

JSS MEDICAL COLLEGE

(Constituent College)



JSS Academy of Higher Education & Research

DEPARTMENT OF PHARMACOLOGY

SYSTEM WISE DRUGS

CENTRAL NERVOUS SYSTEM

Central nervous system (CNS) drugs are a diverse group of medications that target the brain and spinal cord to modulate neurological functions. They can have various effects on mood, cognition, perception, and behaviour.

- 1) Psychotropic drugs
- 2) Stimulants
- 3) Sedatives-Hypnotics
- 4) Anti-epileptics
- 5) Analgesics



RESPIRATORY SYSTEM

Respiratory system drugs are medications that target various aspects of the respiratory system to treat conditions like asthma, chronic obstructive pulmonary disease (COPD), allergies, and respiratory infections.

- 1) Bronchodilators
- 2) Corticosteroids
- 3) Mast cell stabilisers
- 4) Mucolytics and expectorants
- 5) Antihistamines



GASTROINTESTINAL SYSTEM

It deals with the properties and actions of drugs affecting gastrointestinal system function. These drugs normalize impaired function in the GI tract. GI drugs include antisecretory compounds, the histamine (H₂) receptor antagonists and proton pump inhibitors (PPIs).

The properties and actions of drugs affecting the gastrointestinal system, which is responsible for:

- Providing the body with essential nutrients;
- Maintaining adequate levels of all essential nutrients in the bloodstream to facilitate normal activity;
- Eliminating wastes derived from the diet, and some products of the body's metabolism, in order to avoid toxic waste inside the body.

CARDIOVASCULAR SYSTEM

Cardiovascular system drugs encompass a range of medications used to manage conditions related to the heart and blood vessels.

The conditions include:

- 1) Hypertension
- 2) Heart failure
- 3) Arrhythmias
- 4) Angina Pectoris
- 5) Thrombosis
- 6) Hypotension also



ANTIMICROBIALS

Antimicrobials are a class of drugs used to inhibit or kill microorganisms, including bacteria, viruses, fungi, and parasites. They are commonly known as antibiotics when referring specifically to bacterial infections. Antimicrobials play a crucial role in treating infections and preventing the spread of diseases caused by these microorganisms.



**SPECIAL DRUG
DELIVERY
SYSTEMS**

Nasal Spray

Nasal spray is a substance dispensed as a fine spray from a container to a nostril. The nasal mucosa can be used for non-invasive systemic administration of drugs, a tissue which is well supplied by blood vessels. This ensures a rapid absorption of most drugs, can generate high systemic blood levels, and avoids the first pass metabolism which needs to be considered following oral administration



Rotahaler

An inhaler (also known as a puffer, pump, or allergy spray) is a medical device used for delivering medicines into the lungs through the work of a person's breathing. This allows medicines to be delivered to and absorbed in the lungs, which provides the ability for targeted medical treatment to this specific region of the body, as well as a reduction in the side effects of oral medications.



Spacer

A specially shaped container that improves the delivery of inhaled aerosols, such as beta₂ agonists, steroids, and other anti-asthmatic drugs, to the bronchi and lungs



Transdermal Patches

These are devices in the form of adhesive patches of various shapes and sizes, which deliver the contained drug at a constant rate into the systemic circulation via stratum corneum. Though they are more expensive they provide smooth concentration of the drug without fluctuations, drug is subjected to little first pass metabolism. They are also more convenient.



Insulin Pens

An insulin pen is an injection device with a needle that delivers insulin into the subcutaneous tissue (the tissue between your skin and muscle).



Inhaler

An inhaler (also known as a puffer, pump, or allergy spray) is a medical device used for delivering medicines into the lungs through the work of a person's breathing. This allows medicines to be delivered to and absorbed in the lungs, which provides the ability for targeted medical treatment to this specific region of the body, as well as a reduction in the side effects of oral medications.



FIXED DOSE COMBINATIONS

RATIONAL FIXED DOSE COMBINATIONS



FDC-Fixed dose combinations are combinations of two or more active drugs in a single dosage form, having a proven advantage over single compounds administered separately with respect to efficacy, safety or compliance. They are convenient and have better patient compliance, have low cost and neutralise the side



IRRATIONAL FIXED DOSE COMBINATION



As per WHO, irrational or non-rational use is the use of medicines in a way that is not compliant with rational use as defined above. It was reported that worldwide, more than 50% of all medicines are prescribed, dispensed, or sold inappropriately, while 50% of patients fail to take them correctly

Examples of irrational FDC include-

Amoxicillin+Cloxacillin

Norfloxacin+Metronidazole



ESSENTIAL DRUGS

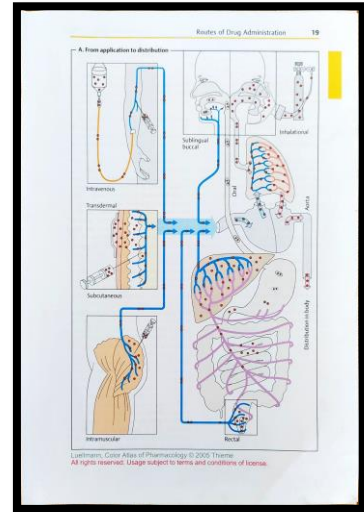
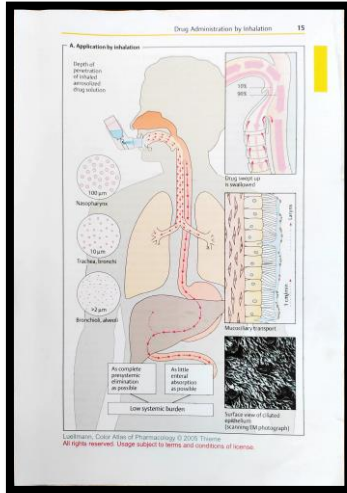


According to WHO, definition given in 1975, Essential Drugs are those that satisfy the health care needs of majority of population and therefore should be available at all times in adequate quantities and in appropriate dosage forms. In short, the essential drug concept is a tool given by WHO for good prescribing. Essential medicines are selected with due regard to public health relevance, evidence on efficacy and safety, and comparative cost-effectiveness.

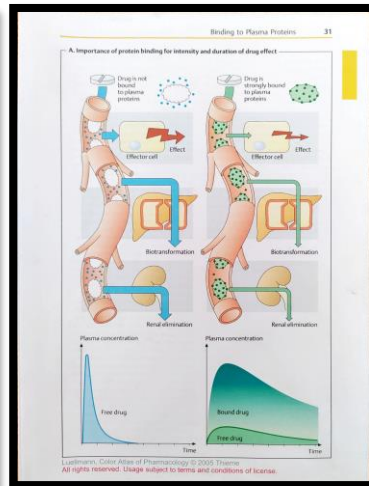
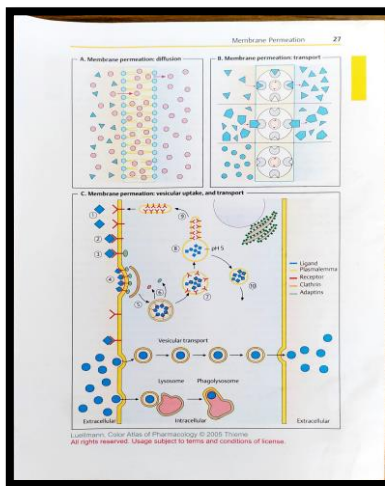


