

## The Injured Patient and The Specialist

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TRAUMA, I firmly believe, is one of surgery's most urgent problems, and in the future it is quite likely to become an even greater challenge to the medical profession. In every phase of life, progress and advancement of knowledge often lead to unforeseen problems and complications. Surgery is no exception to this general rule. The tremendous increase in knowledge and development of every field in surgery has created a surprisingly large number of special fields, each one demanding the undivided attention and lifetime interest of the specialist. This is indeed a remarkable and worthwhile development, but it leaves the field of trauma in a troubled state. Trauma, particularly in its more vicious forms, is usually inflicted on a patient at unpredictable hours in remote places, and it has no regard for boundaries of specialization. Many of these injuries are dire emergencies and cannot await the arrival of a specialist. Most surgeons, and particularly specialists, scoff at the idea of a "trauma specialist" or "traumatologist." Rightfully, they contend that no individual can be expert in every field of surgery. However, they also admit that every victim of multiple injuries cannot be simultaneously attended by every specialist whose area may be involved. This, then, is one of the problems that specialization creates in the field of trauma, and will be discussed later.

Increasing advances in general surgery as well as in the major specialties have so occupied the specialist that he has no time for and little interest in trauma lesions even to those areas of the body with which his work is concerned. This has led to a lack

of adequate training for the medical student and the postgraduate student, and a loss of the traditional emphasis on the responsibility of all of the surgical profession to the injured patient. Some of the problems in trauma which I believe should be considered the responsibility of all surgeons in every specialty follow.

In wartime, the treatment of trauma is recognized as a most important field in surgery and, as a result of widespread training of young men in the armed forces, the treatment of trauma is always greatly improved for many years thereafter. In light of the tense international situation, with the threat of war hanging over us, it now becomes the solemn duty of all of us to take part in the national effort for survival in the event of an atomic war. Civil defense has always been an unpopular effort with the lay public and, indeed, with many of us in medicine. It rests with us, the surgeons of this country, to set the example and take a definite stand and an active part in the survival plans of this country. We must not condone the extreme attitude that, in the event of an atomic war, destruction will be so widespread that nothing can be accomplished by any preparation; neither can we be complacent and believe that atomic war can never occur. We must be realistic and accept the fact that war is possible, although we hope and pray it will never come, and we must make every preparation for our survival.

The American College of Surgeons, I am proud to say, has already taken a lead in this effort. At its 1961 meeting in New Orleans, the Committee on Trauma approved a proposal by the Division of Health Mobilization, United States Public Health Service, that a manual of simplified treatment procedures for care of mass civilian casualties under austere circumstances be prepared. The Committee on Trauma, further, offered the services of its members as consultants for such a project as advice and guidance are needed. The project received the approval of the Board of Regents. Sections on the simplified clinical management of casualties under austere circumstances, drafted by the Trauma Research Group at Cornell University Medical College, are now being critically reviewed by the consultants chosen by the Committee on Trauma. Based on the recommendations made in the various sections of the manual, a series of training courses will be established through appropriate organizations to instruct other physicians and vari-

### *The 29th Oration on Trauma*

THIS ORATION ON TRAUMA was presented by Dr. Preston A. Wade, New York, October 4, 1961 at the Clinical Congress in Chicago. Professor of clinical surgery, Cornell University Medical College and attending surgeon, New York Hospital, the orator is also a director of the National and Greater New York Safety Councils; and member of an Impartial Medical Panel set up by the Association of the Bar, City of New York, and the New York Academy of Medicine, to examine personal injury cases. Dr. Wade is a member and former chairman, Committee on Trauma, A.C.S., and president, American Association for the Surgery of Trauma.

ous categories of personnel in the simplified management procedures recommended. These are intended for use only under catastrophic circumstances, when normally accepted standards of medical care cannot be maintained owing to overwhelming casualty load and a decrease of available supplies and professional personnel. The government is also asking advice from the Committee on Trauma as to the stockpiling of medical supplies, time required to carry out each therapeutic procedure, manpower requirements needed to carry out treatment, and degree of training necessary. The information thus supplied will be included in the manual, to be entitled *Treatment of Mass Casualties Under Austere Circumstances*.

This may seem to many of us a nebulous and frustrating effort, but it is exceedingly important and is a responsibility of all surgeons, whatever their specialty and whatever their interest. The organization of the work and the original impetus will, no doubt, be supplied by the College's regional trauma committees, but the responsibility for carrying out the program at the local level will depend upon all of us, and I strongly urge all members of the College of Surgeons to take an active part in aiding the work of the government in this regard.

Today we are faced with a problem which is quite real and not at all nebulous, and which is growing in importance. I refer to the increasing number of injuries and deaths occurring as the result of automobile accidents in this country. In 1960 there were in the United States about 40,000 deaths and a million and a half injuries as the result of automobile accidents. We are, therefore, faced with a serious public health problem in which we, the surgeons of America, have a great responsi-

TABLE I  
RISK OF INJURY AS RELATED TO NONEJECTION AND EJECTION FROM AUTOMOBILE

	PER CENT OF OCCUPANTS WITH FATAL GRADE INJURY—			
	MODERATE	SEVERE	DANGEROUS	FATAL
Nonejectees*	23.9	9.9	5.5	2.6
Ejectees†	49.9	36.4	26.6	13.3
Injury Ratio, Ejectees to Nonejectees	2.1: 1	3.7: 1	4.8: 1	5.1: 1

\*Occupants who remained inside automobile.

