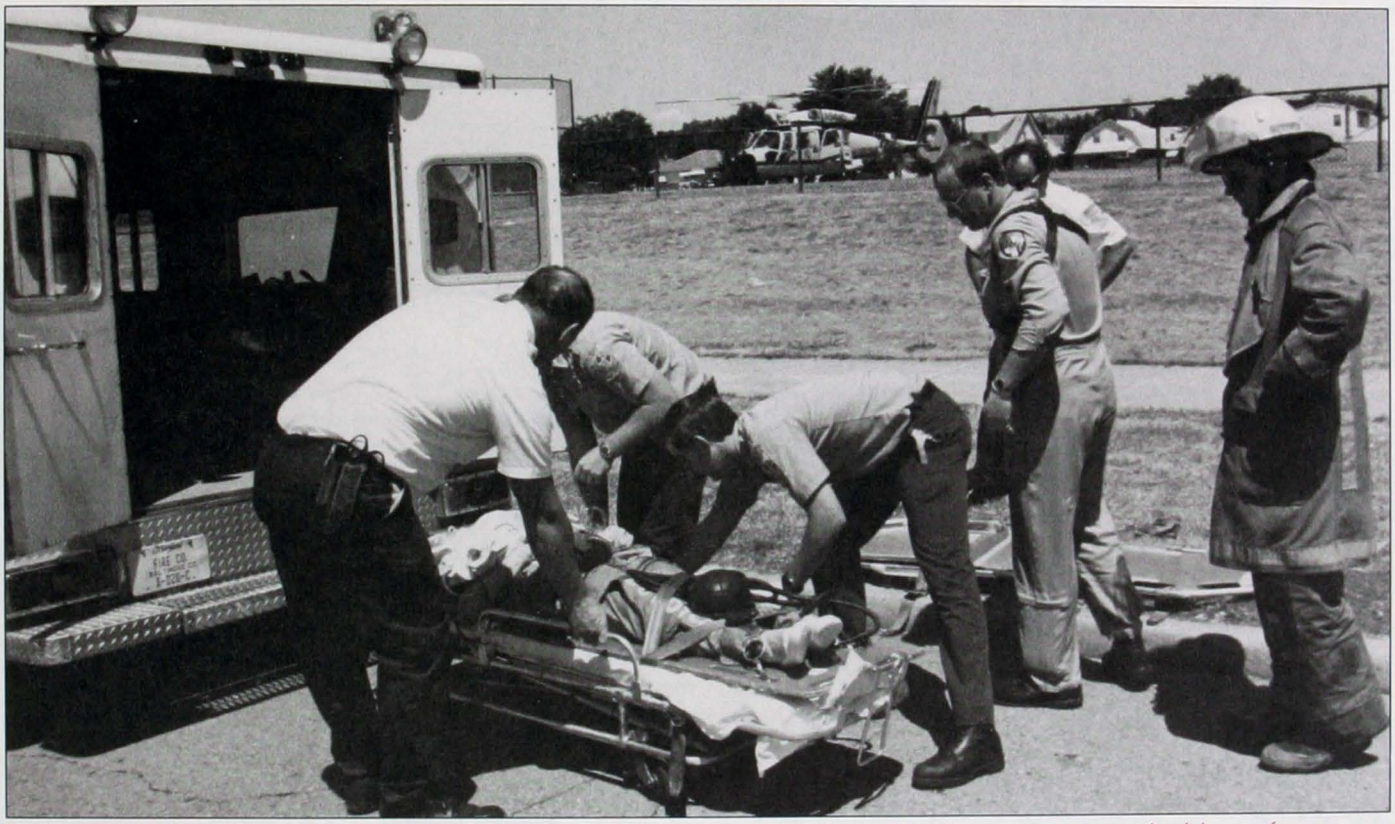
Maryland
E·M·S
NEWSLETTER

Vol. 16, No. 3 | For All Emergency Medical Care Providers | January 1992



According to a recent report, "Maryland was one of the first states to make a significant public policy commitment to the delivery of emergency medical services with the creation of the Maryland Institute for Emergency Medical Services Systems during the 1970s."

Maryland's Emergency Medical Services?

This may be the final edition of the *Maryland EMS Newsletter*.

Much has happened since the previous edition. At that time, we reported on the initial findings of the assessment of Maryland's Emergency Medical Services, facilitated by the National Highway Traffic Safety Administration. One statement in the report was that "Maryland was one of the first states to make a significant public policy commitment to the delivery of emergency medical services with the creation of the Maryland Institute for Emergency Medical Services Systems during the 1970s. In subsequent years, a significant amount of progress was made as a result of the dedicated efforts of many involved and concerned Maryland citizens."

