GOVERNMENT DEGREE COLLEGE(M)

SRIKAKULAM

DEPARTMENT OF BOTANY

SEM-IV PAPER-V 2021-2022

PROJECT WORK

ON

EMINENT SCIENTISTS OF GENETICS CELL-BIOLOGY MOLECULAR BIOLOGY

DONE BY

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CLASS :- B.Sc (CBZ) EM.

REGD NO :- 2022001049078.

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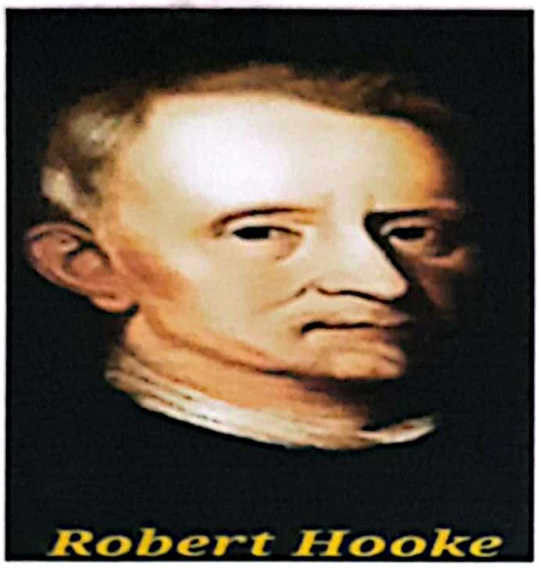
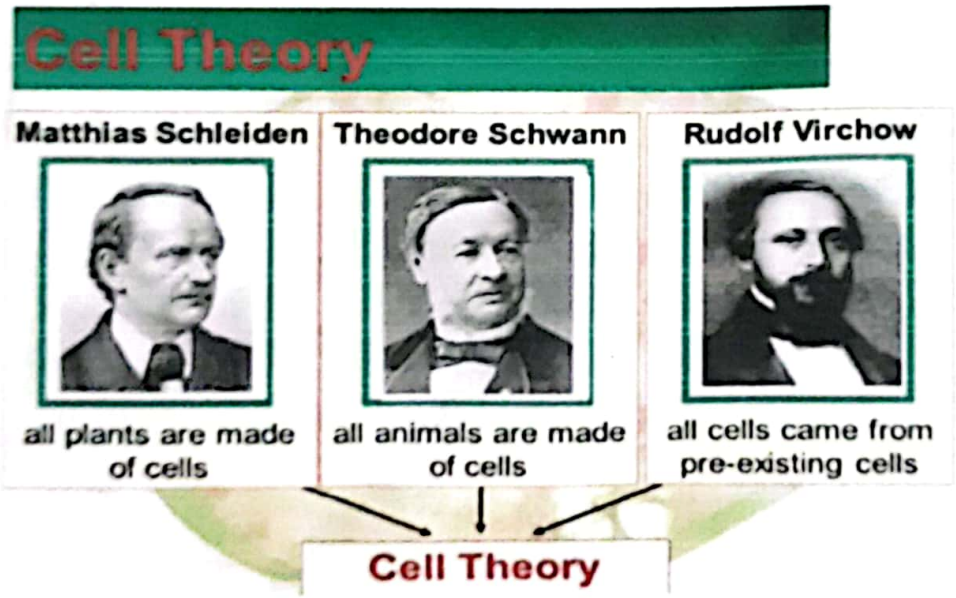
1. ROBERT HOOKE



2. SCHLIEDEN--SCHWANN--VIRCHOW



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① ROBERT HOOKE

1) Robert Hooke discovered plant cells. He discovered cork cells in the bank of spanish oak tree.

2) He discovered Hooke's law of elasticity.

3) He reported on this work in a book called "micrographia" in 1665.

4) He was also a member of Royal society.

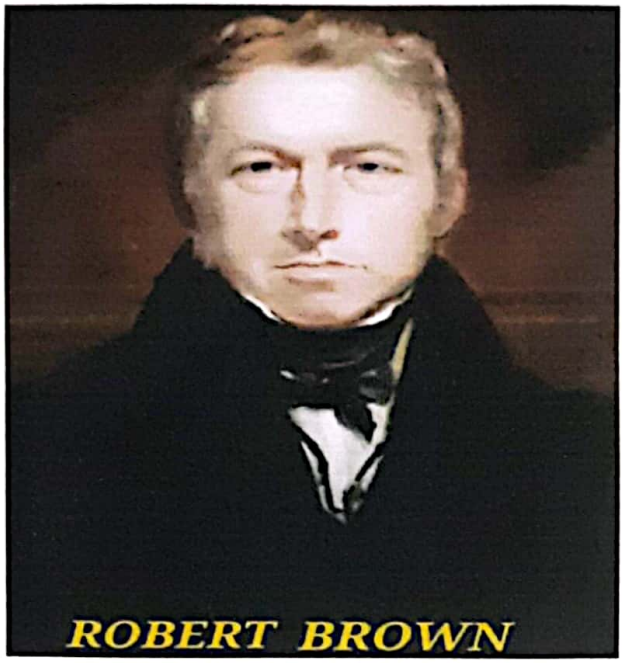
② SCHLIEDEN - SCHWANN - VIRCHOW

1) mattirias Jakob Schliedon was a german botanist and co-founder of cell Theory, along with Theoder Schwann and Rudolf virchow.

2) Theodor Schwann was a german physiologist, who founded modern histology by difining the cell as the basic unit of animal structure.

3) Rudolf Ludwing Carl Virchow was a German physicion, He is known as "father of modern pathology.