†Occupants completely ejected from doors opened under crash conditions.

bility. As in any public health threat, there are two phases to be considered—prevention and treatment.

Speed and failure in driver performance are the most important factors in the cause of automobile crashes, and human behavior being what it is, it is obvious that even with our greatest efforts, little can be accomplished in eradicating these causative factors. The relentless pace of our civilization over the past 50 years has made speed in transportation a necessity in our society. We are unwilling and, indeed, unable to halt the increase in speed in travel, and it is awful to contemplate what will happen in the next 50 years as the result of speed. The only reassuring thought may be that, with the increase in the number of automobiles, there may be so many on the roads that they will soon be lined up bumper to bumper. This would eliminate the problem of the auto crash but would pose a problem as to how to protect the passengers from starvation before they arrive at their destination. Unfortunately, speed seems to be with us for some time to come, and the inevitable price it demands is injury and death. If we accept the fact that automobile crashes are inevitable, and we must, one of the measures we may take to prevent injury and death is protection of the passenger in the automobile. The College has taken an active part in this effort in the past five years, and has been helpful in furthering improvements in automobile design.

TABLE 2—MAJOR CAUSES OF INJURY IN AUTOMOBILE INTERIOR

IN INTERIOR OF AUTOMOBILE	PER CENT OF OCCUPANTS INJURED TO—			ORDER OF IMPORTANCE*
	ANY DEGREE	FATAL DEGREE— MODERATE	DANGEROUS	
Steering Assembly	29.4	8.4	2.5	1
Ejection through Door	14.6	6.9	3.2	2
Instrument Panel	20.6	4.2	0.7	3
Windshield	16.9	4.6	0.6	4
Backrest of Front Seat (Top Portion)	11.0	2.4	1.1	5
Door Structures	7.7	2.4	0.5	6
Backrest of Front Seat (Lower Portion)	15.1	2.5	0.0	7
Front Corner Post	2.0	1.2	0.7	8
Flying Glass	3.0	0.5	0.02	9
Top Structures	1.2	0.6	0.2	10
Rear View Mirror	2.2	0.6	0.02	11

\*Based on 1) number of occupants actually exposed to injury hazard of object; 2) frequency of injury caused by object; 3) degree of injury caused by object.

In 1940, Hugh DeHaven, research physiologist at Cornell University Medical College, became interested in the factors involved in freak survivals in free falls and suicide attempts. He applied these factors in designing the interiors of airplane cockpits during World War II. The results of the "packaging" of the pilot within the cockpit were so successful in preventing serious injury and even death in a crash that, after the war, the research was quite naturally continued in the study of automobile crashes. With the support of national agencies, the Auto Crash Injury Research Department was established at Cornell University Medical College and a comprehensive statistical study of many thousands of automobile crashes was made from material gathered in many states. The results of these studies indicated certain factors which increased the danger of severe and fatal injury.

One of the most important danger-increasing factors was ejection (Table 1) of the passenger from the automobile at the time of collision. These studies, based on many thousands of automobile crashes, indicate that the danger of injury or death is considerably greater when the occupant is ejected from the vehicle.

Certain areas in the interior (Table 2) of the automobile were found to be most dangerous. They include the steering assembly, windshield and instrument panel. Suggestions made by the Cornell Research Group to improve automobile design were 1) safety belts for all passengers; 2) improved interlocking door latches to prevent door from opening on impact; 3) dish-shaped steering wheel to prevent impaling of driver by steering rod; 4) padding of front panel; and 5) fixation of front seat to chassis.

These suggestions impressed the American College of Surgeons' Committee on Trauma, and on its recommendation the Board of Regents transmitted them to the five major automobile manufacturers with the request that these changes be made. It is to the credit of the automobile manufacturers that all complied in one way or another, one company incorporating all of the changes in

its 1956 model and centering its advertising campaign on these safety features. Unfortunately, the sales figures for this company took a severe drop that year, and this was judged to be the direct result of the accent on safety. Furthermore, several of the improvements were offered only as optional features. Apparently safety suggestions are not popular with the automobile buyer. However, the manufacturers are continuing to add these improvements to the new automobiles and we hope the public may be educable to their use.

An optimistic sign that the public will be so indoctrinated is the recent announcement that all automobiles in 1962 will be fitted with seat belt attachments. This move was, no doubt, helped along by the passage of legislation in New York state requiring all automobiles sold in the state to be so equipped.

Attempting to evaluate the efficacy of the changes in design in the 1956 car, the Cornell Group in 1958 investigated some 2,750 accidents producing injury, in several sections of the country, and found a significant decrease in the injury potential of the automobile. Table 3 shows decrease brought about by the improved door latch. The maximum improvement was 29 per cent, and significant at the 95 per cent level of confidence.

