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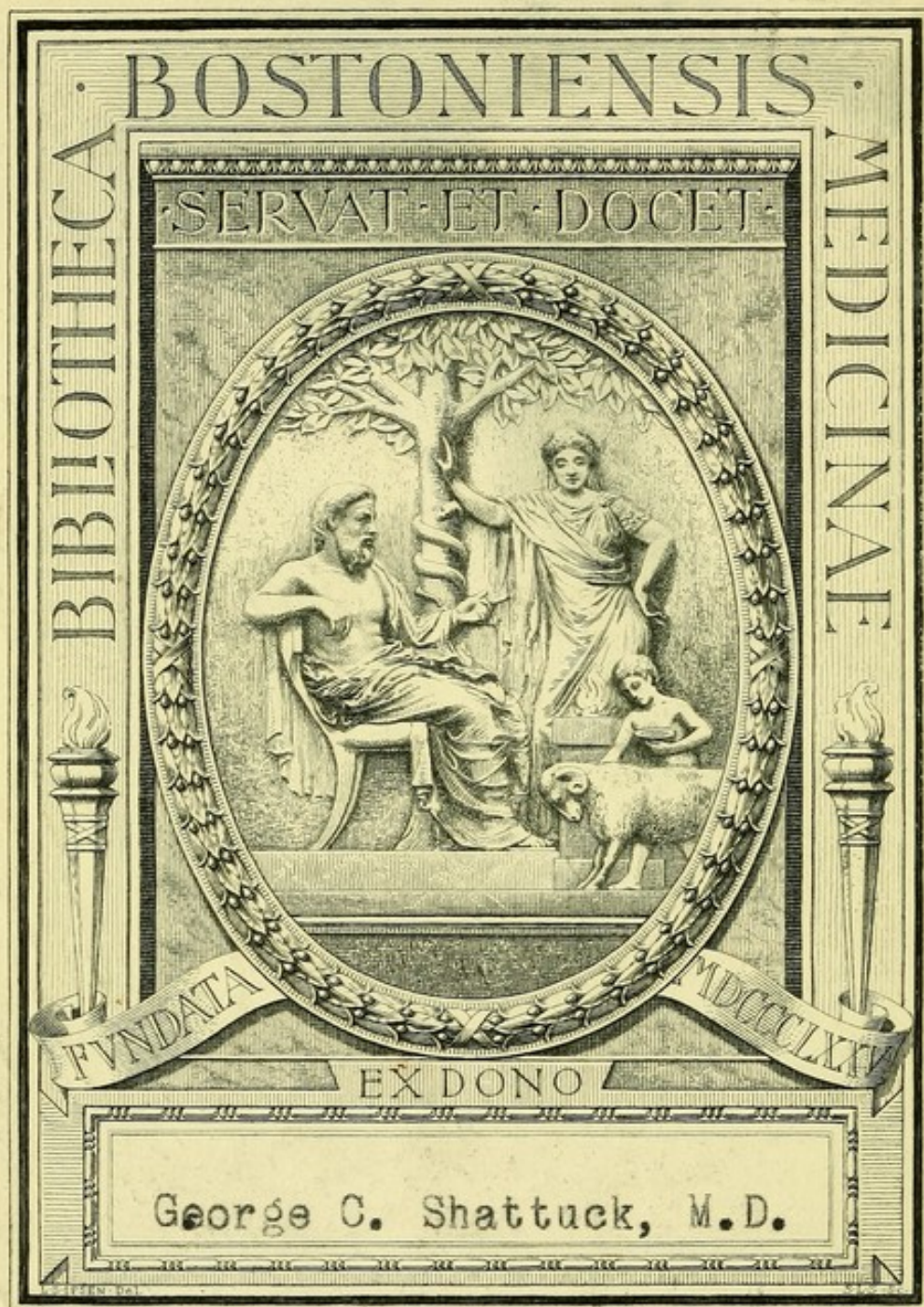
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A SYNOPSIS OF  
MEDICAL TREATMENT

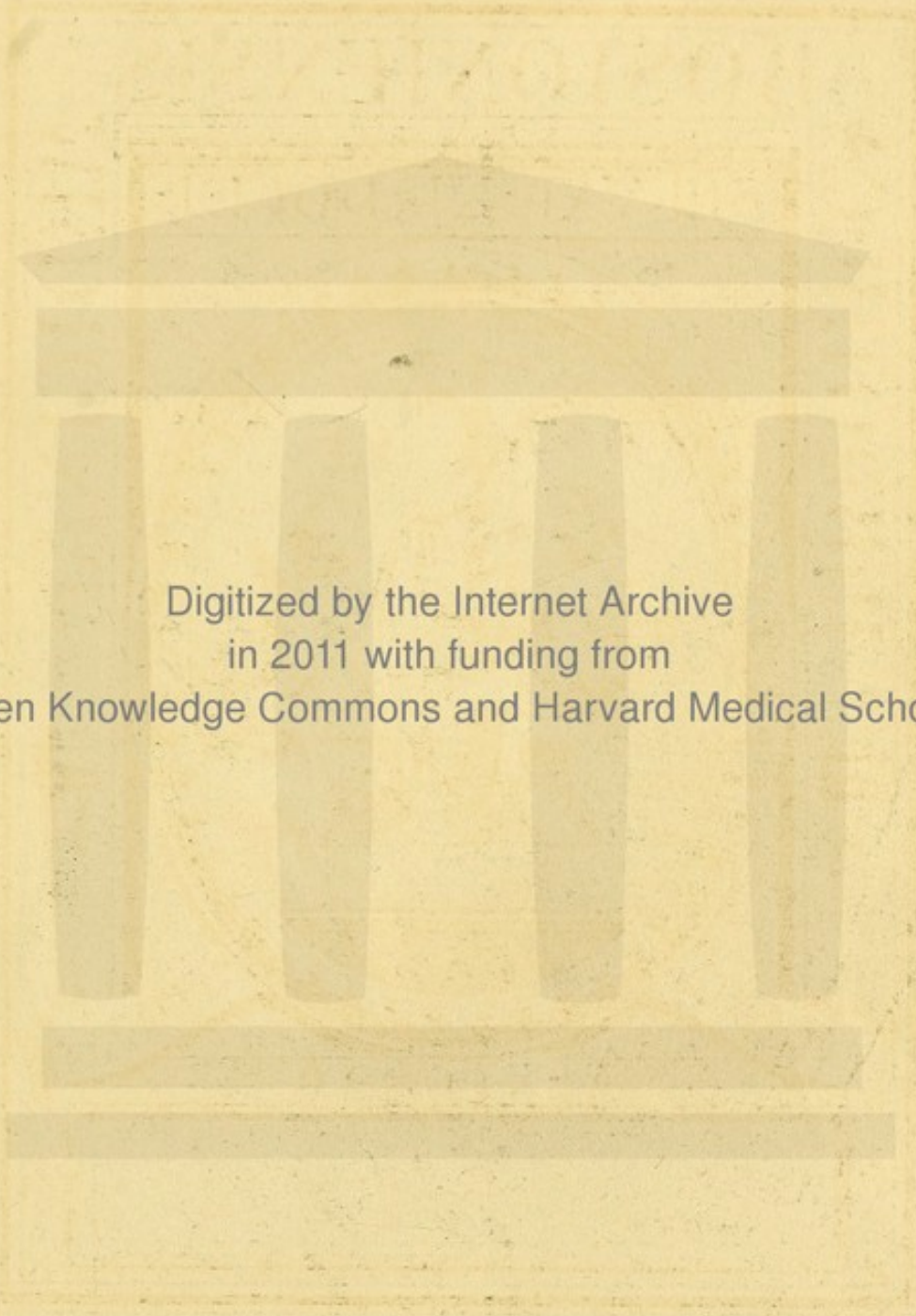


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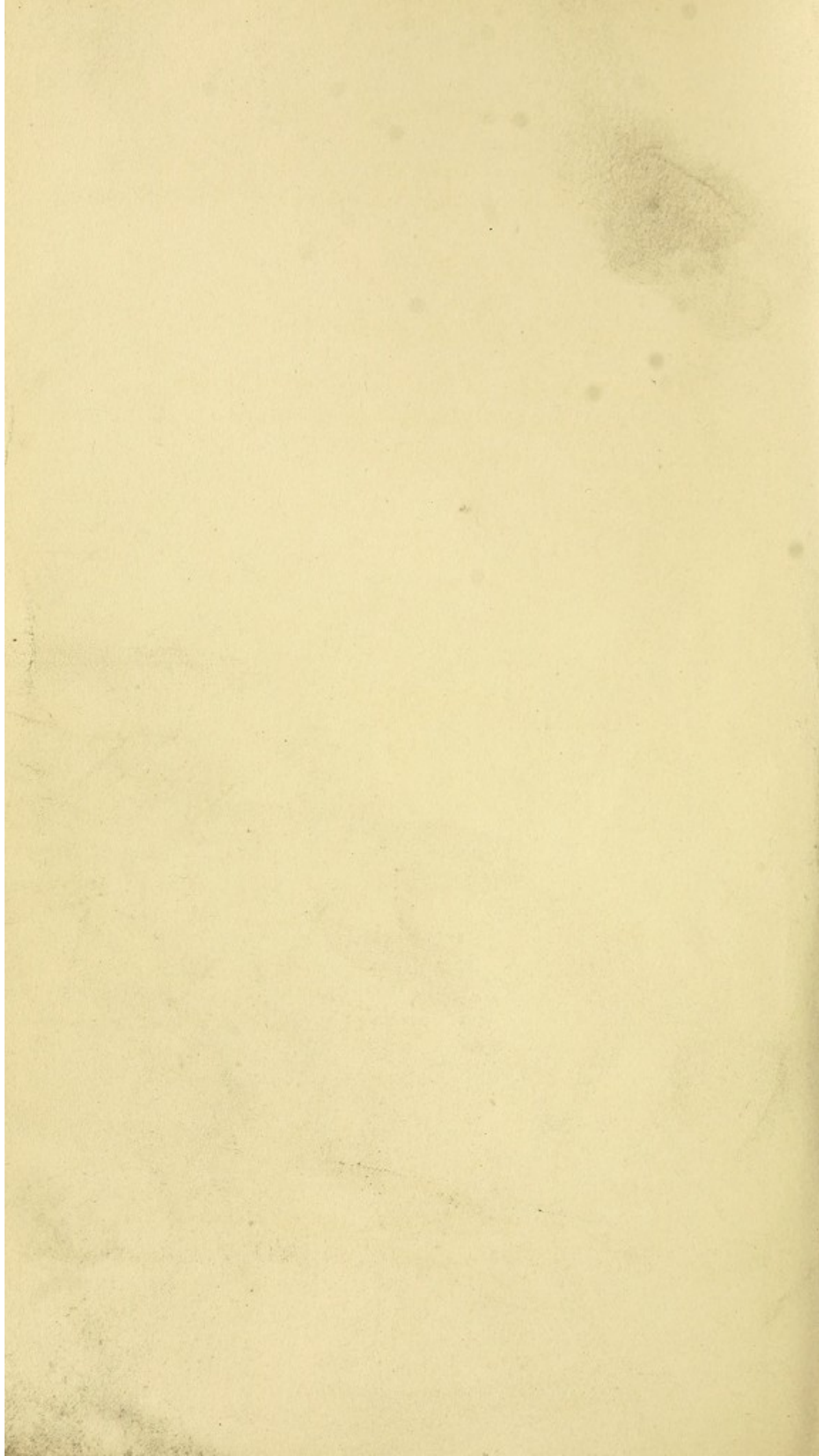






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# A SYNOPSIS OF MEDICAL TREATMENT

BY

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1912



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MEDICAL TREATMENT

BY  
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Author of "Clinical Medicine" and "The Principles of Medicine"

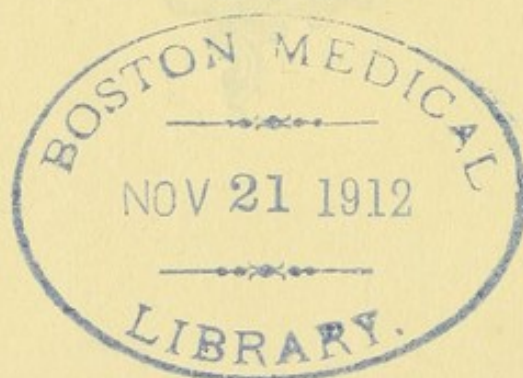
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1912





TO  
WILLIAM HENRY SMITH, M.D.

TEACHER IN MEDICINE

AND

FRIEND TO MANY



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## PREFACE.

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This work represents an attempt to offer clearly and concisely sound principles of treatment based on known pathology. The methods described are selected from those that have been tried at the Massachusetts General Hospital or in private practice. Most of them have been taught by Prof. F. C. Shattuck, Dr. William H. Smith or others on the staff of the Hospital or of the Harvard Medical School. It is not to be supposed that any of these men subscribe fully to everything here set forth or that further advance will not require revision.

The writer wishes here to express his deep appreciation of the debt which he owes to his teachers in medicine, of their kindness to their pupils and of their humanity to their patients.

Brevity being essential to the purpose of the writer, this synopsis is necessarily incomplete. It has been prepared primarily for use in the Harvard Medical School.



## PREFACE

This work represents an attempt to offer clearly and concisely revised principles of treatment based on known pathology. The methods described are selected from those that have been tried at the Massachusetts General Hospital as the primary practice. Some of them have been suggested by Dr. C. F. Johnson, Dr. William H. Smith or others on the staff of the Hospital or at the Harvard Medical School. It is not to be supposed that any of them were introduced by the author. It is only to be said that further changes will not require revision.

The writer wishes here to express his deep appreciation of the debt which is owed to his teachers, his colleagues, and his students for their pupils and of their hospitality to their patients. It is only being recorded as the progress of the writer, this specialty is necessarily incomplete. It has been prepared mainly for use in the Harvard Medical School.

## CHAPTER I.

### CARDIAC INSUFFICIENCY.

#### PRINCIPLES OF TREATMENT

The principles are much the same whatever the underlying cause. Treatment must, however, be regulated to suit the severity of symptoms, to meet individual needs and for varieties of disease.

An exact diagnosis is difficult in the presence of severe insufficiency and may not be necessary at first. It is very important for prognosis and for planning treatment for the future.

- A. REST.
- B. DEPLETION.
- C. STIMULATION.
- D. SUITABLE DIET.

#### METHODS OF TREATMENT

##### A. Rest

1. Semirecumbent position in bed or chair.
2. Minimum exertion.
3. Relieve discomfort and secure sleep. If there is much discomfort morphine subcutaneously is indicated.

##### B. Depletion

1. Purgation. Obtain watery catharsis more or less profuse according to amount of edema.

*When edema is absent or slight avoid excessive purgation lest exhaustion result.*

Magnesium sulphate\* is useful as a purgative.

2. Limitation of liquids. Total liquids, including liquid foods should not exceed three pints in twenty-four hours. One pint

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\* See synopsis of drugs, page 58.



## CHAPTER I

### CARDIAC INSUFFICIENCY

#### PRINCIPLES OF TREATMENT

The principles are based on the fact that the underlying disease must be treated, but, however, it is essential to relieve the symptoms of congestion, to keep the patient comfortable and to prevent the development of complications.

The main objective is to relieve the symptoms of congestion, to keep the patient comfortable and to prevent the development of complications. It is very important to treat the symptoms and to keep the patient comfortable and to prevent the development of complications.

- A. Rest
- B. Diet
- C. Hygiene
- D. Treatment of the underlying disease

#### METHODS OF TREATMENT

##### A. Rest

1. Bed-rest is essential in the treatment of cardiac insufficiency.

2. The patient should be kept in bed as long as possible.

3. The patient should be kept in bed as long as possible. It is very important to keep the patient in bed as long as possible.

##### B. Diet

1. The diet should be low in calories and low in fat. It should be easy to digest.

2. The diet should be low in calories and low in fat.

3. The diet should be low in calories and low in fat. It is very important to keep the patient in bed as long as possible.

4. The diet should be low in calories and low in fat.

5. The diet should be low in calories and low in fat. It is very important to keep the patient in bed as long as possible.

6. The diet should be low in calories and low in fat.

in twenty-four hours is near the minimum. The patient should not be made to suffer from thirst. Cracked ice or chewing gum may relieve it.

3. **Diuresis** often follows the use of digitalis. In mild cases of insufficiency, rest, purgation and limitation of liquids with or without digitalis may suffice.