CHARTS

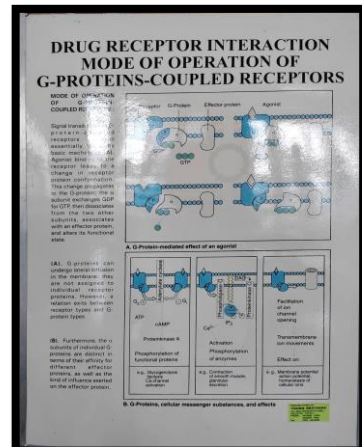
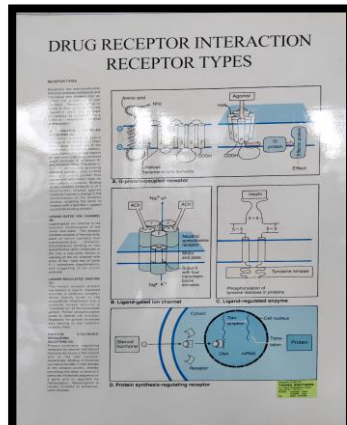
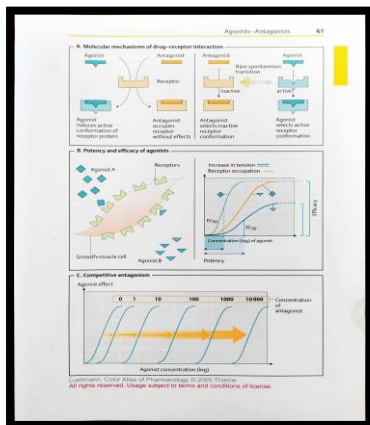
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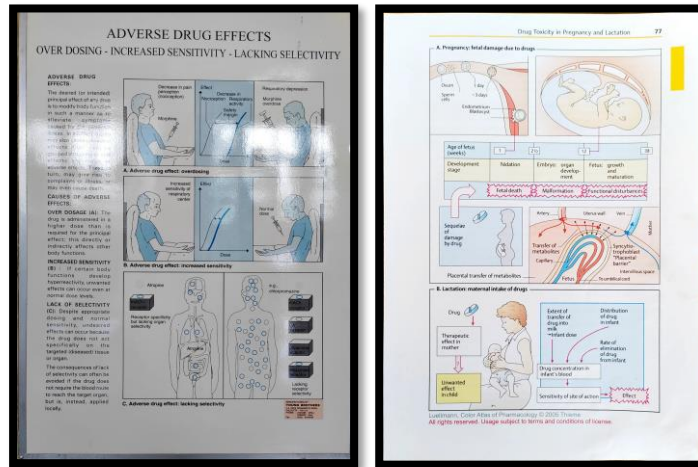
2. DRUG DISTRIBUTION IN THE BODY



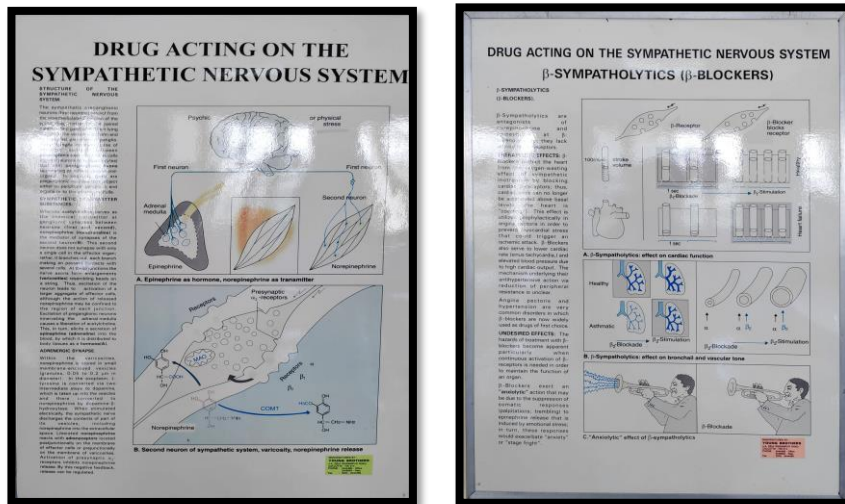
3. DRUG-RECEPTOR INTERACTION



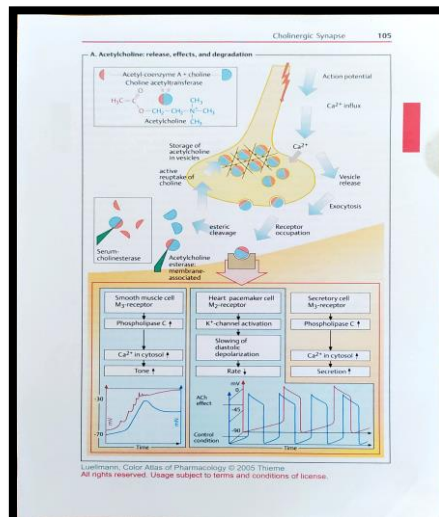
4. ADVERSE DRUG EFFECTS



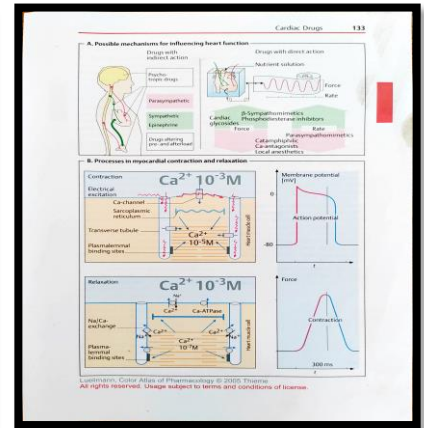
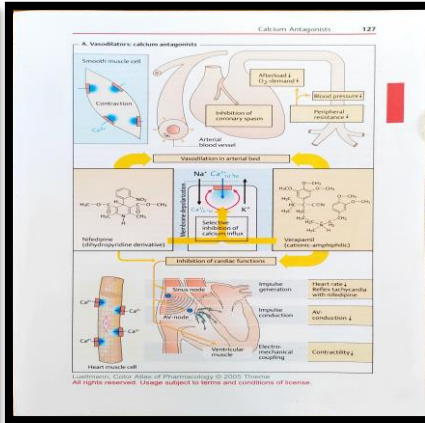
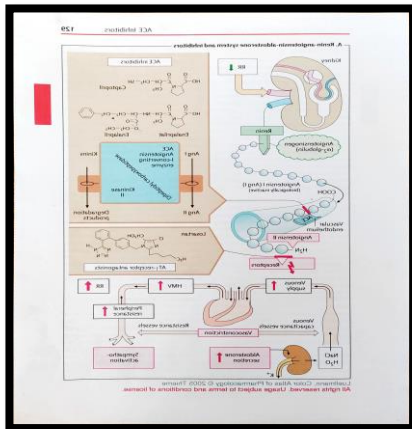
5. DRUGS ACTING ON THE SYMPATHETIC NERVOUS SYSTEM



