Welcome Aboard

We are pleased to welcome as new members of the New England Hospital Engineers Society.

CONRAD R. DESAUTEELS
Chief Engineer
Degas Brian Memorial Hospital
Burlington, Vermont

VINCENT W. HEDGES
Veterans Home & Hospital
Rocky Hill, Connecticut

WILLIAM L. FAGAN
Supt. of Maintenance
St. Mary’s Hospital
Waterbury, Connecticut

FRED A. SHEFFS
Executive Engineer
Bristol Hospital
Bristol, Connecticut

The Prudential Center

Fellow Engineers:
While attending the New England Hospital Assembly, may I suggest you attempt to find a few minutes to visit the Prudential Center, Boston, Mass.

The center is a beautiful combination of modern architecture and a functional complex business building. It is easily reached by our modern and fast roads and is well identified. There are over fifty stories in this building.

A fascinating sidelight is a trip by elevator to the top and to the observation floor, from which you can see Boston like you’ve never seen it before. A restaurant on the top story should be a pleasurable experience for any of us. The center encompasses a large Sheraton Hotel, shopping centers, and a beautiful mall. The entire complex is a fascinating experience!

Charles R. Shields
EDITORIAL

CONTINUE YOUR STUDIES

In today’s world of hospital engineering, continuing study has become a professional necessity. For the engineer who keeps himself technically up-to-date, the coming decade promises to be exciting indeed as the economy climbs to the trillion-dollar level and expenditures for research and development double.

Traditionally, continuing study—which as used here means non-degree study—was obtained primarily through attendance at technical meetings and the reading of technical journals and books. Now, it is recognized by many leaders in professional societies, industry and education that these methods need to be supplemented with other kinds of study opportunities such as programmed instruction, short courses, and summer work shops.

Perhaps the most urgent need of all is to instill in the engineer a feeling for the value of continuing studies to his professional development. Accordingly, he also has the right to expect that there will be made available to him an assortment of study programs that his employer will permit him to take advantage of.

Everett C. Benoit
Treasurer
New England Hospital Engineers Society

Everett is the watch dog on the Society’s purse strings. His reporting as to the financial standing is always submitted in not only a professional way but in a way that is readily understood. Should anyone question his qualifications for the position of Society Treasurer, I suggest you try to get a check from him without proper authorization and answering a long line of questions to substantiate the need. The Society is fortunate in having a man of Everett’s calibre in this responsible position.

He was appointed Administrative Engineer at Rhode Island Hospital on September 13, 1962. Everett was born in Pawtucket, R.I., and attended schools there. He graduated from Northeastern University, Boston, Mass., with a degree of Bachelor of Electrical Engineering. He attended extension courses in engineering at Brown University specializing in electricity and mathematics. His background makes him well fitted for the job of Administrative Engineer at R.I. Hospital.

He started his career working for the Water Department, City of Pawtucket, R.I., as Assistant Chief Engineer, and then went on to further his career at the Brown & Sharp Mfg. Co. where he spent 24 years and was Plant Engineer when he left.

He came to R.I. Hospital in May, 1960 and was appointed Assistant Administrative Engineer in April, 1961.

Everett lives in Riverside, R.I. He is married, has one daughter, and three lively grandchildren. He is an avid golfer and is very much at home around all kinds of boats, having once owned his own cabin cruiser. He was a member of the U.R. Power Squadron.

He is a Registered Professional Engineer in R.I.; holds a stationary operating engineer’s license; is a charter member of Rhody Chapter of the American Institute of Plant Engineers; member of Hospital Association of R.I.; New England Hospital Engineers Society; American Society for Hospital Engineers of R.I., and is a charter and past president of Riverside East Providence Kiwanis Club.

Looking Ahead

Fall Seminar
The 1966 Fall Seminar will be on Thursday and Friday, October 13 and 14 at the Hotel Americana, Hartford’s (Conn.) exciting new hotel located in the magnificent Constitution Plaza. It features beautiful rooms with famous restaurants, and a special entrance for the convenience of motorists with free underground parking directly connected to the hotel.

Fall Engineering Institute
Although no official notification has been made, several members have reported that the American Society for Hospital Engineers is tentatively planning a week-long institute for the week of December 5, 1966 in the Boston area.

Standby Power

Reprinted from AHA “THE WEEK for Hospitals”

Hospital Standby Power Systems are under study in the Senate with a bill introduced by Sen. Harrison A. Williams, Jr. (D., N. J.). Citing the Nov. 9 black-out in the Northeast the senator said: “We have seen that great power failures can occur despite the foresight of engineers ... Now is the time to make sure that our hospitals are adequately prepared to handle an emergency power failure.” The bill would amend the Hill-Burton program to establish a three-year program of grants and loans to hospitals for construction and improvement of standby electrical systems. It would authorize the Surgeon General to make loans or grants totaling up to 75 per cent of the construction cost to public or private nonprofit hospitals.

