Our hospital purchased an argon laser Photocoagulator in 1978 and established the "Ophthalmology Lab" in an underutilized room on the third floor. This unit requires a 2.5 gal/min cooling water source and this was obtained from a supply line of adequate volume in the vicinity.

Shortly after the Photocoagulator went into service, the Ophthalmologist called to advise me that the unit was malfunctioning or was losing its water flow as it was shutting down on its safety cutout. This unit will shutdown (and a solenoid closes in the water circuit) if water flow is interrupted, to prevent chill-shocking the (possibly) overheated laser generator.

Monitoring the building's water supply gauges showed a fluctuation of pressure, at times dropping 50-70% of normal pressure. Although lasting only short periods of time, this could still disrupt ophthalmic procedures.

The municipal water department could not pin down the cause or guarantee a correction of the problem at the time I contacted them.

Our primary concern was that damage could result to a patient's eye if treatment were interrupted, but also of concern was the fact that the equipment was being utilized and we did not wish to discontinue the service.

To eliminate both concerns, the following system was devised to guarantee a supply of cooling water of sufficient duration to finish a given ophthalmic procedure. Total equipment and material costs were approximately $350.00, and space was not a significant factor.

R. B. Fisher
V.T. Representative

EMS AND ENGINEERING

Although Emergency Medical Systems (EMS) have not evolved identically throughout the country, there has been a trend toward providing advanced cardiac care. According to a recent survey by the American Hospital Association, approximately one million Americans suffer myocardial infarctions (heart attacks) annually. Of these, an estimated 300,000 to 500,000 die before reaching the hospital. Therefore, it stands to reason that a system which focuses on cardiac care at the scene would have immediate pay-back value by reducing the number of coronary-related deaths. This trend toward cardiac care on site has resulted in an increasing dependence upon biomedical equipment such as defibrillators and EKG writers and monitors.

The increasing use of this type of equipment brings along with it many engineering considerations that have to be taken into account. Fortunately, many of these considerations are the same as those that have already been covered in the hospital environment. However, there are two important reasons why clinical engineers and biomedical technicians should play important roles in this new field. First, the outside environment is uncontrolled and brings in the element of the unexpected. Secondly, the EMT's, paramedics, and other ambulance staff dealing with this equipment, generally, have not been educated as to the electrical safety and other hazards associated with electrical equipment. This lack of awareness by EMS personnel is, for the most part, no fault of their own. Where health care institutes have had a number of groups (AAMI, JCAH, NFPA, et al.) urging them to carry out safety programs, there has not been a similar influence exerted by any group on the EMS community.

There are a number of important areas where engineers should get involved in modern EMS programs. The first is in helping to set up preventive maintenance programs for the biomedical equipment. Even in the widely publicized paramedic program of Los Angeles County, no formal preventive maintenance program for the biomedical equipment is known to exist. Secondly, engineers can help a great deal in the education of EMS personnel as to the various safety implications of using biomedical equipment. Thirdly, electrical systems supplying power to the typical ambulance include inverters, permanently wired equipment, and various other por-
Bill Goode retires from Carney Hospital, Boston after 30 years of Hospital Engineering work. A graduate of Peterson's School of Engineering, Bill started at New England Baptist Hospital, later he worked for the House of the Good Shepherd for 11 years and then 21 years at the Carney Hospital. Bill has been an active N.E.H.E.S. member. We wish him good health and a happy retirement. Bill plans to remain in the Boston area.

COPELEY SEMINAR BOOMING SUCCESS

Attendance of 150 is all time high for Spring Seminar. Congratulations to co-hosts Don Mason, New England Baptist Hospital and Neal Keating, N.E. Deaconess Hospital. After the greeting by New England Hospital Assembly President Charles T. Wood, we heard Robert DeVore, President of Health Systems, Inc. discuss government controls versus voluntary cost containment. He pointed out that engineers will have to become better managers. Cost control systems are becoming so efficient and standardized that auditors will soon be able to compare very elementary cost functions between numerous hospitals. The end result is quite apparent. In six years the U.S. health care cost has increased from $350 million to $850 million, a greater rate of growth than the increase of the GNP.
NOTEs OF INTEREST
As of the N.E.H.E.S. Board of Directors meeting March 26, 1979 there were 360 members. Remember to follow up on your hospital to get your dues in.

The Directors have approved monies for educational films for state groups. See your representative if you know of a worthwhile training film.

The 1980 Spring Seminar coordinator will be Ed Boyer and the 1980 Fall coordinator will be Stanley Addyman planning for the gala event in the Granite State.

Your AHA membership is unfortunately non-transferable to your assistant or replacement.

CORRECTION
In the February issue of the Newsletter Mr. Rademacher’s Article entitled “One Engineer’s Solution” had referenced a Duty Cycle Chart. The editor apologizes, it is as follows. The duty cycle chart indicates the “on” and “off’" time of each group.

DUTY CYCLE CHART

FINALLY, A
MASSACHUSETTS ORGANIZATION
At the Massachusetts Hospital Association on April 5, 1979 representatives from all the various Massachusetts engineer subgroups met to elect the following: President, James Menadue, Boston Vice President, Edward Boyer, Mass. Rep. Secretary, Paul Taylor, South Shore Treasurer, Bernard Down, Central West Membership, John Crowley, Middlemac Bill Judd, Western Mass. Allen Goldberg, M.H.A.
The reclamation of waste heat from an incinerator installation has reduced the fuel consumption at the Bridgeport Hospital by more than 8% during the first 4 months of operation. The search for a new conforming incinerator has lead this writer down many paths in the last 10 years and finally resulted in the installation of a heat reclamation system which now converts previously wasted heat into usable energy.