In investigating the effectiveness of seat belts (Table 4), the Cornell Group studied 300 cars equipped with such devices, which were involved in auto crashes. \* By reviewing 4,000 control cases, it was possible to match closely 81 cars in which seat belts were used with an equal number of control cars, each pair being identical as to type of accident, area of principal impact, direction of principal force, speed at impact, frequency of door opening, number of cars in accident, make and

\*BRAUNSTEIN, PAUL W., MOORE, JOHN O., and WADE, PRESTON A. Preliminary Findings of the Effect of Automotive Safety Design on Injury Patterns. S.G. & O., Sept., 1957, page 257.

TABLE 3—SAFETY EVALUATION\* OF THE 1956 CAR WITH IMPROVED DOOR LATCH  
COMPARISON BASED ON EFFECT ON OCCUPANTS

	PERIOD OF MANUFACTURE 1940-55	1956	DIFFERENCES† IN RISK	MAXIMUM IMPROVEMENT DEMONSTRATED
A. Risk of Ejection (Percentage of Occupants Ejected)	11.9	6.1	-5.8	48.7
B. Risk of Dangerous-Fatal Grade Injury (Percentage of Occupants with Dangerous-Fatal Grade Injury)	9.3	6.6	-2.7	29.0

\*Based on 2,750 injury-producing accidents.  
†Results of statistical analysis differences in risks in categories A and B are statistically significant at the 95 per cent level of confidence.



FIG. 1—Each car, driven at same speed, was involved in head-on collision, causing similar damage to each, but driver of wreck to left wore no seat belt, and was killed; but belted driver of above wreck had only few injuries.

weight of car, year of manufacture, and seated area of occupants.

The results of this comparison listed in Table 4 indicate that all degrees of injury were markedly decreased, and this finding was statistically significant at a very high level of confidence.

In one of the paired accidents (Figs. 1 and 2) each car was involved in a head-on collision at the same speed, causing similar car damage. The driver wearing the seat belt had few injuries while the other was killed. A remarkable survival of a driver wearing a seat belt is seen in Fig. 3. In this accident the car was completely sheared in two by a tree and the front half thrown some 50 feet across a field. The driver, who was wearing a seat belt, was able to walk away from the accident, uninjured.

It cannot be expected, of course, that the seat belt will prevent serious injury in accidents occurring at high speeds. Fig. 4 illustrates this type of accident, in which two occupants were killed in-

stantly when the car speeding along at 95 m.p.h. struck a concrete pillar.

The safety factors which may be incorporated in the interior design of the automobile will continue to be helpful in saving lives, but factors which depend on the judgment and co-operation of the driver will always be difficult to apply. The public must be educated to their use, and the surgeons of this country can help in this campaign. The American Medical Association and the United States Public Health Service are making every effort to emphasize the need for this instruction, and the American College of Surgeons is continuing its work in conjunction with the National Safety Council and the Association for the Surgery of Trauma in their Joint Action Program. These efforts would be greatly helped if all surgeons, regardless of their specialty, were to take part.

Transportation of the injured is another aspect of the trauma problem which should be accepted

TABLE 4—EVALUATION OF SAFETY BELT EFFECTIVENESS\*

	ALL DEGREES	FREQUENCY OF INJURY IN PER CENT	
		MODERATE-FATAL GRADE	DANGEROUS-FATAL GRADE
Control Group— Without Safety Belts 81 Automobiles 139 Occupants	75.5	23.0	3.6
Experiment Group— With Safety Belts 81 Automobiles 97 Occupants	29.9	9.2	1.0
Maximum Improvement Demonstrated	60.4	60.0	0.0†
<i>Results in Statistical Analysis</i>			
Difference Significant at Per Cent Level of Confidence	99.9	98.0	‡

\*As demonstrated by clinical study of 236 occupants of 162 automobiles in rural accidents, both control and experiment groups being identical as to type of accident, area of principal impact, direction of principal force, speed at impact, frequency of doors opening, number of cars per accident, make, weight and year of manufacture of case car, and seated area of occupants.  
 †None, probably due to small sample size.  
 ‡Not statistically significant.

as a responsibility by all surgeons, not only those involved in treating trauma. In many areas in the United States transportation of the injured is deplorable and the Committee on Trauma is continuing, as one of its major projects, an attempt to improve this situation. In our country there is no standard for control of transportation of the injured, and in only three states are there laws governing its control. All states should have a law stipulating how the injured are to be transported so that every community would have to comply with a minimum standard.

Furthermore, great is the need for the medical profession to take a determined stand in the effort to control the speed of ambulances and insist that they obey all traffic regulations. Since the excitement and hysteria aroused by an accident usually stimulate all concerned to use as much speed as possible in whatever they do, the ambulance usually travels at excessive speed, even when not answering an emergency call.

