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**History of Creation of the Mining Craft Faculty at the Katerynoslav Higher Technical Mining School (1900–1918)** • Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

The period of creation of leader faculty at National Mining University in Dnipropetrovsk (Ukraine) is considered. The basic scientific and methodological publications and researches are resulted. Situation in Ukraine mining in the beginning of 20th century are submitted.

**Keywords:** *Ukraine, mining, education*

JAROSLAV DVOŘÁČEK

**Problems Associated with Closing Underground Mines for Economic Reasons** • Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

This contribution deals with the economic development of underground coal mines in the last phase of their service life in conditions of the Ostrava part of the Ostrava-Karvina District. The question of alternative development of these mines from the economic point of view is presented here.

**Keywords:** *mining, closure of mine, development*

SILVIE HEVIÁNKOVÁ, JIŘÍ VIDLÁŘ, TOMISLAV ŠPALDON

**Tests of Precipitation of Sulphates from Mining Water** • Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

The objective of these tests was to verify a methodology of desulphatation, which was developed at the Institute of Environmental Engineering, Faculty of Mining and Geology, Technical University Ostrava, separately for mining water with high concentration of sulphates and on the other hand for mining water with limited concentration of sulphates. The water samples used for these tests came from Smolník and Zlaté Hory.

**Keywords:** *mining water, desulphation*

JACEK JAROSZ

**Estimation of the Range of Fractured Zone in the Roof of Underground Roadways Using the Seismic Method** • Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

It is a well-known truth that each mining activity changes the natural stress field in the rock mass. Driving of underground roadways leads to the appearance of a fractured zone around the excavated space. Separated and fractured roof rocks of underground roadways possess significant danger to the safety of people working in the mine. Knowledge of the thickness of the fractured zone is very important to the process of protecting roadways and particularly to determine conditions of roof bolting. A new way of use of a seismic method to estimate the parameters of fractured zones is described in this paper. The Love-type interference waves generated by hammer blows in roadway roof rock are discussed. The results of field measurements in a coal mine are presented.

**Keywords:** *underground roadway, fractured zone, seismic method, Love-type waves*

HENRYK KLETA, FRANCISZEK PLEWA, GRZEGORZ STROZIK

**Application of Stabilizing Highly Thickened Slurries for Filling of Flooded Shafts** • Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

The paper presents the results of research on the use of highly thickened slurries for closure of abandoned shafts. Two fill slurry compositions were considered, i.e. mixtures of slag, fly ash, cement and water, one of them containing 15 and the other 30% of cement by mass. In the case of closure of a partially flooded shaft, the fill material or mixture of materials should possess the ability to solidify in a water environment, and after solidification must be proof against soaking and secondary liquefaction. The solidified fill material should also remain stable under the loads resulting from subsequent batches of fill material placed in the shaft. The laboratory test results and analyses showed that strength and strain parameters of the fill material depend not only on the composition of the mixture, but also on the way of transport (transport in stagnant water) and the curing environment — water or dry air environment. Numerical calculations of stress and strain state in the shaft plug performing the function of a reventment plug, conducted for increasing strengths of the fill material and increasing loads exerted on the plug by the thickening column of fill material poured in the shaft, allowed to determine the strength requirements and the technology of solidifying backfill utilized for shaft closures.

**Keywords:** *mine shaft, closure, highly thickened slurries, strength requirements*

LEON KURCZABIŃSKI, ROMAN ŁÓJ

**Modern Technologies of Heat Production as an Opportunity for Coal** • Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

Coal Holding Katowice produces best quality typical steam coal. For several years it has cooperated with manufacturers of modern coal boilers for whom it provides coal of appropriate granulation. This article presents a description of modern heat production technologies based on coal and designed for small and medium-size users. These technologies allow the cheapest heat production while the standing standards of toxic substances' emission are complied with. The article describes the directions of actions undertaken by Coal Holding Katowice to promote efficient and ecological high quality coal combustion technology, which give coal an opportunity to maintain its position in the market, as prices of other energy carriers are high.

**Keywords:** *steam coal, coal boiler, clean combustion, cheap source of energy*

TADEUSZ MAJCHERCZYK, PIOTR MAŁKOWSKI

**Strata Control in Underground Tunnels — Perspectives for Development** • Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

The paper constitutes a review of support systems of underground tunnels used in Polish coal mines. Taking the tendency to rationalise costs of tunnel drivage into consideration, new directions of strata control development are suggested, especially in terms of increasing spacing between support units and their reinforcement. The authors wrap up the discourse with their conclusions as well as share their experiences gained from monitoring interaction between support and rock mass.

