

Item		Item	
Fluoranthene, separation from chrysene, by molecular distillation.....	1060	France, mining engineers, training, transmission of article.....	3437
synthesis.....	548, 5872	oil shale industry, review.....	8799
patent.....	5877	petroleum mining, problems.....	4502
by cyclodehydrogenation.....	5876	Freezing point curve, TNT-tetryl, proportions from, estimation.....	7000
Fluoranthene derivatives, synthesis.....	548	Freezing point-solubility diagram, tetryl-picric acid system.....	7002
patent.....	5877	Freight rates, seasonal, effect on coal fields.....	7835
Fluorboron edenite, synthetic, data.....	1381, 4498	French Creek, Pa., sodic scapolite, occurrence.....	7793
Fluorene, synthetic, data.....	1381, 4498	Frictional impact, sensitivity of detonating compounds to.....	7607
patent.....	5884	Friedel-Crafts catalysts, tellurium compounds as, use.....	2549
Fluorene derivatives, synthesis, patent.....	5882	Friedensville, Pa., shaft sinking, water problems.....	8450
Fluorescent lighting, permissible, for mine photography.....	4018	Frog, slipping, mine railways, description.....	3045
Fluoride, entropy.....	4384	Froth flotation, barite ores.....	5840
heat capacity, at low temperature.....	4384	coal.....	6270
heat content, at high temperatures.....	5542, 5774	diatomite purification.....	5748
in fluorosilicates, determination.....	7183	feldspar.....	5847
Fluoride, organic, as refrigerant.....	5332	nonmetals.....	6229
toxicity.....	8629	ores, from Gouverneur, N.Y.....	5749
Fluorine, in fluorosilicates, determination of silica, retention of process.....	7177	apodumene rock, beneficiation.....	5740, 6247
organic, combustion calorimetry, by rotating bomb method.....	3015	Froth-flotation plant, operation on washery-water solids.....	2809, 8484
Fluorine-hydrogen reaction, homogeneous, description.....	2139	Froth flotation tests, bituminous coking coal.....	6277
Fluorite, products.....	7997	Fuels, aircraft, flammability characteristics, research.....	4138
Fluorite ore, laboratory beneficiation.....	2535	airplane, study.....	1713
Fluorobenzene, pressure-volume-temperature properties.....	1921	American, history.....	2333
thermodynamic properties.....	7003	resources.....	3758
Fluorocarbons, aliphatic, thermochemistry.....	3013	annual review.....	2244, 2246, 6074
vapor pressure.....	3013	anthracite water-gas generator, use.....	5604
Fluorosilicate, silica in, determination, without removing fluorine.....	7177	appreciation.....	6503
Fluorophlogopite, synthetic, X-ray and optical data.....	4499	automotive, trends.....	2388
Fluorrichlerite, synthetic, data.....	1381, 4498	apparatus.....	1701
Fluorspar, annual review.....	266, 267, 1598-1600, 1831, 3756, 3757, 5028	Bureau of Mines, work.....	3705
notation.....	1232	coal, review.....	2230, 7463
in electric smelting of iron ores.....	4306	coke, data.....	2230, 6446
outlook.....	8114	colloidal.....	447
radioactive, data.....	3531	performance tests.....	481
resources.....	6689	substitution for oil.....	448, 450
Fluorspar district, Eagle Mountain, Hudspeth County, Tex., work review.....	5557	combustion.....	8425
Fluorspar industry, annual review.....	4584	efficiency.....	6345
status.....	3471	conservation.....	388, 406, 6786, 6802
Fluorspar mining and milling, New Mexico.....	4043	domestic.....	401
Fluorspar ore, concentration.....	1230	firing boilers and furnaces, methanol.....	3762
Fluortremolite, synthetic, study.....	1350	Fuel, consumption, by public utilities, annual review.....	8470
Fluosilicates, amphibole group, synthesis.....	2058	index.....	7841
mica, synthesis.....	2058	reduction by efficient heat utilization.....	7850
Flux-stone industries, log washers in, discussion.....	7979	rotary cement kilns.....	3029
Fly ash, from domestic stokers, discussion.....	422	diesel, cobalt catalyst, Fischer-Tropsch synthesis, composition.....	8140
from Federal Central Heating Plant, data.....	396	combustion.....	2074, 2675
studies.....	403, 411, 412, 422, 428	composition, data.....	7340, 7347
Foam plugs, control of mine fires, experiments.....	3445	properties, data.....	7340, 7347
high-expansion, control of mine fires.....	3443	specification requirements.....	8137
Foaming agents, for gas well, treatment cost.....	1950	disillate, incompatibility.....	8141
for liquids from gas wells, removal.....	1961	nitrogen compounds in.....	5381b, 5391c
for water-logged gas wells, treatment.....	1960	storage, stability, report.....	3420
Foamite fire extinguishers, use in mines, gases produced.....	2425	economic comparison.....	6852
Fog, agglomeration with smoke and dust particles, by sonic waves.....	6722	emergency, oil-coal mixture, industrial oil furnaces.....	809
Fog guns, effect on dust and fume control, in Washington mines.....	6055	engineering methods.....	1702, 1715
Food, fumigation with methyl bromide, bromide content.....	1836	for firing refractories.....	6514
national, soya flour as.....	3805	fossil.....	1543, 7045
Force, determination, method.....	1582	gas calculations, handbook review.....	5611
Ford Collieries Co., safety, mines, methods.....	1337	gas flame temperature calculations, handbook review.....	5610
Foreign countries, ground movement, studies.....	6438	gas flame velocity, handbook review.....	5600
health conditions in mines.....	6772	gas flammability, handbook review.....	5608
Foreman, mine, qualifications.....	6020	Fuels, gaseous, committee report on.....	2290-2292, 2300, 2391, 2405
Form milling cutters, design, method.....	3808	data.....	2086, 2089, 2230
Formaldehyde, combustion, photodecomposition.....	6907	from coal.....	5905
oxidation, gas phase.....	6861	furnace atmosphere, handbook review.....	8413
kinetics.....	6862	outlook.....	486
photodecomposition, stability of HCO radical in.....	6908	Great Britain.....	6378
pyrolysis.....	4456	handbook review.....	2389, 3754
Formaldehyde flames, properties.....	3244	high-ash and high-moisture, use in United States.....	4975
Forsterite-olivine, electrically fused, preparation.....	6282	hogged, data.....	1109
Fossil fuel, data.....	7045	hydrocarbon, flammability limits, determination and graphic representation.....	8632
Fossil gum, amber in, occurrence and mining.....	5527	ignited, manufacture of combustible gas in generators from, patent.....	5793
coral, notes on.....	5533	ignition, discussion.....	4718
New Zealand.....	5529	in brick kilns, use.....	6517
Foundry, sea coal in, review.....	5308	industrial, from oil shale, work review.....	3213
Foundry coke, specifications, general status.....	7114	industrial gases, handbook review.....	5012
Foundry iron, synthetic, in electric furnace.....	8325	international trade.....	2780
Foundry molds, permanent.....	227	in tunnel kilns, use.....	6518
Fractional permeation, through membranes, separation of gases.....	6211	lignite as, Middle West.....	1015
fractionating columns, laboratory packing support.....	4844	liquid, coal as source.....	2270, 2278, 2435
fractionation, clay, into monodispersed systems.....	5751	discussion.....	6941
fractionating columns, laboratory packing support.....	4844	possibilities.....	2272
fractionation, clay, into monodispersed systems.....	5751	progress.....	7482, 7494
fractionators, packed columns for.....	2020	research and development.....	7488
fractures, flaky and woody, in nickel-steel gun forgings.....	1220	in kilns, heat balances, equations and quadrant charts for.....	7201
fragment analysis, specific gravity, correction factor.....	1182	lignite as source.....	2278
volume differences, correction factor.....	1182	oil shale as source.....	2135
Fragment counting, petrographic analysis by, combined error of sampling and counting.....	1185	progress.....	7482, 7494
precision of microsampling.....	1185	synthesis, by hydrogenation of carbon monoxide, process.....	7500
Fracture grinding, methods.....	3413	low-grade, producer gas from.....	2205
France, coal fields, data.....	6429	low-sulfur, use in St. Louis, results in air pollution control.....	4980
coal mines and methods.....	6428	manufacture.....	5034
iron ores, beneficiation, studies.....	1248	mineral, annual review.....	7411, 8338
		relation to power development trends.....	2334

	Item
Fuels, motor, data.....	1703, 4514
pump problems.....	8708
synthesis, process description.....	7483
pent as.....	1550
power from, economics.....	7837
properties, effect on firing methods.....	1005
public utility consumption, annual review.....	8570
pulverized, use in coal production, effect.....	5655
railway, report.....	7856
research, review.....	899, 2312, 2245, 2271, 6378
wartime, Great Britain.....	6948
review.....	1309, 6383
rocket, description.....	1546, 1547
from tars.....	8115
salvage, from boiler refuse.....	2712
smokeless, data.....	3779
solid, American, oxygen gasification, developments.....	5630
analysis, control, and instrumentation, industrial application.....	5780
carbonization, patent.....	5789
description.....	1107
gas from, manufacture.....	3863
in kilns, heat balances, equations and quadrant charts for.....	7291
reactivity, measurement, by crossing-point method.....	4077
use.....	1250
sulfur in, determination.....	83
supply, changes in.....	795
western, outlook.....	5964
synthetic, Bureau of Mines research.....	7472
development.....	1901
for defense.....	816
liquid, annual review.....	813, 6811, 6960-6963, 6959
coal as source.....	1902, 6946, 6965
Fischer-Tropsch synthesis.....	6945
processes, development.....	7469
German industry, records, effect on United States develop- ment.....	6943
manufacture.....	6942, 6950, 6957, 6958
natural gas as source, Fischer-Tropsch synthesis.....	6945
oil from.....	6966
oil shale as source.....	7819
processes.....	7491
catalysts in.....	7451
development in Great Britain and Germany.....	7492
outlook.....	486
shale oil as source.....	2828
preparation, coal to oil, cost estimates.....	7296
process.....	1527
production, review.....	6958
program.....	5062
progress.....	814, 815
research, by mass spectrometry.....	2752
technology, frontiers.....	2243
types, for house warming.....	417
unburned grate, recovery.....	2711
underfeed burning.....	5664
use, development outlook.....	4523
in Government and industry, efficiency improvement, studies.....	3781
review.....	6382
water-gas generator, bituminous coal as, use.....	5797
Fuel-air mixtures, ignition by hot gases, application to firedamp explosions.....	8378
Fuel beds, blast-furnace cokes in, combustion.....	7211
combustion, discussion.....	5670, 5699
crossed ignition.....	3047
overfeed and underfeed, effect of preheated air on.....	5719
principles.....	5650
Fuel-bed tests, Hottel Gate generating station, discussion.....	5670
Fuel burning, principles.....	5651
Fuel characteristics, safety, study.....	4444
Fuels conference, discussion.....	5654
Fuel efficiency, progress, statistical studies.....	7875
Fuel efficiency program, national, objectives.....	1180
progress.....	1180
work.....	1187
Fuel engineers, papers, summary.....	5660-5663
Fuel engineers' meeting, developments, practical application. discussion.....	5687
Fuel engineering, developments, annual review.....	5696
discussion.....	899
Fuel Engineering Conference, papers, discussion.....	5672
Fuel gases, analyses.....	5686
annual review.....	2458
characteristics and properties, handbook review.....	2230
combustion characteristics.....	6607
bituminous, fractionation analyses.....	3163
Fuel industry, Japan.....	8536
Fuel-nitric oxide mixtures, spontaneous ignition temperatures.....	8373
Fuel-oil, classification and specification.....	4511
coal as source, production.....	1192
distribution, national survey.....	1474, 7560-7563
Pacific Coast markets, annual review.....	7559
use, railroads.....	7569
Fuel-oil ash, vanadium in, determination.....	3890
Fuel oil furnaces, refractories service.....	7223
Fuel-oxidant mixtures, performance evaluation.....	872
Fuel rating, precision, discussion.....	3018
Fuel research, developments, annual review.....	899

	Item
Fuel reserves, national, data.....	2262, 2263, 2265
relation to future supply of liquid fuels.....	2264
Fuel-stability research, Bureau of Mines, Western Petroleum Ro- tillers Association, status.....	8133
Fuel technology, history.....	3759
Fuel testing, laboratory methods, review.....	2374
Fulgurite, South Amboy, N.J.....	5534
Fuller's earth, properties, as oil-refining adsorbents.....	1584
Fumes, exhaust, from internal combustion engines, oxidation by catalysts, air pollution.....	4931
recovery, aluminum alloy processing, electrostatic precipitators for, efficiency.....	4932
removal and recovery, Venturi scrubbers for, air pollution con- trol.....	4961
Fumes control, mines, effect of fog guns and multiple shooting.....	5055
Fumes disposal, ferromanganese blast furnace, United States Steel Corporation, air pollution study.....	4940
Funnel, modified dropping, description.....	5858
Furan, properties, thermodynamic.....	3221
Furfural-acetone-ethyl alcohol-benzol mixtures, flammability.....	4109
Furnaces, anthracite, traveling-grate stokers, refractories service conditions.....	7222
blast, coke, combustibility.....	7203, 7212, 7213
in fuel beds, combustion.....	7211
iron ore for, beneficiation.....	4147
operation, efficiency.....	4180
pioneer, western Pennsylvania, notes.....	8059
West Virginia, notes.....	8058
boiler, gases from, sulfur content, determination.....	7014
operation.....	4520
refractories.....	7202
cooling.....	7205
slagging, service factors governing.....	7209
refractory service.....	7221
carbon dioxide in top gas, burden control.....	2770
carbon resistor, description.....	4565
coal, lone-flame burners, refractories service conditions.....	7216
on chain grates, refractories service conditions.....	7214
on underfeed stokers, refractories service conditions.....	7215
radiant-heat absorbing surfaces, temperatures in.....	7210
coal ash, softening temperature, measurement.....	7120
carborundum, study.....	8126
design, study.....	3562
domestic, design, discussion.....	5677
domestic heating, leakage of gas, elimination.....	8140
down-draft, hand-fired, description.....	309
electric, cathode copper in, melting.....	4896
coal, free-swelling index, determination.....	7127
copper ores in, smelting.....	4898
description.....	4304
determining, production of synthetic gray iron.....	8323
for synthetic mica, precision temperature control, data.....	3910
for testing refractories, design and operation.....	5591
ilmenite, smelting.....	7455
in western metallurgy, possibilities.....	4807
iron in, production.....	4989
pig iron for, microscope study.....	4610
pig iron from, in open-hearth furnace, use.....	4892
microscopic study.....	4899
refractories for.....	8318
steel manufacturing.....	4770
synthetic foundry iron in.....	8325
load test, design and operation.....	5592
flame temperatures in, calculation.....	5525
fluxing, relation to slagging type.....	5722
foundry, material-heat balance.....	4411
fuel conservation, method of firing.....	3762
graphite-red hairpin-resistor radiation, for high temperatures.....	4567
hand-fired, in Government-owned plants, experience with coal and equipment, discussion.....	5671
heat transfer in, evaluation.....	3120
heating, oxygen enrichment of combustion air.....	840
high-frequency, inductor coils for.....	7012
induction, for rotating liquid crucibles.....	474
high frequency, for chemical preparations.....	7015
industrial, review.....	2375
laboratory, description.....	637
induction melting, controlled-atmosphere.....	630
load, description.....	3534
open-hearth, basic, practice.....	3576
unreduced oxides in pig iron, elimination.....	2801
electric furnace pig iron in, use.....	4892
electrical precipitator for, efficiency, air pollution control.....	4928
means of recovering cast iron from borings.....	4162
roof brick for.....	3403
silica brick in, effect of service.....	4627
sulfur melting in, absorption.....	3574
thermal relationships.....	3048
oxygen-acetylene, high temperature.....	8353
pot, muffle-type, for high temperature.....	472
powdered coal, ash removal.....	7220
molten slag removal.....	7220
turbulence and combustion, discussion.....	5713
reverberatory, copper smelting in, improvements.....	5830
review.....	6383
rocket-fuel, description.....	1547
science, review.....	4724, 4072
slag-tap, discussion.....	8608

