

## THE PROBLEMS OF THE HOSPITAL ADMINISTRATION

NATHANIEL W. FAXON, M.D.

### I—THE COCOANUT GROVE DISASTER

THE COCOANUT GROVE was a typical night club. It was a one story stucco and brick building, with low ceilings and inflammable hangings and decorations. On the evening of November 28, 1942, it was filled with an unusually large Saturday night crowd. The reported capacity was 600; the estimated number present was 1000. The several bars were crowded, the tables were filled to capacity, with every available bit of floor space occupied. The floor show was about to begin.

Fire started in the Melody Lounge, a basement cocktail lounge, about 10:15 P.M. Feeding on combustible decorations, artificial cocoanut palms and cloth-covered ceilings and walls, it spread with great rapidity to the stairs, cutting off the only visible means of exit. Then it flashed across the ceiling of the main floor. People rushed for the main doorway, the only exit that they knew of, where a revolving door quickly jammed, and some 200 victims were piled behind it. The flames then spread to the Broadway Cocktail Lounge where 100 more victims were trapped behind a door swinging the wrong way, which blocked access to the outside doorway. A door leading from the main floor was partially opened by an employee, through which a few escaped. Other exits were hidden by hangings and also locked. All agree that the spread of flame was rapid, with much smoke and noxious gases, and the lights went out quickly.

The fire department responded promptly and in adequate force. They opened doors, broke in windows, extinguished the fire, and rescued as promptly as possible all who were still alive, but 491 people lost their lives, either there or later in hospitals. Many others were seriously injured. One hundred and eighty-one living victims were taken to hospitals together with nearly 300 who were dead on arrival. Thirty-nine living patients arrived at the Massachusetts General Hospital, 131 at the Boston City Hospital, and the 11 others at various nearby hospitals. During the next two weeks, 39 patients died in hospitals—seven at the Massachusetts General Hospital, and 32 at the Boston City Hospital.

### II—A BRIEF ACCOUNT OF THE SERVICES OF THE MASSACHUSETTS GENERAL HOSPITAL IN CONNECTION WITH THE COCOANUT GROVE DISASTER

The Cocoanut Grove fire started about 10:15 P.M., Saturday, November 28, 1942. The first patients arrived at the Emergency Ward of the Hospital at 10:30 P.M. Shortly thereafter the hospital was notified of the disaster and asked to be ready for a large number of patients. The hospital organization set up under "Civilian Defense" for the handling of war casualties was immediately put into operation; the House Staff and nurses on duty were

called to the Emergency Ward; Teams for Burns and Resuscitation were summoned; members of the visiting staff, nurses off duty, social workers, volunteers, orderlies, and others were notified. By 11:15 P.M. nearly the entire organization had been assembled, and volunteers continued to arrive during the night.

The Emergency Ward was immediately cleared of all other patients, but it was soon realized that its facilities would be overtaxed, and the sixth floor of the White Building, containing 40 beds, was evacuated. Thirty surgical patients were removed to other beds in the hospital.

Between 10:30 P.M. and 12:45 A.M., 114 casualties were received. Of these, 75 were either dead on arrival, or died within the first few minutes of uncontrollable anoxia.

The 39 living patients showed, besides burns of varying degrees, the effects of cold, exposure, fright, shock, and partial asphyxia. Clothing was dripping wet, exposed surfaces grimy and blackened. Some were quiet and cooperative. A few were comatose, others were greatly agitated, requiring restraint. In some this was due to hysteria; in others to cerebral anoxia (lack of oxygen supply to the brain). There was little or no evidence of intoxication. There were no fractures and only slight trauma of soft parts.

Wet clothing was immediately removed; burned surfaces covered with sterile towels and the patients wrapped in blankets. Morphine was given subcutaneously to all.

Meanwhile, four members of the House Staff had been stationed at the entrance of the hospital to determine whether those admitted were living or dead. Those pronounced dead were carried directly to an emergency morgue established in the large Brick Corridor; the bodies covered with sheets and the area screened off.

Some of the dead showed no burns; others showed burns of varying degrees, but death evidently had come from asphyxia in most cases. Many showed the cherry-red color indicative of carbon monoxide asphyxia. A few were severely burned; one almost beyond recognition. Identification of the dead was started at once, and all but two of the men were identified by 5:00 A.M. Identification of the women was very difficult on account of the lack of identifying data in their clothing. They were identified only by direct inspection by relatives or friends.

Preliminary treatment having been given to the living in the Emergency Ward, they were moved to White-6. By 1:30 A.M. all the living, 39 in number, had been put to bed in this ward. Burns had been dressed, shock was being treated, and asphyxia cases given oxygen therapy. The Emergency Ward was cleared and ready for more admissions. Thirty of the 39 patients had surface burns of clinical significance and many showed evidence of damage to the respiratory tract. In some this was very severe. In some cases it developed 24 hours later. In one case artificial respiration was required for the first six hours. The patient recovered. Five cases required tracheotomy and in one or two tracheal intubation was performed.

