MINING IN THE ATMOSPHERE

If scientific discoveries go on at their present rate we may soon find that the things we now hold most cheaply are those of the greatest value!

Who, for instance, would have thought that the air we breathe holds a store of elements which realize many millions of dollars annually? It is a fact, amazing as it may seem; and as a result a new industry is springing up in connection with this mining of the air.

The atmosphere consists, roughly speaking, of a mixture of the gases nitrogen and oxygen, as well as quantities of argon and neon, among other things.

Since the discovery of a method of liquefying air by extreme cold, it had been found possible to separate these constituents in the same way. And all these elements have now assumed a great commercial importance.

As everyone knows, oxygen is often used to maintain life in invalids, yet the amount consumed in hospitals and laboratories is a very small portion of the total output. In the United States alone it is estimated that the annual output of oxygen is a thousand million cubic feet. The present value of that is nearly fifteen million dollars.

Oxygen is used in many different ways in the engineering world. It is combined with acetylene to make the intensely hot flame which cuts through steel rails with the greatest of ease. Workmen are often to be seen in the streets using the flame in repairing tramway tracks. The oxy-acetylene process is one of the most important labor-saving devices ever invented and it was them ining of the air that made it possible.

The oxygen is market in steel cylinders, which may often be seen loaded on motor-lorries in any bid town.

Once the oxygen has been removed from the air, attention is turned to nitrogen, which is trapped from the air for the manufacture of fertilizers—an industry carried on in Norway on an enormous scale. It is used also for the manufacture of explosives, for the filling of so-called nitrogen lamps, while it is sometimes employed for the putting out of oil fires.

Nitrogen is obtained by driving the air over an intensely hot electric arc flame, six feet in diameter, known as the "electric sun." The nitrogen is trapped as nitre oxide, from which the nitrogen itself is ultimately combined to form nitro compounds.

Two of the remaining gases in the air are argon and neon, recently looked upon as rare and costly, but now sold at a dollar or two a cubic foot.

Both these gases are used for filling incandescent electric lamps, while small glass tubes of neon are used for testing sparking plugs in motors.

Electric lamps are often rendered useless by something going wrong with their fragile tungsten filaments, but neon has now made filamentless lamps possible. An intense pink glow is produced between two neat metal surfaces in an atmosphere of neon.

With all these uses for the gases from the atmosphere, it will be seen that the air is providing a new and valuable industry. The raw material is costless and boundless. It is there for everyone and anyone to use. There are thirteen trillion tons of it available, and the supply is inexhaustible, for it is constantly being replenished.

How insignificant, both in size and value, our great collieries appear when compared with this vast new "mine" which abounds all around us!

Measuring a Continent.

Until recently no great continent had ever been measured by means of the surveyor's chain.

Maps are usually made by means of astronomical calculations similar to those used by the sailor in fixing his position at sea. These calculations are found to be amazingly accurate when they are checked by the measure.

When, more than a century ago, the French instituted the metric system, they were very anxious that the metre should be an exact fraction of the earth's circumference—which the yard is not.

They checked the astronomer's calculations by actually measuring the distance in a straight line from the north to the south of their country. When the work was finished it was found that the two sets of measurements differed by only a few feet!

To-day a far greater piece of measuring is being undertaken. Thanks to the construction of the Cape-to-Cairo railway, the whole length of the great African continent is being worked out by surveyors.

Considerable portions have been finished, and these show that up to the present, at any rate, there is no need for us to revise our maps.

An error has been disclosed, it is true, but it is hardly of the kind to affect the Atlas. It amounts, as a matter of fact, to rather less than one inch for each hundred miles. Not a very serious mistake!

When the measurement is completed it is expected that astronomers and surveyors will differ by about fifty yards for the entire length of this immense continent.

Canada possesses nearly half the water power of the world.

Your clothes if hung up carefully will wear much better than if flung upon the chair.

RHEUMATIC TREATMENT

This Trouble Can Only be Got Rid of by Enriching the Blood.

In no disease does the blood become thin so rapidly as in rheumatism. Not only does it become thin, but it is loaded with rheumatic poisons. Without proper treatment these poisons increase, the general health is undermined, the inflamed joints swell, and are very painful, and often the sufferer becomes crippled.

