

THE WONDER OF WATER

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MIDVALE, U.S.A. IN THE HEART OF MIDVALLEY, WAS HAPPY AND PROSPEROUS UNTIL ONE HOT SUMMER...



WE'VE FINISHED THE SURVEY, MR. MAYOR

AND WE'RE ALREADY LAYING THE FIRST SECTION OF THE NEW PIPE-LINE BETWEEN ROCKY RIVER AND OUR CITY RESERVOIR

GOOD. I'LL BE OUT TO LOOK IT OVER RIGHT AWAY



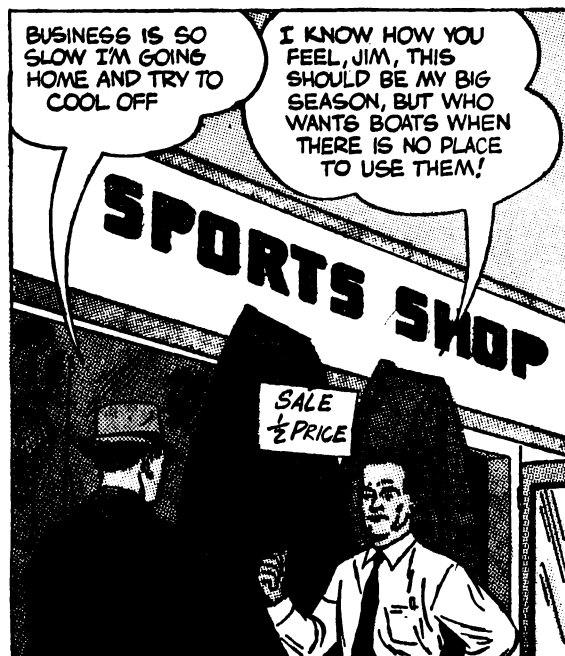
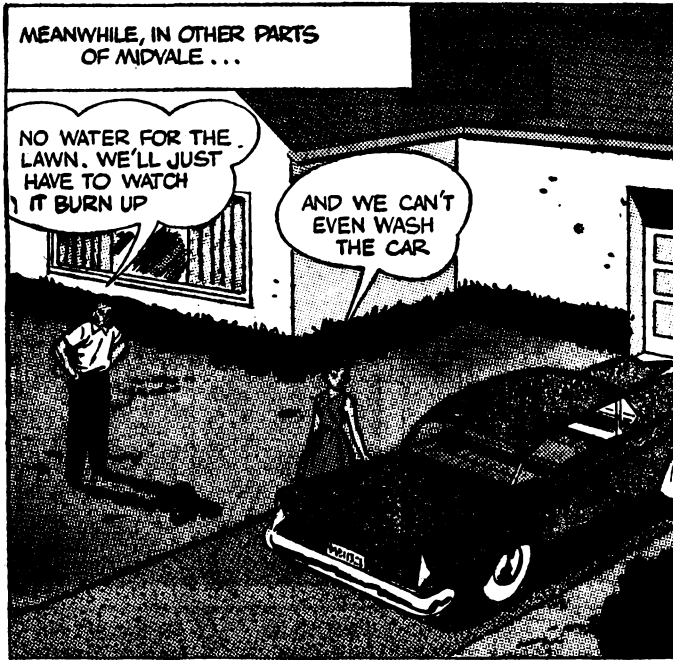
MORE PIPE IS ON ITS WAY TO BE DELIVERED AS FAST AS WE PROCEED...

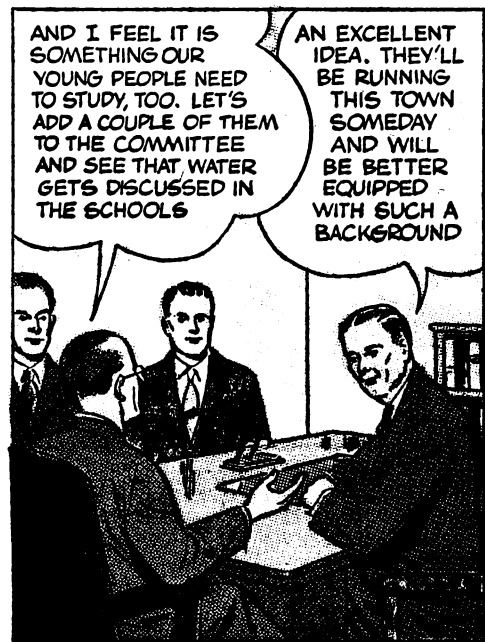
WE'RE HAULING IT IN ON THAT RAIL LINE WE FOLLOWED WITH OUR SURVEY..

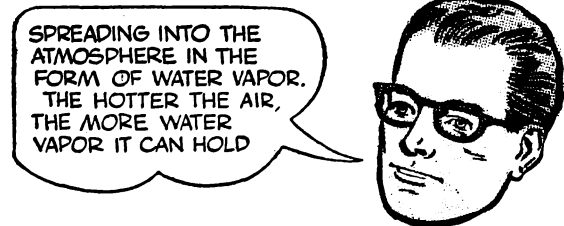
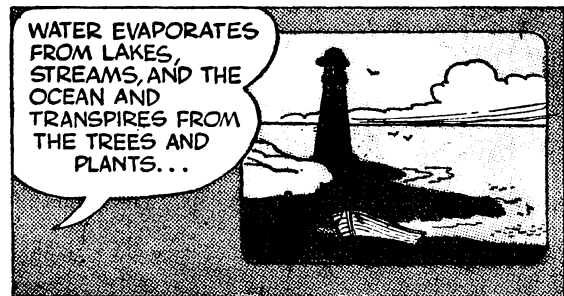
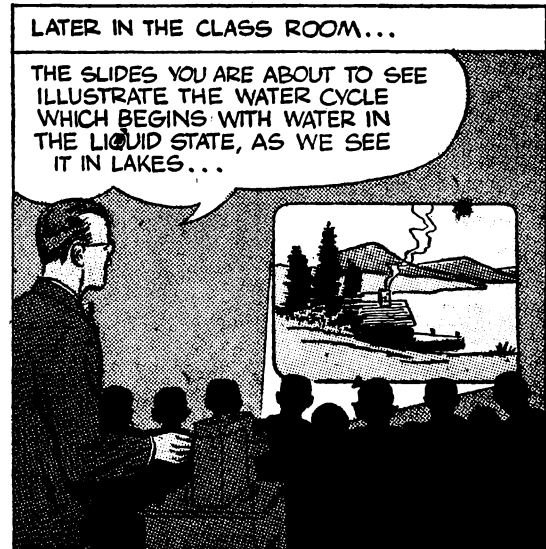
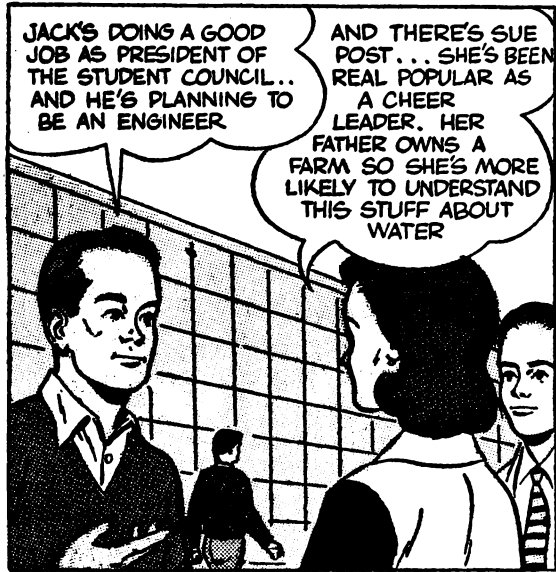