	Item
Furnaces, split, graphite resistor, improvements, description.....	4042
steam boiler, natural-gas-fired, water-cooled, heat absorption, variation, investigation.....	5477
stock flow, study.....	6698
vacuum, design.....	4317
graphite resistor, use in melting zirconium.....	4559
zinc distillation, carbon monoxide and hydrogen as constituents of producer gas, value.....	6516
Furnace atmosphere, gas, handbook review.....	5613
Furnace bungs, malleable iron, behavior of firebrick in.....	7036
Furnace dust, recovery.....	8050
Furnace gases, quicksilver from, condensing.....	1980
Furnace heat absorption, efficiency.....	1422
determination by enthalpy of gases leaving.....	5523
in pulverized-coal-fired steam generator.....	1123, 5522
spreader-stoker-fired steam generator.....	5523
efficiency, shown by temperature, composition, and flow of gases leaving.....	6390
Furnace heat measurement, thermocouples for.....	4525
Furnace lining, wear.....	4408
Furnace bungs, malleable iron, behavior of firebrick in.....	7017, 7036
Furnace oil, combustion productions, composition and effects of exposure.....	8518
industrial and domestic hazard.....	8521
Furnace refuse, combustible, magnetic recovery.....	4574
Furnace slag, copper and lead, petrography, study, discussion.....	2567
Furnace walls, flow of heat through.....	6334
Furnace-wall tubes, coal-ash slag on, thickness, factors.....	6386
corrosion, external.....	6391
Fusulin, manual review.....	1649
determination, by oxidation and petrographic methods, comparison.....	7147
in bituminous coal, determination, electrostatic method.....	1095
in coal, hydrogenation.....	2562
in coal dust, discussion.....	2352
studies.....	2773
Fuse and detonators, description and use.....	3246

G

Gadolinium alloys, preparations, melting, and properties.....	8461
Gases, subsurface pressure, calibration, characteristics.....	7377
sources of error.....	7376
Galena, cleavage surfaces, discussion.....	3495
microscopic study.....	3510
floatation experiments, oxygen-free.....	6313
Galena district, zinc mines, new.....	4778
Gallium, annual review.....	2055, 2558
Gallium oxide, entropy.....	4389
heat capacity, at low temperature.....	4389
Calvanometer, electronic contacting, for temperature control, description.....	6372
Gamma radiation, exposed metal porphyrin complexes, protective action of crude petroleum.....	1948
Gamma-ray detector, use in oil field surveys.....	259
Gangue, free, in ores, Tri-State District.....	1288
Gargues, carbon monoxide in.....	4273
ventilation.....	4101
Garnet, commercial, mineralogy.....	5531
electrostatic separation, patent.....	2869
Gases, absorption, measurement apparatus.....	5891
analysis, apparatus.....	1025, 5224
by low temperature distillation.....	1058
by Orsat apparatus.....	4111
carburetor adjustment by.....	2119
data.....	2420
errors.....	1053
improved compensator for.....	3113
nitrogen oxides in, formation.....	4112
review.....	4095
artificial, pump- and resin-forming constituents in.....	948
association with terrestrial helium.....	4703
at furnace outlet, composition and temperature.....	1304
automobile exhaust, exposure, results.....	6847
in vehicular tunnel, relation to ventilation.....	2186
removal from Experimental tunnel, Bureau of Mines study.....	2130
sampling and analysis.....	2123
butane for, enrichment.....	6795
chemisorption of.....	5207
coal, data.....	7403
separation of hydrocarbons in, fractional distillation.....	6537
coal mine, origin.....	6463
pressure.....	6463
review.....	6763
coke-oven, domestic use.....	1810
with batch autoclaves, coal hydrogenation.....	6226
anesthetic, mixtures, static-spark ignition, minimum charge energy.....	7713
fire and explosion hazards.....	4085
flammable properties, at high temperatures, determination.....	4345
ignition by flames.....	8376
ignition temperature, drop-method apparatus.....	7083
effect of ionization.....	4733
manufacture in generators, from ignited fuels, patent.....	5793
patent.....	5780
purification, patent.....	960
combustion, characteristics, record.....	1544
study.....	3170

Gases combustion, data.....	3121, 4740, 4741
heat transfer from, effect of flame-generated turbulence.....	4193
compressed, water content.....	1809
continuous production, patent.....	5005
cycling, batch-type, recovery of oil.....	1380
dangerous, working in, safety.....	4250
detection and measurement.....	270
use of flame safety lamps, aspects.....	3938
determination, report.....	7134
detonating, explosion rate, chain reaction theory.....	4707
detonation in, description.....	3121
deviation determination, use of Burnett apparatus.....	1012
diatomic, incomplete rotational excitation, evidence.....	4748
dissociation equilibria.....	4751
dissolved, corrosion of steel in water.....	8167, 8169
effect on coal-to-oil conversion.....	6946
effect on oil production.....	7044
electrochemistry.....	4787
equation of state, at high pressure.....	877
exhaust, effect on psychological test performance.....	1909
in vehicular tunnels, quantity and composition.....	2485
explosive, heat capacity, determination, experimental method.....	4746
nonturbulent, combustion waves in.....	4742
extraneous, effect on oil well.....	4452
fire, Universal gas masks, for protection.....	6927
flammability, handbook review.....	5608
flow, combustion wave in, development.....	1849
determination, by pressure.....	6324
in blast furnace.....	4409
study, by mercury-vapor method.....	3807
in pressure pipelines.....	4072
in small blast furnace, investigation.....	3806
rate variation, effect on decomposition of pyrite, in clay.....	3089
through coal, discussion.....	4047
through packed tubes, heat transfer, correlation for particles.....	4690
effect of particle characteristics.....	4695
through pressure lines.....	6327
flue, sulfur recovery from, air pollution report.....	4048
temperature measurement, errors.....	6727
fractionation, at low temperatures, method.....	1041
foundry, gray iron, equipment requirements, air pollution control.....	4957
frictional ignition, by mining machines.....	3428
from anthracite.....	5616
production methods and economy.....	5617
from coal, by low-temperature carbonization, hydrocarbons in.....	2722
fractionation analysis.....	2728
by hydrocarbonization.....	5631, 5632
research and development.....	7498
from coal-water-gas tar mixtures, by destructive distillation, method.....	856
from solid fuels, manufacture.....	2863
from iron-carbon alloys, extraction by vacuum melting, discussion.....	3604
from synthetic liquid fuels, byproduct, for public utility.....	7583
from thermal decomposition of paper.....	5516
furnace, aluminum, content.....	231
blast, flow, in large mains.....	395
boiler, sulfur content, determination.....	7614
condensing quicksilver from.....	1890
domestic heating, elimination of leakage.....	6140
gasoline in, determination.....	1891
heat capacities.....	4751
high B.t.u., coal as source, manufacture, economics.....	4241
homogeneous, kinetics.....	4220
hot, corrosion by.....	1406
ignition, comparison with limit flame temperature.....	8023
combustion mixtures.....	8374
of fuel-air mixtures, application to firelamp explosions.....	8378
ignition.....	4754
illuminating, removal of cyanogen.....	6180
removal of sulfur.....	5800
in air, rapid determination, discussion.....	542
in closed containers, rate of mixing.....	7314
in flames, equilibrium concentration.....	7085
in high-velocity gas stream, temperatures, measurement.....	8070
in metals, solubility.....	3037
in mines, data.....	8528
industrial, flammability, toxicity, and allowable limits.....	4434
handbook review.....	5612
protection of army gas masks.....	2489
injection into oil sands, effect on oil production.....	8302
inert, ions as catalysts.....	4801, 4808
spectra of.....	6304
liberation, "bottom hole" sample, Bureau of Mines study.....	4818
from solution in oil, reservoir changes.....	4820
light elemental, recovery.....	8210
liquefied, blasting with.....	6080
manufacture, physical chemistry.....	6670
production of oxygen.....	5021
trenis.....	5636
use of oxygen.....	5621-5623
committee report.....	5624, 5627
manufactured, use, hazards.....	7253
metal mine, hazards.....	1824, 4878
protection.....	1824
occurrence.....	3383
migration, tracing with helium.....	2769

	Item		Item
Gasess, mine, harmful, detection, analysis.....	6747	Gas explosions, No. 3 shaft, Woodward Colliery, discussion.....	2624
ignition, prevention, safety requirements.....	4400	ozone, thermal decomposition, effect of hydrogen.....	4727
report.....	8179	physics of.....	4760
problems.....	1028	pressure and time, recording.....	4762
mineral losses in.....	1454	review.....	4721, 4722
motor exhaust, in air, determination of carbon monoxide in.....	7626	Gas factor, effect of gas lift.....	618
nitrogen oxides in, determination.....	3861	Gas fields, report.....	608
noxious, relation to respiration, review.....	2379	study.....	6331, 6332
in flooded cellars, inspection for, Pittsburgh.....	2599	use of helium as tracer.....	2770
pipeline, from coal.....	6642	Gas filter, coke-bed, removal of dust from.....	2022
pipeline flow, formulas, discussion.....	6333	Gas flames, as air tester, review.....	8531
poisonous, from carbon tetrachloride fire extinguishers.....	2474	data.....	4740, 4741
pressure pump for circulating in a closed system.....	4354	extinction by steam, discussion.....	4092
propane for enrichment.....	6795	temperature calculations, handbook review.....	6810
pure, hydrates of.....	1805	velocity, handbook review.....	5009
reducing, deoxidation of iron oxide materials in, rate deter- mination.....	471	Gas furnace atmosphere, handbook review.....	5613
rare, handbook review.....	6408a	Gas generating apparatus, California.....	5783
recovery, electrostatic precipitators for, efficiency, aluminum alloy processing.....	5407, 6408	Gas hazards, petroleum industry, Bureau of Mines course.....	4432
removal of sulfur from.....	4832	Gas heaters, from old engine, use in oil fields.....	4819
repressuring.....	1942	Gas hydrates, composition and equilibrium, data.....	2771
separation, by diffusion.....	3040	description.....	1803
by fractional distillation.....	5105	in natural gas pipelines.....	1804
fractional permeation through membranes.....	1043	field practices.....	1802
apparatus.....	8211, 8218	relation to pipeline operation.....	1797, 1808
engineering aspects.....	7423	study.....	1807
source of heat, comparison with coal.....	8217	Gas imperfections, hydrocarbons and derivatives.....	8094
specific gravity, determination.....	7830	Gas industry, BM-AEC program.....	7632, 7537
stabilization of flame.....	6323	gummy-meter problems.....	935
storage, underground, in coal-mining areas.....	4754	health and safety, discussion.....	6803
sulfur in, coal carbonization, causes.....	8287	mixing and changeover problem, concepts.....	4731
tables, data review.....	6168	relation to coal carbonizing and processing.....	2245
temperature and latent energy of flame, discussion.....	878	relation to progress in science.....	2284
thermo-osmosis, through membrane.....	4771	Gas injection, secondary recovery of oil, Brenneman Field, Hancock County, Pa.....	7763
through packed tubes, cooling.....	8212	Gas-injection wells, secondary recovery, water injection, experi- ments.....	601
toxic, detection, methods.....	4704	selective plugging, with smoke.....	317-319
from industrial explosives.....	6919	Gas jet, turbulent, concentration fluctuations.....	6534
permissible limits, mine and tunnel ventilation.....	3823	sampling tube measurements.....	6534
physiology, toxicology, and therapy, review.....	6787	Gas kinetics, notes on.....	4791
protection against, methods.....	8525	Gas lift, aspects.....	522
toxic quantities, study of.....	6919, 4526	description.....	3652
turbulent, combustion waves in.....	2409	dewatering of gas wells.....	8127
under pressure, dewpoint determination, apparatus.....	4192	effect on oils.....	834
use, problems.....	1801	physical properties.....	835
Gas air flames, natural, turbulent burning velocities.....	2655	practice.....	839
Gas-air mixtures, flammable, ignition process, apparatus for study re-forming, nickel catalyst for.....	6540	Gas lift pumping, oil fields, mechanical installations.....	5358
flow through porous medium.....	6086	California.....	5356
Gas associations, cooperative work with Bureau of Mines.....	5100	Gas-liquid analysis, chromatographic, of aromatic hydrocarbons.....	1172
Gas black, flammability.....	1169	Gas-liquid chromatographic method, separation of phenols as trimethylsilyl ethers.....	4615
Gas burners, air entrainment in.....	6322	Gas-liquid chromatographic resolution, xylene tetrahalophthalate liquid phases.....	4616
low-pressure, in oil field boilers, use.....	4670	Gas masks, army, in sulfur dioxide atmosphere.....	2424, 4289
Gas calculations, handbook review.....	8073	protection against industrial gases.....	2489
Gas circulator, magnetic.....	850	army-type, firefighters experience with.....	4279
Gas combustion retort, oil-shale, development and operation.....	5611	as respirator, use.....	2427
pyrolysis.....	4263	for use at fires, safety, experiments.....	4258
Gas compression, costs and power requirements, nomograph.....	5225	description.....	6927
Gas condensate fluids, corrosion resistance to, steel alloying for.....	6207	hazards.....	274
Gas condensate reservoirs, corrosion.....	4252	for ammonia, approval.....	4201
equilibrium factors.....	2044	laboratory work.....	4265
hydrates.....	2031	review.....	4200
reserve fluid, composition.....	2031	in industry.....	328, 2468
phase behavior.....	2029	safety, review.....	4275
Gas condensate wells, corrosion control, field and laboratory tests.....	2018	tests, methods.....	2475
alkalies in.....	2050, 2051	use.....	274
sodium chromate in, field and laboratory tests.....	2010-2048, 2050, 2051	safe practice.....	2426
sodium hydroxide-sodium chromate mixtures in field and laboratory tests.....	2049	Gas mask fabrics, rubber, effect of exposure to weather.....	6082
corrosion inhibitor in.....	2013	Gas meters, deposits in.....	948, 950
flow string, liquid, distribution.....	2045	Gas mixtures, anesthetic, static-spark ignition, minimum charge energies required.....	7713
flow test data, Bureau of Mines.....	2028	benzol in, determination.....	1038
properties of fluids, measurement equipment.....	2038	carbon dioxide in, determining and recording.....	7312
wellhead sampling.....	2052	combustible, flame temperature, effect of electric field.....	4734
Gas condensate wells service, metals for, corrosion resistance of, lab- oratory determination.....	2033	complex, flame temperature, calculation method.....	4772
Gas condensers, tubular water, annual review.....	957	complex, analysis, apparatus.....	7815
Gas conservation, Bureau of Mines tests.....	6321	explosion process, review.....	4723
mud process.....	102	explosive, combustion waves in, nonisotopic propagation.....	5105
problems.....	2653	ignition, by electric sparks.....	4755
Gas cooling apparatus, use, patent.....	5790	minimum energies.....	623, 624
Gas detection, electric face equipment.....	240	quenching distances.....	623
Gas detector, portable, description.....	1020	nonisotopic propagation of combustion waves in.....	5165
Gas engineering, effect of conservation.....	6325	hydrogen in, determination.....	1035
Gas evolution, function of vapor adsorption and high temperature evacuation.....	163	hydrogen and carbon monoxide in, fractionation combustion, use of cuprous oxide.....	1037
measurement apparatus.....	5881	hydrogen sulfide in, determination.....	2672
Gas expansion porosimeters, description.....	6083e	methyl chloride in, determination.....	87
Gas explosions, "afterburning", discussion.....	4758	nonturbulent, flames of, theory of ignition, quenching, and stabilization.....	8090
anomalous pressures and vibrations.....	4735	separation, method.....	7199
coal mines, origin.....	6452	separation from carbon dioxide, patent.....	524-526
coal seams, working, methods.....	6492	separation from hydrogen sulfide, patent.....	523-526
data.....	4740, 4741	separation of oxygen from.....	8219
Experimental coal mine, study.....	6433	use, separation of carbonic anhydride and hydrogen sulfide, patent.....	525
industrial, prevention.....	8631	water in, determination.....	2672
kinetics.....	4711		