When edema is persistent or extreme, diuretics should be prescribed. Theobromine\* or its substitutes may be expected to act well provided the kidneys are not severely damaged. Calomel should not be given if the patient has nephritis because salivation may result. Apocynum, theocin or theophyllin may be substituted for theobromine.

4. **Venesection.** Indicated occasionally for engorgement of the right ventricle with marked distress, cyanosis, dyspnoea or pulmonary edema. A pint of blood or even more may be withdrawn. Venesection is contraindicated by emaciation, marked weakness or anemia. Blood is generally withdrawn by incising a vein on the inner side of the elbow.

5. **Leeching.** Useful to relieve painful engorgement of the liver. Apply a dozen leeches over the right hypochondrium and allow them to remain until they drop off. The abdomen should then be covered with a large, moist, absorbent dressing to favor oozing from the bites. A drop of milk placed on the skin encourages the leech to bite. Salt causes him to let go.

6. **Tapping.** Advisable when fluid in the chest or abdominal cavity seriously embarrasses the heart or respiration.

### C. Stimulation

Digitalis\* is the best cardiac stimulant (other drugs may be preferred occasionally). A good tincture of digitalis ordinarily acts well. If after pushing the drug no effects are apparent the preparation is probably bad. When given by mouth in sufficient dosage its action should be apparent in twenty-four hours. When quicker results are needed an initial dose of twenty to thirty minims may be given deep into the buttock. Digitalone\* or digitalin\* are better for subcutaneous use because less irritating than tr. digitalis. For very urgent insufficiency strophanthin may be used intravenously provided the patient has

\* See Synopsis of drugs, page 56.



is necessary to have a very light touch. The patient should not be made to suffer from any undue pressure or rubbing of the skin.

2. The patient should be kept in a comfortable position, and the hands should be kept warm. The patient should be kept in a comfortable position, and the hands should be kept warm.

When the patient is in a comfortable position, the hands should be kept warm. The patient should be kept in a comfortable position, and the hands should be kept warm. The patient should be kept in a comfortable position, and the hands should be kept warm.

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### C. Examination

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The patient should be kept in a comfortable position, and the hands should be kept warm.

not already taken digitalis. If such is the case strophanthin\* should not be given because sudden death might result.

Digipuratum\* acts rather more quickly than tr. digitalis and less often causes vomiting. It is an excellent preparation for use by mouth, but costly.

Strychnine is occasionally useful by mouth or subcutaneously. It is dangerous in arteriosclerosis with hypertension and should not be used in cerebral hemorrhage.

Caffeine sodio-salicylate sometimes acts well subcutaneously. Caffeine citrate may be tried by mouth but preparations of caffeine often cause restlessness or insomnia.

Slight exacerbations of dyspnœa or distress can often be relieved by a quickly diffusible stimulant, *e.g.*

By mouth:

- (a) Spirits Ammoniae aromaticus.
- (b) Spiritus Ætheris compositus, "Hoffmann's Anodyne."
- (c) Whisky or brandy.

Subcutaneously:

- (d) Whisky, brandy, or ether injected deep.
- (e) Strychnine sulphate.
- (f) Cocaine hydrochloride, not without danger.
- (o) Camphor in oil: should be specially prepared for subcut. use.

Morphine is indicated for painful insufficiency or when there is danger. It seems to stimulate the heart as well as to quiet and relieve the patient and it is best given subcutaneously.

#### D. Diet

Spare the patient unnecessary effort, particularly if there is much dyspnœa, by ordering food which is easy to swallow and which requires no chewing.

By frequent small feedings and by avoiding gas-producing foods seek to prevent cardiac embarrassment from distention.

Emaciated patients should take as much concentrated nourishment as is practicable in order to strengthen the heart muscle by improved nutrition.

Fat or plethoric individuals may benefit by relative starvation.

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\* Page 56.





### E. Convalescence

Intelligent coöperation between patient and physician is essential. In order to secure this the patient should be told that his heart is weak and that he must learn not to overtax it. He should be warned particularly to avoid activities which induce much fatigue and exertions which cause much dyspnoea. After a sufficient period of complete rest he should be encouraged to take regular exercise within the limits of tolerance in order to strengthen the heart by promoting hypertrophy.

Exercise and work should be resumed very gradually under close supervision.

### TYPES OF VALVULAR DISEASE

- |                     |   |  |
|---------------------|---|--|
| 1. Congenital. . .  | { | Most commonly discovered in early childhood. |
| 2. Infectious . . . |   |  |
| 3. Syphilitic . . . | { | Most commonly discovered in middle life.     |
| 4. Degenerative . . |   |  |
- Most commonly discovered in old age.

### NOTES ON PATHOLOGY AND DIAGNOSIS

1. **Congenital lesions.** Pulmonic stenosis is the most common. It is seldom mistaken for other types of lesion but may be easily confused with anomalies which have similar signs and which are often combined with it.

#### 2. Infectious lesions:

(a) **Active stage.** Inflammation of valves due to presence of bacteria on the valve.

(b) **Obsolete stage.** Valves deformed and scarred as a result of inflammation.

(c) **Recurrent stage.** Reinfection with inflammation at site of old lesion.

The lesions are found commonly at the mitral valve or at the aortic and mitral valves, seldom at the aortic valve alone. Occasionally the mitral, aortic and tricuspid valves are all diseased. Stenosis develops frequently.

Obsolete lesions if well compensated may give no symptoms. They first attract attention by diminished cardiac efficiency or by failure of compensation.





In the active or recurrent stage the symptoms are those of general infection with or without failure of compensation.

The history of preëxisting disease, common etiologically, strengthens the diagnosis, *e.g.*, rheumatic fever, chorea or tonsillitis.

3. **Syphilitic lesions.** The lesion generally begins in the ascending aorta and extends downward onto the aortic valve. The earliest sign may be the murmur of aortic roughening. Later that of aortic regurgitation may appear and, finally, with dilatation relative mitral regurgitation may develop.

A lesion of the aortic valve only, in a young adult, suggests syphilis as its cause. Aneurism or coronary endarteritis may coexist as part of the same process.

Evidence of an old syphilis supports the diagnosis.

4. **Degenerative Lesions.** As in syphilis the signs point to a lesion at the aortic valve but evidence of syphilis is lacking. The background is one of senility and general arteriosclerosis to which sclerosis of the aorta and of the aortic valve is incidental. There may be dilatation of the arch and evidence of myocardial degeneration, perhaps also angina pectoris.

*Note.* — All of the types of lesion enumerated above, if severe enough lead in time to cardiac insufficiency.

## TREATMENT FOR TYPES OF VALVULAR DISEASE.

### I. Congenital and Obsolete Infectious Lesions of Valves.

Treat according to the general principles given above. They must be modified for the individual with regard to severity, duration, nature and cause of symptoms.

### II. Active Infectious Lesions of Valves.

The infection may be acute, subacute or recurrent. The chief dangers are from toxemia, exhaustion, cardiac dilatation or embolism.

A. **Principles of Treatment.** As for acute infections in general\* and for cardiac insufficiency if present.

1. Rest in bed.
2. Minimum exertion.
3. Dilution of toxins.
4. Elimination of toxins.
5. Maintenance of nutrition.
6. Stimulation *p.r.n.*

\* Page 31.



is the nature of treatment which the symptoms are those of  
general infection with or without failure of compensation.  
The history of the disease, common antecedents,  
and the nature of the symptoms are the same in all

1. *Chronic Infection*. The lesion generally begins in the  
anterior horn and extends downwards into the spinal cord.  
The patient complains of the presence of some weakness  
later that of some numbness over the arms and hands, with  
disturbance of the bladder and rectum, and the

2. *Acute Infection*. This is a very rare form of the disease,  
and is characterized by a rapid onset and a severe course.  
The patient complains of the presence of some weakness  
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disturbance of the bladder and rectum, and the

TREATMENT FOR TYPES OF VALVULAR DISEASE

I. *Chronic Infection*. The treatment of this disease is  
based on the principle of the general treatment given above.  
The patient must be treated for the infection with regard  
to the nature of the symptoms and the nature of the

II. *Acute Infection*. The treatment of this disease is  
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**B. Methods.** (a) Good nursing is very important. The nurse should promote comfort by attention to details, should feed the patient and, whenever possible, spare him exertion or annoyance.

(b) To dilute toxins and to favor elimination order abundance of liquids. Have intake and output recorded. If cardiac dilatation threatens or if there is much edema liquids must be restricted.

(c) Feedings should be frequent, the food nutritious and the amount regulated by digestive power. Liquids and soft solids are preferable in severe cases because easy to swallow.

(d) Stimulants are to be avoided unless clearly necessary because embolism is to be feared and they might favor it.

(e) Sodium salicylate\* and sodium bicarbonate or aspirin in large doses may be tried. Small or moderate doses of salicylate are not likely to do good in endocarditis.

(f) Tachycardia may sometimes be benefited by an ice-bag over the præcordia.

**C. Convalescence.** To minimize danger of relapse keep the patient in bed and quiet as possible for weeks or months after the pulse and temperature have returned to normal. Permanent damage nearly always remains. The degree of possible improvement depends on the location and extent of the lesions and on the recuperative power of the patient. Therefore, guard against strain and treat malnutrition or anemia, if present, to promote hypertrophy of the heart.

**D. Prophylaxis.** (a) Search for and eliminate all foci of infection.

(b) Diseased tonsils should be removed at the first suitable opportunity. It is dangerous to remove them when acutely inflamed.

(c) Warn the patient against exposure and advise him to attend promptly to ailments, even if slight, and to avoid undue physical or mental strain.

**III. Syphilitic Lesions of Valves** require antisyphilitic medication as well as general measures for insufficiency.

Little improvement can be expected, however, unless the diagnosis is made before extensive and irreparable damage has occurred.

---

\* Page 59.



2. *Asphyxia*. (a) Good nursing is very important. The nurse should provide oxygen by inhalation or directly should lead the patient into whatever position gives the greatest relief.

(b) The patient should be kept in a position which allows the lungs to expand and contract freely. If possible, the patient should be kept in a position which allows the lungs to expand and contract freely.

(c) The patient should be kept in a position which allows the lungs to expand and contract freely. If possible, the patient should be kept in a position which allows the lungs to expand and contract freely.

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(i) The patient should be kept in a position which allows the lungs to expand and contract freely. If possible, the patient should be kept in a position which allows the lungs to expand and contract freely.

(j) The patient should be kept in a position which allows the lungs to expand and contract freely. If possible, the patient should be kept in a position which allows the lungs to expand and contract freely.

IV. Degenerative Lesions of Valves may be treated on general principles with certain modifications as follows:

(a) When blood-pressure is high nitrites, by lowering blood-pressure, may be of temporary value to lighten the work of the heart.

(b) Thin patients require the maximum nutrition to strengthen the heart. They should undergo little or no purgation unless edema is considerable.

(c) Regulation of life is of the utmost importance for convalescence and subsequently. The patients' coöperation must be secured.

(d) Many of these patients should take digitalis and Epsom salts for the rest of their lives. The best dosage for the individual can be determined only by trial. Several doses per week taken at regular intervals may be sufficient. Warn the patient not to be without his medicine or to give it up on his own responsibility. The heart muscle may perhaps be so changed that it cannot respond to any form of treatment.

#### HYPERTENSION WITH CARDIAC INSUFFICIENCY

**Etiology and Symptoms.** Commonest in chronic nephritis and seen also in arteriosclerosis. The hypertension and left ventricular hypertrophy develop gradually. Symptoms of insufficiency often increase so gradually that they may be disregarded for months. The condition of the patient is generally more critical than the signs would seem to indicate. Acute pulmonary edema is common in these cases.

**Treatment.** 1. Methods for cardiac insufficiency.

2. Reduction of blood-pressure, if not accompanied by diminished urinary excretion, is beneficial by reducing the demands on the heart.

(a) Vaso-dilators, *e.g.*, nitroglycerine,\* lower blood-pressure temporarily and often promote diuresis also.

(b) Restriction of proteids and the use of purgatives is generally advisable to reduce retention of toxic substances. Blood-pressure is often reduced by these measures.

(c) Hot-air baths may be of service if the cardiac symptoms are not severe enough to contraindicate them. They seldom lower blood-pressure much.

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\* Page 57.





- (d) A starvation day or restriction of food for several days may be good for plethoric individuals. It is one of the best methods of lowering blood-pressure but emaciation must be avoided because it increases cardiac weakness.
3. If toxemic symptoms persist after improvement in the circulation they are probably uremic in origin and should be treated as such.\*

### ACUTE PULMONARY EDEMA IN HYPERTENSION

*Notes.* — Occurs commonly and characteristically in hypertension. The attack generally follows exertion and may not have been preceded by marked symptoms of cardiac insufficiency.

The onset is sudden and alarming.

The symptoms are severe dyspnœa, cyanosis, wheezing, cough and pinkish, frothy expectoration. There may be præcordial pain.

**Treatment.** Mild attacks may pass off after a little rest. Severe attacks require energetic and prompt treatment as follows:

1. Prop the patient up so he can sit upright without effort.
2. Give morphine sulphate, gr.  $\frac{1}{4}$ , atropine sulphate, gr.  $\frac{1}{100}$ – $\frac{1}{80}$ , and nitroglycerine, gr.  $\frac{1}{100}$ – $\frac{1}{50}$ , subcutaneously at once.
3. Unless improvement begins promptly the nitroglycerine should be repeated and venesection may be performed.
4. The following drugs may be of service:
 

By inhalation:	Amyl nitrite.
By mouth:	$\left\{ \begin{array}{l} \text{Spiritus ammoniæ aromaticus.} \\ \text{Spiritus ætheris compositus.} \\ \text{Whisky or brandy.} \end{array} \right.$
Subcutaneously:	$\left\{ \begin{array}{l} \text{Strychnine sulphate.} \\ \text{Cocaine hydrochloride: not without dan-} \\ \text{ger.} \end{array} \right.$
Intravenously:	$\left\{ \begin{array}{l} \text{Strophanthin: dangerous; should not} \\ \text{be used if the patient has been taking} \\ \text{digitalis in any form.} \end{array} \right.$
5. Do not attempt to transport the patient until the immediate danger has passed.

\* Page 29.





6. Rest in bed is advisable for a few days to allow the heart to recover itself.
7. Digitalis, purgation, etc., may be advisable.
8. Subsequent regulation of life is essential to avoid recurrence.

**Pulmonary Edema without Hypertension.** Pulmonary edema may occur in cardiac insufficiency from any cause, particularly with mitral stenosis. It is seldom acute enough to require special treatment but when urgent should be treated as in hypertension, except, that the blood-pressure being low, nitrites are of doubtful value and may perhaps do harm.

Pulmonary edema occurs also in infectious diseases. In pneumonia it may be very acute but it is not necessarily of cardiac origin. For treatment see below; also "Typhoid Fever," page 37, and "Pneumonia," page 43.

### CIRCULATORY DISORDERS IN THE INFECTIOUS DISEASES.

*Notes.* — Common in acute infections, particularly in pneumonia and in septic states. The circulatory disturbances may be attributed to one of the following causes or to a combination of them.

1. Faulty innervation of the heart due to toxemia.
2. Cloudy swelling of myocardium due to toxemia.
3. Ill-nourished myocardium secondary to emaciation or anemia.
4. Infection of the valves, myocardium or pericardium.
5. Lesions obstructing the pulmonary circulation, *e.g.*, embolism of the pulmonary artery or of its large branches.
6. Vasomotor relaxation or paresis due to toxemia.

### TREATMENT IN GENERAL.

1. Dilute, eliminate or neutralize toxins.
2. Minimize exertion.
3. Prevent abdominal distension.
4. Strive to maintain nutrition.
5. Emaciated patients sometimes do well on large doses of alcohol which seem to act for them as a food and indirectly as a stimulant.





6. Cardiac stimulants must often be tried empirically from lack of a precise diagnosis or as a last hope. They often fail to do good.

## TREATMENT FOR SPECIAL CONDITIONS.

### Cardiac Disorders.

1. Faulty Innervation. Alcohol, digitalis, strychnine or ice-bag, etc., may be tried but are not likely to avail much.

2. Cloudy Swelling. Digitalis, strychnine, caffeine or camphor may be tried.

3. Ill-nourished myocardium demands improved nutrition of the patient. Alcohol and stimulants may perhaps help.

4. Local Infection. Treat as for active infectious endocarditis, page 12.

5. Obstruction in the lung. As a rule nothing can be done.

6. Pulmonary edema yields occasionally to atropine, subcutaneously given. Cardiac stimulants or strophanthin\* may be tried.

