

Binder 1

ENVIRONMENTAL ENGINEERING -- A FABLE, AND A CHALLENGE

BY: LARRY J. GORDON, M.S., M.P.H., DIRECTOR
ENVIRONMENTAL SERVICES DIVISION
HEALTH & SOCIAL SERVICES DEPARTMENT
P.O. Box 2348
SANTA FE, NEW MEXICO 87501

ONCE UPON A TIME

HEALTH AGENCIES HAD FUNCTIONS SOLELY IN THE FIELD OF
DISEASE PREVENTION.

IN THIS AGE OF YESTERYEAR PUBLIC HEALTH PROGRAMS CONSISTED
PRIMARILY OF PREVENTIVE MEDICINE, SANITATION, AND
PUBLIC HEALTH NURSING SERVICES.

IN THIS ALMOST FORGOTTEN LAND, THE PHYSICIAN, THE ENGINEER,
AND THE NURSE WERE THE HEROS, AND RODE WHITE CHARGERS,
AND WORE THE WHITE SUITS OF ARMOR (LATER TERMED THE
"WHITE HATS").

IN THIS FAR-AWAY LAND, THESE PUBLIC HEALTH LEADERS WERE THE
CENTER OF ALL WISDOM RELATING TO PUBLIC HEALTH AND
THEIR PRONOUNCEMENTS BECAME LAW.

OUR HEROS OF THIS TALE ACCOMPLISHED GREAT ACHIEVEMENTS IN
REDUCING MORBIDITY AND MORTALITY, AND THEIR SKILLS
BECAME LEGION.

PUBLIC HEALTH, SO THE STORY GOES, WAS THEN AN END UNTO
ITSELF, AND SANITATION WAS A WAY OF LIFE.

TO A LARGE EXTENT, OUR HEROS ACHIEVED THEIR GOALS AND
COMFORTABLY COASTED ON THEIR REPUTATIONS.

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OUR ENGINEERING GIANTS ACHIEVED GREATNESS PRIMARILY
IN THE FIELDS OF WATER SUPPLY, SEWERAGE CONSTRUCTION,
AND INSECT CONTROL.

YEARS WENT BY. VALUES CHANGED. EXPECTATIONS CHANGED.
TECHNOLOGY CHANGED. POPULATIONS CHANGED. DID OUR
HERO, THE SANITARY ENGINEER, CHANGE? (WE WILL
DISCUSS THIS IN A LATER PORTION OF THIS FABLE.)

SOMEONE, LONG SINCE FORGOTTEN, FOUND THAT HEALTH OR
SANITATION WAS NOT AN END UNTO ITSELF, AND, IN FACT,
MIGHT BE A RELATIVELY SMALL SOCIAL DESIRE OR GOAL IN
SOME POPULATION GROUPS.

OTHER NAMELESS CHARACTERS IN THE STORY DETERMINED THAT
HEALTH, SAFETY, COMFORT, AND WELL-BEING ARE INDEED
SO INTER-RELATED AS TO WEAKEN PROGRAMS, DESIGNS, OR
GOALS BASED SOLELY ON HEALTH.

ANOTHER FORGOTTEN INDIVIDUAL SUDDENLY TOOK COGNIZANCE OF
THE OBVIOUS FACT THAT AGENCIES OTHER THAN "HEALTH
AGENCIES" WANTED A PIECE OF THE ACTION, AND THESE
AGENCIES WERE WILLING TO ADMINISTER PROGRAMS BASED
ON BROAD, COMPREHENSIVE HUMAN GOALS, AND BALANCE
CONFLICTING INTERESTS OF HEALTH, INDUSTRY, RECREATION,
CONSERVATION, AND TOURISM.

AS TECHNOLOGY, VALUES, DEMANDS, AND GOALS CHANGED, OTHER
HEROS ROSE TO ASSERT THEIR RIGHTS TO A PIECE OF THE
ACTION.