Item	Item
Gas oil, data, review.....	7307
physical constants.....	4578
turn from, physical constants.....	4573
Gas-oil field, report.....	510
Gas-oil ratios, effect of temperatures and separator pressures.....	1384
Gas-oil systems, relative permeability studies.....	4868
Gas-oil wells, combination, deliveries.....	597
Gas pipes, deposits in.....	946
Gas pipeline, largest, capacity.....	3991
Gas pressures, in uncarbonized charge.....	6415
Gas producers, data.....	628
design and operation, handbook review.....	8618
trials with Alberta coals.....	627
use on motor vehicles, patent.....	5787
use with automotive mechanisms, patent.....	5788
Gas, producer zones and fuels, handbook review.....	5814
Gas production, method, patent.....	5789
refining and utilization techniques, gains.....	5367
waste reduction methods, study.....	2061
Gas purification, bibliography.....	6192
iron oxide in, conditions affecting activity.....	1043
Gas reaction, in high solid flow, measurement.....	1911
validity of Faraday's laws, proof.....	4788
Gas reserves, estimating problems.....	837
Gas retorts, inclined, use, carbonization of coal.....	5009
Gas sampler, automatic constant pressure, patent.....	6128
Gas-sampling tube, spectrometry, use.....	818
Gas scrubber, constant head, for small pressure drops.....	7310
Gas scrubbing apparatus, use, patent.....	6700
Gas-solid contact, in blast furnaces, importance.....	4151
In shaft of blast furnace.....	4417
Gas storage projects, deliverability tests.....	8122
Gas storage wells, behavior.....	8121, 8123
Gas supply, source, fuel synthesis program.....	7580, 7581
Gas-Synthesis Demonstration Plant, Bureau of Mines.....	1930, 3090
Gas-synthesis demonstration plant, Louisiana, Missouri, develop- ments and results.....	6736
Gas temperatures, adiabatic contact reactions, calculation.....	860
In internal combustion engine, measurement, discussion.....	4767
measurement, with thermocouples.....	1410
radiation error.....	4524
Gas transmission lines, leakage through.....	6320, 6330
Gas turbines, corrosion in.....	1431
external deposits in.....	1431
Gas utility systems, hansen burners in, fuel-exchangeability.....	3180
yellow tipping.....	3180
Gas vibrations, combustion temperatures and pressures.....	8076
Gas-water shift reaction, cobalt-copper catalyst for, preparation.....	7511
Gas wells, back-pressure tests, nongraphical solution.....	1908
cleaning, "bubble baths".....	1080
control of.....	621
corrosion in, effect of sodium chromate.....	2034
deliveries.....	6328
de-watering, by gas lifts.....	8127
drilling.....	840
field data, comparison with theoretical performance.....	5370
flow, data.....	4817
flow, standardization.....	841
foaming agents for, treatment cost.....	1950
large capacity, productivity tests on.....	5371
operation.....	521, 840
productivity measurement, friction factors, determination.....	7376
shooting, research.....	3058
water-logged, foaming agents for, treatment.....	1960
Gas-well spacing, effect on recovery, discussion.....	1011
Gas yields, effect of washing coal.....	2394
Gaseous fuels, chemical survey.....	2322
committee report.....	2290-2292, 2390, 2391
discussion.....	1419
from solid fuels, production.....	2313, 2336
furnaces, description.....	2058
Gaseous materials, testing, review.....	4096
Gasification processes, underground, parameters, energy and economic evaluation.....	6041
Gasifiers, atmospheric pressure, design.....	484
pulverized-coal-fired, carbon monoxide production.....	3152
hydrogen production.....	3152
Gaskets, metallic, for glass to metal joints.....	2131
Gasoline, analytical distillation, electric heater for.....	1700
aviation, characteristics and production.....	3744
survey.....	3745
chemical treatment, effect of fractionation on.....	6704
constituents, separating from natural gas.....	1060
content determination.....	1923
evaporation losses.....	6868
reduction, bulk-storage stations.....	6900
exports, data.....	7557
for explosive mixtures, quantity, production.....	1031
fractionation effect on chemical treatment.....	6704
free sulfur from, removal by lime and hydrogen sulfide.....	2134
from coal, production.....	2278, 2279, 2435, 7487
from coal hydrogenation, composition.....	2187
from hydrocarbons, manufacture.....	6579
from lignite.....	2278
from natural gas.....	1057
composition.....	1049
Gasoline, from natural gas, condensation.....	1061
extraction.....	1086, 1088, 7110
transportation, hazards.....	1924
from oil shale, production.....	2435
from petroleum, manufacture.....	6579
from shale, catalytic hydrogenation.....	1445
from synthetic crude oil.....	7382
from uncondensed still vapors, recovery methods.....	1925
hydroperoxides in, determination by polarographic method.....	8290
In gas, determination.....	1891
in motor vehicles, losses, by incomplete combustion.....	2487
refinery evaporation, methods of decreasing losses.....	6880
motor, specifications development, problems.....	1708
natural-gas, economics of.....	3787
octane number of, annual review.....	621
olefins in, mass spectrometer-type analysis.....	6333
physical and chemical properties, tests.....	6340
production and consumption.....	6188
quality, data.....	3867
recovery, use of charcoal.....	1062
retraction, losses.....	1027
small mines, hazards.....	8011
specifications.....	2643, 4513
supply, foreign.....	7588
use by, Government trucks, saving by carburetor adjustment.....	4191
Gasoline-air mixtures, flammable limits.....	1029
Gasoline distillation, electric heaters for, durability.....	4000
Gasoline industry, California, annual review.....	8267
natural, production, effect.....	3788
Gasoline substitutes, from coal.....	2248, 2461, 4518
Gasoline-tax refunds, source of economic information.....	847
Gasoline vapor, and oxygen-breathing apparatus.....	2469, 4288, 4427
In air, determination.....	1039
Gasoline vapor and air, flammable limits.....	1030
Geiger-Müller tube, checking device.....	280
Gelatin dynamites, oxygen balance, effect on gaseous detonation products.....	4113
Gelatin explosives, Bureau of Mines, tests.....	3430
Gems, transparent, coloring and thermophosphorescence by ra- dium radiation.....	381
Generating station, Bell Gate, fuel-bed tests, discussion.....	6679
Generators, electromagnetic sound, for producing high-frequency sound.....	6725
manufacture of combustible gas in, from ignited fuels, patent.....	5793
steam, corrosion, effect of copper and iron oxide deposits in tubes.....	1407
effect of humidifying combustion air.....	1418
furnace heat absorption in.....	1423
water-gas, clinkering in, relation to fusibility of ash.....	6389
Generator fuel, bituminous coal as, data.....	1938
water-gas manufacture.....	5801
coal as, adaptability, discussion.....	6166
water-gas, bituminous coal as, use.....	5797
water gas manufacture, adaptability of coal.....	5782
Geneva Conference, silicosis, progress in combatting, summary.....	6794
Geologic structures, carbon dioxide accumulation in, discussion.....	7978
Geophone, for locating mine fire areas, possibilities.....	7811
Geophysical industry, Federal Explosives Act, cooperation with Bureau of Mines, progress.....	4439
Geophysical problems, Bureau of Mines, work.....	8431
Geophysical prospecting, explosives used, instructions, needs.....	4436
Bureau of Mines.....	7905
Geophysics, applied, annual review.....	4604
Geology, bauxite, study.....	2091
carbon dioxide, accumulation in geologic structures, discussion.....	6486
Cartersville, manganese reserves.....	6410
clay, for paper fillers.....	8183
for rubber fillings.....	8180
refractory possibilities.....	7544
study.....	2984
washing tests.....	7546
knollin, manufacture of face brick.....	7545
kyanite, massive, refractory properties.....	5078, 6082
kyanite ores, concentration.....	1276, 5844
sillimanite, refractory properties.....	5083
structures, carbon dioxide in, discussion.....	6486
German coal planer, mining longwall face, experiment.....	3241
Germanium, annual review.....	2219
from coal or ash, production.....	4947
In coal ash, from powerplants.....	1428
separation from zinc concentrates, by fuming.....	4348
traces, analysis by fluorescent X-rays.....	1083
Germanium oxide, entropy.....	4389
heat capacity, at low temperatures.....	4389
Germany, coal, preparation.....	8486
coal mines, experience.....	530
coal mining, wartime.....	4962
lubricants, synthetic, manufacture.....	6967
mineral resources, status.....	8524, 8433
oxygen gasification, processes.....	5019
mining, problems.....	6502
study, in Soviet Union, appraisal.....	2
petroleum, research by technical oil mission.....	8971
Ruhr district, coal planer, use.....	879
synthetic fuel industry, records, capture.....	6943
synthetic liquid fuels, manufacture.....	6947
process, development.....	7482

Item		Item	
Hessler method, for measuring plasticity of coal, discussion.....	867	Graphite, annual review.....	1641, 3223, 3902
Gilsonite, synthetic liquid fuels, source.....	1448	graphitizing, effect of tar content and variable pressure.....	7647
Glass, coloring and thermoluminescence by radium emanation.....	4784	Ceylon, Canada, and Alabama, behavior under brass foundry practice.....	7639
flow characteristics, study, discussion.....	405	flake, war uses.....	5924
molten, in melting aluminum oxide-silicon dioxide refractories, use.....	1358	for crucibles, possibilities.....	3222, 3224
Glass columns, packing support for.....	5932	for crucible-making purposes.....	7541
Glass joints, silica, cement for, discussion.....	5095	in carbon, determination.....	7140
Glass sands, classification.....	2531	natural flake, separation from mineral matter.....	6312
cleaning.....	1551	optical properties.....	4086
grinding.....	2531	products preparation, methods, cost.....	2910
spectrochemical analysis.....	7300	report.....	6357
Glass stopcocks, high precision, production, patent.....	5130	structure in relation to crucible making.....	7649
Glass-wool flowmeters, calibration of.....	3185	Graphite ash, effect on refractoriness of bond clay.....	658
Glazes, in pottery industry, properties.....	7032	fusibility.....	658
mat, relation to lime-alumina-silica system.....	8349	Graphite ash-clay mixtures, fusibility.....	4849
Glen Ayr mine, mine-rescue maneuvers at.....	6017	Graphite crucibles, bond clay in, properties.....	659
Glycol diacetate, properties.....	7005	Graphite-like layers, in coal.....	2108
Glycol diethylene, properties.....	6561	Graphite-red hairpin-resistor radiation furnace, for high temperatures.....	4507
Glycol dinitrate, in dynamite manufacture.....	6559	Graphite resistor furnace, split, improvements, description.....	4042
properties.....	6562	vacuum, for melting zirconium.....	4559
Gold, annual review.....	1105, 3540-3547, 6718, 7891, 7900, 8012	Graphite schists, weathered, flotation for crucible flake.....	1245
black sand as source, recovery.....	1037	Graphitization, iron-carbon alloys.....	8340
collection, by iron abraded in grinding.....	8015	Grates, burning coal on.....	5043
deposition from solution, electrolytic cell for, patent.....	8038	chain, in coal furnaces, refractories service conditions.....	7214
dissolution rate, in cyanide solutions, studies.....	2152	Grating, comparison with prism, for spectrochemical analysis, data.....	7304
elusive, data.....	8041	Gravel, annual review.....	3888, 3889
extraction, process, patent.....	8639	developments, economics.....	7602
floatability, effect of mill grinding on, determination by microscope.....	3518	report.....	7674
floatation, factors affecting.....	4659	Gravel industry, economic aspects.....	3890
in large scale copper concentrator.....	4661	minerals from, data.....	7675
in milling ores, factors affecting floatation.....	4059	progress.....	7067
in pyrite.....	3497-3499	Gravily concentration, fundamentals.....	129
lost in tailings, characteristics.....	3508	Great Britain, air preheaters, corrosion and deposits.....	565
metallic, relation of particle size to floatability.....	4660	coal mines, multiple short-delay blasting, safety research.....	5537
metallurgy, actual tendencies.....	8063	physical conditions, comparison with United States.....	7676
outlook.....	7609	pumping.....	6483
placer mining, with drag-line dredges.....	5257, 5295, 7665	strata control, research, discussion.....	3106
precipitation by charcoal in floatation.....	8070	fuels, discussion.....	6378
production, annual review.....	7891	fuel research.....	6378, 6048
U.S.S.R.....	8055	mine accidents, prevention, cooperative research with United States.....	6421
prospecting for.....	2823, 2821	oil, from coal, report.....	6946
recovery, by amalgamation and cyanidation.....	4650	synthetic fuel industry, report.....	6946
developments, discussion.....	5297	synthetic-liquid fuel processes, development.....	7492
relation to economy.....	5269	Grecian magnetite, mining.....	7644
relation to peace.....	5286	Green River, Wyo., oil shale.....	7738
sampling, description.....	2830	Green River oil shale, carbonates in, thermal decomposition rates.....	4180
segregation in ball mills.....	8048	specific gravity oil yield, application.....	7261
supply, source.....	6549	Greenstone, safety appliance.....	895
tarnished, discussion.....	3511	Grindability, coal, determining.....	8495
Gold field, ground movement, studies.....	6445	estimation.....	8506
Gold industry.....	5294, 5558	test methods, comments.....	2237
Gold mine, fire control.....	271	Grinding, Bureau of Mines studies.....	896
Gold mining industry, by States, annual review.....	6190	calcining as aid.....	5628
5197, 6190, 6201, 5203, 5226-5228, 5507, 5571, 5576, 5581, 5586, 6257		coal, ball-mill method, discussion.....	7122
Gold money, discussion.....	7922	methods, investigations.....	7121
Gold ores, antimonial, electrolytic recovery of antimony from.....	4508	conserve, application.....	1281, 1282
calcined, cyanidation, effect of refractory lead minerals.....	4005	differential, as aid in ore concentration.....	1840
carbonaceous, treatment.....	3139	efficiency, evaluation.....	1262
floatation.....	8040	experiments, conclusions.....	1297
laboratory testing, for cyanidation.....	8044	iron ore, liberation of minerals.....	1259
milling, trends.....	8062	magnetite, efficiency, measurement standard.....	1731
Gold rush, depression.....	4496	metal ores, hydrometallurgical treatment, Bureau of Mines work.....	3144
Gold-silver arsenopyrite ores and concentrates, roasting.....	8051	progress.....	1743
Gold-silver mining industry, States east of Mississippi River, financial statement of, report.....	3205	relation of ball wear to power.....	1853
Gold-silver ores, soluble sulfides content, determination.....	1502	scale, high speed, extraction of tungsten from.....	7075
Gold-silver sulfide ores and concentrates, roasting.....	8052	surface area, measuring, discussion.....	6660
Gold-silver telluride ores and concentrates, roasting.....	8053	test observations.....	1298
Golden, Colo. Field Station, Bureau of Mines.....	5958	Grinding mediums, wear resistance, determination, laboratory method.....	3148
Golden Trend mine, Oklahoma, crude oils, refining properties.....	7374	Grinding pebbles, domestic sources.....	8306
Gouverneur, N.Y., ores from, froth floatation.....	6749	economic review.....	8305
Government aids, to industrial development.....	2249	Grinding tests, use of coeclimeter in.....	1855
Government-operated plants, experience.....	392	Griffiths, identification.....	4993
Government-owned plants, hand-fired furnace, equipment experience.....	388	occurrence.....	4003
experience with coal and equipment, discussion.....	5671	Ground conduction system, mine-to-surface signaling.....	4011
Government Printing Office, metals in.....	8046	Ground movement, annual review.....	6443
Government research, use.....	4006	problems.....	6480
patentable discoveries, industrial use.....	1460	studies.....	6438, 6440-6442, 6444-6451
value to small business.....	2305	Ground water, tracing.....	110, 113
Grady County, Okla., Chickasha gas field, engineering.....	4456	Grounding devices, for electric shock.....	1809
Grand Forks, N. Dak., Bureau of Mines, lignite, drying and gasification.....	5648	Grouting problems, Leadville tunnel, driving of.....	8036
Granite, jet-piercing blast holes in.....	7683	Grover waterflood, detergent injection.....	1965
medium-grained, linear analysis.....	1183	Grudekoks, discussion.....	3767
Granite-cutting plants, air in, dustiness of.....	4286	Grundy coal field, mining methods.....	7789
Granular desiccants, drying liquids, by adsorption.....	7381	Guinea pigs, response, to butanone.....	6000
Granular material, multistaged, mixing and sampling.....	1084	to commercial organic compounds.....	8119, 8120
Granular materials, specific surface, determination, suspension turbidimeter.....	6667	to secondary amyl acetate.....	6002
Granular resistor carbons, resistivities.....	8320	to vapors of ethyl bromide, microscopic pathology.....	8118
Granular solids, cavities, method for filling.....	6899	to vapors of organic compounds.....	6842, 6851
Granulites, industrial materials, data.....	4170	to vinyl chloride.....	6003
mineral industry, data.....	3876	Gulf Coast, petroleum, properties.....	4516
roofing, data.....	4175	Gulf Coast ports, mineral oils, exports.....	6350
Graphs, editing for publication.....	1307	Gulf Coast region, oil, secondary recovery, research.....	2059
		Gum, in motor fuels, problem.....	6700
		Gum-forming constituents, in artificial gas.....	649