The problem of solid waste disposal is not new and when faced with the Clean Air Act, it was considered prudent to review the subject again. The initial reaction and usual solution for waste disposal is contract haulage. (A questionable practice subject to future review.) In our case, on-site incineration had been a satisfactory method of disposal of all combustible materials and was considered to be worthy of serious consideration before pursuing alternate methods. Subsequently, all methods were evaluated and on-site disposal was still considered the best method of disposal of hospital based solid waste.

The determination of the method of disposal narrowed the search to the selection of an “acceptable” incinerator. The search for equipment, by this time, had progressed to the point where it coincided with the Energy Crisis of ’73-’74. The realization that energy was being dissipated in the exhaust gases from the incinerator operation prompted an attempt to combine and resolve both problems in one system, an incinerator with heat reclamation capabilities. Also, at this time, the situation became more interesting, with added complications imposed by a time limit which threatened “shutdown” or the installation of an “acceptable” disposal system.

Eventually the problems were resolved, not the least of which was the obtaining of a Certificate of Need. The installation is rather unique because of numerous physical limitations imposed by our particular arrangements of space and equipment. The end results have justified the time and effort. The installation has exceeded the design criteria with the resultant reduction of fuel consumption in excess of 8%.

The reclamation is accomplished by the introduction of a tube bundle in the main breaching serving the boiler and the incinerator. The “economer” preheats the boiler feed water thereby reducing the fuel required to produce steam. While being simple in concept, the implementation of the project was extremely difficult.

However, I submit that the resulting energy savings would justify the time and effort of a serious study of all boiler plant operations whether an incinerator is employed or not. As experienced in the Bridgeport Hospital, the time of low-cost, no-cost energy conservation methods had passed. Additional real reductions in energy could only be realized by expenditures of capital. The Incinerator/Heat Reclamation Project is an example of our continuing effort to employ good engineering practices in the pursuit of lowered operating costs and conservation of energy.

Donald J. Kohler, Asst. Admin.-Physical Plant

ENERGY AUDITS START IN MAINE HOSPITALS

A financial grant from the Maine Blue Cross has enabled a start on energy audits in Maine hospitals. The $22,000 subsidy will fund the program along with reimbursements expected to be available under the National Energy Conservation Policy Act and hospital sharing of the expense.

The Maine Hospital Association is coordinating the program with the Main Office of Energy Resources and Don Bail, hospital engineer, has been retained to pursue completion of Preliminary Audits from all hospitals, and to provide service on complete Energy Audits when requested by a hospital.

SEMINAR SPEAKER

Gene Bard, President of B.R. and A, seminar said that hospitals who do their energy analysis surveys without asking for government dollars may be favored when it comes to issuing money for projects. The energy office is looking for projects with payback in less than 15 years and specifically those simple things which can be done quickly and easily.

It is expected that an initial 10% saving in fuel use will be realized and much greater economies as energy conservation measures are approved and installed.

Audit procedures will be based upon the program proposed by the Office of Energy Resources, experience gained in a pilot audit at Regional Hospital in Brunswick, and regulations as published under the act.

An April meeting is to be held in Augusta to acquaint hospital engineers and administrators with the audit and technical assistance program. Robert Philpot, Regional Director for DOE; Richard Darling, from the Maine Office of Energy Resources, and Donald Bail, hospital energy auditor, will make presentations. A panel discussion with the above participants, Richard Leighton, VP of Shared Services for Maine Hospital Association, and Percy Hanscom, President of Maine Hospital Engineers, will conclude the program.

Percy Hanscom
Maine Representative

BIOMEDICAL ENGINEERING SYMPOSIUM

The Greater Hartford Center for Clinical Engineering Education and the Stone Foundation are sponsoring a one-day discussion on “How Clinical Engineering Programs Meet the Technical Needs and Regulatory Requirements of Hospitals Today.” It will be Thursday, May 10, 1979 at the McCook Auditorium, Trinity College, Hartford. The Greater Hartford group includes Univ. of Conn. Health Center, Trinity College and St. Francis Hospital and Hartford Graduate Center. There is no cost to attend this program.

The purpose of the symposium: The effect of recent technological innovations coupled with increased patient safety regulations for patient safety has altered not only patient care, but also the technical support each hospital must provide to accomplish the medical mission. This symposium is designed to assist those individuals, such as hospital administrators, hospital engineers, clinical engineers and unit managers, who are responsible for the utilization and management of the technical resources of the hospital to understand and employ the appropriate clinical engineering programs that will enable them to meet the needs of their own particular institution. It is presented in cooperation with the Connecticut Hospital Engineers Society, The New England Society of Clinical Engineers, and IEE-GEMB.

EMS AND ENGINEERING

Continued from Page 1

table electrical devices. In a study performed by Mark Furlong, a senior EE student at the University of New Hampshire, in conjunction with the UNH/Clinical Engineering Center and the Durham Ambulance Corp, it was found that many potential electrical problems existed in one ambulance.

Finally, the engineer can play an important role in the prepurchase of electrical equipment to be used in ambulances. Once again, this is an area with which EMS personnel are not totally familiar and proper information resources can be of great help to them.

The purposes of this study performed by Mr. Furlong were to survey the state-of-the-art in EMS as it relates to biomedical equipment and also to help increase the awareness of the many advantages of enlisting engineers in establishing an effective overall EMS system.

Plans are for the Center to continue its work in the area and to become involved wherever appropriate in the future direction of EMS in the region.

Michael Gerken
Mark Furlong
University of New Hampshire

The Northern New England Society of Biomedical Technology is having a Spring meeting on May 22, 1979 at the University of New Hampshire. The topic of this meeting will be “Black outs and Brown outs, and how they affect Hospitals.”