be good main-line haulage too, but the problems that confront the gathering haulage are just as important and more often neglected. Nothing sheds a clearer light on the haulage problems of a mine than a time study of the individual units. Delays are recorded in such a manner that mine officials simply cannot afford to neglect taking steps toward their elimination. The sooner more factory practices such as the time study are made by institutions in the coal mining game, the quicker will come the time that the mine manager can feel that his business is on a par with other big business.

Dispatching of trips is being done more each year. Some mines have elaborate dispatching systems operated by intelligent dispatchers. It is necessary to have trained men handle the flow of coal from the face to the tipple just as it is necessary for a railroad to dispatch trains over its system. A dispatcher's sheet should be a record of the complete performance of each motor. The mine official can see at a glance how any section of his mine is performing at any hour of the day. Too often dispatchers are burdened with other duties, such as keeping time-books or throwing switches by hand and many other little jobs that seem trivial in themselves, but which detract from the efficiency of the dispatching system.

The proper placing of side tracks or partings of sufficient capacity is also important. Motors must not be held at side tracks waiting for loads or empty trains for clearance. The side tracks should be so constructed that a motor is not tied up by the presence of loads and empty trains at the same time. There should always be a passing track in order to allow a motor to get around its trip. More time and energy is being spent on inspection of equipment than was formerly done. Most mechanical failures could have been avoided if rigid inspection had been practised. This presents rather a problem for the ordinary mechanical or electrical force, as the matter of inspecting the haulage equipment of a mine is usually more than they are able to do between shifts. In most cases it is rather difficult to make a mine management see the advisability of sufficient mechanics to inspect all equipment. The human element is still a factor in the most modern mechanized plants.

**Preliminary Announcement for Annual Meeting**

A few of the good things to be spread before the members are listed—Complete program will be mailed in January—Save the dates

The 140th meeting of the Institute will be held in the Engineering Societies Building, New York, Feb. 16-19, and one of the most important features, one which cannot be reduced to text in the TRANSACTIONS, will be the opportunity to renew old friendships and make new friends, to talk things over—to orient one's self in these troublous times. There will be daily get-together luncheons for all, luncheons and dinners for specialized groups, an informal dance, the annual reception and banquet, and a smoker. And such a smoker! It starts with dinner at dinnertime, shows signs of cabaret, turns smoker, and then goes entertainment—all for the price of one. This year one can stay long after 11 o'clock—there will be time and opportunity to amble around and meet everyone present.

The formal program is rapidly rounding into shape. The annual business meeting will be held on Tuesday morning and the banquet will be at the Commodore. The four Divisions and the various Technical Committees are arranging their sessions and scheduling for these a long list of significant papers. A feature of the meeting will be a number of round tables on timely subjects.

The Iron and Steel Division will hold five sessions, two on Physical Metallurgy, a general session, one on Blast-furnace Research and a round table on Iron Ore. Many of the authors are well known. Dr. F. F. Lucas, of the Bell Telephone Laboratories, Inc., will deliver the Howe Memorial Lecture at a general session of the Institute. His subject is, "On the Art of Metallography."

A symposium on the Working of Metals is planned by the Institute of Metals Division. It will take two sessions, besides which there will be a general session. Dr. Arne Westgren of Stockholm, Sweden, will deliver the Annual Institute of Metals Lecture, on "X-ray Determination of Alloy Equilibrium Diagrams." At the Division's annual dinner, which will be held this year at the Hotel New Yorker, Dr. G. W. Thompson, of the National Lead Co., will be the principal speaker.

Engineers who find the literature on the valuation of coal mines insufficient for their present requirements should flock to the round table on Methods of Valuing Coal Mines, planned by the Coal Division. Interesting discussion is also anticipated at a general session for which a number of papers have been listed. One of these, by Charles W. Wagner, is entitled, "Premature and Hangfire Explosions in Anthracite Mines," and was secured by the Use of Explosives Committee. The members of the Division will get together at a luncheon.