3. ROBERT BROWN



4. SINGER--NICHOLSON

Seymour Jonathan Singer
(1924-2017)

Garth L. Nicolson
(1943-)

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③ ROBERT BROWN.

→ Robert Brown was a scottish botanist best known for his descriptions of cell nuclei and the continuous motion of minute particles in solution, which came to be called 'Brownian motion.

→ He was awarded with copley medal (1839)

→ his notable work is "A Brief account of microscopical observations..."

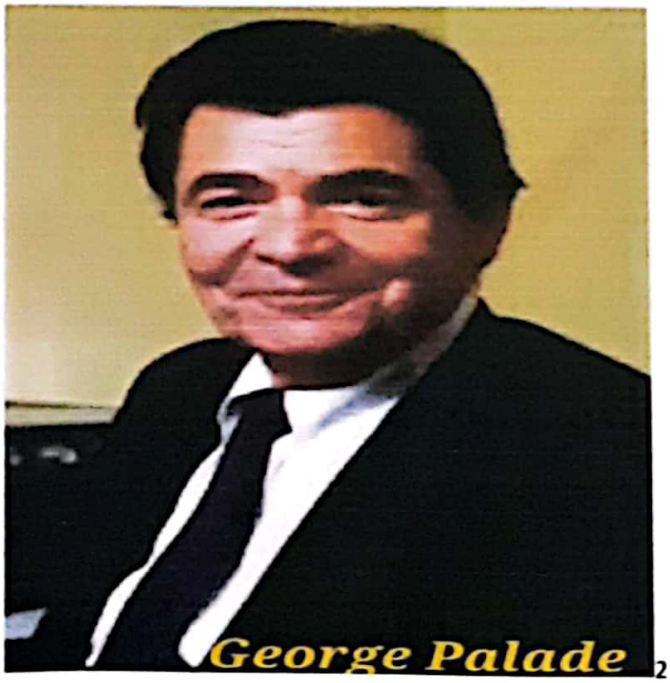
④. SINGER-NICHOLSON

→ Seymour Jonathan Singer (may 23, 1924 - Feb-3 2017) was an American cell biologist and profesior of biology, emeritus, at the University of california, sanoiego.

→ Garth L. Nicolson (born oct 1, 1943) is an American bio chemist who made a land mark scientific model for cell membrane, coilh S.J. Singer Nicolson published a paper titled 'The fluid mosaic model of the structure of cell membranes'.

5. DANIELLI — DAVESON

6.GEORGE PALADE



⑤ DANIELLI - DAVESON

→ The Daveson - Danielli model or paucimolecular model) was a model of the plasma membrane of cell. proposed in 1935 by Hugh Daveson and James Danielli.

→ The model describes a phospholipid bilayer That That lies betwees Two layers of globular proteins which of boih trilaminar and lipoprotinious.

⑥ GEORGE PALADE

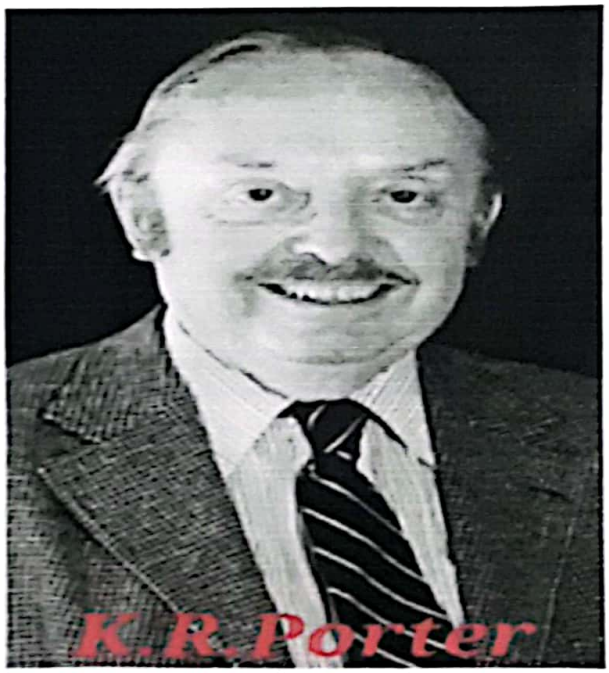
(1) palade retired in 2001, becoming professor emeritus of medicine at UCSD.

(2) In addition To The Nobel prize, palade received The Albert Lasker Award for Basic medical Research (1966) and The national medal of Science (1986).

(3) palade performed many studies on the internal organization of such cell structures as mitochondria, chloroplasts, The Golgi-apparatus, and others.

7. SVEDBERG

8. K.R.PORTER



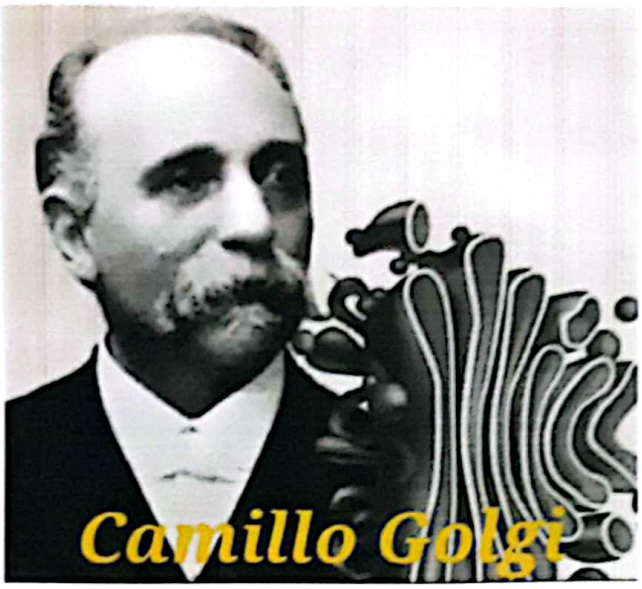
⑦. SVEDBERG

1) Theodor svedberg (30 Aug 1884 - 25 Feb - 1971)
2) was a swedish chemist and Nobel laureate for his research on colloids and proteins using the ultracentrifuge.
3) svedberg was active at uppsala university from the mid 1900s to late 1940s.
4) while at uppsala, svedberg started as a docent before becoming the university's physical chemistry head in 1912.

