

THE EFFECTS OF PHOSPHATE, CALCIUM  
AND pH IN CANE-JUICE CLARIFICATION

I. INTRODUCTION

According to DOUWES-DEKKER<sup>1</sup>, the aim of the various clarification processes is to convert a dark-green and muddy mixed juice into a brilliant, light-yellow coloured clarified juice, and in order to achieve this result, chemicals and heat are used. Their action is to precipitate those non-sugars, which if not removed from the juice, might subsequently interfere with the efficient separation of the sugar-crystals from the mother-liquor. DAVIES<sup>2</sup> defined a clarification process as one in which the expressed juice from the mills is treated with an addition of milk of lime and the application of heat in one of various combinations; the precipitate so formed is settled out, and the clear supernatant liquid removed by decantation. PRINSEN-GEERLIGS<sup>3</sup> held that the purpose of clarification is to free the juice as quickly as possible from all constituents except sucrose, without the alteration of the sucrose itself, and with the two-fold object of making the juice clear and light in colour. He believed that clarification processes are designed to effect a radical change in the physical properties of some of the juice constituents so that separation of these is facilitated. Defecation, a term synonymously used with clarification, is according to DEERR<sup>4</sup>, the process by which a clear negotiable juice is obtained by the combined action of heat, lime, settling and decantation, while SPENCER and MEADE<sup>5</sup> claim that the principal object of the clarification process is to remove from the juice the maximum quantity of impurities at the earliest possible stage, commensurate with other considerations such as clarity, and reaction of the clarified juice.