hysteria, and not malingering, than are dreams at night. Only an objective assessment of the anxiety behind this defence will pave the way for treatment, whether by suggestion, or by more intensive psychotherapy.

Anxiety Hysteria is a term for the phobic syndrome, in which a defence is used of displacement to external objects or situations of internal anxieties, e.g. fear of elevators, or fear of walking on the street. It is not commonly encountered in general practice and is best treated by the specialist, as is also the *obsessive-compulsive neurosis,* with its repetitive type of defence against anxiety.

Traumatic neurosis is a special form of neurosis which may present the symptoms of anxiety neurosis, of reactive depression, or of hysteria, but which is distinguished from these by the fact that it was precipitated by some traumatic event which completely overwhelmed the individual. Many of the neuroses of war belong in this group, especially those occurring after severe battle experiences undergone by individuals without previous neurotic difficulties. Particular features include repetitive dreams of the threat recurring, such as the battle anxiety dreams, and an increased irritability to noise.

Organ neurosis is a useful concept for a group of entities. Here we are not dealing with a defence against anxiety but a physiological effect of some chronic stress. Those general medical disorders which have been found to involve large emotional factors in their production belong in this group when they are classified psychiatrically. Two of them are the subject of discussion in round-table symposia in this course: peptic ulcer and bronchial asthma. Don't misunderstand me. I am not saying that emotional factors are the only cause of such diseases. Far from it. But in cases of peptic ulcer, bronchial asthma, hypertension, colitis, and many other diseases, when emotional factors are found to be playing a substantial role, the psychiatric diagnosis, in addition to whatever is the correct medical diagnosis, is that of "organ neurosis" and not of anxiety neurosis or hysteria, etc. This is in keeping with the meaning of the word "neurosis": a disorder of nervous functioning, in these instances, of autonomic nervous control of the organ, and not in keeping with the myth that a neurosis is an imaginary disease.

Hypochondriasis involves the defence of preoccupation with one's own bodily functions and the misinterpretation of normal or mildly pathological sensations. Slight hypochondriasis may accompany many illnesses, physical and emotional, but marked chronic hypochondriasis has a delusion quality in which anxieties are solved by projection of blame to physical disease. This is akin to the external projection which occurs in paranoid psychoses. Some hypochondriacal people are close to psychotic and may best be treated by examination and palliative measures without threatening the patient's defensive system with the possibility of a cure.

The psychoses will not be considered in detail. However, when one realizes that one person in twenty of the general population is admitted to mental hospital at some

time, and that about half of mental hospital patients are diagnosed as "schizophrenia" one should realize that patients with schizophrenic disorders, and other serious psychotic disorders, such as depressions already mentioned, often present themselves in early stages with physical symptoms before the patients have become a nuisance to themselves and others. A bizarre nature of anxieties, or of the patient's personality, may be recognizable if one takes the trouble to understand him. One should realize that even the queer things about these persons may also be defences against anxiety, and the kindest thing for such a person is to get him to skilled help at an early stage. On the other hand, there are chronic, borderline, psychotic people who are not getting worse, whom a general practitioner may be able to help by supportive attention from time to time, such as the hypochrondriacs. These are a legitimate, although a small, segment of general practice. These problems will be discussed further with reference to psychiatric referral.

Panic state should be distinguished from anxiety neurosis on the one hand and psychosis on the other. This is a condition in which there is a degree of disorganization of behaviour so that the patient appears "out of his head," or psychotic, but in which overwhelming anxiety is present. Ability to deal with reality returns when the anxiety subsides. The anxiety may be the result of a severe external threat or of the sudden increase in intensity of some internal conflict.

"*Organic*" emotional disorders must not be forgotten. In the later stages the neurologist or phychiatrist will have the responsibility for their recognition but conditions such as general paresis, brain tumor, or epilepsy may mimic the common neuroses at an early stage since the organic process weakens the usual defences of the individual against anxiety. Failure to find adequate emotional cause for anxiety or its pathological defences should lead to more careful physical study. Organic emotional disorders with *aging* are particularly important. They can be considered in three groups; the emotional disorders accompanying hypertensive cerebral pathology, those accompanying cerebral arteriosclerosis, and, at a later age, those with senile cerebral changes. Both organic and psychological factors are important in these individuals, with failing nutrition and feelings of rejection being the two central problems.