Curry and Lyttle\* in a study of 2,500 ambulance calls in Flint, Michigan, show that in only one case was delay a possible factor in a fatality, and in only 45 cases was time a factor in the outcome of the

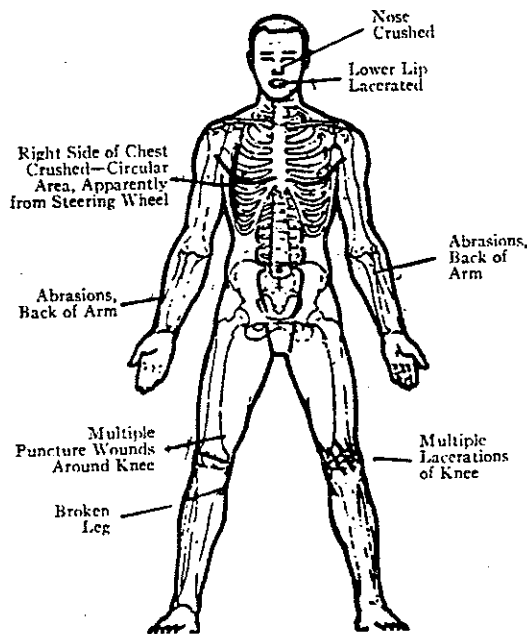
\*CURRY, GEORGE J., and LYTTLE, SYDNEY N. The Ambulance. *Am. J. Surg.*, October, 1959, page 530.

case; while in nine cases a rough, weaving ride might have increased the injuries and even caused death. This is to say nothing of the danger to innocent pedestrians and motorists who might be injured if the ambulance were to be involved in an accident. In my opinion, the speeding ambulance kills more people than it saves and only the surgeons of this country can convince the public and lay agencies of this fact.

The thrill of speed and the feeling of special privilege seems too great a temptation for the ordinary ambulance driver and until there comes a time when ambulances are manned by responsible and qualified drivers who will speed only when necessary, and who will use careful judgment in tempering regulations, ambulances and all other vehicles carrying the injured should be required to obey usual traffic laws.

The major responsibility of the medical profession to the injured patient lies in the treatment of his injuries. It is the impression of the Trauma Committee that the care of the injured in this country is not all that it should be; and one of the committee's major objectives is a detailed and ex-

Without Seat Belt: Fatal Injuries



With Seat Belt: Nonfatal Injuries

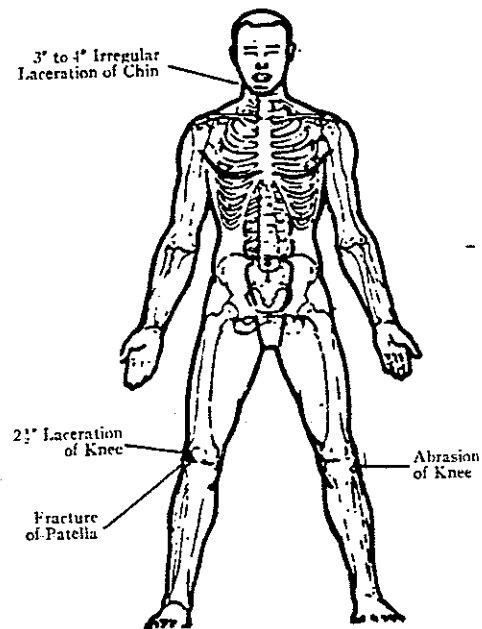


FIG. 2—These drawings indicate fatal injuries sustained by driver (*left*) who wore no seat belt, and (*right*) by another who did and had only a few injuries. Fig. 1 shows what happened to automobiles they drove. This is one of paired accidents studied by Cornell Research Group in investigating effectiveness of seat belts.

tensive study\* of emergency departments in representative areas throughout the United States, under the direction of Dr. Robert H. Kennedy. The committee believes that emergency department care can be improved, and it hopes that this investigation will result in the establishment of a minimum standard which hospitals will be encouraged to meet.

"Injured persons waited too long when mature surgical judgment was required," the preliminary report of the group states, "and whether or not it materialized was consistently predicated upon the judgment of the least experienced officer on duty."

The injured workman in large industrial centers receives excellent care because his accident occurs during working hours and he is transported immediately to a nearby, well equipped medical facility manned by surgeons experienced in the type of injury which may be anticipated in the industry in question. In this way, supplies, equipment, and qualified medical care are provided immediately.

The automobile accident, on the other hand, usually occurs unexpectedly and the injuries are

\*Supported by a grant from the John A. Hartford Foundation.



FIG. 3—Although this car was ripped in two by a tree and front half thrown some 50 feet, driver, who wore seat belt, was uninjured and walked away.

often multiple and complex, taxing the skill of the best surgeon; but in many hospitals the professional attention afforded the patient falls short of what we would consider the minimum standard.

Cases illustrative of the multiple injuries so frequently seen in the emergency departments of our hospitals follow. Each presents serious problems in therapy in many anatomic areas, traditionally delegated to the specialist in the system involved.

The first case is that of a pedestrian struck by a car on the streets of New York. An investigation of 200 fatal pedestrian injuries, just completed by the Cornell University Trauma Research Department, shows that the majority of these fatal accidents involve an elderly pedestrian, more often than not under the influence of alcohol, who is attempting to cross the street against a traffic light and at a point where crossing is illegal. Such was the case with this man, and the injuries he sustained were typical of many in the series.