SO DON'T WORRY MR. MAYOR, WE'LL SOON COVER THE 10 MILES TO ROCKY RIVER AND HAVE OUR SUPPLEMENTARY SUPPLY OF WATER

IT CAN'T BE SOON ENOUGH FOR MIDVALE. I HAD TO ORDER SOME MORE RESTRICTIONS ON USE OF WATER IN TOWN TODAY. THIS DROUGHT IS SURE HITTING US HARD!



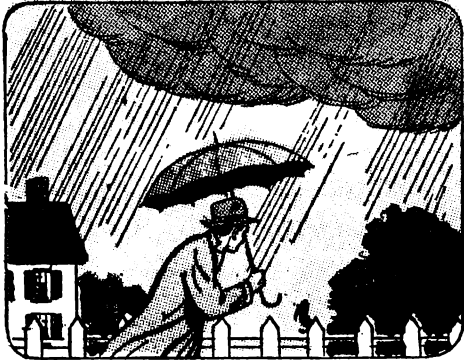
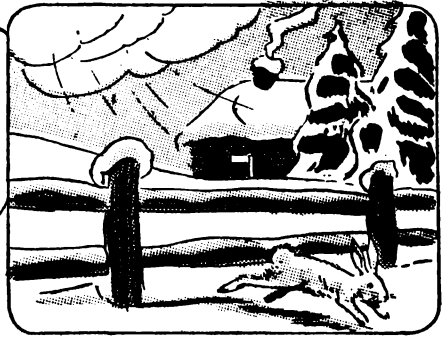






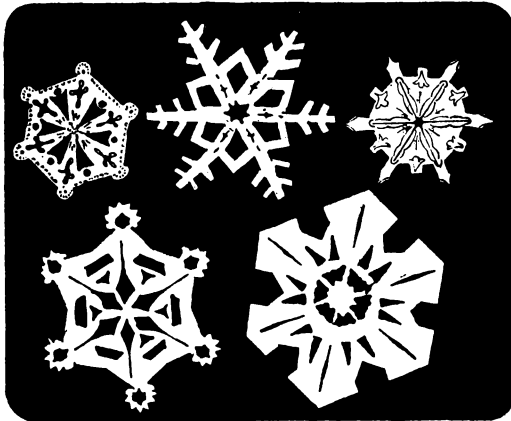
IN COOLING, WATER VAPOR FORMS CLOUDS OF TINY DROPLETS WHICH CONDENSE FURTHER TO MAKE RAIN.

FOG AND MIST ARE COMPOSED OF TINY WATER DROPLETS. AND WHEN WATER IS BOILED IT FORMS STEAM, WHICH COOLS AND CONDENSES INTO JUST SUCH A MIST

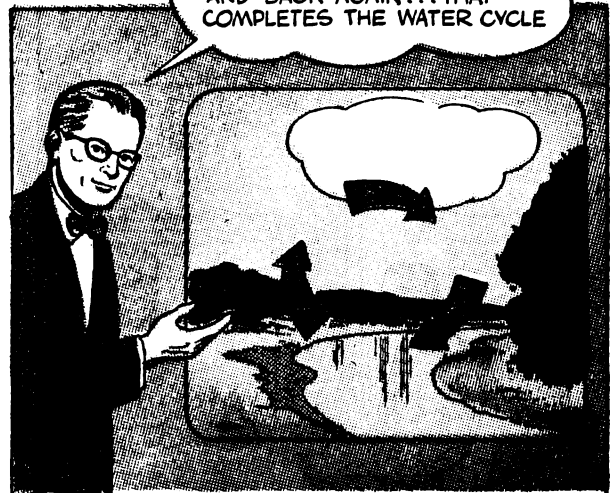


RAIN THAT FREEZES DURING ITS FALL BECOMES HAIL, WHILE WATER VAPOR THAT FREEZES IN COLD CLOUD LAYERS CRYSTALLIZES INTO SNOW...