Behaviour disorders will not be detailed although general practitioners are asked for advice on these from time to time. "*Psychopathic personality*" is mentioned as a reminder that behind presenting neurotic symptoms there may be a character problem too difficult for the physician to handle, but not that he should become punitive in his disappointment with the patient.

Alcoholism is mentioned, not as synonomous with psychopathic personality, but as a particularly harmful defence against anxiety, requiring special attention. One may easily miss this defence as a cause of secondary symptoms of a neurotic or psychotic nature, since the alcoholic usually minimizes his drinking. A history from a relative is indicated rather than reliance on the patient if this problem is suspected.

Emotional aspects of physical illness are of importance. This has been a survey of the psychiatric entities. A large proportion of medical practice involves the complication of *physical illness* by anxiety and by defences such as are illustrated by these entities. The treatment of the physical disease may not solve the emotional problems. With any illness there is a tendency to employ the defence against anxiety of *regression* to a more dependent state. In fact, a refusal to regress to dependency on the doctor may block treatment, and this refusal must be understood and handled. But the dependency itself may become a problem requiring patience and firm reassurance by the doctor after he has ascertained that nothing more active need be done to relieve anxiety or to treat physical factors.

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ACTH IN THE TREATMENT OF OCULAR DISEASE

J. F. MINNES, M.D.
(Vancouver)

In the past year various types of inflammatory ocular lesions have been treated with ACTH and Cortisone. Successful and partially successful results have been reported by Gordon and McLean (1), Olson (2), Steffenson (3), Woods (4), and Geddes and McCall (5).

The following is a presentation of the ocular cases treated with ACTH in the Research Unit of the Vancouver General Hospital commencing May, 1950. All of the cases treated were of a chronic nature, the lesions having been present from four months to several years. One of the criteria of selection was that each case had been resistant to standard therapy. Hence this resulted in a most exacting trial of the new material.

All the cases received a complete examination and their medical status was followed at intervals by their physician. In addition to the eye findings there was psoriasis and psoriatic arthritis in Case 3, rheumatoid arthritis in Case 4, and in Case 5 polyarthritis of rheumatoid or tuberculous origin. Cases 1 and 2 had no disease apart from the eyes.

The laboratory studies included a chest x-ray, E.C.G., blood counts, electrolyte and sugar determinations before treatment was started, while during treatment blood pressure, and the true eosinophil count were done daily. Plasma chloride, plasma carbon dioxide combining power, and routine urinalysis were done twice weekly. Finally haemoglobin, total white cell count, sedimentation rate, serum potassium, and haematocrit were done weekly.

A thorough eye examination including external, opthalmological and slit lamp examination (excluding Case 4) was made before treatment and observations were made daily so far as was practicable during the course of treatment.

The dosage varied according to the availability of the drug, the eosinophil count and the clinical response. The drug was administered intramuscularly in four divided doses each day at six hourly intervals.

Case 1. (14425) *Traumatic Uveitis.*

A. C., a 69 year old Indian, gave a history of being struck in the right eye six months previously sustaining a ruptured globe and a prolapsed iris. At the time of injury the iris had been excised and the wound repaired. On admission to hospital he presented a hypotension of the right eye, subacute uveitis, coloboma of the iris, and a complicated cataract. Visual acuity was restricted to perception of light in the injured eye, and there was poor light projection.

He was given 50 mgms. of ACTH daily for a period of six days. At the termination of treatment there was some slight improvement in the intensity of the uveitis as witnessed by a decrease in the number of keratic precipitates and diminution in the aqueous ray from 2 to 1+. There was, however, no improvement in the visual acuity or intraocular tension, nor was the ocular inflammation sufficiently improved to justify removal of the traumatic cataract.

Case 2. (14130) *Endophthalmitis.*

A. K., a 66 year old white man had a combined extracapsular cataract extraction performed on the right eye April, 1950, following which he developed an exogenous endolphalmitis and commencing phthisis bulbi. The ocular condition failed to respond to antibiotics and fever therapy. On July 12, 1950, he was given ACTH, receiving a total of 2,000 mgms. over a period of twenty days. The initial dose was 55 mgms. per day subsequently increasing this to 100 mgms. per day. No improvement in the visual acuity, ocular tension, or inflammation was observed except for a slight diminution in the scleral injection.

