

lets are as effective as compatible ones, although the administration of incompatible plasma along with the platelets may lead to "minor" transfusion reactions (Clifford). The use of platelets from the newly-available CPD (citrate-phosphate-dextrose) blood is effective (Button), and the addition of extra acid to the usual ACD solution improves platelet yield (Shively). Frozen platelets are about half as effective as fresh platelets, but may be useful in an emergency (Pert).

Administrative sessions met in parallel with the scientific meeting. Problems of adequate donor supply, government control, and computer application received the most attention. The meeting was marked by a widespread feeling that the administrative and jurisdictional problems facing blood banks, particularly the shortage of adequate replacement donors, had, in 20 years, gradually overshadowed the scientific aspects of blood banking. The scientific sessions presented good, but not imaginative, work, and this reporter, at least, felt a bit disappointed.

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Effects of Diffuse Electrical Currents on Physiological Mechanisms, with Application to Electroanesthesia and Electrosleep

From October 25-28, 1967 a conference with the above title was held in Milwaukee, Wisconsin. It was sponsored by the Marquette School of Medicine, the Marquette College of Engineering, the National Science Foundation, the American Society of Anesthesiologists, the Veterans Administration Center in Milwaukee, and several pharmaceutical and industrial organizations.

The purpose of the conference was threefold: to provide a meeting ground for communication for many highly diverse bioscientists and physical scientists; to direct the investigational aims of these scientists toward exploration of the effects of all types of diffuse electrical currents on a multitude of physiological mechanisms; and, finally, to de-

fine, if possible, the applications of diffuse electrical currents in the production of electroanesthesia and electrosleep. The conference included a wide range of interests applicable to neurophysiology, neurosecretion, cerebral and peripheral circulation, behavioral alteration, and what is generally called "electrosleep" but is better termed "electrotherapy." The conference also considered problems of mathematical models and data analysis, methodology, impedance and current-density measurements, neuroanatomy, electroshock and electroanesthesia.

Of particular interest to anesthesiologists were not only the discussions of the value of electroanesthesia, but also discussions of the methods of induction of sleep and reflex inhibition produced by electrical stimulation of the forebrain inhibitory system, as reported by Clemente, from the Brain Research Institute, University of California. It was suggested that anatomical pathways associate the basal forebrain area with the orbital frontal cortex and the reticular formation in the medulla of the midbrain. In addition, a quantitative analysis of electroencephalographic frequency spectra in various states of sleep and wakefulness was reported. This indicated that low-voltage, random, predominantly alpha and other types of electroencephalographic records thought to be homogeneous by visual inspection might, in fact, be heterogeneous in respect to the distribution of frequencies. Methods were reported which permit pattern recognition not obtainable by visual inspection alone and also provide quantitative data permitting accurate comparison of records obtained from the same individual on different occasions.

An interesting finding regarding the effects of electroanesthesia on gastric secretion in cats was reported also. Secretion was arrested during the application of electroanesthesia. In contrast, salivary secretion was increased markedly during the application of current.

An elegant method of observing the microcirculation in a transparent rabbit ear chamber showed that under electroanesthesia blood flow usually, although not invariably, was suppressed, thus emphasizing that activity of the microcirculation during electroanesthesia dif-

fers from that observed in awake animals, on the one hand, and from that observed in animals under chemical anesthesia on the other hand. A reversal of blood flow in pial vessels was observed in cats after application of electroanesthesia also. Another report claimed that stimulation of certain brain areas with external or implanted electrodes can be used for the treatment of intractable pain. Depression of mood also could be influenced by the choice of polarity of the bipolar electrodes used in such techniques, although marked individual differences in sensitivity and intensity of reaction were observed. While these behavioral alterations have been substantiated by psychiatrists and psychologists, the consensus was that lack of predictability and individual variation hinder broad clinical application of these techniques as therapeutic tools.

Observations were reported on the use of electroanesthesia and electrosleep in the Soviet Union, including a case in which a middle-aged woman with myasthenia gravis had a thymectomy under electroanesthesia of the interfering-frequency type following induction with thiopental and *d*-tubocurarine. Significant criticism and doubts were expressed concerning the effects of this type of electroanesthesia. It was also reported that in the Soviet Union so-called electrotherapeutic sleep has been in use for about 20 years in the treatment of a wide variety of disorders, primarily psychosomatic in nature, including insomnia, anxiety syndromes, and even specific diseases of the central nervous system. The technique consists of the use of minute currents which are sent through the brain from electrodes placed on the eyes and upon the nape of the neck. The treatments last from 30 to 90 minutes and may be repeated as many as 25 times. There are reportedly 300 electrosleep stations within the Soviet Union, and the popularity of this method of treatment is said to be increasing constantly. The current employed does not, however, always produce sleep at the time of treatment. In fact, only about one-third of the subjects fall asleep during therapy whether the current is turned on or not, and therapeutic effect cannot be related to induction of sleep. The term "electrosleep" is, therefore, a misnomer. The inves-

tigators using these techniques are convinced, nevertheless, that electrotherapeutic sleep is an effective method of treatment of hypertension, peptic ulcers, and other psychosomatic disorders. Soviet investigators believe they have excluded the possibility that the benefits of electrotherapy are produced by suggestion alone. It is suggested that further clinical observations must be made to substantiate the claims of the Soviet scientists.

The diversity of specialties represented by the 205 participants attending the meeting (including 26 biophysical scientists, 15 anesthesiologists, 9 psychiatrists and psychologists, 11 physiologists, 7 neurologists, etc.) demonstrates the need for such a meeting. The formation of an American Neuroelectrical Society is a logical step.

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Conference on Respiratory Therapy

The annual conference on Respiratory Therapy, sponsored by the Departments of Respiratory Therapy of the Children's Hospital Medical Center, New England Deaconess Hospital, and Lahey Clinic Foundation, was held at the Statler-Hilton Hotel, Boston, Massachusetts, November 9-11. Nineteen talks were given in three subject groups: (1) pulmonary anatomy, physiology, pathology, and bacteriology as related to respiratory therapy; (2) the management of patients in respiratory failure from pulmonary and neurologic disease; (3) the training of personnel in, and practical application of, physical therapy of the chest and respiratory (inhalation) therapy.

M. J. Nicholson (Lahey Clinic Foundation) emphasized in his opening remarks the desirability of cross fertilization of ideas from the various medical specialties and basic science fields in order to increase our understanding of respiratory physiology and to improve the quality of respiratory therapy. This objective was well realized in three exciting talks delivered by an anatomist, a pathologist, and an anesthesiologist—V. E. Krahl (University of Maryland), C. Nash (Harvard Medical School), and H. Pontoppidan (Harvard Medical School), respectively. Dr. Krahl, in an