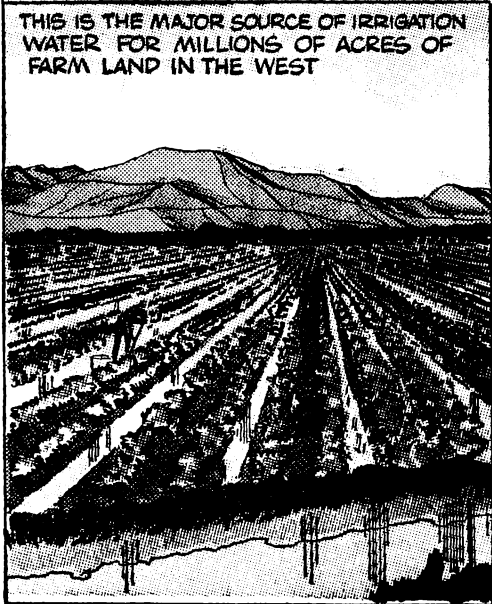
WHICH FALLS IN FLAKES OF MYRIAD SIX-SIDED PATTERNS



FROM EARTH TO CLOUDS AND BACK AGAIN... THAT COMPLETES THE WATER CYCLE



IN MANY MOUNTAINOUS AREAS OF OUR COUNTRY GREAT QUANTITIES OF SNOW PILE UP DURING THE WINTER



THIS IS THE MAJOR SOURCE OF IRRIGATION WATER FOR MILLIONS OF ACRES OF FARM LAND IN THE WEST

SOME OF OUR ANNUAL RAINFALL EVAPORATES; SOME SINKS INTO THE GROUND. THE REST RUNS OFF INTO STREAMS

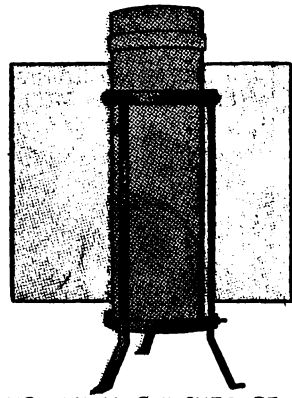
ANNUAL RAINFALL

ABOUT 25% OF THE TOTAL FLOWS DOWN THE RIVERS INTO THE OCEAN



RECORDS OF THE PAST 80 YEARS SHOW AN ANNUAL AVERAGE OF 30 INCHES OF RAIN THROUGHOUT THE UNITED STATES

THE RAINFALL IS CHECKED DAILY BY MORE THAN 11,000 GAUGES



NORMALLY 10 INCHES OF MELTED SNOW EQUAL 1 INCH OF RAIN

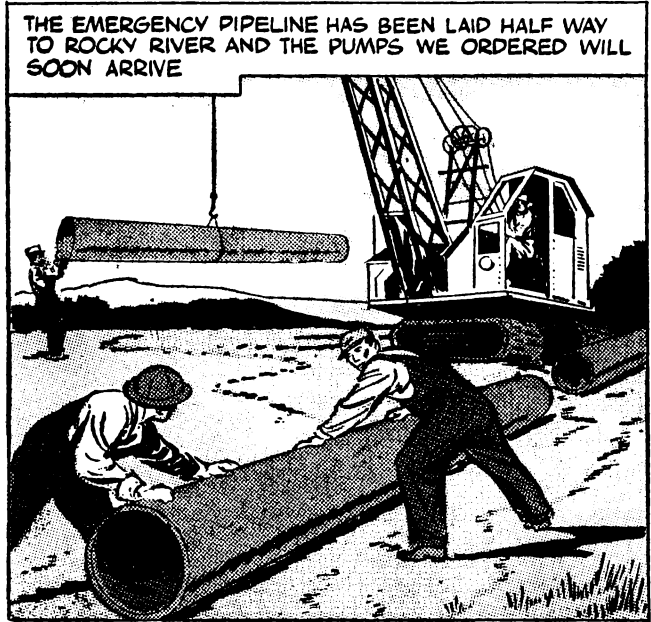
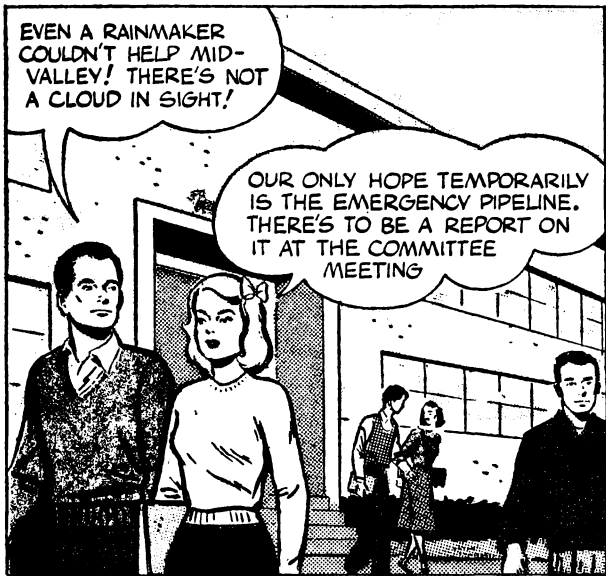
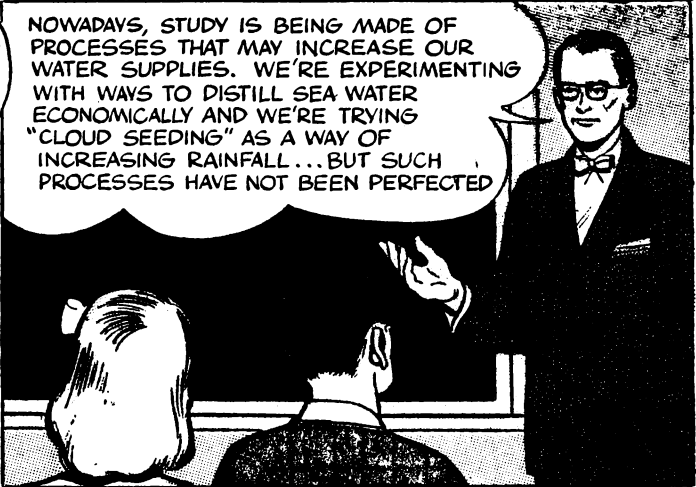
WATER THAT SEEPS DOWN THROUGH THE GROUND AND FILLS UP SPACE ABOVE A HARD LAYER OF ROCK OR CLAY IS CALLED GROUND WATER