### Vascular Relaxation: "Vasomotor Paresis."

*Notes.* — The relaxation is believed to be the result of vasomotor paresis produced by the action of toxins on the vasomotor center. It occurs occasionally in severe infections, particularly in typhoid and in pneumonia. The condition is analogous to surgical shock although its cause is not the same.

The onset may be gradual or rapid. It can be observed, by watching the development, that the pulse becomes weak while the heart-sounds are still of good quality. Later, as a result of low peripheral pressure and meager return of blood to the heart, the heart's action becomes more and more rapid, the sounds fainter and perhaps irregular. Finally, the extremities become cold, the face dusky and the pulse imperceptible.

**Principles of Treatment.** Promote return of blood to the heart by:

- (a) Filling the vessels.
- (b) Constriction of vessels.

---

\* Dangerous, especially if digitalis has been given.





**Methods:** 1. Salt solution given by hypodermoclysis is rapidly absorbed and generally acts well in from five to fifteen minutes. It may save life even when the patient's condition is desperate. A pint, heated to blood-temperature, should be used at a time. It may be repeated in an hour or later if needed. Quicker results follow its use intravenously, but more care is needed to avoid infection.

2. Direct transfusion of blood might be tried if it could be done without delay.

3. Adrenalin chloride is a very powerful vaso-constrictor but very transient in its effect. It is difficult to get satisfactory results with it.

Caffeine sodio-salicylate or strychnine may be tried subcutaneously, but are not very effective as vaso-constrictors.

## ANGINA PECTORIS.

**Definition.** Pain or distress attributable to spasm, to narrowing or to occlusion of a coronary artery. It is a symptom rather than a disease.

### Etiological Classification of Angina Pectoris.

- |  |                        |
|--|------------------------|
| 1. Neurotic,   | Common in youth.       |
| 2. Syphilitic,   | Common in middle life. |
| 3. Degenerative or arteriosclerotic,                           | Common in old age.     |
| 4. Embolic, occurs in endocarditis or intracardiac thrombosis. |                        |

## DIAGNOSIS.

A full and accurate history is of the greatest importance to determine the character, mode of onset, duration and radiation of the pain and also a probable etiology or background for the disease. A routine physical examination may reveal little or nothing of importance. Angina, otherwise typical, occurs rarely without pain.

## NEUROTIC ANGINA.

**Pathology.** No characteristic changes recognized.

**Etiology.** Commonly due to excess in tea, coffee, or tobacco, to fears or emotional shocks and often associated with debility.





**Prognosis.** Death is not to be expected and the chance of complete cure is excellent.

**Treatment.** 1. Find and remove the cause.

2. General hygienic measures.

By these means recurrence can be prevented. Attacks are generally too brief and mild to require treatment individually.

### SYPHILITIC ANGINA.

**Pathology.** Syphilitic changes in the aorta, aortic valves or coronary arteries, diminishing their circulation are generally demonstrable.

**Etiology.** A late manifestation of syphilis commonest in middle life.

**Prognosis.** Very uncertain. Much improvement is sometimes possible and the patient may live for years. Sudden death may occur at any time.

**Treatment.** 1. Antisyphilitic measures.\*

2. Regulation of life to reduce demands on the heart to what it can meet is of the utmost importance.

(a) Avoid physical and mental strain..

(b) Avoid distention of the stomach and bowels

(c) Food and liquids should be taken in moderation.

(d) Tobacco and alcohol in great moderation if at all.

(e) Bowels should be kept free.

3. Cardiac insufficiency if present requires appropriate treatment on general principles.

4. Tr. digitalis or theobromine sodio-salicylate may be used with benefit, occasionally, even in the absence of manifest insufficiency, to reduce the number of attacks.

5. At the first sign of an attack the patient should take nitroglycerine † or amyl nitrite,‡ repeat it in a few minutes if needed and remain quiet for a time after the attack has passed. The drug must be always accessible without effort. Nitroglycerine should be chewed and absorbed in the mouth and amyl nitrite taken by inhaling it from a handkerchief. It is important to provide pearls which break easily but not spontaneously if amyl nitrite is to be used.

\* It is doubtful whether Salvarsan should be used in the presence of severe cardiac disease.

† Page 57.

‡ Page 58.





## TREATMENT OF ANGINAL ATTACKS.

If called to treat an attack of angina use nitroglycerine subcutaneously or amyl nitrite or both immediately. Repeat the dose in a few minutes if the patient is not relieved. If nitroglycerine gives no effect in repeated doses amyl nitrite may perhaps relieve. If the pain is unusually severe and obstinate morphine may be injected.

Do not attempt to transport the patient and do not allow him to make the slightest exertion for a time after the symptoms have passed. Rest in bed is advisable after a severe attack.

That which is known to bring on an attack must be avoided.

## DEGENERATIVE ANGINA.

**Pathology.** Coronary sclerosis and chronic myocardial degeneration, with or without fibrous myocarditis, will often be demonstrable as part of a widespread arteriosclerosis.

**Prognosis.** Years of life may be possible but sudden death may occur at any time.

**Treatment.** 1. Regulate life to avoid strain.

2. If there is any cardiac insufficiency the patient should take digitalis and salts for the rest of his life as for a degenerative valve lesion.

3. Digitalis, theobromine or potassium iodide in small doses may limit the number of attacks.

4. If an old syphilis be suspected give potassium iodide and protiodide of mercury in moderate doses.

5. For attacks the treatment is the same as in syphilitic angina.





## CHAPTER II.

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### NEPHRITIS.

#### CLASSIFICATION OF TYPES.

- |                                   |   |                    |
|-----------------------------------|---|--------------------|
| 1. Acute Renal Irritation.        | } | Allied Conditions. |
| 2. Acute Nephritis.               |   |                    |
| 3. Chronic Nephritis.             |   |                    |
| 4. Syphilitic Nephritis.          |   |                    |
| 5. Arteriosclerotic Degeneration. |   |                    |
| 6. Passive Congestion.            |   |                    |

#### NOTES ON CLASSIFICATION.

This classification aims to separate only the more important types of nephritis which can be recognized clinically and which require different treatment.

Acute renal irritation, acute nephritis and chronic nephritis appear to be allied diseases. The gaps between them are bridged by intermediate forms and the acute infectious diseases are responsible for most cases of these three types of renal inflammation. Toxic irritation differs from acute nephritis mainly in degree and chronic nephritis from acute nephritis in that instead of recovering it progresses.

Although arteriosclerotic degeneration is essentially different from chronic nephritis, the latter being primarily an inflammation of the kidney and the former being a degeneration secondary to vascular disease, the two are often combined. In such combinations either process may predominate.

Aside from intermediate or mixed forms of nephritis there is the rare amyloid degeneration and a variety of anomalous forms difficult to classify.



## CHAPTER II

### NEPHRITIS

#### CLASSIFICATION OF TYPES

- |                     |                                   |
|---------------------|-----------------------------------|
| { Allied Conditions | 1. Acute focal glomerulonephritis |
|                     | 2. Chronic glomerulonephritis     |
|                     | 3. Chronic interstitial nephritis |
|                     | 4. Pyelonephritis                 |
|                     | 5. Arteriosclerotic nephritis     |
|                     | 6. Toxic nephritis                |

#### NOTES ON CLASSIFICATION

This classification aims to separate only the more important types of nephritis which can be recognized clinically and which require different treatment.

Acute focal glomerulonephritis, chronic glomerulonephritis, and chronic interstitial nephritis are the three types of nephritis which are separated by the most common of these three types of renal diseases. The term "nephritis" is used to denote any of these three types of renal diseases. The term "glomerulonephritis" is used to denote any of these two types of renal diseases. The term "interstitial nephritis" is used to denote any of these two types of renal diseases.

Although interstitial nephritis is usually different from chronic glomerulonephritis, the latter being primarily an inflammatory of the kidney and the former being a degenerative process, the two are often combined. In such cases, the term "glomerulonephritis" is used.

Acute focal glomerulonephritis or mixed forms of nephritis are in the two principal categories and a variety of variations from these are possible.

## DIAGNOSIS OF TYPES OF NEPHRITIS.

**Acute Renal Irritation** is distinguished from acute nephritis by less profound changes in the urine, absence of renal symptoms and prompt recovery with removal of its cause. It is commonly symptomatic in acute fevers.

**Acute Nephritis** occurs commonly in childhood or youth. It is generally traceable to an acute infectious disease, is particularly common after scarlet fever and may follow tonsillitis or result from an irritant poison. Cases differ much in severity and consequently in signs and symptoms; but severe ones may show anuria or marked oliguria with anasarca and perhaps uremia. The urine in severe cases is loaded with blood, albumen, casts and fat and that of mild conditions contains the same elements in smaller amount. Blood-pressure may be moderately elevated and after some weeks, if the disease persists, left ventricular hypertrophy may develop.

**Chronic Nephritis.** The etiology of most cases is like that of acute nephritis but probably there are some cases arising from chronic toxemias.

<b>Stages.</b>	1. Early.	} <b>Phases.</b>	a. Latent.
	2. Subacute.		b. Exacerbation.
	3. Chronic.		

The course of the disease may run from a few years or less to twenty years or more. Any stage may be without symptoms. The early stage may be indistinguishable from acute nephritis and exacerbations may be mistaken for acute nephritis. Left ventricular hypertrophy and hypertension develop gradually and there is a progressive fall in the specific gravity of the urine associated with an increase in the amount.

The late stage shows marked left ventricular hypertrophy, a blood-pressure generally over 200 mm. of mercury and a urine of very low gravity, containing little or no albumen and a scanty sediment. At this stage many of the glomeruli and much of the parenchyma has been replaced by connective tissue and shrinkage has followed so that the kidneys are much diminished in size. The chief dangers are from uremia or from cardiac insufficiency secondary to hypertension. In the absence of arteriosclerosis a provisional diagnosis of chronic nephritis may often be made by the evidence of hypertension and of cardiac hypertrophy.



# DIAGNOSIS OF TYPES OF NEPHRITIS

Acute Nephritis is distinguished from other nephritides by the rapid change in the clinical picture of renal symptoms and complete recovery with removal of the cause. It is characteristically a renal disease.

Acute Nephritis occurs commonly in children or young adults. It is usually preceded by an acute infectious disease in part or by a systemic disease such as rheumatism and may follow streptococcal infection. It is characterized by rapid onset, rapid progression, and complete recovery. The clinical picture is characterized by the triad of hematuria, proteinuria, and edema. The urine is usually cloudy and contains many red blood cells and white cells. The blood pressure is usually elevated. The disease is usually self-limited and after some weeks the clinical picture has usually disappeared.

Chronic Nephritis. The tendency of most cases is like that of acute nephritis but usually there are some cases arising from chronic diseases.

Stages of Nephritis  
1. Acute  
2. Subacute  
3. Chronic

The course of the disease may run from a few years or less to many years or more. The stage may be without symptoms. The early stage may be indistinguishable from acute nephritis and sometimes may be mistaken for acute nephritis. Later stages are characterized by hematuria and proteinuria, usually with some degree of edema. The disease is usually self-limited and after some weeks the clinical picture has usually disappeared.

The late stage shows marked but sometimes partial recovery. A moderate degree of recovery may be seen in the early and middle stages of the disease. The late stage may be characterized by a chronic nephritis. It is characterized by a chronic nephritis. The disease is usually self-limited and after some weeks the clinical picture has usually disappeared.

**Syphilitic Nephritis** is generally regarded as an unusual form of acute nephritis. It occurs, according to Osler, most commonly in the secondary stage within six months of the primary lesion of syphilis and resembles other toxic nephritis. Gumma of the kidney is rare but it is probable that some instances of arteriosclerotic degeneration are of syphilitic origin. Signs of an active syphilis in the presence of a nephritis suggest but do not prove that the two are related.

**Arteriosclerotic Degeneration** of the kidney is most common in old age. It may be part of a widespread arteriosclerosis or it may be manifested chiefly in the kidney. There occurs a non-inflammatory destruction of parts of the kidney dependent on sclerosis of the arteries supplying those parts. Local shrinkage and irregularity or roughness of the surface results.

The urine, at first, may show considerable albumen and some blood and casts. Later it resembles that of chronic nephritis. Hypertension and left ventricular hypertrophy are generally well marked in the latter stages of renal degeneration.

The greatest dangers are from cardiac insufficiency or cerebral hemorrhage. Typical uremia occurs rarely if at all in pure degenerative cases but there is often more or less chronic nephritis combined with the degenerative lesions. Chronic lead-poisoning, gout or syphilis may be etiologically important.

**Passive Congestion** is secondary to congestion in the venous circulation. Therefore, it is commonly symptomatic of cardiac insufficiency. The urine is high colored, scanty and of a high gravity. Albumen and casts are found in varying amounts. There are no definite symptoms or sequellæ. Passive congestion may mask an acute nephritis especially in the active stage of endocarditis.

## TREATMENT OF RENAL DISORDERS.

**Acute Renal Irritation.** — The signs of irritation can be much reduced by the free administration of water. The water dilutes the irritating substance and promotes excretion by stimulating diuresis. No other direct treatment is needed.

**Caution.** Make sure that a nephritis is not developing.



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### TREATMENT OF RENAL DYSFUNCTION

Acute Renal Failure. — The ...  
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## ACUTE NEPHRITIS.

### PRINCIPLES OF TREATMENT.

#### I. Reduce the demands on the kidney by:

1. Rest in bed.
2. Elimination by other channels.  $\left\{ \begin{array}{l} (a) \text{ Sweating.} \\ (b) \text{ Purging.} \end{array} \right.$
3. Suitable diet.
4. Limitation of liquids under certain conditions.

#### II. Maintain nutrition.

#### III. Avoid exposure to cold or to sudden cooling.

#### IV. Drugs should be used only when indicated; never by routine.

In a recent book based on experimental work, Fischer has formulated new principles for the treatment of nephritis. His conclusions are open to serious criticism but the work is important. Its value cannot be closely gauged at the present writing.

### METHODS OF TREATMENT.

- Sweating.**
1. Hot-air bath in bed or chair.
  2. Hot tub-bath.
  3. Hot wet pack.
  4. Electric light bath.

Hot-air baths are best given in bed. If the baths cause profuse sweating they may be used daily for an hour or more. If sweating does not begin promptly a drink, hot or cold, may start it or pilocarpine may be administered subcutaneously. Some patients who sweat little at first respond well to subsequent baths.

If sweating cannot be obtained, if the pulse becomes weak, or if the patient develops cardiac symptoms during a bath the baths must be given up. They should never be ordered for an unconscious patient.

Pilocarpine may cause pulmonary edema and is, therefore, contraindicated when the heart is weak, the lungs congested, or the patient unconscious.

Hospitals provide apparatus for the hot-air bath. In private houses it can be improvised with barrel-hoops or strong wire to arch the bed, an oilcloth from the kitchen table as a rubber



# ACUTE TYPHUS

## PRINCIPLES OF TREATMENT

1. Remove the patient to the hospital.

2. Place in bed.

3. Administration of other drugs: (a) Strychnine, (b) Digitalis.

4. Diet: (a) Liquid.

5. Administration of fluids: (a) Water, (b) Tea, (c) Juice.

6. Administration of food: (a) Liquid, (b) Solid.

7. Administration of other drugs: (a) Strychnine, (b) Digitalis.

8. Administration of other drugs: (a) Strychnine, (b) Digitalis.

9. Administration of other drugs: (a) Strychnine, (b) Digitalis.

10. Administration of other drugs: (a) Strychnine, (b) Digitalis.

11. Administration of other drugs: (a) Strychnine, (b) Digitalis.

12. Administration of other drugs: (a) Strychnine, (b) Digitalis.

13. Administration of other drugs: (a) Strychnine, (b) Digitalis.

## METHODS OF TREATMENT

1. Strychnine: (a) 1/100 grain in bed or chair.

2. Hot water pack.

3. Hot water pack.

4. Hot water pack.

5. Hot water pack: (a) 1/100 grain in bed or chair.

6. Hot water pack: (a) 1/100 grain in bed or chair.

7. Hot water pack: (a) 1/100 grain in bed or chair.

8. Hot water pack: (a) 1/100 grain in bed or chair.

9. Hot water pack: (a) 1/100 grain in bed or chair.

10. Hot water pack: (a) 1/100 grain in bed or chair.

11. Hot water pack: (a) 1/100 grain in bed or chair.

12. Hot water pack: (a) 1/100 grain in bed or chair.

13. Hot water pack: (a) 1/100 grain in bed or chair.

14. Hot water pack: (a) 1/100 grain in bed or chair.

15. Hot water pack: (a) 1/100 grain in bed or chair.

16. Hot water pack: (a) 1/100 grain in bed or chair.

17. Hot water pack: (a) 1/100 grain in bed or chair.

18. Hot water pack: (a) 1/100 grain in bed or chair.

19. Hot water pack: (a) 1/100 grain in bed or chair.

20. Hot water pack: (a) 1/100 grain in bed or chair.

blanket, an elbow of stovepipe and a kerosene lamp to provide the heat; or the patient without clothing may sit in a cane-bottomed chair under which is placed a small lamp. Blankets are then wrapped around the chair and the patient together, leaving no hole for the heat to escape.