	Item
Gun, cement, in mining.....	6124
Gun cotton, sand fusions from.....	5406
Gun forgings, nickel steel, flaky and woody fractures in.....	1220
Gypsum, agricultural, markets.....	6458
anhydrite, Lyon Mountain magnetite deposits, northeast Adirondacks.....	8049
annual review.....	684, 4635
in portland cement, relative value.....	6670
rate of solution.....	6637
reserves, physical chemistry.....	781
Gypsum resources, Oklahoma, Carter area.....	7076

H

Hafnium, electrorefining.....	635
Kroll process, properties, mechanical.....	257
low-concentration, in zirconium, determination.....	6427
melting point, determination.....	1792
molted-state, treatment processes and apparatus, improvements.....	4530
transformation temperature.....	1793
X-ray spectroscopy as production control method.....	5428
Hafnium alloys, molted-state, treatment processes and apparatus, improvements, patent.....	4536
Hafnium carbide, as diamond substitute, study.....	1443
Hafnium dioxide, entropy.....	7768
heat capacity, at low temperatures.....	7768
heat content, at high temperatures.....	5899
Hafnium disilicides, physical and X-ray study.....	1444
Hafnium metal, preliminary investigation, by Kroll process.....	2932
Hafnium nitride, heat of formation.....	3904
Hafnium oxide, heat of formation.....	3904
manufacture, method.....	3538
Hafnium tetrachloride, entropy.....	7768
heat capacity, at low temperatures.....	7768
heat content, at high temperatures.....	5899
Hafnium tetrafluoride, entropy.....	4301
heat content, at high temperatures.....	4301
Hafnium-zirconium, annual review.....	8272
determination, differential spectrophotometry.....	2720
high iron carbide catalyst, Fischer-Tropsch synthesis.....	7259
halides purification.....	7451
halogens, detection, arc spectrometry.....	4007
flames, light emission.....	7270
Halsey's adsorption equation, multilayer, description.....	3261
Hancock County, Pa., oil, secondary recovery by gas and air injection, Brennenman Field.....	7763
Hand auger, use in clay.....	4577
Hardwood oils, flotation, experiments.....	6264
Haulage, bituminous coal mine, by locomotive and conveyor rise.....	8574
by truck.....	8618
trends.....	8619
bituminous-coal strip mines.....	8582-8584
coal-mine, by truck.....	8617
hazards.....	1554
gas ignition prevention, safety installations.....	4400
lignite, by truck.....	8018
lignite strip mines.....	8584
underground, by storage-battery locomotives, discussion.....	1201
Haulage, accidents, prevention, program.....	4402
small mines.....	7164
Haulage safety device, for steep grades.....	5540
Hazards, coal industry, study.....	49
electrical, mechanized mining.....	2983
recognition.....	3411
small mines.....	6609
Industrial, analytical chemistry of, review.....	4093, 6928
mechanized mining, controlled by management.....	2591
reduction, blasting in coal mines, method.....	2407
in mine explosions, electrical apparatus for.....	2408, 2411
Hazel Brook mine, fire control.....	302
Head, vulvular, in distilling column, contamination, prevention.....	3798
protection of, American standard safety code.....	3390
Headton, Okla., oil, production.....	6556
waterflooding, potential.....	6553
Health, annual review.....	3308, 3307
bituminous coal mines, effect of disaster.....	6783
Bureau of Mines, history.....	6776
in industry.....	6780
program.....	2525
statistical studies.....	6820
work.....	800, 6814
coal mining.....	41
annual review.....	6774
progress.....	3331
prospects.....	6774
diseases, occupational, review.....	6819
fatigue, industrial, prevention.....	6807
relation to industrial accidents.....	6795
study.....	6808
Federal inspection, promotion role.....	6787
gas industry, discussion.....	6803
in industry, mental hygiene.....	6842
mines, comparison of injury records of mechanical and hand-labelling.....	8177
foreign countries.....	6772
methods.....	8328
promotion by Federal Service.....	6775

Health, miners, discussion.....	3325
diseases, history, review.....	6817
prevention.....	6793
morbidity studies.....	6785
occupational ailments, elimination of.....	6761
relation of age to accidents.....	6353
relation to gasoline locomotives.....	3708
miners, study.....	6781
mining, relation to illness.....	6706
mining industry, hazards.....	6773
outlook.....	3374
occupational disease hazards.....	6921
Alpha Chi Sigma.....	6915
oxy-acetylene industry, hygiene studies.....	8323
refrigerants, safe use.....	6923
relation to air pollution, studies.....	4943
relation to mine ventilation.....	3324
research.....	2639
respiratory protection devices, Bureau of Mines approval.....	8314
permissible.....	8530
selection.....	8527
small mines, use of handtools.....	8713
transportation of injured workers.....	6813
workers, improvement.....	6777
Health and Safety Service, Bureau of Mines, war activities.....	3280
Health conservation, use in developing mine-labor efficiency.....	6813, 4915
Health education, in industry.....	4908
Health hazards, sewage works.....	4901
Heap leaching, accelerated.....	4392
Heart, behavior, carbon monoxide asphyxia, studies.....	3233
Heart construction, iron industry.....	4421
Heat, effect on coal, microscopic revelation.....	7855
flow through boiler tubing, discussion.....	6381
flow through furnace walls.....	6334
for retorting oil shale, requirements.....	7384, 7385
in small mines, relation to health.....	8012
rearranging, with coal and coke.....	995
sensitivity of detonating compounds to.....	7907
utilization, reduction of fuel requirements by.....	7940
Heat absorption, distribution, Twin Branch boiler.....	6377
furnace, pulverized-coal-fired steam generator.....	5822
spread-stoker-fired steam generator.....	5823
natural-gas-fired, water-cooled, steam-boiler furnace, variation, investigation.....	5477
variation, pulverized-coal fired slag-tap steam boiler.....	5898
Heat balances, kilns, determining by equations and quadrant charts.....	7201
Heat-content data, high-temperature, calculation.....	6115
Heat exchangers, coal hydrogenation plants, design.....	4038
Heat data, reliability, factor in calculating equilibria involving methanol.....	7323
Heat flow, into concrete walls, vehicular tunnels, Experimental mine.....	3074
Heat generation, electric sparks, to spark electrodes.....	6698
Heat-insulating material, use, patent.....	6791
Heat loss, from human body, application to air conditioning.....	3810, 3813
through furnace walls, calculation method, discussion.....	5681
to spark electrodes, rate.....	6698
Heat pump, for cooling and heating, discussion.....	1110
Heat transfer, between fluid and porous solid, data.....	873
temperature-distribution function, tables.....	891
from combustion gases, effect of flame-generated turbulence.....	4193
furnace, evaluation of factors affecting.....	3120
gas, through packed tubes, correlation for particles.....	4699
in small domestic boilers.....	628
boiling water.....	1420
through fluidized beds of fine particles.....	4703
through packed tubes.....	4691
chemical reaction.....	4093
Heat transmission, refrigeration data, status.....	5657
Heat treatment, effect on release of stress in bronze castings.....	234, 2072
Heater, electric, coal free-swelling index, determination.....	7127
for analytical distillation of gasoline.....	1700
for gasoline distillation, durability.....	4900
gas, from old casing, use in oil fields.....	4819
natural gas, carbon monoxide from, hazards.....	4122
Heating, domestic, oil for.....	7567
spontaneous, in stored coal, prevention.....	407
Heating plants, fly ash and smoke prevention.....	412
operation, data.....	437
in vehicular tunnel, Experimental mine.....	3096
Heiden, Arthur E., Joseph A. Holmes medal, presentation.....	3329
Hegeler zinc roaster, heat balance.....	6806
Heidelberg Coal Co., automatic derail and trip position indicator.....	3209
Hellum, addition to anesthetics, explosion prevention.....	7714, 7716
aeronautical use.....	4789
Americanization of.....	8296
annual review.....	482, 1668
as tracer, use in oil and gas fields.....	2770
commercial production.....	1450
compressibility isotherms.....	8305
conservation, necessity.....	7447
demand for.....	1159
description.....	1148, 1160, 1798
development.....	6397, 5401
history.....	1017
dilution of cyclopropane-oxygen, explosion prevention.....	4121
Federal projects.....	718
for airships, production.....	1147, 7448
for Government airships, supply.....	1147

Item	Item
Helium, foreign countries, reports.....	7921a
from hydrogen, thermodynamic treatment of possible formation.....	7792
from natural gas, extraction.....	1021, 1453
high-purity, for aluminum welds, economy.....	5231
in inert gas welding, use.....	5232
history.....	119, 5401
in arc welding, and in caisson working, use.....	378
in deep diving, use.....	3656
in national economy.....	5399
in natural gas.....	7095, 7096
apparatus for determining.....	7309
in water, solubility.....	8304
ionized, and mercury, data.....	4809
Joule-Thomson effect.....	6115
Helium, markets.....	7100
military use.....	1152
production.....	5396, 7100
Bureau of Mines contributions.....	7092
data.....	1152, 1154
method.....	5473, 7098
properties.....	7100
review.....	5398, 5400
terrestrial, origin and association with other gases.....	4783
tracer, studies.....	2767
tracer-gas, studies.....	2766, 2768
migration.....	2769
transportation, high-pressure pipe lines.....	6420
uses.....	1161
Helium-argon system, resistivity.....	4005
Helium and air, use in safe traveling.....	5411
Helium bill, Bureau of Mines viewpoint.....	4888
Helium-ether-cyclopropane-oxygen mixtures, clinical and laboratory data.....	7715
Helium isotherms, compressibility.....	8305
Helium-oxygen, in compressed-air work.....	6832
Helium-oxygen atmosphere, in caisson operations, value.....	6834
in diving, value.....	6834
Helium plants, Amarillo, Tex.....	7094
production.....	7007, 7099
Bureau of Mines.....	5472, 8294
production.....	7446
manufacturing process.....	7008
Helium-shielded arc welding, work review.....	378
Heli Gate generating station, fuel-bed tests, discussion.....	6079
Heliatic, separation by hysteretic repulsion.....	1782
Hemion automatic air-filter samples, air pollution, measurement methods.....	4938
Henelcosans, substitute, heats of combustion.....	4495
Henryetta bed, coal, carbonizing properties.....	1686
Heptanes, heat of vaporization, calorimeter.....	8098
Heptane vapor, heat capacity, calorimeter.....	8098
experimental.....	8096
Heptanaphthene alkylcyclopentanes, thermal data for.....	3151
Heterogeneous catalysis, activation energy.....	7469
Heterogeneous reaction, fluid-phase, physical and chemical relations.....	6645
Hewitt (oil field, Carter County, Okla., petroleum engineering.....	7578
Hexacyclodecane, thermodynamic properties, combustion calorimetry, techniques.....	3851
Hexane, heat of vaporization.....	8097
isomeric, thermal data.....	1919
Hexane vapor, heat capacity.....	8097
Hexanitrodiphenylamine, from chlorobenzene, preparation.....	3732
Hexanitrodiphenylaminoethyl nitrate, analog of tetryl.....	1208
Hexanone vapors, effect on guinea pigs.....	6926
High split seam, petrographic constituents, hydrogenation.....	8420
Hillcrest mine, Alberta, Canada, explosion.....	6436
H. M. T. D. explosive, detonating, description.....	7603
Hobart Butte, as source of alumina.....	3905
Hooped fuel, description.....	1109
Hoisting, safety factors.....	1329
small mines, accidents.....	4853
Hoisting equipment, mines, safe practice.....	4576, 4577
Hoisting practice, Edwards mine.....	4485
Engels mine.....	5596
Hollen mine, blast holes, drilling.....	1977
Holland tunnel, carbon monoxide in, men exposed to, medical study.....	7205
discussion.....	6489
ventilation, chemical control.....	4274
tests.....	2429
Hollow Creek monazite placer, South Carolina.....	4471
Holmes, Joseph A., biography.....	5156
Safety Association award, presentation.....	1828, 3328, 6940
Holmes Safety Association, history.....	2000
State and district councils.....	252
work, Iowa.....	2541
Homes, American, obsolescence.....	782
building, stone in, use.....	783
carbon-monoxide poisoning in.....	6756
Homestake mine, S. Dak., electric signaling system.....	8308
Ross shaft, electric signaling system.....	8308
sand filling, discussion.....	3960
Homogeneous multicomponent systems, equilibrium composition, calculation.....	687
Homogeneous reactions, reaction-rate law, general form.....	890
Horizontal cyclone burner, discussion.....	6379
Horses, in underground stables, review.....	2201
iron, preference for oil.....	7559
House insulation, industrial minerals, annual review.....	705
House vibrations, ordinary, measurement.....	7683
Hübnerite, deposit.....	76
Hudson River tunnel, vehicular, discussion.....	2354, 6489
Hudspeth County, Tex., Eagle Mountain fluorospar district, work review.....	5557
Human body, basal metabolism effect of ventilation.....	5004
effect of high temperatures and various humidities.....	4987, 5001, 5008, 5009
temperatures, measurement.....	6000
Humboldt-Chanute oil field, Kans., oil recovery, waterflooding.....	4040
waterflooding in, Allen and Neosho Counties, Kans.....	4037-4040
Humic acids, from lignitic materials, properties and source.....	2765
Humidity, abnormal, physiological effects of, review.....	6821
atmospheric, physiological effect, discussion.....	6816
high, physiological reactions to.....	5001, 6824
metal mines, study.....	6825
Humphreys spiral, coal cleaner, laboratory performance tests.....	2919, 8507
Hungary, natural gas.....	6359
Hydration, calcium sulfates, heat.....	7388
Hydraulics, controlled speed, thrust and torque.....	8458
Hydraulic-fill dam materials, particle size, importance and determination.....	6668
Hydraulic fluids, fire-resistant, development, progress.....	6163, 6165
use in mines, testing.....	6167
research.....	2844
Hydraulic fracturing, efficiency.....	5270
Hydraulic mining, description.....	7200
Hydraulic stripping, stone quarry.....	6490, 7680
discussion.....	7008
Hydrazine, thermodynamic properties.....	3023
reaction with hydrogen peroxide, liquid phase.....	2036
Hydrocarbons, absorption, oil, equilibrium constants.....	1172
aromatic, chromatographic gas-liquid analysis.....	1179
countercurrent distribution.....	6571, 6577
from petroleum cracking, equilibrium relations among.....	6571, 6581
in cracked petroleum mixtures, estimation.....	4
in diesel fuel fractions.....	4200
polycyclic, analysis, electronic spectra wavelength band.....	3717
solid, X-ray diffraction, patterns.....	3718
trinitrofluorenone derivatives of, X-ray diffraction, patterns.....	1826
benzenethione from, manufacture.....	4496
catalytic conversion to.....	1477
chlorinated, calorimetric combustion, method.....	4787, 5082
use in extinction of methane-air flames.....	7474
combustion, mechanism of.....	5130
Fischer-Tropsch synthesis, by hydrogenation of carbon monoxide.....	8213, 8214
distribution by carbon number.....	7326
isomer distribution.....	7317, 7319
from water gas, formation.....	7323, 7327, 7490
equilibrium.....	8094
synthesis.....	6579
gas imperfections.....	2728, 8537
gasoline from, manufacture.....	6203
in coal gas, separation by fractional distillation.....	824
in diesel fuel boiling range, ignition qualities.....	824
in explosive gas mixtures, minimum ignition energies.....	2722, 2725
quenching distances.....	3
in gas, from low-temperature carbonization of coal.....	8214
infrared absorption spectra, in Diesel fuel study, use.....	1194
in petroleum, relation of types.....	4768
light, reaction with steam and carbon dioxide, in synthesis gas production.....	8097
oxidation, at high pressure, discussion.....	8462
reaction, mechanism.....	8462
perhydroaromatic, liquid, molecular volumes, calculation.....	6628
polycyclic, aromatic, liquid, molecular volumes, calculation.....	2762
bacterial oxidation.....	7355
polynuclear aromatic, selective hydrogenation.....	4807
relation to carbon atoms.....	3478
synthesis.....	8209
catalyst for, patent.....	6697
cobalt Fischer-Tropsch catalysts.....	2483
discussion.....	2010
use of gas for.....	7458
sulfur in, determination, by monochromatic X-ray absorption.....	7281
thermal decomposition, formation of acetylenes.....	7279
Hydrocarbon-air, subatmospheric pressures, burning velocities, burner-burner method.....	4215
Hydrocarbon-air flames, carbon formation in, thermodynamics.....	8094
Hydrocarbon chemistry, addition and subtraction reactions.....	8032
Hydrocarbon derivatives, gas imperfections.....	4138
Hydrocarbon fuels, flammability limits, determination and graphic representation.....	7359
Hydrocarbon gases, flame temperatures of.....	2547
Hydrocarbon liquids, measurement of density, pycnometer.....	4760
Hydrocarbon oils, extraction with sulfuric acid, volume-physical constants.....	7281
Hydrocarbon oxidation, theory.....	2059
Hydrocarbon-oxygen, one atmosphere, burning velocities, burner-burner method.....	8078
Hydrocarbon phases, observation, windowed cell for.....	6205
Hydrocarbon, reactions, relation to knock in internal-combustion engines.....	8268
Hydrocarbonaceous materials, destructive distillation, patent.....	4925
Hydrochloric acid, extraction from mixed ketones.....	6849
in electrolytic refining of magnesium, discharge, effect on air pollution.....	5882
Hydrochloric acid solution, titanium in, passivity of.....	
Hydrocracking, process review.....	