Memoriam

CHESTER McCARTHY
Chief Engineer
The Marlborough Hospital
Marlborough, Massachusetts

It is with great sorrow that we report the sudden death on January 8, 1966, of Chester McCarthy who has been employed at the Marlborough Hospital for the past twenty-four years.
The Degree Day Method of Comparing Heating Results

Oftentimes it is of value to be able to compare the heating loads of buildings in various sections of the country, or compare the cost of heating one building with the cost of heating another, or to compare the cost of heating a building for one heating season with another season, taking the difference in outside temperature into consideration. In making comparisons care should be used that proper allowances, such as hours of operation, are made to place each on an equal basis with the other to obtain a correct conclusion.

The American Gas Association has devised a method, which they call the "Degree Day" which is the product of one degree of temperature and on day of time. They made a study of actual conditions and found that, with a mean daily temperature of 65°F Fahrenheit for the 24 hour period, the average daytime temperature would be about 70°F Fahrenheit and that the only time that the room temperature would be below this temperature would be around midnight. The temperature limit of the heating season was fixed at 65°F Fahrenheit mean daily temperature: that is, whenever the average outside temperature for the 24 hour period falls below 65°F Fahrenheit, heating of the building is necessary.

The base of 65°F Fahrenheit is used for an inside temperature of 70°F Fahrenheit. Where the design temperature differs greatly from 70°F Fahrenheit the 65 degree-day base cannot be accurately applied, and values should be developed assuming different degree-basis. For instance, use 55°F as base for inside temperature of 60°F and calculate the total degree-days for each 24 hour day accordingly.

The U.S. Weather Bureau has records which show the boundaries of each heating season, mean daily temperatures, etc., and from this data and the above definition of the Degree Day, the total number of Degree Days for any period of time may be found. For instance, if the mean temperature was 32°F Fahrenheit on February 5th (or any date that is desired) then there were (65°F-32°F) x 1 day—33 Degree Days on that date; or if the mean temperature was 25°F Fahrenheit for the month of January, then there would be a total of (65°F-25°F) x 31 days = 1240 Degree Days in January. The number of Degree Days per heating season is calculated similarly; thus, if the mean temperature of a heating season (not mean temperature of entire year) of 243 days is 37°F, there would be a total of (65°F-37°F) x 243=6804 Degree Days.

It may be desired to compare the cost of operation of a heating system from one month to another when there is a decided difference in the average outside temperatures. Now the total number of Degree Days for each month may be calculated and quantity of fuel burned or steam condensed measured. From this data, the quantity of fuel or steam consumed per Degree Day may be obtained for each month, which is a direct comparison of operation.

Example. Comparing two months' operation in the same building. The first month's mean temperature was 25°F and the coal consumption was 25,000 lb. The second month's mean temperature was 30°F and the coal consumption was 24,000 lb. The comparison is calculated as follows:

First Month: (65°F—25°F x 31 days = 1240 Degree Days.
28,000 lb. = 20.16 lb. coal per D. D.
1240 D. D.

Second Month: (65°F—30°F x 31 days = 1085 Degree Days
24,000 lb. = 22.1 lb. coal per D. D.
1085 D. D.

It is apparent that operation during the second month was not so economical as the first month. The difference in economy may be calculated as follows:

\[
\frac{22.1 - 20.16}{20.16} = 9.6\%.
\]

Comparison between different buildings either in the same locality or in localities with the same "design base" temperature is similarly made except that the difference in load (sq. ft. of radiation) must be taken into consideration by a comparison of rates per 1000 sq. ft. of radiation per Degree Day. Thus assuming 2400 sq. ft. of EDR for the above example, the second month would have a rate of:

\[
\frac{24000}{1000} \times \frac{9.2}{2400} = 0.02 \text{ lb. coal per M sq. ft. per D.D.}
\]

Comparison between different buildings in different localities with different design base temperatures requires correction to place the rates on a comparative basis. Assume Bldg. No. 1 has a design base temperature of 0°F and Bldg. No. 2, -10°F. Both are heated to 70°F. The design basis degree days is 65 D. D. for Bldg. No. 1 and 75 D. D. for Bldg. No. 2.

Example. Bldg. No. 1 uses 46.1 lb. steam per M sq. ft. EDR per D. D.
Bldg. No. 2 uses 40.0 lb. steam per M sq. ft. EDR per D. D.
To compare No. 2 with No. 1:

\[
\frac{40.0}{46.1} \times \frac{65}{75} = 0.02 \text{ lb. steam per M sq. ft. EDR per D. D.}
\]

In this case, the corrected rate for Bldg. No. 2 becomes equal to that for Bldg. No. 1.