Case 3. (16) *Bullous Keratitis.*

C. H., a white male, age 37, had progressive failure of vision affecting both eyes, associated with psoriasis and psoriatic arthritis for the past eight years. The loss of

vision which was reduced to 12/200 in the right eye and hand movements in the left was attributed to a dense central epithelial opacification of both corneas together with numerous small and large epithelial vesicles.

From August 9 to September 28, 1950, 4,750 mgms. of ACTH was given. As a result of this treatment, the patient stated that the eye felt more comfortable and it was noted that the bullae were smaller in size and fewer in number at the end of treatment, while the corneal opacity became less dense. However, there was no substantial improvement in the visual acuity.

Case 4. (14096) *Non-Granulomatous Iritis.*

A. S., a 37 year old white male gave a history of chronic progressive rheumatoid arthritis of 11 years' duration and chronic iritis and complicated cataract affecting the right eye for the past six months. The iritis had failed to respond to atropine drops locally, salicylates, and artificial fever therapy. ACTH was given July 10, 1950, giving initially 100 mgms. per day for a total of 4,500 mgms. over a period of seventy-two days. Prompt relief from symptoms was experienced and objectively the iritis appeared greatly improved, but complete cessation of the inflammation could not be accurately determined because of the inability of the patient to be examined with the slit lamp. However, after fifty-five days of treatment when the dosage had been tapered off to 40 mgms. per day, the iritis relapsed and amelioration of symptoms did not occur until the initial dose was resumed. Again a complete relapse of the iritis followed within five days of discontinuation of treatment.

Case 5. (71669SN) *Chronic Uveitis.*

S. E., a 5 year old female developed acute keratitis of the left eye in June, 1947, and in October, 1948, a similar condition in the right eye. In April, 1949, uveitis was present in both eyes with secondary glaucoma and complicated cataract. The vision was limited to recognition of hand movements in each eye singly. The etiology of the ocular inflammation remained in doubt, but it was accompanied by a polyarthritis which was believed to be of rheumatoid or tuberculous origin. From October 10 to November 14, 1950, the patient received 1,010 mgms. of ACTH beginning with 100 mgms. per day and gradually reducing the dosage. Therapy resulted in a fall of the sedimentation rate (Westergren) from 56 mm. to 19 mm. per hour, and a remission of the uveitis in both eyes. A combined intracapsular lens extraction was performed successfully on the left eye. Three weeks post-operatively the patient was given a maintenance dose of 10 mgms. of ACTH per day. The uveitis in the left operated eye has remained quiesent, but the contralateral eye again showed evidence of active inflammation as manifested by a positive aqueous ray.

Results: Of the five cases treated none reported any deleterious effects as a result of treatment and those cases in which ocular discomfort and pain (Cases 3 and 4) existed prior to treatment stated there was prompt subjective relief from these symptoms. Objectively in none of the cases was a cure achieved. Marked improvement was noted in Case 4, but the iritis relapsed within 5 days of cessation of treatment. Case 5 is still under treatment. Although ACTH was apparently effective in controlling the uveitis in the operated eye in this case, the inflammation in the unoperated eye is still active. Cases 1 and 2 showed such limited improvement that they might be classified as "no change."

Comments: From such a limited series of cases, no definite conclusions can be accurately drawn, but it would appear that ACTH is by no means a panacea, but rather an adjuvant therapeutic measure in the treatment of external and internal ocular inflammation. The mode of action of ACTH on ocular lesions remains uncertain, but Woods (4), suggests that it blocks the inflammatory and exuative phases of the anaphylactic and exudative phases of the anaphylactic and allergic reaction, and that it has no effect on the underlying hypersensitive state.

ACTH, then, may block the inflammatory, exudative, destructive phase of the lesion sufficiently long to permit the normal defense mechanism of the body to take up the task of overcoming the infection, and it is believed that a cure will be expedited

if the ACTH therapy is supplemented concurrently with other appropriate therapeutic measures such as antibiotics and chemotherapy.

The poor results obtained in this series of cases as compared to the favourable results in the literature may be attrbuted to the extreme chronicity and destructive nature of the lesions in which it was employed. In Case 1 the dosage of ACTH was inadequate. It would appear that the most likely ocular cases in which ACTH will be most effective are ones presenting early, acute and inflammatory lesions, characterized by a maximum degree of exudation, rather than chronic, indolent, regenerative lesions showing much scar tissue.