⑧ K.R. PORTER

1) He developed many of the new specimen preparation methods that were necessary for the success of biological electron microscopy.
2) he pioncered their use in studies of many kinds of cells and cellular components.
3) porter also contributed to the development of other experimental methods for cell culture and nuclear transplantation.
4) He was also responsible for naming the endo plasmic reticulum.

9. CAMILLO GOLGI



10. WALTHER FLEMMING

Walther Flemming

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⑨ CAMILLO GOLGI

(1) In the 1870s Camillo Golgi discovered that nerve cells could be stained with silver nitrate.

(2) This led to ground breaking studies of how the nervous system is structured and functions.

(3) Golgi maintained that all nerve cells in the nervous system constituted a continous, interconnected network.

(4) During the 19th century researchers learned to stain tissue to allow study under a microscope.

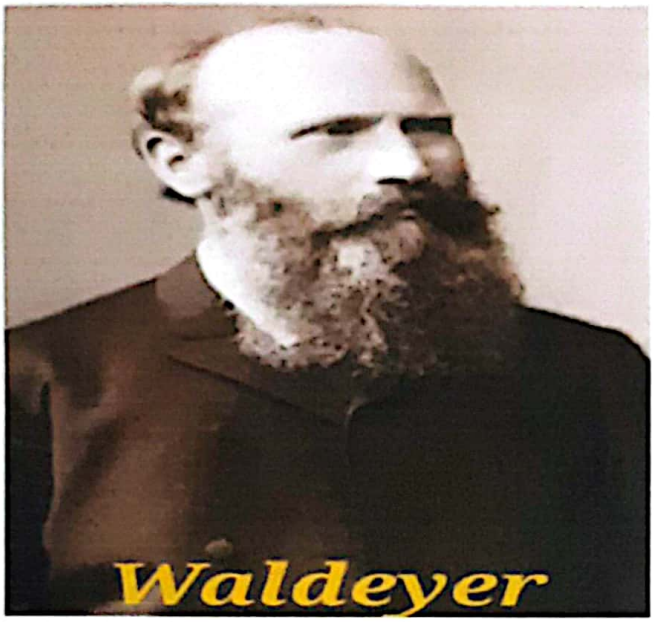
⑩ WALTHER FLEMMING:

(1) Walther Flemming was a pioneer of cytogenetics, a field of science that analyses structures and processes in the cell nucleus under a microscope.

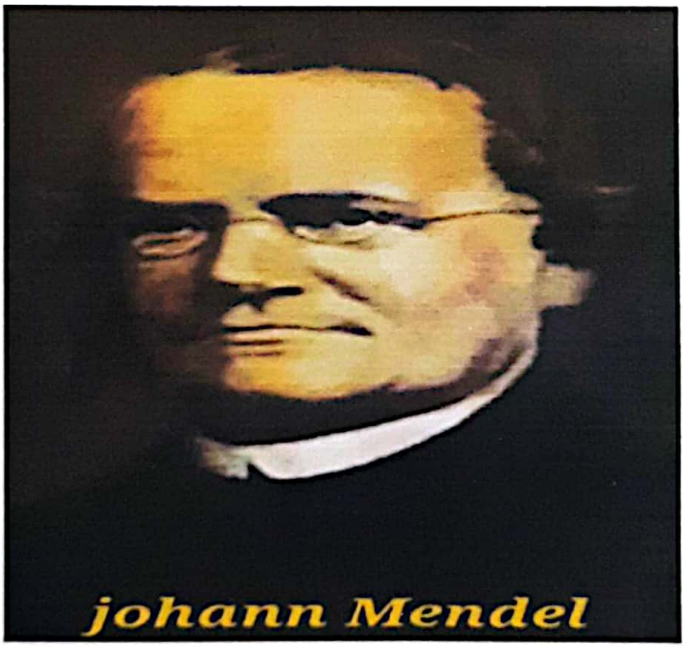
(2) He was the first person to conduct a systematic study of chromosomes during division and called this process mitosis.

(3) His 1882 work "Zellsubstanz kern and zelltheilung" (cell substance, nucleus and cell division) is considered a seminal work of modern cell biology.

