

WHAT ARE X RAYS?

a marvellous discovery

WHAT ARE X RAYS USED FOR?

X-RAYS

BY ARTHUR C. BROMIRSKI



GOOD MORNING, DOCTOR. I'VE COME TO HAVE MY TEETH CHECKED UP.

F.J. MCCORMICK D.D.S.

GOOD MORNING, TOMMY. COME RIGHT IN AND WE'LL LOOK THEM OVER.



THEY LOOK ALL RIGHT, TOMMY, BUT I'LL TAKE X-RAYS TO MAKE SURE.

ARE THEY ALL RIGHT, SIR?



NOW, YOU JUST PUT THIS INTO YOUR MOUTH BACK OF YOUR TEETH, AS I TELL YOU, AND WE SHALL TAKE THE PICTURES.

I HOPE THEY'RE ALL RIGHT.



AS SOON AS MISS WILLIS HAS THE PICTURES READY, WE'LL SEE HOW YOUR TEETH REALLY ARE, TOMMY. IT WON'T TAKE LONG.

X-RAYS ARE REALLY WONDERFUL, AREN'T THEY, DOCTOR? WHERE DID THEY COME FROM?



THERE IS THE MAN WHO DISCOVERED THEM. HE WAS A GERMAN PHYSICS PROFESSOR NAMED WILHELM KONRAD ROENTGEN.



ROENTGEN ANNOUNCED THE DISCOVERY ON NOV. 8, 1895

I HAVE FOUND A MYSTERIOUS RAY WHICH CAN PASS RIGHT THROUGH FLESH, CLOTH, METAL AND WOOD. I HAVE NAMED IT THE X-RAY.

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TREASURE CHEST

ROENTGEN'S DISCOVERY WAS HAILED BY THE WORLD OF SCIENCE.

THE X-RAY WILL PROVE INVALUABLE IN THE STUDY OF MEDICINE.

IT WILL OPEN A NEW ERA IN SCIENCE.



IN 1901, ROENTGEN WAS AWARDED THE NOBEL PRIZE IN PHYSICS.

YOU ARE TRULY A GREAT MAN, MR. ROENTGEN. YOU COULD SELFISHLY HAVE KEPT YOUR X-RAYS SECRET AND MADE MILLIONS OF DOLLARS. INSTEAD, YOU FREELY GAVE YOUR GREAT DISCOVERY TO THE WORLD. THE WORLD WILL NOT FORGET YOU.

IF THE X-RAY IS OF BENEFIT TO MANKIND, THAT WILL BE REWARD ENOUGH.



SINCE 1913 AMERICAN SCIENTISTS HAVE BEEN LEADERS IN X-RAY-RESEARCH.

NAMES:
COOLIDGE
ATLEE
EDISON
KEARSLEY
CHARTON
GROSS
WANTZ
SNOOK
WESTENDORP
LANGMUIR
HULL

THE MOST COMMON USE OF X-RAY IS IN MEDICINE. PHYSICIANS CAN EXAMINE BONES AND OTHER PARTS OF THE BODY BY MEANS OF X-RAY. YOU KNOW MY DAUGHTER, MARY, DON'T YOU?

OH, YES, I MET HER HERE LAST TIME I CAME.



LAST WEEK SHE WAS RIDING HER BICYCLE AND FELL DOWN.

MARY, ARE YOU HURT?

OUCH, MY HAND!



I TOOK HER RIGHT TO THE DOCTOR.

WILL YOU LOOK AT MARY'S HAND, DOCTOR?



IS IT BROKEN, DOCTOR?

WE'D BETTER HAVE AN X-RAY TO SEE. THEN WE'LL BE SURE.





THERE IT IS, DOCTOR MCCORMICK. THERE'S A SLIGHT FRACTURE IN THE KNUCKLE OF THE INDEX FINGER. IT'S NOTHING SERIOUS, BUT WE'LL HAVE TO TAKE CARE OF IT.



THAT WAS EXAMINATION BY RADIOGRAPH, TOMMY. IT'S THE SAME KIND I TOOK OF YOUR TEETH. THERE'S ANOTHER KIND, TOO. LET'S GO NEXT DOOR TO DOCTOR LAWSON AND I'LL SHOW IT TO YOU.

OH, FINE!



THIS IS THE SECOND METHOD, CALLED FLUOROSCOPY. IN THIS, X-RAYS PASS THROUGH THE OBJECT AND CAST SHADOWS ON A SPECIAL SCREEN. THIS SCREEN SHOWS DETAILS OF THE INTERNAL ORGANS.

STEP BEHIND THE SCREEN, DOCTOR MCCORMICK, AND WE'LL SHOW HIM.

I DON'T GET IT.



THERE YOU ARE, MY BOY. THE X-RAY SEES ALL, SHOWS ALL.

DOCTOR MCCORMICK, I CAN SEE YOU RIGHT DOWN TO YOUR BONES!



DADDY, I THINK SKIPPY SWALLOWED A SAFETY PIN!

LET'S SEE, BILLY. WOULD YOU HELP ME, DOCTOR MCCORMICK?



YOU'RE RIGHT, BILLY, TAKE HIM TO THE VETERINARIAN RIGHT AWAY. HE'LL TAKE CARE OF HIM.

