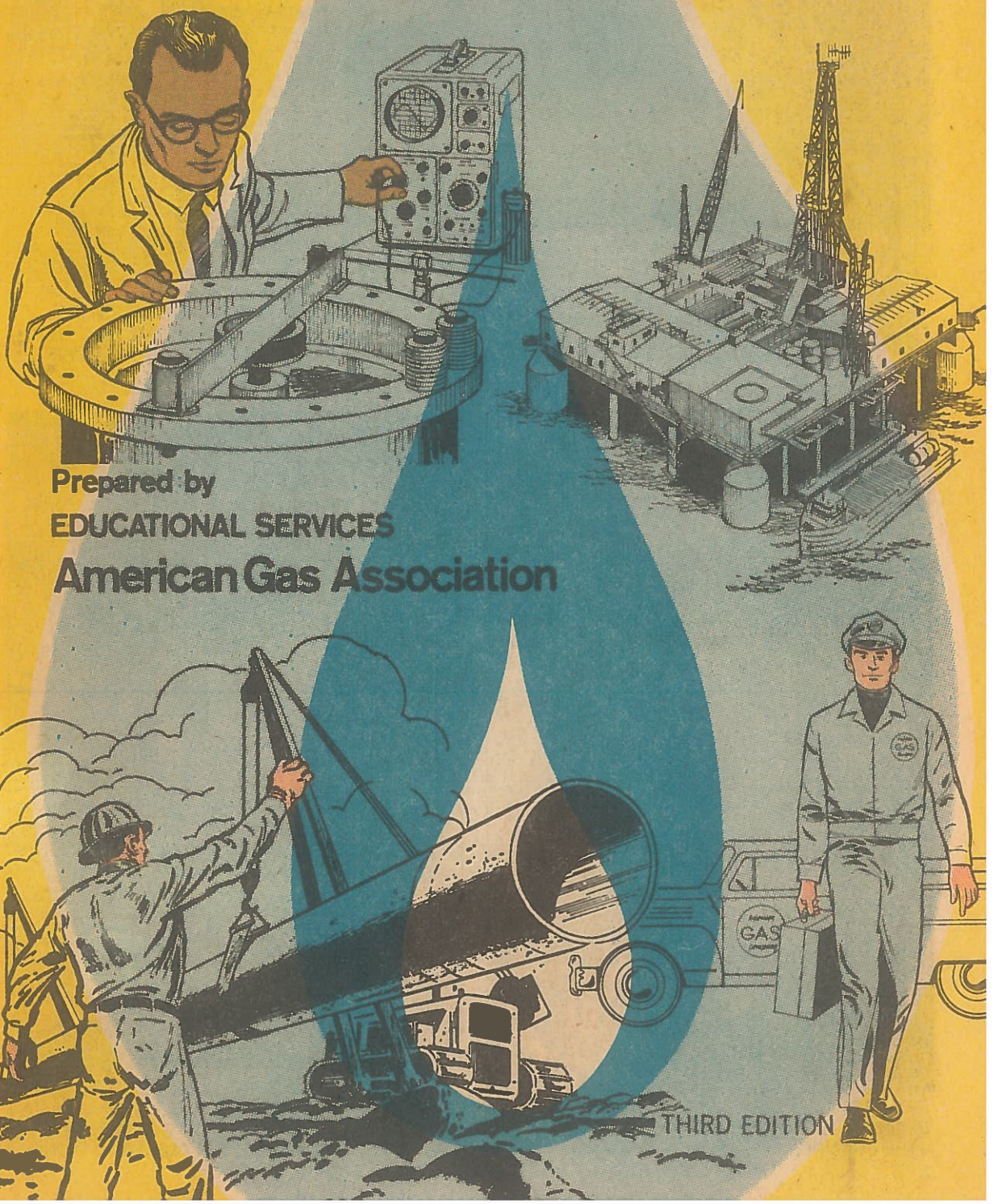
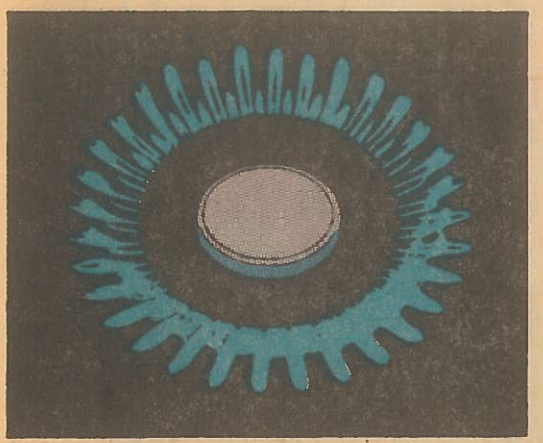
THE HISTORY OF NATURAL GAS



Prepared by
EDUCATIONAL SERVICES
American Gas Association

THIRD EDITION

YOU SEE THESE FAMILIAR BLUE FLAMES OF NATURAL GAS EVERY DAY...



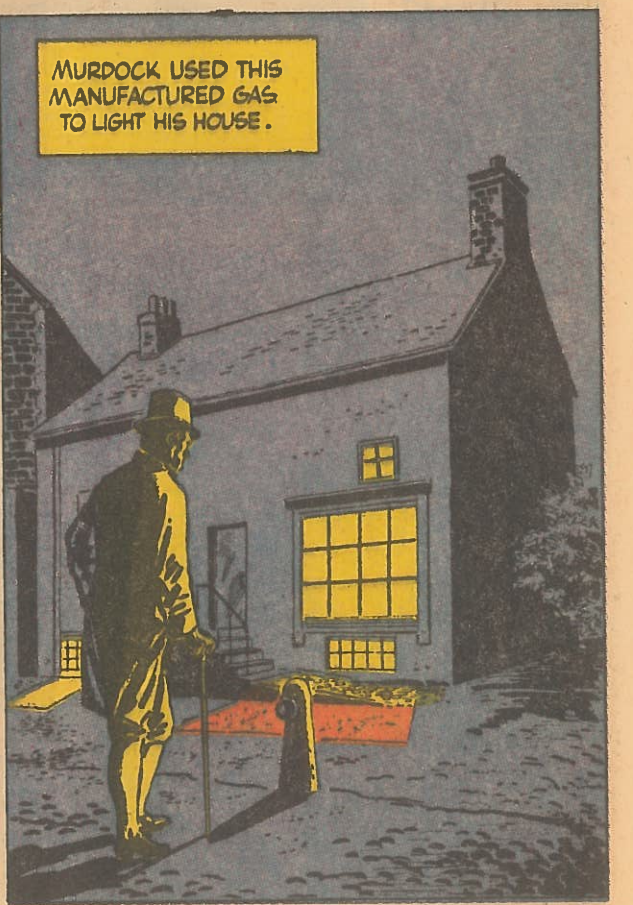
...NOTHING STRANGE OR MYSTERIOUS ABOUT THEM. BUT THERE WAS A TIME...

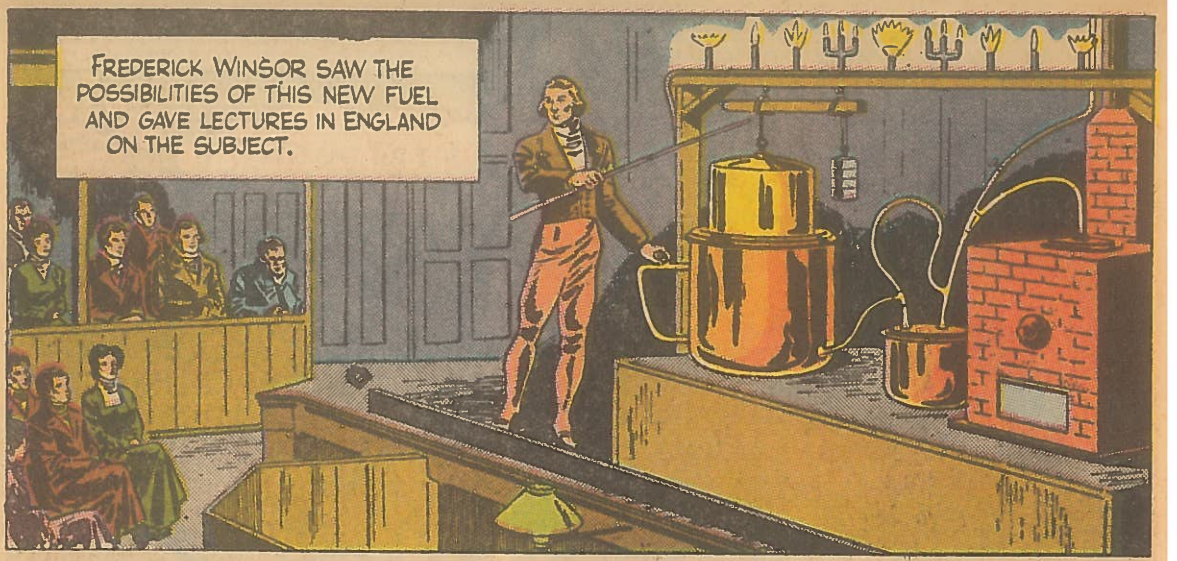
...WHEN PEOPLE THOUGHT OTHERWISE. A THOUSAND YEARS AGO FIRE WORSHIPPERS TRAVELED FROM PERSIA AND INDIA TO A TEMPLE ON THE CASPIAN SEA WHERE A MYSTERIOUS FLAME BURNED NIGHT AND DAY ON THE ALTAR.