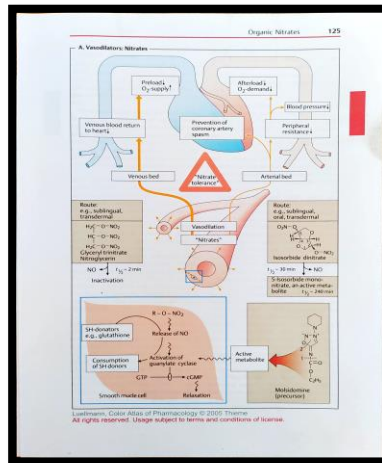
6. DRUGS ACTING ON THE PARASYMPATHETIC NERVOUS SYSTEM



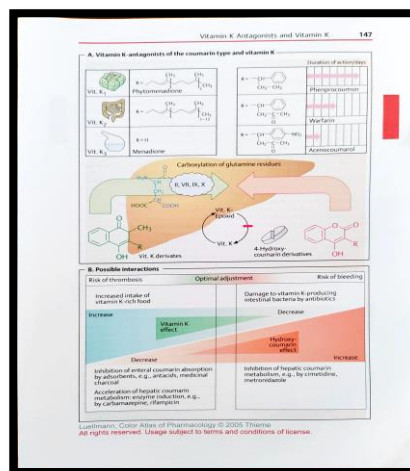
7. VASODILATORS



8. CARDIAC DRUGS



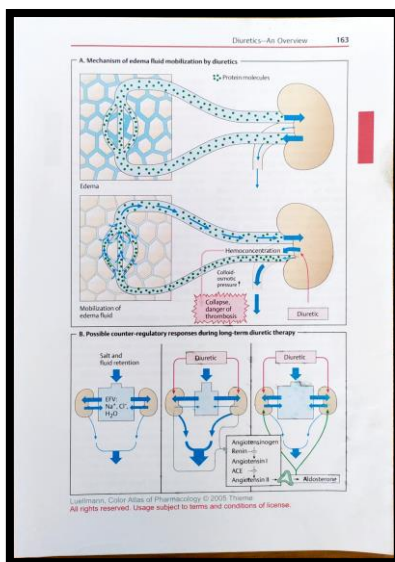
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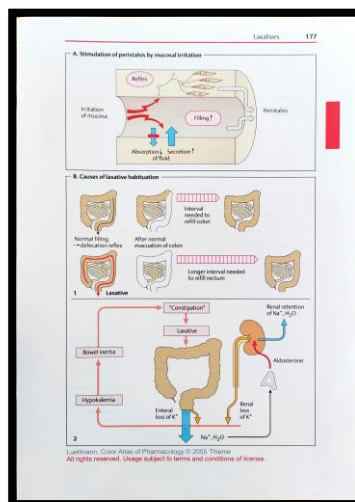
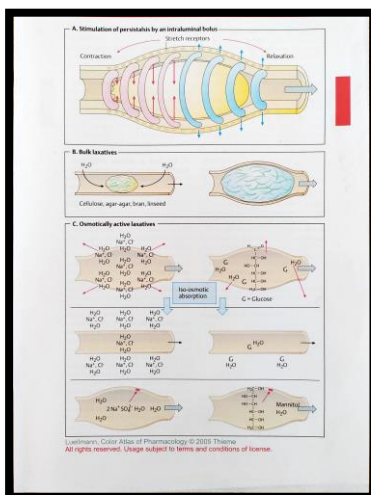
10. DRUGS FOR THE TREATMENT OF HYPERLIPIDEMIAS



11. DIURETICS



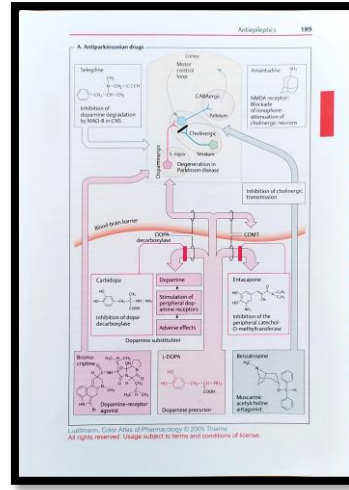
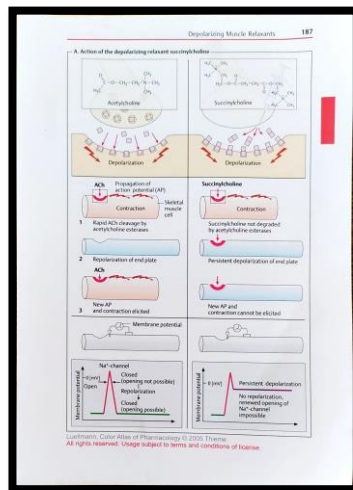
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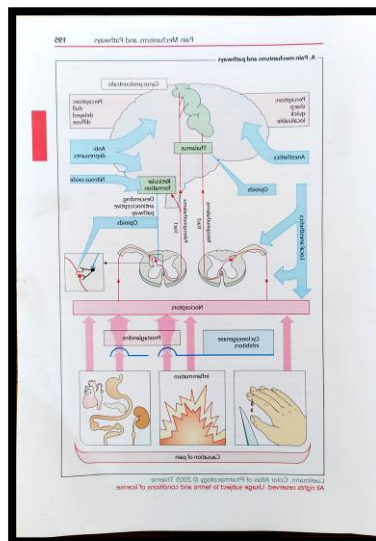
13. ANTIDIARRHEALS



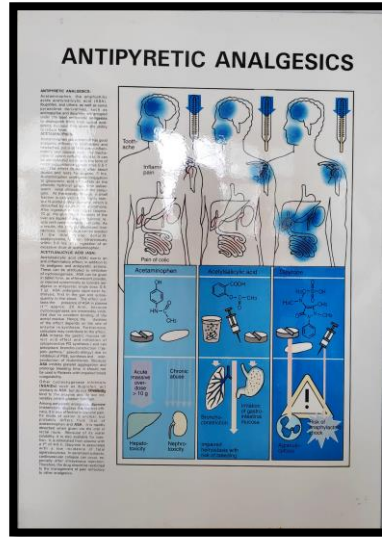
14. DRUGS ACTING ON MOTOR SYSTEM



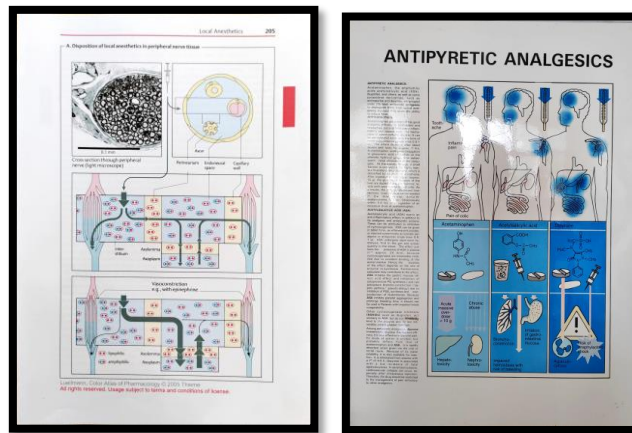
15. DRUGS FOR THE SUPPRESSION OF PAIN (ANALGESICS)



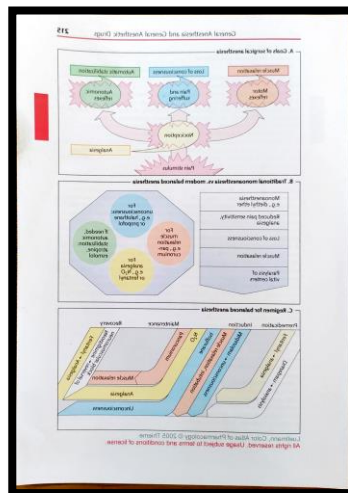
16. ANTIPYRETIC ANALGESICS



17. LOCAL ANAESTHETICS



18. GENERAL ANAESTHETICS



19. PSYCHOPHARMACOLOGICALS

223 Benzodiazepines

A. Action of Benzodiazepines

Pharmacology
 Benzodiazepine antagonist
 Normal GABAergic inhibition
 Enhanced GABAergic inhibition

Chemical Structure:
CN1C=NC2=C1C(=O)N(C2)C3=CC=CC=C3

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225 Antipsychotics to neurotransmitters

Antipsychotics to neurotransmitters

Antipsychotic	Dopamine	5-HT	Acetylcholine	Histamine	Alpha-1	Alpha-2	Beta-1	Beta-2
Haloperidol	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Risperidone	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Olanzapine	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Quetiapine	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Aripiprazole	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Lurasidone	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Caripiprazole	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Ziprasidone	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Blonanserin	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Mianserin	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Amisulpride	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Levomepromazine	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Perazine	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Flupenthixol	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Fluphenazine	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Haloperidol	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade
Haloperidol	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade	Blockade

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226 Effect of drugs on EEG

Effect of drugs on EEG

Normal EEG: Shows alpha (8-12 Hz) and beta (13-30 Hz) waves.

