colleague." Even if this is vague, I am sure that ten or fifteen years ago the subject would never have got off the ground in the W.M.A. Moreover, the association's council has also just decided to study the question of artificial insemination, evidently with donor insemination in mind, and the committee on ethics has sterilization on its programme.

Has the G.P. a Future?

In the medical education field, apart from the continuing preparations for the Fourth World Conference on Medical Education (Copenhagen, 1972), the W.M.A. is starting to take greater interest in education for general practice. It is stimulated to do so by the outcome of the two-day symposium at this meeting on "Has the General Practitioner a Future?" Apart from a few specialists who came determined to bury him, the participants decided quite definitely that he had, but that his field of work needed study and adjustment if he was to have a satisfying life. Speakers gradually filled in the picture of his field of work. For example, Dr. DAVID BROWN (United Kingdom) stressed the G.P.'s role in obstetrics and family planning. Dr. EDWARD J. KOWALEWSKI, an American expert, said he must not be too restricted in scope but must be trained to take care of most of the needs of the people, in both urban and rural settings. Some wanted to make him a "specialist" while others resisted this title. There was real concern at the unjustified pessimism of some people concerning his future. Dr. RONALD GIBSON was not alone in speaking with pride of the satisfaction and sense of fulfillment to be found in a well-organized practice, and delegates

from several countries spoke of a swing away from hospital and specialist medicine.

Education for General Practice

Dr. GIBSON was in the chair for a session on education for general practice, and noted the absurdity of a situation in which it is assumed that the general practitioner is the one man in medicine who needs no specific training, though he makes 90% of the contacts with patients. The problems associated with teaching general practice include finding suitable teachers, giving them the time to teach, and helping them to fashion a curriculum. He also pointed out that teaching general practice is a two-way situation. The teacher may find that his charge is unsuited to be a family doctor, and he may also learn from his student that he is running his practice inefficiently.

Another session illustrated by examples the rich vein of material for research that has only just begun to be tapped in general practice. But, as Professor C. F. BORCHGREVINK, professor of general medicine in the University of Oslo, said, the G.P. needs to be taught how to do research.

Next Assembly

The next Assembly should have a lively two days when the delegates and others discuss the use and abuse of drugs. It will be presided over by Dr. A. PEART, until recently the Secretary of the Canadian Medical Association, and will take place in Ottawa in September, 1971.

NEW APPLIANCES

Cleaning of Haemodialysis Tubing

Dr. S. M. ROSEN, physician-in-charge, Department of Renal Medicine, St. James's Hospital, Leeds 9, writes: During haemodialysis large quantities of fluid pass through the pipes of a monitoring system and heating chamber. The fluid consists of a concentrated solution of electrolytes diluted with 34 parts of tap-water. The latter is prefiltered through a phosphor-bronze filter with pores 10-25 microns in diameter. A considerable amount of impurities, however, including bacteria, enter the system. This results in the deposition of bacterial and other debris during dialysis, so that eventually the walls of the system are encrusted with an increasing thickness of deposit, which is slimy in consistency and contains masses of *Bacillus cereus*. After each dialysis the system is cleansed by flushing with tap-water and then sterilized with either 2% formaldehyde or tap-water at a temperature of 80-85°C. In spite of this cleansing and sterilizing procedure the equipment eventually requires dismantling to clear the component parts free from the deposit. The interval between this overhaul varies according to the source of tap-water and type of machine, but in our dialysis unit the Lucas machine required overhauling every month and the Dylade every three months.

An investigation was begun into means of

preventing slime building up on these surfaces and of removing existing layers from the dialysis machines to avoid interference with valve mechanisms; also to remove bacterial debris.

A quaternary ammonium compound was chosen from several products tested. The main agent of the formulation chosen is alkyl dimethyl ammonium chloride, which has been tested on sections of vinyl tubing (Portex) taken from monitoring and Lucas haemodialysis machines and on the stainless-steel internal piping and tanks of Dylade haemodialysis machines. After use the cleanser is inactivated by a solution containing lauryl sulphate. Existing slime is completely removed from all but the most heavily contaminated surfaces, where it appears to have penetrated the materials.

The quaternary ammonium compound and inactivator solutions are obtainable as concentrates from Tyrabac Ltd., Market Weighton, near York. Both solutions are used in a final dilution of 1 in 35.

PROCEDURE

For equipment where no further dilution occurs within the machine and filling is by gravity—for example, monitoring units—the machine is filled with a 1 in 35 quaternary

ammonium compound solution and allowed to stand for two hours, rinsed through with water for 30 minutes, filled with 1 in 35 inactivator for a further two hours, and finally rinsed for 30 minutes in water.

Where the apparatus produces a dilution and filling is by pump action from a reservoir—for example, Lucas and Dylade systems—the concentrated quaternary ammonium compound solution is drawn direct into the machine, being diluted there to 1 in 35 with water. The concentrate is allowed to flow through the machine to waste for one hour. A total volume of 860 ml. of concentrated inactivator is then used in the same way as the quaternary ammonium compound for one hour, a final wash with water is given for 30 minutes, when the machine is ready for use. For gravity-filled equipment the cleansing procedure should be used weekly. Where pump-through is possible the method described should be used monthly.

Since the introduction of these procedures into the haemodialysis unit of St. James's Hospital, *B. cereus* is no longer recovered from dialysis effluent samples. Monitoring machines have been discontinued. Deposition of debris in the machines (Lucas and Dylade) supplied for domestic usage has, however, now been prevented by monthly use of the above cleansing technique.