THESE UPSTARTS INCLUDED BIOLOGISTS, PHYSICISTS, PLANNERS, CHEMISTS, PUBLIC ADMINISTRATORS, SYSTEMS EXPERTS, AND OTHERS. SHOCKINGLY, EVEN THE GENERAL PUBLIC AND CONSUMERS BECAME INVOLVED IN THESE MYSTIC ARTS. THE ESTABLISHED HEROS WERE THREATENED AND RESISTED FROM A VANTAGE POINT OF POWER AND TRADITION.

TIME WENT BY. THE AUDIENCE IN THIS MELODRAMA BECAME CONCERNED OVER ENVIRONMENTAL PROBLEMS OTHER THAN WATER AND SEWAGE. SOMEONE SAID "HOUSING", ANOTHER CRIED "AIR POLLUTION", AND A THIRD YELLED "GARBAGE", AND THE CLAMOR BECAME SO LOUD AS TO ALMOST MAKE "NOISE", "RADIATION", "HEATING", "LIGHTING", "LAND-USE", "PRODUCT SAFETY", "FOOD PROTECTION", "INSTITUTIONAL SANITATION", "ACCIDENT PREVENTION", AND MANY OTHER CRIES INDISTINGUISHABLE.

MANY OF OUR EARLIER AND LATER LEAD CHARACTERS HEADED THE CRIES. ENGINEERING TALENTS WERE NECESSARY IF THE CRIES WERE TO BE STIFLED. SOME EITHER DID NOT HEAR, OR IGNORED THE PLEAS AND THE CHANGES.

NON-HEALTH AGENCIES BECAME MORE DEMANDING AND ASSERTED THEIR NEW-FOUND RIGHTS. ENVIRONMENTAL PROGRAMS SLIPPED TO NON-HEALTH AGENCIES AT A RATE SO RAPID AS TO TERRORIZE OUR HEROS AND EVEN ALARM SOME OF THE ON-LOOKERS,

A LAST DITCH FIGHT WAS COMMENCED TO RETAIN ENVIRONMENTAL HEALTH PROGRAMS IN THE LAPS OF ITS FOUNDERS, AND THESE AGENCIES HAD TO BROADEN THEIR GOALS AND PERSPECTIVES TO SATISFY THE DEMAND.

THE ENGINEERS ACCEPTED A PARTNERSHIP WITH OTHER ENVIRONMENTAL-ISTS SUCH AS THE BIOLOGISTS, SANITARIANS, CHEMISTS, AND PHYSICISTS.

SUPPORT FOR THIS NEW TEAM GREW AND THE TREND TOWARD LOSS OF PROGRAM AND FUNCTION BEGAN TO BE REVERSED.

IT AGAIN BECAME APPARENT THAT ENGINEERING SKILLS ARE ESSENTIAL TO THE SOLUTION OF ALL ENVIRONMENTAL PROBLEMS.

THE TERM "SANITARY ENGINEER" WAS REPLACED FIRST BY "PUBLIC HEALTH ENGINEER", AND THEN "ENVIRONMENTAL ENGINEER".

THE ENVIRONMENTAL ENGINEER RETAINED HIS NEW-FOUND POSITION AS AN ESSENTIAL MEMBER OF THE GROUP OF SCIENTISTS, SPECIALISTS, AND TECHNICIANS NECESSARY TO MANAGE THE ENVIRONMENT.

THE ENGINEERING COLLEGES ADDED COURSES DESIGNED TO BROADEN THE PERSPECTIVE AND ENHANCE THE EFFECTIVES OF THE ENVIRONMENTAL ENGINEERING.

SOME UNIVERSITIES EVEN CREATED A DEPARTMENT OF ENVIRONMENTAL ENGINEERING.

THE NEW BREED HAD WISDOM AND FORESIGHT AND BECAME FULLY INVOLVED IN ROLES OF DESIGN, PLANNING, CREATIVITY, CONTROL, MANAGEMENT, SUPERVISION, ENVIRONMENTAL RESTORATION, AND PREVENTION OF DEGRADATION AND DETERIORATION.