Care must be taken not to set the blankets on fire.

**Purgation.** Obtain watery catharsis to reduce edema and to increase elimination of toxic material by the intestinal tract. Magnesium sulphate or compound jalap and potassium bitartrate or elaterium are good for this purpose. (page 58.)

In the absence of edema, to avoid weakening the patient, purgation should be used in moderation.

**Diet.** Proteids, meat broths, spices, acids and alcohol irritate the kidney and are to be avoided during the acute stage.

Milk is an exception to the rule against proteid because experience shows that it is not injurious. A diet exclusively of milk becomes monotonous if long continued and such large quantities are needed to maintain nutrition that the fluid part may tend to increase edema.\*

Salt seems not to be harmful as a rule. When, however, edema persists in spite of other treatment, a "salt-free" diet may be tried, *i.e.*, salt is not to be added to food either before or after cooking. This change is followed occasionally by rapid disappearance of the edema. If deemed advisable the phosphate† in milk can be precipitated by adding 5 gr. of calcium carbonate per pint.

**Diet List** (incomplete). Milk, cream, butter, sugar, junket, ice cream, bread, toast, cereals, rice, potato, macaroni, sago, tapioca, spinach, lettuce, sweet raw fruits or stewed fruits.

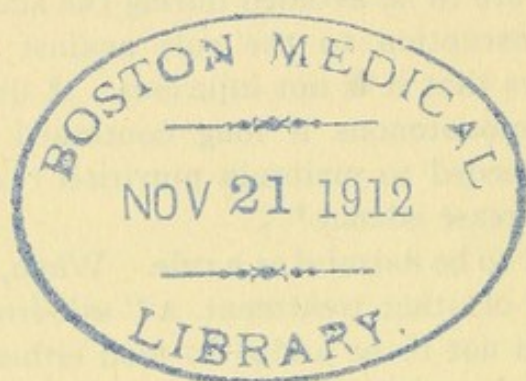
In convalescence enlarge diet cautiously on account of danger of relapse. When returning to proteid foods allow eggs first, then fish and lastly meat, red or white.

**Liquids** including liquid foods should be limited strictly when there is anasarca or when they are not being fully excreted. One pint in twenty-four hours may be enough. Cracked ice may be used for thirst, but, if the patient suffers, more liquid should be allowed.

\* Three quarts of milk furnish about 2000 calories which is scant for an adult.

† One liter of milk contains 3.80 gm. of phosphate and 1.79 gm. of chlorides; Sommerfeld, "Handb. d. Milchwunde," page 271.





When freely excreted water is an excellent diuretic. It dilutes irritating substances and favors their excretion.

**Nutrition.** The quantity of food to be prescribed depends on the severity of the nephritis, the physical strength and the state of nutrition of the patient. Strong, well-nourished patients having severe nephritis may benefit by starvation for a day followed by very small quantities of food for several days. A feeble, emaciated and anæmic patient should receive food enough to maintain body-weight.

**Exposure.** To prevent chill, keep room at equable temperature and let patient wear flannel or lie between blankets.

**Drugs.** Irritating diuretics, such as calomel, are dangerous in all forms of nephritis.

Theobromine, theocin and apocynum are useless and may perhaps do harm in acute nephritis.

Mild saline diuretics or alkaline mineral waters may be valuable, particularly in convalescence, but it may perhaps, be wiser to avoid them in severe cases during the early stage.

For anemia, iron may be tried, *e.g.*, Bland's Pills or Basham's Mixture which contains iron and acts also as a mild diuretic.

**Prophylaxis.** If it appears that the tonsils were the point of entrance or the original seat of disease their removal at a suitable time should be advised.

**Uremia.** For treatment, see below, page 28.





## CHRONIC NEPHRITIS.

### PRINCIPLES OF TREATMENT.

1. Adequate nourishment is essential because the disease is chronic and a cure not to be expected.
2. Limit demands on the kidney and guard against uremia by (a) diet, (b) elimination.
3. Guard against cardiac insufficiency by avoiding physical and mental strain.
4. Avoid exposure to cold.

### METHODS.

Methods are the same in general as for acute nephritis, but they must be used with regard to the condition of the patient and the stage and severity of the disease.

**The Early Stage**, when severe, must be treated as acute nephritis until recognized as chronic. Nutrition then becomes a more important problem.

**Exacerbations** are treated like acute nephritis except that nutrition is more important and therefore diet should be more liberal than for acute nephritis.

**Latent phase**; early, subacute or chronic:

1. Restrict the following:
  - (a) Meats.
  - (b) Meat broths.
  - (c) Spices.
  - (d) Alcohol.
2. To favor elimination of toxic material the following may be advised:
  - (a) A saline cathartic every second, third or fourth day. Bowels must be kept free.
  - (b) Hot tub-baths twice weekly.
  - (c) Alkaline mineral waters with meals.
3. **Uremia.** For treatment see below, page 29.
4. **Cardiac Insufficiency.** For treatment see hypertension, page 14.

### SYPHILITIC NEPHRITIS.

1. Apply principles advised for acute or chronic nephritis according to the severity and symptoms of the case.



# CHRONIC NEPHRITIS.

## PRINCIPLES OF TREATMENT.

1. Absolute abstinence is essential because the disease is chronic and a cure not to be expected.
2. Local treatment on the kidney and general systemic treatment by (a) diet, (b) elimination.
3. General systemic treatment consisting in avoiding physical and mental exertion.
4. A good exposure to cold.

## METHODS.

Methods are the same in general as for acute nephritis, but they must be used with regard to the condition of the patient and the stage and severity of the disease. The early stage, when severe, must be treated as acute nephritis until recognized as chronic. Protracted cases become a more important problem. Exacerbations are treated like acute nephritis except that attention is more frequent and treatment that would be more liberal than for acute nephritis. Latest phase: early, advanced or chronic.

### 1. Diet and the following:

- (a) Protein.
- (b) Sugar.
- (c) Fat.
- (d) Alcohol.

2. The factor elimination of toxic material the following may be advised:

- (a) A saline cathartic every second third or fourth day. Bowels must be kept free.
- (b) Hot tubs twice weekly.
- (c) Abundant natural waters with acids.
- (d) Urine for chemical analysis every four or six days.
- (e) Chronic treatment: For treatment see hypertonemia.

## SYMPTOMATIC TREATMENT.

1. Apply indicated method for acute or chronic nephritis according to the severity and symptoms of the case.

2. Iodide and mercury should be used in small doses.
3. Watch urine and omit mercury if renal irritation increases under treatment. When the diagnosis is right the urine generally improves promptly. As there are no characteristic signs mistakes of diagnosis easily occur.

### ARTERIOSCLEROTIC DEGENERATION OF THE KIDNEY TREATMENT.

1. Search for a cause of arteriosclerosis. If such can be found and if it is believed still to be operative treat it appropriately.  
Such causes are, *e.g.*, (a) chronic lead-poisoning; (b) gout; (c) syphilis.
2. Nutrition is very important to maintain.
3. Limit the demands on the kidney by moderate restriction of:
  - (a) Meats.
  - (b) Meat broths.
  - (c) Spices.
  - (d) Alcohol.
4. Avoid physical and mental strain to guard against, (a) cardiac insufficiency; (b) cerebral hemorrhage.
5. Cardiac insufficiency, when present, should be treated with reference to its probable cause, *e.g.*:—
  - (a) Degenerative valve lesion. See page 14.
  - (b) Degenerative myocardial lesion. See page 20.
  - (c) Hypertension. See page 14.
6. Mild toxemia may clear up under cardiac treatment if the heart is at fault.  
Alkaline diuretics may be of use.  
Methods advised for uremia may be used if toxemia is severe.

### PASSIVE CONGESTION OF THE KIDNEY.

The treatment is that of the cause of the stasis.

### UREMIA.

*Note.* — Uremia is an intoxication of unknown nature common in severe acute nephritis and in chronic nephritis, particularly in the late stage and with exacerbations of the subacute stage.



1. Tablets and capsules should be used in small doses.  
 2. Watch urine and stool carefully. If renal infection becomes  
 more important. When the diagnosis is right the urine ren-  
 dered negative quickly. As there are no characteristic signs  
 of chronicity early occur.

## ANTHYROXANTHIC DEGENERATION OF THE KIDNEY TREATMENT

1. Watch for a course of antihypertensive. If such can be found  
 and it is believed will be operative treat it appropriately.  
 Such cases are e.g. (a) chronic lead poisoning; (b) gout;  
 (c) syphilis.  
 2. Dietetic is very important to maintain.  
 3. Limit the demands on the kidney by moderate restriction

- (a) Alcohol
- (b) Meat broth
- (c) Spices
- (d) Acidic
- 4. Avoid physical and mental strain to guard against (a) car-  
 diac hypertrophy; (b) cerebral hypertrophy.
- 5. A renal insufficiency, when present, should be treated with  
 reference to its probable cause, e.g.:-  
 (a) Degenerative artery lesion. See page 14.  
 (b) Excessive exposure to heat. See page 20.  
 (c) Hypertension. See page 14.  
 6. With treatment pay close up under cardiac treatment if the  
 heart is at fault.  
 A further chapter may be of use.  
 Methods adopted for various may be used if results is better.

## PASSTIC CONGESTION OF THE KIDNEY.

The condition is that of the cause of the strain.

## URICEMIA

There is a condition of uricemia which is common  
 in acute renal failure and is known as uricemia. It is  
 in the late stage and with resolution of the uricemic stage.

**Symptoms** vary much in degree. There may be mental sluggishness, drowsiness or coma, loss of appetite, nausea or vomiting, muscular twitchings or convulsions, headache, delirium, disturbance of vision, transient ocular paralysis or paresis of the extremities. The urine is scanty or suppressed. Retinitis and Cheyne-Stokes respiration are common. The onset may be gradual with slight signs or relatively acute and severe. Edema may be present or absent.

### Methods of Treatment.

#### For mild uremia:

1. Diet as for acute nephritis.
2. Eliminative measures.
  - (a) Purgation.
  - (b) Sweating.
  - (c) Water if there is little or no edema.
  - (d) Saline diuretics.

#### Severe uremia:

1. Diet should be much restricted in quantity and quality as for severe acute nephritis. Vomiting or unconsciousness may prevent feeding for a time.

2. Water should be used freely unless there is much edema. If water cannot be taken by mouth it can be used as salt solution by:

- (1) Hypodermochlysis.
- (2) Intravenously.
- (3) By rectum, (a) Enema.  
(b) Seepage.

3. Purgation. Magnesium sulphate, comp. jalap powder and potassium bitartrate or elaterium may be used. Croton oil is useful especially for unconscious patients. If rubbed up with a little butter, made into a ball and placed on the back of the tongue, it will be swallowed. Repeated doses of purgatives should be employed, if needed, to obtain prompt and profuse watery catharsis.\*

4. Sweating often does good. Hot-air baths may be used daily if they cause profuse sweating. They should not be

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\* Purgation should not be excessive in the absence of edema lest concentration of toxin result.





ordered for an unconscious patient. Pilocarpine should not be used if there is pulmonary edema, cardiac insufficiency or unconsciousness.

5. A pint or more of blood may be withdrawn from a vein at the elbow by incision, or, if a suitable apparatus is at hand, by aspiration. After bleeding, salt solution should be injected in an amount approximately equal to the blood withdrawn.

6. Colon irrigations with large quantities of hot water may be tried in the hope of promoting elimination of toxins.

7. Drugs. The use of nitroglycerine or other vaso-dilators is followed frequently by pronounced diuresis in the presence of hypertension. The effect is transient.

Morphine may be given subcutaneously for convulsions.

Saline diuretics may be of use when the severe symptoms have subsided.

Cardiac stimulants are indicated if there is cardiac insufficiency.



indicated for an unconscious patient. If necessary, should not be held if there is pulmonary edema, cardiac insufficiency or hemorrhage.

2. A patient must be held only be withdrawn from a vein at the flow of blood, or if a suitable substitute is at hand by aspiration. After bleeding, the solution should be injected in an amount approximately equal to the blood withdrawn.

3. Other injections with large quantities of hot water may be used in the case of profuse hemorrhage of tumor.

4. The use of nitrogenous or other vaso-dilators is not recommended in the treatment of the tumor. The effect is transient.

5. The tumor may be kept separate only for convenience.

6. Before the tumor may be cut, when the severe symptoms have subsided.

7. The tumor should be removed if there is marked hemorrhage.

## CHAPTER III.

### ACUTE INFECTIOUS DISEASES.

#### GENERAL PRINCIPLES OF TREATMENT.

1. Rest in bed { *a.* To conserve strength.  
                  *b.* To reduce metabolic waste.
2. Ingestion of much water { *a.* To dilute toxins.  
                                  *b.* To favor their elimination.
3. Bowels should be kept clear { *a.* To favor digestion.  
                                      *b.* To prevent absorption  
                                      of toxic substances.
4. Good nursing { *a.* To secure cleanliness.  
                      *b.* To conserve strength.  
                      *c.* To promote comfort.  
                      *d.* To afford accurate information to  
                              physician.  
                      *e.* To facilitate treatment.
5. Diet should be { *a.* Easy to swallow.  
                      *b.* Easily digestible.  
                      *c.* Nutritious but not bulky.  
                      *d.* Palatable and varied.

Meals as a rule should be frequent and small to facilitate digestion.

6. The sick-room should be well ventilated.
7. Infection of others must be prevented.
8. Symptoms should be treated as they arise with regard to the circumstances of the case.



## CHAPTER III.

### ACUTE INFECTIOUS DISEASES.

#### GENERAL PRINCIPLES OF TREATMENT.

1. Food should be kept clean.
  - a. To prevent absorption of toxic substances.
  - b. To favor digestion.
  - c. To favor their elimination.
  - d. To clean teeth.
2. Position of much water.
  - a. To reduce metabolic waste.
  - b. To conserve strength.
3. Rest in bed.
  - a. To conserve strength.
  - b. To reduce metabolic waste.
4. Good nursing.
  - a. To secure cleanliness.
  - b. To conserve strength.
  - c. To secure comfort.
  - d. To afford accurate information to physician.
  - e. To facilitate treatment.
5. Diet should be:
  - a. Easily digestible.
  - b. Easy to swallow.
  - c. Pleasant and not bulky.
  - d. Stimulating and varied.
6. Mouth as a rule should be frequent and small to facilitate deglutition.
7. The sick room should be well ventilated.
8. Isolation of others must be prevented.
9. Symptoms should be treated as they arise with regard to the requirements of the case.

## TYPHOID FEVER.

*Notes.*—Typhoid is characterized pathologically by peculiar ulceration of the small intestines. The ulceration occurs rarely in the colon or even in the rectum.

Typhoid bacilli enter the blood, the organs, the secretions, and the excretions.

The disease is self-limited, lasting from two weeks to three months. Relapses are common and complications frequent. Toxemia is often severe.

### COMMON CAUSES OF DEATH.

1. Toxemia.
2. Exhaustion.
3. Severe complications.
  - (a) Perforative peritonitis.
  - (b) Repeated hemorrhages.

### PRINCIPLES OF TREATMENT FOR TYPHOID.

- A. Prevent infection of others.
- B. Dilute toxins and favor their elimination.
- C. Conserve strength of the patient.
- D. Diet should be suited to the individual as well as to the disease.
- E. Drugs are to be prescribed for definite reasons only and not to reduce the fever.
- F. Observe the patient's condition closely and modify treatment promptly when indicated.
- G. Have the best nursing available and if possible keep a nurse in attendance constantly day and night.
- H. Treat symptoms and complications with due regard to other circumstances of the case.