On the right trunk, region of principal impact, this injured pedestrian was found to have a tremendous area of ecchymosis. He sustained multiple fractures of the right transverse processes of the lumbar vertebrae, fracture of the right eleventh and twelfth ribs, and fractures of the right ileum and left sacrum. He also sustained a dislocation of the left knee, and fracture of the right fibula and tibia. He suffered a concussion of the brain and multiple contusions and abrasions. Here was a patient who needed immediate care and reduction of

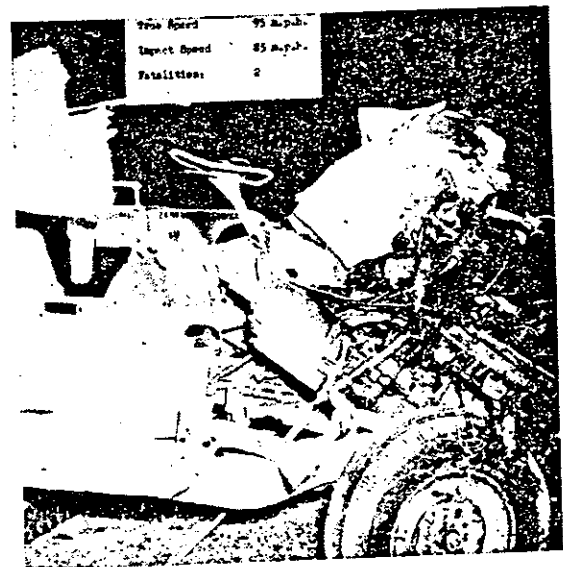


FIG. 4—Both occupants were killed instantly when car speeding at 95 m.p.h. struck concrete pillar as belt can't prevent injuries incurred at high speed.

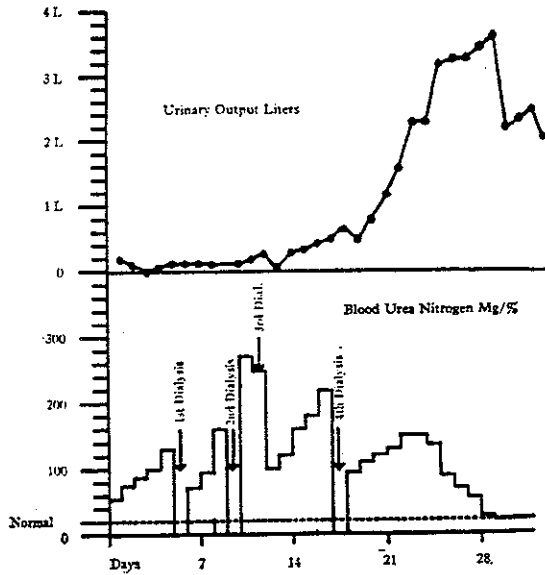


FIG. 5—Pattern of kidney function in four weeks of injured (page 78, col. 2) pedestrian's recovery is shown. He had classical signs of crush syndrome.

his dislocated knee, with its circulatory embarrassment and nerve damage, treatment of his shock and brain injury, as well as careful observation for possible kidney and intra-abdominal visceral injury. He developed a tremendous retroperitoneal hematoma, one of the most common unrecognized causes of death in Cornell's pedestrian fatality series, with a large visible and palpable mass in the right flank. But more important than any of these, this injured pedestrian exhibited the classical signs

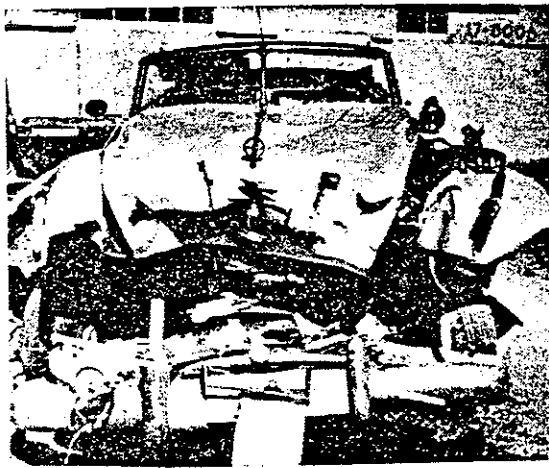


FIG. 6—Impaled by steering assembly, driver was killed instantly. His wife, ejected from car, was seriously injured (col. 2). They wore no seat belts.

of crush syndrome with kidney damage and anuria. Fig. 5 illustrates the pattern of kidney function in the four weeks of his stormy recovery, during which his kidney parenchyma finally recovered and began to function after 18 days, following four dialyses on the artificial kidney. Surely, this patient needed immediate care for his many injuries, but also the wise observation of the surgeon in charge who could recognize the onset of the symptoms of renal damage and institute proper therapy. The patient recovered from his many injuries and is now able to return happily to his drinking habits but, I fear, with no greater respect for the traffic light!

The second illustration is another example of the type of multiple injury case which will need expert care in order to save life and limb. Fig. 6 shows the wreck of an automobile in which a man and wife were riding at high speed when the car struck a concrete pillar on East River Drive near the New York Hospital. Neither was wearing a seat belt, which might have saved each from many injuries. The driver was killed instantly, impaled by the steering assembly.