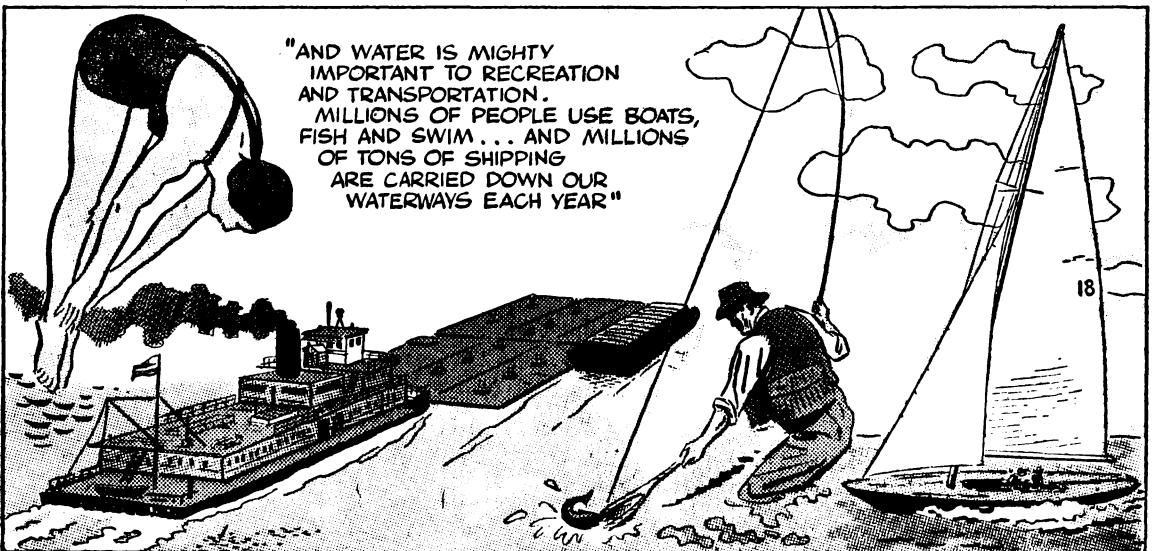
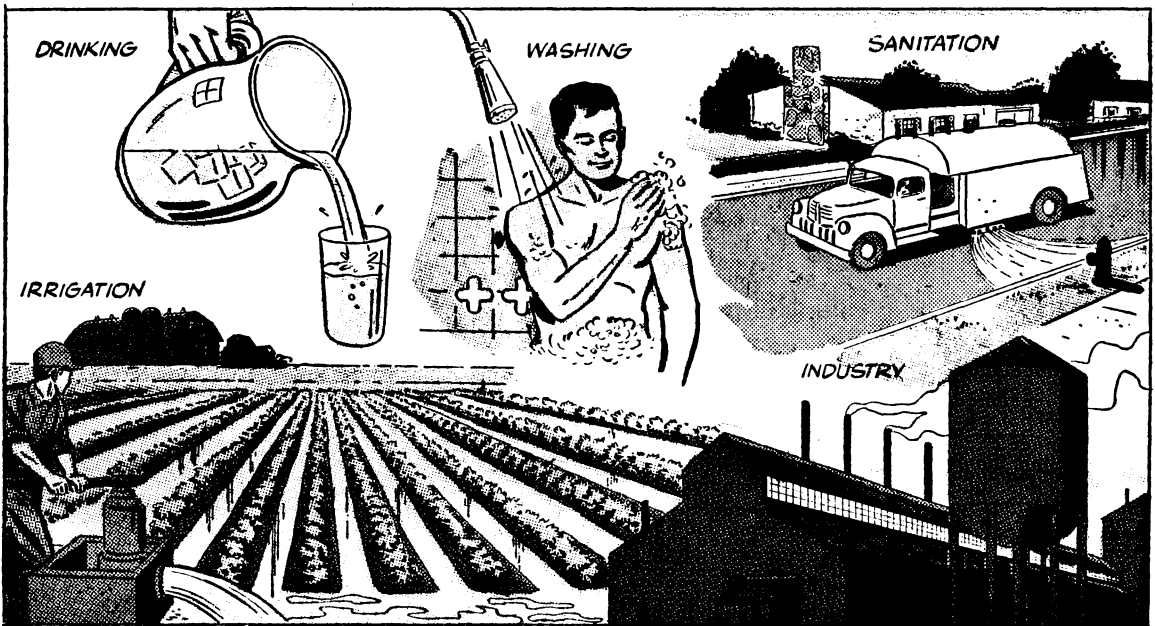
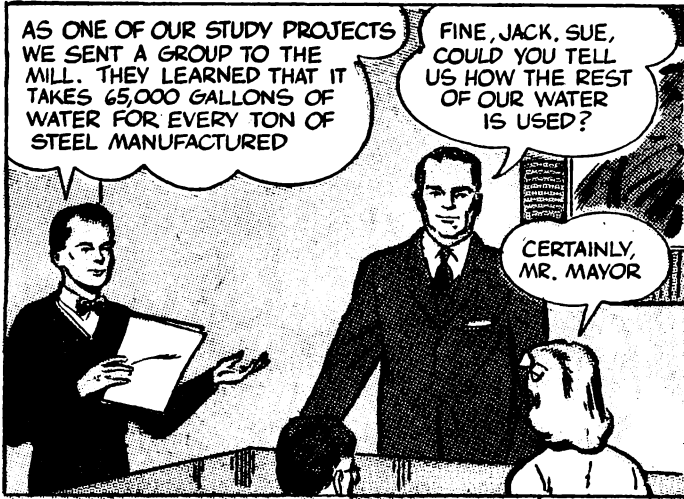
MARSHES ARE FORMED WHEN THE GROUND IS SATURATED BY WATER...

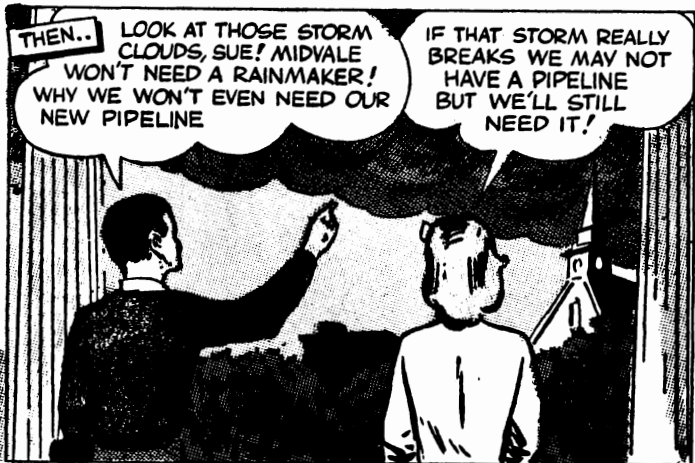
WHILE WATER THAT HAS SOAKED INTO THE GROUND MAY EMERGE FROM HILLSIDE TO FORM SPRINGS