MIEMSS is mandated by state law with responsibilities for coordination of EMS in Maryland. This system includes: certification of all EMS prehospital care providers, a statewide communications system, transportation (for example, neonatal transport system), designated trauma centers and specialty referral centers, and evaluation.

Maryland, like many states, is experiencing economic recession. Although Maryland ranks fourth in the nation in "per capita" income, decreased revenues have decreased the state budget.

Since 1977, MIEMSS has been administratively housed within the University of Maryland at Baltimore (UMAB). In early October, the UMAB notified MIEMSS that in addition to the 8 percent cut in the budget from fiscal

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year (FY) 1991 to FY 1992, MIEMSS was to take an additional 14 percent cut in FY 1992, and a 63 percent cut from the base FY 1992 budget of $6.8 million down to $2.5 million.

It was pointed out that while MIEMSS is housed within UMAB, the services that MIEMSS provides are for all citizens of the state. The cutting of those services is a public policy issue. However, recognizing that all state programs are under increasing fiscal strain, MIEMSS proposed that attention be focused on finding funding mechanisms for emergency services statewide and that in the meantime the 14 percent cut be restored so that services could continue without being crippled.

UMAB officials have emphasized that prior cuts to UMAB have been proportionately greater and that enhancements to the UMAB campus have been proportionately less than for the University of Maryland System as a whole. In the first round of budget cuts this fiscal year, campus reserves were used, additional cuts were made in many programs (including MIEMSS), and tuitions were increased for the professional schools on the campus (for example, medical school, law school, pharmacy school, social work school, graduate school). In the second round of budget cuts this fiscal year, the campus had to cut $2.1 million. It chose to do this by furloughing all employees on the campus (including MIEMSS employees) for three days, which at $400,000 a day, totaled a savings of $1.2 million for the year. The remainder of the cut ($958,000) was the 14 percent in additional MIEMSS cuts for this year. It was this 14 percent that MIEMSS requested be restored.

On November 14, 1991, UMAB officials instructed MIEMSS to proceed with implementation of the $958,000 in cuts. MIEMSS was also told that there would be no more "EMS-directed" cuts this fiscal year unless further furloughs were implemented. While campus officials at one point indicated that there would be efforts to restore much of the $6.8 million annual EMS budget in the next fiscal year, later information indicated that this would not be possible in light of overall budget direction from the University of Maryland System, which governs the 11 campuses. As this possibly final edition of the *Maryland EMS Newsletter* goes to press, the request for the EMS program for FY 1993 is $2.7 million.

It is painfully ironic that several weeks after the initial information in early October that the EMS system was financially threatened, the founder of that system and the first director of MIEMSS, Dr. R Adams Cowley, died suddenly at his home on October 27, 1991. He was buried on November 4, 1991 at Arlington National Cemetery with full military honors. Thus, in this issue of the *Maryland EMS Newsletter*, we also honor the life and work of the man who in 1957 coined the phrase "The Golden Hour." The entire inside section of this issue is devoted to Dr. Cowley. While our condolences go to his family for whom the loss is most painful, we must continue the work that he began.

Many emergency services face budgetary cutbacks. The State Police Med-Evac Program was curtailed for several weeks in October with the closing of two bases and the elimination of Med-Evac service from 3:00 am to 7:00 am. When the Governor and the Legislature announced other budgetary measures so that Med-Evac services could be restored, many mistakenly believed that this was done at the expense of funding to local jurisdictions. This was not, in fact, the case. Funds for Med-Evac service were restored solely on the basis of other budgetary cuts made within the Maryland State Police. And although helicopter bases at Centreville on the Eastern Shore and at Norwood in Montgomery County did resume service and service hours were restored across the state, funding for overtime was not restored. This means that fewer hours of service are available.

Other EMS-related programs that have experienced budget cuts include the Maryland Fire and Rescue Institute, which provides training for firefighters and EMT-As; the "508 fund," which provides state aid to local fire and rescue services; and the Office of the State Fire Marshal, which ensures fire safety for public buildings.