AND PEOPLE WERE MYSTIFIED BY "BURNING SPRINGS," FLAMES FED BY NATURAL GAS FROM THE GROUND.

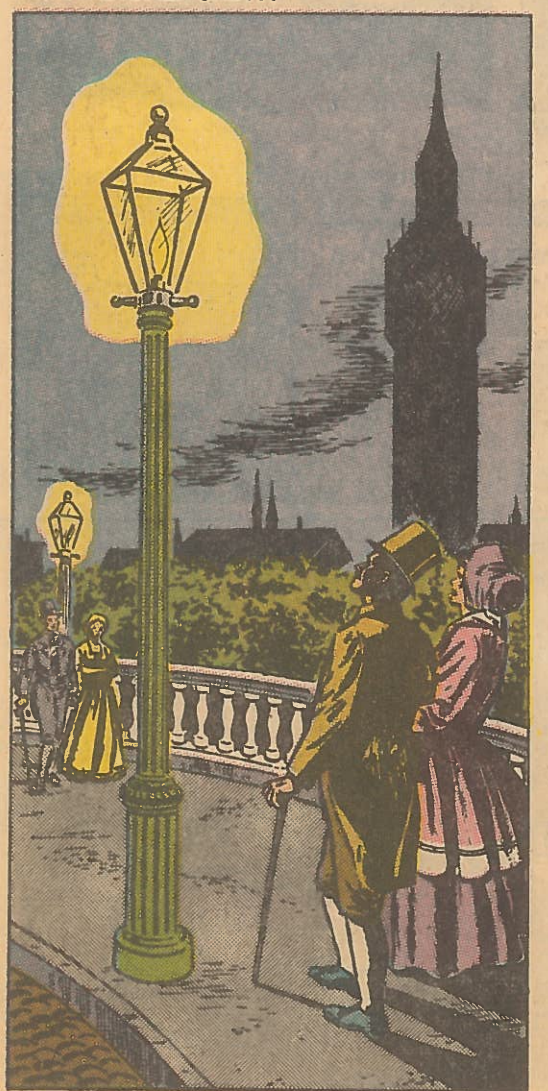
GEORGE WASHINGTON BOUGHT SOME LAND IN VIRGINIA IN 1775 BECAUSE IT HAD A REMARKABLE "BURNING SPRING" ON IT. BUT NO ONE THEN SAW HOW TO PUT THIS NATURAL GAS ENERGY TO WORK.

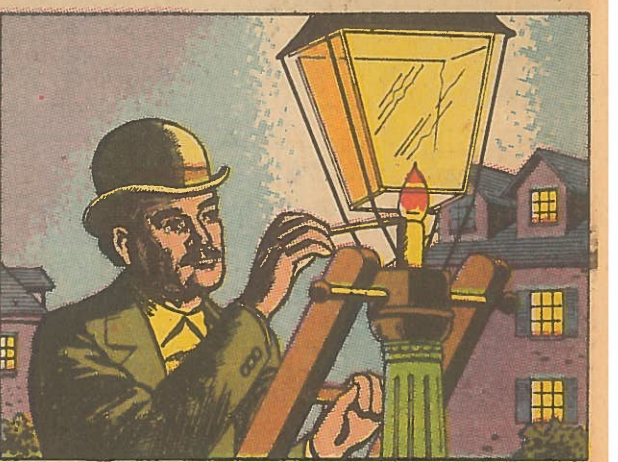
IN ENGLAND A FEW YEARS LATER, HOWEVER, WILLIAM MURDOCK DISCOVERED HOW TO MAKE GAS FROM COAL.



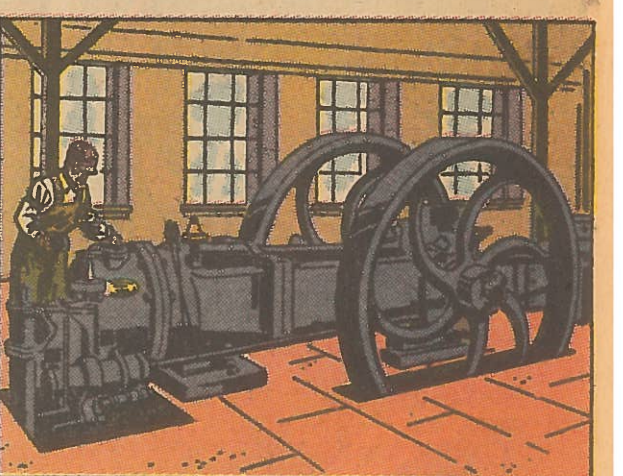


HE FORMED THE FIRST GAS COMPANY AND PROCEEDED TO LIGHT LONDON STREETS WITH MANUFACTURED GAS...



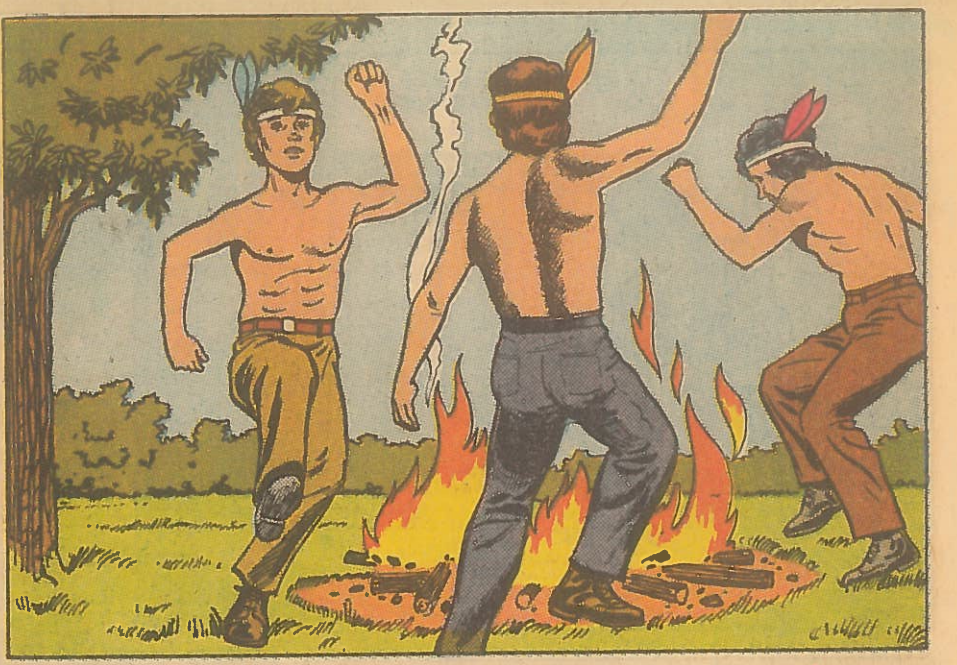


IN OUR COUNTRY, MANUFACTURED GAS WAS FIRST INTRODUCED IN BALTIMORE, MARYLAND IN 1816.



MANUFACTURED GAS NOT ONLY GAVE LIGHT BUT POWERED FACTORY ENGINES, AND SOON BECAME THE BASIS FOR AN IMPORTANT INDUSTRY, PROVIDING ENERGY FOR A GROWING COUNTRY. ENGINEERS INVENTED AND DEVELOPED MANY WAYS OF HANDLING AND USING GAS.

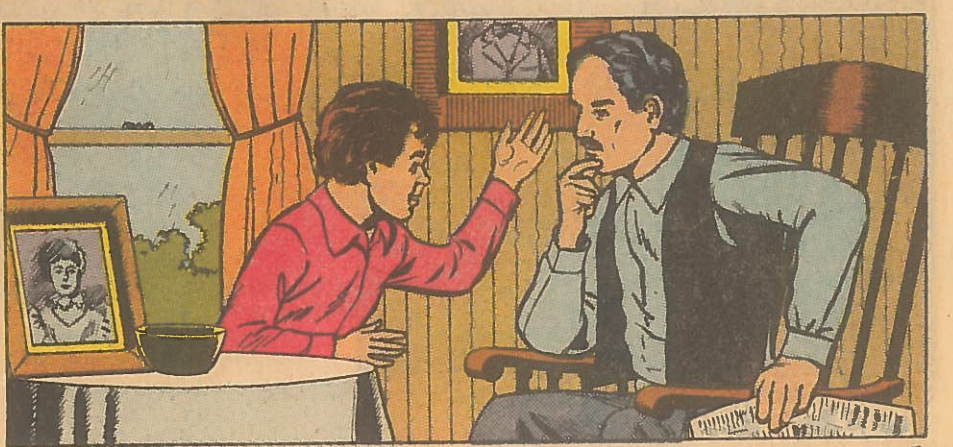
ABOUT 1821 IN FREDONIA, A SMALL TOWN IN UPSTATE NEW YORK, SOME YOUNGSTERS WERE PLAYING INDIAN WAR DANCE AROUND A BONFIRE...