Sedatives/Hypnotics: Induce theta (4-8 Hz) and delta (0.5-4 Hz) waves.

Anesthetics: Induce high-voltage, slow-wave (delta) activity.

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20. HORMONES

283 Hypothalamic-pituitary-testicular axis

Hypothalamic-pituitary-testicular axis

284 Hypothalamic-pituitary-ovarian axis

Hypothalamic-pituitary-ovarian axis

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HORMONES

GLUCOCORTICOID THERAPY

Glucocorticoid synthesis and release effects

Glucocorticoid	Anti-inflammatory	Immunosuppression	Diabetes mellitus	Hypertension	Osteoporosis	Adiposity	Growth inhibition	Muscle wasting	Tissue atrophy	Diabetes mellitus	Skin atrophy	Protein catabolism
Cortisol	1	1	1	1	1	1	1	1	1	1	1	1
Hydrocortisone	1	1	1	1	1	1	1	1	1	1	1	1
Prednisolone	1	1	1	1	1	1	1	1	1	1	1	1
Prednisone	1	1	1	1	1	1	1	1	1	1	1	1
Dexamethasone	1	1	1	1	1	1	1	1	1	1	1	1
Betamethasone	1	1	1	1	1	1	1	1	1	1	1	1
Fludrocortisone	1	1	1	1	1	1	1	1	1	1	1	1

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263 Treatment of Maturity-Onset Diabetes Mellitus

A. Insulin concentration and binding to normal and overweight subjects

B. Development of maturity-onset diabetes

Therapy of 1st choice: Diet, Exercise, Weight reduction, Oral hypoglycemics.

Therapy of 2nd choice: Insulin.

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253 Oral Contraceptives

Oral Contraceptives

254 Contraceptive efficacy

255 Contraceptive efficacy

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21. ANTIBACTERIAL DRUGS

323 Inhibition of DNA function

A. Antibiotics that target DNA function

Antibiotics that target DNA function

324 Antibiotics that target protein synthesis

Antibiotics that target protein synthesis

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324 Antibiotics that target protein synthesis

Antibiotics that target protein synthesis

325 Antibiotics that target cell wall synthesis

Antibiotics that target cell wall synthesis

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325 Antibiotics that target cell wall synthesis

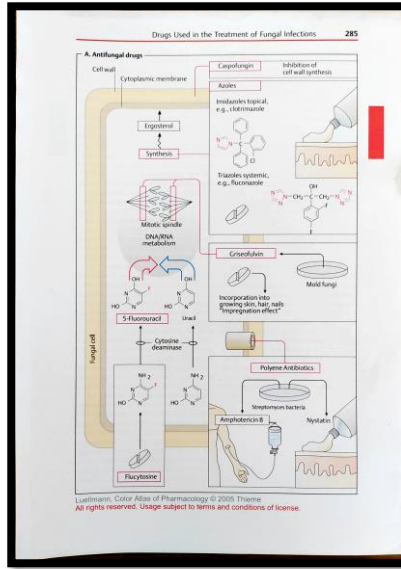
Antibiotics that target cell wall synthesis

326 Antibiotics that target folate synthesis

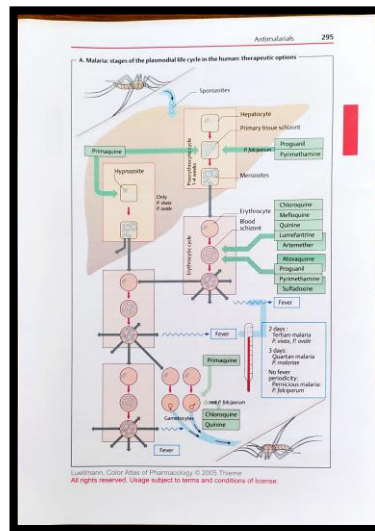
Antibiotics that target folate synthesis

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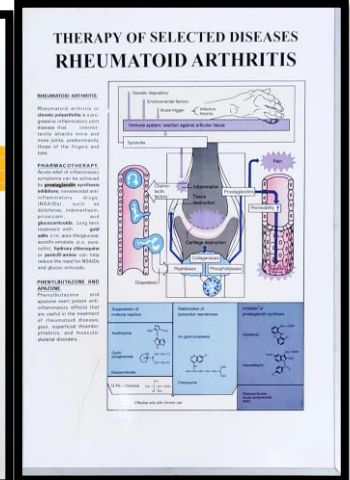
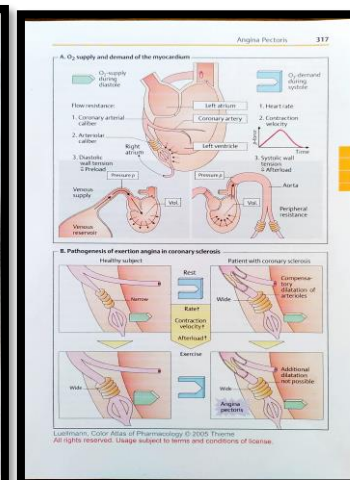
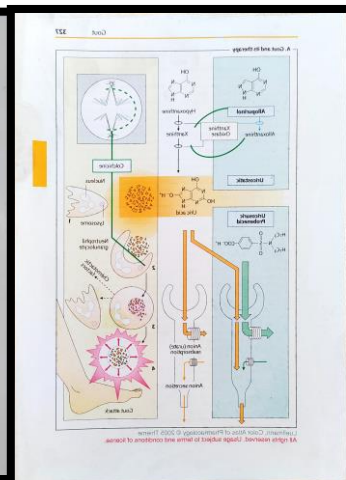
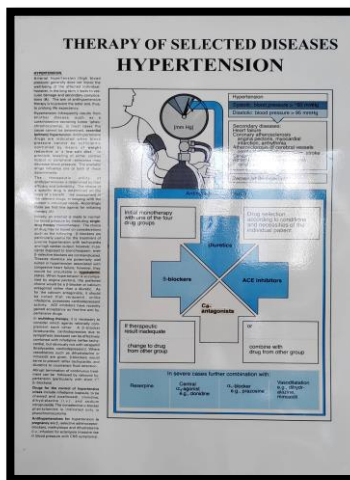
22. ANTIFUNGAL DRUGS



23. ANTIPARASITIC DRUGS



24. THERAPY OF SELECTED DISEASES



MODELS

INNervation OF HEART

● DORSO MOTOR NUCLEUS
● DORSO SENSORY NUCLEUS

DRUGS ACTING ON HEART

DRUGS	EFFECT ON HEART
A. SYMPATHOMIMETIC DRUGS	
ADRENALINE	↑ FORCE OF CONTRACTION
ISOPRENALINE	↑ HEART RATE
EPHEDRINE	
DOPAMINE	
DOBUTAMINE	
B. CARDIOSELECTIVE (A)	
ADRENERGIC	↑ HEART RATE
BLOCKING AGENTS	↑ FORCE OF CONT. CONDUCTION VELOCITY
METAPROLOL	
TOLANOLOL	N.B. LITTLE EFFECT ON NORMAL HEART WITH THE SUBJECT AT COMPLETE REST
PENDALOL	
FRACTOLOL	
PARASYMPATHOMIMETIC DRUGS	
ACETYL CHOLINE	BRADYCARDIA
MATHACHOLINE	ARRHYTHMIAS
CARBACHOL	E.C.G. ABNORMALITIES
BETHANECHOL	
ANTICHLINESTERASES	
D. PARASYMPATHOLYTIC DRUGS	
ATROPINE	TACHYCARDIA