Dr. Williams' Pink Pills build up the blood and enable it to cast out the rheumatic poisons with the natural secretions of the body, thus driving out the pains and benefitting the general health. Sound proof of these statements is offered by Mrs. George Stanley, Sparta, Ont., who says:—"For a number of years I was troubled with rheumatism, which at times was very painful. My general health was also affected, and I could scarcely drag myself around. I had been doctoring a good deal, but did not get any better, until one day my daughter brought me a box of Dr. Williams' Pink Pills. By the time these were used I could notice a slight improvement and I continued taking the pills until I had used about a dozen boxes, by which time I felt like a new person—and looked like one. I could do my work with ease, and have since enjoyed the best of health. I have since recommended Dr. Williams' Pink Pills to several others who received the same benefit as myself."

The best time to begin taking Dr. Williams' Pink Pills is the moment you feel the least bit out of sorts. The sooner you do so the sooner you will regain your old time energy. You can get these pills through any medicine dealer or by mail post paid at 50 cents a box or six boxes for $2.50 from The Dr. Williams' Medicine Co., Brockville, Ont.

Visible Sound.

One of the strangest of volcanic phenomena is the "flashing arcs"—thin luminous rings—which, when an eruption is in progress, are sometimes seen to rush out and up from the crater and disappear in space. They have been observed on Mount Vesuvius and also on Mount Etna.

Each successive ring follows immediately upon an explosion, and there seems to be no doubt of the fact that these "arcs" are sound waves made visible.

During the war observation was frequently reported of mysterious curved bands of light and shade that swept across the sky or over the ground near places where cannon were being fired. They were described as resembling the concentric ripples produced by dropping a pebble into water. One observer told of hearing the explosion of a distant gun at the precise instant when the moving light band reached his feet.

These also are believed to have been visible sound waves. In either case, gun or volcano, an explosion gives rise to a steadily expanding "shell" of condensation in the air, which, followed by a shell of rarefaction, spreads out from the source at a speed of a little more than 1,000 feet a second. Under favoring circumstances we may see it in outline. When it reaches our ears the vibration it imparts to our ear drums enables us to hear the explosion.

The spreading spherical shell in the air is made visible by its effect upon the paths of light rays coming to our eyes. We say that air is invisible, but it is not always so necessarily. Everybody has seen air shimmering over a hot stove or other heated surface.

The spreading shell may be aptly compared to a soap bubble in process of blowing, and the "flashing arc" to the circular outline of the bubble.

Diner on English Railroad Electrically Equipped.

Inaugurating a new departure, the Great Northern Railway Co., in England, has equipped the kitchen of one of its dining cars with electrical cooking apparatus. Power for the apparatus is furnished by two generators, which are belt-driven from the axles of the trucks, each having a rating of 6 kw. In the kitchen, across one end, is the main cooking range and roasting oven, with a steaming oven above it, while over the latter, a grill and a hot-water tank are located. A boiling range having four hot plates, two 10-gal. boiling pans for vegetables, and a fish fryer, are also included in the installation, which has yielded such satisfactory results that the company is seriously considering similar equipment for other trains.

CHILDHOOD AILMENT

The ailments of childhood—constipation, indigestion, colic, colds, etc.—can be quickly banished through the use of Baby's Own Tablets. They are a mild but thorough laxative which instantly regulate the bowels and sweeten the stomach. They are guaranteed to contain no harmful drugs and can be given to the youngest baby with perfect safety. Concerning them Mrs. Alcide Lepage, Ste. Beatrix, Que., writes:—"Baby's Own Tablets were of great help to my baby. They regulated her bowels and stomach and made her plump and well." The Tablets are sold by medicine dealers or by mail at 25c a box from The Dr. Williams' Medicine Co., Brockville, Ont.

Surnames and Their Origin

CLAYBURN

Racial Origin—English.
Source—A locality.

Most of the Clayburns and Claibornes in Canada will be inclined to quarrel with the statement that this is an English family name. They maintain that it is Irish.

In this they are not exactly correct. The truth is that most of the Claibornes and Clayburns in Canada are Irish, but their name is not, though it has been known in Ireland since the twelfth or thirteenth century.

This name, which is often pronounced in England as though it were spelled "Clebburn" or "Clebbern," was originally a place name, and the locality was the seat of a lordship established in Westmoreland in Anglo-Norman times. The spelling then was "Cliburne," and it later became "Cleborne," from which evolved the form Claiborne and finally Clayburn. And strangely enough, this latest spelling indicates better than the others, quite by accident it must be believed, the original meaning of the place name, if you remember that in this case the "burn" means a stream of water, and not that painful result of too close association with fire. "Clagg" was the Anglo-Saxon word for "sticky earth," that is to say, "clay."

An Alan de Cleburne, apparently, settled in Ireland as early as 1200 A.D., and the name has flourished in that country, as well as in England, ever since.