11. WALDEYER



12. JOHANN MENDEL



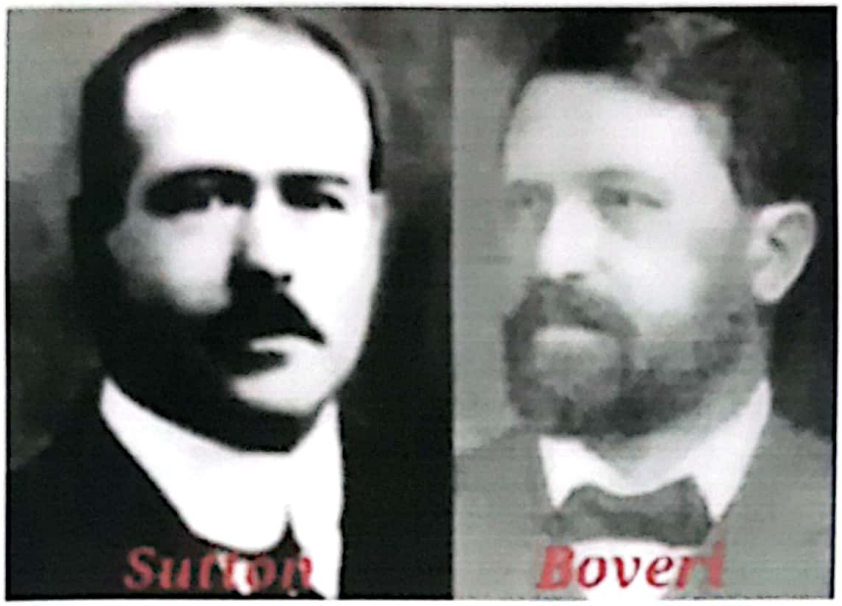
(11) WALDEYER

1) Haldeyer was a German anatomist, known for summarizing neuron Theory.
2) and for naming The chromosome.
3) He is also remembered by anatomical structure-s of the human body which were named after him: waldeyer's tonsillar ring.
4) The lymphoid tissue ring of the naso- and oropharynx) and waldeyer's glands (of the eyelids)
5) is a ringed arrangement of lymphoid organs in The pharynx.

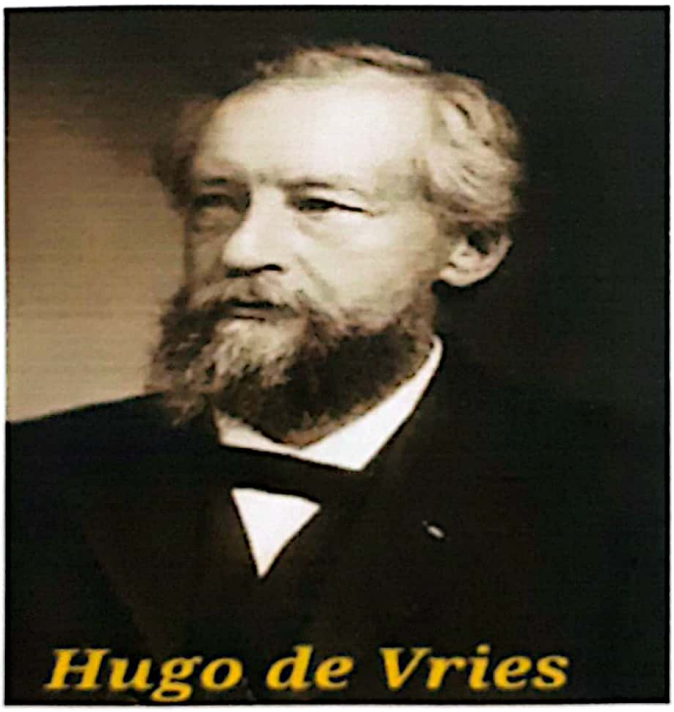
(12) JOHANN MENDEL

1) Mendel tried countless combinations of genetic traits To confirm his discovery.
2) over several years he bred almost 30,000 pea plants.
3) The results Then enabled him To make accurate predictions about The frequency and distrubution of a large number of traits over many generations.
4) mendel, Through his work on pea plants, discovered The "fundamental laws of in heritance."

13. SUTTON – BOVERI



14. HUGO DE VRIES



(13) SUTTON-BOVERI

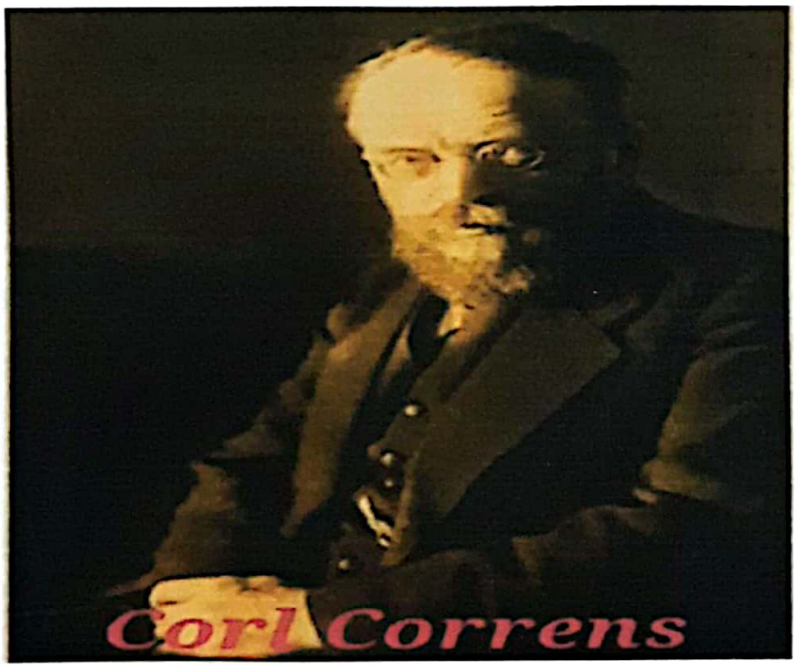
1) The Boveri-Sutton chromosome Theory known as The chromosomes Theory of inheritance or The Sutton-Boveri Theory.
2) Is a fundamental Unifying Theory of genetics which identifies chromosomes as The carries of genetic-material.
3) It correctly explains The mechanism underlying The laws of mendelian inheritance.
4) The chromosomes with The paired factors required by mendel's laws.
5) It also states That chromosomes are linear structures with genes located at specific sites called loci along Them.