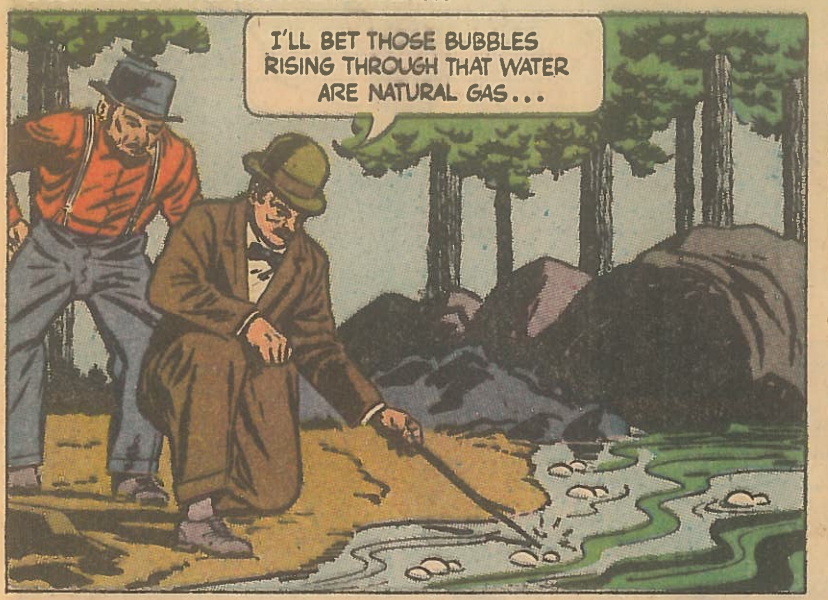
AS INDIANS DID, THEY THREW SOME BURNING BRANCHES AS FAR AS THEY COULD...

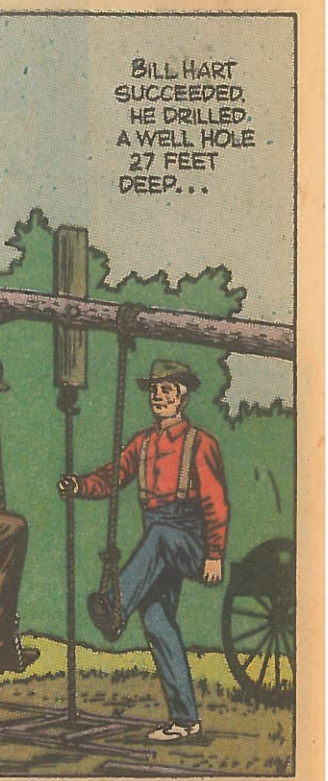
ONE OF THE BRANCHES LANDED ON THE BANK OF A NEARBY CREEK AND WOULDN'T GO OUT!

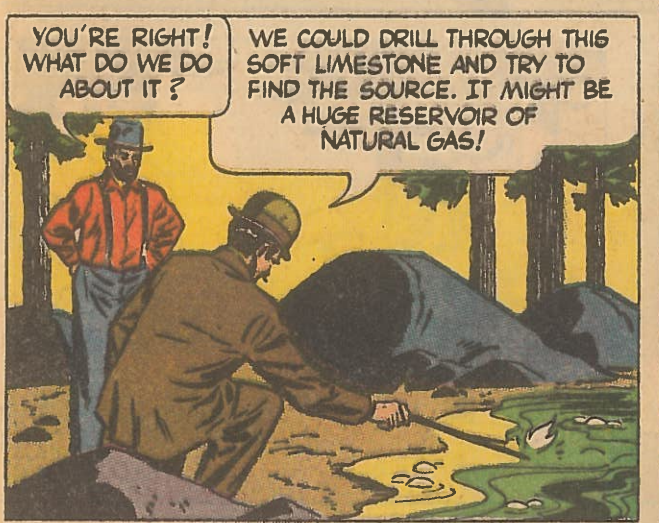
THE ASTONISHED YOUNGSTERS RAN AND TOLD THEIR PARENTS ABOUT IT...



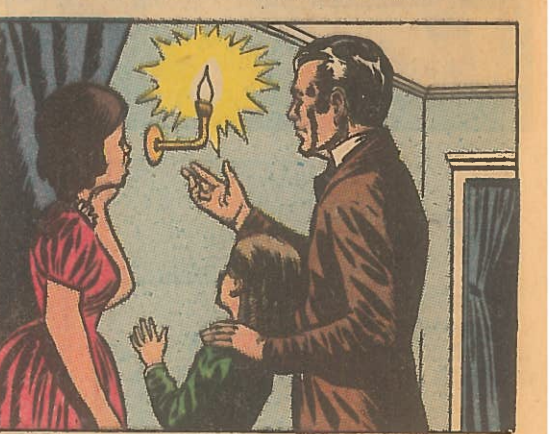
BILL HART OF FREDONIA HAD AN IDEA...





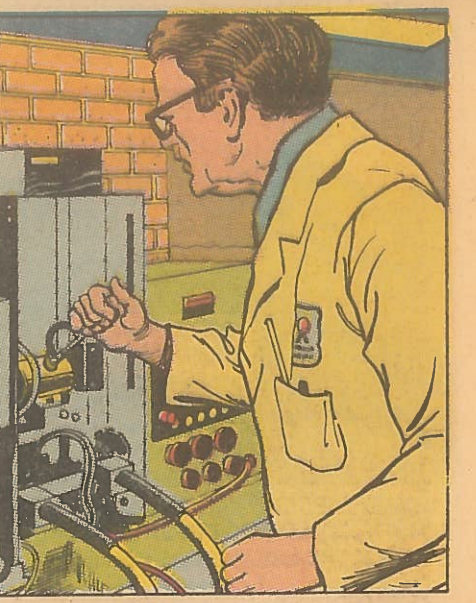


AND BROUGHT THE NATURAL GAS THROUGH HOLLOW LOG PIPES TO FREDONIA.



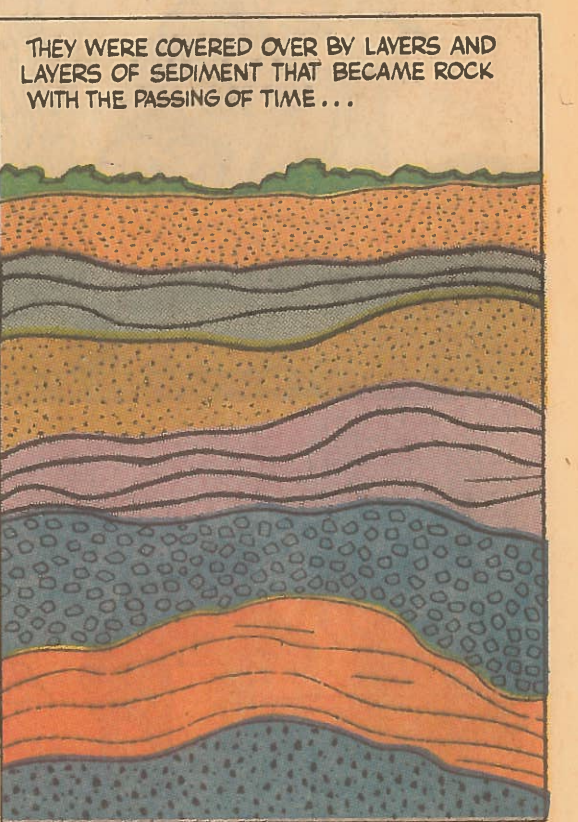
THIS GAS WAS USED FOR ILLUMINATION IN SOME OF THE BUILDINGS IN THE AREA.

BILL HART FOUND HIS GAS WELL BECAUSE OF A "BURNING SPRING." IF BURNING SPRINGS WERE THE ONLY WAY TO FIND NATURAL GAS, WE WOULD HAVE VERY LITTLE TODAY. BECAUSE SCIENTISTS HAVE DISCOVERED MUCH ABOUT WHAT NATURAL GAS IS, AND WHERE IT MAY BE FOUND UNDERGROUND, WE KNOW BETTER TODAY WHERE TO LOOK FOR IT.