HYDE.

Variations — Hide, Ide, Hithereve, Hitherceve.
Racial Origin—English.
Source—A locality, also a title.

None of the family names in this group have anything to do with our modern word "hide" which means a skin. They are developments of another old Teutonic word which was variously spelled by the Anglo-Saxons and the Anglo-Normans, later, "hyde," "hythe," "hithe" and sometimes "hide."

It really had two meanings, or if you prefer to put it that way there were really two separate words. One of them indicated a small farm, specifically a farm of the size which one man could plow in one day. The other, which was used principally, but not exclusively, in the maritime sense, meant a haven or harbor.

In addition there is a town in Cheshire, the history of which dates back to before the Norman period, called Hyde.

Here then, you have three sources of the foregoing surnames. A study of the most usual courses of development in family name formation would indicate that all of them, with the exception of Hithereve and Hithereeve came in most instances from the name of the town, and at first were used to show that an individual had come from that place or was identified with it in some way.

But there is no doubt about the two forms of Hithereeve. The "hitereeve" could only have been (literally) the harbor-sheriff. We would speak of a port warden to-day.

Feed the body well

Right food for the body is more important than right fuel for the engine.

Grape-Nuts

is a scientific food, containing all the nutriment of wheat and malted barley. Grape-Nuts digests easily and quickly, builds toward health and strength — and is delightful in flavor and crispness

"There's a Reason" for Grape-Nuts

"Copyright Law" of the Northwest Indians

That a "copyright law," very similar to that in force among the civilized nations of the world, existed among the primitive Indians of northern British Columbia and Alaska long before the white man came, is a remarkable fact which a writer discovered recently while traveling through the northern wilderness region of British Columbia in company with William Beynon, of the Canadian ethnological research. The strange thing is that though much has been written of totem poles and some pictures of them shown, the existence of copyright has been entirely overlooked. In fact, the meaning of these poles, and the strange ceremonies attaching to them, have never been made known to the general reading public.

Herewith is given for the first time the story of how these primitive peoples of North America instituted a copyright law along exactly the same lines as followed by the white men today.

To be the owner of a totem pole was a sign of social position, rank, wealth, and power. Every native above the slave class aspired to raise one some day. In the erection of the pole a great amount of wealth had to be lavished; the more wealth lavished, the greater the owner's standing in the community.

When a native decided he would have a totem pole, he and his family, and sometimes in the case of a great chief, the whole clan, set about gathering wealth to meet the occasion. These preparations usually began a year in advance; in some cases so long a time as three years was spent in preliminaries. While this was going on, the prospective owner called in the artist of the tribe, a man of a distinctive class whose wages were very high. To the artist the prospective owner related all the traditions of each figure and crest he wished carved. The artist then started to work, spending sometimes months on the intricate designs necessary. His work was made highly difficult because he must not in any way duplicate any carving already in existence in the region. This rule was very rigidly enforced, marking the first workings of the copyright law in North America.

The past tense has been used throughout, for though an odd totem pole may still be raised among some of the very primitive tribes, the custom has practically passed, through the natives' intercourse with the white man. In fact, the Canadian government has stopped the natives impoverishing themselves by such ceremonials, which have been commonly known among white men as "potlatches," though their significance has been entirely lost upon the egotistical white man, for the most part too contemptuous of the native to inquire closely into his doings.

So, soon the Indians who first introduced the law of copyright will cease to need it.

WONDERFUL BRIDGES OF MODERN WORLD

THE LAST WORD IN ENGINEERING FEATS.

Two Decks for Traffic on the Great Structure That Will Span the Hudson River.

In various parts of the world—in Australia, Canada, and the United States—plans are going ahead for the construction of four massive bridges which, when completed, will be among the greatest engineering feats in history.

Most wonderful of all is the structure to be erected over the Hudson River at New York. It will be 6,660 ft. long, or over 700 ft. longer than the famous Brooklyn Suspension Bridge, and over 1,000 ft. longer than the Forth cantilever bridge in Scotland.

The great skill that will be required in the construction of the new bridge may be judged from the tremendous weight it will have to carry. The central span will be 3,240 feet in length, and there will be two decks for traffic.

On the upper deck—220 feet in width—will be a roadway with a car on either side and outside this will be two footways each 17 feet broad. The lower bridge will have ten lines of railway track.

From the standpoint of actual length the Australian bridge, which is to be erected over Sydney Harbor between Dawe's Point and Milson's Point, is the next in importance.