Members of the emergency services community recognize that these are recessionary times statewide as well as nationally. At least in Maryland, no one questions whether indeed there is a recession. However, it is also recognized that certain emergency services are essential for public safety. Some ask how such a situation developed. The answer is anything but simple and probably will be analyzed for years. The fact remains, however, that responsible individuals and groups must develop solutions, options, and alternatives. Some University officials consider EMS to be low in priority because it is not part of the "mission statement" of the University. Many citizens, as well as elected officials in both the executive and legislative branches of government, have expressed concern about the University's actions relative to EMS, and have offered support for restoration. This is the time for responsible solutions.

Many in Maryland feel that dedicated funding for emergency services offers a constructive solution. Dedicated funding means the generation of revenues for specific purposes. In past years, there was a reluctance to develop dedicated funds. However, in more recent times, there has been a willingness to look at these anew. It has been suggested that dedicated funding could ensure the viability of certain essential emergency services, and a proposal to support this has been developed. This has progressed to a widespread petition, not as a formal petition for referendum, but as an expression of intent on the part of many citizens who wish to indicate a willingness to pay for the "safety net," which they hope they never have to use, but which they know any citizen may need on an emergency basis.

We hope that in the future there will still be a Maryland EMS System and a Maryland EMS newsletter to keep the EMS community informed. When cutbacks several months ago forced us to discontinue monthly editions, some individuals chose to send donations specifically earmarked for the *Maryland EMS Newsletter*. If others wish to do so, they may be assured that their donations will be used as they specifically request.

As we start 1992, we again thank those who have given so much of their time and talents for their communities. We are grateful that the world is at peace a bit more than it was a year ago, and we are grateful that we live in a free society in which ideas, principles, and the rule of law are paramount. To all of you, we extend our wishes for a New Year of opportunity and less suffering.

◆ *Ameen I. Ramzy, MD*
State EMS Director

IN MEMORY OF

Dr. Cowley – MIEMSS Founder, EMS & Trauma Pioneer

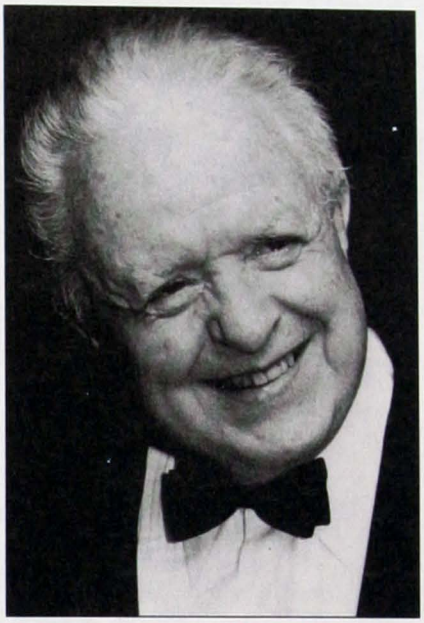
The work of R Adams Cowley, MD, was as vital to him as oxygen is to the bloodstream. It energized him and was the focus of his days. It also directed medical history and redirected the lives of thousands of trauma victims who otherwise would probably have died. And it was his pioneering work in open heart surgery, in trauma, and in emergency medical services system development for which he was remembered and praised following his death on October 27. His life ended suddenly that afternoon at the age of 74 when he suffered a heart attack at his home and could not be revived.

The pursuit of his vision--that the primary purpose of medicine was to save lives, that every critically ill or injured person had the "right to the best medical care, according to the state of the art and not according to location, severity of injury or ability to pay"--and creating a model trauma center and EMS system embodying that vision were often filled with the moments of intensity and conflict of high drama. But the story of Dr. Cowley's emergence as the father of modern trauma centers and as founder and director of the first shock trauma center and of the first statewide EMS system (both merged to become MIEMSS) began simply as the pursuit of a thoracic surgeon at the University of Maryland Hospital trying to discover why his patients died--even when the operations had gone perfectly.

Dr. Cowley was a pioneer in open heart surgery in the U.S., performing operations before the heart-lung machine was widely used. He was an expert in his field and known for his innovative procedures using transistorized monitoring devices and artificial materials. He invented a surgical clamp that bears his name and helped to develop the prototype of the electronic pacemaker. Yet despite his expertise and the success of his operations, patients were dying from shock, not always immediately but sometimes within days or weeks. Dr. Cowley later called shock "a momentary pause in the act of death," a process that once set in motion was at that time irreversible. Dr. Cowley's goal was to make it reversible.

