The countries of the Socialist Bloc (E. Germany, Poland, Czechoslovakia, and Hungary) exhibited a great number of the latest machines at Intergormash-67.

Among the earth moving machines was the UB-162-1 universal, full-turning tracked excavator of the continuous type, produced at the Zemag plant in E. Germany. It is intended for working light, medium, and heavy ground and has a single-beam, circular-section boom with a rock type thrust system. If so desired, the machine can be delivered with a subordinate or independent thrust mechanism. The bearing and swivel is composed of double-row ball bearings. The drive is provided by a 12-cylinder, 4-stroke air-cooled diesel motor (204 hp for 1500 rpm). Transmission is pneumatically controlled. There are facilities for an electric motor for drive purposes. Operating equipment comprises the following range: forward-operating shovel and bucket capacity of 2 m³ for heavy ground, 2.5 m³ for average ground, and 3 m³ for light ground; a backhoe with capacity 1.9 m³ (Fig. 1) for medium or heavy ground and 2.4 m³ for light ground; a drag line with 1.4, 1.8, and 2.3 m³ buckets and with boom lengths of 21, 18, and 15 m, respectively; a grab with 1.0, 1.25, 1.55, and 2 m³ buckets and booms of 21, 18, 15, and 12 m, respectively; and a crane with maximum load 30 t, which has a boom of 12 m and a span of 4 m. Maximum excavation height provided by the excavator with a forward-operating shovel is 9.77 m, and the digging depth for a backhoe shovel is 8 m. The excavator with a forward-operating shovel weighs 62 tons.

The Zemag factory has used the UB-161-1 excavator as a basis for a whole range of UB-266 diesel excavators for work in severe climates. The machine has undergone successful trials in the Northern USSR. It is fitted out with the same range of exchangeable equipment as the UB-162-1.

Drilling equipment exhibited included pneumatic picks from Czechoslovakia (Table 1) and electric core drills from Poland (Table 2). The picks work on air legs and are driven by compressed air (5-7 kg/cm²). Air flow is 230-240 m³/h. Drills are flushed out by air or water. The Czechoslovakian stand also exhibited the VK-15 handheld jack hammer; it weighs 14 kg and is intended for drilling shotholes of diam. 34 mm to a depth of 1.5 m.

The MDR-06E and MDR-03E drills are chiefly for underground use. Drill feed is effected hydraulically at a fluid pressure up to 30 atm. The drills are flushed out by water at 18 atm with total dust suppression facilities. The machines can drill shotholes or boreholes at any angle to the horizontal and at any point of the accessible face of the working.

The Polish section also demonstrated the Udareks towed, rotary percussion machine with a down-the-hole striker, mounted on pneumatic wheels, and the VV-2M rotary percussion self-propelled rail-mounted machine (Fig. 2). The Udareks can drill holes 80 and 100 mm in diameter to a depth of 50 m both horizontally at a height of 0.35-2 m and inclined up to 130°, beginning at 40° from the surface. The VV-2M drill can drill 42 mm diam. shot-holes to a depth of 2.4 m (without change-over rods) and comprises two hydraulic manipulators. The drill is air powered. The machine can operate over a 4.5 × 6 m area of the face from one position. Two operators are required.

East Germany exhibited machines for drilling holes with final diameters of 2000 mm and depth up to 250 m, working on the grab and rotary-suction drilling principles. Grab drilling is effected as follows. A grab with three to

*Further information on this exhibition – see also No. 1, 1968. – Editor.
four drills is suspended on a rope so as to penetrate and break up the ground. A winch is then activated and the grab grips the loosened soil and raises it to the surface. The grabbing tool can work in dry and waterlogged areas. These machines are mostly used to drill holes in friable and semihard rock where the walls of the holes are lined by steel tubes connected up by welding or threads. The Brucken and Stahlhochbau factory (E. Germany) has produced a range of this type of drill to deal with holes of diam. 620-1020 mm to depths of 100 m. In rotary-suction drilling, or drilling with return circulation, during flushing the water strikes the face between the outside wall of the drilling pipes and the surface of the hole itself. Drillings are drawn out through the drilling pipes in the form of slurry to a settling tank where the slurry is cleaned and then returned to the hole. The ground is drilled by conventional roller bits or special combined bits, designed to build up different dimensional types from individual elements to match the calculated diameter of the hole. As a rule, this rotary-suction method can deal with holes of diameter 260-2000 mm to a depth of 250 mm without supporting the walls by casings or using clay mud in the drilling.

This factory also produces the K2/S100, K5/S150, and K6/S250 types of standard wheel equipment. These machines can deal with hole diameters of 260-750, 480-1100, and 750-2000 mm, respectively. The K6/S250 machine is hydraulically controlled and can move on a tired chassis at 20 km/h. The overall transport dimensions of the unit are: length 13.3 m, width 2.75 m, height 3.59 m, and weight 15 tons. The motor rating is 50 kW. One operator is required.

East Germany also manufactures two types of percussion machine and one rotary model which can drill holes 100-750 mm in diameter to a depth of 600 m. The K8/RT100 dry drill of the combined type can drill holes 168-377 mm in diameter to a depth of 100 m.

Poland exhibited the OP-1200 tracked drill from the Glinik factory. It is designed for drilling 143-308 mm prospect holes to a depth of 1200 m and operates on a rotary suction principle. The weight is 47 tons; the two diesel motors are both rated at 175 hp.

Poland and Czechoslovakia exhibited track-mounted continuous loaders of new design, which can be used both with batch-type or continuous transport facilities. Polish bucket loaders of the Goliat range either discharge from the rear or in the same way as the LBV-2P (Fig. 3), which is a side-tipping machine fitted with 0.34 and 0.3