Unlike that over the Hudson River, the bridge will be a single decker with four lines of railway, a road 35 feet wide, a motor-car road 18 feet wide, and a 15 foot pathway for pedestrians. The central span will be 1,600 feet in length.

Longer Than Quebec Bridge.

While not to be compared with either of these structures, the bridge to be erected over the Detroit River between Detroit and Windsor will be none the less remarkable. It will have two decks. The upper deck will have two 28 foot roadways, two 7 foot sidewalks, and a double trolley line; while the lower deck will be devoted to four railway lines.

About 3,703 feet in length, with a main suspended span of 1,893 feet, the bridge will be over 400 feet longer than the Quebec bridge, the famous structure, the hoisting of whose central span was accompanied by two disasters involving a total loss of eighty-eight lives.

Last, but no least, is the new suspension bridge to be built across the Delaware River. It will connect the cities of Philadelphia and Camden. It is to cost more than twenty-five million dollars, and will have a central span of 1,750 feet. Roadways, tramways, and pathways are to be included. A total of 33,000 tons of metal will be required, whereas a cantilever bridge would have needed 47,000 tons.

When these bridges are erected—and that at Philadelphia will take five years to complete, or eight years less than the famous Brooklyn structure—Britain will be outclassed in the matter of great bridge-building feats, says an English writer. It is hoped, however, that the armament firms deprived of work under the disarmament scheme will turn their attention to the matter, and proposals have already been put forward for various bridges—one over the Tay; another at Berwick-on-Tweed; two over the Thames, one between Barnes and Kew and one at Richmond; and one over the Severn.

As for remarkable bridges, the United States still leads the way with the one at Chicago. This works exactly like a lift, the central span being raised straight up when a ship has to pass.

The Runcoin bridge over the Mersey is in the nature of a suspension railway, the passengers being carried across in a remarkable cage-like contrivance.

Nurses War Memorial Fund.

Canadian nurses from coast to coast are raising funds to erect a monument at the Capital in commemoration of Canadian Nursing Sisters who lost their lives during the Great War. Ontario nurses are requested to send their contributions either individually or through their local association to the Provincial Secretary-Treasurer of the Fund, Miss Holland, 410 Sherbourne St., Toronto.

When the Brakes Are of First Importance.

In the West, logging camps are mostly situated in the hills, and the heavy loads of logs have to be hauled out, always downhill. Often that helps to make the hauling easy, but sometimes the grades are so steep that it makes it too easy—so easy that it entails difficulty. Indeed, in these instances the term hauling is a misnomer, for that implies pulling the load, and the operation actually consists in pushing against the load instead of pulling it. Two and a half miles of specially constructed track is used at one western logging camp for transporting heavy loads on a large motor truck down a very steep grade. The truck is six-wheeled, and has powerful brakes on its four rear wheels. These brakes are controlled exclusively by one man, while another takes care of the driving and steering.

Minard's Liniment for sale everywhere

Simcoe County Municipal Forest.

Work was begun this spring in planting up the area in Vespra township, Simcoe county, Ontario, which the county council has acquired for a municipal forest. It will take several years to plant up the whole area of eight hundred acres but the work will proceed year by year till it is done. It is possible that a nursery to grow part of the planting stock required will be started on the site.

The monument for Rear Admiral Robert E. Peary is a huge stone sphere on which the continents of the earth are outlined. At the North Pole is set a bronze star, symbol both of his discovery and, as some one has suggested, of "the star of unconquered will." His epitaph is his own favorite quotation from the Latin—I will find a way or make one.

Have Good Hair and Clean Scalp

Free from dandruff and itching. It's easy. On retiring rub spots of dandruff and itching with Cuticura Ointment, getting Ointment well on scalp. Next morning shampoo with Cuticura Soap and hot water. Rinse with tepid water.

Soap 25c. Ointment 25 and 50c. Talcum 25c. Sold throughout the Dominion. Canadian Depot: Lymans, Limited, 344 St. Paul St., W., Montreal. Cuticura Soap shaves without mug.

ISSUE No. 21—'22.

SAYS SHE HAD ACTUAL DREAD OF MEALTIME

Montreal Woman Was On Verge of Breakdown But Eats Anything Now, and Nervousness is Gone, Too.

"Tanlac is wonderful. It has simply made me feel like a different person," said Mrs. Wm. Allen, 1515 Wellington St., Verdun, Montreal, Quebec.

"For five years I never knew what it was to be free from stomach trouble and finally was on the verge of a breakdown. I actually dreaded for mealtime to come as I knew no matter how careful I was about my diet I would be sure to suffer afterwards.

