

ENVIRONMENTAL ENGINEERING -- A FABLE, AND A CHALLENGE

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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, PUBLIC HEALTH PHYSICIANS,
SANITARY ENGINEERS AND PUBLIC HEALTH NURSES WERE THE
HEROES. THEY RODE WHITE CHARGERS AND WORE 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 HEROES 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 HEROES ACHIEVED THEIR GOALS AND COASTED
COMFORTABLY ON THEIR REPUTATIONS.

OUR ENGINEERING GIANTS ACHIEVED FAME 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
MINOR DESIRE OR GOAL AMONG 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 PLAYERS
ROSE TO ASSERT THEIR RIGHTS TO A PIECE OF THE ACTION.

THESE UPSTARTS INCLUDED SANITARIANS, BIOLOGISTS, PHYSICISTS,
PLANNERS, CHEMISTS, PUBLIC ADMINISTRATORS, SYSTEMS EXPERTS
AND OTHERS. SHOCKINGLY. EVEN THE GENERAL PUBLIC
AND CONSUMERS BECAME INVOLVED IN THE MYSTIC ARTS.

THE ESTABLISHED HEROES 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 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 HEROES AND EVEN ALARM SOME OF THE OBSERVERS.

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

ENGINEERS ACCEPTED A PARTNERSHIP WITH OTHER PRACTITIONERS SUCH AS 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 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 EFFECTIVENESS OF ENVIRONMENTAL ENGINEERING.

SOME UNIVERSITIES EVEN CREATED DEPARTMENTS OF ENVIRONMENTAL ENGINEERING.

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

THEY RECOGNIZED THAT ENVIRONMENTAL FACTORS OF LAND, AIR, SHELTER, FOOD, WATER AND OTHER FACTORS 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 90% 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 HEROES FOUND THEY HAD A ROLE TO PLAY REGARDING 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 CONDUCTIVE 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.

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 OF RECREATIONAL AREAS

RADIATION PROTECTION

WATER QUALITY

OCCUPATIONAL SAFETY

SOLID WASTES

ENERGY PRODUCTION

AND MUCH MORE

ARE YOU DOING YOUR SHARE?