DRUGS & THEIR THERAPEUTIC USES

DRUGS	USE
ADRENALINE	↑ BLOOD PRESSURE
EPHEDRINE	↑ BLOOD PRESSURE
HYDROXYAMPHETAMINE	↑ BLOOD PRESSURE
ADRENALINE	↑ BLOOD PRESSURE
PHENYLEPHRINE	↑ BLOOD PRESSURE
PHENYLPROPANOLAMINE	↑ BLOOD PRESSURE
HYDRIATIC	↑ BLOOD PRESSURE
PHENYLEPHRINE	↑ BLOOD PRESSURE
EPHEDRINE	↑ BLOOD PRESSURE
ADRENALINE	↑ BLOOD PRESSURE
PHENYLEPHRINE	↑ BLOOD PRESSURE
PHENYLPROPANOLAMINE	↑ BLOOD PRESSURE
HYDRIATIC	↑ BLOOD PRESSURE
PHENYLEPHRINE	↑ BLOOD PRESSURE
EPHEDRINE	↑ BLOOD PRESSURE

DRUGS ACTING ON CVS

SYMPATHETIC INNERVATION

SYMPATHOMIMETIC DRUGS

EFFECTOR ORGANS	RECEPTOR	EFFECT OF ADRENERGIC
A. EYE	IRIS-SPHINCTER	CONTRACTION (MYDRIASIS)
	CILIARY MUSCLE	RELAXATION FOR N. VISION
B. HEART	ATRIUM	↑ HEART RATE
	VENTRICLE	↑ CONTRACTION & CONDUCTION VELOCITY
C. LUNG	BRONCHIAL MUS.	RELAXATION
D. STOMACH	MUSCULATURE	↑ MOTILITY & TONE
	SPHINCTERS	CONTRACTION
E. INTESTINE	MUSCULATURE	↑ MOTILITY & TONE
	SPHINCTERS	CONTRACTION
F. G. BLADDER & DUCTS		RELAXATION
G. KIDNEY		RENIN SECRETION
H. SPLEEN		CONTRACTION
		RELAXATION
I. URINARY BLADDER	DETRUSOR	RELAXATION
	TRIGONE & SPHINCTERS	CONTRACTION
J. SEX-ORGANS MALE		EJACULATION
FEMALE UTERUS		↑ PREGNANT CONTRACTION
		NON-PREGNANT RELAXATION
K. SKIN	PILOMOTOR MUS.	CONTRACTION
	SWEAT GLANDS	LOCALISED SECRETION
L. BLOOD VESSELS	CORONARY	DILATATION
	CEREBRAL	CONTRACTION
	PULMONARY	DILATATION
	SKELETAL MUS. & ABDOMINAL VISCERA	CONTRACTION & DILATATION

SYMPATHOMIMETIC DRUGS

SYMPATHETIC INNERVATION

PARASYMPATHOMIMETIC DRUGS

EFFECTOR ORGANS	CHOLINERGIC RESPONSES
A. EYE	IRIS-SPHINCTER MUSCLE: CONTRACTION (MIOSIS)
	CILIARY MUSCLE: CONTRACTION FOR N. VISION
B. HEART	ATRIA: ↑ HEART RATE + CONDUCTION VELOCITY
	VENTRICLE: VAGAL ARREST, SLIGHT ↓ IN CONTRACTILITY
C. SALIVARY GLANDS	PROFUSE WATERY SECRETION
D. LUNGS	BRONCHIAL MUSCLE: CONTRACTION
	BRONCHIAL GLAND: SECRETION
E. STOMACH MUSCULAT.	SPHINCTER: ↑ MOTILITY & TONE
F. INTESTINE MUSCULAT.	SPHINCTER: RELAXATION
G. URINARY BLADDER	DETRUSOR: CONTRACTION
	TRIGONE & SPHINCTER: RELAXATION
H. G. BLADDER & DUCTS	CONTRACTION
I. SEX-ORGANS	UTERUS: VARIABLE ERECTION
	MALE PENIS: VARIABLE ERECTION

PARASYMPATHOMIMETIC DRUGS & THERAPEUTIC USES

DRUGS	USE
ACETYL CHOLINE	↑ HEART RATE
MATHACHOLINE	ARRHYTHMIAS
CARBACHOL	E.C.G. ABNORMALITIES
BETHANECHOL	
ANTICHLINESTERASES	
ATROPINE	TACHYCARDIA

PARASYMPATHOMIMETIC DRUGS

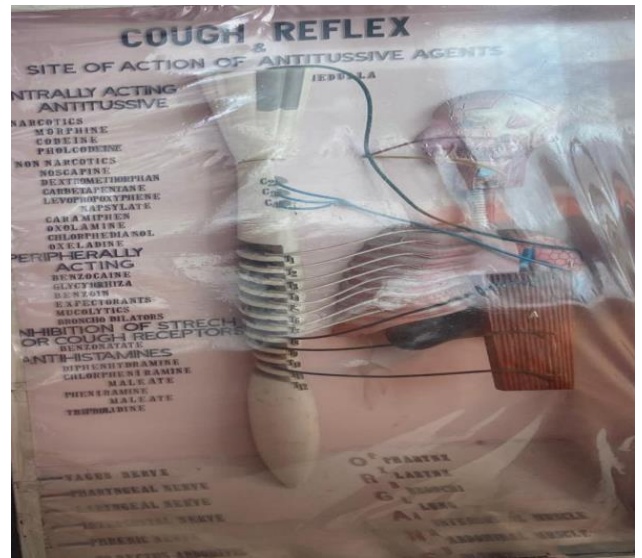
MECHANISM OF VOMITING & SITE OF ACTION OF ANTIEMETIC AGENTS

AGENT	Mechanism / Site of Action
A. PHENOTHIAZINES	(VOMITING OF TOXICOSIS)
CHLORPROMAZINE (LARGACTIL)	
TRIFLUOPROMAZINE (SIQUIL)	
TRIFLUOPERAZINE (ESKAZINE)	
PROCHLORPERAZINE (STEMETIL)	
PROMAZINE (SPARINE)	
THIOPROPERAZINE (MAJEPTIL)	
THIETHYL PERAZINE	
DIMALEATE (TORECAN)	
B. ANTHISTAMINES	(FOR MOTION & MORNING SICKNESS, POST ANAESTHETIC VOMITING)
MECLIZINE (ANCOLOXIN)	
CYCLIZINE (MARINE)	
PROMETHAZINE	
THEOCLATE (AVOMINE)	
DIMENHYDRINATE (DRAMAMINE)	
MECLOZINE (PREGNIDOXIN)	
C. SCOPOLAMINE	ATROPINE
D. MISC.	
METOCLOPRIMIDE (PERINGERM)	
BETHAHISTINE DI-HCL (VERTIN)	

ORGANS

- A.T.S. UPPER MEDULLA
- C.T.Z.
- VOMITING CENTER
- T.S. SPINAL CORD
- CEREBRUM
- LIVER
- GALL BLADDER
- STOMACH
- LARGE INTESTINE
- SMALL INTESTINE