NORMAL DEGREE DAYS

<table>
<thead>
<tr>
<th>City</th>
<th>Degree Days</th>
<th>City</th>
<th>Degree Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albany, N. Y.</td>
<td>6,889</td>
<td>Memphis, Tenn.</td>
<td>2,950</td>
</tr>
<tr>
<td>Atlanta, Ga.</td>
<td>2,831</td>
<td>Milwaukee, Wis.</td>
<td>7,372</td>
</tr>
<tr>
<td>Baltimore, Md.</td>
<td>4,333</td>
<td>Minneapolis, Minn.</td>
<td>7,851</td>
</tr>
<tr>
<td>Birmingham, Ala.</td>
<td>2,408</td>
<td>New Haven, Conn.</td>
<td>5,985</td>
</tr>
<tr>
<td>Boston, Mass.</td>
<td>6,145</td>
<td>New Orleans, La.</td>
<td>1,023</td>
</tr>
<tr>
<td>Buffalo, N. Y.</td>
<td>6,621</td>
<td>New York, N. Y.</td>
<td>5,348</td>
</tr>
<tr>
<td>Chicago, Ill.</td>
<td>6,315</td>
<td>Omaha, Neb.</td>
<td>6,128</td>
</tr>
<tr>
<td>Cincinnati, Ohio</td>
<td>4,702</td>
<td>Philadelphia, Pa.</td>
<td>4,855</td>
</tr>
<tr>
<td>Cleveland, Ohio</td>
<td>6,154</td>
<td>Pittsburgh, Pa.</td>
<td>5,235</td>
</tr>
<tr>
<td>Denver, Colo.</td>
<td>5,873</td>
<td>Portland, Or.</td>
<td>4,468</td>
</tr>
<tr>
<td>Des Moines, Iowa</td>
<td>6,373</td>
<td>Richmond, Va.</td>
<td>3,725</td>
</tr>
<tr>
<td>Detroit, Mich.</td>
<td>6,145</td>
<td>Rochester, N. Y.</td>
<td>6,733</td>
</tr>
<tr>
<td>Duluth, Minn.</td>
<td>9,480</td>
<td>St. Louis, Mo.</td>
<td>4,585</td>
</tr>
<tr>
<td>Greenville, S. C.</td>
<td>3,452</td>
<td>Salt Lake City, Ut.</td>
<td>5,533</td>
</tr>
<tr>
<td>Indianapolis, Ind.</td>
<td>5,297</td>
<td>San Francisco, Cal.</td>
<td>3,264</td>
</tr>
<tr>
<td>Kansas City, Mo.</td>
<td>5,202</td>
<td>Seattle, Wash.</td>
<td>4,688</td>
</tr>
<tr>
<td>Little Rock, Ark.</td>
<td>2,811</td>
<td>Springfield, Mass.</td>
<td>6,464</td>
</tr>
<tr>
<td>Los Angeles, Calif.</td>
<td>1,504</td>
<td>Trenton, N. J.</td>
<td>4,934</td>
</tr>
<tr>
<td>Louisville, Ky.</td>
<td>4,180</td>
<td>Washington, D. C.</td>
<td>4,626</td>
</tr>
</tbody>
</table>
### CONVERSION FACTORS

