phrase, it is "rather safe," even for children.

It weighs a pound, is twice the size of a Walkman radio and can be carried on the belt. It works well for most but not all—patients with kidney failure, for example, do not respond well.

Dr. Albisser says his model could be reduced to the size of a hockey puck and implanted in the patient's body. Experimenters at Yale and the University of New Mexico have developed one the size of a deck of cards, which holds a week's supply of insulin. They are also working on an implanted system of sensors which would monitor blood sugar levels and activate the pump to produce perfect levels at all times.

There are some technical problems in implanting—for example, the reservoir must be absolutely leak-proof—but the main one is the lack of a pure and flexible form of insulin. The type now generally available is taken from the pancreases of animals, and it has a number of shortcomings. For example, it does not adapt to the body temperature and "yolks up," or thickens so it cannot flow easily.

Dr. Albisser is pressing the commercial laboratories to develop an insulin that would work effectively under all circumstances, and there have been significant advances. Eli Lilly International Corporation recently began marketing an insulin produced by inserting human DNA blueprints of insulin into bacteria and reprogramming them.

Charles Best and Frederick Banting.

Dr. Anthony Sun of the Connaught Research Institute, seen here with technician Helen Van Rooy, is a leading researcher in the development of an artificial pancreas.