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SURGICAL INFECTIONS*

H. ROCKE ROBERTSON, M.D.

In any survey of our present position in the Battle against Infection we find considerable grounds for satisfaction, for undoubtedly the lot of an individual infected today is infinitely better than was that of the victim of even 15 years ago. It is true that in a high proportion of autopsies, infection (often bronchopneumonia—frequently urinary sepsis) is found, but here, in the vast majority of instances, it is simply the final blow to a body already worn by degenerative disease or cancer and with some justification we accept infection in this form as inevitable. We are cheered by the fact that we no longer see deaths from fulminating streptococcal and staphylococcal infection in previously healthy people. Gone are the days when lobar pneumonia and meningitis were such deadly diseases. And yet, as we probe more deeply into the matter, a note of caution creeps in and the questions arise "Is our position as secure as, at first glance, it appears to be?" and "Is our defence against the pyogenic organisms as formidable as it is against such diseases as typhoid fever, diphtheria and smallpox?" The answer to the second question is relatively easy. No one is likely to doubt the statement that the active immunity to diphtheria and smallpox that can be so easily conferred upon a population, or the public health measures that have so successfully suppressed typhoid fever in civilized communities, constitute a much more stable type of defence than do the bacteriostatic or occasionally bactericidal effects of the antibiotics. It seems likely that so long as vaccination and inoculation are practised, and so long as our water and food supplies are safeguarded, smallpox, diphtheria and typhoid will remain suppressed. By the same token, it would seem that while we have antibiotics that will control pyogenic organisms we shall remain in our present happy position. But can we depend on the lasting value of these substances? If not, can we be sure that new antibiotics will be discovered that will take on where their predecessors have left off?

We have already some evidence to suggest that in time the value of the individual antibiotics does decrease. When the sulphonamides were first introducd they were found to be effective in practically all cases of streptococcal infection, pneumococcus pneumonia and gonorrhoea. As time passed and the use of the sulphonamides became more widespread, the proportion of treatment failures steadily increased. Whereas, in 1936, only an occasion case of gonorrhoea was refractory to sulphonamide therapy, by 1944, 50% and by 1949, 85% failed to respond. This difficulty perhaps arose not so much because the gonococcus developed a resistance to the drug as because those strains which were from the beginning insensitive became more prevalent. The same may be said for both the pneumococcus and the streptococcus, although in these instances the decline of the effectiveness of the sulphonamides is less evident. Today, we see penicillin gradually losing its once miraculous control over the staphylococcus. Whereas, 10 years ago practically all the staphylococci appearing in an ordinary hospital laboratory were sensitive to penicillin, nowadays the number that are found to be resistant is steadily increasing. In the Vancouver General Hospital in recent years, some 75% of the cultures of staphylococci were resistant to penicillin. True enough this proportion of resistant staphylococci would not be found if one were to take cultures from people outside this hospital, but this does not alter the fact that in any area where penicillin is used extensively the sensitive organisms are eventually supplanted by the insensitive, and it might well be that a time goes on and as more penicillin is used the number of sensitive staphylococci in the general population would likewise decrease. If the same were to apply to the other antibiotics, as it might well do, our answer then to the first question posed would be "No, our position is not as secure as we might wish it to be."

Thus I would submit that we have no reason to be complacent about our present situation, and I would like to elaborate this contention by the following observations. I would first like to point out that there are still organisms that can and do cause infection that are not sensitive to any of the antibiotics in use at the present time. There

*Read before Summer School of Vancouver Medical Association.

are, for instance, strains of staphylococci that are insensitive to the sulphonamides, penicillin, aureomycin, streptomycin, chloromycetin and terramycin in practical concentrations and for which, in fact, we have no specific remedy. These staphylococci are causing, in our area, a considerable number of wound infections. Likewise, the bacillus proteus which is very widespread and can be a great nuisance at times, and also the bacillus pyocyaneus, are only partly amenable to antibiotic therapy so far. Against infections caused by these types of organisms, we have no more control than had our predecessors in the pre-antibiotic era. Thus, it is necessary for us to maintain as strict antiseptic and aseptic precautions as we had to maintain in previous years, and it is also necessary for us to call on surgical measures just as we did in the past. We cannot afford, therefore, to relax our vigilance as far as technique is concerned, nor must we forget the old principles of the surgical management of these infections.