Item	Item
Hydrocyanic acid gas, in air, tests for.....	4281
Hydrodesulfurization, process review.....	5982
Hydrodynamic equations, irreversibility and statistical mechanical derivation.....	8328
Hydrofluoric acid solution calorimeter, description.....	7798
Hydroformation reaction, effect of olefin structure on rate, kinetics and mechanism.....	8258
Hydroformylation, acetylenic compounds, reaction.....	3071
Hydroformylation (oxo reaction), description.....	5878, 6997
Hydroformylation catalysts, cobalt hydrocarbons.....	8246
Hydroformylation reaction, neopentyl alcohol from isobutylene.....	8256
Hydrogen, catalytic conversion of.....	1526
catalyst for producing methane from.....	6880
constituent of producer gas, for zinc distillation furnace, value.....	6516
consumption, coal hydrogenation, kinetics of process.....	2587, 7515
regulating action on coke.....	6181
dissociative adsorption by copper, kinetics.....	1213, 1214
effect on specific heat of tantalum.....	4328
effect on termination of explosion temperature, ozone.....	4727
effect on thermal decomposition of ozone.....	4727
effect on X-ray parameter of electrolytic manganese.....	6174
equilibrium with carbon monoxide and methanol.....	7320
experiments with, reduction process, potash, from polyhalite.....	2674
from coal gasification, production.....	3152
helium from, thermodynamic treatment of possible formation.....	7792
in electrolytic chromium, removal.....	6178
in electrolytic manganese, removal.....	6178
solubility.....	6177
in gases of explosives, reduction by confinement.....	1513
in gas mixtures, determination.....	1035
fractionation combustion, use of cuprous oxide.....	1037
in petroleum distillate, determination, lamp technique.....	7269
on chromic oxide gel, activated sorption, kinetics.....	1217
oxygen in production of, by Winkler, Koppers, Lurgi, Thyssen-Ginlocy, and Leuna processes.....	5620
reaction with hydroxyl radical in water synthesis, efficiency.....	8077
reaction with oxygen, kinetics.....	4235
water synthesis.....	8077
zinc distillation furnace, constituent of producer gas.....	6516
Hydrogen-air-methane mixtures, flame temperatures.....	4128
Hydrogen and carbon monoxide, conversion from methane.....	3474
Hydrogenation of thiophene compounds.....	3068
in gas mixture, fractionation combustion with cuprous oxide.....	1037
methanol from.....	965
methane from, catalyst.....	6980
Hydrogen and iodine monochloride, photochemical reaction between.....	3721
Hydrogen and oxygen, heterogeneous equilibrium with radium emanation.....	4792
reactions, mechanism.....	8083, 8084
upper explosion limit.....	8085, 8086
sensitized by nitrogen peroxide, reactions, kinetics.....	8081
Hydrogen and oxygen, relation of specific volume to content of coal.....	2116
Hydrogen and oxygen reaction, in presence of silver, data.....	3528
Hydrogen bromide, low-temperature explosion of ozone mixtures by.....	4729
thermal reaction with ozone.....	4728
Hydrogen-carbon-molybdenum system, equilibrium measurements.....	972
Hydrogen-carbon monoxide mixtures, action of iron catalysts on.....	7316
Hydrogen chloride, tantalum in, embrittlement.....	2091
Hydrogen in, embrittlement.....	2091
Hydrogen compounds, bomb calorimetric data, reduction to standard state.....	3856
Hydrogen cyanide, solid and liquid, vapor pressures.....	6117
Hydrogen deuteride, from lithium-aluminum hydride.....	6236
mass spectrum.....	2753
Hydrogen-deuterium exchange, oxygen-induced.....	4485
Hydrogen-embrittlement theory, discussion.....	6979
Hydrogen flames, propagation, oxygen requirements.....	4115
Hydrogen-fluorine reaction, homogeneous, description.....	2139
Hydrogen gases, thermodynamic functions, from spectroscopic data.....	4227
Hydrogen-induced ozone explosions, kinetics.....	4714
Hydrogen-isotope exchange, process review.....	5883
Hydrogen-methane-carbon monoxide mixtures, flame stability limits of.....	3172
Hydrogen mixtures, flame stability limits of.....	3181
Hydrogen-molybdenum-carbon system, equilibrium measurements.....	972
Hydrogen-nitric oxide-nitrous oxide-air system, flammability characteristics.....	7073
Hydrogen-oxygen explosion limits, equation for.....	7509
Hydrogen-oxygen mixtures, rates of explosions, calculation.....	4730
effect of rare gases.....	4730
Hydrogen-oxygen reaction, thermal, mechanism of chain initiation.....	4758
Hydrogen peroxide, patent.....	4202, 4303
reaction with hydrazine, liquid phase.....	3023
Hydrogen sulfide, absorption from synthesis gas.....	8116
air pollution by, Pozo Rico, Mexico.....	4979
allowable concentration, United States.....	6856
corrosion in ferrous materials by, resistance.....	1155, 1859
explosibility.....	4123
in air, explosibility.....	4134
in gas mixtures, determination.....	2072
separation, patent.....	625, 526
in industry, occurrence, effect, and treatment.....	8522
in Panhandle.....	8534
laboratory and industrial use, hazards.....	8543
oxidizing ammonia to nitric acid, effect.....	7618
Hydrogen sulfide, separation from carbonic anhydride, use of gas mixtures.....	825
separation from gas mixtures, patent.....	823-826
sources, Wyoming.....	2129
Hydrogen sulfide literature, bibliography.....	5383
Hydrogen sulfide removal, colloidal properties of iron oxide in.....	1912
Hydrogen to carbon ratio, coal, relation to volatile matter.....	2544
Hydrogen-water vapor-air mixtures, combustion and explosion hazards.....	8629
Hydrogen-water vapor mixtures, fusibility of coal ash in.....	2413
Hydrogenation, anthraxylon, from bituminous coal.....	2550, 6072
attritus in coal.....	2551, 2553
banded constituents of coal.....	2551, 2552
bituminous coal, data.....	2556
experimental flow plant.....	2093
cannel coal.....	2558
carbon monoxide, Fischer-Tropsch synthesis of hydrocarbons, catalysts.....	7474
for synthesis of liquid fuels, processes.....	7300
catalytic, gasoline from shale.....	1445
coal.....	2552, 5880
American researchers, discussion.....	7477
batch autoclave tests, catalysts.....	8225
batch autoclaves with coke-oven gas.....	8226
Bureau of Mines experimental plant.....	7502, 7520, 7521
Bureau of Mines research.....	2144
catalysts, distribution, studies.....	8221
mechanisms.....	7462, 7464
chemistry.....	7466
coal tar and oil, contact catalysis.....	8223
conversion of anthraxylon, kinetics.....	7407
effect of physical constitution.....	8412
heavy oil from, notes.....	1195
in fluidized bed.....	7816
kinetics.....	2557
kinetics of hydrogen consumption, oxygen removal, and liquefaction, effect of rank on.....	7607
liquefaction by, patent.....	7610
using zinc catalysts.....	8215
liquid phase, catalysts.....	2057
neutral oils from, effect of sulfuric acid.....	8411
oil from, phenols in, separation and identification.....	8409
production of pure oxygenated compounds, study.....	7297
progress, review.....	7477, 7479
report.....	7503
round-table discussion.....	7480
source of chemicals.....	2455
synthetic liquid fuels from.....	6945
thermal efficiency.....	7300
coal residues, determination of sulfur in.....	2
crude shale oil, at high pressure.....	6074
description, encyclopedic.....	8208
fusain, data.....	2552
gas absorption or evolution during, measurement apparatus.....	5981
high-pressure, coal, middle oil preparation, experimental.....	4190, 4191
high-temperature tar, from byproduct ovens.....	7519
high-volatile bituminous coal.....	3691, 3695
homogeneous, oxo reactions as evidence.....	8243
homogeneous free radical, oxo reactions as evidence.....	8248
lignite, at experimental plant.....	3696
Bureau of Mines research, discussion.....	7496
data.....	2484, 2558
oil, residual, report.....	7299
vapor phase.....	8380
oxo reactions, chemistry of.....	8239
petrographic constituents, Pennsylvania coal seams.....	8426, 8427
process review.....	5882
resins, in coal.....	2553
shale-oil coker distillate, data.....	1193
shale oil crudes, data.....	1820
shale oil to catalytic re-forming stock.....	1446
splint coal, typical North American.....	2058
spores, in coal.....	2553
subbituminous coal.....	3694
at experimental plant.....	3696
tar, report.....	7479
thiophene compounds, with carbon monoxide and hydrogen, cobalt catalyst.....	3608
vitralin, in solid fuels.....	2554
Hydrogenation products, from bituminous coal and sucrose, at elevated temperatures, spectral comparisons.....	6167
Hydrolytic reactions, inorganic, control, electrometric method.....	7765
Hydrometer, Portland-puzzolan cements, fineness, determination.....	6437
Hydroxy-naphthole acid, intermediate, bacterial dissimilation, anthracene.....	6632
Hydroperoxides, in gasoline, polarographic method.....	8290
Hydrosulfite, alkali-soluble, tar acids in, extraction recovery, method, patent.....	2699
Hydroxides, products of corrosion.....	1411
Hyrlone, chemical industry, surveys.....	6876
war industries, manual, review.....	6818

Iceland spar, American, phosphorescence after radium radiation... 4795
 USP... 3878
 Iceland spar-related crystals, use... 3878

	Item
Idaho, Beaver Creek monazite placer area	7522
Idaho County, Camp Creek radioactive placer area	6594
Banner County, Clark Fork district, lead-silver mineralization, communication	2155
Bunker Hill smelter, lead-silver, hydrometallurgy	4633
Camas County, Camp Creek radioactive placer area	6594
Coeur d'Alene district, flotation, practice	2143
Coeur d'Alene River and Lake, mill tailings pollution	8548
gold mining industry, annual review	5571
ilmenites, titaniferous slags from, preparation and chlorination	6589
metals, production, annual review	5570, 8405
mineral review, annual report	6567-6569, 8400
monazite placer area, Beaver Creek, Valley County	7512
schists, sillimanite in, concentration and determination of grade tests	7292
silver mining industry, annual review	5571
Valley County, Bear Valley radioactive mineral placers	4469
Corral Creek monazite placer area	4470
vanadiferous shales, treatment	6319
zirconophyllite, Mallard's constant, determination	2168
Idaho mine, Ruby, Ariz., precious metal, occurrence and distribution	8151
ignition, combustible gases, by flames	8376
combustible mixtures, by hot gases	8374
crossfeed, fuel beds	3017
data	3016
fuel-air mixtures, application to firedamp explosions	8378
gas, in mines, report	8179
hot gas, comparison with limit flame temperatures	8023
problem of	8071
relation to explosions	831
ignition process, flammable gas-air mixtures, apparatus for study	6096
ignition temperature, combustible gases, effect of ionization	4733
methane-air mixtures, effect of water vapor	4119
spontaneous, nitric oxide-fuel mixtures	8377
Illinois, Centralia, mine explosion testimony	2804, 6120, 8804
coal, carbonization, use of inclined gas retorts	5909
coking in Koppers type oven	4907
in furnaces with long-flame burners, refractories, service conditions	7216
preparation, problems, discussion	8479
pulverized, boiler tests with	4528
coal dust, fusain content, discussion	2352
coal mines, large, engineering features	3567
coal mining, comparative data	2706
El Dorado, fluorite ore, laboratory beneficiation	2535
Galena district, zinc mines	4778
mining, costs and wastes	6461
southern, blasting coal, methods	7758
lump coal, production method	7758
Urban, Bureau of Mines, coal-washing work	8487
Illinois-Kentucky district, fluorspar industry, status	3471
Illness, relation to safety, mining	6796
Illuminants, fractionation analyses	8536
Illuminator, visual spectrum-line densitometers	7302
Illuminating gas, removal of sulfur from	5800
Illumination, relation to mine accidents	5915
Ilmenite, pilot-plant smelting, electric furnace	7455
titaniferous, slags from, preparation and chlorination	6589
incineration, studies, experimental	1436, 5896
incinerators, discussion	423
for control of air pollution	1414
radioactive residues, disposal	1438
wood-burning, design comparisons, air pollution	4942
Inclusions, in carbon steel, electrolytic extraction, method, discussion	2570
in steel, effect on impact strength, discussion	3005
identification, discussion	2566
nonmetallic, formation and elimination in acid open-hearth process	3618
in steel, coalescence, notes	3503
incumbustibility, testing for	942
Indanols, from coal-hydrogenation oils, isolation	3012
Indene, constituent of carbureted water-gas tar	908
crude, in industrial quantities	951
in determining naphthalene, effect	859
in picrates, from naphthalene in gas determination, qualitative identification	536
vapor phase, oxidation and polymerization	952
India kyanite, domestic substitutes	6346
in refractories	5078, 5079
Indian coal, high-sulfur, carbonization, desulfurization during	2923
Indian reservations, metalliferous minerals on, mining	4140
Indiana, coal mines, large, engineering features	3567
Induction furnaces, for rotating liquid crucibles, description	474
high frequency, for chemical preparations	7015
Industrial chemicals industry, Bureau of Mines work	2216
Industrial chemistry, American, history	5490
Industrial development, use of explosives	4488
Industrial diamonds, mineral industry of North America, use	4839
Industrial fatigue, prevention	6807
review	6779
Industrial gases, army gas masks, protection	2488
explosion disasters, prevention	8631
Industrial health, Bureau of Mines work	6780
Industrial hygiene, chemical plants, surveys	6830
Industrial medicine, use in developing mine labor efficiency	5513, 5515
Industrial minerals, definition, need for	7944
Industrial plants, explosion hazards, effect of pulverized coal	7808