The Petroleum Division has arranged for six sessions and its usual annual dinner on Thursday evening. Unit Operation of Oil Pools will be summed up in a final report by the committee of the Division of which Earl Oliver is chairman. There will be papers and discussion on engineering and production at the dinner on Thursday evening annual reviews on engineering, production, economics and refining.

The Ground Movement and Subsidence Committee has been fortunate in securing several unusually valuable papers, two of which, by Wallace Thorneycroft and
R. L. Auchmuty, respectively, will soon be available as separates and should with the resulting discussion do much to explain matters which have puzzled students of subsidence.

Three papers are scheduled for a general session of the Committee on Mine Ventilation, and it is expected that the paper by S. M. Cassidy and J. H. Fletcher, showing that cooling air obviates hot weather, roof troubles, will occasion no little discussion. There will also be an afternoon conference of the Code Committee.

The Milling Methods Committee plans to hold one session and a luncheon. On the program of the former are: the papers by A. W. Fahrenwald and F. W. Lee, and H. S. Gieser (see list following); both of which will soon be available as Technical Publications.

The papers by G. L. Spencer, Jr., and C. E. Swartz, respectively (listed below) are the nucleus of an attractive program being arranged by the Committee on Non-ferrous Metallurgy. Both of the papers cited will soon be issued as Technical Publications, affording an opportunity for pertinent written discussion in advance of the meeting.

The Committee on Mining Geology is arranging two sessions, one a symposium on the gold situation, at which the discussion will be directed to show the relation of production to periods of depression and prosperity, and the other a general session devoted to miscellaneous papers. Speakers of authority are on the program of the gold symposium; and it is anticipated that silver will also come in for attention. Mining geologists will be interested in a paper, "Oil and Gas in North America," by Sidney Powers, which is scheduled for presentation at the general session and constitutes a remarkable summing-up of present knowledge of the oil-fields.

**Geophysical Prospecting:**


"Job Specifications" will be outlined by: a coal mining engineer; a metal mining engineer; a metallurgical engineer; a petroleum engineer and a mining engineer; at the session of the Committee on Engineering Education, where also, will be presented, up-to-date statistics on enrolment in mining schools. The Committee on Production Control has not arranged a formal program, but will discuss problems at an informal luncheon.

The Mining Methods Committee will present one or two papers and also has in prospect an oral presentation on "Rock Tunnel Methods," by Theodore Marvin; with, as written abstract of the lessons learned from 54 tunnels. At a session of the Committee on Non-metallic Minerals it is planned to present several papers among them, one on barites and another on light-weight aggregates. The Committee on Rare Minerals and Metals has in hand as the nucleus of its program an excellent paper by Dr. Colin G. Fink and Leslie G. Jenness.

**Annual Smoker—Feb. 16, 1931:**

The 1931 Smoker Committee is venturing, to set a precedent by combining the Smoker with an informal dinner and has arranged an excellent five-course dinner in the Grand Ball Room of the Hotel Pennsylvania, together with an exceptional cabaret: entertainment from New York's best night clubs, at a cost of only $3 per member. The members will thus have the privilege of dining together the first night of the meeting instead of singly, on in isolated groups as heretofore. Group dinners may be held as part of the Smoker by arranging for special tables. Chairman of special dinner committees are requested to get in touch with the Smoker Committee in order to make such arrangements. An advance sale of tickets is being arranged; the details of which are contained in the general announcement. A prompt response to the circular offer of tickets will greatly facilitate the work of the Committee in completing final arrangements. Requests for tickets and checks should be sent to M. E. Pumphrey, Chairman, Smoker Committee, 40 Rector Street, New York City.

The women are as usual arranging a full schedule for visiting ladies and dinners, dances, teas and other entertainment are on the list.

**Tentative List of Papers:**

Notes on Drill, Sampling, and the Interpolation of Sampling Results in the Copper Fields of Northern Rhodesia. By H. T. Matson and C. Allan Wallis.


Instantaneous Outbursts of Carbon Dioxide in Lower Silesia (Germany). By P. A. C. Wilson.


Effect of Particle Size on Flotation. By A. M. Gaudin, John O. Grof, and H. E. Henderson.