The next point that I would make is that these antibiotics, potent though they may be, constitute only one factor in the battle against an infection; a most important factor admittedly, but still there are other things that we must keep in mind. For the natural bodily reactions to infections are still vitally important and should be supported by every means. The patient's general condition must be closely watched and matters of food, transfusions, etc. must constantly be considered. Finally, we must all recognize that there are on occasions certain other specific remedies for severe infections that we may have to employ. There was a time when antisera were widely used and were very valuable. Most people here can remember the days when antipneumococcal serum, antistaphylococcal serum and others were constantly in demand. Nowadays one scarcely thinks of them. I had this matter brought forcibly to my attention by a case seen a year or so ago in which a colectomy was complicated by an anaerobic infection of the abdominal wall. The infecting organism was found to be a clostridium Welchii. This organism turned out to be sensitive to penicillin and we felt that the infection could be adequately controlled by the combination of surgical excision of his abdominal wound and concomitant massive doses of penicillin. We did discuss the use of antitoxin but decided against it because we felt that it would not be necessary. We were wrong—for as it turned out the patient died after a few days of treatment and we learned later his chances of survival would have been very much better had we given him antitoxin, because it was shown that guinea pigs were completely protected against this particular organism by the administration of antitoxin.

This blind faith in the power of the antibiotics is one example of a variety of errors of which we are all guilty from time to time. There are others—perhaps more common though less serious in their effects. We frequently see, for instance, antibiotics prescribed in conditions which, though they may be accompanied by fever, are *not* caused by bacterial invasion and could not possibly be benefited by this form of treatment. Thrombophlebitis is the commonest of these. There *is* such a thing as septic thrombophlebitis complicating and perpetuating septicaemias of various kinds—but it is rare. The usual form of thrombophlebitis seen after delivery, injury or operation is virtually never septic, and the administration of penicillin or one of the other antibiotics will do nothing more than increase the patient's discomfort. I have seen penicillin given in cases of gout, traumatic tenosynovitis, and even sprains! So inclined are we to associate fever and pain with infection that often we fall into the error of using these drugs without giving the matter proper thought—in fact, some of us seem to have taken to heart the old dictum that we used to joke about when the sulphonamides first came into use—you may remember it—it ran "To any patient admitted to hospital with a fever, 15 grains of sulphanilamide should be given every four hours. If at the end of 48 hours the fever persists, a physical examination should be performed."

Another error that we often make is to use antibiotics in conditions which, though caused by bacterial invasion, are better and sometimes only successfully treated by surgical means. In the pre-antibiotic period, localized infections were well treated by the simplest of surgical operations. Nothing in the way of treatment could be more satisfactory than the incision of an abscess—the pain is relieved and complete recovery is prompt—yet how often do we see cases with whitlows, cervical abscesses, ischiorectal

abscesses, etc., treated perhaps for days with painful and expensive injections, when their only need was a simple incision?

If we could remember the rule that antibiotics should be the mainstay of treatment in genralized infection and in cellulitis but that they yield first place to surgical measures in localized infection, we would save our patients much pain, time and expense.

