EFECTROLOTY BY FRANCIS FEYI-JIMI

THE BEGINNING

- WILLIAM GILBERT, AN ENGLISH SCIENTIST, ESTABLISHED THE SCIENCE UNDERLYING THE STUDY OF ELECTRICITY AND MAGNETISM AROUND THE TURN OF THE 17TH CENTURY. INSPIRED BY GILBERT'S WORK, ANOTHER ENGLISHMAN, SIR THOMAS BROWNE, CONDUCTED ADDITIONAL RESEARCH AND PUBLISHED BOOKS ON HIS FINDINGS. GILBERT AND BROWNE ARE WIDELY REGARDED AS THE FIRST SCIENTISTS TO COIN THE TERM "ELECTRICITY."
- THE MAJORITY OF PEOPLE CREDIT BENJAMIN FRANKLIN WITH DISCOVERING ELECTRICITY. BENJAMIN FRANKLIN POSSESSED ONE OF THE MOST BRILLIANT SCIENTIFIC MINDS OF HIS TIME. HE HAD A WIDE RANGE OF SCIENTIFIC INTERESTS, MADE NUMEROUS DISCOVERIES, AND INVENTED NUMEROUS ITEMS, INCLUDING BIFOCAL GLASSES. HE BECAME INTERESTED IN ELECTRICITY IN THE MID-1700S.

WHAT IS ELECTRICITY

ELECTRICITY IS THE FLOW OF ELECTRICAL POWER OR CHARGE. IT IS A SECONDARY ENERGY SOURCE WHICH MEANS THAT WE GET IT FROM THE CONVERSION OF OTHER SOURCES OF ENERGY, LIKE COAL, NATURAL GAS, OIL, NUCLEAR POWER AND OTHER NATURAL SOURCES, WHICH ARE CALLED PRIMARY SOURCES.

MEASURING ELECTRICITY

ELECTRICITY IS MEASURED IN WATTS AND KILOWATTS.

ELECTRICITY IS MEASURED IN UNITS OF POWER CALLED WATTS, NAMED TO HONOR JAMES WATT, THE INVENTOR OF THE STEAM ENGINE. A WATT IS THE UNIT OF ELECTRICAL POWER EQUAL TO ONE AMPERE UNDER THE PRESSURE OF ONE VOLT.

TYPES OF ELECTRICITY

THE TWO TYPES OF ELECTRICITY ARE:

- <u>STATIC ELECTRICITY</u>: THE IMBALANCE BETWEEN THE POSITIVE AND NEGATIVE CHARGES WITHIN AN OBJECT CAUSES THE DISCHARGE OF AN ELECTRICAL PULSE KNOWN AS STATIC ELECTRICITY.
- <u>CURRENT ELECTRICITY</u>: CURRENT ELECTRICITY IS DEFINED AS THE FLOW OF ELECTRONS FROM ONE SECTION OF THE CIRCUIT TO ANOTHER.

WAYS OF GENERATING ELECTRICITY









HYDROPOWER
NATURAL GAS
NUCLEAR ENERGY
SOLAR ENERGY

ADVANTAGES AND DISADVANTAGES OF ELECTRICITY

ADVANTAGES OF ELECTRICITY :

- IT IS A CLEAN, SAFE, CHEAP AND CONVENIENT SOURCE OF ENERGY.
- LOWER MAINTENANCE COST.
- MORE EFFICIENT.
- NO TAILPIPE EMISSION.
- WE ALL KNOW THAT IT CAN BE SET UP IN MANY SIZES.
- IT DOESN'T REQUIRE AS MANY EMPLOYEES.
- REDUCES GREENHOUSE EMISSION.

DISADVANTAGES OF ELECTRICITY :

- MORE EXPENSIVE THAN GASOLINE
- LOSS OF FISH SPECIES
- SOMETIMES MESSES UP WILDLIFE
- DEPENDENT ON PRECIPITATION
- MORE POWER PLANTS AND MORE POLLUTION
- DAMMING CAN CAUSE LOSS OF LAND SUITABLE FOR AGRICULTURE AS WELL AS RECREATION
- COST FOR CONSTRUCTION

ELECTRICITY

ELECTRICITY, SIMPLY PUT, IS THE FLOW OF ELECTRIC CURRENT ALONG A CONDUCTOR. THIS ELECTRIC CURRENT TAKES THE FORM OF FREE ELECTRONS THAT TRANSFER FROM ONE ATOM TO THE NEXT. THUS, THE MORE FREE ELECTRONS A MATERIAL HAS, THE BETTER IT CONDUCTS. THERE ARE THREE PRIMARY ELECTRICAL PARAMETERS: THE VOLT, THE AMPERE AND THE OHM.

1. THE VOLT: THE PRESSURE THAT IS PUT ON FREE ELECTRONS THAT CAUSES THEM TO FLOW IS KNOWN AS ELECTROMOTIVE FORCE (EMF). THE VOLT IS THE UNIT OF PRESSURE, I.E., THE VOLT IS THE AMOUNT OF ELECTROMOTIVE FORCE REQUIRED TO PUSH A CURRENT OF ONE AMPERE THROUGH A CONDUCTOR WITH A RESISTANCE OF ONE OHM.

2. THE AMPERE: THE AMPERE DEFINES THE FLOW RATE OF ELECTRIC CURRENT. FOR INSTANCE, WHEN ONE COULOMB (OR 6 X 1018 ELECTRONS) FLOWS PAST A GIVEN POINT ON A CONDUCTOR IN ONE SECOND, IT IS DEFINED AS A CURRENT OF ONE AMPERE.

3. THE OHM: THE OHM IS THE UNIT OF RESISTANCE IN A CONDUCTOR. THREE THINGS DETERMINE THE AMOUNT OF RESISTANCE IN A CONDUCTOR: ITS SIZE, ITS MATERIAL, E.G., COPPER OR ALUMINUM, AND ITS TEMPERATURE. A CONDUCTOR'S RESISTANCE INCREASES AS ITS LENGTH INCREASES OR DIAMETER DECREASES. THE MORE CONDUCTIVE THE MATERIALS USED, THE LOWER THE CONDUCTOR RESISTANCE BECOMES. CONVERSELY, A RISE IN TEMPERATURE WILL GENERALLY INCREASE RESISTANCE IN A CONDUCTOR.

OHM'S LAW OHM'S LAW DEFINES THE CORRELATION BETWEEN ELECTRIC CURRENT (I), VOLTAGE (V), AND RESISTANCE (R) IN A CONDUCTOR.

OHM'S LAW CAN BE EXPRESSED AS: $V = I \times R$ WHERE: V = VOLTS, I = AMPS, R = OHMS

THANK YOU