### ROUTINE ORDERS TO NURSE.

1. Enteric precautions.
2. Dr. Shattuck's enteric diet. (Prof. F. C. Shattuck.)
3. Baths as directed every four hours, *s.o.s.*
4. Suds enema every other day or *p.r.n.*
5. Spray throat and wash mouth and eyes every four hours.
6. Hexamethylenamine, gr. 5, *t.i.d.*



## TYPHOID FEVER

Notes.—Typhoid is characterized pathologically by the invasion of the small intestine. The infection occurs usually in the form of a fever in the summer months. The blood count shows the blood, the organs, the mucous membranes, and the nervous system. The disease is not limited to the small intestine but may involve the entire system. The disease is often fatal.

### COMMON CAUSES OF DEATH

1. Typhoid
2. Relapse
3. Septic complications
- (a) Typhoid pneumonia
- (b) Septic meningitis

### PRINCIPLES OF TREATMENT FOR TYPHOID

1. Prompt isolation of patient
2. Isolate patient and later their excreta
3. Keep patient in bed
4. Diet should be suited to the individual as well as to the disease
5. Drugs are to be prescribed for definite reasons only and not to reduce the fever
6. Observe the patient's condition closely and modify treatment accordingly when indicated
7. Have the diet changed gradually and if possible keep a nurse in attendance constantly day and night
8. Treat symptoms and complications with due regard to other characteristics of the case

### ROUTINE ORDERS TO NURSE

1. Isolate patient
2. The patient's excreta shall (Treat E. E. Sherrill)
3. Make no effort to reduce fever
4. Give patient every other day or as needed
5. Keep throat and rectum moist and cool every four hours
6. Have excreta disinfected at 1:00

7. Record temperature, pulse and respiration every four hours, the daily excretion of urine and the amount of food and water ingested.

Specific directions for diet and baths should be given with due regard for the circumstances of each case. Frequent modification may be required.

## METHODS OF TREATMENT FOR TYPHOID.

### A. Prevention of Infection of Others.

#### I. "Enteric precautions."

1. Isolation of the patient is desirable.
2. Flies must be excluded.
3. Those who touch the patient should wash their hands on leaving the room.
4. Eating utensils should be reserved exclusively for the patient and washed and kept apart.
5. Sheets and other linen when removed from the sick-room should be soaked in 5 per cent carbolic acid for at least half an hour or boiled.
6. The excreta\* should be thoroughly mixed with a disinfectant by stirring and should then be allowed to stand for at least half an hour in a covered vessel. Milk of lime (1 part freshly slaked lime to 8 parts of water) or chlorinated lime 6 per cent, or carbolic acid 5 per cent, or formalin 10 per cent may be used. The quantity of the solution should be at least double the volume of the material to be disinfected.
7. Bath water should be boiled after using.
8. Cleanliness of the attendant is essential.

II. Prophylactic inoculation should be required for those coming frequently in contact with the patient.

### B. Dilution and Elimination of Toxins.

1. The urinary output should be kept above 60 oz. in 24 hours by free administration of water. A much larger quantity of urine can be obtained but it is a question whether water taken in very large quantities may not favor hemorrhage. Liquids including liquid foods should total about three quarts daily.

\* Mark W. Richardson. : Monthly Bul. Mass. State Board of Health, Oct. 1911.



7. Record temperature, pulse and respiration every four hours.  
 The daily excretion of urine and the amount of food and water  
 ingested.  
 Special directions for diet and baths should be given with  
 due regard for the requirements of each case. Excrement and  
 lesions must be reported.

## METHODS OF TREATMENT FOR TYPHOID

### A. Prevention of Infection in Contact

#### 1. "Latent Infection"

1. Isolation of the patient is desirable.
2. Other cases be excluded.
3. Those who touch the patient should wash their hands  
 on leaving the room.
4. Excreta should be removed carefully for  
 the patient and washed and kept apart.
5. Sheets and other linen when removed from the bed  
 room should be washed in 5 per cent carbolic acid  
 for at least half an hour or boiled.
6. The patient should be thoroughly washed with  
 disinfectant for surface and should then be allowed  
 to stand for at least half an hour in a covered vessel  
 filled with 1 part disinfectant to 10 parts  
 of water, or chlorinated lime 1 part, or carbolic  
 acid 1 part, or formalin 10 parts may be used.  
 The quantity of the solution should be at least  
 double the volume of the material to be disinfected.
7. Bed water should be boiled after using.
8. Disinfection of the apartment is essential.
9. Typhoid infection should be reported for those  
 coming frequently in contact with the patient.

### B. Diet and Elimination of Toxin

1. The dietary should be as follows: as in 14 hours  
 by the administration of water. A small liquid quantity is  
 more easily retained than a solid one. It is a question whether water taken  
 in very large quantities may not have a beneficial effect.  
 including large foods should be given daily.

2. The diet should be as follows: as in 14 hours

2. The bowels should be kept clear. If they do not move freely suds enemata may be employed as often as is necessary.

Cathartics are to be avoided as a rule during the ulcerative stage because excessive peristalsis may favor hemorrhage or perforation.

**C. Conservation of Strength.** Very important because of the long average duration of typhoid.

1. The nurse should feed the patient, turn him over, allow him to do nothing for himself and should make him comfortable.

2. The maximum of nutrition should be maintained by frequent feedings.

3. Visitors should be excluded entirely as a rule.

**D. Diet.**

**I. Requirements:**

1. Nutritious but not bulky.
2. Easily digestible.
3. Non-irritating to intestine.
4. Quantity commensurate to digestive power.
5. Adapted to the patient's condition.
6. Palatable and varied.

**II. Meals should be frequent,** at least once in four hours. If the patient can take little at a time he should be fed every two hours or even every hour.

**III. Diet List.** Dr. Shattuck's enteric diet includes the following foods and any others that are easily digestible and non-irritating: liquid foods, strained cereals, custard, blanc-mange, junket, simple ice cream, soaked toast without the crust, bread or crackers in milk, soft eggs, oysters without the heel, finely minced chicken, etc.

Coleman has shown that by the free use of milk-sugar and of cream loss of weight in typhoid may sometimes be prevented. The cream can be added to milk or to other foods. Milk-sugar can be added to liquids, from  $\frac{1}{2}$  to 1 oz. in 4 oz. of liquid. Coleman's diet, if used indiscriminately, may perhaps cause death.

**IV. Departure** from routine diet may be required for various reasons, *e.g.*,

1. Patient too weak to swallow solid food.
2. Vomiting.
3. Persistent diarrhœa, often due to milk.
4. Severe distension, often due to milk.



1. The patient should be kept quiet. If there be not more  
activity than is necessary for the support of life as is necessary.  
2. The patient should be kept in a comfortable position.  
3. The patient should be kept in a comfortable position.

4. The patient should be kept in a comfortable position.  
5. The patient should be kept in a comfortable position.

6. The patient should be kept in a comfortable position.  
7. The patient should be kept in a comfortable position.

8. The patient should be kept in a comfortable position.

D. Diet.

1. Resolutions:

1. The patient should be kept in a comfortable position.
2. The patient should be kept in a comfortable position.
3. The patient should be kept in a comfortable position.
4. The patient should be kept in a comfortable position.
5. The patient should be kept in a comfortable position.

6. The patient should be kept in a comfortable position.  
7. The patient should be kept in a comfortable position.

8. The patient should be kept in a comfortable position.  
9. The patient should be kept in a comfortable position.  
10. The patient should be kept in a comfortable position.

11. The patient should be kept in a comfortable position.  
12. The patient should be kept in a comfortable position.  
13. The patient should be kept in a comfortable position.

General.

1. The patient should be kept in a comfortable position.
2. The patient should be kept in a comfortable position.
3. The patient should be kept in a comfortable position.
4. The patient should be kept in a comfortable position.

## V. Advantages of a liberal diet.

1. Nutrition is better maintained.
2. Strength is better maintained.
3. Convalescence is shorter.
4. Distension is uncommon.
5. Patients suffer less.

*E. Drugs.* Hexamethylenamine should be prescribed by routine as a urinary antiseptic. It may, rarely, cause hematuria or painful micturition. It should then be omitted for a few days and resumed in smaller dosage.

Other drugs may be ordered occasionally for special symptoms as required but not to reduce fever because antipyretics are depressants.

## F. Observation.

I. Examine the patient once or more daily during the febrile stage.

Look for:

1. Signs of circulatory weakness.
2. Pulmonary hypostasis.
3. Bed-sores.
4. Changes in the condition of the abdomen.
  - (a) Distention of abdomen.
  - (b) Spasm.
  - (c) Tenderness.
  - (d) Distension of bladder from retention.

II. Keep track of:

1. Urinary excretion.
2. Nourishment.
3. Account for changes in pulse or temperature. They may be the first sign of hemorrhage or perforation.

III. It is the duty of the physician carefully to supervise treatment during the period when hemorrhage or perforation may occur and he himself or his assistant should be accessible at times when emergencies may arise.





## TREATMENT OF SYMPTOMS IN TYPHOID.

### FEVER AND TOXEMIA.

**Hydrotherapy** generally acts well.

Benefits expected from it are:

1. Fall of temperature of from 1 to 2 degrees.
2. Fall in rate with increase of force and volume of the pulse.
3. Deeper breathing and diminution of pulmonary hypostasis.
4. Better sleep.
5. Diminution of symptoms of toxemia.

**Routine bath order.** For temperature\* of  $103.5^{\circ}$  rectal give bath every four hours at  $85^{\circ}$ . For every half degree of temperature above  $103.5^{\circ}$  lower temperature of bath-water  $5^{\circ}$ .

#### Rules for use of baths:

1. Baths should be ordered for definite indications only.
2. For children and for thin or feeble patients, baths should be warmer and shorter than for the robust adult.
3. The physician should supervise the first bath and prescribe subsequent baths with regard to the effect of the first one.
4. If the pulse gets weaker the bath should be stopped.
5. Much cyanosis or shivering after the bath indicates that it was too cold or too long or that not enough friction was used.
6. Stimulants are seldom required before or after a bath that is suited to the case and well given.
7. Baths must be modified or omitted if they greatly excite the patient, interfere with sleep, or cause a rise of temperature.

#### Methods of bathing:

"Typhoid Bath." With rubber sheet, supported by blanket robes at edges, make tub in bed of patient. Dash water over him with hands and rub vigorously, in turn, the chest, limbs, and back, but not the abdomen. The duration of the bath should be 20 minutes or less if so ordered.

Sponge baths often act well and are preferred in many cases. A mixture of equal parts of alcohol and 2% boric acid solution in water at the required temperature can be used for bathing.

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\* Temperatures in typhoid are best taken by rectum because they are more reliable than mouth temperatures. The rectal temperature is about  $1^{\circ}$  higher than the mouth temperature.



# TREATMENT OF SYMPTOMS IN THYROID

## FEVER AND TOXEMIA

Hydrotherapy generally acts well.

Results expected from it are:

1. Fall of temperature 1 to 2 degrees.
  2. Fall in rate with increase in force and volume of the pulse.
  3. Relief of breathing and diminution of pulmonary hyperemia.
  4. Relief of thirst.
  5. Diminution of symptoms of toxemia.
- Relative bath order. For temperature, at 101.5°, cold give half every hour until 100°. For every half degree of temperature above 100°, lower temperature of bath-water.

Notes for use of bath:

1. Baths should be ordered for definite indications only.
2. For children and for thin or feeble patients, baths should be warm and shorter, than for the robust adult.
3. The physician should remember the fact that a bath and subsequent baths with regard to the effect of the first one.
4. If the patient wishes the bath should be ordered.
5. Which depends on whether after the bath indicates that it was too cold or too hot or that not enough action was used.
6. Stimulants are seldom required before or after a bath that is ordered in the case and well given.
7. Baths must be modified or omitted if they greatly irritate the patient, interfere with sleep or cause a rise of temperature.

Methods of bathing:

Thyroid bath. With which chest, supported by hands, is held at right angles, and the head of patient. Bath water over the head and neck and the chest. In this the chest, head and back are not the elements. The duration of the bath should be 15 minutes or less if ordered.

Specific baths often act well and are ordered in many cases. A mixture of equal parts of alcohol and 2% borax and solution in water at the required temperature can be used for bathing.

\* Temperature is raised and rate of pulse increases but the skin is cool and moist. The central temperature is then 1 degree less than the surface temperature.

## CIRCULATORY WEAKNESS.\*

I. **Cardiac weakness** may be caused by various conditions which are difficult to distinguish from one another, *e.g.*,

1. Deranged nervous control.
2. Cloudy swelling.
3. Exhaustion or lack of nourishment.
4. Preëxisting lesions.
5. Fresh endo-, myo- or pericarditis.

Symptoms generally develop gradually so that there is plenty of time to prescribe.

Stimulants may be ordered if the pulse becomes weak or irregular or goes above 120. They may act well or not at all, and must generally be tried at random.

Digitalis, strychnine, caffeine or other drugs may be tried.

Emaciated or septic patients may do well on alcohol. It seems sometimes to act as a food and indirectly as a stimulant.

II. **Vasomotor paresis†** is suggested when the pulse is weak in proportion to the heart sounds. It can generally be recognized if its development has been noticed.

A saline infusion may cause a rapid fall in the pulse rate and a marked improvement in the pulse. The infusion may need to be repeated after some hours or may not be required again.

## DIARRHŒA.

Severe diarrhœas are dangerous and must be checked.

1. Examine stools to determine if they contain undigested food. If so, omit that kind of food. Curds from milk may be found.

2. Tincture of opium or paregoric generally acts well.

## CONSTIPATION.

Is a frequent cause of fever in convalescence. Calomel or Fl. Ext. of Cascara Sagrada or Castor-oil may be given at this stage. Fæcal impaction may occur.

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\* See Chapter I, page 16.

† Page 17.



## CIRCULATORY WEAKNESS

1. Circulatory weakness may be caused by various conditions which are difficult to distinguish from one another, e.g.,
  - a. Impaired nervous control.
  - b. Blood poisoning.
  - c. Exhaustion or lack of nourishment.
  - d. Fracturing lesions.
  - e. Fresh cold, grippe or pneumonia.
2. Symptoms generally develop gradually so that there is plenty of time to prescribe.
3. Stimulants may be ordered if the pulse becomes weak or irregular or goes above rate. They may act well or not at all, and must generally be tried at random.
4. Digitalis, strychnine, caffeine or other drugs may be tried.
5. Exhausted or septic patients may do well on alcohol. It seems sometimes to get into food and indirectly as a stimulant.
6. Vasomotor paralysis is suggested when the pulse is weak in proportion to the heart sounds. It can generally be corrected if the development has been retarded.
7. A saline infusion may cause a rapid fall in the pulse rate and a marked improvement in the pulse. The infusion may need to be repeated after some hours or may not be required again.

## DIARRHŒA

1. Before diarrhoea is dangerous and must be checked.
2. Examine stools to determine if they contain undigested food. If so, give that kind of food. Cruds from milk may be ferred.
3. Treatment of origin or purgative generally acts well.

## CONSTIPATION

1. Is a frequent cause of fever in convalescence. Calomel or Elix. of Cascara Sagrada or Cassia may be given at this stage. Purgative injection may occur.

## DISTENTION.

1. If stools show curds reduce or omit milk.
2. Turpentine stupes\* may give relief and can be used *p.r.n.*
3. Rectal tube may be tried.
4. As a last resort in severe distention try powerful enemata, e.g., from  $\frac{1}{2}$  to 1 oz. of pure glycerine given high.

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\* See textbook on nursing.





## COMPLICATIONS.

### HEMORRHAGE FROM THE BOWEL.

**Signs.** First sign of small hemorrhage is blood in the stool. First sign of large hemorrhage may be a rapid fall in temperature and a rise in the pulse rate.

**Treatment.** 1. Omit nourishment, water and baths.

2. Give nothing but cracked ice by mouth for 24°.

3. Give morphine subcutaneously — repeat dose in 15 minutes or half an hour and repeat again at half hour intervals until the respiration becomes slower. Do not let it fall below 10 per minute. When it has reached 15 or less give morphine in small dosage, if at all, lest poisoning result.

The object is to stop peristalsis and to keep the patient quiet until the hemorrhage has stopped.

4. If the patient be exsanguinated raise the foot of the bed to prevent syncope but do not stimulate unless there is imminent danger because increase of blood-pressure may prolong the hemorrhage.