In 1956, while continuing to keep an active operating schedule and to maintain his chairmanship of the division of thoracic surgery at the University of Maryland Hospital, he became a researcher, working with animals in the shock lab in what is now the Greene Street Building on the UMAB campus. He found that "many animal experiments have demonstrated that you bleed an animal to a certain blood volume and then all you had to do was move his leg, and it would kill him." (Much later this helped support his theory that critically traumatized patients should not be moved, that stabilization should begin in the field by trained prehospital care providers, and that patients just admitted to a trauma center should have tests and x-ray procedures performed at the bedside.)

After years of animal research, Dr. Cowley concluded that every species responds differently to shock and that the approach to shock needed to be multidisciplinary (involving biochemical, mechanical, physiological, mathematical, and engineering points of view as well as those of the surgeon). He also concluded that shock had to be studied in humans as well as animals. This did not mean human experimentation on patients dying from shock. Rather it meant treating patients whose organs and tissues were breaking down while collecting measurements of such things as the biochemical and physiological changes occurring during that breakdown. Hopefully with all the measurements entered into a data bank, patterns would emerge.



R Adams Cowley, MD, MIEMSS founder
The Baltimore Sun/1986

In 1958, after much discussion, the Army awarded Dr. Cowley a contract for $100,000 to study shock in people (the first award of its kind in the U.S.). He used the money to develop the first clinical shock trauma unit in the nation; the unit consisted of two beds (later four beds). By 1960, staff were trained and equipment was in place. Patients began to trickle in--referred by other physicians--but they came in dying. And, in fact, many people called the four-bed unit the "death lab." But, using techniques

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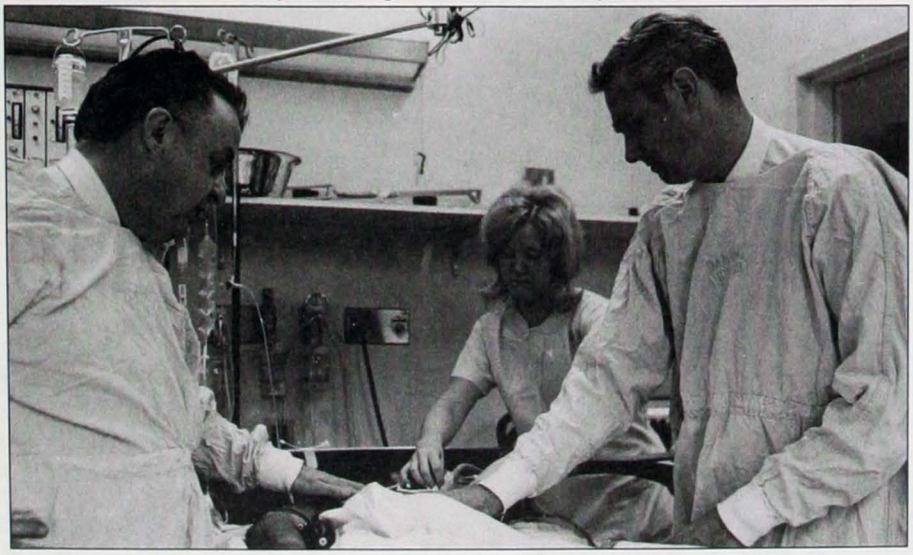

Dr. Cowley (left) checks a patient in the former Shock Trauma building.

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learned in their research on animals, Dr. Cowley and his staff were able to save some of those patients, getting them through the critical phase and then returning them to their own physicians.

Gradually the "Golden Hour" theory was emerging based on the importance of speed as well as skill in operating procedures. Dr. Cowley's now often-quoted statement was revolutionary in the early 60s. As he explained in an interview: "There's a golden hour between life and death.... If you are critically ill or critically injured you have less than 60 minutes to survive. That doesn't mean you'll be dead in 60 minutes but if you're not in the right place at the right time, seen by the right people, your chances of dying are greatly enhanced. You might not die right then; it may be three days or two weeks later – but something has happened in your body that is irreparable."

This theory had its roots in Dr. Cowley's experience as a military surgeon in the U.S. Army field hospitals in Mourmalon, France and in Munich, Germany after World War II where he saw surgeons work with amazing speed in an attempt to treat an astonishing number of wounded men; yet an even more astonishing number survived. Before returning to the U.S., he observed some of Europe's most renowned surgeons at the Allgemeine Krankenhaus in Vienna. As he told Jon Franklin and Alan Doelp, authors of *Shocktrauma*: "They'd do their stuff, and they were finished. They were so good, and so clever, that what would take three hours in America would be over in 40 minutes." Again an astonishing number of these critically injured patients not only lived but recovered quickly. The importance of speed and skill was repeated in Dr. Cowley's experience in his first four-bed shock trauma unit.