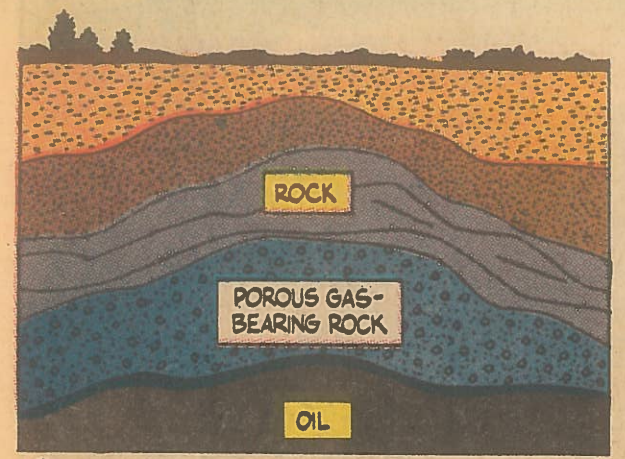


CHEMISTS KNOW THAT NATURAL GAS - LIKE OTHER FUELS SUCH AS COAL AND OIL - IS MADE OF COMBINATIONS OF ATOMS OF CARBON AND HYDROGEN.

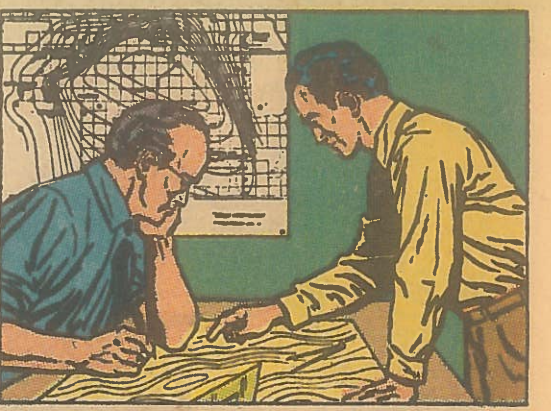
WE DON'T KNOW FOR CERTAIN HOW ATOMS HAPPENED TO COMBINE IN JUST THIS WAY. WE SUSPECT THAT TINY MARINE PLANTS AND ANIMALS DEPOSITED ON THE OCEAN FLOOR MILLIONS OF YEARS AGO HAD A LOT TO DO WITH IT.



GREAT PRESSURES, INTENSE HEAT AND OTHER NATURAL FORCES REARRANGED THE CARBON AND HYDROGEN ATOMS OF THE PLANTS AND ANIMALS INTO OIL AND NATURAL GAS. NOT MUCH GAS FORMED IN ANY ONE PLACE, BUT IT MOVED AND...



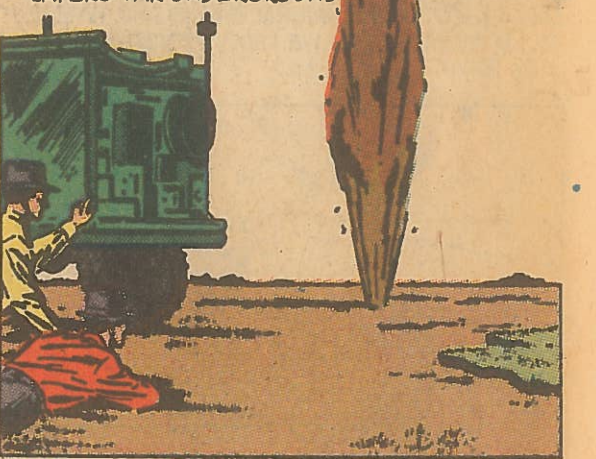
SOMETIMES THE NATURAL GAS MET A LAYER OF ROCK IT COULD NOT PENETRATE. UNDER THIS DOME OF ROCK THE NATURAL GAS COLLECTED.



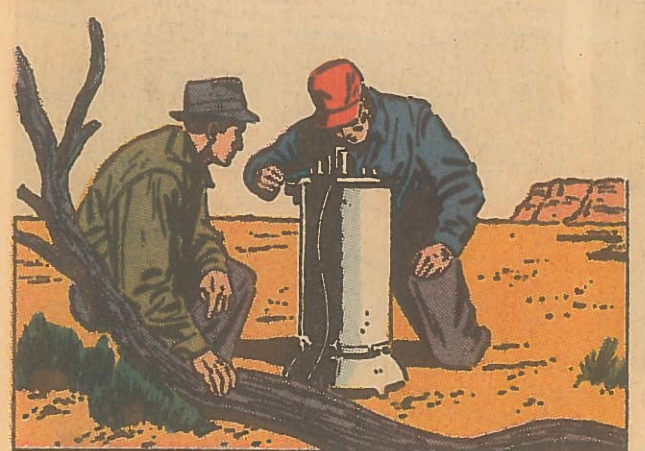
BUT LIKE BURIED TREASURE, A NATURAL GAS RESERVOIR IS USUALLY WELL HIDDEN. IT TAKES THE COMBINED SKILL AND KNOWLEDGE OF CHEMISTS, PHYSICISTS, GEOLOGISTS, AND ENGINEERS TO UNCOVER THE CLUES TO WHERE THE TREASURE IS...

GEOLOGISTS LOOK FOR LIKELY FORMATIONS ON THE SURFACE...

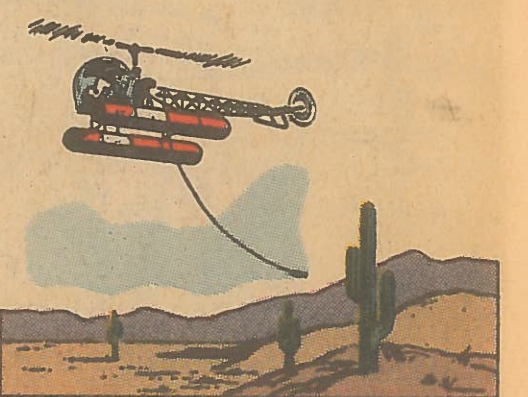
THEY RECORD THE SOUND MADE BY AN EXPLOSION ON THE SURFACE AND REFLECTED FROM ROCK LAYERS FAR UNDERGROUND



AND THEY SPOT ROCK FORMATIONS BY MEASURING EARTH MAGNETISM FROM THE AIR



THEY MEASURE THE GRAVITATIONAL PULL OF ROCK MASSES DEEP UNDERGROUND...

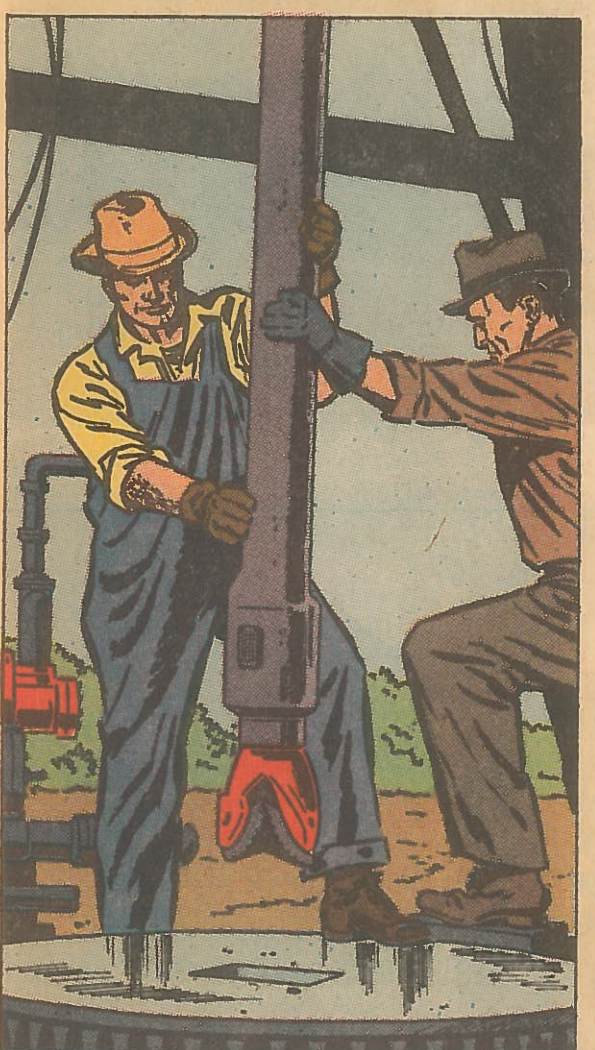


THERE HAVE BEEN GREAT ADVANCES IN LOCATING NATURAL GAS AND OIL SINCE BILL HART SET FIRE TO THOSE BUBBLES AT FREDONIA!

