Twenty-five times a minute, the shuttle is thrown across the warp with a clatter. Gradually, the spool empties. While the weaver keeps a firm grip on the slack he picks up the shuttle and with lightning speed attaches another bobbin to it. A short pause and the noise starts again...

Each house on this street has six or seven different looms inside: plain looms for plain fabrics; multiple filament looms for fabrics with designs or texture; and for more elaborate or large-scale designs, Jacquard looms that still use old perforated cards to create a pattern. At regular intervals, the card darts into the Jacquard loom, picks up some filaments, moves others, and produces a design.

The results of this noise — magnificent cotton fabrics that account for 60 percent of Pakistan's export revenues, over US $4 billion annually. Most are produced by tiny cottage industries found in the small inner courtyards of houses such as the ones in Multan. The weavers still use ancient looms reminiscent of the early 20th century with heavy steel mountings, springs and gear wheels.

But customers are increasingly demanding. Although plain cloth, ready to be printed or dyed, has kept its share of the market, more and more buyers are look-
ing for textured fabrics with unobtrusive designs that are only apparent through touch. These textiles cannot be produced without a dobby mechanism which, fastened to the loom and pulled by the machine, selects warp threads to form a pattern. Dobbies are expensive in developing countries since they must be imported from abroad, mainly West Germany, Japan and Switzerland, and paid for with hard currencies. They can cost twice or even three times as much as a used loom, or over CA$10 000 per unit.

This is where Wasey Omar steps in. From the beginning of his career in the textile industry, this Pakistani engineer has been impressed by looms. Even before completing his Master's degree, he had decided to revolutionize textile manufacturing by designing simpler equipment. In 18 years of research, he has accumulated several patents for dobbies.

Wasey Omar didn't even try to improve the existing equipment. He went back to the source and asked what had to be done to control as many as twelve warp threads without resorting to the clumsy mechanism that had been used by the industry for over 125 years.

And then he developed a dobby that requires only two moving parts for each filament rather than ten. This new invention can control up to fifteen warps while occupying only one-fifth of the volume of its predecessors. The inertial mass is reduced by thirty percent, energy consumption drops precipitously, and the risks of breaking are considerably reduced.

Obviously, the manufacturing costs of equipment as simple as this are quite competitive. Estimates drawn up during prototype construction indicate that the dobby could be manufactured in series production for one-tenth of the price charged by existing competitors.

Approximately one-third of the looms in use in the Third World are dobby-equipped. It is believed that the number of these looms, estimated at 2 700 000, will remain stable until the year 2000.

The market is vast. There are an estimated 1 780 000 looms without dobbies that could have them installed. Moreover, 50 percent of the dobbies now on the market will have to be replaced over the next 10 years, which brings the potential market for Mr Omar's invention to 2 400 000.

Most looms in use in the Third World are relatively old and operate at a rate of approximately 80 to 100 shuttle passes per minute. Two-thirds of these looms have only two warps. Without a dobby, they can only produce plain cloth.

The selection mechanism developed by Wasey Omar uses 14 fewer warps. The prototype can maintain a rate of 140 shuttle passes per minute. With certain modifications, the researchers believe the same machine could maintain a rate of 600 passes a minute. At the present rate of 140, the looms can produce 6 or 7 metres of fabric per hour.

The potential market for this new invention is well over 2 million buyers. Opposite, a weaver operates a loom with a conventional dobby. In the box, trying out the new Pakistani-Canadian model. Extreme right, an apprentice learns how to make a bolt.
real textile industry revolution in the Third World. Manufacturers in developing countries will have access to an immense market and to high technology designed with their resources and limitations in mind. Small-scale weavers who have only a few looms will be able to use a new technology which is within their financial grasp. Their production will benefit because dobby-produced fabrics sell for 30 percent more than simple cloth.

Mechanical industries in Pakistan will also benefit from the government’s intention to offer 250 million rupees in low-interest loans to small-scale weavers so that they can modernize their equipment. The government has also expressed its intention to reserve part of its export volumes for small weaving businesses. As things stand now, although small-scale weaving provides a good portion of production, middlemen siphon off most of the profits.

Behind his glasses, Wasey Omar’s eyes light up when he thinks of the future: “This is my life. Seventy-five percent of the world market is opening up for us. If Canadian or other manufacturers come in with us, we can dethrone the Keighley Dobby, which was developed in 1867.”

Negotiations are underway for construction of the first prototype that will help define manufacturing procedures for small weaving shops. Mohammad Masud of the Supreme Engineering Works, a small business in Multan that produces spare parts for the textile industry, has already expressed interest in manufacturing the prototype and possibly acquiring manufacturing rights for Pakistan. “We know there is a demand for inexpensive equipment. We’re interested,” says Mr Masud, the proprietor of a small shop with ten employees.

When the first factory trials have been completed, buyers of the manufacturing rights will be offered a blueprint on how to produce the dobby. And another manual, this one for equipment users, on how to install and maintain the dobby is also being considered. It would enable small-scale weavers to get the best possible yield from an invention that was designed with them in mind.

**VALLEY OF THE BLIND**

With more than 7000 cases of blindness, the Luapula Valley is a public health hotspot for Zambia. A team of researchers has confirmed that vitamin A deficiency is a major culprit. In general, they say, most cases of blindness are preventable.

**About 30 million people in the world today are blind, according to estimates by the World Health Organization. Ninety-three percent of them live in developing countries, with Africa accounting for about 20 percent of the world total.**

The general term “blindness” is defined by WHO as the inability to count fingers from a distance of 3 metres.

The significance of the statistics is that the incidence of blindness in developing countries is nearly 20 times higher than in the industrialized countries. This calls for pragmatic measures to curb this scourge and to improve the living conditions of the blind.

Zambia has a population of about 7 million. A total of 12,750 people — or about one in 550 — are listed as completely blind.

“This is probably less than the actual number of the blind,” says Dr Everest Njelesani, the director of medical services at the Ministry of Health. “The number of those with various degrees of sight impairment must be much higher.”

Following an extensive survey investigating the causes of blindness in an area known as the Luapula Valley, steps are now being taken to redress the situation.

To help Zambia better understand and deal with blindness, IDRC provided financial support for the Luapula Valley Eye Disease Survey in 1985. The researchers are attempting to identify the magnitude and causes of eye disease and blindness in the Valley so that interventions can be planned.

The area, located in the northwest of Luapula Province in northern Zambia, is not called the “Valley of the Blind” for nothing. With a total of 7,265 cases (1985 figure), it has the highest rate of blindness in the country.

Medical experts admit that blindness has been an important public health problem in the area for well over 50 years. Few researchers, however, have been able to provide concrete evidence as to the actual causes of blindness in the Luapula.