	Item
Industries, contrasts in	7936
gas masks in, use	2488
mental hygiene in	6342
minor, minerals in	7959
morale	56
offensive odors in, study	80
process, methods	472
relation to Bureau of Mines Intermountain Station	8028
safety	7893, 8348
waterborne wastes, use and disposal	564
Inert gases, in explosive gas mixtures, minimum ignition energies, quenching distances	623, 624
Inflammation limits, application, in hazardous industries	4088
Information service, petroleum industry	7570
Infrared cells, special purpose	2743
Infrared prism spectrometers, calibration method	5070
Insular earth, review	6129
Injury experience, cement and quarry industries	8400
Inorganic hydrolytic reactions, control, electrometric method	7705
Interference figures, with greater contrast, data	2645
Interior province, coal, ash from, fusibility	7148
Internal-combustion engine, gas temperatures in, measurement, discussion	4787
knock in, relation of hydrocarbon reactions	8078
Investigations, private	324
Iodides, in oil field brines, spectrophotometric determination	1353
Iodine, radioactive tracer, waterflooding	8168
Iodine monochloride, photochemical reaction with hydrogen	3721
Iodine pentoxide indicator, for carbon monoxide, tests	4266
Iowa, Holmes Safety Association, work	2041
Iraq, petroleum industry	7508
Iridium compounds, adsorption and stability, laboratory tracer studies	3520
Iron, A ₂ transformation point, magnetic determination	6617
activity in liquid iron-nickel alloys	8642
allotropic transformations, discussion	2568
carbon monoxide deposit on, structure of carbon	2730
concentrates, work progress	403
corrosion, prevention	1221
deoxidation with manganese, investigations	2787
discussion	2568
electrolytic, from sulfide ores, discussion	5111
ferrous, in materials containing metallic iron, determination	7273
grinding, collection of gold	8645
in blast furnace, reduction	6701
in electric furnace, production	4889
in mineral powders, spectrochemical determination with high-voltage direct-current arc	5906
in nonmetal minerals, determination	7178
in silicones, determination	7178
in silicon metal, spectrochemical determination	3530
in titanium metal, spectrochemical determination	6122
iron oxide in, solubility, effect of temperature	2799, 3815
Lake Superior district, Bureau of Mines work	8445
liquid, nitrogen in, solubility, discussion	3035
sulfur activity in, effect of silicon	5425
effect of carbon	5424
loss, sodium carbonate fusion, silicates and rocks	7179
manganese in, desulfurizing action	2798
metallic, and copper sulfate, reaction, flotation of sphalerite	1850
ferrous iron in, determination	7273
in iron oxides and alloys, determining	6568
in sponge iron, determination	8319
metallurgy	3581
annual review	1728
molten, diffusion of carbon, manganese, phosphorus, silicon, and sulfur through	3739
temperature measurement with thermocouple, discussion	8381
mythical white metal, description	1569
Nevada, use in war	74
Pacific Coast	8315
production	1736
factors in, Pacific Coast	8314
pure, specific heat, at low temperatures	4327
solid, solubility of oxygen in, discussion	3608
superhard, description	1569
synthetic gray, from tin-plate scrap	8323
Iron and pure water solution, acidity and concentration, solid product resulting	1424
Iron arc as standard source for spectrochemical analysis	7303
Iron blast furnace, alkali cyanides in, occurrence	4418
description	4152
desulfurizing mechanism, explanation	2800
Iron carbide, Bagg, catalyst, Fisher-Tropsch synthesis	7259
transition to cementite	1313
hexagonal, as intermediate in carbiding, of iron catalysts, for Fischer-Tropsch synthesis	5135
preparation	1314
saturation magnetizations	3710
thermal reactions	1315
Iron-carbon alloys, content, effects	148
gases from, extraction by vacuum melting	2795, 3604
high purity, graphitization	8340
hot-working characteristics	148
properties, physical	148
Iron-carbon system, reactions, application in tempering martensite	3711
Iron-carbon-oxygen system, equilibrium	2044
Iron carbonate, heat capacity, at low temperatures	138

	Item
Iron carbonyl, catalysts, Fischer-Tropsch synthesis.....	7258
preparation and reaction of.....	3262
Iron carbonyls, binuclear, catalytic intermediates, significance.....	7432
chemical and physical properties.....	2421
Iron carbonyl-acetylene, bridged iron complex from.....	8249
Iron carbonyl-acetylene complex, thermodynamic properties.....	7440
on casting, temperature, data.....	4410
Iron catalysts, action on carbon monoxide-hydrogen mixtures.....	7310
Fischer-Tropsch synthesis, pore volume, study.....	3263
changes in.....	174, 7421, 7422
effect of nitriding.....	7292
electron and X-ray diffraction studies.....	4088
fluidization study.....	4702
influence of geometry.....	7257
iron carbide as intermediate in carbiding of.....	6135
oil circulation process.....	520
phase changes.....	170
studies.....	180
surface area, study.....	3263
variables.....	178
fused, porosity, electron microscopic replica studies.....	4088
reduced, Fischer-Tropsch synthesis, interstitial phase formation, structural change.....	3264
oxidation structural change.....	3264
Iron chloride, anhydrous, heat content, at high temperatures.....	5390
specific heat, at low temperatures.....	4301
Iron complex, bridged, from acetylene and iron carbonyl.....	8249
Iron compounds, in red and yellow sandstone, discussion.....	3720
Iron-copper alloys, liquid, activity of liquid copper in.....	6426
Iron-copper catalyst, chloride poisoning of, Fischer-Tropsch synthesis.....	3722
Iron forms, control, determination of coal ash fusion temperature.....	6371
Iron foundries, gray, gases from, equipment requirements, air pollution control.....	4957
Iron horses, preference for oil.....	7559
Iron-hydrogen-oxygen system, equilibrium.....	2004
Iron industry, American, raw materials for.....	3397
hearth and hosh construction.....	4421
in Latin America, study.....	2701
relation to Bureau of Mines.....	1747
relation to manganese-iron ores.....	4184
use of ferromanganese.....	204
Iron-manganese alloys, cold-worked and normalized, properties.....	4848
cold work and heat treatment, properties.....	1777
Iron melting, problem, study.....	607
Iron metasilicate, heat capacity, at low temperatures.....	7230
heat content, at high temperatures.....	6548
Iron mines, drainage.....	1461
relation to subsidence.....	1487
roof support in.....	1490
safety.....	1345
development.....	3291
promotion.....	3337
Iron-nickel alloys, liquid, activity of iron and nickel in.....	8642
Iron nitride catalysts, Fischer-Tropsch synthesis.....	180, 7256
composition changes.....	7201
in carbon oxide hydrogenation.....	108
Iron ores, annual review.....	1601, 6408
beneficiation, for blast furnace.....	4147
principles.....	6339
studies.....	1248, 1500
concentration, experiments.....	2532
laboratory.....	1856
differential grinding, for gravity concentration.....	1291
electric smelting, fluor spar in.....	4308
ferromanganese, production.....	4166
floatation.....	1226, 1246
effect of structure.....	1396
effect of unsaturation of collector.....	1396
patents.....	1231, 1236, 1247
grinding, liberation of minerals.....	1259
Laborator and Quebec as sources.....	5254
manganese, Bureau of Mines work.....	2100
production.....	4166
relation to iron and steel industry.....	4164
nickeliferous, electric smelting.....	6318, 6320
porosity.....	4166
production, increase.....	6548
reducibility.....	4165
reduction, time element.....	6703
relation to smelting.....	4153
resistance to decrepitation and mechanical work.....	4169
resources.....	89, 6859
silicates from, floatation, patent.....	1239
slag preparation.....	4155
smelting.....	4153
Iron ore deposits, investigations.....	4061
Iron ore district, Lake Superior region, safety work.....	3303
Iron ore-gas stream, in blast furnace, heat transfer.....	2779
Iron oxide, carburization with carbon monoxide.....	1318
colloidal properties, in hydrogen sulfide removal.....	1912
effect on mineralogical and physical properties of aluminum oxide mixtures.....	7295
free energies.....	2004
in gas purification, conditions affecting activity.....	1943
in iron, effect of temperature on solubility.....	3015
solubility, effect of temperature.....	2799
In liquid steel, determination.....	3620, 3621

Iron oxide, metallic iron in, determining product of corrosion.....	8508
Iron oxide-carbon system, in molten iron, equilibrium, experiments, discussion.....	1411
Iron oxide deposits, in steam-generating tubes, effect.....	2790
effect of copper on.....	1407
Iron oxide materials, deoxidation, in reducing gases, rate determination.....	567
Iron oxide metal, from slag, diffusion, open-hearth process.....	470
Iron oxide ores, silica from, flotation, patent.....	2578
Iron oxide samples, wetting before testing.....	1240
Iron oxide slinters, composition and deoxidation.....	1913
Iron oxide slag, to metal, diffusion, open-hearth process.....	4163
Iron-oxygen alloys, data.....	3578
Iron pentacarbonyl, in amines, dissociation.....	3576
Iron pentacarbonyl-aqueous alkali system, chemistry and catalytic properties.....	7441
Iron pot melting, for aluminum alloys.....	7433
Iron powder, production, by nitriding ferrous chloride, patent.....	200
Iron scrap, annual review.....	4539
1112-1114, 4027, 4028, metallurgy.....	5244
use, data.....	8005
wartime data.....	4884, 5065
Iron smelting, primitive, China.....	4031
U.S.S.R., review.....	6344
Iron sulfide, anhydrous, specific heat, at low temperatures.....	5245
Iron sulfide, differential flotation.....	5394
Iron sulfide deposits on furnace-wall tubes, effect on corrosion.....	4363
Iron-sulfur compounds, decomposition, under simulated kiln conditions.....	1434
Iron titanate, heat content, at high temperatures.....	3984
Iron tricarbonyl complex, in organic synthesis, significance.....	656
Iron-zirconium alloys, constitution.....	7434
mechanical properties.....	3490
Isobutane, critical constants.....	3480
vapor pressures.....	7104
effect of temperature.....	7104
Isomerization equilibria, data.....	1045
Isoynthesis, description.....	7062
Israel, Sift Institute, work review.....	1310
Italy, attempt at mineral self-sufficiency.....	8903
coal, effect of dire need.....	8430
minerals, production capacity and needs.....	1008
Sardinia, Arbus area, lead-zinc deposits.....	8437
Sardinia.....	8433

I

Japan, cement industry, status	3228
coal, carbonization, low-temperature	8374
coal mines, safety conditions, post-war	8146
fuel industry	8373
oil, mining	7171
Jet propulsion, combustion calculations, methods	874
Jigs, for cleaning coal, comparison of results	8491
Johnson colliery, bumps and shocks	303
Joints, flanged, for coal hydrogenation service	6737
Joints, flat, and plain bearings, flame arresting limitation, in explosion-proof mine equipment	4023
Joplin District, ore-dressing	8422
Joule-Thomson effect, helium	6115
Juliusburg Basin, Colo., crude oil, refining properties	357, 8261
Jumbo, tractor-mounted, saving manpower with	7023

K

Kansas, Bureau of Mines, helium plant.....	5472
crude oil, refining properties.....	7373
relation to stratigraphy.....	5598, 6120, 7348
diesel-powered mine equipment, use, review.....	6142
helium, in natural gas.....	7095
Humboldt-Chanute oil field, waterflooding, Allen and Neosho Counties.....	4037-4040
milling.....	124
natural gas, helium and associated elements in.....	7095
oil-producing areas, fresh-water horizons, protection.....	8313
oil sands, waterflooding, results.....	6105
Kaolin, domestic, properties.....	4474, 8355
electrolyzited, electrodeposition, effect of sodium hydroxide on Georgia, manufacture of face bricks.....	2789, 7545
plastic, primary use.....	3039
purification, data.....	8359
refining by air flotation, Pacific Northwest.....	8350
sedimentation, use of sulfuric acid.....	7035
Kaolin deposits, mineral constituents of.....	3021
origin.....	3021
Kaolin slurry, electrophoretic filtration.....	6215
Kaolinite, genesis in, cretaceous shales, Central Colorado.....	6735
Kata thermometer, measuring personnel comfort with.....	4999
Kay County, Okla, Tonkawa oil field, petroleum engineering, preliminary report.....	6097
Keas Drilling Co., waterflooding, Bartlesville sand, Humboldt-Chanute oil field, Kansas.....	4038
Kentucky, Letcher County, Elkhorn bed, coal from, high-temperature carbonizing properties.....	2402