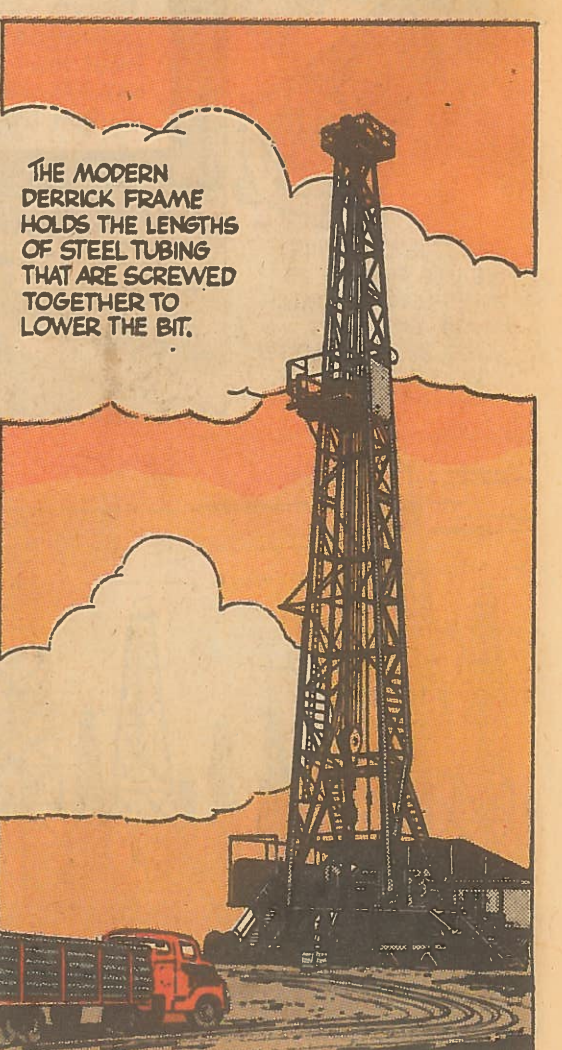
BUT-YOU DON'T KNOW WHETHER OR NOT THERE'S GAS DOWN THERE UNTIL YOU DRILL. OF COURSE DRILLING EQUIPMENT HAS CHANGED, TOO...

IN BILL HART'S DAY A DRILLING RIG LOOKED LIKE THIS...

THE DRILL ROD WAS SIMPLY HAULED UP A FEW FEET AND DROPPED TO CRUSH A LITTLE MORE ROCK.



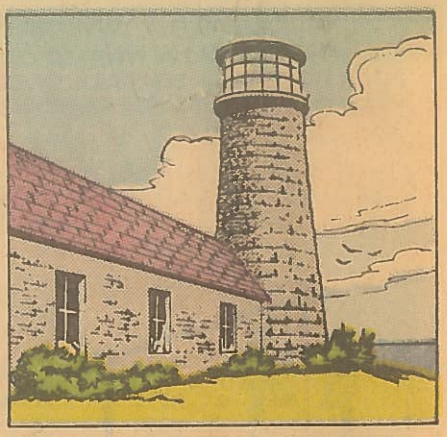
ABOUT 1900 THE ROTARY DRILL WAS DEVELOPED. THE "BIT" IS ROTATED BY A POWERFUL ENGINE AND CUTS ITS WAY THROUGH ROCK LAYERS.



IN SPITE OF SKILLED SPECIALISTS AND MODERN DRILL RIGS, MANY TIMES THERE'S NO GAS OR OIL DOWN THERE. YOU TRY AGAIN SOMEWHERE ELSE.

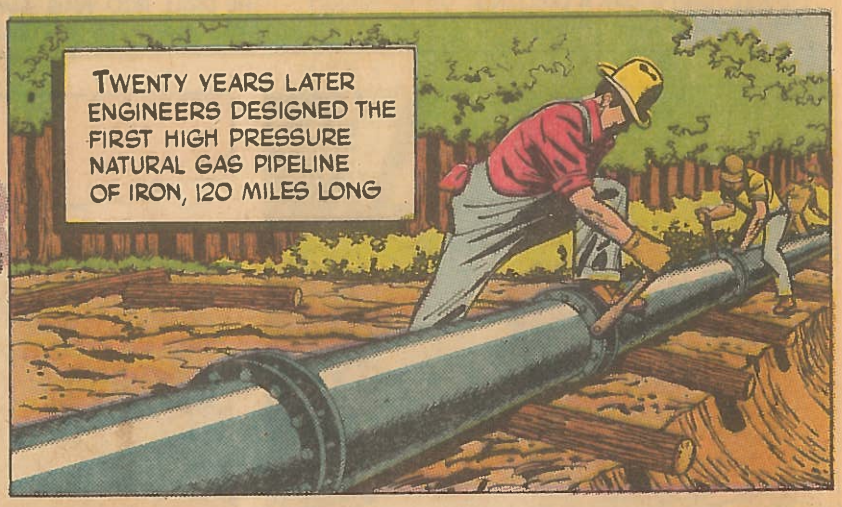
WHEN NATURAL GAS IS FOUND, THERE'S ANOTHER PROBLEM.. HOW DO YOU GET THIS VALUABLE FUEL TO THE PEOPLE WHO NEED IT?

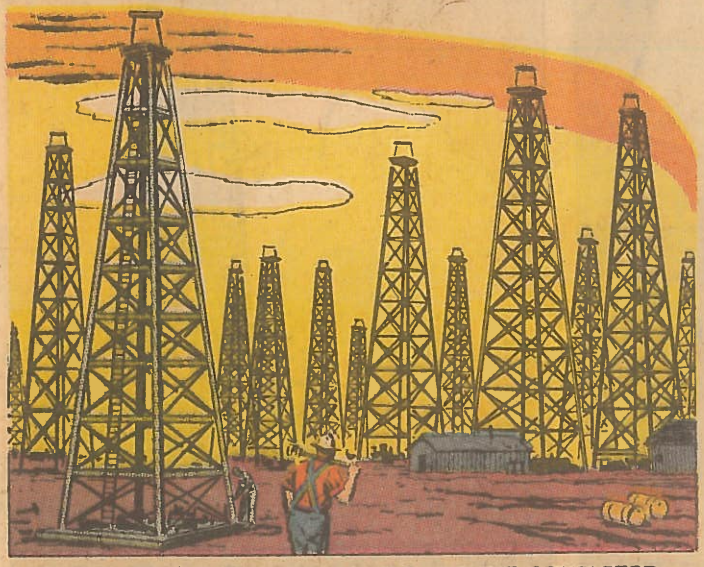
BILL HART HAD TO PIPE GAS ONLY A FEW HUNDRED FEET. HE MADE A PIPE-LINE OF HOLLOW LOGS.



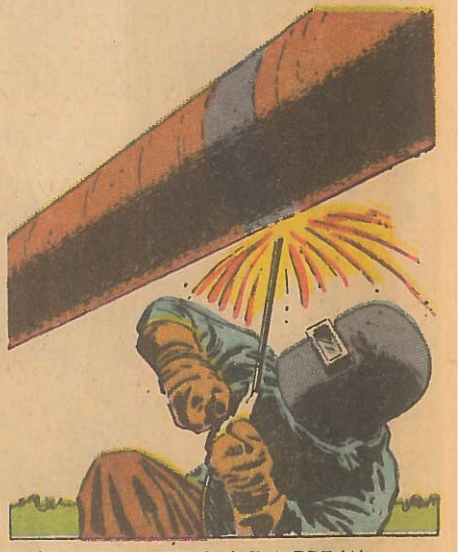
A FEW YEARS LATER NATURAL GAS WAS LED THROUGH A PIPELINE HALF A MILE LONG TO A LIGHTHOUSE IN BARCELONA HARBOR ON LAKE ERIE.

ABOUT 1870 A WHITE PINE LOG PIPELINE 25 MILES LONG CARRIED NATURAL GAS FROM WEST BLOOMFIELD TO ROCHESTER, N.Y.



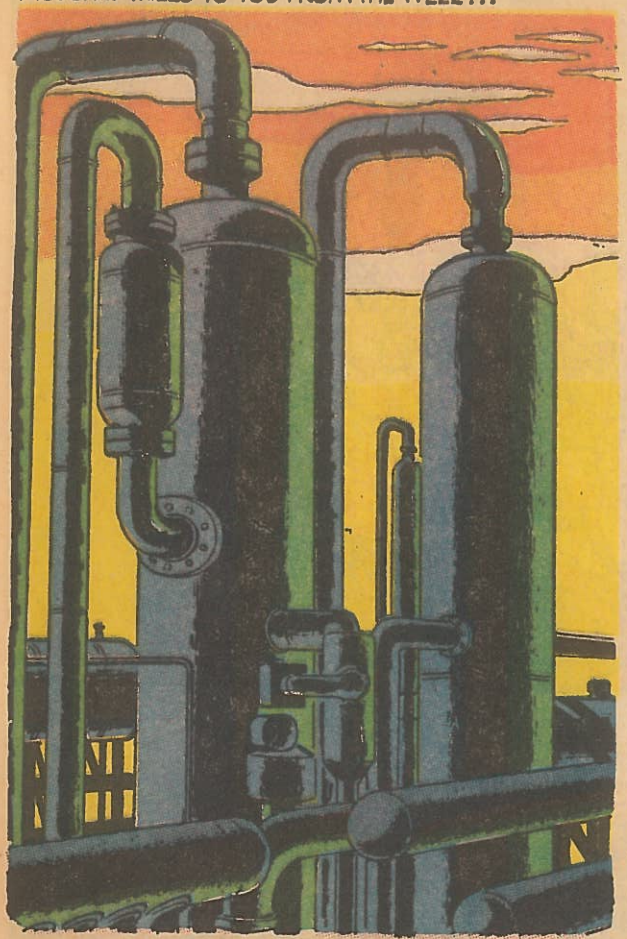


BY THE 1920'S NEW DISCOVERIES LIKE THE SPINDLETOP FIELD IN TEXAS WERE MAKING TREMENDOUS NATURAL GAS RESOURCES AVAILABLE. IRON PIPELINES WERE AS MUCH AS 300 MILES LONG. BUT THAT WASN'T NEARLY LONG ENOUGH.

