transient and tachyphylaxis develops rapidly. The drug has a separate and independent atropine-like action on the heart. The sympathomimetic effect of gallamine offers a plausible explanation for the observations that it increases ventricular stroke work and cardiac output in mean and that it may precipitate transient arrhythmias in patients receiving cyclopropane.

Experimental Prevention of Decompression Sickness. SPENCER D. CAMPBELL, A.A., and RICHARD J. WARD, M.D., Virginia Mason Research Institute and University of Washington School of Medicine, Seattle, Wash. The method of prevention of decompression sickness following exposure to increased ambient pressure has changed little in the last 50 years. Divers are brought to the surface in stages, remaining a predetermined time at each stage to permit removal of the excess inert gas (helium or nitrogen) which has been dissolved in the body tissues by the high environmental pressure. Staged decompression is very time-consuming and not universally effective in preventing decompression sickness. Philip and Gowdey used heparin and depolymerized hyaluronate to reduce the incidence and severity of decompression sickness in rats who were compressed in air to 5.5 atmospheres, surfaced by stages and then taken to an equivalent altitude of 8,000 feet. The drugs were injected before compression or after decompression, but before exposure to altitude. Both drugs provided partial protection against decompression sickness. (Philp, R. B., and Gowdey, C. W.: Fed. Proc. 23: [2 part 1], 523, 1964). No reports of studies utilizing nebulization therapy during rapid decompression have been found. Method: Twenty 350 Cm., guinea pigs made a simulated dive to 250 feet (112 psig.) in a pressure chamber. After remaining at maximum pressure for 60 minutes, they were decompressed in ten minutes and observed for an additional 90 minutes. Ten served as controls; the other ten were exposed to 10 ml. of a nebulized solution which contained 1,500 units of heparin and 60 mg. of papaverine. Five ml. of the solution were nebulized in oxygen and 6 per cent CO₂ during the last half of decompression, beginning at a simulated depth of 140 feet (62.5 psig.). The remaining five ml. were nebulized in oxygen during the 90-minute observation period on the surface. Results: Five control animals died. Three had paraplegia, cyanosis, or continued convulsions throughout the observation period. A fourth had hind-leg paralysis for 40 minutes. Of the treated animals, only one died, and he exhibited distress before treatment was started. Two had transient hind-leg paralysis and seven were unaffected. Four of the six fatalities had massive aeroembolism. Comment: Results suggest that the heparin-papaverine mixture, nebulized in carbon dioxide and oxygen, can markedly reduce fatalities, severity and incidence of outward signs of decompression sickness.

The Effect of Water Particles on Airway Resistance in Normal and Bronchitic Patients. F. W. CHEENEY, Jr., M.D., and J. BUTLER, M.D., University of Washington, School of Medicine, Department of Anesthesiology, Seattle, Wash. The recently developed ultrasonic nebulizers produce a dense mist of fluid particles which permit large amounts of moisture to reach the lower airways. Because these mists often cause excessive coughing in patients, this study was designed to evaluate the effects of ultrasonically nebulized particles on airway resistance. Method: Airway resistance (Rₐ) was measured with the body plethysmographic method (DuBois, A. B., et al.: J. Clin. Invest. 35: 327, 1956). Simultaneous measurement of FRC and Rₐ allowed assessment of alterations caused by changes in lung volume. Ten normal, non-smoking subjects and ten patients with chronic bronchitis or asthma were studied. An ultrasonic nebulizer (De-Vilbiss, model 800) was used to nebulize solutions of normal saline, one-half normal saline and distilled water. As a control, the same solutions were nebulized by a heated bubble nebulizer. The ultrasonic nebulizer was set to deliver 3.5 ml./min. and the heated one to deliver approximately 1.0 ml./min. Measurements of Rₐ and FRC, an average of six, were made before and immediately following periods of 15-minute inhalations of the various solutions from each nebulizer. Result: The