BOY. THAT MACHINE SURELY WORKS!

TREASURE CHEST

THERE ARE MANY OTHER USES FOR X-RAYS. I HAVE SOME PICTURES I CAN SHOW YOU WHILE WE WAIT FOR YOURS. WOULD YOU LIKE TO SEE THEM?

YES, SIR.

X-RAYS ARE USED TO FIGHT SKIN DISEASES, INFECTIONS, INFLAMMATIONS AND CANCER.

1,000,000 VOLT X-RAY MACHINE

X-RAYS PLAY AN IMPORTANT PART IN THE INDUSTRIAL WORLD, TOO.

METAL CASTINGS OFTEN HAVE DEFECTS, HIDDEN, WHICH MAY LATER PROVE DANGEROUS. X-RAYS PENETRATE INTO THE METAL AND REVEAL THEM.

PARTS FOR OUR NAVAL VESSELS AND AIRPLANES ARE INSPECTED BY X-RAYS TO INSURE PERFECT PERFORMANCE.

FOOD INDUSTRIES USE FLUOROSCOPY TO EXAMINE PRODUCTS. ITEMS OF POOR QUALITY CAN BE EASILY DETECTED AND REMOVED.

HOW CAN YOU TELL WHEN THEY'RE BAD?

HERE'S A BAD ORANGE. TAKE A LOOK.

THE ONE ON THE LEFT IS BAD, THE ONE ON THE RIGHT IS GOOD. DO YOU SEE THE DIFFERENCE?

I CERTAINLY DO.

THIS METHOD IS ESPECIALLY USEFUL IN DETECTING DANGERS TO THE CONSUMER.



OH, MR. WALSH, LOOK!

I'M COMING.

GET THAT BOX OUT AT ONCE I WANT THE WHOLE SHIPMENT RECHECKED, MISS WILSON. WE MUSTN'T TAKE ANY CHANCES.



YES, MR. WALSH.

X-RAYS HAVE HELPED TO MAKE SYNTHETIC FIBERS LIKE ARTIFICIAL WOOL.



THEY HAVE PLAYED AN IMPORTANT ROLE IN THE DEVELOPMENT OF PAINT AND PIGMENTS.



JEWELERS USE THE X-RAY TO IDENTIFY PRECIOUS STONES AND GEMS.



THE X-RAY STUDY SHOWS THAT THESE ARE GENUINE RUBIES.

THE X-RAY IS USED IN DETERMINING THE EFFECTS OF LOADS ON BRIDGE STRUCTURES.



OKAY, HERE. NO SIGNS OF OVERLOADING.

LET'S TRY THE OTHER SIDE NOW.

SYNTHETIC RUBBER WAS MADE POSSIBLE BY THE MYSTERIOUS RAYS THAT ROENTGEN DISCOVERED.



HERE YOU ARE, LOUIS. LOOKS LIKE RUBBER, ACTS LIKE RUBBER, FEELS LIKE RUBBER-- BUT IT'S SYNTHETIC!

THOSE X-RAYS ARE SURELY SOMETHING.



EVEN IN THE CHEESE INDUSTRY X-RAYS ARE USED TO DETERMINE WHEN CHEESE IS FULLY RIPENED. AND --



WHY, IT'S MR. MASON OF THE FBI!

SORRY TO BARGE IN, DOCTOR, BUT CAN YOU LOOK AT A SORE TOOTH OF MINE? IT BOTHERS ME.



I WAS JUST TELLING THIS LAD SOMETHING ABOUT X-RAYS.

YES, I HEARD YOU. I CAN ADD SOMETHING, IF I MAY, TO WHAT YOU TOLD HIM, A FEW DAYS AGO...



... THE CHIEF CALLED ME IN.

THIS PACKAGE LOOKS SUSPICIOUS, MASON. BETTER HAVE IT X-RAYED BEFORE YOU OPEN IT. NO USE TAKING CHANCES.

YES, MR. HOOVER.



HERE'S THE X-RAY, CHIEF. YOU WERE RIGHT, THERE'S A BOMB IN IT WIRED TO EXPLODE WHEN THE PACKAGE IS OPENED.

THANK HEAVEN FOR THE X-RAY. GET THAT PACKAGE OUT OF HERE. AND THEN TAKE A LOOK AT THAT OIL PAINTING.



WHY, IT'S JUST A PAINTING OF A SHIP.

PUT IT UNDER THE X-RAY AND SEE WHAT YOU GET.



BY GOLLY, HE WAS RIGHT. THE X-RAY SHOWED A SECRET PLAN UNDER THE INNOCENT SHIP. IT HAD BEEN STOLEN FROM OUR GOVERNMENT. HERE'S THE PICTURE.

HERE ARE TOMMY'S X-RAYS, DOCTOR.

JEEPERS!



NOTHING WRONG WITH YOUR TEETH, TOMMY. DON'T FORGET TO COME BACK IN 6 MONTHS FOR ANOTHER CHECK-UP.

I WON'T, DOCTOR. GOOD-BYE, MR. MASON. THANK YOU, BOTH!

SO LONG, SON. I WISH I WERE GOING WITH YOU.