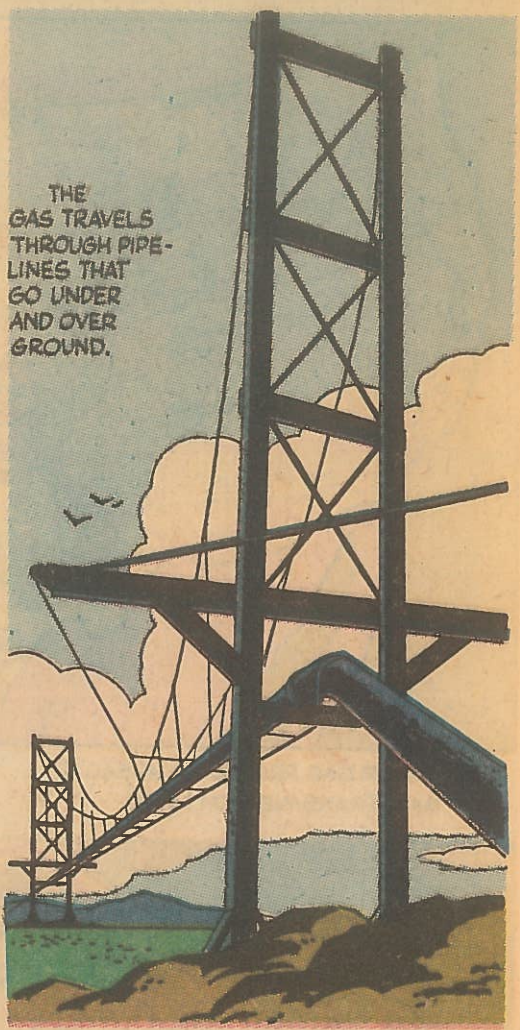


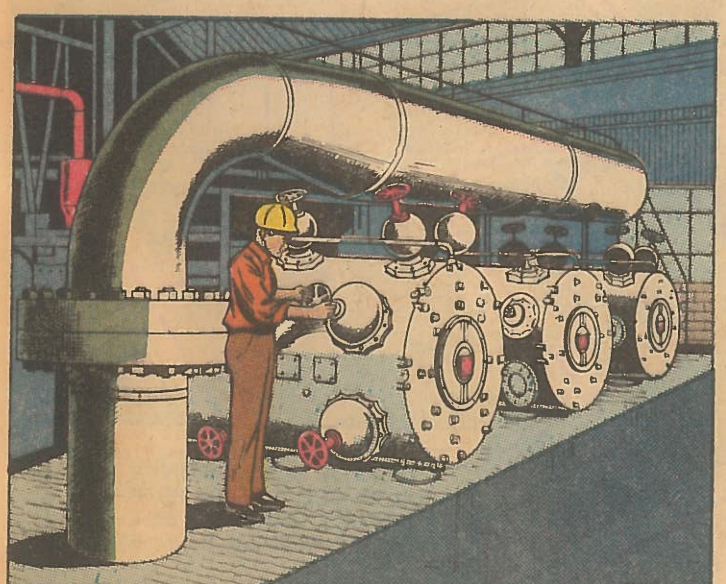
AT LAST, THERE CAME A BREAK-THROUGH. ABOUT 1925 ENGINEERS DEVELOPED A WELDED STEEL PIPELINE - STRONGER, MORE EFFICIENT, AND LESS EXPENSIVE.

NOW NATURAL GAS MAY TRAVEL MORE THAN A THOUSAND MILES TO YOU FROM THE WELL...

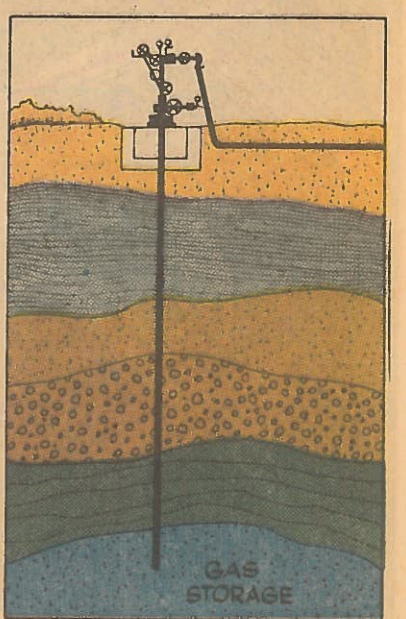


..AND THE SCRUBBERS AND DEHYDRATORS WHERE THE GAS IS CLEANED AND DRIED.