MUCH OF OUR WATER COMES FROM WELLS DUG DOWN TO TAP THE GROUND WATER

AND ARTESIAN WELLS COME FROM SUB-TERRANEAN STREAMS WHERE WATER IS UNDER PRESSURE







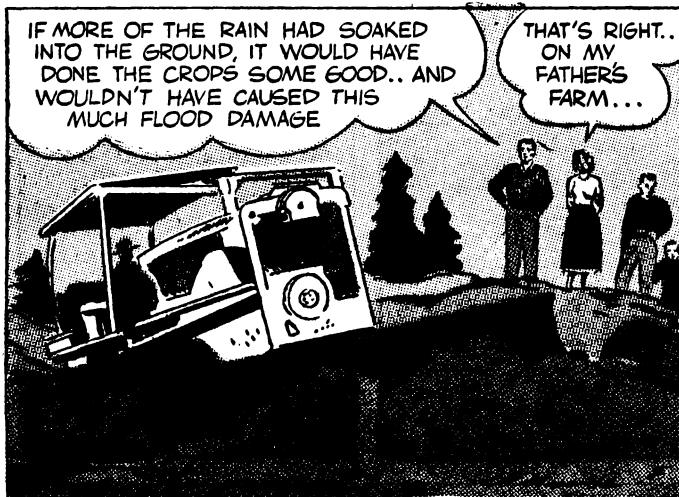
AND SUE WAS RIGHT... A TERRIFIC CLOUDBURST STRUCK BETWEEN MIDVALE AND ROCKY RIVER



AND A FLASH FLOOD FOLLOWED SWEEPING AWAY A SECTION OF THE PIPELINE!

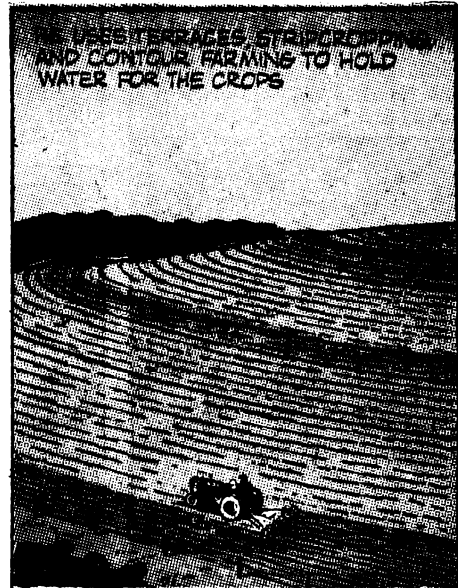


AS THE WORKMEN BEGAN TO REPAIR THE PIPELINE HIGH SCHOOL STUDENTS CAME OUT TO STUDY THE DAMAGE...

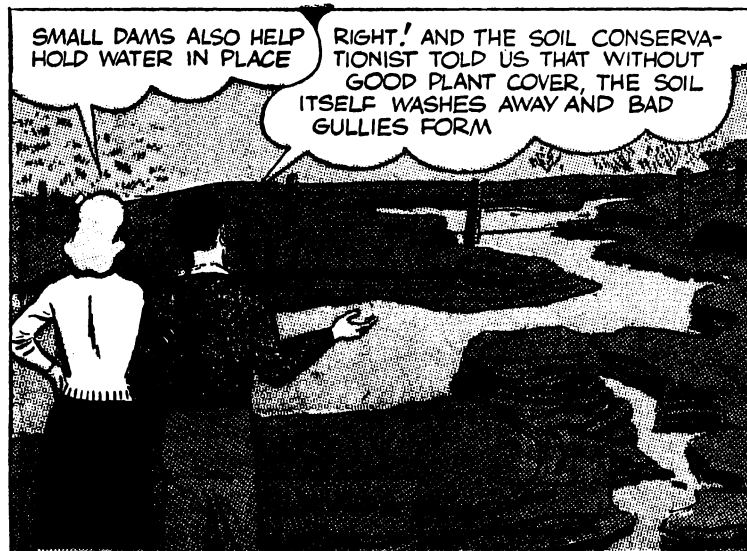


IF MORE OF THE RAIN HAD SOAKED INTO THE GROUND, IT WOULD HAVE DONE THE CROPS SOME GOOD.. AND WOULDN'T HAVE CAUSED THIS MUCH FLOOD DAMAGE

THAT'S RIGHT.. ON MY FATHER'S FARM...



...BEST TERRACES, STRIP CROPPING AND CONTOUR FARMING TO HOLD WATER FOR THE CROPS



SMALL DAMS ALSO HELP HOLD WATER IN PLACE

RIGHT! AND THE SOIL CONSERVATIONIST TOLD US THAT WITHOUT GOOD PLANT COVER, THE SOIL ITSELF WASHES AWAY AND BAD GULLIES FORM



GOOD GRASS COVER PROTECTS THE SOIL AND HELPS WATER SOAK INTO IT

AT THE NEXT COMMITTEE MEETING...

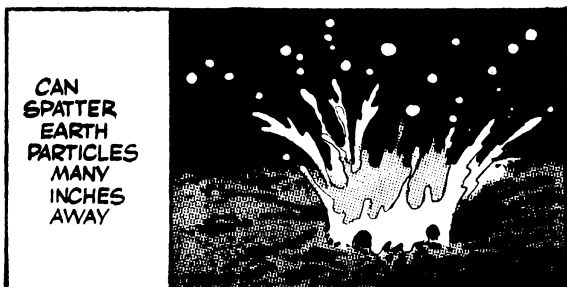


ALL OUR STUDIES PROVE THAT WATER MUST BE **MANAGED** SO WE CAN HAVE THE **RIGHT AMOUNT** ALL THE TIME

AND WE LEARNED THAT SUCH MANAGEMENT MUST BEGIN WHERE THE WATER FIRST HITS THE EARTH



A SINGLE RAINDROP STRIKING BARE UNPROTECTED TOP SOIL..



CAN SPATTER EARTH PARTICLES MANY INCHES AWAY

MULTIPLIED BY MILLIONS, THEY LOOSEN THE TOP-SOIL SO THAT RUNOFF CAN WASH IT AWAY AND FORM GULLIES...



