APPARATUS FOR SEMIMICRO ORGANIC CHEMISTRY

DR. J. T. STOCK AND MR. M. A. FILL, of Norwood Technical College, Knight's Hill, London, S.E.27, are well known for their development of ingenious microchemical apparatus for use in analytical and physical chemistry. Some of this apparatus was exhibited at the International Congress on Analytical Chemistry held in Oxford in 1952. Dr. Stock and Mr. Fill, however, have not neglected the field of organic chemistry, and in the course of several years have developed a compact assembly of specially designed apparatus that covers all the general operations of preparative work and identification on a semimicro scale (cf. *J. Chem. Educ.*, 30, 296; 1953).

The value and utility of this assembly has now been increased by fitting the glass components with standard interchangeable ground-glass joints, and this 'vest-pocket laboratory' is being marketed by Quickfit and Quartz, Ltd. The assembly is mounted on a wooden stand, surfaced with 'Formica' laminated plastic sheet, and has a gross weight of only 14 lb. (30 in. long, 8 in. deep and 18 in. high). The base incorporates two drawers, inside which are test-tube racks and room for spare apparatus and thermometers. The handles are shaped to form additional test-tube racks. The sixty-one glass components are based on a shortened B10 joint and are held in place by Terry clips, which permit easy removal. All that is required for operation is a single connexion to a water supply, one or more simple micro gas-burners, and connexion to a vacuum for certain operations.

On the side of the centre board not visible in the illustration, the assembly incorporates a water-bath with 'ears' to support test-tubes and beakers for evaporation, a pipette for dispensing reagents and for assisting evaporation of solvents, a reflux apparatus with pear-shaped flask and all-glass Liebig

condenser (these items form the basis of the apparatus), a three-necked flask with dropping funnel and a reflux condenser for carrying out reactions, a melting-point apparatus, a continuous percolator for the extraction of solids, and a unit for distillation at ordinary pressure with a fraction collector. On the other side of the centre board are a steam-distillation unit with an anti-suck-back device, a fractional distillation unit with a simple air-jacketed column and fraction collector, and a vacuum distillation unit with a 'pig' fraction collector. On the left-hand end of the assembly are two Willstätter and one Schwinger filters, a drying tube to fit the filters, an ice bath with 'ears' to support test-tubes, and a separating funnel.

The unit and its components bear the stamp of having been designed and made by chemists familiar with the operations to be carried out in the apparatus. The design has not suffered in the change from corks to ground-glass joints. Very often so-called micro and semimicro apparatus with ground-glass joints is practically useless through impractical design and an unsuitable size of joint.

This assembly clearly has many possible uses. It appears particularly suitable for introducing a student, in the course of his undergraduate training, to the techniques of semimicro-scale preparative organic chemistry. In this connexion Dr. Stock and Mr. Fill have devised and used a course of experiments covering all the ordinary operations of preparative organic chemistry. This assembly, too, should be useful in research work; here the components could be used separately or easily varied by the research chemist himself for particular purposes. The assembly has many uses other than for teaching; for example, in static or mobile laboratories needing to perform organic analytical operations and, in the event of war, for the investigation (at regional level) of chemical warfare agents. S. H. HARPER

COLOMBO PLAN FOR SOUTH AND SOUTH-EAST ASIA
INTERIM REPORT

ONE-THIRD of the six-year period 1951-57 laid down for the original Colombo Plan programmes has now elapsed, and the recently published second annual report of the Consultative Committee on Economic Development in South and South-East Asia (New Delhi, October 1953. Cmd. 9016. London: H.M.S.O.; December 1953; 3s. 6d. net) attempts to take stock of the situation and the progress achieved. It was realized that the full achievement of the original objectives, which are still regarded as conceived on the right lines, would do little more than hold the existing position, because of the high rate of increase in population and the inadequacy of savings and capital investment. The population of the area, already between six and seven hundred millions, is growing at the rate of about eight millions a year; thus even to maintain present standards a continued increase in output is required, and the urgent need is to produce more food, both by opening up new