To get patients to him more quickly Dr. Cowley in 1968 negotiated to have patients brought in by military helicopter (similar to medical evacuation in the Korean War). After much discussion with the Maryland State Police (MSP), the first MSP med-evac transport occurred in 1969 soon after the opening of the Center for the Study of Trauma, a five-story building with 32 beds built with an NIH grant and matching funds.

Dr. Cowley's trauma patients in 1969 had a 67 percent mortality rate. They were dying patients that other doctors thought had little chance for surviving, yet 33 percent lived. The methods that Dr. Cowley used were revolutionary. Everything was based on a systems approach with staff on duty 24 hours a day, 7 days a week. Because fast, aggressive, skilled care was so important, patients were presumed to be dying and were treated before being diagnosed (otherwise patients could die while doctors, in the traditional mode, used up the "golden hour," puzzling over what was wrong and running tests). Protocols or "cookbook" medicine were followed– procedures that had proven to be successful in reversing the dying process. Several teams of surgeons operated simultaneously on a patient with multi-system injuries. Following this "one-step surgery," hopefully the healing process could begin. There was no time to wait for matched blood, so O–positive was given. Although many of the protocols have since been refined, these ideas remain as the foundation for today's trauma centers.

(L-r) Dr. Cowley and Gov. William Donald Schaefer who received the Golden Hour Award in 1988 for his support of the EMS System.

By 1970, Dr. Cowley had expanded his dream, feeling that no patient should be denied the state-of-the-art treatment available at his trauma center in Baltimore. He envisioned a statewide system of care funded by the state of Maryland available to anyone who needed it. Although he was a thoracic and trauma surgeon, he was fighting to improve the plight of not only trauma patients but all patients needing emergency treatment regardless of their types of injury or illness. The resources were there but they had to be organized into a system and coordinated.

The dream became a reality with the intervention of then Governor Marvin Mandel. He had experienced the work of Shock Trauma first-hand in April 1971 when, at his request, Chief Clerk Jim Mause of the state legislature was transferred from a local hospital to Shock Trauma in a state near death following a car crash. Mr. Mause survived. Governor Mandel became interested in Dr.Cowley's program and a believer in his vision. In 1973, he issued an executive order that the Center for the Study of Trauma become the Maryland Institute for Emergency Medicine and simultaneously that the Division of Emergency Medical Services be created. Dr. Cowley was director of both. The programs were amalgamated in 1977 into the current

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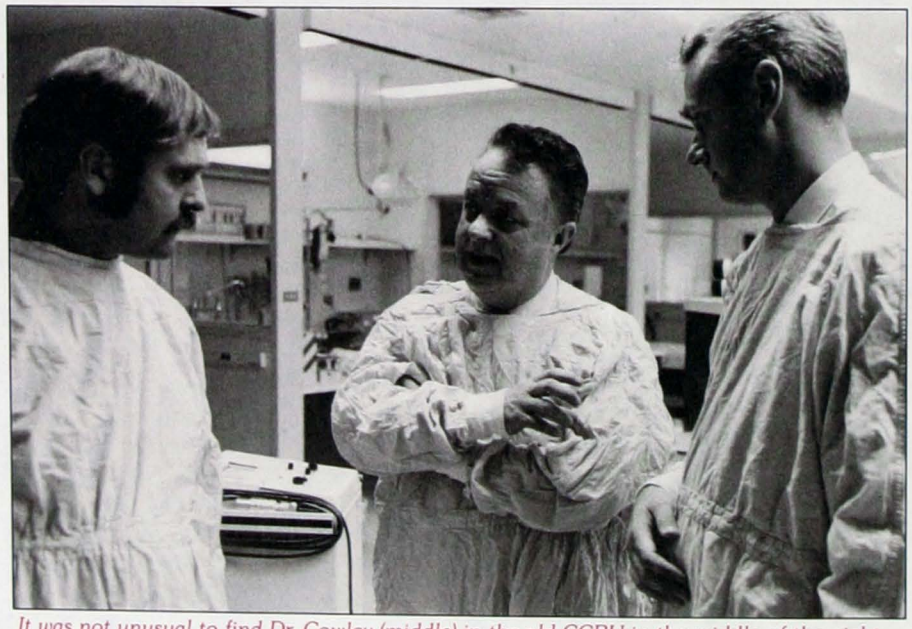

It was not unusual to find Dr. Cowley (middle) in the old CCRU in the middle of the night.

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MIEMSS (Maryland Institute for Emergency Medical Services Systems).

