

twelve-lead electrocardiograms have been processed using only one third of a small computer system's capacity. There are 8 references.

- 737 Measurement of Pilot Fatigue. F.S. Preston.
Trans. Soc. Occ. Med. 17, 52-56 (April, 1967).

The subject of fatigue in airline pilots is discussed with particular regard to the operational problems of the industry. So far no reliable means of assessing pilot fatigue in quantitative terms has been found, although much work has been carried out by researchers in many countries. There is no short-cut to safety in aviation and the assessment of pilot fatigue and the prevention of errors in flight by pilots can only be achieved by study of all the factors affecting skill and mental performance. The reduction of flying accidents due to human error in the air and on the ground can only be achieved by the utilization of knowledge from the biological and engineering sciences and further active research programs. There are 15 references.

-- Author's summary

- 738 Use of Ultrasound to Measure Left Ventricular Stroke Volume. H. Feigenbaum, A. Zaky, and W.K. Nasser. Circulation 35, 1092-1099 (June, 1967).

A technique was developed whereby left ventricular stroke volume could be measured with diagnostic ultrasound. This technique utilized an ultrasound measure of left ventricular diameter and a measure of the amount of motion exhibited by a portion of the left ventricle near the mitral ring. The formula used to calculate left ventricular stroke volume was based on the hypothesis that left ventricular wall motion was proportional to left ventricular stroke volume and inversely proportional to left ventricular volume or diameter. Ultrasound stroke volume measurements were obtained simultaneously with Fick stroke volume determinations on 16 patients with no mitral or aortic insufficiency. The correlation between the two methods of measuring stroke volume was excellent ($r=0.973$, $p<0.001$). When the regression equation was used to predict stroke volume from the ultrasound measurements, the results were within 11 ml. or $\pm 15\%$ of the Fick stroke volume. -- J. Am. Med. Assn. References & Reviews

- 739 Inner Ear Pathology of Sudden Deafness. D.D. Beal, W.G. Hemenway, and J.R. Lindsay. Arch. Otolaryngol. 85, 591-598 (June, 1967).

Two cases are presented of rapidly developing unilateral deafness in adults. One was associated with an upper respiratory infection probably viral in nature. The histopathology characteristically corresponded in type with previously documented cases of maternal rubella, mumps, and measles although differing in degree. As in the previously reported cases, the portal of entry to the inner ear has most probably been the tria vascularia during viremia.

-- J. Am. Med. Assn. References & Reviews

- 740 Eye Burns Caused by Tear Gas. D. H. Hoffmann. Brit. J. Ophthalmol. 51, 265-268 (April, 1967).

A short description is given of the experience gained in treating almost 50 cases of ocular injuries caused by tear gas weapons. The clinical course of the burns is characteristic. Treatment remains symptomatic until more is known about the chemical changes occurring in the tissues, caused by infiltrated substances. The visual acuity achieved after treatment may vary from almost perfect vision to perception of light, depending on the distance of the shot and the amount of infiltrated substance.

-- J. Am. Med. Assn. References & Reviews

- 741 The Mechanisms of Some Structural Alterations of the Lung Caused by Environmental Health. Paul Gross, M.D. Arch. Environmental Health 14, 883-891 (June, 1967). (Reprints available from IHF).

The basic structure of the lung, the alveolar wall, is composed of two embryologically different tissues, the capillary network, which is derived from the mesoderm; and the alveolar membrane, an entodermal derivative. Each of these components reacts in a specific manner to inhaled environmental irritants. In general, the alveolar capillary responds to an irritant that is sufficiently aggressive to penetrate the protective alveolar membrane. This response consists of pulmonary edema or of acute pneumonia or both. The alveolar membrane responds also to irritants that are less aggressive. Structural alterations produced by irritation of the alveolar membrane consist of thickening of alveolar walls by proliferation of alveolar cells and the elaboration of a precollagenous argyrophilic supporting stroma. This proliferated tissue is avascular and may extend into air spaces to a degree that may result in their occlusion.