The surface burns were treated by a single method. There was no cleansing or débridement. The burned surfaces were covered with gauze impregnated with boric petrolatum and a voluminous dressing applied with elastic pressure bandages. Splints of folded newspaper were used for fore-arms and hands. Eyes were examined by Staff and Residents from the Massachusetts Eye and Ear Infirmary and appropriate treatment instituted in the cases with lesions involving the cornea.

Blood plasma from the hospital blood bank was administered to 29 patients. By 1:00 A.M. all patients in impending shock were receiving plasma. Salt solution and glucose solution had been previously administered intravenously and was continued thereafter for long periods in many cases. In the first 24 hours 120 units of frozen plasma were used; in three days a total of 147 units. In addition, 16 whole blood transfusions were given in the first week, where there was reduced oxygen capacity. Teams of interns and nurses under the direction of surgeons, residents and the chief anesthetist were assigned to individual patients and to groups, and were in constant attendance. There were 20 trained nurses on eight-hour duty on this ward, or 60 each 24 hours. Oxygen therapy, directly by catheter or in tents, was given in appropriate cases, carbon dioxide five to seven per cent in oxygen was given to three patients, showing evidence of carbon monoxide poisoning. Sterile suction tubes for intratracheal intubation were used in several cases. In addition to the more intricate treatment routine intravenous medication, blood pressure determinations, blood tests, *etc.*, were carried out.

Sulfadiazine had been given intravenously by 2:00 A.M. Sunday to all patients, including those without burns, and its administration was continued thereafter in appropriate amounts. All patients having been previously serum tested were given antitetanic serum, except Army and Navy personnel and those with serious pulmonary lesions.

By 3:00 A.M. Sunday a list of all the living, with names and addresses, had been made and given to police and press.

During the first three days seven patients died. These were all cases showing severe respiratory tract damage from inhalation of flame or fumes. No cases of true bacterial pneumonia developed.

All the patients were segregated and isolated on the sixth floor of the White Building. Admission to the ward was strictly limited, with a door-keeper in constant attendance. Besides professional staff and attendants only immediate relatives, clergy, family doctors, and officials on errands of importance were admitted, and all were masked and gowned.

The East solarium was converted into a dressing station where all dressings were done under the full aseptic precautions used in an operating room. Roentgenologic examinations of the chest were carried on in the South solarium on the same floor; all patients were so examined by 10:30 A.M. on Sunday, and thereafter as indicated.

The clinical laboratories were manned immediately on the night of the disaster and were kept busy continually thereafter. Hematocrit and serum protein determinations, to guide the administration of fluids and plasma, were

available that night, five times in all in the first 24 hours. Determinations of oxygen and carbon dioxide content of blood, oxygen capacity, nonprotein nitrogen, prothrombin time, blood chloride, phosphorus, sodium, and other tests, including various bacteriologic examinations, were also made.

The pathologic laboratory was called into action in making tissue examinations and later in performing autopsies.

Invaluable service was rendered by members of the Social Service Department. They helped in various places where needed. Their training and skill in dealing with people emotionally disturbed fitted them for the trying tasks of interviewing distracted relatives and friends of patients, and in answering innumerable telephone calls. They also helped in the identification of the living and the dead.

The services of volunteers from the Ladies' Visiting Committee and the War Service Committee proved of great value. They were persons of poise and they knew the hospital.

Medical students assigned to the hospital, together with a group of Harvard undergraduates who had been doing volunteer work as orderlies for six months, some of whom were on duty, and others who came in afterwards, rendered valiant aid that night and thereafter. They also knew the hospital.

The Red Cross functioned smoothly in the emergency. The motor corps brought casualties to the hospital. The Nurses' Aides were of immediate assistance that night, and the next day large numbers replaced and relieved regular nurses on duty in other parts of the hospital. The Red Cross Canteen, in connection with the hospital dietary department, served coffee and sandwiches during that night, which was a great help in sustaining energy and morale of workers and giving comfort to relatives and friends.

Many private nurses from Baker Memorial and Phillips House contributed their services during spare time.

The Massachusetts Women's Defense Corps sent volunteers who aided in identification and also were of great help with the Blood Bank.

Over 100 outside nurses from neighboring institutions volunteered and were put to work.

The regular staff of the hospital, administrative, medical, surgical, and special, nurses, orderlies, technicians, telephone operators, secretaries, dietitians, porters, maids, and maintenance personnel labored long hours at night and Sunday without stint.

In conclusion, it may be said that the hospital organization met the emergency adequately and well. Much credit should be accorded to the Civilian Defense organization for having made the hospital "catastrophe minded" beforehand. There was no shortage of supplies or equipment of any kind.