<table>
<thead>
<tr>
<th>Multiply</th>
<th>By</th>
<th>To Obtain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atmosphere</td>
<td>29.92</td>
<td>Inches of mercury</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>33.93</td>
<td>Feet of water</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>14.70</td>
<td>Pounds per square inch</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>1.058</td>
<td>Tons per square foot</td>
</tr>
<tr>
<td>Barrels (oil)</td>
<td>42</td>
<td>Gallons</td>
</tr>
<tr>
<td>Boiler horsepower</td>
<td>33.475</td>
<td>Btu per hour</td>
</tr>
<tr>
<td>Boiler horsepower</td>
<td>31.5</td>
<td>Pounds water evaporated from and at 212F</td>
</tr>
<tr>
<td>Btu</td>
<td>773</td>
<td>Foot-pounds</td>
</tr>
<tr>
<td>Btu</td>
<td>0.000393</td>
<td>Horsepower-hours</td>
</tr>
<tr>
<td>Btu</td>
<td>0.00293</td>
<td>Kilowatt-hours</td>
</tr>
<tr>
<td>Btu</td>
<td>0.001037</td>
<td>Pounds water evaporated from and at 212F</td>
</tr>
<tr>
<td>Btu per 24 hr.</td>
<td>0.0000047</td>
<td>Tons of refrigeration</td>
</tr>
<tr>
<td>Btu per hour</td>
<td>0.0000293</td>
<td>Boiler horsepower</td>
</tr>
<tr>
<td>Btu per hour</td>
<td>0.000393</td>
<td>Horsepower</td>
</tr>
<tr>
<td>Btu per hour</td>
<td>0.00293</td>
<td>Kilowatts</td>
</tr>
<tr>
<td>Btu per inch per sq. ft. per hour per F</td>
<td>0.0333</td>
<td>Btu per foot per sq. ft. per hour per F</td>
</tr>
<tr>
<td>Cubic feet</td>
<td>1.718</td>
<td>Cubic inches</td>
</tr>
<tr>
<td>Cubic feet</td>
<td>7.48052</td>
<td>Gallons</td>
</tr>
<tr>
<td>Cubic feet of water</td>
<td>62.37</td>
<td>Pounds (at 60F)</td>
</tr>
<tr>
<td>Cubic feet per minute</td>
<td>0.1247</td>
<td>Gallons per second</td>
</tr>
<tr>
<td>Feet of water</td>
<td>0.881</td>
<td>Inches of mercury from and at 32F</td>
</tr>
<tr>
<td>Feet of water</td>
<td>62.37</td>
<td>Pounds per square foot</td>
</tr>
<tr>
<td>Feet of water</td>
<td>0.4335</td>
<td>Pounds per square inch</td>
</tr>
<tr>
<td>Feet of water</td>
<td>0.0295</td>
<td>Atmospheres</td>
</tr>
<tr>
<td>Feet per minute</td>
<td>0.01136</td>
<td>Miles per hour</td>
</tr>
<tr>
<td>Feet per minute</td>
<td>0.01667</td>
<td>Feet per second</td>
</tr>
<tr>
<td>Foot-pounds</td>
<td>0.001286</td>
<td>Btu</td>
</tr>
<tr>
<td>Gallons (U.S.)</td>
<td>0.1337</td>
<td>Cubic feet</td>
</tr>
<tr>
<td>Gallons (U.S.)</td>
<td>231</td>
<td>Cubic inches</td>
</tr>
<tr>
<td>Gallons of water</td>
<td>3.3453</td>
<td>Pounds of water (at 60F)</td>
</tr>
<tr>
<td>Horsepower</td>
<td>550</td>
<td>Foot-pounds per sec.</td>
</tr>
<tr>
<td>Horsepower</td>
<td>33.00C</td>
<td>Foot-pounds per min.</td>
</tr>
</tbody>
</table>

### CONVERSION FACTORS

<table>
<thead>
<tr>
<th>Multiply</th>
<th>By</th>
<th>To Obtain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horsepower</td>
<td>2.546</td>
<td>Btu per hour</td>
</tr>
<tr>
<td>Horsepower</td>
<td>42.42</td>
<td>Btu per minute</td>
</tr>
<tr>
<td>Horsepower</td>
<td>0.7457</td>
<td>Kilowatts</td>
</tr>
<tr>
<td>Horsepower (boiler)</td>
<td>33.475</td>
<td>Btu per hour</td>
</tr>
<tr>
<td>Inches of mercury (at 62F)</td>
<td>13.57</td>
<td>In. of water (at 62F)</td>
</tr>
<tr>
<td>Inches of mercury (at 62F)</td>
<td>1.151</td>
<td>Ft. of water (at 62F)</td>
</tr>
<tr>
<td>Inches of mercury (at 62F)</td>
<td>70.73</td>
<td>Pounds per sq. ft.</td>
</tr>
<tr>
<td>Inches of mercury (at 62F)</td>
<td>0.4912</td>
<td>Pounds per sq. in.</td>
</tr>
<tr>
<td>Inches of water (at 62F)</td>
<td>0.07385</td>
<td>Inches of mercury</td>
</tr>
<tr>
<td>Inches of water (at 62F)</td>
<td>0.03631</td>
<td>Pounds per sq. in.</td>
</tr>
<tr>
<td>Inches of water (at 62F)</td>
<td>5.202</td>
<td>Pounds per sq. ft.</td>
</tr>
<tr>
<td>Inches of water (at 62F)</td>
<td>0.002458</td>
<td>Atmospheres</td>
</tr>
<tr>
<td>Kilowatts</td>
<td>56.92</td>
<td>Btu per minute</td>
</tr>
<tr>
<td>Kilowatts</td>
<td>1.341</td>
<td>Horsepower</td>
</tr>
<tr>
<td>Kilowatt-hours</td>
<td>3415</td>
<td>Btu</td>
</tr>
<tr>
<td>Latent heat of ice</td>
<td>143.33</td>
<td>Btu per pound</td>
</tr>
<tr>
<td>Pounds</td>
<td>7,000</td>
<td>Grains</td>
</tr>
<tr>
<td>Pounds of water (at 60F)</td>
<td>0.01602</td>
<td>Cubic feet</td>
</tr>
<tr>
<td>Pounds of water (at 60F)</td>
<td>27.68</td>
<td>Cubic inches</td>
</tr>
<tr>
<td>Pounds of water (at 60F)</td>
<td>0.1198</td>
<td>Gallons</td>
</tr>
<tr>
<td>Pounds of water evaporated from and at 212F</td>
<td>0.284</td>
<td>Kilowatt-hours</td>
</tr>
<tr>
<td>Pounds of water evaporated from and at 212F</td>
<td>0.381</td>
<td>Horsepower-hours</td>
</tr>
<tr>
<td>Pounds of water evaporated from and at 212F</td>
<td>970.4</td>
<td>Btu</td>
</tr>
<tr>
<td>Pounds per square inch</td>
<td>2.309</td>
<td>Ft. of water (at 62F)</td>
</tr>
<tr>
<td>Pounds per square inch</td>
<td>2.0416</td>
<td>In. of mercury (at 62F)</td>
</tr>
<tr>
<td>Tons of refrigeration</td>
<td>12,000</td>
<td>Btu per hour</td>
</tr>
<tr>
<td>Tons of refrigeration</td>
<td>200</td>
<td>Btu per minute</td>
</tr>
<tr>
<td>Tons (long)</td>
<td>2,240</td>
<td>Pounds</td>
</tr>
<tr>
<td>Tons (short)</td>
<td>2,000</td>
<td>Pounds</td>
</tr>
<tr>
<td>Watts</td>
<td>44.26</td>
<td>Ft.-pounds per min.</td>
</tr>
<tr>
<td>Watts</td>
<td>0.7378</td>
<td>Ft.-pounds per sec.</td>
</tr>
<tr>
<td>Watts</td>
<td>0.05692</td>
<td>Btu per minute</td>
</tr>
<tr>
<td>Watt-hours</td>
<td>3.415</td>
<td>Btu</td>
</tr>
<tr>
<td>Watt-hours</td>
<td>2656</td>
<td>Ft.-pounds</td>
</tr>
</tbody>
</table>
A Surgeon Dissects Engineers