What else do we do wrong? We are at times inclined to use the antibiotics blindly. Ideally, we should be able, in a given case, to prescribe a suitable drug in the correct dosage and continue its use until the last organism was killed—and no longer. Obviously, this ideal is unattainable, at least at present. In the first place, we have no possible way of knowing at the outset which antibiotic is indicated, although a shrewd guess can be made following the study of a fresh smear. But until cultures have grown and sensitivity tests have been evaluated, we cannot tell which will best control the disease. All that we can do is to make a guess from the nature of the infection as to what the offending organism is likely to be, and to administer an antibiotic that is known to be effective against this organism. Let us consider for a moment a hypothetical case. Imagine that we are faced with the problem of a man with a large wound of his thigh that had ben sutured 3 days previously and who now shows obvious evidence of infection. We remove the sutures and a fairly thick greyish pus escapes. We might reasonably suspect that the infection was caused by a staphyococcus and decide that penicillin would probably be effective. A culture is taken when the pus is first seen and before the penicillin is started. Within 24 hours the clinical response may give us some indication as to whether or not we have chosen well, for if we have, and if the drainage from the wound is adequate, we should see evidence of marked improvement both locally and generally and in this case our interest in the sensitivity tests will be largely academic. If, on the other hand the clinical response has not been dramatic, we can suspect that either we have chosen the wrong antibiotic or that our wound is not being properly drained. Having satisfied ourselves that the latter is not the case—and this is a most important step — for even the most potent antibiotic will have difficulty in suppressing infection in a poorly draining wound—we can then turn to the sensitivity tests. Here we may learn one of three things: (1) The organism may not be sensitive to penicillin but may be sensitive to one of the other antibiotics—in which case our course is clear—we simply make the change. (2) The organism may not be sensitive to any of the available antibiotics, in which case we might as well discontinue the penicillin and fall back on our more primitive measures. (3) The infection may be caused by more than one organism—let us say in this case that we have two organisms—one sensitive to both penicillin and aureomycin—the other insensitive to penicillin but sensitive to aureomycin and chloromycetin — here, obviously, either aureomycin or chloromycetin is the correct choice. I have used this example to indicate how valuable the tests for sensitivity can be. Obviously such tests are not available to all of us, but I would emphasize that the time has passed when we can feel that in prescribing *an* antibiotic we have done all that can be done in treating an infection. We have reached a point where there is a wide range of choice and often enough the sensitivity test is the only means of arriving at a proper decision. Those who do not have access to a bacteriological laboratory (and these tests are simple enough to be carried out in any lab where cultures can be made) must continue to rely upon clinical response which will at times place them at a distinct disadvantage.

Let us now suppose that in this case we have used the correct antibiotic and the patient's temperature subsides and the wound improves. How long should we continue the drug? The answer to this question will depend upon two things—firstly, how is the wound to be treated, and secondly, what type of antibiotic is being used. If the wound is to be closed by secondary suture, the antibiotic should be continued until it is soundly healed—say a week after the secondary suture has been performed. If, however, it is decided to let the wound heal by secondary intention, the antibiotic can be discontinued as soon as the edges of the wound are soft and white and free from swelling and the cavity is lined by clean, healthy granulation tissue. Once this stage of wound

healing has been reached; infection is no longer a problem and there is no further need for specific treatment.

The type of antibiotic that is used in a case has some bearing (theoretically at least) on the length of time that it should be administered. Penicillin and streptomycin are bactericidal—they actually kill the organisms—the others are bacteriostatic—they suppress the growth of organisms but do not actually kill them. In theory, it should be safe to discontinue the use of a bactericidal antibiotic as soon as the infection is apparently controlled but in the case of a bacteriostatic drug one should continue it longer in order to overcome the risk of a renewal of the infection which may not have been overcome by the slower acting body responses. It is not established that this theory has any useful application but the fact that several people have observed that infections treated by aureomycin and chloromycetin are more prone to relapse than those treated by penicillin and streptomycin may be significant.

Let us now consider a type of case that is commonly seen, and in which we are most liable to misuse antibiotics. A case has undergone, we'll say, an abdominal operation some days previously and is now running a fever. We have no clear cut indication as to the cause. The wound is apparently clean and there are no signs of peritonitis. The chest and urine are clear. Rectal examination is negative. An examination of the extremities shows no evidence of phlebitis. We are certain that there is infection somewhere but we cannot place it. We prescribe penicillin—feeling morally bound to do so—but to our dismay the fever continues. How long should we continue the penicillin in the face of a negative response? As a general rule, if penicillin is effective, results will be apparent within 24 hours or so, therefore, I think one would be safe in saying that if it had not shown any effect within 3 days, it should be discontinued. But how often do we do this? Almost daily one sees cases in hospital who have been started on penicillin some time previously and who are still receiving it in spite of the fact that it has had no apparent effect on whatever is causing the fever. Quite apart from the fact that this practice is wasteful and causes unnecessary pain to the patient, it is, apparently, not without danger, for there is some evidence to show that occasionally the growth of certain bacteria is stimulated by antibiotics. For instance, Dr. Cockcroft, at the Vancouver General Hospital, has isolated a strain of streptococcus which grows more rapidly in the presence of aureomycin and chloromycetin than it does otherwise. Furthermore, we must always remember that, particularly in the case of the antibiotics taken orally, the normal balance of bacterial flora in the gastro-intestinal tract is upset and occasionally with serious effects. There are several reports of generalized yeast infections arising after a course of one of the oral antibiotics. Hence I feel that we have good reason to discontinue the use of an antibiotic as soon as we have evidence to suggest that it is ineffective.