The best circulatory stimulants for this condition are a saline infusion or a direct transfusion of blood.

5. For small hemorrhages narcotization with morphine may not be required.

6. Patients who are very weak or emaciated should be fed in spite of hemorrhage.

### PERFORATION.

**Treatment — Surgical.** Early diagnosis and prompt operation are essential to success. If the condition of the abdomen was watched closely before the symptoms of perforation appeared the diagnosis will be easier. Spontaneous recovery is extremely rare.





## RHEUMATIC FEVER.

*Notes.* — The disease, when typical, is characterized by a migratory articular and peri-articular inflammation with pyrexia and leucocytosis. When untreated the inflammation generally lasts about six weeks. Relapses are common and endocarditis is frequent. Pericarditis or myocarditis occur occasionally.

There is reason to believe that this disease is a form of infectious arthritis. Perhaps most of the cases are due to a specific organism.

### PRINCIPLES OF TREATMENT.

1. Rest in bed.
2. Relieve pain.
3. Dilute and eliminate toxins.
4. Prescribe large quantities of salicylate and of alkali.
5. Prevent recurrence.
6. Watch for cardiac complications.

### METHODS.

1. **Relieve pain** by protecting the joints with cotton and bandages or by splints. Oil of gaultheria may be rubbed on the skin before bandaging and fomentations may be useful. Occasionally, a hot bath gives much relief. If the pain be severe and not controlled by other means use morphine hypodermically until the salicylate has had time to act.

2. **Dilution and elimination** of toxins can be promoted by the free administration of water. Three quarts or more should be ingested in twenty-four hours unless the heart be weak. Cardiac complications may require limitation of liquids.

The bowels should move freely. Cathartics may be prescribed as needed.

3. **Food** should be nutritious and as abundant as can be digested because wasting is often rapid and anemia may develop.

4. **Drugs.** Sodium salicylate or some other form of salicylate should be prescribed in large dosage. The quantity should be proportional to the degree of pain and acuteness of the inflammation. For severe cases 10 grains may be ordered every hour until the patient is relieved or toxic. To avoid irritation of the stomach every dose should be given with a full glass of water. Large doses of sodium bicarbonate seem to diminish the toxic effects of salicylates. Twenty grains or more of soda





may be ordered with every dose of salicylate. Enough should be taken to render the urine alkaline.

Aspirin\* is a good substitute for sodium salicylate and seems to cause less gastric disturbance.

When symptoms have been relieved the dose of the drug can be reduced. It should be continued for a month or more after the patient is apparently well.

When salicylates act well there occurs in from twenty-four to forty-eight hours a fall of temperature, diminution of joint swelling and marked relief from pain.

The common symptoms of salicylate poisoning are nausea or vomiting, tinnitus, headache and occasionally erythema or delirium. When these occur the drug must be omitted until they subside. It may then be resumed in smaller dosage or in different form.

#### 5. Recurrence of arthritis is common early or late.

Early recurrence can generally be avoided by keeping the patient in bed for a week after the inflammation has entirely subsided and by continuing the use of sodium salicylate, from 30 to 40 grains daily, for one month or more after convalescence. Exercise should be resumed gradually.

Late recurrence and future cardiac disease can often be prevented by eliminating all foci of suppuration. Inflammation of the tonsils or genital tract, sinus infection and pyorrhœa alveolaris should be looked for. Tonsillectomy may reveal deep suppuration not demonstrable externally. Tonsillectomy† should be insisted on if the tonsils are a probable source of future infection. For pyorrhœa, have the gums swabbed daily with a solution of potassium permanganate and the mouth rinsed frequently with hydrogen peroxide.

#### 6. Cardiac complications may be latent or severe. Circulatory weakness may require limitation of liquids.

The patient should remain flat in bed for weeks or months after the disappearance of all signs of active cardiac infection, and should avoid exertion of all kinds for several months thereafter to give the heart ample time to hypertrophy or to adjust itself to the changes.

There is reason to believe that salicylates taken in large quantity tend to ward off endocarditis.

For further information on endocarditis see Chapter I, p. 12.

\* Incompatible with alkalis. (Sollmann.)

† Dangerous while the tonsils are acutely inflamed.





## LOBAR PNEUMONIA.

*Notes.* — An acute infectious disease of multiple etiology most commonly caused by the pneumococcus. The rate of the pulse and respiration are indices of toxemia.

Mortality commonly due to:

- |                   |   |                         |
|-------------------|---|-------------------------|
| 1. Toxemia        | { | (a) Cardiac dilatation. |
| or to             |   | (b) Vasomotor paresis.  |
| 2. Complications. | { | (a) Empyema.            |
|                   |   | (b) Pericarditis.       |
|                   |   | (c) Endocarditis.       |

## PRINCIPLES OF TREATMENT.

1. Eliminate and dilute toxins.
2. Secure good nursing and fresh air.
3. Stimulate promptly if necessary.
4. Watch for complications.
5. Prescribe drugs only for special indications.

## METHODS.

1. Eliminate toxins by requiring copious ingestion of water unless the heart be weak and keep the bowels free. Watch urinary output to see that the water is being excreted.
2. Diet. Liquids and soft solids suited to the individual. Avoid renal irritants and gas-producing foods.
3. The circulation must be closely watched by noting the outlines and sounds of the heart and the quality of the pulse.
4. Stimulation is indicated if the quality of the pulse be poor, if it becomes irregular or if the rate goes above 120.
5. Fresh air in abundance facilitates respiration and promotes comfort.
6. For pain, if not relieved by a tight swathe, use morphine subcutaneously. Severe bronchitis contraindicates morphine.
7. When temperature is very high and the heart doing well, sponge baths may be used to reduce the fever.
8. Sleep is very important to conserve strength. Use morphine if needed.





## STIMULATION OF HEART.

On the third or fourth day, 10 drops of tr. digitalis may be ordered *t.i.d.* It may perhaps ward off sudden dilatation of the heart.

For irregularity or weakness strychnine or caffeine sodio-salicylate may be given subcutaneously. Digitalis may be given at the same time for its effect on the following day.

For acute cardiac dilatation the following remedies may be tried according to circumstances:

- Subcutaneously:
1. Strychnine sulphate.
  2. Caffeine sodio-salicylate.
  3. Alcohol or ether.
  4. Morphine and atropine.
  5. Camphor in oil: should be specially prepared for subcut. use.

Intravenously, strophanthin may be given, it is dangerous, especially if digitalis has been used.

Venesection may do good if there is cyanosis with much engorgement of the right ventricle.

If the patient responds to stimulation, digitalis may be tried for prolonged action.

Acute pulmonary edema yields occasionally to a large dose of atropine ( $\frac{1}{80}$  grain) given subcutaneously.

**Vasomotor paresis.** The momentary application of cold in the form of an ice-bag to the abdomen may do good by causing reflex vascular contraction. Salt solution subpectorally or intravenously may be beneficial. If improvement results follow it up with caffeine or strychnine.

**Delirious** patients should be attended *constantly* night and day lest they jump from the window or otherwise injure themselves. Morphine or hypnotics may be useful for active delirium.





## BRONCHIECTASIS.

### INTRODUCTORY REMARKS.

*Notes.* — The disease is chronic, lasting for thirty years, more or less. The patients are subject to recurring attacks of bronchopneumonia, and sometimes to hemoptysis. Many have emphysema or asthma.\* The condition is often diagnosed wrongly as bronchitis or tuberculosis. Many cases are traceable to influenza. The sputum, typically, is abundant, purulent, greenish, nummular, can be raised at will by coughing, and often contains abundant influenza bacilli mixed with various other organisms. Repeated examinations may be necessary to demonstrate the influenza bacilli. The cavities may be localized in one lobe or disseminated throughout both lungs. Nutrition is generally good. As the physical examination may show only a few râles, the diagnosis must rest on the history, the character, and the amount of the sputum.

### TREATMENT.

No method yet devised offers hope of cure.

Efforts must be directed to relieving the patient as far as possible from unpleasant symptoms.

1. Teach the patient to drain his cavities on rising in the morning, and, if necessary, once or twice later in the day. This can be facilitated by taking a drink of hot water at such times. Potassium iodide or other expectorants may be used if the secretion be too viscid to come up readily.

2. Avoid sedatives because they check free expectoration. The material then decomposes in the cavities and gives a foul odor to the breath and to the sputum.

3. In extreme instances of retained secretion the condition with its dyspnoea and cyanosis may simulate bronchial asthma. A differential diagnosis can be made from history and sputum. An emetic will give immediate relief by clearing the lungs.

4. Most of these patients are better in warm weather. A uniformly mild climate may relieve but cannot cure.

5. Sputum must not be swallowed because diarrhoea may result.

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\* Empyema, abscess, arthralgia, or pneumothorax occur in rare instances.





## CHAPTER IV.

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### GASTRIC AND DUODENAL ULCER.

#### INDICATIONS FOR MEDICAL TREATMENT.

1. Recent ulcers.
2. Chronic ulcers with mild symptoms.
3. Chronic ulcers which have not had satisfactory medical treatment.
4. Ulcers for which surgical treatment is too dangerous or has been refused.
5. As a preparation for operation.

#### PRINCIPLES OF TREATMENT.

The principles and methods are essentially the same whether the ulcer is in the stomach or in the duodenum. The prognosis is better the more recent the ulcer.

1. Prolonged rest for the patient and for the digestive tract.
2. Avoidance of food mechanically or chemically irritating.
3. Reduction of gastric secretion to the minimum.

#### METHODS.

*A.* Rest in bed for a month is essential.

*B.* Diet should consist chiefly of soft carbohydrates, fats, milk, and eggs.

Treatment may be begun by starvation for several days with or without nutritive enemata. If the patient is strong and if he absorbs nutritives well they may be used during the first week without any mouth feeding. During the period of starvation three pints of salt solution should be given daily by rectum. Cracked ice may be sucked to allay thirst. Bread or crackers and milk, milk toast, strained cereals with cream and sugar, rice, custard, blancmange, junket, simple ice cream, mashed





or baked potato with cream or butter, eggnog, raw or soft boiled or dropped egg, purees, soft fruits, etc., can be added later to the dietary until the patient is taking ample nourishment.

The nutritive value of liquids can be much increased by adding to them sugar of milk, from  $\frac{1}{2}$  to 1 oz. in 4 oz. of liquid. Cream may be added to milk and butter should be used freely.

Irritating foods, *e.g.*, coarse vegetables, condiments, acids, and particularly alcohol must be avoided.

Hot drinks and meat broths, as a rule, should not be taken.

Proteid foods, in the opinion of the writer, are to be avoided, as a rule, except in the form of milk or eggs.

**C. Reduction of gastric secretion** may be favored by starvation, by a diet low in proteid, by the avoidance of salt and by the administration of a tablespoonful of olive oil several times daily.

#### **D. Medication:**

1. Sodium bicarbonate should be prescribed freely for relief of pain or distress in the dose of from  $\frac{1}{2}$  to 1 teaspoonful or more if required.

2. After feeding has been begun bismuth subnitrate should be given three times daily in drachm doses *before* meals with the hope of benefit by coating the ulcer mechanically. Bismuth is not constipating in this dose. It is important that the drug should be pure.\*

3. The bowels should be kept free by enema or by mild cathartics. Milk of magnesia acts well and is also an antacid.

#### **E. Convalescence:**

1. General hygienic measures including attention to the bowels are important.

2. Work should be resumed gradually and much fatigue should be avoided.

3. Rest, lying down, for from  $\frac{1}{2}$  to 1 hour after meals is of great benefit.

4. Food should be taken in the middle of the morning, the middle of the afternoon and at bedtime in addition to regular meals.

5. The more strictly the diet and regime can be followed the greater the chance of success but it is better to enlarge the dietary than to undernourish the patient because good nutrition

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\* Squibb's is good.



or boiled potato mashes or butter, egg-nog, raw or well boiled  
or the hard egg, butter, well fried, etc., can be added later to  
the Curry and the patient is taking simple nourishment.  
For further value of liquids can be easily increased by adding  
to them sugar or milk from 1 to 1 1/2 oz. or more. Cream  
may be added to milk and butter should be used freely.  
Fruit, such as apples, etc., cooking vegetables, condiments, nuts,  
and particularly sweetened must be avoided.  
The milk and cream should be a little, should not be taken.  
Fruit, such as in the opinion of the writer, are to be avoided,  
as a rule, except in the form of eggs.

1. Absorption of gastric secretion may be favored by means  
such as a diet low in protein for the avoidance of salt and by  
the administration of a cathartic or other oil several times

### 12. Medication:

1. Sodium bicarbonate should be prescribed freely for relief  
of pain or distress in the dose of from 1/2 to 1 teaspoonful or  
more if required.

2. After feeding has been begun bicarbonate should  
be given three times daily in solution down below meals with  
the least of benefit by causing the more mechanical. It should  
be not continuing in this dose. It is important that the drug  
should be pure.

3. The bowels should be kept free by means of by mild cathar-  
tic. Bulk of movement acts well and is also an anesthetic.

### 13. Considerations:

1. Current practice requires including attention to the  
bowels are important.

2. Work should be resumed gradually and much fatigue should  
be avoided.

3. Food, when given, for from 1/2 to 1 hour after meals is of  
great benefit.

4. Food should be taken in the middle of the morning, the  
middle of the afternoon and at bedtime in addition to regular  
meals.

5. The most useful diet and regime can be followed  
the greater the chance of success but it is better to change the  
dietary than to undernourish the patient because good nutrition

favors healing of the ulcer. The treatment should be followed as strictly as practicable for from six months to a year.

**F. Modification of diet** is required for patients that are emaciated or feeble and anemic. For them starvation may be harmful and it may be wise to begin feeding by mouth soon after the hemorrhage has stopped and quickly to increase the amount of food ingested in order to accelerate healing by improved nutrition.

There are many who advocate a diet consisting chiefly of proteid. Their aim is to neutralize the acid as fast as it is formed. Frequent feedings are recommended with the same object.

Lenhartz is one of these and his method may be preferred for some cases. His schedule follows: page 49.

**G. Hemorrhages**, when small require no special treatment.

When a severe hemorrhage occurs the patient should lie as still as possible and morphine should be given subcutaneously in dosage sufficient to bring the patient well under its influence and to inhibit peristalsis.\*

An ice-bag may be placed over the stomach. Further medication is not likely to do good.

Stimulation of the circulation by salt solution, by transfusion of blood, or by drugs should be withheld unless demanded by immediate danger. Raising the blood-pressure may prolong the hemorrhage.

If syncope be feared after hemorrhage it may be advisable to raise the foot of the bed.

Operation is seldom indicated during hemorrhage because most hemorrhages stop spontaneously and because when the patient has become exsanguinated operation is dangerous.

Repeated hemorrhage is an indication for operation after the patient has recovered sufficiently from the resulting anemia. Transfusion may be advised to hasten recovery or to prepare for subsequent operation.

**G. Perforation** may be acute or subacute. It may lead to general peritonitis, to abscess, or to adhesions causing persistent, severe symptoms.

The acute perforations and those with abscess formation should be treated surgically as soon as diagnosed. Prompt diagnosis is very important.

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\* Page 39.



latter portion of the attack. The treatment should be followed as strictly as possible for about six months to a year.

7. Indication of diet is reported for patients that are emaciated or debilitated and astringent. For their restoration they should be fed and it may be wise to begin feeding by mouth soon after the hemorrhage has stopped and quickly to increase the amount of food ingested in order to accelerate healing by improved nutrition.

There are many who advocate a diet consisting chiefly of protein. This is in violation of the good practice to be followed. Patients should be recommended with the same object. Indication is one of signs and his method may be followed for some cases. The schedule follows: page 54.

8. Hemorrhage, when acute, requires no special treatment. When a severe hemorrhage occurs the patient should be kept as quiet as possible and morphine should be given judiciously in dosage sufficient to keep the patient well under its influence and to inhibit vomiting.

As he has may be placed over the stomach. Further medication is not likely to do good.

Restoration of the circulation by rest, elevation of the head, or by drugs should be withheld unless demanded by immediate danger. During the hemorrhage may prolong the hemorrhage.

If vomit be heard after hemorrhage it may be advisable to raise the foot of the bed.

Operation is seldom indicated during hemorrhage because most hemorrhages stop spontaneously and because when the patient has become re-animated operation is dangerous.