By T. Gibson

They're handy chaps to have around
For making things with metals
Like atom bombs or ultrasound
Or soldering holes in kettles.
But it's a vast more complex trade
Than first sight it appears
There's specialists in every grade
Of practicing engineers.

There's brainy chaps in electronics
Statics and Dynamics
Aeronautics, supersonics
— And some who're just mechanics.
There's engineers make ships and
planes
There's some whose jobs are queer
Like digging up the sewage drains
The sanitary engineer.

With tons of steel, cement and sand
They've bridged the river Forth
And opened up the hinterland
From Edinburg to the North.
You mustn't stop to see the views
Altho' the bridge is clear
For miles of roads are jammed
with queues
— Forgetful engineer!

At home, at work, at play, in fact
They're behind the scenes
Dominating every act
— Them and their machines.
They make our clothes, process our
foods
They even brew our beer
Our life itself depends on goods
Made by the engineer.

Their dams have flooded glens and
hills
Their pylons skyward tower
The North Sea bristles with their
drills
For all they want is power.
More power to rule, more power
to base
Their urge to dominate
All set to be the master race
— Ambitious engineer.

The atom bombs that stockpile fast
Are engineers' machines
Now Russia boasts that she can
blast
Us all to smithereens.
So get your spaceships ready
Let's get the Hell from here
This planet's doomed already
— You clever engineer!

They're infiltrating every sphere
Except perhaps theology
And now we find the engineer
Researching in biology.
There on the operation floor
If you should stop and peer
With surgeons ankle-deep in gore
You'll see—an engineer.

The human body's structures are
Ininitely complex
And yet, you know, they're still by
far
The simplest to create.
Let love and birth, the soul, the
mind
Stay free from racketeers
God grant that never human kind
Are built by engineers!

Just looking round this room
— perhaps
I've been a bit unkind
A nice bunch of jovial chaps
You'd travel far to find.
I don't think they've yet realized
How they our lives could steer
If only they were organized
All-powerful engineer.

Until that day, they're friends not
foes
But don't forget my warning
The next time all your pipes are
froze
Some cold and frosty morning.
Not only friends, they've been our
host
Forgive my unkind jeers
Fill up your glass and drink this
toast
Our Colleagues — Engineers!

Mr. Gibson is an eminent plastic surgeon,
one of the honorary clinical directors of
the Bio-Engineering Unit of the University
of Strathclyde at Glasgow. "Mister," in-
cidentally, is the title of honor accorded
surgeons in Britain.

Will the 'Club' Survive?

People are taking a long, hard look
at Associations to determine whether
or not they are useful. It is no longer
enough to be old and familiar.
People are demanding accomplishment
from their affiliations if they
are going to devote time to them.
This is part of the new freedom of
thought in the world and it is im-
portant that religious, university and,
above all, business organizations
recognize that attitudes have changed
everywhere.

All organizations, clubs, associations
and meetings are losing some
popular appeal. Meetings used to be
substitutes for individual thinking or
a means of entertainment, or a mu-
tual sharing of interests. Their ent-
tertainment feature has been replac-
ed by television, and individual think-
ing is chipping away at all institu-
tions, and associations whether they
are good, bad, indifferent, useful or
useless. Institutions can no longer
satisfy people just being existing, even
among mutually interested people.
They must have a purpose.