**Keywords:** *underground tunnel, support system, support design, reinforcement of support*

KRZYSZTOF OLSZÓWKA, FILIP ORZECOWSKI

**Simulation of Extraction Rate and Scheduling Based on Geological and Quality Models as a Method of Mine Planning in Modern Mining** • Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

This paper is a result of PRGW's (Drilling and Geological Works Enterprise) efforts in promotion, implementation and application of information technology system supporting mineral/ore resources management. The authors present modern mine design and planning based on digital model of

geological deposit. The paper gives also a characteristics of computer software Mine2-4D and CADSMine developed for mine planning and scheduling, and based on three-dimensional, virtual models of mine structure. Examples are used to present the main features of these tools.

**Keywords:** *information technology, database, exploitation, modeling, geology, scheduling — planning*

GENNADIY G. PIVNIAK

**National Mining University — the Oldest Mining Higher Education Institution in Ukraine •** Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

The creation and main periods of development of National Mining University in (Ukraine) is considered. Teaching staff and formation of students are given. The directions of training and carrying out of research works are resulted. Prospects of Development are planned.

**Keywords:** *Ukraine, mining, education, development of science*

ROBERT RANOSZ, MICHAŁ KOPACZ

**Energetic Raw Material Prices in the Aspect of Defining Mutual Interactions and Relations •** Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

Energetic raw materials markets have played, and still do, a fundamental role in defining the worldwide economic relations. It is especially important in the field of world energy economy and energy safety. As far as the analysis of the situation in this area that we have at our disposal shows and allows understanding the current trends and foreseeing the future market tendencies, the globalisation increasingly brings about concentration of production in a centre of the worldwide business. Let's then venture a statement that essential connections exist between the fundamentals of the raw material economy (production, production capacities, consumption, proved reserves) in the context of modelling of economical parameters, particularly prices.

**Keywords:** *financial markets, crude oil, natural gas, coal, price, energy safety, prediction*

PIOTR SAŁUGA, EUGENIUSZ J. SOBCZYK

**Determining Mineral Project Value — the Preference Theory •** Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

The paper provides an alternative to expected value approach based on preference theory. Preference theory, taking into account investors' attitude towards risk, enables them to utilize a relatively consistent measure of valuation across a broad range of risky project. The theory concepts apply particularly well to mineral project evaluation and are especially useful for Monte Carlo simulation outcomes — especially for project valuation and decision-making purposes.

**Keywords:** *mining projects, economic evaluation, Monte Carlo simulation, project value, preference theory, certainty equivalent*

VOJTĚCH VÁCLAVÍK, MICHAIL LEMBÁK

**Industrial Waste as an Effective Material for Dam Construction •** Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

The paper presents the issue of tailing supply utilization in dam construction, covers general overview of these wastes produced in Ostrava — Silesian Region as well as experimental results and practical experience with the realization of dam construction in the undermined areas. In Ostrava — Silesian Region mining waste mainly contain the anthracite mining wastes, i.e. tailings — produced in a quantity of cca 9.8 million tons per year. Besides, considerable amount of other industrial wastes (slag, loose ashes, scoria) is produced there as well. These wastes are concentrated in a relatively

small area of the region. From the facts listed above we can deduce that the present state of ecology is abject there. Provided that the major part of these wastes would be put back into the mined-out areas or utilized as building material, there is a certain possibility to protect the environment. Utilization of formerly mentioned wastes (slag, loose ashes, scoria) in road engineering is described in the references [1-11].

**Keywords:** *tailing supply utilization, dam construction*

MICHAL VANĚK

**Measuring of Technological Transport Time Consumption in Quarrying Using GPS Technology •**  
Kwartalnik Górnictwo i Geoinżynieria • z. 3/2, 2005

An integral part of management is the rationalization of the existing processes. The presupposition for their successful realization is the knowledge of processes of interest, and namely including the times of single operations duration. The same it is also in the sphere of quarrying. For finding out of mining operations and their partial parts time durations the utilization of timing seems to be interesting. The contribution presents the time observation as the process whereby it is focused on one of mining operations, and namely technological transport. The gravity centre of the contribution can be seen in description of preparatory and realization phases of the time consumption observation.

**Keywords:** *timing, stone mining, technological transport, chronometer, GPS*