Donors help expectant mothers

Tens of thousands of Canadian mothers owe their healthy childbirths to 40 women from Winnipeg.

The women sit for 90 minutes almost every week while nearly a quart of blood is drained from their bodies, whirled in a centrifuge to remove a baby-saving substance then pumped back in.

Their motive: they want to save other mothers from what they experienced – producing babies who have been rejected by the mother's system because their blood types are incompatible.

RH negative cells

The 40 women have RH negative red blood cells – which about 15 per cent of women have. But, more importantly because they suffered the experience of giving birth to RH positive babies, their blood is awash with antibodies that other RH negative pregnant women need – to inhibit the production of their own antibodies that would kill their RH positive babies.

Each year in Canada, some 50,000 pregnant women – or women who have just given birth – receive a dose of antibodies and almost all of it comes from the Winnipeg group.

On each visit to the Red Cross, each woman supplies enough antibodies to provide 270 doses to pregnant women. Each RH negative expectant mother needs two immunizations, during her twenty-eighth week of pregnancy and immediately after giving birth.

Even pregnant women who are beyond help from the serum because their bodies have already begun producing the antibodies come to Winnipeg for blood transfusions for the fetuses because of the high 70 per cent success rate there. Expectant mothers from the United States, Brazil and Mexico have been among recent patients.

The non-profit RH institute on the University of Manitoba campus recently became the first North American laboratory to be licensed to extract protein from blood by an ion-exchange procedure that is 50 per cent more efficient than the common alcohol precipitation technique.

Pint of blood

The procedure takes 90 minutes. A large needle is inserted into an artery in the crook of the arm and nearly a pint of blood is drained out.

The plastic bag of blood is placed in a refrigerated centrifuge to separate the plasma and antibodies from the red cells.

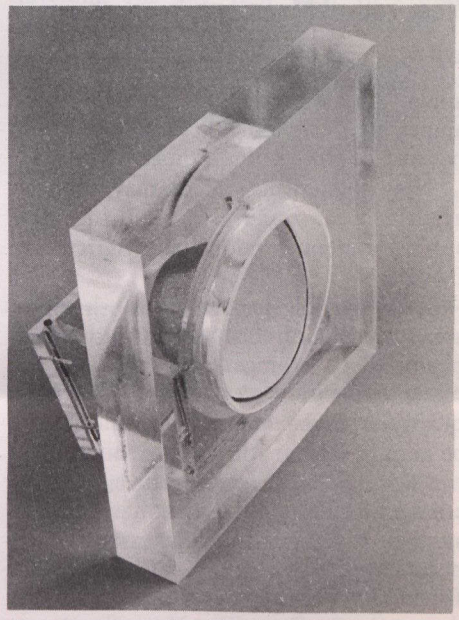
The red cells are pumped back into the donor's veins, then another pint is removed and the same procedure followed.

To keep the antibody level high among these Winnipeg women, they get booster shots of positive cells about every four months.

Mask screens out airborne toxicants

In the event of a nuclear war or accident, people could protect themselves by using a completely new air filtration system, perfected by a team of researchers at the University of Sherbrooke in Quebec.

The team is made up of Wolf Seufert and France Bessette, professors in the biophysics department of the faculty of medicine; Gérard Lachiver, teacher at the Sherbrooke CEGEP and Henri Merdy, professor at the University of Provence in Marseilles.



A new system for filtering air.

The filter has been made in the form of an individual protective mask for screening out highly toxic particulate pollutants; but in the future it may have industrial or commercial applications.

As its name suggests, the filter contains a liquid barrier, in this case a member of the non-toxic perfluorocarban family, one of whose main features is the ability to dissolve gases.

When a polluted gas enters the filter, for example air and charged particles, the gas dissolves so readily in the perfluorocarbon that one can in fact breathe through a layer of this liquid. While the gas comes through, the polluting particles remain trapped.

The liquid barrier filter would be essential in the event of a nuclear war or accident, but also in any kind of situation where a highly toxic material is released into the atmosphere.

The liquid barrier filter would be relatively inexplosive and is designed to last for 30 minutes, but by adding more liquid it could be effective for two or three hours.

Newfoundland hydro development recommended

A study by the Lower Churchill Development Corporation Limited (LCDC) has recommended to the Canadian and Newfoundland governments that the Lower Churchill River be harnessed to produce hydro-electric power.

The corporation, owned by both the federal and Newfoundland governments, has also recommended construction of the necessary transmission facilities to interconnect the Labrador and Island of Newfoundland power networks with a submarine cable crossing of the Strait of Belle Isle.

The LDCD concludes that development of the hydro-electric sites at Gull Island and Muskrat Falls and the construction of a transmission line from Labrador by submarine cable to the Island, are all technically feasible. The developments would involve minimal environmental impact and would meet electric utility reliability standards.

The two hydro-electric sites at Gull Island and Muskrat Falls can together produce the energy equivalent of 27 million barrels of oil annually and in LCDC's view should be exploited at the earliest possible opportunity.

The project recommended initial construction at Muskrat Falls where the installation of 618 megawatts of capacity is estimated to cost $3.2 billion including transmission facilities. It can be constructed over a period of five and one-half years. The Gull Island project, with its capability of 1,698 megawatts, is estimated to cost $4.3 billion including transmission and it would take six and one-half years to complete.