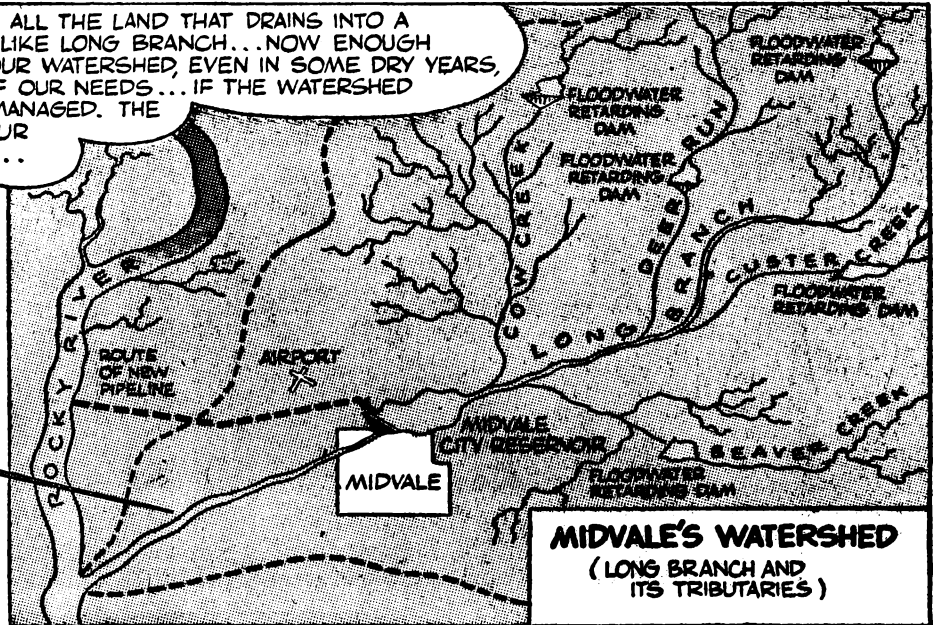
CARRYING MUD AND SILT INTO THE RIVERS, CHOKING CHANNELS WITH DEBRIS, MAKING THE WATER LESS FIT FOR HUMAN AND INDUSTRIAL USE, AND SPOILING STREAMS FOR FISHING



SOIL CONSERVATION ON FARM, RANGE, AND WOODLANDS IS THE BIG STEP IN MANAGING OUR WATER, SO WE'VE ASKED MR. CONKLIN, THE SOIL CONSERVATIONIST WHO WORKS WITH OUR LOCAL SOIL CONSERVATION DISTRICT, TO TELL HOW A WATERSHED PROTECTION PROGRAM CAN HELP US HAVE A BETTER WATER SUPPLY

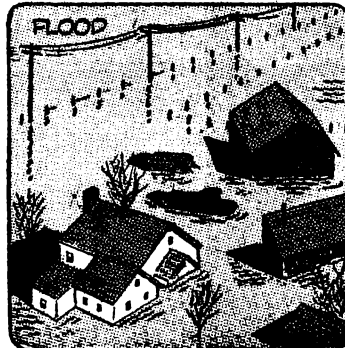
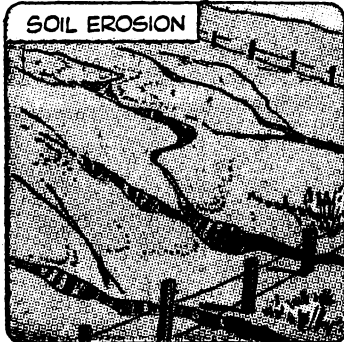


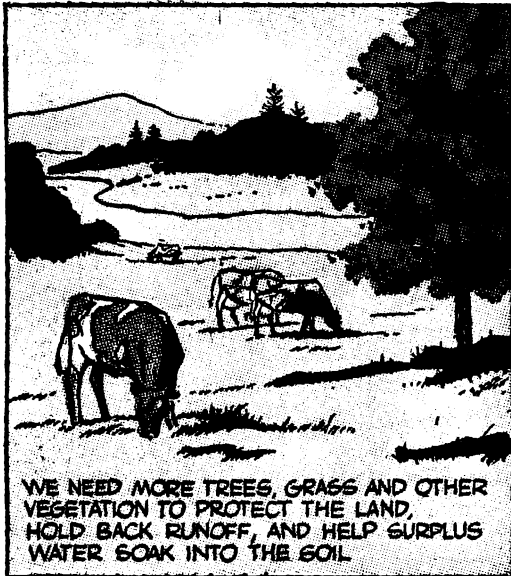
A WATERSHED IS ALL THE LAND THAT DRAINS INTO A SINGLE STREAM LIKE LONG BRANCH...NOW ENOUGH RAIN FALLS ON OUR WATERSHED, EVEN IN SOME DRY YEARS, TO TAKE CARE OF OUR NEEDS...IF THE WATERSHED WERE PROPERLY MANAGED. THE SOIL ITSELF IS OUR BEST RESERVOIR...



MIDVALE'S WATERSHED
(LONG BRANCH AND ITS TRIBUTARIES)

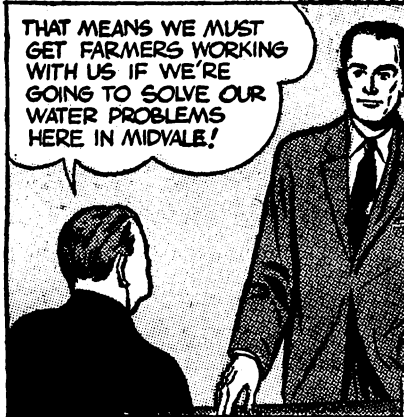
BUT IN A MISMANAGED WATERSHED, MOST OF THE WATER RUNS OFF AND CAN DO A LOT OF DAMAGE AS THESE SLIDES SHOW...





