tourniquet. If a toxin were present in the constricted limb it would supposedly be more concentrated in the blood draining from the limb during the first few minutes following release of the tourniquet. If this were true, survival of this animal, which, however, did go into shock during the transfusion (but recovered afterward), might be explained." 33 references.

J. C. M. C.

BLALOCK, ALFRED: *Utilization of Oxygen by the Brain in Traumatic Shock.* Arch. Surg. **49**: 167–169 (Sept.) 1944.

Dogs were used in all experiments. General anesthesia was produced approximately one hour before the control studies were performed by the intravenous injection of pentobarbital sodium, 25 to 30 mg. per kilogram of body weight. Subsequent subcutaneous injections were given as indicated. . . . All of the four experimental procedures for producing shock, hemorrhage, trauma, tourniquets and burns were associated with an increase in the arteriovenous difference of both the cerebral sinus blood and the mixed venous blood. The oxygen utilization of the cerebral sinus blood and that of the mixed venous blood in general paralleled each other closely. Particular attention is directed to the fact that the difference in oxygen content of the arterial blood and that of the sinus blood increased in the early stages of shock and this difference usually became more marked as shock developed. The early increase in the arterial-venous sinus oxygen difference was due in some instances to an increase in the oxygen content of the arterial blood rather than to a decrease in oxygen content of the venous blood. . . . The arterial-venous sinus oxygen difference usually increased before there was a significant decrease in the arterial blood pressure. Alterations in the total oxygen consumption of the body throughout the course of the experiments were not great. If one could assume that the oxygen consumed by the brain also remained essentially constant, the finding of an increased utilization of oxygen would mean that the cerebral blood flow was considerably reduced. Such an assumption is not warranted. . . . It appears that under conditions of decreasing blood flow the brain, unlike the kidneys, can maintain its oxygen consumption at least partially by extracting increased proportions of oxygen from the arterial blood." 4 references.

J. C. M. C.

ENGEL, D.: *Sympathetic Block: Proposed Therapy in Traumatic Shock.* Brit. M. J. **2**: 434–435 (Sept. 30) 1944.

"The purpose of this paper is to draw practical conclusions from recent experiments . . . and to propose regional sympathetic block as a preventive and curative method in cases of extensive crush injuries. Though my proposal is based on animal experiments there is enough clinical evidence to support my views. The result of the experimental work can briefly be summarized as follows: In 'traumatic shock' the rate of filtration through the capillaries in tissue adjacent to trauma, and probably also in the traumatized tissue itself, is greatly increased in the first 1 to 5 hours following trauma, and reduced afterwards. The increased rate of filtration, suggesting increased capillary permeability, is thus restricted to the traumatized area and is not generalized over the whole body. It was further shown that by regional sympathectomy it is possible to reduce considerably the increased rate of filtration caused by trauma. . . . The practical significance of these experiments is that if it is true that capillary permeability is one of the most im-

portant initiating factors in the development of 'shock,' then every procedure that is capable of reducing capillary permeability is bound to have a beneficial effect. . . . The simplest and most practical way of paralysing sympathetic action and thus reducing capillary permeability in the traumatized area without damaging the patient is the paravertebral infiltration of the regional ganglia with novocain. This should be carried out as soon as possible—in any case, within the first 1 to 3 hours after trauma. We have seen that the period of increased capillary permeability lasts only 1 to 5 hours, to be followed by a period of decreased permeability. No effect can therefore be expected after 5 hours. These results were obtained in the cat; it is therefore possible that the time limits mentioned do not apply exactly to human beings. An anaesthetic of short effect, preferably novocain, should be used, because the second period of decreased permeability does not develop in the sympathectomized limb, and it is very likely that a prolonged sympathetic block may have a similar effect to that of sympathectomy and fail its purpose. If the lower extremity is crushed the first to fourth lumbar and the first sacral ganglia, if the upper extremity is involved then the stellate and the first and second thoracic ganglia, have to be injected. . . . It is not advocated that other methods which have proved, so far, to be indispensable (blood transfusions etc.) should be neglected."

J. C. M. C.

BURGESS, ALEXANDER M., AND SAKLAD, MEYER: *Inhalation Therapy in the Rhode Island Hospital.* J. A. M. A. **125**: 469–472 (June 17) 1944.

The authors previously reviewed many problems they had in maintaining satisfactory oxygen therapy. Some of their constant problems were maintenance and up-keep of equipment, maintaining adequate oxygen concentration and seeing that oxygen therapy was intelligently supervised. They decided that the "(1) application of an adequate method to the patient in need of oxygen is no proof that he is receiving his oxygen sufficient for his needs and (2) the correct application of an adequate method with evidence that the patient is receiving oxygen sufficient for his needs is no guarantee that he will continue to do so as long as the method continues to be used."

The authors in 1932 devised a simple open box type of oxygen tent which they later improved upon so that they made a pliofilm open box type of canopy which fits snugly around the neck of the patient, or in a child around its abdomen. Inside of this pliofilm box was placed, in the upper back part, an ice container through which the oxygen flowed so that the oxygen was cooled and would sink to the bottom of the tent near the patient's face. They were able to give a concentration of oxygen between 45 to 60 per cent. This pliofilm tent was finally made into a hanging type of tent which was suspended from a bedside stand.

The Department of Inhalation Therapy was established under the Division of Anesthesia. The duties of this department were to "(1) Train and supervise the required personnel. (2) Order equipment and keep it in repair. (3) Supervise the actual application of oxygen and other gas therapy throughout the hospital. (4) Keep records on appropriate forms and from such records compile and evaluate statistics." The Department of Inhalation Therapy supervises the setting-up of oxygen therapy ordered by the physician and is responsible for checking at intervals the efficiency of the oxygen therapy in use.