III—WE LEARN FROM OUR MISTAKES AS WELL AS FROM OUR SUCCESSES.  
WHAT HAS THE MASSACHUSETTS GENERAL HOSPITAL LEARNED FROM THE  
COCOANUT GROVE DISASTER ?

1. First of all, we have learned the value of anticipation and preparation.

Thanks to the efforts of the Massachusetts Committee for Public Safety or Civilian Defense we had been made "catastrophe minded." Our Staff and personnel had been organized as teams, their duties carefully specified, information regarding disaster management spread widely, and practice mobilizations carried out. Although during the first two hours everything seemed to be in confusion because of the numbers of people hurrying about, it was clear to those responsible that everyone was acting rapidly, efficiently and intelligently. They knew what they should do and were doing it.

Furthermore, we learned the value of having on hand what might have been considered an unnecessarily large quantity of supplies. Fortunately, no shortage of anything was experienced.

2. The value of a well-planned telephone service to notify administration, staff, nurses, technicians, maintenance and department heads should be especially emphasized. Too much thought and planning cannot be given to this service.

3. The necessity of the immediate examination and separation of the living and dead at the very entrance of the hospital. This was only realized after a number of dead had been sent to the Emergency Ward. At once, four Medical house officers, in teams of two, were stationed at the Emergency Ward entrance for this purpose. It is important that two men should collaborate.

4. The organizing of teams of nurses and assistants for the undressing of patients, of the affixing of identifying tags, and for the care and marking of their clothing and belongings. Those entrusted with the medical or surgical treatment of patients have no time for this, and the identification of patients separated from their clothing may be difficult. Likewise, clothing and valuables may get hopelessly mixed.

5. Special medical teams for the administration of morphine, the treatment of shock by plasma and oxygen therapy, were found to be valuable.

6. Prompt examination of the dead by competent pathologists, Medical Examiner or hospital pathologists, may provide clinicians with valuable data which will aid in treatment of the living. Autopsies upon those dying after clinical appraisal of symptoms are particularly helpful. The findings provided by autopsies performed and authorized by the Medical Examiners of Boston were of great assistance.

7. Handling of the dead: From our experience we learned that an Emergency Morgue should be selected in advance, paying attention to accessibility, isolation, windows for ventilation and cooling. It should be at once placed in charge of some responsible person and a police guard obtained as soon as possible. Only persons bearing passes acceptable to the person in charge and to the police should thereafter be admitted. The bodies should be arranged in orderly fashion, heads in the same direction, sexes separated if possible and covered with sheets. Tags numbered consecutively (M. G. H. 1, 2, 3, *etc.*) bearing date and hour of arrival should be attached to the right wrist. The Medical Examiner or Coroner should

be consulted as soon as possible and his directions followed. If he so directs, identification of the dead may be carried out. The name of the dead person can then be added to the tag. Also, at that time, valuables, pocketbook and cards may be placed in an envelope bearing the same number as the tag and attached to the left wrist. No jewelry should be removed.

However, if the Medical Examiner so directs, a complete list of all valuables can be made by two persons, one preferably a police officer; the valuables placed in an envelope, signed by the two persons and placed in a safe.

8. A list of living casualties and a list of identified dead should be prepared as quickly as possible and sent to the Information Desk. There it should be arranged alphabetically; several typed sheets prepared, and the information given to the police and press. All inquiries should be directed to this Central Information Desk.

9. In a disaster of this type, where the injuries were all of the same kind, the importance of concentration of casualties in one group in one ward or floor where they can be under concentrated medical treatment and where isolation procedures may be set up if needed, was clearly demonstrated.

In this disaster, a problem was presented by the abrupt and unexpected confinement in the hospital of 39 seriously injured people of private patient status. Isolation precautions were considered imperative and this had to be explained to anxious families. Many requests were received for transfer to private rooms for private medical care at the hospital or other institutions. The policy was immediately announced that visits from family doctors or consultants at the request of patient or family would be welcomed. The local medical profession cooperated whole-heartedly. Doctors visited their patients, reassured them and advised them under no condition to consider removal. Medical information which had a bearing on their present condition was often given to the Staff.

It is the mature judgment of those who cared for these patients that this concentration and this isolation prevented, to a large degree, respiratory complications and permitted better treatment. Doctors, nurses, equipment and supplies were concentrated here, quickly available for emergency treatment. Time and labor were saved.

10. It is desirable to obtain speedily police assistance to control yard traffic and to guard hospital corridors and morgue.

11. The serving of coffee and sandwiches by the Dietary Department and the Red Cross Canteen was valuable in sustaining energy and morale of workers and comforting waiting relatives and friends.

12. Finally, we have learned the value of constantly maintaining, for use in peace or war, a hospital organization for the handling of emergency disaster; also the collection of an ample quantity of emergency supplies.

“An emergency anticipated and prepared for ceases to be an emergency.”