Maryland had the first statewide EMS system, and it, like the Shock Trauma Center, has become a model worldwide. From 1973 to the present were years of revolution and evolution. Prior to 1973, ambulance services consisted of vehicles (or sometimes hearses) with little medical equipment operated by personnel who would load the patient and transport him/her to the nearest hospital emergency room, which may or may not have been the most appropriate for the patient's injuries. Today there are more than 500 well-equipped emergency ambulances, a fleet of public service med-evac helicopters, and more than 24,000 volunteer and career prehospital providers, trained and state-certified at one of four levels. These prehospital providers follow state protocols in treating and transporting patients; they use skills in stabilizing patients in the field that in the early 70s were reserved only for doctors. Patients are transported to treatment facilities most capable of handling their particular types and severities of injuries. Forty-nine hospitals with 24-hour emergency departments, 20 specialty referral centers, 9 areawide trauma centers, as well as the Shock Trauma Center, currently participate in the Echelons of Care. Ambulance and helicopter crews are linked with doctors in hospitals by a sophisticated statewide communications network.

The system that Dr. Cowley built is based on the *voluntary* cooperation of doctors, nurses, hospital administrators, ambulance services, fire departments, and police, as well as government officials and agency personnel. Because his system for emergency care

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In November 1977, Dr. Cowley participated in the first EMS demonstration of a new portable "briefcase" satellite earth station.

Professional Data

R Adams Cowley, MD

Education

University of Utah, 1940; University of Maryland, School of Medicine, 1944

Titles

Professor of Thoracic & Cardiovascular Surgery, University of Maryland, School of Medicine; Clinical Professor of Medicine, Pennsylvania State University; Director, Maryland Institute for Emergency Medical Services Systems; Director, Charles McC. Mathias, Jr., National Study Center for Trauma & Emergency Medical Systems

Memberships (Not a Complete Listing)

National Highway Safety Advisory Committee (presidential appointee); National Coalition for EMS (chairman); White House Conference on Emergency Medical Services; Society of Thoracic Surgeons (founding member); American Trauma Society (founding member & past president); Atlantic EMS Council (founding member & past president); Maryland State Highway Safety Coordinating Committee; Governor's Commission of Fire Services; National Research Council: Committees on shock, hyperbaric oxygenation, and blood components

Awards (Not a Complete Listing)

Congressional Certificate of Merit; Award for Public Service from National Highway Traffic Safety Administration; Governor's Citation; Distinguished Marylander Award; Baltimore's Best; Certificate of Distinguished Citizenship

Publications

More than 400 journal articles.

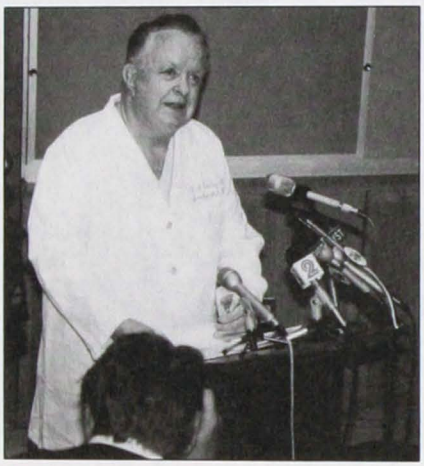
Books include: *Trauma Care: Surgical Management*; *Trauma Care: Medical Management*; *Shock Trauma/Critical Care Handbook*; *Terrorism, Mass Casualties, Crisis: A Lessons Learned Approach; Shock Trauma/Critical Care Manual: Initial Assessment and Management; Pathophysiology of Shock, Anoxia and Ischemia; Emergency Management at an Airport Catastrophe;* and *Collected Papers in Emergency Medical Services and Traumatology*.

Editorial Boards: *Disaster Medicine; American Journal of Emergency Medicine; Emergency Department News; Journal of World Association for Emergency & Disaster Medicine*.

White Papers: "Accidental Death & Disability: The Neglected Disease of Modern Society" (member of committee of National Research Council that authored landmark document); "An Evaluation of the Utilization of Human Blood Resources in the United States"; and "The Need for a National Trauma Institute: Conquering Our Most Expensive Health Problem."

Papers and memorabilia collected by the University of Utah.

William Conrad (left) played Dr. Cowley (right) in the TV movie "Shocktrauma."



Dr. Cowley was a favorite of the media.

Dr. Cowley with former governor Marvin Mandel and Jean Mandel. It was Mandel who issued the Executive Order mandating Maryland's statewide EMS System and establishing MIEM, with Dr. Cowley as director of both.