His wife, seated beside him, was thrown violently forward, then ejected from the car to the roadway. Unconscious, in great respiratory distress, pulseless, and in severe shock, she was brought to the hospital by a passing taxi. Her injuries included fractures of the skull and of the jaw, segmental crush injury to the chest with paradoxical respiration, a transverse fracture of the body of the eighth dorsal vertebra (Fig. 7), and a fracture of the pelvis (Fig. 8). She had sustained injuries to the abdomen and blood was in the catheterized urine. Bladder and other intra-abdominal injuries were, fortunately, not sufficiently grave to require surgical intervention. She had sustained a severe crushing injury to the right lower extremity with avulsion of skin, and a severe open fracture of both bones of the left leg with extrusion of the fragments through the skin (Fig. 9).

Immediately on admission, it was necessary to treat this woman for shock and maintain respiratory exchange. Blood was drawn for typing and cross-matching and whole blood administered as soon as available. A tracheostomy was performed, the head injury evaluated, the abdominal injuries ascertained, and urine obtained by catheterization. X-rays of areas involved were taken; and later the wounds were debrided, traction applied to the chest wall, the fracture of the left leg treated by os

calcis skeletal traction in a Braun-Böhler frame (Fig. 10), and the fractured mandible wired. The woman's recovery was slow, but in due time she became conscious and rational, her chest injuries healed, her leg fracture consolidated in good position, her open wounds closed, her fractured vertebra and pelvis healed leaving no disability.

The followers of the school of pure fragmentation in surgery might say that, ideally, this patient needed a specialist in neurosurgery, maxillofacial surgery, orthopedics, abdominal surgery, urology, thoracic surgery, and plastic surgery, as well as the immediate services of a roentgenologist, a laboratory expert, an anesthesiologist, and experienced nurses.

It is unrealistic to hope that all ten of these specialists could be present at the reception of any patient or even in the first few hours after admission and, indeed, such a gaggle of experts would be confusing and confounding. One competent surgeon with a broad knowledge of trauma in every field is quite capable of caring for the early therapeutic needs. In directing total care, he would use the services of consultants in each field at the appropriate time and in reasonable sequence when the need arose.

In studying the adequacy of emergency department care in hospitals, the Committee on Trauma would like answers to the following questions in co-ordinating the care of a patient similar to the woman just used as a case in point.

Would the patient be seen immediately by some-

one competent to judge her needs? Would her respiratory embarrassment be corrected by proper treatment? Would a qualified surgeon be present to do a tracheostomy when necessary? Would a qualified observer evaluate the head injury and make a proper decision as to whether or not surgery was indicated? Would the abdominal and bladder injuries be promptly evaluated? Would laboratory, blood bank, and x-ray facilities be available in the emergency department? Would the wounds and open fracture be properly debrided and would these operative procedures be undertaken promptly with due consideration of other injuries? And, above all, would one responsible surgeon see the patient immediately after admission and thereafter direct her care throughout her entire illness?

We believe that in many hospitals this patient would receive excellent care, but fear that in a far greater number these requirements would not be met.

The problem is a fundamental one of education as well as organization. In our medical schools today the vast amount of information the overworked medical student is expected to absorb takes so much time that each department head feels that his discipline is given too little time in the curriculum. However, if we are to expect that the multiple injury patient will be cared for by a qualified surgeon, we must prepare to educate the surgeon and give him an opportunity to develop in the many and varied aspects of trauma therapy. Instruction in trauma problems deserves much greater consideration than it is now given, not so much in extra time as a separate subject, but in increased emphasis on trauma in every field, so



FIG. 7—Woman ejected (page 79, col. 2) from car in Fig. 6 incurred transverse fracture of body of eighth dorsal vertebra. Figs. 8, 9 and 10 show other trauma.



FIG. 8—Fractured pelvis was one of many injuries sustained by woman ejected to roadway from car (Fig. 6) which at high speed struck concrete pillar.



that the medical student can be exposed to all of the facets of trauma during his undergraduate education.

Postgraduate training in trauma also needs greater emphasis in both general surgical and specialty programs. In recent years this has been recognized by the American Board of Surgery, which now not only requires training in trauma but also includes the subject as a much more significant part of the written and oral examination than was deemed necessary in former years. Some general surgical training programs do not include the treatment of fractures or other trauma. This is indeed a great mistake, since no young man who has not been trained in trauma can be considered a fully trained surgeon. In many orthopedic training programs, the emphasis is on the purely orthopedic problems, and many of the trainees have little experience with cases of multiple trauma. These deficiencies are well known, and fortunately steps are being taken to correct them.

The organization of trauma treatment has received increasing consideration in the past few years and much good may result from this. The American Board of Surgery once considered establishing a separate qualification for general surgeons interested in trauma, and several years ago an

effort was made to establish an examination qualifying in the surgery of trauma certain already qualified general surgeons, i.e., those who were diplomates of the American Board of Surgery.