(14) HUGO DE VRIES

1) De vries also contributed To knowledge of the role played in plant physiology by osmosis.
2) and in 1877 he demonstrated a relation between osmotic pressure and The molecular weight of substances in plant cells.
3) Among de Vries' other works are intracellular pangenesis (1889) and plant breeding (1907)
4) breeding application of genetic principles in animal husbandry, agriculture, and horticulture To improve desirable qualities.

15. BATESON – PUNNET

16. CARL CORRENS



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(15) BATESON - PUNNET.

1) punnett devised the "punnett square" to depict the number and variety of genetic combinations, and had a role in shaping the Hardy - weinberg law.

2) punnett and Bateson co-discovered "coupling" or gene linkage.

3) william Bateson brought mendel's laws to the attention of English scientist.

(16) CARL CORRENS

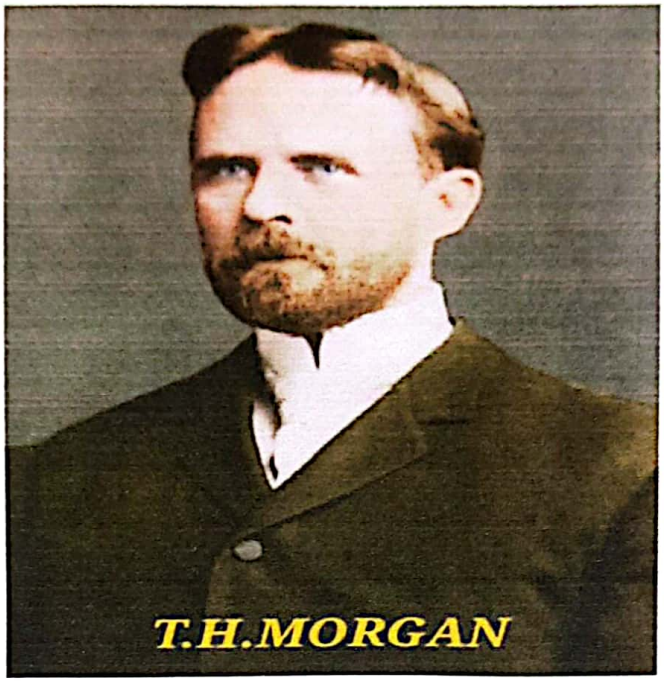
1) carl Erich correns (19 september 1864 - 14 February 1933)

2) was a German botanist.

3) and genecticist notable primarily for his independent discovery of the principles of heredity.

4) which he achieved simulatneously but independently of the botanist Hugo de vries, and for his acknowledgment of Gregor mendel's earlier paper on...

17. T.H. MORGAN



18. TSCHERMAK

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(17) T.H MORGAN.

(1) Thomas Hunt morgan (September 25, 1866 - December 4, 1945).

(2) was an American evolutionary biologist, geneticist, embryologist, and science author who won the Nobel prize in Physiology or medicine.

(3) in 1933 for discoveries elucidating the role that the chromosome plays in heredity.

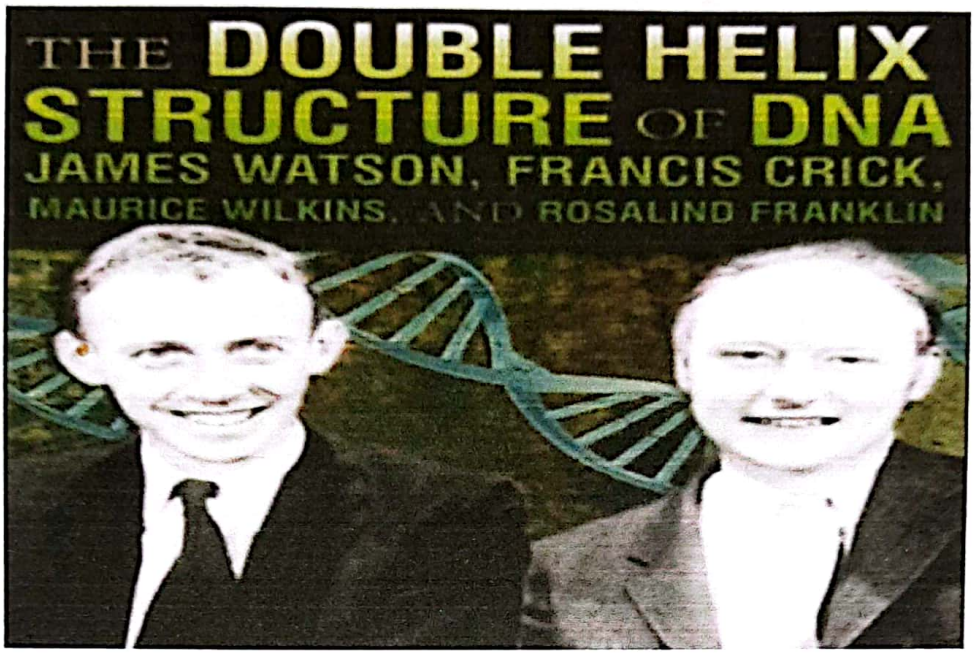
(18) TSCHERMAK

1) Tschermak graduated with a doctorate from the Halle-wittenberg university.

2) In 1898, he started doing plant breeding experiments using peas, and by 1900, he had written up his results.

(3) Tschermak like de vries and correns, independently derived "mendelian" laws of inheritance from his plant experiments.