Item		Item	
Kentucky, Magoffin County, Oil Springs pool, L. O. Bailey lease, secondary recovery.....	5530	Laramie, Wyo., Bureau of Mines Experiment Station, oil shale, research and process development.....	7414
Paddy's Run, generator, furnace heat absorption in.....	1423	oil-shale products, determination of nitrogen in.....	8018
Pike County, coal, effect of storage on coking properties.....	7330	Latin America, iron industry, study.....	2701
Kentucky-Illinois district, fluorspar industry, status.....	3471	metallurgical coal, preparation, problems.....	2701
Kerosine, floating fines with.....	6884	mineral industries, annual review.....	242
bandling.....	6633	mining law, survey.....	241
specifications meaning.....	4513	steel industry, study.....	8202
Kerosine flotation process, coal cleaning.....	2808, 2813	Leach liquor, acid, separation of uranium from, solvent extraction.....	6050, 6055
coal dewatering.....	2808, 2813	Leaching, carbonate ores, lead from.....	4901
Kerosine fumes, flame propagation through.....	470	copier, acid efficiency.....	6280
Kerpcly producer, operation, with oxygen-enriched blast.....	489	heap, accelerated.....	4362
Ketones, mass spectra of.....	7180	lime-zinc ore, with acids.....	6263
mixed, extraction of hydrochloric acid from.....	8268	Lead, annual review.....	611, 1304, 1365, 2577, 3538, 5298, 6047, 6293
Kieselguhrs, effect in catalysts, as carriers.....	178	determination, electrolytic board for.....	3782
effect on cobalt catalysts, in Fischer-Tropsch synthesis.....	177	method.....	4166
Kieselguhr, cobalt-thoria, action of carbon monoxide on, diffusion studies.....	3719, 3727	from brine leaches, electrolytic recovery.....	1370
Kilns, brick, firing of.....	6513	from cupro-desulphate, extraction.....	1370
fuels in, use.....	6517	furnace slag, petrography, study.....	2467
car-tunnel, firing, survey.....	6503	heat capacity, at low temperatures.....	138
ceramic, description.....	1845	hydrometallurgy, annual review.....	1336, 6231
down-draft, firing, observations.....	6522	in dust, spectrochemical determination.....	5035
heat balance.....	492, 5162	in fine-grade tailings, process, comments.....	3782
sulfur evolution in firing, quantitative study.....	3987	in storage battery industry, hazard, control.....	1920
clay plant, coal used, properties.....	6519	leaching from carbonate ores.....	4901
clay wares, firing, heat distribution, determination.....	6523	metallurgical products and pigments, determination.....	6060
coal-fired, drafts, significance.....	7219	milling, methods.....	1733
combustion in, data, review.....	6521	molten, transportation.....	8045
electric, periodic, description.....	6520	outlook.....	613
for firing refractories.....	6514	oxide cells.....	5101
heat balances, equations and quadrant charts for.....	7291	precipitation on sponge iron.....	5834
losses, research, value.....	640	recovery from brine leaches, electrolytic.....	7274
refractory ware, combustion.....	7200	recovery from vanadinite, metallurgical process.....	1369
rotary, cement, fuel consumption.....	3029	relative toxicity.....	2159
electrically heated.....	473	sales.....	6045
sponge iron in, production.....	660	smelting.....	1733
simulated conditions, decomposition of iron-sulfur compounds.....	6518	South Dakota, Homestake mine, electric signaling system.....	8308
tunnel, fuels in, use.....	6594	Lead blast furnace, smelting.....	8428
multiple, uses.....	6130b	Lead blast-furnace charge, removal of arsenic from, effect on subsequent products.....	5831
Kinetics, chemical, discussion.....	2254	Lead compounds, toxicity.....	2160
Kling coal, resources, North Dakota.....	2450	Lead-copper-cobalt-nickel complex ores, concentration.....	2534
Kjeldahl method, comparison with Dumas method, determining nitrogen in coal.....	4303	Lead deposits, geology.....	3081
effect of digestion temperature.....	1400	Lead digging areas, Wisconsin, Bureau of Mines studies.....	8050
nitro compounds, substitution of, determination.....	4760	Lead furnaces, drosses from, study, discussion.....	5827
Knock rating, motor fuels, discussion.....	6445	Lead industry, annual review.....	6005
Kolar gold field, ground movement, studies.....	4282, 4284	Lead metal mines, mechanical loading.....	3971
Kontimeter, air dustiness, comparative tests.....	4827	Lead metallurgy annual review.....	5824-5828a
routine use, technique.....	6020	data.....	6233
Koppers process, production of hydrogen and synthesis gas, use of oxygen.....	4907	progress.....	5826b
Koppers-type oven, coking coal in, Illinois.....	257	salt in.....	6280
Kroll process, hafnium, properties, mechanical.....	2932	Lead ore, disseminated, mechanical loading.....	3971
hafnium metal, study.....	6188	oxidized, flotation.....	8647
lithium.....	2803, 5080	reclamation instruments, Bureau of Mines development.....	6782
Kyanite, domestic, raw topaz as bond.....	8078-5080, 8340	Lead oxide, entropy.....	4366
substitution for India kyanite in refractories.....	7767	heat capacity, at low temperatures.....	4390, 5337
entropy.....	5078, 5082	Lead oxide-antimony system, relation to lead softening.....	6114
Georgia, massive, refractory properties.....	7167	Lead paint filters, in painters' respirators, efficiency.....	4291, 4292
heat capacity, at low temperatures.....	7175	Lead silicate, heat capacity, at low temperatures, and entropy.....	4385
refractory, analysis, chemical.....	6221	Lead-silver Bunker Hill smelter, hydrometallurgy.....	4033
topaz as substitute.....	1275, 5844	Lead-silver mineralization, Idaho, communication.....	2155
Kyanite ores, concentration.....	2602	Lead-silver ore, concentration, mineralogical characteristics, discussion.....	1580
Kyanite-topaz refractory, lightweight, use.....	5419	semi-oxidized, concentration.....	3503
	2045	Lead-silver-zinc ores, distillation of zinc from, experiments.....	8418
Laboratory, chemical, description.....	3534	Lead smelters, drosses.....	1862
for measuring water in gas condensate, description.....	6216	progress.....	5820b
Laboratory lead furnace, description.....	6254	Lead smelter slag, in hot alkaline waters, relative solubility.....	3258
Laboratory topping apparatus, continuous.....	1127-1134	Lead smelting, practice, progress.....	5820a
Labrador, source of United States iron ore.....	2198	products.....	5820
Lake Superior district, accidents, review.....	6208	Lead softening, relation to lead oxide-antimony system.....	6114
mines, radio communication, underground.....	8445	Lead sulfate, heat capacity, at low temperatures.....	144
roof bolting, work review.....	3114	Lead sulfate products, sintering, experiments.....	5835
Lake Superior iron district, activities of Bureau of Mines.....	1494, 1495, 1497	Lead sulfide, heat capacity, at low temperatures.....	135
Lake Superior mines, fires, prevention.....	1126	Lead-zinc deposits, Arbus area, Sardinia, Italy.....	8438
safety practices.....	3303	Leadville area, shafts, Bureau of Mines inspection.....	2008
Lake Superior Mines Safety Council, summary.....	281	Leadville tunnel, driving of, grouting problems.....	8030
Lake Superior region, iron ore district, safety work.....	6538	driving through bad ground.....	2073
Lamb air foil, for auxiliary mine ventilation, description.....	6537	Lea-Nurse air-permeability method, for evaluating pulverized coal, discussion.....	6065
Laminar flame front, large-scale wrinkling, turbulent flame propagation.....	6492	Leasing law, aspects of.....	4139
Laminar wave concept, turbulent burning, evidence for.....	3679	Leasing system, metal mining.....	8003
Lamps, carbide, brass, hazards.....	3780	Leuna process, production of hydrogen and synthesis gas, use of oxygen.....	5020
electric, mine, description.....	3785	Liberty tunnels, Pittsburgh, Pa., carbon monoxide in.....	2471, 2491, 8541
electric cap, light-affecting factors.....	3921	effect of windbreaks.....	5520
permissible, performance.....	7795	ventilation.....	2492, 6006
electric-flash, safety device.....	6013	Libraries, technical, operation.....	2588
flame safety, use.....		role in waste elimination.....	5124
wick for, choice.....		Life-electric light line combination, description.....	5138
Lamp technique, petroleum distillates, determination of carbon and hydrogen.....	7209	Light, catalytic action with nitrogen dioxide, origin of air pollution.....	4919
Landslide, Gilroy, Calif., structural features.....	4619	Lights, open, hazard.....	3240
		in mines, use.....	3378

Item	Item
Light metals, annual review.....	2688, 5448, 8205.
outlook.....	6230
trends.....	8206
Light oils, from carbonization, analysis.....	4357
Lighting, underground mines, data.....	5913
mines, efficiency, safety.....	2972
practice.....	5914
Lignite, American, briquetting.....	8128
petrography.....	6951, 5952
anthraxylon in, hydrogenation.....	2554
Lignite, as fuel, outlook.....	3773
assays.....	3691
branding, micropaleontology.....	7817
carbonization.....	5784
assay methods.....	1075
at low temperature, for industrial use.....	5965
for steam-electric power plant.....	5975
carbonized residue briquets.....	5792
for thermal power generation.....	4597
in entrained state, at low temperature.....	5984
production.....	1075
commercial, method for petrographic analysis.....	7816
comparison with German brown coal.....	3760
constitution.....	7639
consuming region, establishing research laboratory in.....	2310
crushing, alloying dust, treatment.....	8505
mechanical.....	8505
Lignite deposits.....	3748
Lignite, distillation.....	3763
drying, Bureau of Mines.....	5848
method.....	5849
fuel, for Middle West.....	1015
gasification.....	3753, 5851
Bureau of Mines.....	5848, 5950
in externally heated retorts.....	5985
genesis.....	7636
hauling, by trucks.....	8618
hydrogenation, experimental.....	3690
Bureau of Mines research, discussion.....	7496
research, discussion.....	2348, 2484, 2550
in hot oil, drying rate.....	1016
liquefaction, research discussion.....	2348, 2484
liquid fuels from, production, annual review.....	2278, 2280
micropaleontology, Vermont.....	7817
moisture in, determination.....	2647
North Central States.....	2062
petrography.....	2556
experimental.....	3690
power from, developing Alaska.....	1036
preparation of nonslacking fuel from, by steam drying.....	5982
research laboratory.....	2329
technology, developments.....	5975
thermal treatment, at constant temperature.....	5550
sorption of water vapor.....	4509
Lignite, properties.....	7110
use, developments.....	5975
Lignite char, annual review.....	3772
as reduction fuel, smelting zinc ores, tests.....	5814
embers, discussion.....	3767
possibilities.....	3771
production.....	3771
Lignite mines, seam thickness, annual review.....	8614
Lignite strip mines, hauling.....	8581
Lignite materials, humic acids from, source and properties.....	2765
Lime, annual review.....	684
burnt, basic open-hearth process.....	3577
in dolomite, separation.....	7034, 7539
plasticity, X-ray study.....	2162
use, in basic open-hearth process.....	3585
Lime-alumina-silica system, relation to mat glazes.....	8349
Lime industry, Bureau of Mines work.....	772
problems.....	701
progress.....	736
Lime plant, operation.....	3469
Lime putties, dolomite, variation in proportions with hydration.....	1371
method.....	763
Lime research, report.....	3500
Lime scale, as concentrate, discussion.....	1373
Lime-sinter method, for producing alumina from clay, discussion.....	1373
Lime-soda sinter process, for producing alumina, recovery of.....	3251
soda in.....	3577
Limestone, basic open-hearth process.....	1307
calcination, data.....	2780
rate.....	2530
manganiferous, Arkansas, ferrograde concentrates from.....	767
metallurgical use, problems.....	710
mining, methods.....	7679
open pit to underground, transition.....	1229
Willamette Valley, flotation.....	833
Limestone decomposition, effect of steam on.....	2779
Limestone-gas stream, in blast furnace, heat transfer.....	734
Limestone quarries, American, methods.....	757
stripping.....	3348
safety.....	6263
Lime-zinc ore, leaching with acids.....	8034
Linear programming, coal industry, efficiency, review.....	5247
Liner, slotted, oil-well, pressure distribution.....	7550, 7551
Liquids, constant flow, apparatus for maintaining.....	1408
corrosion by.....	7381
drying, by adsorption, granular desiccants.....	
Liquids, flammable, fires, explosions, and accidents from, preven-	
tion.....	4438
handling and storage.....	7425
heat of vaporization.....	4234
low-boiling, degassing by liquid-phase condensation.....	5133
surface energy.....	4234
viscosity, relation to vapor concentration.....	6175
Liquid fuels, coal as source.....	2270, 2278, 2435, 6042
research and development.....	7498
description.....	3017
hydrogenation, plant operation.....	1107
possibilities.....	2272
production, annual review.....	2280
data.....	3687, 4238
progress.....	3680
report.....	7482, 7494
lignite as source, production, annual review.....	4237
oil shale as source.....	2278, 2280
Bureau of Mines, program.....	3902, 4515
production.....	4512
progress.....	2135
production.....	7482, 7493
resources, data.....	2313, 2335
synthesis, cobalt catalyst, paraffin isomers from.....	3744
hydrogenation of carbon monoxide, process.....	2738
synthetic, annual review.....	813, 1158, 2325, 5811, 6960-6963, 6987
British industry, report.....	7800
Bureau of Mines studies.....	6046
coal as source.....	2327
processes, development.....	2326, 6005
coal preparation for.....	7460
demonstration plants.....	1623
data for commercial operations.....	2329
discussion.....	6009
German, manufacture.....	1419, 2505
industry, records, capture.....	6941, 6950, 6967
oil from.....	6943
oil shale, coal hydrogenation, from natural gas.....	6960
oil shale as source.....	6945
annual review.....	2326, 7819
processes.....	3212
catalysts.....	7491
development in Great Britain and Germany.....	7481
production.....	7482
public utility gas as byproduct of.....	2324
program.....	7583
prototype plants for.....	2328
reserves.....	6950
United States.....	6959, 6964
report.....	6946
use of coal.....	6972
use of oil shale.....	6972
Liquid fuel furnaces, description.....	3017
Liquid fuel plants, demonstration, production from coal, data for.....	6060
commercial operations.....	2035
Liquid gas, accuracy, effect of sampling rate.....	2005
Liquid-liquid extraction, analysis.....	6094
Liquid oxygen blasting, Chuquibambilla, Chile.....	1810
Liquid oxygen explosives, data.....	6967
density of cartridge, effect.....	6993
discussion.....	1839, 1842
fire retardants, treatments.....	6097
oxygen purity, effect on explosive properties.....	6098
properties.....	6454
uses.....	6092
underground blasting, metal mines.....	2512
Liquid petroleum gases, annual review.....	2757
Liquid sampling, for analysis, by mass spectrometer.....	6078a
Liquid-solids separation, method, review.....	3568
Liquid systems, explosives, shock sensitivity studies.....	8470
Lisemannite, report.....	3627
Lithium, annual review.....	6364
in ethylenediamine, reduction system.....	3643
deposits.....	631
in lithium minerals, flame spectrophotometric determination.....	7527
in magnesium alloys, determination by flame photometer.....	2114
reduction with anthraxylon in ethylenediamine, X-ray scattering.....	6913, 6914
intensities.....	3277
review.....	1462
war uses.....	4376
Lithium aluminate, crystalline, heats of formation.....	4376
entropy.....	8238
heat capacity, at low temperature.....	4065
Lithium-aluminum hydride, hydrogen deuteride from.....	6349
Lithium bromide, high-temperature hydrolysis.....	6369
Lithium-ethylene-diamine system, dehydrogenation of cyclic dienes.....	6370
isomerization of olefins.....	4376
reduction of coal.....	4376
Lithium ferrite, entropy.....	6062
heat capacity, at low temperatures.....	4554
Lithium-magnesium-aluminum system, magnesium in.....	7180
Lithium metal, preparation, by vacuum metallurgy, laboratory.....	4390
Lithium oxide, determination and separation of sodium oxide in.....	4390
presence of.....	
Lithium titanate, entropy.....	
heat capacity, at low temperature.....	

