anodyne, strychnine as a nervo-muscular stimulant, digitalin as a cardiac tonic, and many more that will readily occur to every physician. Many of these facts have been discovered empirically, and every day more and more of them are being rationally and scientifically explained. The field, however, for the scientific study of drug remedies is still largely uncultivated, and gives promise of a bountiful harvest to any who will earnestly undertake to work it. In the past, and even with many physicians yet, the basis of the therapeutic art has been almost exclusively empiric, *i.e.*, guided by experience or observation, rather than by scientific knowledge. Our knowledge of chemistry, physiology, pathology, etc., and our skill in diagnosis have wonderfully increased, but the development of the science and art of therapeutics has lagged behind. The reason for this for a long time was that the physician had but few reliable, definite, uniformly acting remedial agents. The remedies of the authoritative pharmacopœias were crude, uncertain, a conglomeration of incompatibles, or absolutely inert. The galenical preparations of the present day, of the vegetable drugs especially, *i.e.*, the tinctures, infusions, fluid extracts, solid extracts, and all preparations manufactured from crude drugs, are objectionable, and their use is unscientific, because they are uncertain and variable in their composition, strength and results, and their dosage is unreliable and misleading.

They are not of uniform strength, because (1) the plants from which they are derived do not contain the active principles in uniform proportions; these vary as do the conditions of temperature, moisture, sunshine, soil, locality, season, etc., in which the plant grows or the specimens are gathered; (2) the age of the crude drug; (3) the varying methods employed for extraction; (4) the constant changes going on in the preparation after being placed on the market—change due to decomposition, evaporation of menstruum, or of volatile active principle. Specimens of belladonna vary in their alkaloidal content from 1 to 50; opium varies in its morphine content from 2 to 18 per cent. Again, most plants contain more than one active principle the physiological effects of which are frequently diametrically opposite. From opium some 26 different active principles have been isolated, no two of which produce the same effect; at one end of the series we have morphine, purely sedative, and at the other thebaine, a powerful stimulant. Digitalis contains five glucosides, one of which is possibly inert, three others have in varying degrees the well-known effects of the one most commonly used, digitalin, a tonic to the heart, a contractor of the muscular coat