MECHANISM OF VOMITING



LIFE CYCLE OF MALARIAL PARASITE

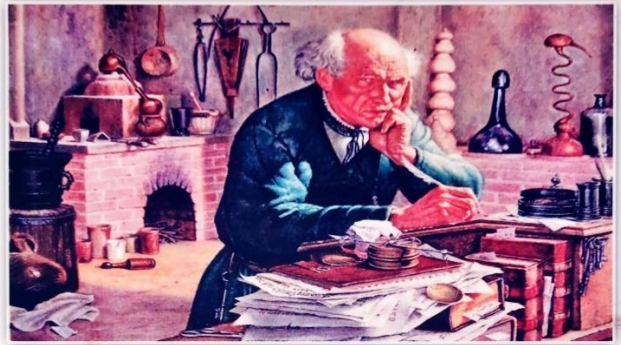
COUGH REFLEX

HISTORY
OF
MEDICINE



THE ERA OF ANTIBIOTICS

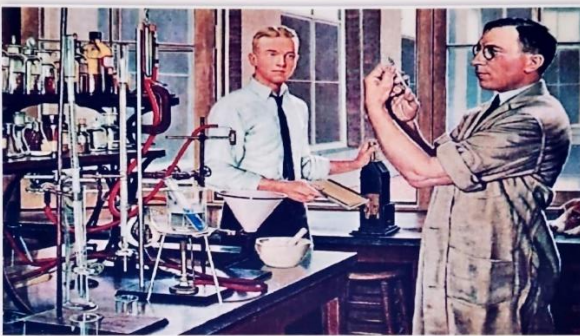
Dr. Alexander Fleming, British bacteriologist, first observed Penicillin in 1928. When, in 1940, he heard that Drs. H.W. Florey, E.B. Chain and their "team" had isolated the antibiotic at the Sir William Dunn School of pathology, Oxford, he visited them. Their work on antibiotics brought about a revolution in the practice of medicine.



PARACELSUS

Stormy petrel of medicine.

In renaissance "chemical kitchens" Paracelsus (1493-1541) brewed chemicals and made complex mixtures: he wrote serious medical treatises, and vitriolic attacks upon fellow physicians, religionists and politicians.



BANTING, BEST AND DIABETES

In 1921, Charles H. Best and Dr. Frederick G. Banting, while experimenting in the Physiology Department, University of Toronto, Canada, found an extract of the pancreas that controlled Diabetes. Insulin gave hope of life to millions who otherwise could have been doomed.



JENNER: SMALLPOX IS STEMMED

Edward Jenner, English rural physician, performed first vaccination against Small Pox at Berkeley, in 1796. Despite opposition, Jenner proved his discovery and lived to see it become accepted as a life-saving procedure.



RAMON Y CAJAL; CHARTING THE NERVOUS SYSTEM

Boyhood teachers were positive that no good would come of backward, headstrong, artistically inclined country Surgeon's son, Santiago Ramon Y Cajal (1852-1934). However, he became Spain's leading medical scientist, world renowned as a neuroanatomist. In 1906, he was awarded the Nobel Prize in medicine.



CLAUDE BERNARD

Explorer and physiologic frontiers. Though most at home in Parisian research laboratories, French physiologist Claude Bernard (1813-1878) wrote up his discoveries in famous text, and introduced to study of experimental medicine at his farm home near Saint-Julien (Rhône) while recuperating from recurrent illness.



LISTER INTRODUCES ANTISEPSIS

When surgeon Joseph Lister (1827 - 1912) at the Glasgow Royal infirmary in 1865, removed carbolic acid dressing from a compound fracture wound, there was no infection - something unheard of before. Lister's principles of antiseptics revolutionized wound treatment and surgical procedures.



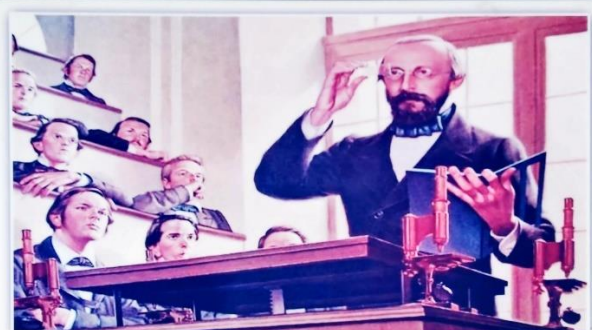
J. MARION SIMS: GYNECOLOGIC SURGEON

Little did doctor Marion Sims dream in 1845, has he prepared to examine the slave girl, Lucy that he was to become a women's surgeon: or that his back-yard structure in Montgomery, Alabama, would lead to opening of the nation first women's hospital, in New York, in 1855.



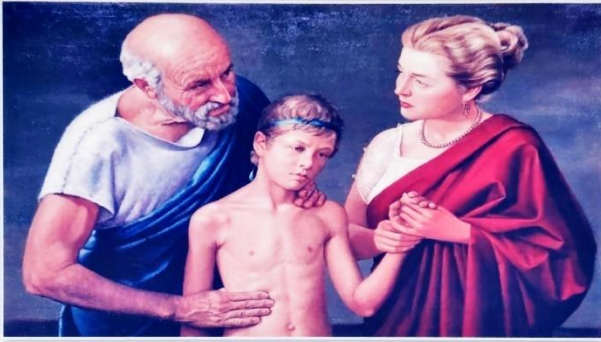
WALTER B. CANON: PHYSIOLOGIC INVESTIGATOR

While a student at Harvard Medical School, Boston, in 1896, Walter B. Cannon (1871-1945), used newly discovered X-rays and opaque meals to study activities of digestive organs in animals. Professor Cannon's lifetime of research on physiologic processes contributed much new knowledge to medicine.



VIRCHOW AND CELLULAR PATHOLOGY

While professor at Wirzburg Germany in 1855 Rudolf Virchow M.D. thought cells reproduce themselves and that disease results from injury or irritation of cells. Later in Berlin, Virchow wrote and engaged in research and led international medical thought until his death in 1902.



HIPPOCRATES

Medicine becomes a science of kindness, concern and love for the art of healing, all reflected by Hippocrates as he examines a young patient, and qualities that earned fame to great Greek physicians (460-361 B.C. the immortal title of "Father of medicine")



THE CONQUEST OF YELLOW FEVER

Methods for preventing yellow fever developed from investigations which proved mosquitoes to be carrier of virus, conducted in 1900 at camp Lazear, Cuba by a United States Army commission lead by Dr. Walter Reed (1851-1902) cooperating with Cuba's Dr. Carlos J. Finlay.



MEDIEVAL HOSPITALS

Representative of medieval hospitals, Hotel-Dieu of Beaugency, France, was founded in 1443. Sisters of Saint Martha have cared for patients there for more than 500 years, uninterrupted by wars, or by economic or political changes.



HISTORY OF MEDICINE

Susruta, famed Hindu Surgeon is depicted in the home of a noble of ancient India, about to begin an operation. Drugged with wine, the patient is steadied by friends as the Surgeon sets about fashioning an artificial ear-lobe.



FOUNDING OF THE AMERICAN MEDICAL ASSOCIATION

Improvement of public service, of medical knowledge, of medical education and of medical ethics, were aims of The American Medical Association, organized May 7, 1847, at the Academy of Natural Sciences in Philadelphia. Now in its second century of service, AMA is the world's largest medical organization.



CHARCOT : MASTER OF NEUROLOGY

Studies by neurologist Jean-Martin Charcot (1825-1893), among the vast patient population at Paris La Salpêtrière hospital raised neurology to a respected medical science; inspired Viennese Student Sigmund Freud to develop ideas on psychoanalysis and psychotherapy.