Delayed hemorrhage is an indication for operation after the patient has recovered well from the existing disease. Indication may be advised to hasten recovery or to prevent an subsequent operation.

9. Perforation may be acute or chronic. It may lead to general peritonitis, to abscess or to adhesions causing peritonitis or to pyrexia.

The acute perforation and those with intense inflammation should be treated surgically as soon as diagnosed. Perforation is very important.

*H.* Persistent severe symptoms which do not yield to medical treatment demand that operation be considered seriously.

*I.* Pyloric obstruction, when severe, requires operation. Incomplete obstruction can often be relieved temporarily and sometimes for long periods by rest in bed, lavage daily before breakfast, and a liquid diet.

This is an excellent preparation for operation. Operation should be urged early for pyloric obstruction because when the symptoms have become imperative the weakened condition of the patient adds greatly to the risk.





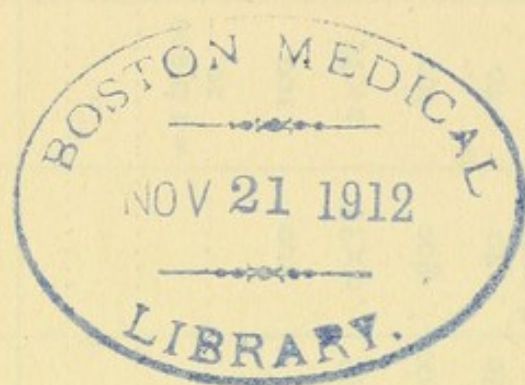
## LENHARTZ DIET.\*

Days after hemorrhage	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Number of eggs.....	2	3 beaten	4 ten	5	6	7	8 4 beaten 4 boiled	8	8	8	8	8	8	8	
Sugar with egg.....	.....	.....	20	20	30	30	40	40	50	50	50	50	50	50	gm.
Milk†.....	200	300	400	500	600	700	800	900	1000	1000	1000	1000	1000	1000	c.c.
Raw mince.....	.....	.....	.....	.....	.....	35	2×35	2×35	etc.	.....	.....	.....	.....	.....	gm.
Milkrice.....	.....	.....	.....	.....	.....	.....	100	100	200	200	300	300	300	400	gm.
Zwieback.....	.....	.....	.....	.....	.....	.....	.....	20 = 1 piece	40	40	60	60	80	100	gm.
Raw ham.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50	etc.	.....	.....	.....	gm.
Butter.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20	40	etc.	.....	.....	gm.
Calories.....	280	420	637	777	955	1135	1588	1721	2138	2478	2941	2941	3007	3073	

\* Ref. Wagner. Münch-Med. Woch., 1904, page 1.

†Administer in spoonfuls, iced.





## CHAPTER V.

### DRUGS.

#### FOREWORD.

He who masters the use of a few good drugs will succeed better than he who tries many at random.

Before prescribing a drug, let the indications for its use be clear.

Prescribe drugs singly when expedient.

Ascertain whether an idiosyncrasy to the drug you wish to prescribe is known to the patient.

When a drug has been given, watch for its good or for its toxic effect. Increase dose until the one or the other is apparent. If neither results, change either the preparation or the drug.

If toxic effects occur, omit the drug for a time and resume it later in smaller dosage or try a substitute.

#### EXPLANATION.

The purpose of the list which follows is to indicate the important drugs and the preparation of each believed to be the most generally useful. The substitutes may be used when specially indicated or when those listed first fail to act well.

Much information about drugs is contained in the "United States Dispensatory." It includes the drugs of the principal pharmacopœias and the preparations of the "National Formulary." "New and Non-official Remedies," gives information about many proprietary drugs. The writer's information about patents and trademarks was derived from this book. It is published and sold by the American Medical Association.

#### ABBREVIATIONS.

U. S. United States Pharmacopœia.

Br. British Pharmacopœia.

N. F. National Formulary.

U. S. p. and t. United States patent and trademark.

N. and N. R. New and Nonofficial Remedies 1912.





## VERY IMPORTANT DRUGS.

	Synopsis.	Page.
1. Unguentum hydrargyri. (U. S.).....		
2. Potassii iodidum. (U. S.) .....		
3. Morphinæ sulphas. (U. S.).....		
4. Tinctura digitalis. (U. S.) .....		
5. Theobromine sodio-salicylate* .....		
6. Tablet triturate of nitroglycerine* .....		
7. Magnesii sulphas. (U. S.) .....		
8. Quininæ sulphas. (U. S.) .....		
9. Sodii salicylas. (U. S.).....		
10. Hexamethylenamina. (U. S.) .....		

## DRUGS FREQUENTLY USEFUL.

11. Pilulæ ferri carbonatis. (U. S.) "Blaud's Pill."  
*Substitute.* Tinctura ferri chloridi. (U. S.)
12. Strychninæ sulphas. (U. S.)  
*Substitute.* Tinctura nucis vomicæ. (U. S.)
13. Codeinæ sulphas. (U. S.)
14. Sodii bromidum. (U. S.) Potassii bromidum.  
(U. S.)
15. Sulphonethylmethanum. (U. S.) "Trional."  
*Substitute.* Sulphonmethanum. (U. S.) "Sulphonal." Veronal-sodium.†
16. Pulvis ipecacuanhæ et opii. (U. S.) "Dover's powder."
17. Acetphenetidinum. (U. S.) "Phenacetin."  
*Substitute.* Acetanilidum. (U. S.)
18. Sodii bicarbonas. (U. S.)
19. Bismuthi subnitras. (U. S.)
20. Hydrargyri chloridum mite. (U. S.) "Calomel."

\* Free from patent.

† U. S., p. and t. (see N. and N. R.)





*Substitute.* Oleum ricini. (U. S.) "Castor oil."

21. Sodii phosphas. (U. S.)

*Substitute.* Pulvis salis carolini factitii effervescens. (N. F.) "Effervescent Carlsbad salts."

22. Extractum rhamni purshianæ fluidum. (Br.)  
"Fluid extract of cascara sagrada."

### DRUGS OCCASIONALLY USEFUL.

23. Caffeina citrata. (U. S.)

24. Oleum tigllii. (U. S.) "Croton oil."

25. Pilocarpinæ hydrochloridum. (U. S.)

26. Spiritus ammoniæ aromaticus. (U. S.)

27. Liquor potassii arsenitis. (U. S.) "Fowler's solution."

28. Hyoscinæ hydrobromidum. (U. S.)

29. Chloralum hydratum. (U. S.)

30. Apomorphinæ hydrochloridum. (U. S.)

31. Quininæ hydrobromidum. (U. S.)

32. Vinum colchici seminis. (U. S.)

33. Oleum morrhuæ. (U. S.) "Cod-liver oil."

34. Thyroid extract.\*

35. Adrenalin chloride.†

36. Alcoholic beverages.

\* Burroughs, Welcome and Co. makes a good extract. There is also Liquor thyroidei (Br.).

† Parke, Davis' is good.



21. *Salvia officinalis* (U.S.)  
 22. *Salvia officinalis* (U.S.)  
 23. *Salvia officinalis* (U.S.)  
 24. *Salvia officinalis* (U.S.)  
 25. *Salvia officinalis* (U.S.)  
 26. *Salvia officinalis* (U.S.)  
 27. *Salvia officinalis* (U.S.)  
 28. *Salvia officinalis* (U.S.)  
 29. *Salvia officinalis* (U.S.)  
 30. *Salvia officinalis* (U.S.)

DRUGS OCCASIONALLY USED

31. *Salvia officinalis* (U.S.)  
 32. *Salvia officinalis* (U.S.)  
 33. *Salvia officinalis* (U.S.)  
 34. *Salvia officinalis* (U.S.)  
 35. *Salvia officinalis* (U.S.)  
 36. *Salvia officinalis* (U.S.)  
 37. *Salvia officinalis* (U.S.)  
 38. *Salvia officinalis* (U.S.)  
 39. *Salvia officinalis* (U.S.)  
 40. *Salvia officinalis* (U.S.)  
 41. *Salvia officinalis* (U.S.)  
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 46. *Salvia officinalis* (U.S.)  
 47. *Salvia officinalis* (U.S.)  
 48. *Salvia officinalis* (U.S.)  
 49. *Salvia officinalis* (U.S.)  
 50. *Salvia officinalis* (U.S.)

## I. UNGUENTUM HYDRARGYRI. (U. S.)

**Action.** Irritant and antiseptic; useful in syphilis.

**Elimination.** Chiefly by intestines and kidneys, also by saliva. (Cushny.) Excretion is slow.

**Toxic Effects.** (Acute), stomatitis, salivation, renal irritation, diarrhoea, pain and other gastro-intestinal disturbances; (chronic), cachexia, anemia, etc.

**Indications.** Very valuable for syphilis.

**Contra-indications.** Nephritis, cachexia, anemia.

**Administration** by inunction, dose from  $\frac{1}{2}$  to 1 dr. For recent infections, give inunction on twenty consecutive days; repeat this treatment at lengthening intervals of from one to six months for three years. Rub the ointment in for twenty minutes or until it all disappears.

**Substitutes.** 1. Bichloride of mercury 1% in a 10% watery solution of sodium chloride for subcutaneous use. Dose, from  $\frac{1}{2}$  to 1 ccm. of solution, from gr.  $\frac{1}{12}$  to  $\frac{1}{6}$  of the drug.

Inject deep into muscle.

2. Protiodide of mercury, gr.  $\frac{1}{8}$  to  $\frac{1}{6}$  in a pill, from 3 to 4 pills per day.

3. Salvarsan is an excellent temporary substitute for mercury in selected cases of syphilis but it cannot replace mercury entirely.

**Caution.** When mercurials are given, the mouth must be kept scrupulously clean to avoid stomatitis. Teeth should be brushed and throat gargled after every meal. If there is pyorrhoea alveolaris, the gums may be scrubbed with castile soap or swabbed daily with a solution of potassium permanganate (from 5 grs. to 1 oz.) applied with cotton stick; also rinse mouth with hydrogen peroxide. When giving the protiodide of mercury and sodium or potassium iodide also, give the protiodide a. c. and the potassium iodide p. c. to prevent formation of the biniodide of mercury.

## II. POTASSII IODIDUM. (U. S.)

### "Iodide of Potassium."

**Properties.** White, crystalline, very soluble in water.

**Action.** 1. Causes disappearance of gummata, but a lesion which disappears while iodides are being taken is not necessarily syphilitic.





2. Stimulating expectorant.
3. Other effects not clearly understood.

**Elimination.** Rapid, chiefly in urine as salts, possibly also in respiratory passages. (Cushny.)

**Toxic Effects.** Acme, erythema, and other serious skin lesions, catarrh of respiratory organs, gastric disturbances, delirium, etc.

- Indications.**
1. Late stages of syphilis.
  2. Bronchitis with sticky expectoration.
  3. Empirically in arteriosclerosis, asthma, lead poisoning, simple goitre, and many other conditions.

**Contra-indications.** Acute renal irritation, acute inflammation of the respiratory tract, or "hyperthyroidism."

**Administration.** 1. For syphilis, from 10 to 20 gr. t. i. d. p. c. in milk. For syphilis of central nervous system, increase dose rapidly until benefit or iodism results. One hundred grains t. i. d. is large enough dosage.

2. As expectorant give from 5 to 10 gr. t. i. d. p. c. well diluted.
3. For empirical action use small doses. The sat. sol. in water is convenient. (1 drop = 1 gr.)

**Substitutes.** In syphilis, sodium iodide or other preparations of iodine, or Salvarsan.

As expectorant: Ammonium chloride.

### III. MORPHINÆ SULPHAS. (U. S.)

#### "Morphine" or "Morphia."

**Properties.** White, crystalline, soluble in about sixteen parts water; less soluble in alcohol.

**Action.** 1. Diminishes sensibility to lasting impressions and stimuli. (Sollmann.)

2. Relieves pain.
3. Slow respiration.
4. Diminishes metabolism.
5. Diminishes peristalsis  $\therefore$  constipating.\*
6. In acute cardiac dilatation gives relief.

**Elimination.** Chiefly by gastro-intestinal tract. Some is oxidized in the body.

**Toxic Effects.** 1. Somnolence or stupor.

---

\* Morphine may act as a cathartic in spasm of the intestines; e.g., in lead colic.



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X. ...  
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### III. ...

#### "..." or "..."

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20. ...

2. Respiration very slow (may become shallow and irregular) (Cushny.)

3. Pupillary contraction.

4. Flushing or cyanosis of face.

5. Retention of urine.

6. During recovery from drug nausea is common.

7. Death results from depression of respiratory center.

**Indications.** Acute conditions.

1. Severe pain.

2. Discomfort preventing sleep.

3. Acute cardiac insufficiency.

4. Internal hemorrhage (gastric, pulmonary, intestinal).

5. Persistent vomiting.

**Contra-indications:**

1. Danger of forming habit. In chronic or recurring non-fatal diseases, and in conditions which can be relieved by milder means, use morphine with caution if at all.

2. When bronchial secretion is profuse, morphine may prevent necessary expectoration.

3. Idiosyncrasy. (Excitement, vomiting, depression.)

**Administration.** For urgent conditions give subcutaneously. Dose, from gr.  $\frac{1}{8}$  to  $\frac{1}{4}$ , with or without atropine, from gr.  $\frac{1}{200}$  to  $\frac{1}{100}$ .<sup>\*</sup> Generally given by mouth in tablet, in watery solution, or in a mixture. It can be absorbed from the mouth and will then act more quickly than if swallowed.

**Substitutes.** Opium in pill, as tincture or in suppository.

1. Pilulae opii (U. S.) conts. opium gr. j (= morphine gr.,  $\frac{1}{4}$ ).

2. Tinctura opii deodorati (U. S.), dose 5 - 15 m.

3. Tinctura opii camphorata (U. S.) — "Paregoric." Dose (for adult) 1 - 4 drachms.

4. Codeinæ sulphas (U. S.) Dose  $\frac{1}{8}$  —  $\frac{1}{2}$  gr.

5. Hyoscinæ hydrobromidum (U. S.) Dose  $\frac{1}{150}$  —  $\frac{1}{100}$  gr. subcutaneously.

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<sup>\*</sup> Atropine diminishes the gastric disturbance which often follows the use of morphine, but toxic effects follow its use if often repeated at short intervals.



1. The first of these is the fact that the body is not a simple machine, but a complex system of organs and tissues, each of which has its own function to perform.
2. The second is the fact that the body is not a static entity, but a dynamic one, constantly changing and adapting itself to its environment.
3. The third is the fact that the body is not a single unit, but a collection of many units, each of which is capable of acting independently.
4. The fourth is the fact that the body is not a closed system, but an open one, constantly exchanging matter and energy with its surroundings.
5. The fifth is the fact that the body is not a simple machine, but a complex system of organs and tissues, each of which has its own function to perform.
6. The sixth is the fact that the body is not a static entity, but a dynamic one, constantly changing and adapting itself to its environment.
7. The seventh is the fact that the body is not a single unit, but a collection of many units, each of which is capable of acting independently.
8. The eighth is the fact that the body is not a closed system, but an open one, constantly exchanging matter and energy with its surroundings.
9. The ninth is the fact that the body is not a simple machine, but a complex system of organs and tissues, each of which has its own function to perform.
10. The tenth is the fact that the body is not a static entity, but a dynamic one, constantly changing and adapting itself to its environment.

It is clear, therefore, that the body is a complex system of organs and tissues, each of which has its own function to perform. It is also clear that the body is a dynamic entity, constantly changing and adapting itself to its environment. Finally, it is clear that the body is an open system, constantly exchanging matter and energy with its surroundings.

## IV. TINCTURA DIGITALIS. (U. S.)

## "Tincture of Digitalis."

- Action.** 1. Increases force of cardiac systole.  
 2. Lengthens diastole and slows heart action.  
 3. Raises blood-pressure if pressure is low.  
 4. Promotes diuresis in presence of dropsy.

Absorption slow: twelve to twenty-four hours required for result. Action may be cumulative because excretion is slow.

**Toxic Effects.** Tachycardia or bradycardia with irregularity, heart-block, fall of blood-pressure, oliguria, vomiting.

**Indications.** Myocardial insufficiency in general. Almost useless in circulatory weakness resulting from vascular dilatation or from depletion.

**Contra-indications.** When increase of blood-pressure would be dangerous, *e.g.*, cerebral hemorrhage.

**Administration.** Give in water p. c.

Ordinary dose, 5 to 20 m. t. i. d. If preparation is weak, higher dosage may be required. Tincture should be made from active leaves and should be fresh.