On the association and club level,
the attrition from the new era is de-
vastating. There are still plenty of
men who enjoy a night out with the
boys and don't care whether they use
the K of C, the Elks, the Lions, the
Chamber of Commerce or the Club
for the purpose. But, for most men,
the new era has meant a couples type
of evening out. Clubs and associations
devoted to couples' activities seem to
be the only growth associations. The
men's club is still a solid institution,
but hardly anyone goes very often.

Many college, religious, fraternal and
business organizations are dying
on the vine. Much of the problem is
lack of communication and a loss
of interest. They don't show reason
enough for their existence as clubs
within groups, therefore, they can't
attract the hardworking leaders that
are required to keep them going.
Hard workers can find other outlets
for their talents. Unless clubs and
organizations shape up with a worth-
while program, they cannot survive.

Many business organizations are
showing more awareness of the prob-
lems of society, but basically, busi-
ness associations are still clamoring
about dead duck issues. Unless they
can get together in some mutual pro-
gram for the betterment of sociologi-
cal conditions, then the business and
trade associations are doomed to de-
struction.

Groups are formed easily. In the
past it only took a name to survive.
Now it takes accomplishment.

Note: Taken in part from an article
by Philip J. Murphy appearing
in the Boston Herald of May 14,
1965.
Help
Manchester, N. H., October, 1965

The Middle-Mac Hospital Engineers Society, through its President, Sam Thorpe of Lowell General Hospital, was kind enough to consider the Fall Seminar at their regular meeting and to forward a letter of constructive criticisms to your President for the Executive Committee's evaluation.

The Middle-Mac Hospital Engineers Society sat in a group at in-services to discuss and evaluate each portion of the program as it was presented. Notations were jotted down on the printed program, which is an excellent way to quickly appraise and evaluate. There were some thoughts that the program was not down-to-earth, and that unless changes were made, the attendance would dwindle. The subjects pertaining to Critical Path Method versus Standard Operating Procedure and their relation to computers are for a small group of hospital engineers of extremely large hospitals, and that such subjects are boring to the majority in attendance.

This group felt that their attendance at the meeting is for the purpose of learning ways and means of overcoming maintenance problems with the equipment that is used in supplying services to the hospital, heat, light, power, buildings and grounds, air conditioning, ventilation, and plant security, to name only a few. They believe that most hospital engineers are seldom considered in the planning and construction of new buildings. They note that this may not be the way it should be, but nevertheless, is so, and they must make the best of it.

They recognize that the small 10% or 15% of the members in the larger hospitals are entitled to something in the program of particular interest to their elevated position but the majority is what supports the organization, makes up the greater part of the audience at the seminars, and therefore, the program should be geared around the majority. It is also pointed out that many of the hospitals are paying the cost for their engineers to attend the seminars and they expect, as they have every right, that the engineer will return with something useful to his hospital.

The Executive Committee of your Society accepted this letter exactly as it was meant, "constructive criticism," from a most interested group, particularly so because this group not only offered their constructive criticism but offered constructive suggestions as follows.

1. They would like to hear qualified speakers discuss the absorption type of refrigeration equipment that is becoming a more common type of installation in hospitals, particularly, with air conditioning, and that or most interest would be the subject of installation, operation and maintenance, with ample time allotment for questions and answers as related to particular hospital engineers' problems.

2. Ultrasonic instrument cleaners are becoming more common. The engineers would like to know more about them. Do they do a complete job? Or must subsequent washing and/or sterilizing be performed?

3. The surgical suites and laboratory quarters, to mention only two, are taking more and more use for electronic equipment. How can the hospital maintain this equipment, particularly when we consider the low pay scale of maintenance employees. Should we consider the need for employing a licensed electronics technician, or can the ex-navy radio operator and repair man handle repairs to this equipment? It is further suggested that possibly a speaker from the manufacturer might be of advantage and interest to the group.

Incidentally, the group felt that the following were excellent. Entertainment and "Planning and Designing Projects." The following were rated as "Very Good:" "Protection & Security in Hospitals," "Procedural Manual," "Application of Control Equipment," and "Design and Planning Hospital Equipment."

Editor's Note:
Speaking for the entire Executive Committee, this is the exact type of information that will enable the officers of your Society to develop more effective, interesting, and educational programs.

Northeast Power Failure
November 9, 1965

Although to the Editor's knowledge, no survey has been made of the Northeast hospitals, there is considerable information being compiled by various groups. Some of this, I would like to bring to your attention.

The Connecticut Hospital Association

An attempt has been made to contact the majority of the administrators of the Type I* and Type II* hospitals to inquire about the effect of the recent power failure which affected three states and part of Canada.