This move was bitterly opposed by the orthopedic surgeons as well as by other specialists, on the grounds that the so-called trauma specialist would have an unfair advantage in treating cases traditionally considered outside his specialty. Furthermore, the argument has commonly been advanced by sources representing both general surgeons and specialists that it is impossible for any surgeon to become competent in the treatment of trauma in every field. The obvious implication is that each surgeon must confine himself to the treatment in his own specialty, and should not take part in therapy in other fields.

Perhaps it would have been a better idea to establish a certification in trauma as an additional qualification in every surgical specialty as well as in general surgery. Although it is quite correct that no one can learn all there is to know about every specialty, he can do the patient the greatest service if he knows much about the care of injuries sustained in those areas other than his own specialty, and if he knows a great deal about the emergency care of every body area. Much of this disagreement is the result of professional jealousy and fear of financial loss. The general surgeon has resisted the efforts of the orthopedic surgeon to enter general surgical fields and the orthopedic surgeon's claim to fractures is often still resisted. The inclusion of hand surgery in orthopedic training is often resented by the plastic surgeon as well as the general surgeon. The neurosurgeon feels that the orthopedist should

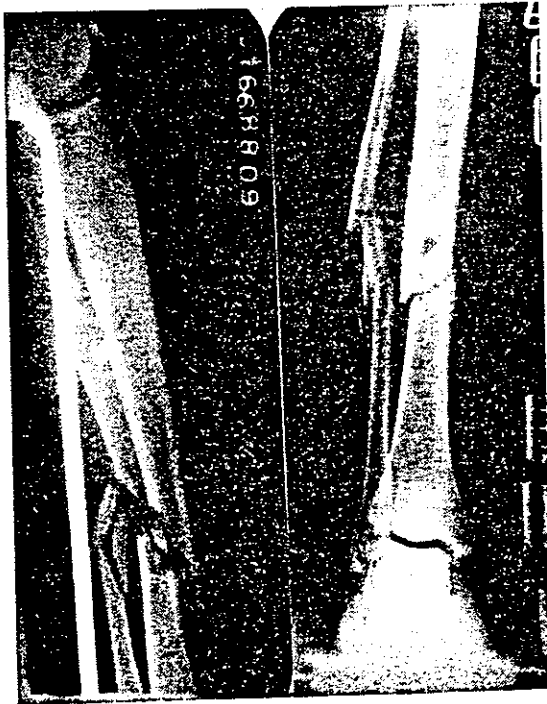


FIG. 9—Crushing injury to woman's right lower leg with avulsion of skin, and open fracture of both bones of left leg are shown.



FIG. 10—Traction is applied to her chest wall and fracture of left leg is treated by os calcis skeletal traction in Braun-Böhler frame.

not attempt to repair nerves nor operate upon intervertebral discs. The vascular surgeon believes the orthopedist to be out of his field if he performs vascular grafts when treating other injuries to a limb.

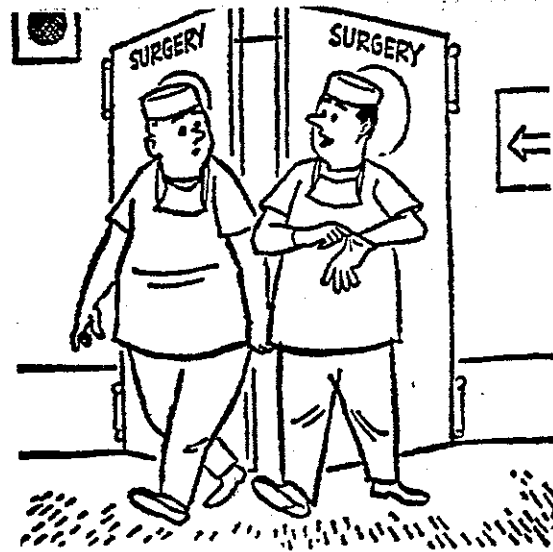
What a troubled state for the poor patient with many injuries! The public has even taken notice of our advanced state (cartoon) of specialization.

Another development in the organization of trauma care—establishment of specialized accident hospitals—may solve the problem in many areas. In Austria and Hungary, where these hospitals, the *Unfall-Krankenhäuser* established by Böhler, have been operating for many years, the experiment has been eminently successful. There experienced surgeons, with adequate help, equipment, and supplies, treat every kind of trauma. Most of the surgeons can and do remove a ruptured spleen, operate upon a middle meningeal hemorrhage, debride and reduce an open fracture, treat a stove-in chest, and still have access to consultation by other specialists. This plan is now in operation in some communities in England and is enthusiastically accepted there.

In America some communities have established regional medical trauma centers, but they are still few in number. Here, where distances are great, hospitals sparsely distributed and qualified personnel necessarily few, such a concept is at present impractical as a general plan. However, it is a worthy experiment in those communities where the population is concentrated. I fully expect accident hospitals will be expanded in the future and will become the recognized plan for the treatment of trauma in this country.

One of the controversies that will inevitably arise in organizing regional trauma centers is the problem of training the surgeons to staff such a facility. Once established, it is quite likely that these centers will develop their own educational programs and train "traumatologists" to carry on this work.