Experimental Flotation of Oxidized Silver Ores. By H. S. Gieser.


Flotation of Minor Gold in Large Scale Copper Concentrators. By E. S. Leaver and J. A. Wolfl.

On the Art of Metallography. (Höwe, Memorial Lecture.) By F. F. Lucas.

The Austenite-pearlite Transformation and the Transition Constituents by Albert Sauveur.


Bright Annealing of Steels in Hydrogen. By Floyd C. Kelley.


Inclusion and Dynamic Strength of Steels. By A. B. Kinzel and W. Crafts.


High-silica Retorts at the Rose Lake Smelter. By G. L. Spencer, Jr.

Observations of the Failure of Cast-iron Lead Kettles. By Carl E. Swartz.

X-ray Determination of Alloy Equilibrium Diagrams. (Institute of Metals Division Annual Lecture.) By Arne Westgren.


Plasticity of Copper-zinc Alloys at Elevated Temperature. By Alan Morris.

Die Pressing of Brass and Copper Alloys. By John R. Freeman, Jr.


Studies Upon the Widmanstätten Structure, II. The Beta Copper-zinc Alloys and the Beta Copper-aluminum Alloys. By Robert F. Mehl and O. T. Maržke.

Metal Working in Power Presses. By E. V. Crane.

The Effect of Combination of Strain and Heat Treatment on the Properties of Some Age-hardening Copper Alloys. By W. C. Ellis and E. E. Schumacher.


Directional Properties in Cold-rolled and Annealed Copper. By Arthur Phillips and E. S. Bunn.

Extraction of Tantalum and Columbium from Their Ores. By Colin G. Fink and Leslie G. Jenness.

Relative Accident Hazards, Hand and Mechanical Loading of Coal, Compared. By Eugene McAliffe.

Mineral Coal by the Stripping Method with Particular Reference to Equipment and Methods in Use at the Plant of the Enos Coal Mining Co. at Oakland City, Ind. By Fred S. McConnell.

Factors That Have Influenced the Growth of Strip Coal Mining in the Southwest. By K. A. Spencer.


A Discussion of Errors in Occurring in Surveying Oil Wells and Holes by an Oriented Drill-pipe Method. By W. J. Travers, Jr.

Premature and Hangfire Explosions in Quarrying. By F. F. McLaughlin.

Zonal Relations of the Lodes of the Sumpter Quadrangle. By D. F. Hewett.

Oil and Gas in North America. By Sidney Powers.

The Unexpected in the Discovery of Orebodies. By U. B. Joralemon.


A Method for Determining the Magnetic Susceptibility of Core Samples. By William M. Barrett.

Effects on Electrical Conductivity of Soils and Rocks Produced by Impregnating Rocks. By Karl Sundberg.

Practical Geomagnetic Exploration with the Hotchkiss Supercord. By Noel H. Stearn.

Reduced Railroad Rates

Identification Certificate Plan

THE various railroad Passenger Associations have granted us the privilege of reduced fares under the Identification Certificate Plan which enables us to send with the announcement of the annual meeting a railroad certificate to every member of the Institute. This announcement will be mailed to all members between Jan. 15 and 20. Any member not receiving the certificate should notify the Secretary's office promptly. All members of the Institute and dependent members of their families are entitled to the benefits of this reduced fare. One certificate will suffice regardless of the number in your family attending the meeting, and it will be, good, going and returning via the same route only. This privilege is extended by all of the railroads in the country and eastern lines of the Canadian Passenger Association.

We suggest that advance arrangements be made regarding your transportation to and from the meeting. Just mention our annual meeting and present the railroad certificate sent you. A special privilege for those desiring to extend their stay over the time limit prescribed under the fare and one-half privilege has been granted of one fare and three-fifths with final return limit 30 days in addition to the date of sale. Before being honored for return passage, tickets must be validated by agents at the regular ticket offices of the lines over which they rode into New York. Be sure to advise your local ticket agent when purchasing your ticket which class of ticket is desired because the fare and one-half ticket will bear a different final return limit from the fare and three-fifths ticket which will be good for 30 days from date of sale.