SYDENHAM-PROONENT OF CLINICAL MEDICINE

London physician Thomas Sydenham (1624-1689), believed doctors could learn about medicine only at patients bedside; earned the title, "Father of Clinical Medicine". A Puritan, he was often accompanied by fashionable physician-philosopher John Locke.



MEDICINE IN ANCIENT EGYPT

An Egyptian physician (1500BC) treats a patient for lock jaw in accordance with directions on a papyrus scroll, while priests perform prescribed rights. Egyptian medicine occupied a dominant position in the ancient world for 2500 years.



ROENTGEN

Invisible rays that save lives, scientists filled the room at university of Wurzburg, Germany in 1896, when Wilhelm Conrad roentgen (1845-1923) demonstrated his newly discovered x-rays by photographing bones in a hand. Within 2years, X-rays where being used world-wide for medical and diagnostic purposes.



PRIMITIVE MEDICINE

Primitive medicine is timeless as old as cave dweller ; new as today. Sandpainting ceremonials of American Navaho Indians are unusually beautiful primitive examples, embodying religion, magic, singing, physio and psychotherapy and drug lore.



JAMES LIND -Conqueror of Scurvy

Surgeon in Britain's Royal navy, James Lind in 1747 conducted clinical experiments proving citrus fruits would cure scurvy, a dreaded killer of seamen. His recommendations and writing helped to reform naval help practices.



MEDICINE TODAY AND TOMORROW

The scientific discoveries and advances resulting from work of countless thousands of dedicated medical men throughout 50 centuries are at the command of today's physician, and through him, brought to focus upon the needs of sick patients. Never before have had people had the medical advantages available today.



TREPHINING IN ANCIENT PERU

On the dry, sun swept Pacific coastline of South America's Paracas Peninsula a first century Peruvian Surgeon begins an operation to open the patient's skull. In the New World, trephining was most extensively practiced in Peru.



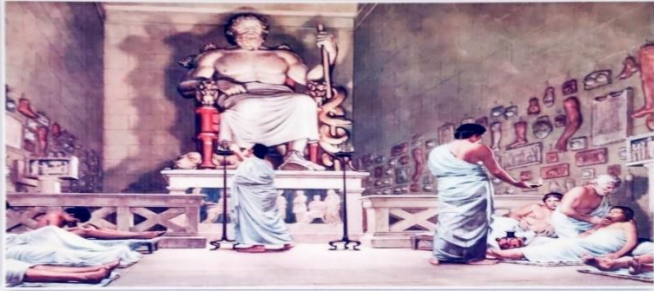
THE CODE OF HMMURABI

Clay tablets of ancient Mesopotamia tell the story of medicine 5000 years ago. Under the code of HMMURABI physicians fees were set and patients and physicians might appeal their grievances to the King's court.



EHRlich; CHEMOTHERAPY IS LAUNCHED

At Frankfurt's Institute of Experimental Therapy, German scientist Paul Ehrlich (1854-1915), developed Salvarsan (606) and in 1910, announced it as a "magic bullet" for treatment of Syphilis : Dr. Ehrlich's success with chemical synthesis launched a new medical science - chemotherapy



THE TEMPLES AND CULT OF ASCLEPIUS

Every night for a thousand years (500.B.C.-500.A.D.), sick and affected pilgrims flocked to the Grecian Temples of Asclepius. Healing and advice were sought during dream visitations by the ancient God of medicine.



SEMMELEWS: DEFENDER OF MOTHERHOOD

Ignaz P. Semmelweis proved in 1847, in Viennas General Hospital that many mothers' lives could be saved if physicians and medical students washed their hands before examining obstetric patients. Resentment both by students and by superiors drove the Hungarian physician from his post.



PINEL UNCHAINS THE INSANE

French physician Phillpe Pinel in 1795 ordered fetter removed from insane women in Paris Salpetriene, his humane treatment of mental patients opened new perspectives for psychiatric research and practice.



GOLDBERGER

Dr. Joseph Goldberger (1874-1929), United States public heath surgeon began studies of pellagra in 1914 near Jackson in Mississippi, in orphanage asylums & prisons. His research proved dietary deficiency is the cause: he directed other scientist towards discovery of vitamins, nutritive components essential to health.



BENJAMIN RUSH: PHYSICIAN, PEDANT, PATRIOT

Courage of Dr. Benjamin Rush (1745-1813) was taxed to exhaustion in the 1793 Yellow fever epidemic in Philadelphia, when most people fled. Dr. Rush, a singer of the Declaration of Independence, taught in US 1st medical school.



HARVEY AND THE CIRCULATION OF BLOOD

William Harvey (1578 - 1657), demonstrated proof of his revolutionary theory of the circulation of blood, during anatomical lectures London's college of physicians. His De Moter Cordis upset galvanic tradition and introduced new concept of anatomy.

SCIENTISTS



Felix Hoffmann (1868 – 1946)

Felix Hoffmann German chemist, first synthesized medically useful forms of heroin and aspirin. He is best known for having synthesized acetylsalicylic acid (ASA) on August 10, 1897, for the first time in a stable form usable for medical applications. Bayer marketed this substance as Aspirin.



James Lind (1716–1794)

James Lind, physician, developed the theory that citrus fruits cured scurvy.



Gerhard Domagk (1930)

Prontosil was developed in the 1930s by a research team at the Bayer Laboratories in Germany which opened a new era in chemotherapy of medicine.



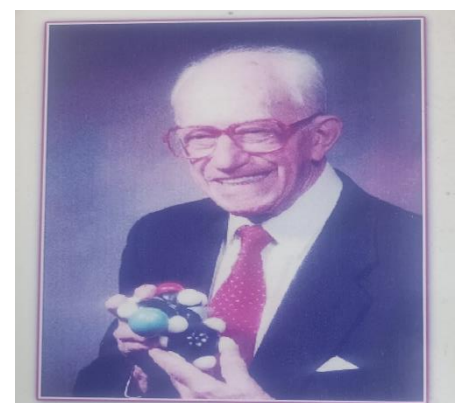
Dr. George Rieveschl (1916–2007)

Dr. George Rieveschl chemist, professor, and inventor of the popular antihistamine diphenhydramine (Benadryl).



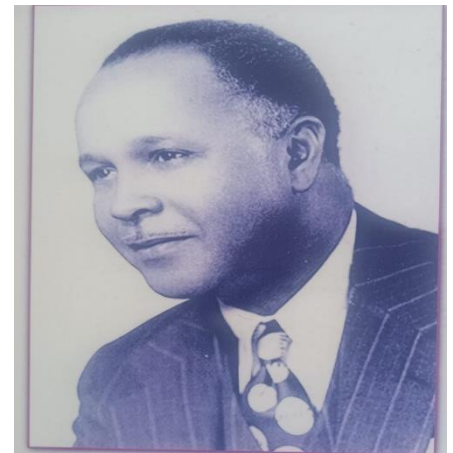
Carl Peter Henrik Dam (1895–1976)

He was awarded the Nobel Prize in Medicine in 1943 for joint work with Edward Doisy work in discovering vitamin K and its role in human physiology. Dam isolated the dietary substance needed for blood clotting and called it the "coagulation vitamin", which became shortened to vitamin K.