Of the type I hospitals, it can be reported that all but four were affected by a failure which caused them to rely upon a generator or generators within their own plant. Of those who were forced to utilize their own power generators, five hospitals had some type of difficulty with their units. In some instances, this difficulty was remedied immediately; in some instances the generators had to be worked upon for some time before they functioned. In addition to these five where difficulty was encountered regarding their generators, it should be mentioned that three administrators were dissatisfied with the adequacy of their electric generating unit and stated that a power failure which had lasted for a longer period of time on a colder night would have resulted in considerable discomfort for their patients and staff.

Six of the Type I hospitals experienced bizarre problems in certain electrical systems and areas while the remainder of the plant presented no problems.

In fifteen of the Type I hospitals a member of the Administrative team of the hospital was contacted by one or more of the civil authorities. In some cases as many as three different civil authorities contacted the same hospital.

Far more striking were the many instances where no civil agency contacted the hospital and in a few instances the administrator registered some concern about this omis-
Evaluation Of Two Seminars
BOSTON, MARCH, 1965
For the evaluation of this seminar Bill Doherty, Engineer, St. Francis Hospital, Hartford, worked up a questionnaire which was distributed to all in attendance. Sixty-one replies were returned. The results are as follows.

a. The program subjects were of interest to 99%.
b. The majority felt the program was not too long and half of these would like to see more time allotted for general discussion—questions and answers.
c. A portion of the program should be set aside for open discussion concerning current problems confronting individual members, so stated 76%.
d. The membership suggested the following subjects for future seminars.

(1) Safety & Security.
   (a) Fire detection and prevention.
   (b) Disaster planning.
   (c) Safety practices.
   (d) Security measures.

(2) Air Conditioning / Ventilation / Heating.
   (a) Air conditioning equipment.
   (b) Air handling equipment.
   (c) Considerations in selecting heating and air conditioning equipment.

(3) Organization & Management
   (a) Duties of a good hospital engineer.
   (b) Interdepartment relations and cooperation.
   (c) Organization of engineering department
   (d) Management - Engineering relationship and policies.

(4) Electrical Distribution and service.
   (a) Auxiliary lighting and emergency generation.
   (b) Electrical estimating including cost.
   (c) Power distribution terminology. Lumen and foot-candles.
   (d) Electronic equipment, care and maintenance.

(5) Preventative Maintenance.
   (a) Cost, initial and continuance.
   (b) Setting up preventive maintenance programs-systems (data process, etc.)

(6) Building Maintenance.
   (a) Care and maintenance of floors, tile, conductive floors.
   (b) Acoustical aids - wallcovering - plastic floors.
   (c) Building safety and specifications.
   (d) Waterproofing - painting.

(7) Personnel.
   (a) Morale amongst employees - how to improve and maintain.
   (b) Job descriptions, evaluation records, merit review.
   (c) Plant personnel instruction and training.

(8) Cost Accounting / Budgeting
   (a) Maintenance and operation costs.
   (b) Group purchasing.
   (c) Cost analysis regarding maintenance and remodeling.
   (d) Budgeting maintenance costs.

(9) Construction
   (a) New construction materials.
   (b) Utilities planning.
      1. High pressure boilers
      2. HVAC equipment
      3. Electrical - lighting emergencies - generator
   (c) Building specifications.
   (d) Building specifications relationship.

(10) General Interest Subjects.
   (a) Care and maintenance of mechanical equipment in O. R. suites.
   (b) Suction therapy equipment (design and application).
   (c) Water and fuel oil treatment.
   (d) Telephone Company service and new devices.
   (e) Medicare and other legislation affecting hospitals.
   (f) Data processing, use and applications.
   (g) Parking problems and solution of same.
   (h) Mechanics of handling repair requisitions.

Blackout
(Continued from page 6)
It was later learned that during the blackout the governor of the state had suggested to Civil Defense authorities that they endeavor any obvious activity and stand by to receive calls from institutions or citizens rather than to initiate calls.
About one third of the Type I hospitals made some attempt to call the light company to request assistance or to get some estimate of the probable length of time before power was restored.
A service representative of the telephone company, when questioned about the difficulties encountered in reaching the operator or in achieving a dial tone in times of such an emergency, made the following suggestions and observations.
1. The backup of calls which may occur when a heavy volume of calls is initiated in times of a disaster or emergency results in difficulty in achieving either an immediate dial tone or an operator’s response.
2. If you will allow fifteen or twenty rings in contacting the operator, she will be able to respond. If you will hold for 15 or 30 seconds as you pick up your receiver, you will achieve a dial tone.
3. DON’T GIVE UP! YOUR TELEPHONE LINE IS NOT DEAD - IN ALL PROBABILITY!! YOUR COMMUNITY’S TELEPHONE SYSTEM IS SATURATED, HOWEVER! PATIENCE IS REQUIRED.
In about one third of the Type I hospitals the administrator stated that he was aware of the availability of a power generator other than the ones which were in operation at his own plant.
In the majority of Type II hospitals there was little or no difficulty encountered as far as the generating systems were concerned. However, two or three of the large units experienced serious difficulty.
Administrators of some of the larger Type II hospitals were particularly vocal in their statements that they did not feel that their standby power was adequate, even when it did function adequately.
On the other hand, there are cer-
(Continued on page 8)
Blackout