19. WATSON - CRICK



20. FRANKLIN - WILKINS

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(19) WATSON - CRICK

1) The discovery in 1953 of the double helix, The twisted - ladder structure of deoxyribonucleic acid (DNA),

2) by James watson and Francis Crick marked a milestone in the history of science and gave rise to modern molecular biology.

3) which is largely concerned with understanding how genes control the chemical processes within cells.

4) in short order, their discovery yielded ground breaking insights into the genetic code and protein synthesis.

(20) FRANKLIN - WILKINS

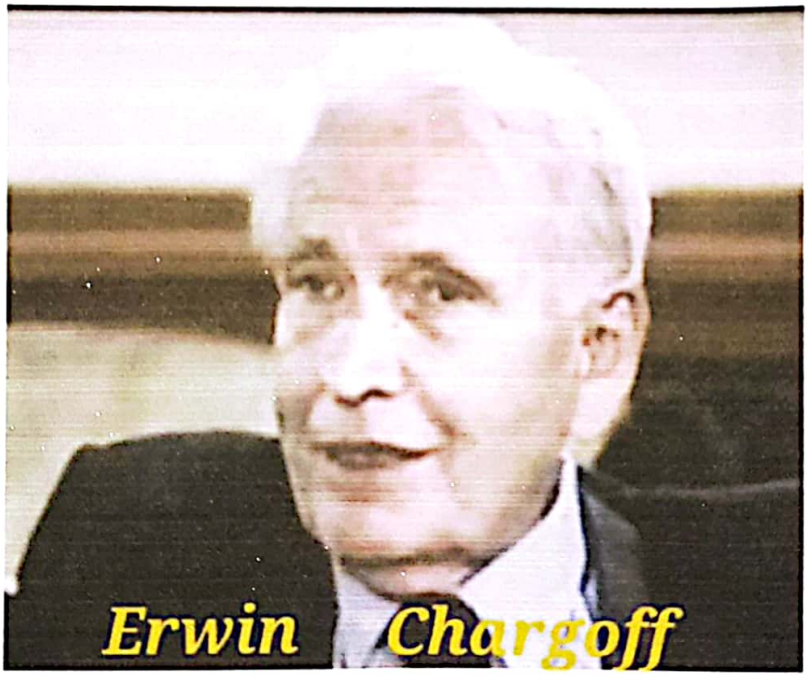
⇒ At king's college London, Rosalind Franklin obtained images of DNA using x-ray crystallography, an idea first broached by maurice wilkins.

⇒ franklin's images allowed james watson and francis crick to create their famous two - strand, or double - helix model,

⇒

21. FRIEDRICH MIESCHER

22. ERWIN CHARGOFF



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(21) FRIEDRICH-MIESCHER.

(1) miescher recognised that he had discovered a novel molecule.

(2) since he had isolated it from the cells' nuclei he named it nuclein.

(3) a name preserved in today's designation deoxyribonucleic acid.

(4) In subsequent work miescher showed that nuclein was a characteristic component of all nuclei and hypothesised that it would prove to be inextricably linked to the function of this organelle.

(22) ERWIN CHARGOFF

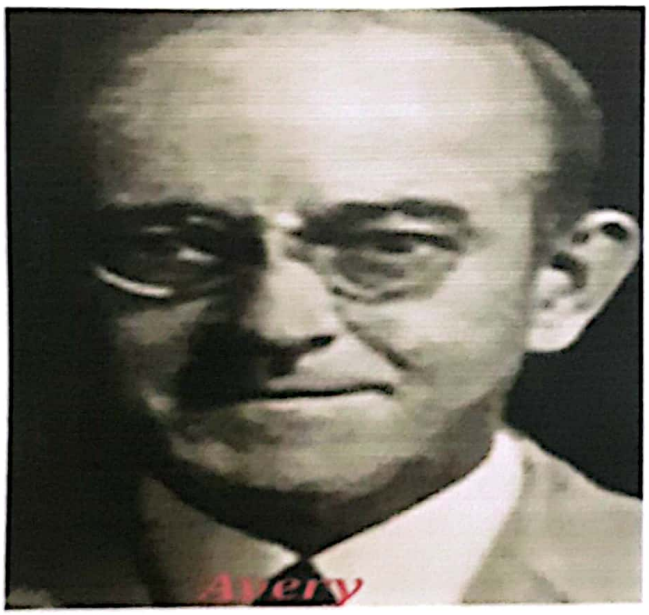
(1) Erwin chargaff was one of those men, making two discoveries that led James watson and francis crick to the double helix structure of DNA.

(2) At first, chargaff noticed that DNA - whether taken from a plant or animal - contained equal amounts of adenine and thymine and equal amounts of cytosine and guanine.

(3) These equalities provided clues into the chemical pairings that make up the double helix.

23. MESLSON - STAHL

24. AVERY – MAC LEOD – Mc CARTY



(23) MESLSON - STAHL

1) In The famous meselson - Stahl experiments of 1958 he and frank Stahl demonstrated Through nitrogen isotope labeling That DNA is replicated semi - conservatively.

2) In addition, meselson, francois Jacob. and Sydney Brenner discovered The existence of messenger DNA in 1961.