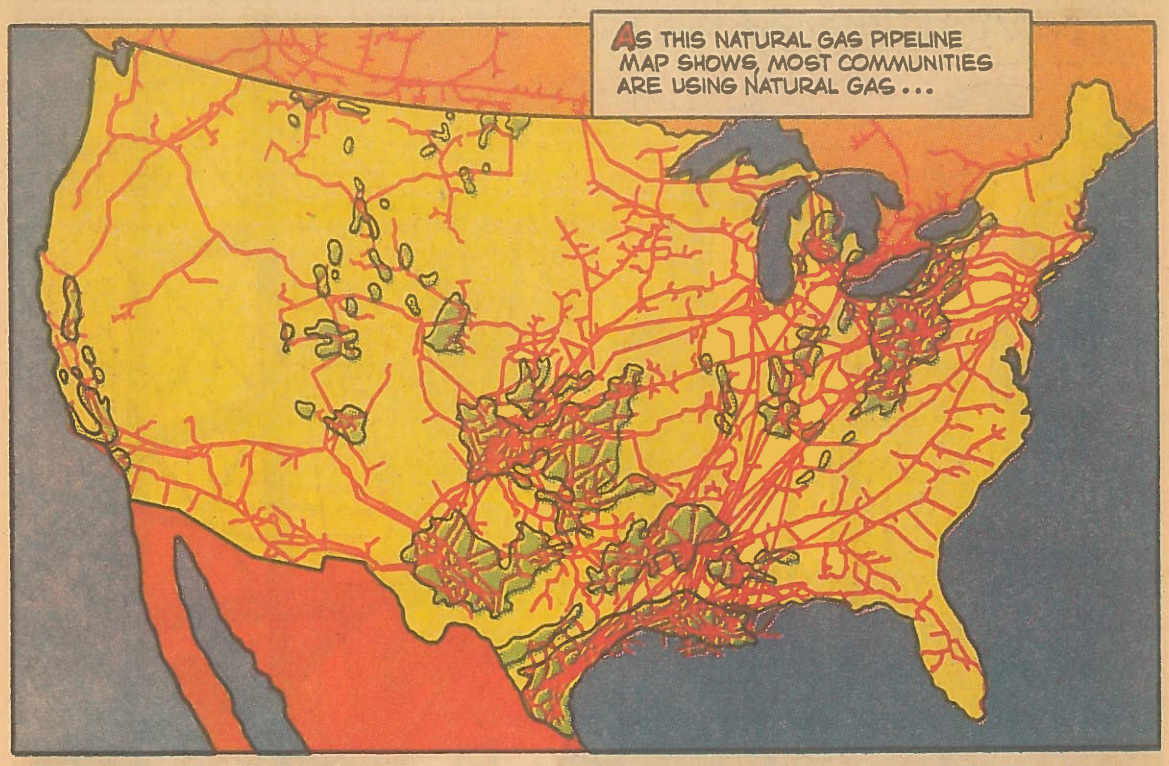


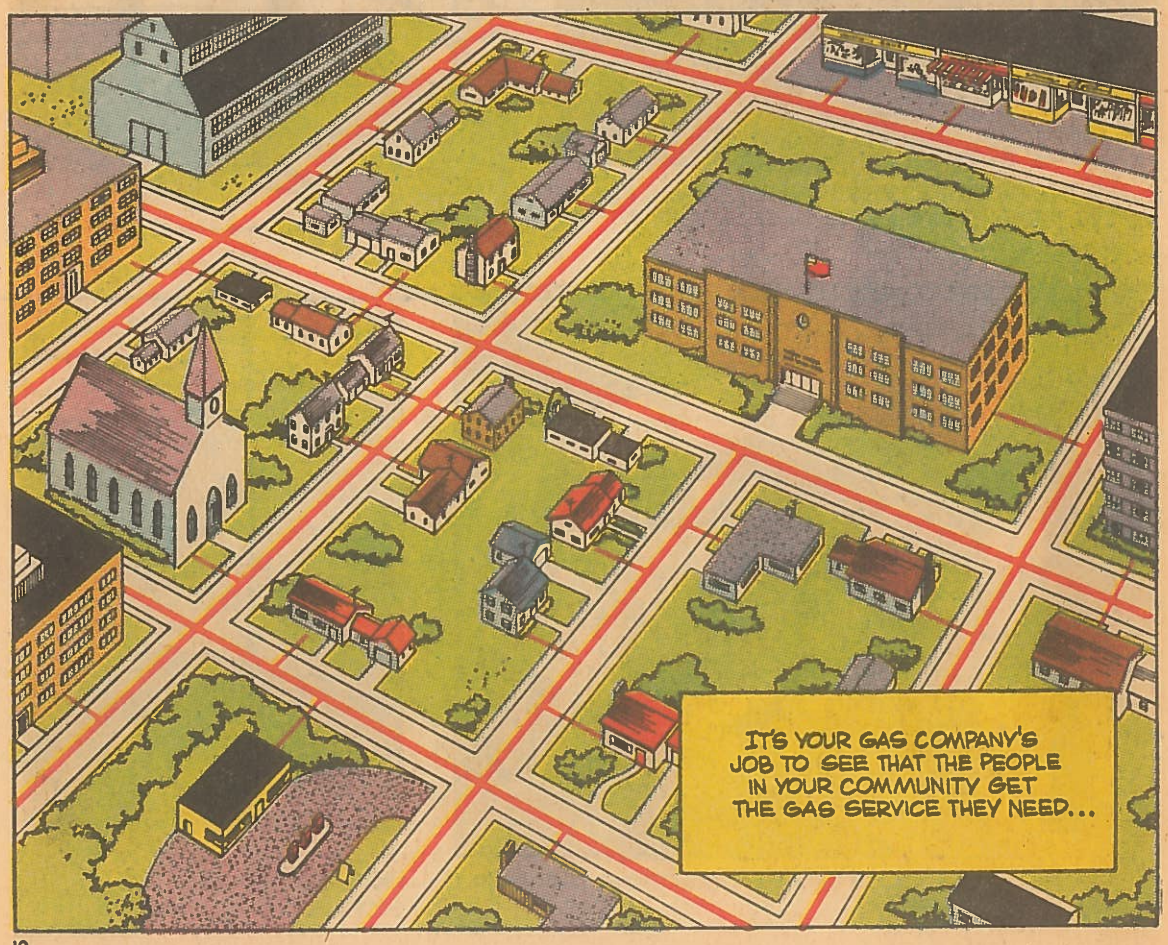


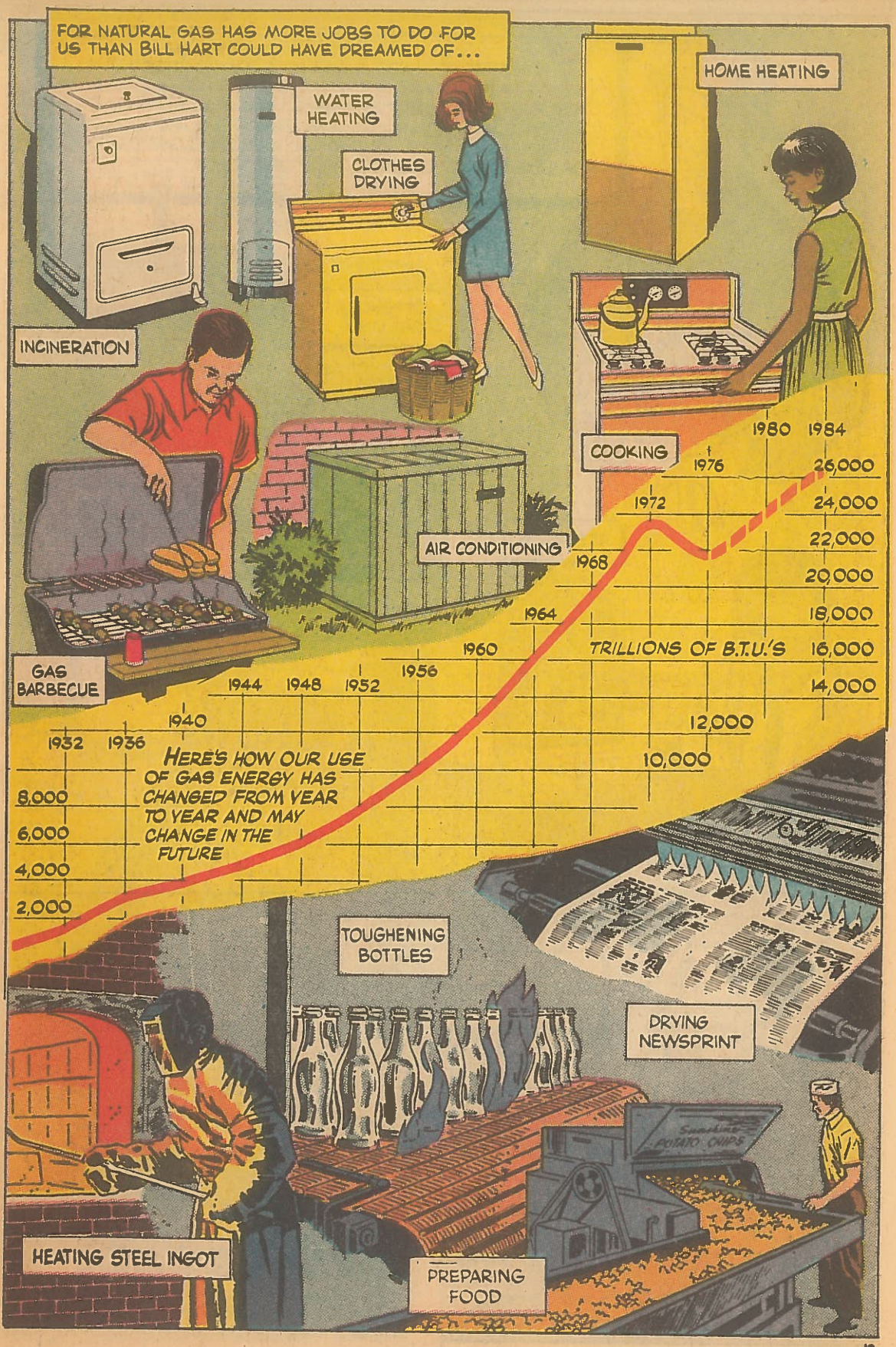
THE GAS IS HELPED ALONG BY PUMPING STATIONS THAT KEEP IT MOVING TO YOUR COMMUNITY.



AND IT MAY EVEN BE PUMPED UNDERGROUND AGAIN FOR STORAGE UNTIL YOU NEED IT!


AS THIS NATURAL GAS PIPELINE MAP SHOWS, MOST COMMUNITIES ARE USING NATURAL GAS . . .
MAJOR GAS PRODUCING AREAS
GAS TRANSMISSION LINES


IT'S YOUR GAS COMPANY'S JOB TO SEE THAT THE PEOPLE IN YOUR COMMUNITY GET THE GAS SERVICE THEY NEED...


