**Завдання дистанційної роботи**

 **для студентів груп ГП 16 1/9, ГП 16/9**

**LESSON 5 Draglines**

**Vocabulary:**

Loading – погрузка.

Necessitate – вимагати

Pull оn – загрібати.

Scraper – скребковий.

Jib – бар врубової машини.

Tub – бадья, шахтна вагонетка.

Self –hauling – самохідний.

Crawler – гусеничний хід.

Applicable – придатний.

Steep inclination – крутий вугол падіння (пластов).

**Read the text using vocabulary below.**

 Draglines are rope-operated excavators. Unlike power shovels their bucket is flexibly connected to the jib by the hoisting and drag ropes.

 The dragline bucket, open on the upper side is hung from the hoisting rope by the lifting chains and their separating bar.

 The dragline stands on the top of the bench which it is digging. To fill the bucket in light or medium soils, it must be pulled for 3-4 times its length.

 The bucket is dumped by merely releasing the drag rope; as it slackens, the forward heavy part of the bucket drops and it empties.

 After the bucket has dumped its load the excavator slews to the face and the cycle is repeated.

Draglines travel on caterpillar tracks or by walking mechanism. The usual inclination of a dragline jib is 20-35degrees to the horizontal.

 The ЭШ excavators are fully slewing draglines and have a stationary base or tub with bearing ring and a slewing (rotating) platform which carries all the equipment.

1. **Read and learn new words and word combinations:**

Raise – постаючий гірничий добуток.

Winze – cпуск.

Feasible – можливий.

Pitch – падіння.

Chute – жолоб, вуглеcпускний видобуток.

Flatter slopes – пологіші нахили.

Muck – порода.

Timber – закріплювати.

Hitches for stulls – лунки для распорних кріплень.

Solely – виключно.

Jackhammer – бурильний молоток.

1. **Make several sentences using new words.**
2. **Read and write down the main information from the text.**

 ***Loading***

The very high speed of development required in mining practice necessitates rapid drifting methods, and mechanical loaders of various designs are in extensive use. Fig. 18 shows an improved loader

The gathering head of the loader has arms which pull the stone or coal on to ramps and push it to a scraper chain conveyor which conveys it to and delivers it at the end of the jib. This jib can be swivelled horizontally and raised or lowered to suit the tub, car or conveyor to which it is delivering. The whole



*Crawlers*

*Conveyor* Fig. 18

*Ramp*

 machine is self-hauling (automobile) on power-driven tractor crawlers with mechanical steering. Such loaders are expensive and require much skill in handling.

 Operators need relatively long periods of training, but the machine is capable of the highest speed of advance. It is not ap­plicable in steep inclinations and the overall cost of drivage is relatively high.

**LESSON 6**

 **ROOM DRIVAGE BY MACHINES**

The most modern loaders will only operate with prepared coal and therefore necessitate cutting, drilling and blasting prior to filling. In order to avoid the preparation process, mining engineers have evolved machines which simultaneously get and load the coal.

***The Colmol Mining Machine*** (Fig. 1)

The coal is hewed from the solid by ten rotating chipping heads in two rows of five, each with the lower row in advance of the upper. Each head consists of a bit supplemented by widely spaced teeth and each tooth is stepped back to the outside of the head. The circular kerfs made, by the heads overlap, and as the machine moves forward, the effect is to break the coal ahead of the teeth into the free spaces, thereby minimizing the production of fines. The rotary chipping heads act as paddle conveyors to sweep the floor, and with the aid of a floor shearing blade move the coal on to a conveyor for discharge at the rear of the machine to the transport system. The two rows of chip­ping heads may be raised or lowered together or spread apart vertically to compensate for changes in seam conditions. A shearing blade on the top of the machine removes ridges left by the upper chipping heads. It is claimed that the coal is broken off at cleavage points ahead of the chip­ping heads, thus it is not milled out by actual contact of the bit with each particle, but is chipped out. Automatic water sprays are used to suppress dust, and the chipping heads are offset sufficiently to provide clearance for move­ment of the machine. A wide chain conveyor at floor level elevates the coal for conveyance to the transport system.

***1)***

*Roof Shearii Blade*

*Conveyor*

*floor*

*Heads shearing Blade*

Fig. 1. Colmol mining machine

The machine is propelled by caterpillar tractors, and hydraulic power generated on the machine drives the chipping heads, the caterpillar tracks and the conveyor. The total horse-power is 75. at 230 volts d.c. The machine drives a room 9 ft. 6 in. wide by 4 ft. high and advances at the rate of 18 to 36 in. per minute. The estimated production is 100 tons per manshift and from 500 to 1000 tons per day with teams as low as four men with continuous transport facilities.

 **Vocabulary**

Hew - підрубувати, здобувати.

Solid - маса вугля, целік.

Chipping head - підрубна голівка.

Supplement - доповнювати, постачати.

Circular kerfs – кругова зарубна щіль.

Overlap – перекривати.

Paddle conveyors – згрібаючий конвейер.

Shearing blade – згрібаючий лемех, пристрій комбайну.

Ridge – кровля вироблення.

Suppress – подавлювати.

Caterpillar – гусениця.

Manshift – людино-зміна.