WE NEED MORE TREES, GRASS AND OTHER VEGETATION TO PROTECT THE LAND, HOLD BACK RUNOFF, AND HELP SURPLUS WATER SOAK INTO THE SOIL

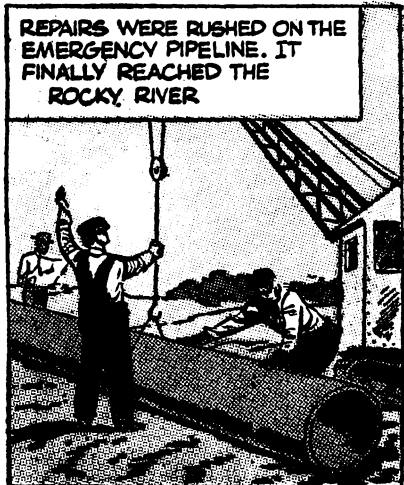
OUR SWAMPS AND MARSHES ARE VITAL TO CONSERVE WATER AND MAKE HOMES FOR WILDLIFE



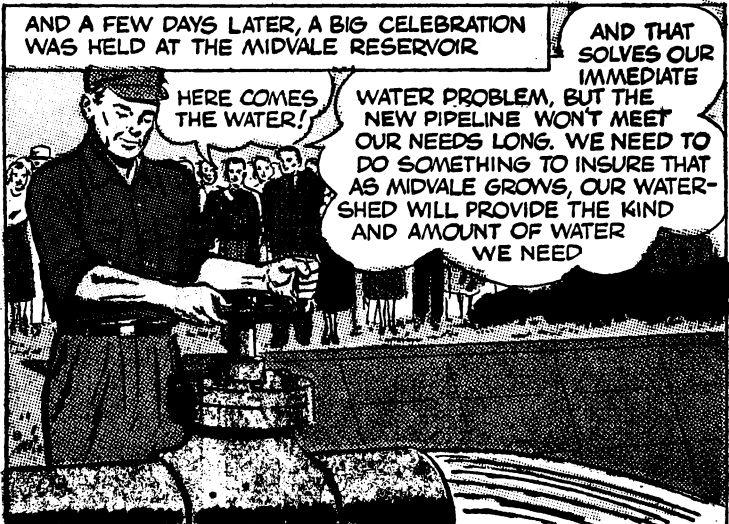
THAT MEANS WE MUST GET FARMERS WORKING WITH US IF WE'RE GOING TO SOLVE OUR WATER PROBLEMS HERE IN MIDVALE!

EXACTLY... THESE ARE FIRST OF ALL PROBLEMS OUT ON THE LAND WHERE FARMERS AND RANCHERS LIVE. WHAT HAPPENS ON THEIR FARMS AND RANCHES DETERMINES LARGELY WHAT HAPPENS TO OUR WATER. THE THINGS WE DO TO HELP PROTECT THE LAND ARE THE VERY THINGS THAT PROTECT YOUR CITY WATER SUPPLY AND PREVENT FLOODS

BUT THESE PROBLEMS ARE TOO BIG FOR A SINGLE FARMER TO HANDLE. THEY NEED TO BE DEALT WITH IN THE WATERSHED AS A WHOLE. BY TEAMING UP TO TACKLE LAND AND WATER PROBLEMS ALL OVER THE WATERSHED, PEOPLE WILL SOLVE THE PROBLEM, BETTER AND QUICKER



REPAIRS WERE RUSHED ON THE EMERGENCY PIPELINE. IT FINALLY REACHED THE ROCKY RIVER



AND A FEW DAYS LATER, A BIG CELEBRATION WAS HELD AT THE MIDVALE RESERVOIR

HERE COMES THE WATER!

AND THAT SOLVES OUR IMMEDIATE WATER PROBLEM, BUT THE NEW PIPELINE WON'T MEET OUR NEEDS LONG. WE NEED TO DO SOMETHING TO INSURE THAT AS MIDVALE GROWS, OUR WATERSHED WILL PROVIDE THE KIND AND AMOUNT OF WATER WE NEED

SO I'VE ASKED THE SUPERVISORS OF THE SOIL CONSERVATION DISTRICT TO MEET WITH OUR COUNCIL AS A STEP TO GET FARMERS AND TOWNSPEOPLE TOGETHER!



ONE MEETING LED TO ANOTHER, AND FINALLY, THE PEOPLE ORGANIZED A WATERSHED ASSOCIATION TO SPONSOR A WATERGHED PROJECT

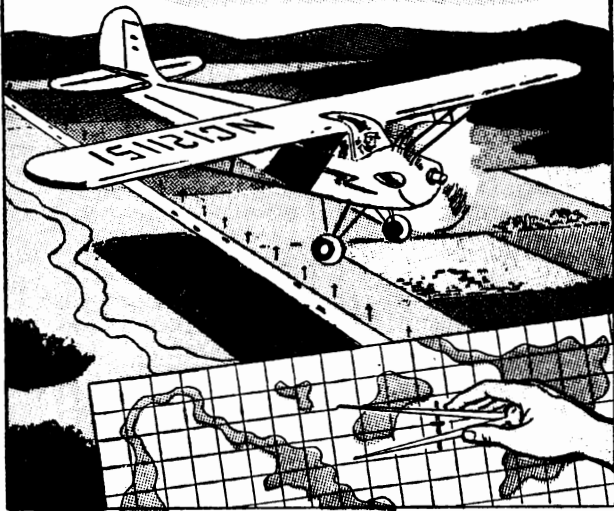
WE ARE NOW ON OUR WAY TOWARD A PERMANENT SOLUTION TO OUR WATER PROBLEM... AND I WANT TO THANK YOU FOR THE PART THE YOUNG PEOPLE HAVE PLAYED IN IT



**MIDVALE
WATERSHED
ASSOCIATION**



FROM AN AERIAL SURVEY, MAPS WERE MADE AND PLANS DRAWN



THE PLAN STARTED WITH SOIL AND WATER CONSERVATION WORK ON THE FARM LANDS... TERRACES AND GRASSED WATERWAYS TO CONTROL SURPLUS WATER...