(Continued from page 5)

delivery was radical, voluntary cooperation did not always come easily. Cajoling, bullying, explaining, pleading, Dr. Cowley persisted with his vision during the rough years of "turf battles"--when ambulance crews balked at "surrendering" their patient to med-evac helicopter crews; when physicians and hospital administrators jealously guarded their patients, unwilling to send them to the areawide trauma centers and specialty referral centers. Dr. Cowley testified before legislators and fought for money for communications equipment, additional helicopters, or whatever was needed. He never gave up the vision that he believed in. Nothing was impossible to him.

The work of Dr. Cowley is evident elsewhere. Prehospital personnel, nurses, and physicians have expanded their medical skills in trauma and emergency medicine, which has become a discipline of its own, due in large part to him. Hundreds of physicians and nurses have trained at his Shock Trauma Center and then used that experience to start and develop trauma and EMS systems in other states and countries. An eight-story state-of-the-art trauma center named for Dr. Cowley opened in 1989 and combines the highest level of patient care and teaching with research, leading to advances in therapy for the critically injured. The National Study Center for Trauma and Emergency Medical Systems, founded and directed by Dr. Cowley, focuses on trauma prevention, injury control, and public policy as a way of saving lives. And most important are the thousands of trauma victims alive today who are a living testimony to his work.

Jon Franklin and Alan Doelp spent hundreds of hours with Dr. Cowley as research for their book Shocktrauma.

Ruby Richardson (editor at University Park Press) with co-authors Drs. Mike Dunham and R Adams Cowley in 1982.

Dr. Cowley demanded loyalty, dedication, skill, and hard work of those who worked for him. But he demanded the same of himself--and probably to a greater degree. He once told a TV interviewer that the best thing he could tell kids today is to work, that "it's a privilege to work.... This is the success of everything you can do." It's a privilege shared by all those in the Maryland EMS system–to have worked with him and to continue his work.

◆ *Beverly Sopp*

Dr. Cowley was buried with full military honors at Arlington National Cemetery.

What Cowley Was Saying. . .
(Excerpted from Publications & Interviews)

"Shock is a momentary pause in the act of death."

"There's a golden hour between life and death.... If you are critically ill or critically injured you have less than 60 minutes to survive. That doesn't mean you'll be dead in 60 minutes but if you're not in the right place at the right time, seen by the right people, your chances of dying are greatly enhanced. You might not die right then; it may be three days later or two weeks later – but something has happened in your body that is irreparable."

"Public opinion tends to regard accidents as unfortunate occurrences and their consequences to be accepted as inevitable. Besides–it always happens to the 'other guy.' We at Maryland cannot accept this premise and will continue to intensify our efforts to reduce this constant tragic loss."

"Unlike other diseases which require a medical breakthrough before significant savings in lives can be made, death and disability of the emergency victim can be reduced using existing medical knowledge and equipment utilizing a systems approach. Maryland is unique as a state in the development of an emergency medical services system because the Governor and Legislature have made a firm commitment to improve emergency care by providing resources for training, communications, equipment, and evaluation."

"Emergency admission by appointment has been operating since the helicopter program was established in 1969. There is no waiting. The state communications network forewarns the Institute of impending arrivals and describes the extent and severity of the victim's injuries, allowing preparation in advance for appropriate specialists and equipment."

"All patients [on arrival at the Shock Trauma Center] are assumed to be dying and much of 'the golden hour' for total stabilization has passed.... It may even become necessary to open the abdomen or thorax in the admitting area to stop hemorrhage before the usual sterile techniques have been introduced. Although unorthodox, this approach is directed at saving life rather than taking precious time to provide an aseptic field, the loss of time inviting death. The patient can always be treated for an infection–if he lives."

"We're knocking the socks off the death rate in this state."

"I want the very best for the citizens of Maryland. I want all of the critically injured to survive–and that's my goal."

"Trauma is a disease of young persons.... We are killing off the flower of our country. Our youth. It's no different than war. In war, we're killing off the flower of our country, young kids, the people who can make something. Why couldn't they go to a special place, why couldn't they have special care, why couldn't they have immediate treatment, why couldn't they have all the things that allow you to survive?"

"If I can get to you, and stop your bleeding and restore your blood pressure within an hour of your accident. . .then I can probably save your life."

