DEPOSITS IN THE CYCLOPROpane FLOWMETER

BY

F. R. RUSSELL
Hartlepools Group of Hospitals

It is generally accepted that the control of cyclopropane on an anaesthetic machine should not depend solely on the cylinder key, as this could prove potentially dangerous if the key is turned accidentally, and indeed, accidents of this nature have been reported.

Recently, the British Oxygen Company fitted a cyclopropane fine control valve on the flowmeter block of the Boyle’s machine, to eliminate this danger. However, soon after this, it was noticed that a sticky deposit was forming on the walls of the cyclopropane flowmeter tube. It was therefore necessary for the B.O.C. engineer to come at frequent intervals to clean the tube, as the bobbin would not revolve properly. Other anaesthetists had the same trouble. The B.O.C. Research Department was therefore consulted. After many experiments it was discovered that liquid cyclopropane was liable to condense in the metal connection between the cylinder and the rotameter, especially if the temperature dropped while the machine was not in use. Then, when the fine adjustment control was opened, the pressure carried this liquid cyclopropane on to the wall of the flowmeter tube. There it evaporated and left a slight deposit of grease which it had dissolved from the tubing and fittings while locked up as liquid behind the closed fine adjustment control.

The Research Department therefore suggested that the answer to the problem lay in turning off the cyclopropane at the cylinder first and then at the flowmeter. As an added precaution, they also recommended that at the start of a list the fine adjustment control should be opened and then closed again before turning on the cylinder valve.