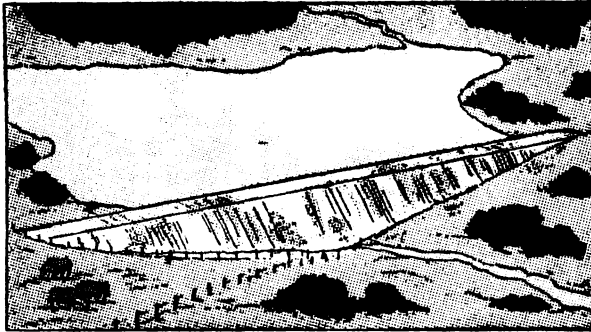
FARM PONDS TO HOLD SOME OF THE WATER FOR LIVESTOCK USE, AND FOR FISH AND RECREATION



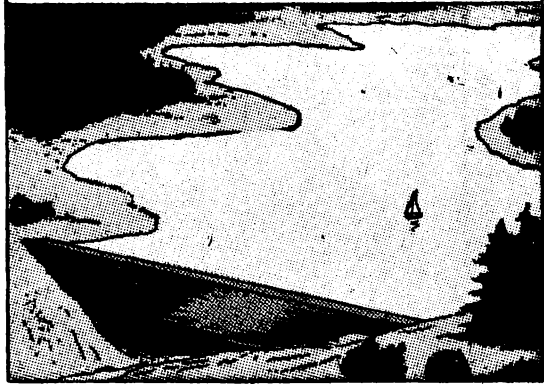
STRIPCRIPPING AND CONTOUR CULTIVATION TO SLOW DOWN RUNOFF AND MAKE MORE OF IT SEEP INTO THE GROUND



SEVERAL SMALL DAMS WERE BUILT TO CATCH FLOOD PEAKS AND RELEASE WATER IN A SAFE, CONTROLLED VOLUME. TWO WERE MULTIPLE PURPOSE DAMS AND ALSO STORED WATER TO SUPPLEMENT MIDVALE'S RESERVOIR



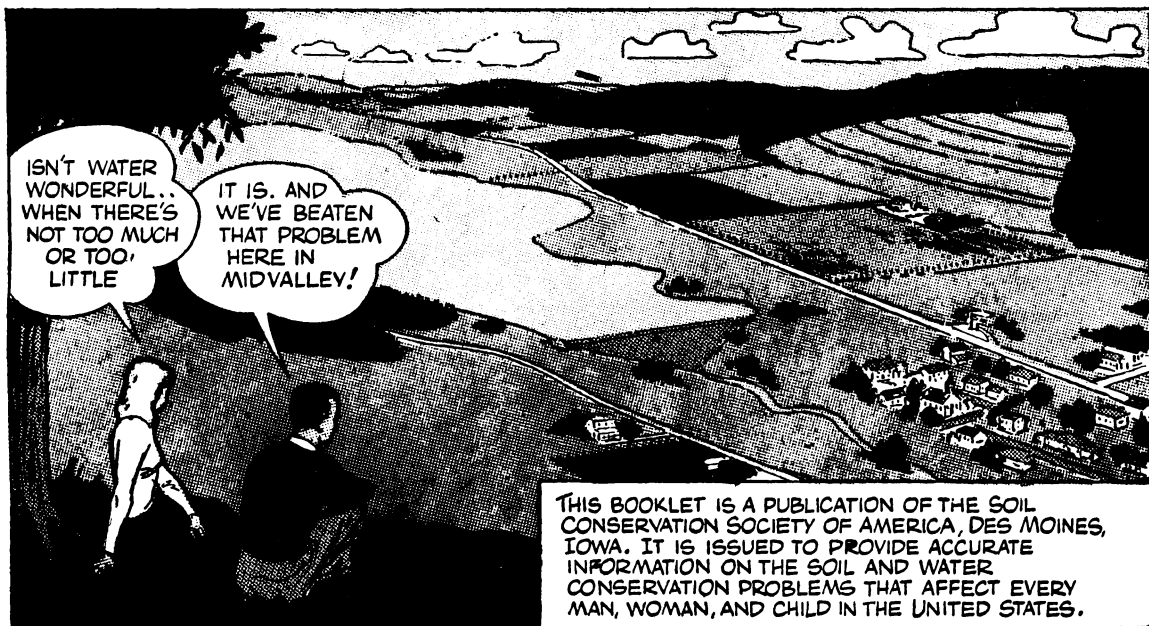
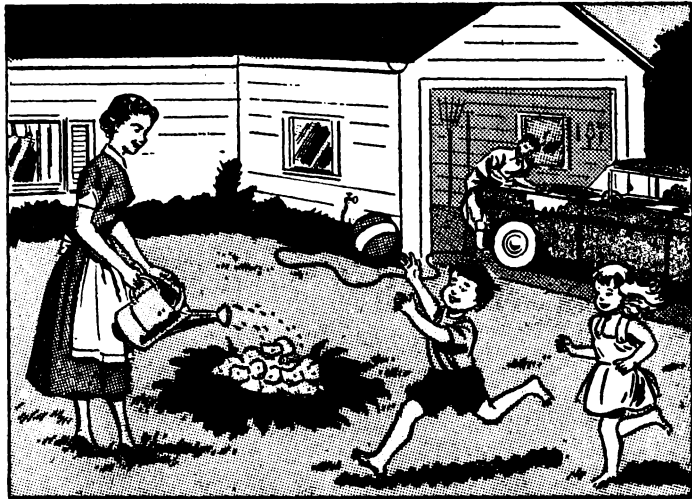
MIDVALE'S CITY RESERVOIR HAS A STEADY INFLOW OF SILT-FREE WATER NOW



CROPS ARE BETTER, BUSINESS IS BETTER



MIDVALE IS GROWING, WITH ASSURANCE THAT A WELL MANAGED WATERSHED WILL PROTECT ITS PEOPLE AND ITS BUSINESS FROM TOO LITTLE OR TOO MUCH WATER



ISN'T WATER WONDERFUL... WHEN THERE'S NOT TOO MUCH OR TOO LITTLE

IT IS. AND WE'VE BEATEN THAT PROBLEM HERE IN MIDVALLEY!

THIS BOOKLET IS A PUBLICATION OF THE SOIL CONSERVATION SOCIETY OF AMERICA, DES MOINES, IOWA. IT IS ISSUED TO PROVIDE ACCURATE INFORMATION ON THE SOIL AND WATER CONSERVATION PROBLEMS THAT AFFECT EVERY MAN, WOMAN, AND CHILD IN THE UNITED STATES.



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Reprint courtesy Soil Conservation Society of America for Cooperative Extension Service, Virginia Polytechnic Institute, Blacksburg, Virginia 24061

Publication 20

March 1968

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U. S. Department of Agriculture. W. E. Skelton, Director of Extension Service, Virginia Polytechnic Institute, Blacksburg, Virginia 24061.