Bidding Farewell, Paying Tribute to Dr. Cowley

More than 600 people–including EMS providers, physicians, nurses, government officials, families, and friends–paid a final tribute to R Adams Cowley, MD, at his funeral services November 4, at the Church of Jesus Christ of the Latter Day Saints in Towson where he was an elder of the church. That afternoon, following a funeral procession with police escort, Dr. Cowley was buried at Arlington National Cemetery with full military honors in a section reserved for national heroes and presidents.

Dr. Cowley was remembered, thanked, and praised by numerous speakers at the funeral, including Helen Delich Bentley (U.S. congresswoman), former governor Marvin Mandel, Alasdair Conn, MD (former MIEMSS trauma surgeon and medical director of field operations and current director of emergency services at Massachusetts General Hospital), Brent Petty, MD (of the Church of Jesus Christ of the Latter Day Saints), and Governor William Donald Schaefer.

Former governor Marvin Mandel emphasized that the "state, nation, and world are a better place because of him.... Some men have monuments and buildings built but he left living monuments." Governor Schaefer reflected that an "accident will happen today and because of Dr.Cowley a life will be saved today."

En route to Arlington National Cemetery Dr. Cowley was honored by fire and EMS personnel as one of their own. Following traditions normally reserved for a firefighter or ambulance personnel killed in the line of duty, fire apparatus and ambulance units from Baltimore and Prince George's counties were stationed on the shoulders of the Baltimore Beltway and I-95, while their crews stood at attention as the funeral procession passed. Earlier, soon after leaving the church, the mile-long line of cars in the procession passed under the tall arc of fire engine ladders. It was something Dr. Cowley would have appreciated as a fitting sendoff for his final journey.

◆ *Beverly Sopp*

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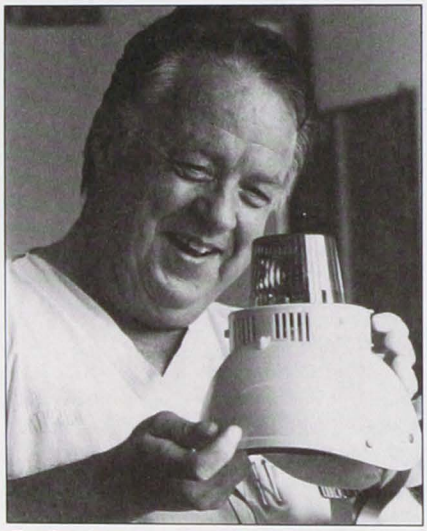
DATED MATERIAL

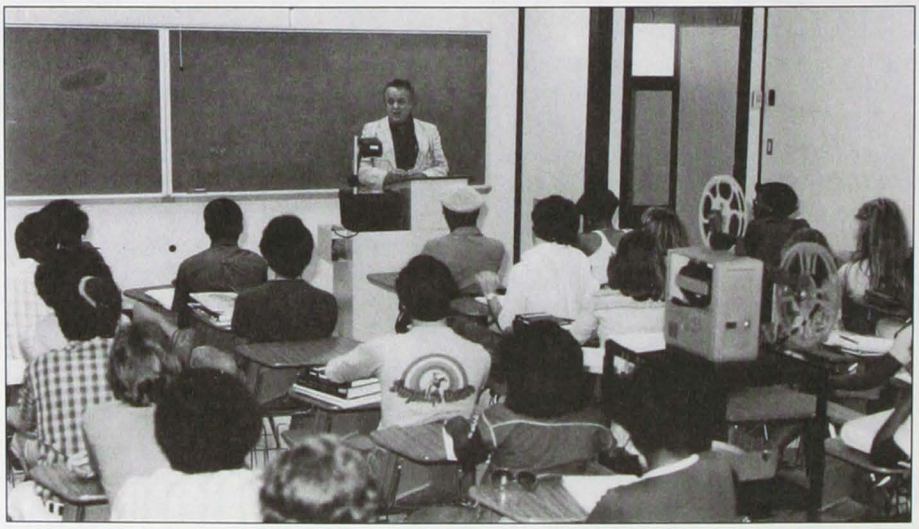
See pages 3-7 for more on Dr. R Adams Cowley, MIEMSS founder and trauma and EMS systems pioneer, who died October 27, 1991.



Dr. Cowley wore many hats–figuratively and literally.

*Dr. Cowley with Loretta Swit ("Hot Lips" of M*A*S*H fame) who made a guest appearance at the Mash Bash during EMS Care '85.*

Dr. Cowley with winners from the EMS Skills Competition of the EMS Olympics 1981.



Dr. Cowley lecturing to EMS prehospital providers.