There is another type of evidence that is accumulating that may affect our treatment. It is now suggested by the bacteriologists that the combined use of penicillin and aureomycin is inadvisable. They point out that penicillin kills the organisms when they are in the division stage and that it loses its effect when combined with aureomycin which, being bacteriostatic, slows down bacterial division. It is possible that for this reason the combined use of any bacteriostatic and bactericidal drugs may be ill-advised—although there is not enough published evidence as yet to warrant the statement that this is so. In any event we have enough evidence now to indicate that the combination of aureomycin and penicillin should not be used.

Finally, I would like to discuss the dosage of the various antibiotics. In this matter, as in so many others in connection with these substances, our methods lack precision. It is possible, in the laboratory, to determine the concentration at which any given antibiotic is most lethal to any species of bacteria, and it is by no means always true that the greater the concentration the more lethal is the effect. In theory then, we should try to determine this concentration and give our patients an amount of drug sufficient to produce the desired plasma level. This, however, for a variety of reasons, is not practical except in the most complicated and long drawn out cases, and we have

to fall back upon the empirical method—giving that dose of antibiotic which seems, in the main, to be effective in the condition with which we are dealing.

In the case of penicillin the dosage which seems to be effective in most susceptible infections is 300,000 units per day. In the case of pure infections (i.e. infections where there is a single type of bacterium responsible) increasing the dose does not afford any greater safety. Where the infection is of a mixed type, as in peritonitis of appendiceal origin, the situation is different. Here we have to deal with sensitive organisms (such as faecal streptococcus) and insensitive organisms (such as B. Coli) which are insensitive because of their property of producing a penicillin-neutralizing substance known as penicillinase. A small dose of penicillin will be ineffective because it will all be neutralized by the penicillinase produced by the B. Coli. In order to use up all the penicillinase and still have some left over to deal with the sensitive organisms it is necessary to administer large doses at frequent intervals and the recommended dose is 100,000 units every two hours.

The recommended doses for Aureomycin, Chloromycetin and Terramycin are 250 mgm. 4 times daily and for Streptomycin 1 gm. twice daily.

I do not know of any adjustments that should be made in the dosage of these antibiotics in cases of mixed infection and although it seems logical that what applies to penicillin should apply to the others, I have not had any personal experience nor have I read of this being done.

In summary I would like to reiterate the following:

1. There is some evidence to suggest that antibiotics gradually lose their effectiveness. If this is true, and unless a continuous stream of new antibiotics is forthcoming, we may, in time, find ourselves in a difficult position.
2. Remember that the patient's natural defences against infection are still all-important—particularly in the case in which the bacteriostatic antibiotics are being used. Rest and general supportive measures are just as important as they have ever been.
3. Remember that occasionally we may still have to use antitoxins.
4. In the management of any serious infection, it is important to take cultures before starting the antibiotic) and to determine the sensitivity of the organism to the various antibiotics. Unless we do this we are treating the case blindly.
5. Do not delay surgical drainage of localized infection. Antibiotics will aid in the recovery, but incision is usually necessary for the cure of an abscess and the sooner it is made the better.
6. If, in an acute infection, an antibiotic does not produce an effect within 3 days, it should be discontinued. This rule obviously does not apply to such chronic infections as subacute bacterial endocarditis, actinomycosis, etc.
7. Do not give penicillin and auremomycin together.
8. Do not give massive doses of antibiotics except in certain types of mixed infection. Increasing the concentration of antibiotic does not necessarily increase the effectiveness.

and finally—

9. Do not take any liberties with infection and do not, for a moment, relax your aseptic and antiseptic techniques.

The antibiotics cannot always be relied upon.

News and Notes

Dr. D. H. Williams, of Vancouver, has accepted a post with the World Health Organization.

Dr. J. S. D. Burnes, of North Vancouver, is now in post graduate pediatric work in Toronto.

Dr. Reubern Matiko, of Vancouver, is now practicing in Sidney, B.C.

Dr. Dean Robinson is now practicing in Campbell River.

Dr. M. G. Williams, of Vancouver, is now in Whitehorse, Y.T.

Dr. E. M. Reid is now practicing in Duncan.

Dr. W. T. Armstrong is now practicing in Kamloops.

Dr. Mary Callaghan, of Vancouver, has retired to Long Beach, California.