Item	
Loading, underground, outlook.....	6434
Loading equipment, coal mines.....	6149
sinks.....	8608-8612, 8621-8627
Loading machines, sales, data.....	0140, 0150, 0161, 7804
Locomotives, coal, conservation of.....	389
diesel, development and use, collieries, Europe.....	6505
underground, use.....	1990, 2000
gasoline, relation to miners' health.....	3766
hauling of bituminous coal.....	8574
nuclear-reactor-powered, description.....	1502
storage battery, underground haulage, discussion.....	1201
Locomotive boilers, intercrystalline cracks, prevention.....	6974, 7005
Locomotive haulage, storage batteries in, discussion.....	3948
Loebbe coal plunger, experiment with.....	3242
longwall mining with.....	3243
Lox washers, in aggregate and flux-stone industries, discussion.....	7870
Logging probe, transistorized.....	201
Loire Star Producing Co., Tex., pressure build-up and well inter- ference, tests.....	7478
Longwall mining, Dosco continuous miner.....	7410
roof thickness, effects, discussion.....	3100
with German coal plunger, experiment.....	3241
with Loebbe coal plunger.....	3243
Los Angeles, air pollution, control, nonferrous industries, reduction of lead emissions.....	4922
Los Angeles Air Pollution Control District, air pollution, con- taminants and microsampling technique, study.....	4946
Los Angeles area, air pollution, odor elimination, methods.....	4937
Los Angeles County, air pollution, automobile combustion prod- ucts, study.....	4850
silicone-treated dust collectors, use.....	4932
control, collection and analysis of pollutants, methods.....	4930
Los Angeles fire department, Bureau of Fire Protection, dangerous chemicals code, review.....	4004
Louisiana, diesel-powered mine equipment, use, review.....	6142
Monroe gas field, report.....	508
Mo., Coal-Hydrogenation Demonstration Plant, equipment.....	5171
Gas-Synthesis Demonstration Plant, developments.....	6736
oil-field brines, electrical resistivity.....	3470
Webster Parish, sand development, deep, Cotton Valley field.....	0686
Low-temperature distillation, oils from, uses.....	962
Lubricants, at high pressure, temperatures and viscosity.....	3572
synthetic, German, manufacture.....	4907
Lump coal, production, blasting efficiency.....	5889
increase, by permissible explosive.....	5491
southern Illinois.....	7758
source.....	7757
Lungs, effect of dust.....	6704, 0837
effect of silica dust.....	6705
Lung disease, millary, description.....	0828
Lurgi process, pipeline gas from char, economic outlook.....	4242
production of hydrogen and synthesis gas, use of oxygen.....	5020
Lynde, Walter & Darby, waterflooding, Humboldt-Chanute oil field, Kansas.....	4037
Lyon Mountain magnetite deposits, northeast Adirondacks, an- hydrite gypsum in.....	8049

M

Machines, computing, automatic, calculation of square root.....	7380
cutter, for nonferrous metals.....	7387
dust feeder, coverage, report.....	7153
Machine loading, work review.....	4346
Machine safety, advantages of grounding.....	3120
Magna plant, Utah Cooper Co., safety.....	5944
Magnesia, electrolytic magnesium from, production.....	4537, 7456
from Sloan dolomite, production.....	4834
fused, forming crucibles from.....	467
production.....	7504
Magnesia-silicon system, electrolytic study.....	6281
Magnesite, analysis.....	6542
annual review.....	7953
calcined.....	1367
calcium oxide from, extraction.....	1979
commercial uses.....	7945
magnesium from.....	1899
Magnesite mine, Bald Eagle, Calif., discussion.....	7977
Magnesium, annual review.....	1366, 1633, 2689-2691, 8205
commercial uses.....	7945
electrolytic, from magnesia, production.....	4837, 7450
electrolytic refining, discharge of chemical compounds in objec- tionable quantities, effect on air pollution.....	4925
electrothermic, description.....	1889
from magnesite.....	1899
heat capacity, at low temperatures.....	138
in magnesium-lithium-aluminum system.....	6802
in silicon metal, spectrochemical determination.....	3530
in titanium metal, spectrochemical determination.....	6122
raw materials, annual review.....	1067
Magnesium, reduction of tantalum powder by, discussion.....	4549
reduction of zirconium chloride with, methods, improvements.....	4562
resources.....	2690
Magnesium alloys, determination of lithium in, flame photometer.....	7627
vibration-damping capacity.....	8131

Magnesium aluminate, entropy.....	4378
heat capacity, at low temperatures.....	4378
heat content, at high temperatures.....	664
Magnesium chloride, anhydrous, heat content, at high tempera- tures.....	5390
specific heat, at low temperatures.....	4331
heat of formation.....	7243
hydrates, specific heat, at low temperatures.....	4333
Magnesium chromite, heat, at low temperatures.....	7229
heat content, at high temperatures.....	5543
specific heat, at low temperatures.....	7240
Magnesium compounds, annual review.....	1360
Magnesium dihydrate, heat of formation.....	7243
Magnesium dilitanate, entropy.....	7773
heat capacity, at low temperatures.....	7773
Magnesium dust explosions, control.....	933, 936
Magnesium ferrite, entropy.....	4377
heat capacity, at low temperatures.....	4377
heat content, at high temperatures.....	655
Magnesium fires, control.....	933
extinguishing with pitch.....	943, 944
Magnesium fluoride, entropy.....	7709
heat capacity, at low temperatures.....	7709
heat content, at high temperatures.....	6542
Magnesium hexahydrate, heat of formation.....	7243
Magnesium industry, outlook.....	6130
Magnesium-lithium-aluminum system, magnesium in.....	6092
Magnesium metatitanate, heat capacity, at low temperatures.....	7200
heat content, at high temperatures.....	6548
Magnesium monohydrate, heat of formation.....	7243
Magnesium nitrate, heat content, at high temperatures.....	7236
heat of formation.....	8507
specific heat, at low temperatures.....	7245
Magnesium nitrate hexahydrate, heat of formation.....	8507
Magnesium orthosilicate, heat content, at high temperatures.....	5900
specific heat, at low temperatures.....	4323
Magnesium orthotitanate, entropy.....	7773
heat capacity, at low temperatures.....	7773
Magnesium oxide, aqueous suspensions of, carbonation.....	2135
heat of formation.....	7243
impervious crucibles of.....	0671
Magnesium silicate, heat of formation.....	7798
Magnesium sulfate, anhydrous, specific heat, at low temperatures.....	4304
from calcined polyhalite, extraction.....	1377
Magnesium sulfate-water-potassium sulfate system, data.....	7418, 7419
Magnesium tetrahydrate, heat of formation.....	7243
Magnesium titanate, heat content, at high temperatures.....	8904
Magnet Cove, Ark., barite flotation, discussion.....	5745, 5747, 6250
Magnetic fields, alternating, ferromagnetic particles in, move- ment and demagnetization.....	1566, 1577
Magnetic material, coercive force.....	3036
Magnetic properties, effect of grain size, discussion.....	1751
Magnetic observations, resolving power of.....	6678
Magnetic resonance spectra, asphaltene.....	2727
Magnetic separator, concentration of ores.....	1670
Magnetic susceptibility, relation to specific magnetization.....	1316
Magnetite, chrysotile in, determination.....	7170
heat capacity, at low temperatures.....	5336
Grecian, mining.....	7604
grinding efficiency, measurement standard.....	1731
heat content.....	1471
industrial use.....	1761
in smelted copper slags.....	5119
physical properties.....	1701
Magnetite deposits, Lyon Mountain, anhydrite gypsum in.....	8049
Magnetite ores, flotation, experimental.....	1241, 1242
Magnetite powders, coercive force.....	3030
Magoffin County, Ky., Oil Springs pool, L. C. Bailey lease, second- ary recovery.....	5536
Malaya, alluvial tin mining, discussion.....	5296
Man-eat protection, on slopes, use of safety dogs.....	5208
Manganese, alpha, specific heat, at low temperatures.....	7237
annual review.....	1482, 1524, 1813, 1814, 2785, 5246-5253, 6255, 7952
deoxidation of iron with, studies.....	2797
determination, Volhard's method, modification.....	6543
diffusion through molten iron.....	3739
electrodeposition, effect of impurities.....	6871
effect of solution concentration.....	7196
effect of variables.....	3996
electrolysis.....	1121
electrolytic, as addition agent.....	6310
data.....	6309
hydrogen removal.....	6178
hydrogen solubility.....	6177
metallurgical uses.....	1724b
outlook.....	4507
pilot plant, description.....	3998
production.....	1737, 1740, 1787
report.....	1720, 1727
status, discussion.....	4491
sulfur in, control.....	4205
tests, by steelmakers.....	6311
transition points.....	6177
X-ray parameter and structure, effect of hydrogen.....	6174
electrowinning, effect of cell variables.....	3992
method, patent.....	3273
for steel industry, review.....	663
from chloride electrolytes, electrowinning.....	3994
from open-hearth slag, supply.....	996

Item	Item
Manganese, from slag, recovery.....	987, 998
gumma, electrodeposition.....	6808
specific heat, at low temperatures.....	7237
hardening by cold work and heat treatment, physical properties.....	1779
heat capacity, at low temperatures.....	138
heat content, at high temperatures.....	6841, 7392
in basic slag, data.....	3584
in iron, desulfurizing action.....	2798
in silicon metal, spectrochemical determination.....	3530
in steel, effect on forgeability.....	147
in steel metallurgy, significance.....	8312
in titanium metal, spectrochemical determination.....	6122
marketing, data.....	1483
metallurgy.....	1730
nonferrous metal, annual review.....	1729
physical resource, data.....	3582, 3583
pilot plant, Bureau of Mines, Boulder City.....	6750
preparation, new processes.....	6308
production, domestic.....	6762
specific heat, at low temperatures.....	4322
transformation.....	6179
world, review.....	7384
Manganese alloys, description.....	1734
electric resistance.....	1787a, 1758a
temperature coefficient.....	1758a
electrolytic, production.....	1726, 1727, 1737
use.....	1725
metallurgical research, Bureau of Mines.....	1771
properties.....	146
use in open-hearth practice.....	3537
Manganese carbides, specific heat, at low temperatures.....	4334
Manganese carbonate, heat content, at high temperatures.....	5391
Manganese carbonyl, heat of formation, by rotating bomb calorimetry.....	3014
Manganese chloride, heat content, at high temperatures.....	5390, 7391
Manganese-copper equilibrium system.....	1781
Manganese-copper alloys, damping capacity.....	1769, 1791
effect on noise.....	6901
electrical resistivity.....	1789
hardening by cold work and heat treatment.....	1768
high-damping, discussion.....	4635
microstructure.....	1768
properties.....	1783
temperature coefficient of resistance.....	1789
transitional structures, properties.....	1700
Manganese-copper equilibrium system, data.....	1784
Manganese-copper-aluminum alloys, alpha solid solution, area.....	1785
properties.....	1774
Manganese-copper-tin system, alpha solid solution area.....	2775
Manganese-copper-zinc alloys, annual review.....	1776
copper-rich, wrought, physical properties.....	1775a
physical properties.....	1778, 4846, 4847
Manganese-copper-zinc system, alpha solid-solution field.....	1782
data.....	3048
Manganese deposits, domestic, developments.....	3647, 3988
Manganese dioxide, heat content, at high temperatures.....	5391
specific heat, at low temperatures.....	4334, 5340
Manganese dithionate dihydrate, specific heat, at low temperatures.....	4332
Manganese hexahydrate, solid and liquid, heats of formation.....	7247
Manganese-iron alloys, cold-worked and normalized, properties.....	4848
hardening by cold work and heat treatment, properties.....	1777
Manganese metal, commercial production.....	3987
electroprocessing.....	76
Manganese-nickel-copper alloys, age hardening.....	1775, 1780
coefficient of thermal expansion.....	1770
Manganese-nickel-copper system, hardening.....	1758h
Manganese nitride, heats of combustion and formation.....	5087
Manganese ores, artificial, production.....	4165
bacterial leaching.....	6079
beneficiation, experiments.....	7186
carbonate, flotation.....	1852
Coryuna, differential sulfatization, at high temperature.....	6197
domestic, beneficiation.....	1858
leaching with caustic soda.....	4886
use.....	1888
flotation.....	1851
hydrometallurgical reagents, electrolytic processing.....	1238
low-grade, concentration and use, problems.....	5638
experimental treatment, progress.....	1744
milling, Algonquin mine, Montana.....	67
mining.....	1484
preparation.....	1484
supply, global aspects.....	1812
western, concentration.....	6858
Manganese ore dressing, experiments.....	2103
use of microscopy.....	3519
Manganese oxide, heat content, at high temperatures.....	7391, 7392
Manganese oxide, heat of formation.....	7234, 7392
Manganese oxide and carbon, in molten manganous chloride, electrolysis.....	1121
Manganese oxide ores, flotation.....	1852, 6981
Manganese pilot plant, Bureau of Mines, Boulder.....	6750
Manganese recovery, electrolytic cell for, method, patent.....	3995
Manganese reserves, Cartersville, Ga.....	6410
Manganese resources, data.....	3597
Manganese sesquioxide, thermodynamic properties.....	4387
Manganese silicate, heat content, at high temperatures.....	7391
Manganese slugs, production, selective oxidation of spiegeleisen.....	6603
Manganese solutions, purification, method, patent.....	3993
Manganese steel, low-carbon, characteristics.....	4332
Manganese sulfate, anhydrous, specific heat, at low temperatures.....	5304
Manganese sulfide, heat capacity, at low temperatures.....	133
Manganese tetroxide, heat content, at high temperatures.....	7391
Manganese-zinc phase diagram, description.....	6175
Manganese-zirconium system, tentative diagram.....	3489
Manganic oxide, specific heat, at low temperatures.....	5340
Manganiferous iron ores, concentration.....	1302
production.....	4160
relation to iron and steel industry.....	4184
Manganiferous limestone, ferrograde concentrates from.....	2530
Manganite, identification.....	1395
Manganomanganic oxide, heat content, at high temperatures.....	7391
heat of formation.....	7234
Manganous chloride, heat of formation.....	4497
molten, use, in electrolysis of manganese.....	1121
Manganous metasilicate, heat of formation.....	4375
Manganous oxide, entropy.....	7774
heat capacity, at low temperatures.....	7774
specific heat, at low temperatures.....	5340
Manganous oxide inclusions, in carbon steel, electrolytic extraction, method, discussion.....	2570
Manganous selenide, specific heat, at low temperatures.....	4322
Manganous silicate, specific heat, at low temperatures.....	4321
Manganous sulfate, heat content, at high temperatures.....	7392
heat of formation.....	7392
Manganous sulfide, heat contents.....	1484
Manganous telluride, specific heat, at low temperatures.....	4322
Manholes, explosion hazards.....	4084, 6083
ventilation, effect of wind velocity.....	4124
Manometer, automatic, use in gas sampling, roass spectrometry.....	6129
Manuscript preparation, systematic approach.....	1312
Maps, aerial, improved, aid to geologist and engineer.....	6500
Marble, quarrying.....	711
Marine boilers, spreader stokers for, discussion.....	6380
Martensite, tempering, application of iron-carbon system reactions.....	3711
Maryland, coal reserves, discovery.....	7791
coking coal, deposits.....	7790
Collier Park Station, mineral-dressing facilities.....	4594
freelays, tests.....	7025
Mary Lee coal, byproduct yield from, effect of dry and wet coal, experimental data.....	2315
cleaning, effect on coke properties.....	2209
effect on gas and byproduct yields.....	2209
Marysville District, Utah, potash, from low-grade alunite, extraction.....	8031a
Masks, army, protection against industrial gases.....	2489
gas, methods of testing.....	2475
Mass spectrometer-type analysis, olefins in gasoline.....	5333
Mat glazes, relation to lime-alumina-silica system.....	8349
Materials, particulate average diameter.....	1295
size distribution, statistical analysis.....	6652
surface and size distribution, discussion.....	6652
unconsolidated, drilling and sampling.....	1969
Material-heat balance, foundry furnace.....	4411
Mather mine, rescue station, Mich.....	7826
Mauri, New Zealand, fossil gums.....	5329
McAlester bed, coal, carbonizing properties.....	1686
McDonald Field, southwestern Pennsylvania, oil, secondary recovery.....	7761
Mechanical cleaning, annual review.....	6145
Mechanical cleaning equipment, coal mine, sales.....	6144
Mechanical loaders, blasting coal for.....	7741
Mechanical loading, annual review.....	6145
bituminous coal mines, statistical analysis.....	6152, 7862, 7863, 7860
anthracite mines, statistical analysis.....	6162, 7860
Cincinnati meeting, discussion.....	1135
coal fields.....	7844
lead ore.....	3971
underground.....	6144
developments.....	7990
metal mines.....	7988
Mechanical loading equipment, coal mine, sales.....	6144, 6147
Mechanization, anthracite region.....	978
coal deposits, effect on conservation.....	7786
coal mines, problems.....	3314
progress.....	7789
coal mining industry, effect on safety.....	8295
definition.....	3830-3836
editorial discussion.....	3823
effect on safety.....	3303, 3341
In mines, electrical hazards.....	2893
introduction.....	3830, 3831
underground, anthracite mines, trends.....	981, 983
Medical services, war industries, manual, review.....	6918
Mellitic acid, production, carbon black oxidation, formation of intermediate acids, nature of.....	6710
Melting furnace, controlled-atmosphere induction, for laboratory studies.....	636
Melting-point purity, limitations determination, by calorimetric studies.....	5013
Melting stock, sponge iron, substitute for.....	1767
Mental hygiene, in industry.....	6342
Mercury, annual review.....	2014, 5317-5327, 6076
deposits, investigations.....	5433
Mercury and ionized helium, data.....	4900
Mercury balance volumeter, improved, description.....	7400