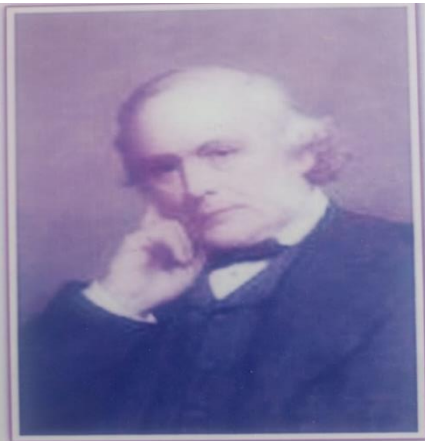
Leo Sternbach

Diazepam was first synthesized by Leo Sternbach, in 1963, discovered chlordiazepoxide, diazepam, flurazepam, nitrazepam, flunitrazepam, clonazepam, and trimethaphan and developed "the first commercially applicable" method for synthesizing biotin.



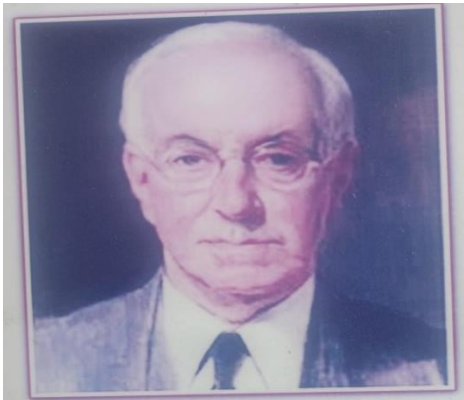
Percy Lavonn Julian (1899–1975)

Pioneer in the chemical synthesis of medicinal drugs from plants, and first to synthesize physostigmine; and large - scale chemical synthesis of human hormones, steroids, progesterone testosterone, from plant sterols such as stigmasterol and sitosterol, cortisone, and birth control pills.



Joseph Lister (1827–1912)

Joseph Lister pioneer of antiseptic surgery promoted the idea of sterile surgery. Lister introduced carbolic acid (phenol) to sterilise surgical instruments and to clean wounds.

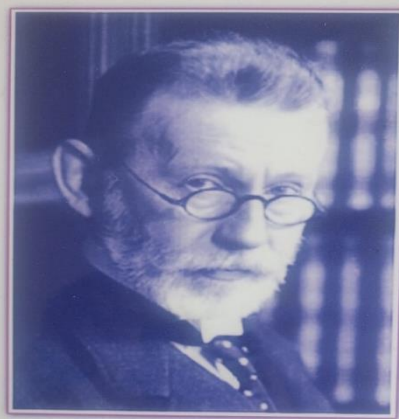


Sir Henry Hallett Dale (1875–1968)

Sir Henry Hallett Dale, pharmacologist and physiologist, studied acetylcholine as agent in the chemical transmission of nerve impulses (neurotransmission). He shared the 1936 Nobel Prize in Physiology or Medicine with Otto Loewi.

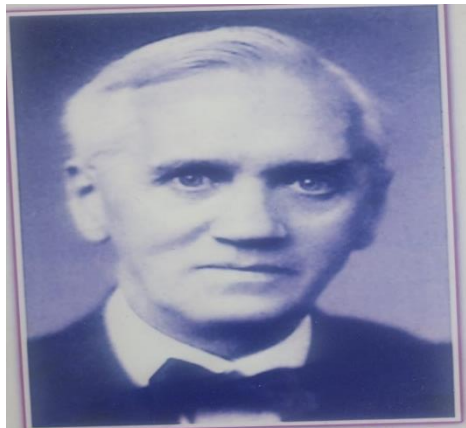


Ram Nath Chopra
"father of Indian pharmacology"



Paul Ehrlich (1854–1915)

Paul Ehrlich a German scientist in the fields of hematology, immunology, and chemotherapy and a Nobel laureate discovered the syphilis treatment Salvarsan, the first drug targeted against a specific pathogen; calling it "horror autotoxicus". He coined the term chemotherapy.



Sir Alexander Fleming (1881–1955)

Sir Alexander Fleming biologist and pharmacologist, discovered the enzyme lysozyme in 1923 and the antibiotic substance penicillin from the mould *Penicillium notatum* in 1928 and shared the Nobel Prize in Physiology or Medicine in 1945 with Howard Florey and Ernst Boris Chain.



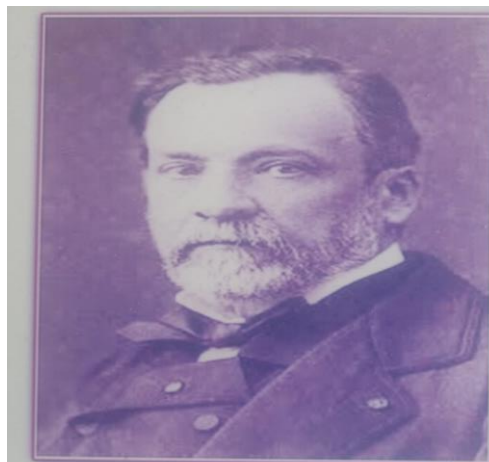
Sune Bergström (1916–2004)

Karl Sune Detlof Bergström a biochemist, shared the Nobel Prize in Physiology or Medicine with Bengt I. Samuelsson and John R. Vane in 1982, for discoveries concerning prostaglandins and related substances.



Selman Abraham Waksman (1888–1973)

Selman Abraham Waksman biochemist and microbiologist discovered Streptomycin (the first antibiotic active against tuberculosis) and other antibiotics, awarded the Nobel Prize in Physiology or Medicine in 1952.



Louis Pasteur (1822–1895)

Louis Pasteur chemist and microbiologist brought the concept of prevention of diseases. His discoveries reduced mortality from puerperal fever, and created the first vaccine for rabies and anthrax.

HERBAL DRUGS

Botanical name: <i>Ricinus communis</i> .	
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Family: Euphorbiaceae

Medicinal values:

- o powerful laxative
- o natural moisturizer
- o promote wound healing
- o hair growth
- o relieve constipation



Botanical name: *Piper nigrum*

Family: Piperaceae

Medicinal values:

- o High in antioxidants
- o Anti-inflammatory properties
- o May benefit your brain
- o Improve blood sugar control
- o May lower cholesterol levels



Botanical name: *Croton tiglium*

Family: Malvaceae

Medicinal values:

- cure constipation.

- treat internal intestinal parasites.
- treatment for rheumatism,
- bronchitis and glandular swelling.
- treat fine lines, wrinkles and scars

Botanical name: *Glycyrrhiza glabra*

Family: Fabaceae

Medicinal values:

- Sore Throat and Cough
- Gastric Ulcers and Digestive Issues
- Anti-Inflammatory
- Respiratory Conditions
- Hormonal Balance



Botanical Name: *Brassicajuncea*

Family: Brassicaceae

Medicinal Values:

- Relieve muscle pain
- Rheumatism and arthritic pain
- Laxative
- Stimulate hair growth

- Antibacterial agent

Botanical Name: *Santalum album*

Family: Santalaceae

Medicinal Values:

- Gastric irritability
- Relieving headache
- Fever
- Preventing excessive sweating



Botanical Name: *Aconitum*

Family: Ranunculaceae

Medicinal Values:

- Disinfectant
- Promoting sweating
- Treating facial pain and joint pain
- Treating fear



Botanical Name: *Allium sativum*

Family: Amaryllidaceae

Medicinal Values:

- Wards off cough and cold
- Good for cardiac health
- Improves brain functioning
- Improves digestion
- Balances blood sugar



Botanical Name:
Syzygium aromaticum

Family: Myrtaceae

Medicinal Values:

- Regulate blood sugar levels
- Have anti-inflammatory properties
- Used as cough suppressant
- Have antibacterial properties
- Help alleviate tooth pain



Botanical Name: *Ipomoea hederacea*

Family: Convolvulaceae

Medicinal values:

- Treat diabetes, BP and heart disease
- As diuretic
- Antihelminthic
- Deobstruent
- Purgative and abortifacient