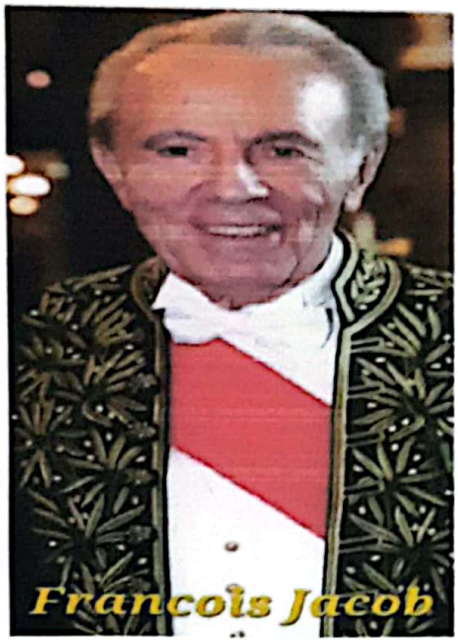
3) meselson has investigated DNA repair in cells. and how cells recognize and destroy foreign DNA, and, with werner Arber, was responsible for The discovery of restriction enzymes.

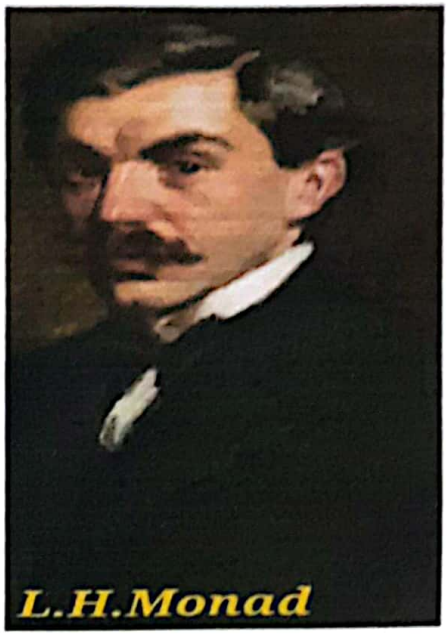
(24) AVERY - MAC LEOD - Mc CARTY.

⇒ In 1944, Two candidians, oswald Avery and colin macleod, and an American maclyn mc carty, published a paper in the Journal of Experimental medicine That demonstrated genes TO be the chemical, deoxyribonucleic acid (DNA).

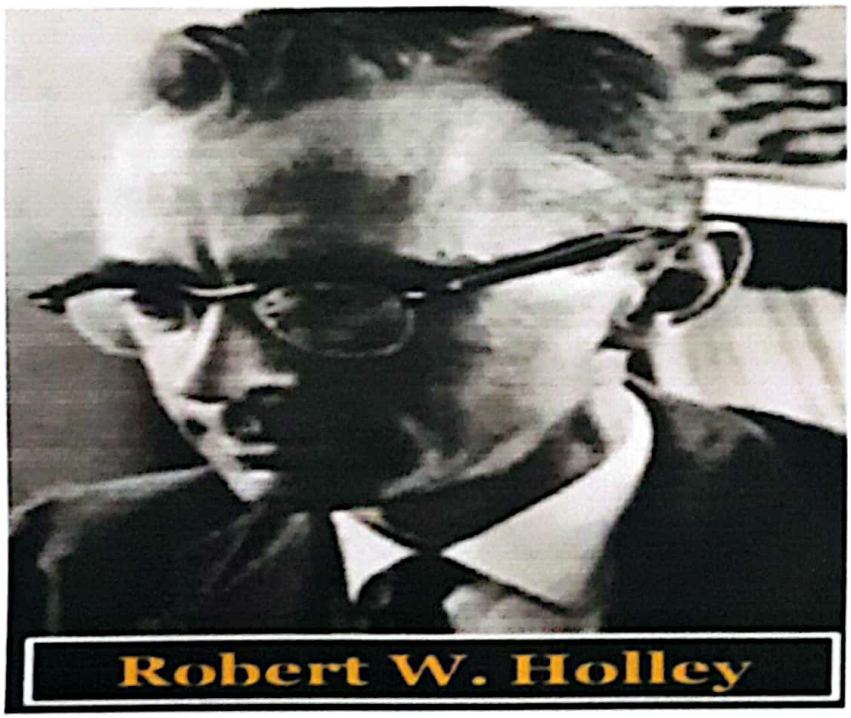
⇒ Avery, mac LEOD, mc carty identified DNA as the "transforming principle" while studying Streptococcus pneumoniae, bacteria That can be cause pneumonia.

25.JACOB - MONAD





26. HOLLEY



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(25): JOCOB-MONAD

(1) His military distinctions include: Honorary colonel of the Reserve, chevalier de la Legion d'Honneur (military) 1945, Croix de Guerre (1945) and the Bronze Star medel.

(2) monod joined the Institut pasteur after the liberation as Laboratory Director in Lwoff's Department.

(3) He was made Director of cell Biochemistry Department in 1954, and in 1959 was appointed in professor of the chemistry of metabolism at the Sorbonne.

(26). HOLLEY

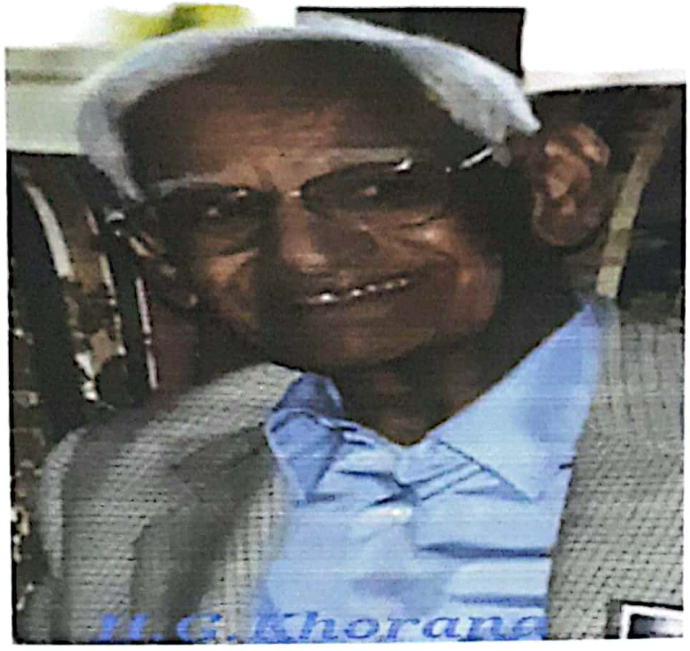
1) birth 28 January 1922 in Urbana, Illinois; death 11 February 1933 in Los Gatos, California.

