

stantially different drugs, which produce different physiological phenomena, and are or should be employed for different therapeutical ends. This is not the time, nor does it fall within the scope of this paper, to describe these differences in detail. It is sufficient for my purpose to indicate their existence as illustrations of the single and the continued dose.

The bromide of potassium affords another and most pertinent illustration of the physiological and therapeutical action which the single and the continued dose of an article may produce. Dr. Clark pointed out these differences in a comparatively recent monograph on the physiological and therapeutical action of the bromide of potassium.<sup>(1)</sup> Illustrations of single and continued doses, and of the therapeutical importance of recognizing them as factors in the treatment of disease, might be multiplied indefinitely; but enough has been said to call attention to them and to emphasize their importance. It was impossible to recognize and use them as separate therapeutical factors till physiological observation and experiment had discovered the time and the method of the absorption and elimination of drugs, and the ratio of the former to the latter; nor can the practitioner apply them clinically till he knows, at least with approximate accuracy, the way every article he uses gets into and out of the system, the length of time it remains in the system, and its behavior while there.

The administration of medicines to the sick, without regard to the different and often opposite results, physiological or therapeutical, that follow the single and the continued dose, is both unsatisfactory and unscientific. It is unsatisfactory, because it fails to secure the legitimate action of medicinal agents. It is unscientific, because it ignores some of the most important physiological conditions upon which scientific therapeutics rest. The time has come for the clinician to recognize and use these and other phenomena of the *modus operandi* of drugs which the physiologist has discovered and whose accuracy he has demonstrated.

Secondly, the *frequent dose* is the giving of a medicine so as to impart to the organism some one or more of its actions, whether primary or secondary, with great rapidity. It is hitting blow after blow in quick succession, upon some organ which it is desirable to affect, in accordance with evident indications with rapidity and power. It is usually, perhaps always, some action of a drug, manifested soon after its absorption, which it is desirable to obtain, and which can be obtained by the frequent dose. Obviously the administration of the frequent dose is limited by the physiological behaviour of the system under its influence. After a certain period the frequent dose is equivalent to a full single dose or to a toxic one.

The action of opium almost immediately after absorption illustrates the frequent dose. One of the earliest physiological actions of opium after its ingestion,

rarely after subcutaneous injection, is stimulation of the nervous system, and of the circulation. This is fully recognized by obstetricians, who advise its exhibition as one means of controlling post-partum hemorrhage. Stimulation is a primary effect of opium that soon passes over, the length of time varying with the quantity given and with idiosyncrasies of patients, into an opposite condition. The administration of an appropriate quantity of opium every five, ten, or fifteen minutes, that is, the frequent dose of it, will prolong and enhance its primary stimulant action. How desirable it sometimes is to prolong the primary stimulating action of this invaluable agent, Dr. Clarke need not remind those who hear him.

The physiological action of aconite upon the human economy illustrates the same principal. Fleming's admirable observations upon aconite have taught us the powerful sedative influence that five drops of the tincture of the root exert upon the system. If instead of five drops in a single dose, half a drop is given every half-hour ten times, or one drop every hour five times, a different physiological and consequently a different therapeutical result is attained from that of the single dose of five drops. In this case a less depressing sedative action is obtained by the frequent than by the single dose.

The object of this paper will be attained if it succeeds in bringing clearly before the profession the great therapeutical power that results from the physiological adaption of doses to the processes of absorption and elimination, and especially if it succeeds in calling attention to the power of the contained dose.

#### THE ALIMENTATION OF INFANTS.

A paper read by Dr. Dawson at one of the New York Medical Societies (*New York Med. Record*, June 5), contains some very useful remarks upon this important subject. He commenced by exhibiting the intestinal canal taken from a child seven months old, in a state of extreme softening, induced by gastro-intestinal irritation, which had been going on for four months. After alluding to the fact that a fourth of the children, born die before they attain their fifth year, he stated his conviction that *faulty alimentation is the great cause which induces the gastro-intestinal irritation which carries off the bulk of them*. The composition of the mother's milk as well as the condition of the digestive apparatus, show how well these are adapted for each other; for at first there is no secretion from the glands capable of digesting the starchy elements of food, while the size of the liver, and the size and shape of the intestinal tube, show that food is only to be retained for a short time, and, therefore, should be of quick and easy digestion;—also showing that *fluid*, not solid, animal, nor vegetable, food is that which is suitable for the infant. If these indications be neglected, food is very liable to give rise to vomiting, gastro-intestinal catarrh, and other disorders which ultimately prove fatal.

It is, perhaps, difficult to decide on the quantity of milk proper for an infant; but, at all events, the child

<sup>1</sup> The Physiological and Therapeutical Action of the Bromide of Potassium and Bromide of Ammonia. By Edward H. Clarke, M.D., and Robert Amory, M.D.