(Continued from page 7)
tain of the Type II hospitals who
operate complete generating plants
and are literally independent of
other sources of electrical power.
It was learned that Timothy J.
Murphy of the State Public Works
Department would be conducting a
full statewide survey of the where-
abouts and effectiveness of gener-
ators and alternate sources of elec-
trical power.
In response to the questions
which related to whether or not the
Connecticut Hospital Association
might play some role in future
emergencies, the majority of the
hospital administrators stated that
they did not feel that CIHA could
have helped them. However, a few
suggestions were made which might
be helpful for future consideration.
1. The CHA should publish a set
of minimum standards with
which its member institutions
should strive to comply.
2. The CHA should collect and dis-
perse information after such
an emergency.
3. The CHA should tie in with the
two-way radio of the Hartford
area and should be active in the
dissemination of information
during an emergency.
4. The CHA should contact civil
Defense centers during the em-
ergency to ascertain if genera-
tors are available for hospital
use.
5. The CHA should reopen the
study of possible availability of
full, free, stand-by power and/
or state funds to assist hospitals
to purchase adequate generators.
The aim of hospitals should be
to achieve sufficient stand-by
power for emergency areas, at
least one elevator and heat.

Note!
Type I 400 or more beds
Type II 100 to 400 beds
Type III Up to 100 beds

The American Institute of Plant
Engineers survey review
The Northeast coast blackout af-
fected 1030 member plant engineers
located in the states affected by the
power failure. The response to their
quick survey has been tremendous.
Replies received indicate the plant
engineer was ready and did swiftly
act to protect personnel and secure
the plant.
The plant engineers all through-
out the east coast have displayed
their extremely valuable roles to
industry. Emergency power failures
are a way of life to the plant engi-
neer. The only significant difference
in this massive power failure is that
industry management was quite
glad to have him on the team.

Indications are that the profession-
al plant engineer needs a better
understanding of the power sup-
pliers large grid systems. Plant
engineers always have handled individ-
ual power losses to plants well.
However, with a massive power
failure the plant engineers could re-
examine any possibilities for group
action that may benefit industry and
the community.

Listed here are some 20 points in
question from which affected plant
engineers were faced with in the
emergency.
1. What is the state of your pre-
paredness?
2. Is there need for standby elec-
tric generators?
3. What emergency lighting and
power capabilities are available?
4. Are emergency lighting and par-
tial power not part of your ca-
pabilities because your plant is
tied direct to the vendors main
power supply?
5. Are your research and develop-
ment areas subject to power in-
terruptions which may cost
years of study?
6. How would you contact your en-
gineers if phone lines were out
or not available due to over-
load?
7. How many engineers in AIPE
know what this giant transmis-
sion system consists of?
8. If we did know, how might we
anticipate such trouble happen-
ing?
9. Where can our organization help
the power companies and in-
dustry?
10. What publications are available
from the power companies ex-
plaining their system?
11. How would you handle danger-
ous vapors?
12. What assistance could you lend
to nearby community or plants?
13. Are your crews familiar with
prompt corrective actions?
14. Do you occasionally review this
emergency operations with your
staff for suggestions for you
for recommendations to man-
agement?
15. Have you and or management
thought in general that "there
is no need for us to have auxili-
ary power in our power plant
because we are on the main
network for the entire city?"
16. Do you have a written proced-
ures to follow?
17. Are emergency procedures re-
viewed and practiced on a regu-
lar basis?
18. Do you have such emergency
items as hand lights as well as
emergency lights, folding cots,
and blankets, transistor radios
with fresh batteries, facilities
for preparing coffee, soup, or
other light foods?

Charles R. Shields
(Continued from page 1)
Chief Engineer for eight years.
Charles is married and the father
of one daughter and three sons. His
daughter is a graduate nurse. His
two sons have followed in his foot-
steps in that they attended St. John's
Prep. His youngest son is nine years
old.

Obviously he enjoys children since
some of his activities include Little
League baseball coach and basketball
coach. He also participates as an ac-
tive member and lector of St. Pius
X Church.

Charles finds hospital engineering
extremely interesting and challeng-
ing. He has worked diligently with
the Executive Committee of the So-
ciety with the express purpose of do-
ing all he possibly can to further the
knowledge, ability, and recognition
of hospital engineers everywhere.

CONTRIBUTIONS TO THE NEWSLETTER
You are invited to submit material and news items for publication.
Subjects should be of special interest to Engineering and Main-
tenance personnel in the Hospital Field.

Warren Marble
Editor
Danbury Hospital
Danbury, Conn.