When quick action is required, 20 to 30 m. may be injected intramuscularly. It is a local irritant.\*

*To prevent cumulative effect, keep bowels free.*

**Substitutes.** 1. Digipuratum.† Dose 1 to 4 tablets in twenty-four hours. A 1½ gr. tablet is about equal in strength to 15 min. of the most active Tinctura digitalis. Its therapeutic action is like that of the tincture but the effect comes more quickly and digestive disturbance is rare. It should act in about 12 hours.

2. Strophanthinum‡ (U. S.) Action on heart is like digitalis but effects are sudden and profound. Death is to be feared, especially, if the patient has recently taken any preparation of digitalis. On account of local irritant action it should be used intravenously, and to avoid shock the injection should be given very slowly over a period of not less than five minutes. Dose ½ - 1 mgm.

\* Digitalone (Parke, Davis), or Digitalin (Burroughs, Wellcome), may be preferred to tr. dig. for subcut. use because less irritating.

† U. S. p. and t. (see N. and N. R.), expensive.

‡ Boehringer's is good.





## V. THEOBROMINE SODIO-SALICYLATE.\*

**Properties.** White, pwd. v. soluble in water, taste very bad, turns brown on exposure to air.

A mixture of equal parts of theobromine-sodium and of salicylate of sodium.

**Action.** Diuretic; slightly irritating to kidneys.

Effect produced in twenty-four to forty-eight hours; lasts two to three days.

**Toxic Effect.** Vomiting.

**Indications.** Cardiac dropsy. (Useless in pure renal dropsy.)

**Contra-indications.** Acute nephritis.

**Administration.** In Konseal p. c.

Dose, 15 gr. t. i. d. or every four hours.

If no result after forty-eight hours, double dose.

**Substitutes.** 1. Extractum apocyni fluidum (U. S.) or "Canadian hemp." Dose, 5 to 15 m. (Effects occasionally dangerous.)

2. Theophyllin† or "theocin." Dose, 5 to 10 gr. t. i. d. in powder with water.

3. If kidneys sound, calomel may be used 3 gr. every four hours for twenty-four to forty-eight hours or even longer.

To reduce danger of salivation take precautions described under Ung. hydrarg.

## VI. NITROGLYCERINE.‡

"Glonoin," "Trinitrine."

**Action.** Lowers blood-pressure by dilating peripheral vessels. Acts within a few minutes; effect lasts about  $\frac{1}{2}$  hour.

In the presence of hypertension it may cause diuresis.

**Toxic Effect.** Flushing, sense of fullness in head, throbbing, headache, faintness. Reduction of urinary output.

**Indications.** Angina pectoris.

Cardiac embarrassment	} when due to high pressure.
Headache.	

**Contra-indications.** Low blood-pressure.

\* Free from patent, but not in Pharmacopœia. Often called "Diuretin;" which is expensive.

† Dimethyl xanthin: isomeric with theobromine and with paraxanthin. Some preparations are patented. (See N. and N. R.)

‡ In Pharmacopœia as Spiritus glycerylis nitratis (U. S.) and Tabellæ trinitrini (Br.).





**Administration.** Tablet triturate.\* For quick absorption the tablet should be chewed and not swallowed.

Ordinary dose, gr.  $\frac{1}{100}$ ; may be repeated frequently.

For some cases, gr.  $\frac{1}{200}$  or gr.  $\frac{1}{30}$  is better. Larger doses may be required.

**Substitutes.** 1. Amylis nitris (U. S.) Dose 1 to 5 mm.

Acts very rapidly. Effect very transient.

May act when nitroglycerine fails.

Put up in "pearls" containing 3 to 5 m.

Break pearl and inhale from handkerchief.

Pearls should break easily but not spontaneously.†

2. Erythrol tetranitrate.‡

Put up in tablets containing  $\frac{1}{2}$  gr. each.

Dose, 1 to 2 tablets every six hours.

Effect lasts several hours. Occasionally blood-pressure rises instead of falling after the use of erythrol.

## VII. MAGNESII SULPHAS. (U. S.)

**Properties.** Colorless, crystalline, very soluble in water, taste bitter.

**Action.** Hydrogogue purge. Ordinarily, it is not absorbed.

**Toxic Effects.** Gastric irritation and vomiting. If given in concentrated solution it may be absorbed and may then cause severe poisoning§ characterized by oliguria, hematuria, slow respiration, paralysis of the intestines, extreme weakness and collapse. The urine shows a very high specific gravity owing to the excretion of the drug by the kidney. These effects are rare.

**Contra-indications.** Weakness or emaciation.

**Administration.** Most easily taken in a cup of black coffee and most effective when taken 1 hour before breakfast. Dose from  $\frac{1}{2}$  to 1 oz. followed by half a glass of water.

Small doses with much water can be given for mild catharsis.

**Substitutes.** 1. Croton oil, from 1 to 3 m., in pellet of butter. If placed on the back of the tongue of an unconscious patient it will be swallowed.

\* Not in Pharmacopœia; manufactured free from patent.

† Allen and Hanbury's are good.

‡ Patented (see N. and N. R.), expensive; Merck's is good.

§ Boos, Journal Am. Med. Association, Dec. 10, 1910.





2. Pot. bitartrate and comp. jalap pwd. āā dr. i.
3. Elaterium gr.  $\frac{1}{4}$  in tablet.
4. "Ten-ten," calomel and jalap āā gr. 10.

### VIII. QUININÆ SULPHAS. (U. S.)

#### "Quinine Sulphate."

**Properties.** White, crystalline, slightly soluble in water, taste very bitter.

**Action.** Specific for malaria, antipyretic; readily absorbed.

**Toxic Effects.** Tinnitus, headache, vomiting, erythema, rarely hematuria.

**Indications.** Malaria.

**Contra-indications.** Idiosyncrasy.

**Administration.** In capsule p. c. Dose, from 5 to 10 gr. from 2 to 4 i. d. Larger doses may be required.

**Substitute.** Quinine hydrochloride\* from 7 to 10 gr. daily, dissolved in water and given subcutaneously, or 30 gr. in enema. (Manson.)

### IX. SODII SALICYLAS. (U. S.)

**Properties.** A white powder very soluble in water, taste sweetish and saline.

**Action.** Analgesic and antipyretic. It has a curative effect in some forms of rheumatism. It increases nitrogenous metabolism. (Tyrode.) It is readily absorbed and is eliminated by the kidney.

**Toxic Effects.** Tinnitus, headache, vomiting, erythema, delirium. It is slightly irritating to the kidneys and unless given with alkalis may cause albuminuria. Very large doses may cause drowsiness or coma.

**Indications.** Rheumatic fever and various forms of "rheumatism." Useless in the gonorrhœal and in some other types of arthritis. It may be tried for infectious endo- or pericarditis or for chorea.

**Contra-indication.** Acute nephritis or idiosyncrasy.

**Administration.** In tablet or capsule followed by *a full glass of water*. If large doses are to be used prescribe also enough sodium bicarbonate to render the urine alkaline and see that the bowels be kept free.

\* Soluble in 34 parts water. (Sollmann.)





Dose for rheumatic fever, 10 gr. of sodium salicylate every hour until the patient is relieved; then 10 gr. every four hours until convalescence has been established; then from 20 to 30 gr. daily for a month or more to prevent relapse. If toxic effects occur the medicine must be omitted until they pass off. It can then be resumed in smaller dosage or in different form. A vehicle, such as essence of pepsin, may be helpful. For mild cases of arthritis smaller doses may be sufficient. In chronic "rheumatism" from 5 to 10 gr. from 2 to 4 i. d. may promote comfort.

**Substitute.** 1. Salicinum (U. S.); a glucoside. Action and uses like sodium salicylate but weaker and uncertain in action.

2. Oleum gaultheriæ (U. S.) "Oil of wintergreen." Should be given in milk.

3. Aspirin.\* Acetyl-salicylic acid. Incompatible with alkalis or their carbonates. (Sollmann.)

#### X. HEXAMETHYLENAMINA.† (U. S.)

**Properties.** Crystalline, readily soluble in water, taste very unpleasant.

**Excretion.** Chiefly by the kidneys in the form of ammonia and formaldehyde or unchanged.

**Action.** When formaldehyde is set free it acts as a urinary antiseptic. When excreted unchanged, as often happens, the drug is inert.

**Toxic Effects.** Renal irritation and hematuria, painful micturition and pain in the region of the bladder.

**Indications.** Especially useful in typhoid fever to prevent bacilluria. It may act well in cystitis or pyelitis.

**Contra-indication.** Acute nephritis.

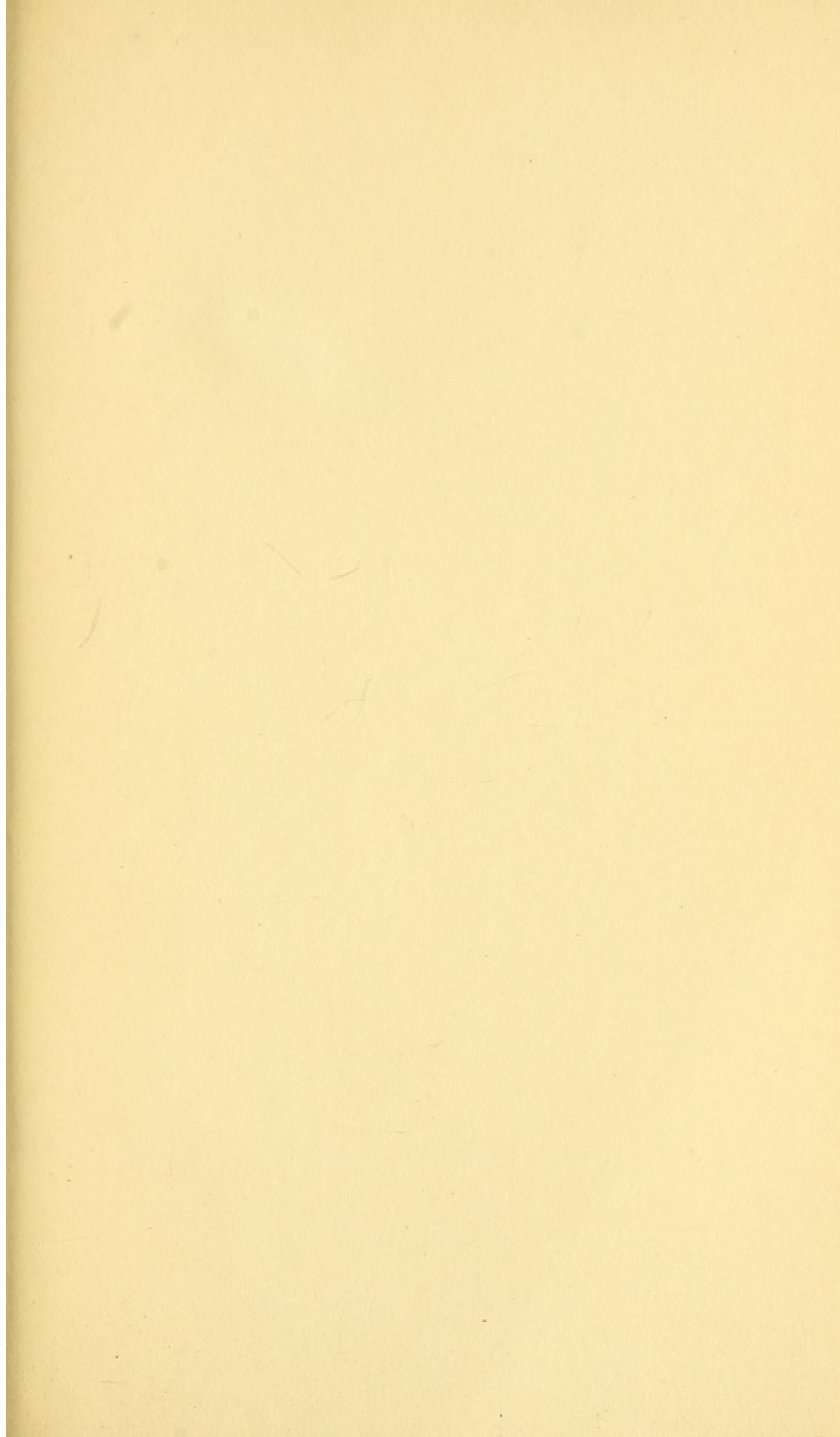
**Administration.** In capsule or tablet. Dose from 5 to 10 gr. t. i. d. with a full glass of water.

\* U. S. p. & t. (See N. and N. R.)

† Often called "Urotropine," a proprietary preparation (see N. and N. R.) which is expensive.







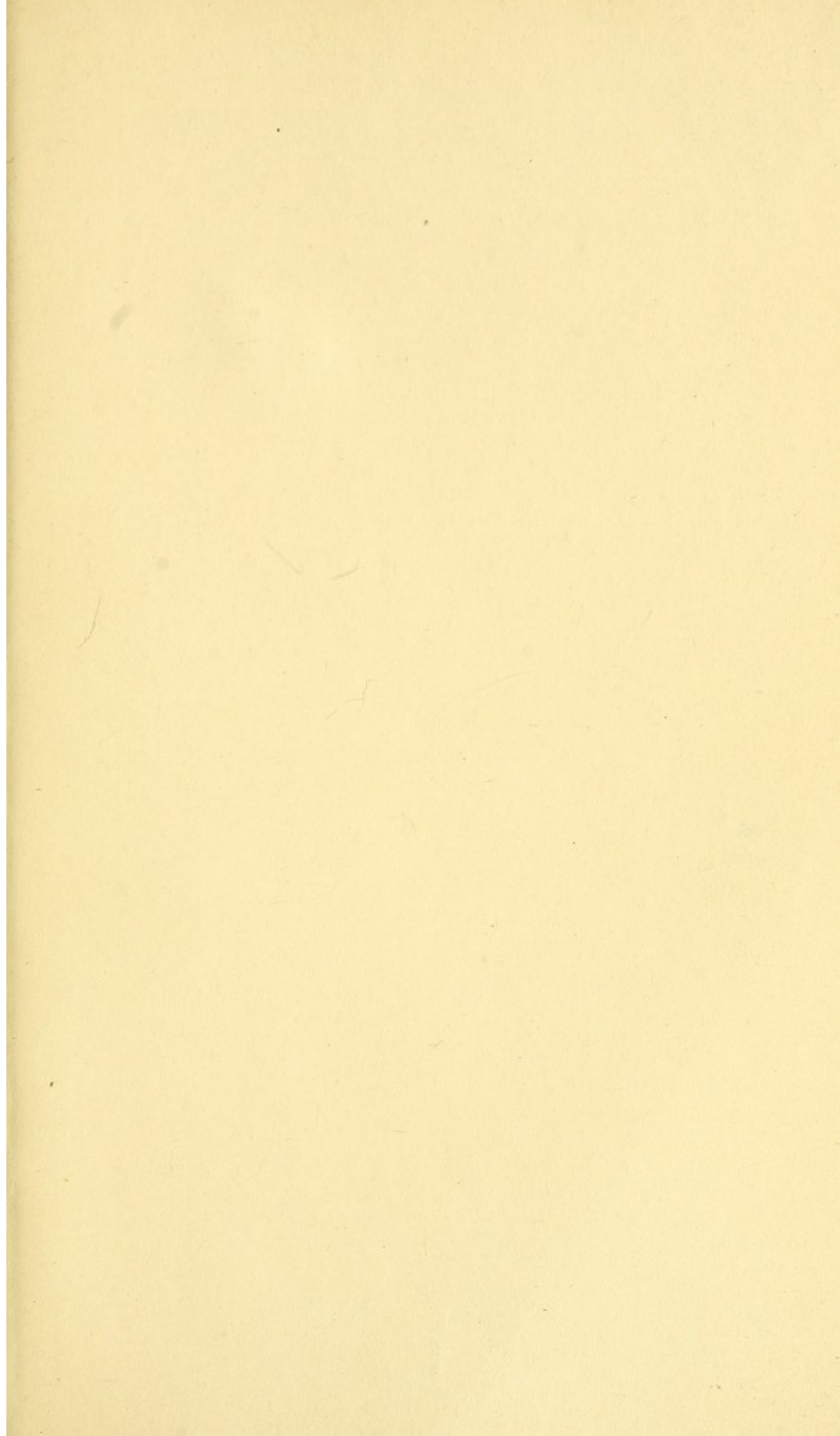














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