***2) The Continuous Miner***

The Continuous Miner consists of a ripping bar or head, which rips the coal from the face and discharges in into an intermediate conveyor. This in turn delivers into a central hopper, from

*Conveyor*

*Central Hopper*

*Bar*

*Intermediate Conveyor* , *Hopper*

*Tractors*

*Fig. 2. The Continuous Miner*

which the coal is removed by a rear conveyor to the thansport system. As shown in Fig. 2, both conveyors and the ripping head are mounted on a main framework carried on caterpillar tractors. The ripping bar and rear conveyor each swing through an arc of 90°. The former, 30 in. wide, can be raised or lowered by a hydraulic drive and is equipped with six chains, each carrying twenty replaceable cutting bits and each driven by a separate sprocket on the main driving shaft. The power available for this is 130 h.p. and is transmitted through a multiple disc clutch to telescoping spline shafts which allow the reduction gearing and ripper bar to move forward 18 in. The ripper bar is carried on a large turntable and advances in slides incor­porated in the turntable casting. Hydraulic jacks are used to swing the turntable and to advance and elevate the ripper bar and the intermediate conveyor swings and advances with it.

The rear conveyor follows standard design, consisting of universal chain construction with cantilever flights to pick up the coal from the hopper and deliver it to the transport system. It is articulated to provide a 45° swing from centre, the swinging power together with raising and lowering operations is provided by hydraulic jacks.

The method of getting and loading is briefly as follows. With the ripping bar retracted, the machine is fed forward until the bar touches the coal face in the centre of the heading; the ripper bar is then swung to the right a distance to suit the width of the room. It is then lowered to floor level and hydraulically advanced 18 in. into the seam and upward pressure applied hydraulically, forcing the bar into the upper part of the seam, after which it is lowered and retracted. The operation is repeated at the centre and again to the left with an advance of 18 in. in each case.

It is claimed that the proportion of fines below 1/4 in. is less with this process than when the conventional methods of coal preparation are used, i.e. undercutting and blasting. Dust from the getting operation is suppressed by nineteen spray nozzles on the ripper head and controlled by an automatic cut-off valve.

This machine is claimed to be suitable for mining any seam where orthodox mechanized methods apply. In a seam 7 ft. thick with 11 ft. wide entries, an advance of as much as 115 ft. per shift has been recorded.

 **Vocabulary**

Continuous miner – гірничий комбайн з безперервною послідовністю операцій.

Ripping bar – ріжуча голівка.

Central hopper – центральний бункер.

Rear conveyor – розвантажувальний конвейер.

Replaceable cutting – знімне підрубування.

Sprocket – зубчате колесо, зірочка.

Spline shafts – шлицевий вал.

Swing – обертати.

Articulate – повертати.

Retract – змінювати хід.

Bar – бар, верхняк.

Undercut – підрубування.

Cut-off valve – клапан вимкнення.

**LESSON 7**

1. **Read and memorize new words.**

Sinking- осідання

Haulage-відкатка

Junctions-стик, схрещування

Efficiency- ефективність

Engine house-машинний відділ

Cable-кабель

Switchgear-вимикач

Rope-канат

Tractive resistance- тягове пручання

Track-хід, путь

Pass-bye-розминовка

Time-lag-затримка

Output-видобуток

Turn-round-оборот

Shunting-складання

Pit bottom-дно шахтu

**2.Read and translate the text.**

LOCOMOTIVE HAULAGE

 In the reorganization of existing collieries and in the planning of the development of new sinkings, locomotive haulage is to be adopted wherever conditions permit. The advantages of this system of haulage, particularly on main roads, are:

(1) Reduced personnel engaged in haulage operations, particularly where there are a number of junctions and loading stations to be served from one road.

(2) If the gradient is suitable, the efficiency is high and there is an absence of expensive engines and engine houses, cables, switchgears and ropes. The ideal gradient depends on the tractive resistance of the tubs or cars and varies from 1 in 200 with tubs to 1 in 500 for mine cars in favour of the load, the ideal gradient, as with horse haulage, being that at which the effort coming out with the loaded train is equal to that required to take in the empty train.

(3) The system is very flexible and easily extended. Extra traffic can be catered for by an extra locomotive. A single track with pass-byes may be sufficient, although double track is often used on busy road.

(4) Materials and men may be transported along the same road as the mineral by the same locomotive.

(5) High speeds can be adopted with safety and the driver is in direct control of the train and so can deal with emergencies without time-lag. The number of tubs or cars required for a given output is reduced since the turn-round is quicker.

(6) Although straight roads are to be preferred with any system of haulage, curves if of sufficient radius, not less than 70 ft and preferably 100 ft for heavy main-road locomotives, can be more easily negotiated by locomotives than by rope haulages.

(7) Locomotive haulage may be used with economy of manpower in shunting operations, e.g., in pit bottoms.

**3.Укажіть на факти та відомості з тексту, які ви вже знали.**

**4.Read more information about locomotives.**

The main disadvantages of locomotives are:

1. Limitation due to gradient.
2. With certain systems shock, explosion and fire risk is present unless the installation is designed and maintained with a view to maximum safety.

Locomotives used underground may be divided into two main classes: those powered by electric motors and comprising trolley, cable-reel and battery locomotives, including trolley-battery locomotives, and the reciprocating types which include diesel and compressed-air operated locomotives.

**5.Answer the following questions:**

1. What are the main advantages of the locomotive haulage?

2. What are the main disadvantages of this system?

3. What are the main classes of the locomotives used underground?

4. What locomotives are preferable nowadays.

5. Are compressed-air operated locomotives employed in our mines?

**6.Знайдіть у текстах закінчення речень.**

**-** Reduced personnel engaged in …

**-** If the gradient is suitable, the efficiency is …

**-** The system is very flexible and …

**-** Materials and men may be transported by…

*Cutting tool, engine, transmit, cutting edge, drill, shot, bore, strata, saw-tooth crown, roller bit, blow, chisel*