2) biochemist who in 1965 completed the sequencing of the first transfer RNA molecule.

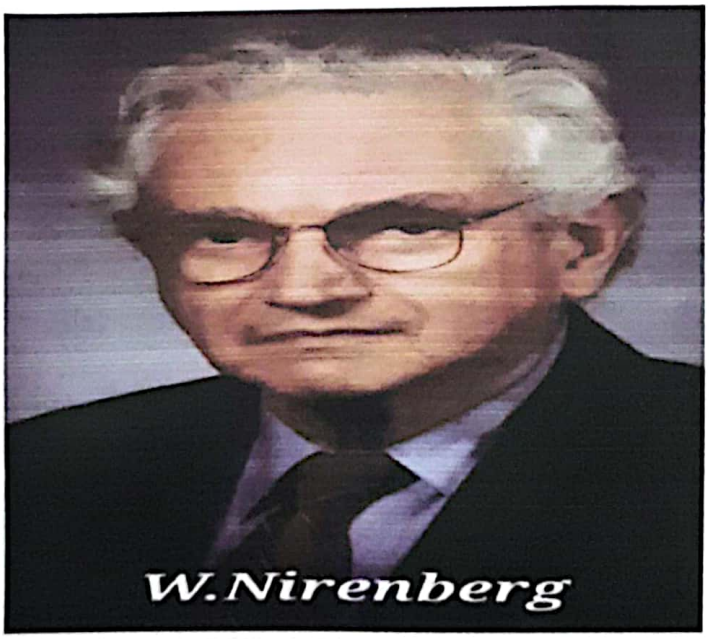
3) and in 1968 was a co-winner of the Nobel prize in physiology or medicine.

4) The proteins are formed in what are known as ribosomes, which lie outside the cell nucleus.

27. H.G.KHORANA



28. NIRENBERG



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(27) H.G KHORANA

1) Har Gobind khorana made important contributions to this field by building different RNA chains with the help of enzymes.

2) Using these enzymes, he was able to produce proteins.

3) The amino acid sequence of these proteins then solved the rest of the puzzle.

4) In the 1950s it was established that genetic information is transferred from DNA to RNA, to protein.

(28) NIRENBERG

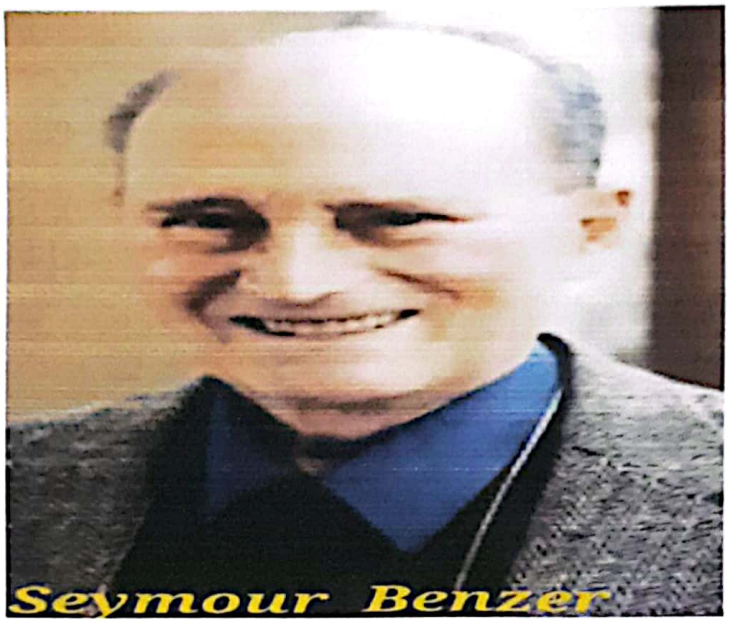
1) Nirenberg was an American biochemist and geneticist.

2) He shared a Nobel prize in physiology or medicine in 1968 with Har Gobind khorana and Robert W. Holley for breaking the genetic code.

3) and describing how it operates in protein synthesis.

4) In the same year, together with Har Gobind khorana, he was awarded the Louisa Grass Horwitz prize from columbia university.

29. SEYMOUR BENZER



30. TEMIN – BALTIMORE

(29) SEYMOUR BENZER

→ Benzer is credited with demonstrating that a gene can be split into hundreds of components each able to mutate.

→ In the mid-2015 century his work was pivotal in establishing gene structure and he is recognized as a pioneer in the field of molecular biology.

→ was an American physicist, molecular biologist and behavioral geneticist.

→ His career began during the molecular biology revolution of the 1950s, and he eventually rose to prominence in the fields of molecular and behavioral genetics.

(30) TEMIN - BALTIMORE

→ working independently. Baltimore and Temin discovered reverse transcriptase. an enzyme that synthesis DNA from RNA Baltimore also conducted research that led to an understanding of the interaction between viruses and the genetic material of the cell.

→ After Renato dubecco discovered that tumor viruses operate by incorporating their DNA into the DNA of host cells. David baltimore and Howard temin independently of one another discovered.