Dr. D. A. Dunbar, of Vancouver, has retired from practice.

Dr. W. A. Falk is now associated with Dr. R. C. Newby of Victoria.

Dr. H. S. Hamilton has begun a practice in New Westminster.

Dr. W. H. Lang, of Grantham's Landing, has retired from practice.

Dr. J. H. Lindsay, of Britannia, has begun post-graduate work in Montreal.

Dr. F. H. Mayhood, of Vancouver, is now at Bowen Island.

Dr. V. A. Rogers is now practising in New Westminster.

Dr. G. T. Shaker, of Vancouver, is now at the Edmonton General Hospital.

Dr. G. E. Sleath, of Haney, is now in Toronto.

Dr. M. Uchida, of Kamloops, is now practising in Vancouver.

Dr. G. J. Gibson has begun to practise in Chilliwack.

Dr. J. R. Smith has commenced practising in Kamloops.

Dr. J. M. Yoshioka has a new practice in Greenwood.

Dr. Gordon Erickson, of Vancouver, has been awarded a fellowship at the Mayo Clinic.

Dr. J. F. McCreary, of Toronto, has been appointed professor of pediatrics at the University of British Columbia.

Dr. L. L. Ptak and family have left Victoria for Edinburgh, Scotland, where the doctor will spend two years in post graduate studies.

Dr. Kingsley Terry, Department of Veterans Affairs Hospital, Victoria, has accepted a position with the National Health and Welfare Immigration Service in England. While in England Doctor Terry is also engaged in post graduate study in Cardiology.

Dr. C. A. Forssander, formerly of the University of West Indies, Jamaica, Department of Physiology, has joined the staff of the Victoria Tuberculosis Unit.

Dr. W. D. Panton, of Vancouver, will marry Miss Mabel Robinson, of Alert Bay, where he practised last year.

Royal Jubilee Hospital, Victoria, B.C., internes have chosen the following fields:

Dr. J. B. Anderson—surgery at Department of Veterans' Affairs Hospital.

Dr. K. N. Bryant—psychiatry at the Menninger Clinic, Topeka, Kansas.

Dr. A. F. Bull—public health at the University of Toronto.

Dr. D. J. MacLean—general practice at Nanaimo, B.C.

Our well-known and popular Treasurer, Dr. Gordon Burke, sustained rather serious injury in an automobile accident recently, and has been in the Vancouver General Hospital. Mrs. Burke, who was with him, was also injured, but we are glad to say, not seriously. Both are making a good recovery.

Dr. J. A. Roe—general practice in Victoria in association with Dr. J. F. Tysoe.
Dr. J. H. Treleaven—psychiatry at Essondale, B.C.
Dr. A. J. Venables—pathology at the University of Washington.

At the Veterans Hospital, internes chose the following:
Dr. G. C. F. Bowers, Edmonton, Alberta—general practice.
Dr. A. W. Salter—on staff at the D.V.A. hospital.

At the St. Joseph's Hospital, internes chose the following:
Dr. N. Oslafichuck—medicine, Edmonton, Alberta.
Dr. R. F. Clark—staff, Shaughnessy Hospital.

BIRTHS

Dr. and Mrs. J. F. Tysoe, of Victoria, a son.
Dr. and Mrs. G. F. Homer, of Victoria, a son.
Dr. and Mrs. G. W. Robson, of Victoria, a son.
Dr. and Mrs. J. G. Patterson, of Victoria, a daughter.
Dr. and Mrs. T. K. Stevenson, of Vancouver, a daughter.
Dr. and Mrs. G. R. Barrett, of Nelson, a daughter.

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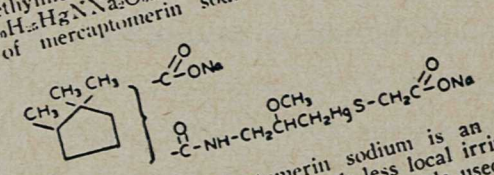
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

MERCAPTOMERIN SODIUM.—Thiomerin Sodium (CAMPBELL PHARMACEUTICAL Co.).—Disodium salt of N(γ-carboxymethylmercaptomercuri-β-methoxy)propyl-camphoramic acid.—$C_{16}H_{23}HgNNa_2O_6S$.—M.W. 606.03.—The structural formula of mercaptomerin sodium may be represented as follows:



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