In the meantime, what specialty should take on this responsibility? It seems most logical that the general surgeon or the orthopedic surgeon would have the necessary qualifications and interest to develop such a plan. The general surgeon has the best opportunity, since he has the basic training to develop proficiency in the treatment of all trauma. He would necessarily have to enlarge his horizon in neurosurgery and perhaps in other fields, and



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"It was close—a fraction of an inch either way and I'd have been outside my specialty."

would need considerable training in the treatment of bones and joints. However, the development of the traumatologist may go elsewhere by default, since the general surgeon is deeply involved in so many new developments in other fields that he may not take up this challenge. The orthopedic surgeon then has a remarkable opportunity to become the trauma specialist of the future. One of the world's greatest orthopedic surgeons told me some time ago, facetiously perhaps, but with a certain amount of seriousness, "You should remember always that the orthopedic surgeon is the general surgeon of the future, whereas the general surgeon of the past has become more and more of a specialist."

If orthopedic surgery takes up this challenge, it will be necessary to train the young orthopedist in general surgery, or basic surgery if you will, before he takes his training in his specialty, and it will be essential that directors of surgery have enough insight into the problem to allow him to continue his work in trauma in fields other than bones and joints. He must be able to handle chest, abdominal and vascular trauma, and emergency neurosurgery. He need not be adept at hypophysectomy and removal of brain tumors, but he most certainly could learn to take care of middle meningeal hemorrhage. He may not have time to learn the intricacies of lung cancer, but he could certainly learn how to

(Continued on page 94)

## Ecuadorians Hear College Praised by Dr. Ramírez Dueñas

*Dr. José Ramírez Dueñas, Guayaquil, professor of clinical surgery, Faculty of Medicine of Guayaquil, in describing to the Benemérita Sociedad Médico-Quirúrgica del Guayas on July 5, 1961, the significance of the American College of Surgeons, said, in part:*

BEARING IN MIND benefit to humanity through progress in and improvement of surgery and introducing the highest principles of ethics in the practice of this science, a select group of surgeons headed by Franklin H. Martin founded the American College of Surgeons in 1913. At present more than 25,000 surgeons from 71 countries, valuable representatives throughout the world of the different surgical specialties, belong to this noble institution.

Every surgeon who takes pride in his profession wishes to be admitted to Fellowship in the College. Its progress and fine officials demonstrate the excellence and the morality of the American surgeon and his colleagues in many countries.

Through its Clinical Congresses and Sectional Meetings the College has become one of the foremost institutions of learning in the field of medical science. At these scientific assemblies held in various cities surgeons convene to discuss and teach the latest advances.

In addition to this scientific aspect, the College, emphasizing the highest principles in the practice of medicine, constitutes a moral force. It represents the quintessence of honesty in our professional practice.

The work of the American College of Surgeons in bettering the world embellishes the pages of contemporary surgical history and reflects the highest democratic ideals of surgeons of the Continent of America and elsewhere in behalf of humanity.



*Dr. José Ramírez Dueñas, Guayaquil, Ecuador, who made accompanying statement about the College, is a 1960 Fellow.*

Ecuador is one of the countries privileged to be represented in the membership\* of this wonderful organization.

\*EDITOR'S NOTE: Among the many distinguished Ecuadorians both lay and professional who early in the College's history furthered its cause are Drs. Miguel H. Alcívar, Juan B. Arzube Cordero, Ysidro Ayora, Teodoro Maldonado Carbo, Juan F. Rubio A., and Ricardo Villavicencio Ponce. "My meeting with Dr. Arzube was epochal," writes Dr. Frank P. Corrigan as a contributor to Dr. Franklin H. Martin's account, *South America from a Surgeon's Point of View*, of official visits in 1920 and '21, "as he was the first prominent member of the profession of Ecuador with whom I came in contact and his reception of me and my mission would go a long way toward demonstrating what reaction I might expect from the other members of the profession in his country. I need have had no trepidation on this score. Dr. Arzube, a splendid gentleman, would have received me courteously whatever my mission, and as it was he received me with enthusiasm. He repeated in almost as many words what the Prefect of Police had said to me when I went to his office for the formality of recovering my passport: 'Your visit, Señor, is one of great significance to the medical profession of our country. It is indeed a grand idea to attempt to unite the surgeons of the two continents into one great organization so that we may profit by interchange of ideas.'"

## The Injured Patient and The Specialist (Continued from page 82)

handle a stove-in chest and pneumothorax. He may not be proficient in cardiac surgery, but he must learn the techniques of vascular repair and blood vessel grafting.

We cannot predict how this problem will be solved and whether the orthopedic surgeon or the general surgeon will eventually be treating trauma, but of one thing I am sure—there will be an improvement in the care of the injured patient. There will come a day when an accident victim will be

transported carefully and slowly in a vehicle without sirens, by qualified personnel obeying traffic regulations, to a well equipped, specialized trauma facility where he will be promptly cared for by surgeons trained in all phases of trauma care.

In the meantime, we of the American College of Surgeons, can best serve these injured patients by making every effort to advance the teaching of trauma care to medical students, to residents, and to every surgeon regardless of his specialty.