FOR NATURAL GAS HAS MORE JOBS TO DO FOR US THAN BILL HART COULD HAVE DREAMED OF...
HOME HEATING
WATER HEATING
CLOTHES DRYING
INCINERATION
COOKING
AIR CONDITIONING
GAS BARBECUE
1980
1984
1976
1972
1968
1964
1960
1956
1952
1948
1944
1940
1936
1932
26,000
24,000
22,000
20,000
18,000
16,000
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12,000
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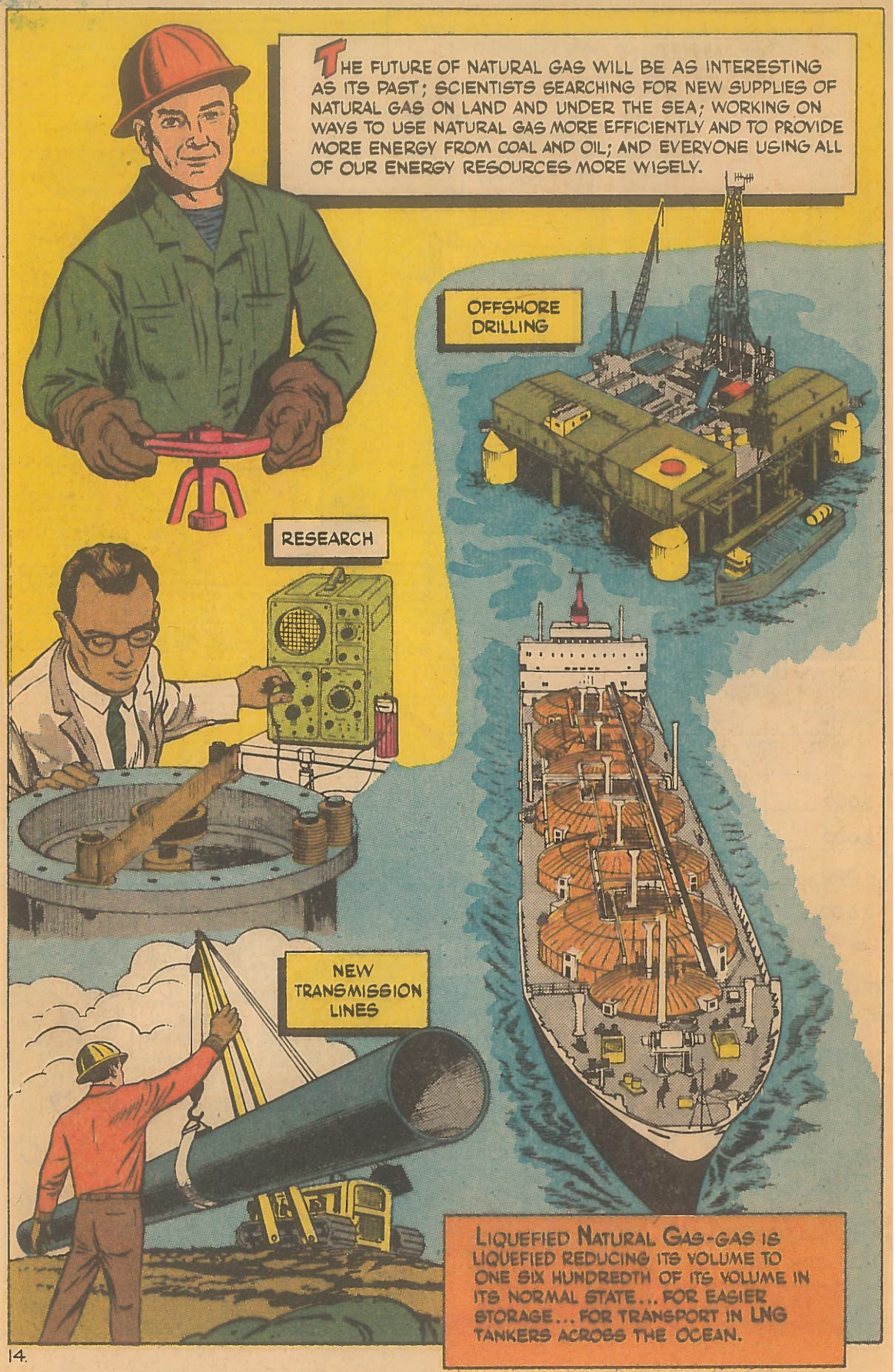
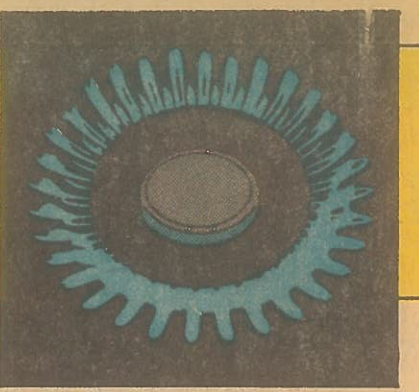
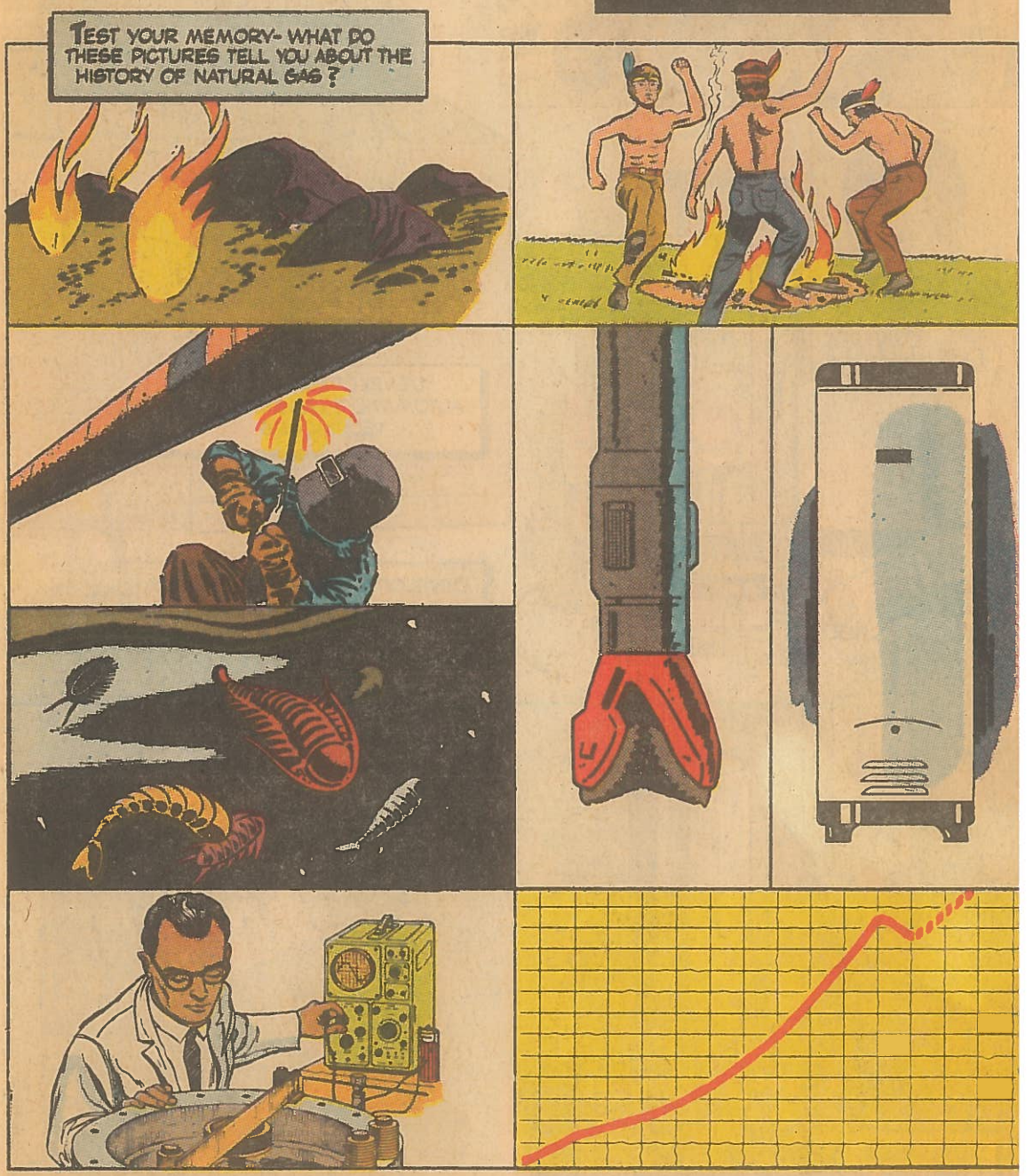
2,000
TRILLIONS OF B.T.U.'S
HERE'S HOW OUR USE OF GAS ENERGY HAS CHANGED FROM YEAR TO YEAR AND MAY CHANGE IN THE FUTURE
TOUGHENING BOTTLES
DRYING NEWSPRINT
HEATING STEEL INGOT
PREPARING FOOD


THE FUTURE OF NATURAL GAS WILL BE AS INTERESTING AS ITS PAST; SCIENTISTS SEARCHING FOR NEW SUPPLIES OF NATURAL GAS ON LAND AND UNDER THE SEA; WORKING ON WAYS TO USE NATURAL GAS MORE EFFICIENTLY AND TO PROVIDE MORE ENERGY FROM COAL AND OIL; AND EVERYONE USING ALL OF OUR ENERGY RESOURCES MORE WISELY.
OFFSHORE DRILLING
RESEARCH
NEW TRANSMISSION LINES
LIQUEFIED NATURAL GAS-GAS IS LIQUEFIED REDUCING ITS VOLUME TO ONE SIX HUNDREDTH OF ITS VOLUME IN ITS NORMAL STATE... FOR EASIER STORAGE... FOR TRANSPORT IN LNG TANKERS ACROSS THE OCEAN.


CONSERVATION
USING ENERGY WISELY
NATURAL GAS PIPELINE COMPANY OF AMERICA
STUDY OF FLAME PATTERNS
DEVELOPMENT OF AUTOMATIC TRANSMISSION TECHNIQUES
DEVELOPING NEW GAS ENERGY SUPPLIES FROM COAL
APPLIANCE TESTING

WHENEVER YOU SEE THE BLUE FLAMES OF NATURAL GAS AGAIN, YOU'LL KNOW WHAT THEY REALLY MEAN - **ENERGY FOR YOU** - ENERGY WITH AN INTERESTING HISTORY, AND AN EXCITING FUTURE





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