THEY RECOGNIZED THAT ENVIRONMENTAL FACTORS OF LAND, AIR, WATER, SHELTER, FOOD, AND MANY OTHERS ARE INEXTRICABLY INTER-TWINED, AND MUST BE RELATED TO MAN'S SOCIAL, ECONOMIC, AND HEALTH VALUES.

WHILE THIS FABLE WAS UNFOLDING, OTHER CHANGES WERE OCCURRING. THE HIGHLY COMPLEX, INDUSTRIAL ENVIRONMENT IN WHICH ABOUT 80% OF THE POPULATION OF THE UNITED STATES LIVE, WORK, AND PLAY, HAD BROUGHT ABOUT PROBLEMS INCREASINGLY COMPLEX AND DIFFICULT TO SOLVE. THE METROPOLITAN AREA, PROBLEMS OF INTER-GOVERNMENTAL RELATIONS, AND EVOLUTION IN THE QUALITY AND QUANTITY OF GOVERNMENTAL SERVICES BECAME DOMINANT FACTS IN THE AMERICAN SOCIETY. FUNDAMENTAL ISSUES AROSE CONCERNING POLITICAL ORGANIZATION AND CONSTITUTIONAL POWER, CULTURAL AND ESTHETIC VALUES, AND THE BALANCE BETWEEN INDIVIDUAL FREEDOM AND THE COMMON GOOD.

OUR RE-EMERGING HERO FOUND HE HAD A ROLE TO PLAY REGARDING MANY OF THESE NEW ISSUES.

BUT PROBLEMS CONTINUED.

THE DEMAND FOR THE NEW BREED OUTNUMBERED THE SUPPLY. GOVERNMENT NEEDED QUANTITIES OF THIS NEW COMMODITY BUT ARCHAIC SALARY SCALES WERE NOT CONDUCIVE TO RECRUITMENT OR RETENTION.

OTHER ENGINEERING ENDEAVORS OFFERED GREATER FINANCIAL REWARD.

BUT, AMAZINGLY, MANY ENVIRONMENTAL ENGINEERS REMAINED IN THIS FIELD AND IN PUBLIC SERVICE. SOME TERMED SUCH INDIVIDUALS DEDICATED -- OTHERS CALLED THEM STUPID.

THE JOB HAD TO BE DONE. IT IS BEING DONE, IT WILL BE DONE. WILL THE ENGINEER CONTINUE TO LEND HIS KNOWLEDGE AND ABILITIES? THE MANTLE OF LEADERSHIP WILL FALL TO THOSE WHO EARN IT.

AND OUR SOCIETY WILL INCREASINGLY DEMAND AN ENVIRONMENT THAT WILL IN THE GREATEST POSSIBLE MEASURE, CONFER OPTIMUM HEALTH, SAFETY, COMFORT, AND WELL-BEING ON ITS INHABITANTS; THAT WILL PROTECT THIS GENERATION AS WELL AS THOSE YET UNBORN, FROM THREATS POSED BY THE ENVIRONMENT; AND THAT WILL MAXIMIZE THE ECONOMIC, SOCIAL, AND CULTURAL BENEFITS OF A HEALTHY PEOPLE.

WHO SHOULD HAVE A BIGGER PIECE OF THE ACTION THAN THE ENVIRONMENTAL ENGINEER?

THE CLAMOR CONTINUES, AND WILL CONTINUE FOR ENGINEERS TO BE INVOLVED IN ROLES OF PLANNING, DESIGN, RENEWAL, BUILDING, CONSTRUCTION, SYSTEMS, RESEARCH, MANAGEMENT, SUPERVISION, DIRECTION, AND RESTORATION AS RELATED TO

AIR QUALITY
WATER SUPPLY
LIQUID WASTES
FOOD PROTECTION
LAND-USE
TRANSPORTATION
URBAN RENEWAL
HOUSING
INSECT AND RODENT CONTROL
INSTITUTIONAL SANITATION
RECREATIONAL AREAS
RADIATION PROTECTION
WATER QUALITY
OCCUPATIONAL HEALTH AND SAFETY
SOLID WASTES
ENERGY, AND MUCH MORE - -

ARE YOU DOING YOUR SHARE?