"Tanlac has just changed things all round for me. For a long time I had been going without any breakfast altogether and now I get up in the morning so hungry I can eat bacon or most anything else I want and enjoy it. I have gotten over the nervousness, too, and am able to sleep all night long without waking up once and I get up mornings feeling thoroughly refreshed. I am still taking Tanlac and improving steadily. In fact, it just seems that every dose increases my strength and energy."

Tanlac is sold by all good druggists. Advt.

Rubberized Paper.

A new process has been discovered for utilizing rubber in the making of paper. It is claimed that the introduction of even very small quantities of rubber into the raw material results in the production of extraordinary toughness and strength.

Minard's Liniment Relieves Neuralgia

Many a man in the hour of his need finds that he has been so busy making money that he has forgotten to make any friends.

Electric cap-lamps are now being made for the use of miners, the current being supplied from an accumulator strapped on the wearer's back.

STOMACH TROUBLES ARE DUE TO ACIDITY

Tells Safe, Certain, Speedy Relief For Acid Indigestion.

So-called stomach troubles, such as indigestion, gas, sourness, stomachache and inability to retain food are in probably nine cases out of ten, simply evidence that excessive secretion of acid is taking place in the stomach, causing the formation of gas and acid indigestion.

Gas distends the stomach and causes that full, oppressive, burning feeling sometimes known as heartburn, while the acid irritates and inflames the delicate lining of the stomach. The trouble lies entirely in the excess development or secretion of acid.

To stop or prevent this souring of the food contents of the stomach and to neutralize the acid, and make it bland and harmless, a teaspoonful of Bisurated magnesia, a good and effective corrector of acid stomach, should be taken in a quarter of a glass of hot or cold water after eating or whenever gas, sourness or acidity is felt. This sweetens the stomach and neutralizes the acidity in a few moments and is a perfectly harmless and inexpensive remedy to use.

An antiacid, such as Bisurated Magnesia, which can be obtained from any druggist in either powder or tablet form, enables the stomach to do its work properly without the aid of artificial digestents. Magnesia comes in several forms, so be certain to ask for and take only Bisurated Magnesia, which is especially prepared for the above purpose.

America's Pioneer Dog Remedies

Book on **DOG DISEASES** and How to Feed Mailed Free to any Address by the Author, H. Clay Glover Co., Inc. 129 West 24th Street New York, U.S.A.

Classified Advertisements

COUPLE WANT BOARD, FARM OR mountains, give particulars. Box 100, Wilson Publishing Co., Ltd., 73 Adelaide St. W., Toronto.

NURSES WANTED.

NURSES WANTED FOR TRAINING School in charge of graduate of Johns Hopkins Hospital. Apply Superintendent, Homewood Sanitarium, Guelph.

HELP WANTED—MALE.

WANTED PERSONS TO GROW mushrooms for us; waste space in cellars, out-houses or gardens can be made yield $25 to $50 per week; illustrated booklet and particulars sent for 3c stamp. Toronto Supply Co., Cumstock

BELTING FOR SALE

ALL KINDS OF NEW AND USED belting, pulleys, saws, cable, hose, packing, etc., shipped subject to approval at lowest prices in Canada. YORK BELTING CO., 115 YORK STREET, TORONTO.

Wood May Become Important as Fuel.

In view of the threatened difficulty in obtaining coal in the near future, the question of the value of wood as a fuel again becomes important. According to the Forest Products Laboratories of the Department of the Interior, Canada, the main considerations in selecting wood for fuel are its weight and dryness. Pound for pound, all woods, equally dry, have about the same heating value. A cord of dry hardwood, such as birch, has approximately the same heating value as a ton of coal, but in the case of softwoods, as much as two cords would, in some instances necessary to get the same amount of heat.

MONEY ORDERS.

The safe way to send money by mail is by Dominion Express Money Order.

Chinese is spoken by four hundred million people.

COARSE SALT
LAND SALT
Bulk Carlots
TORONTO SALT WORKS
G. J. CLIFF - TORONTO

Those Having Sick Animals
SHOULD USE

MINARD'S "KING OF PAIN" LINIMENT

Good for all throat and chest diseases, Distemper, Garget, Sprains, Bruises, Colic, Mange, Spavins, Running Sores, etc., etc. Should always be in the stable —SOLD EVERYWHERE.

TO ENJOY PERFECT HEALTH

Every Woman's Wish—Read Mrs. Cassady's Experience

Paris, Ontario.—"For five years I suffered with pains in my back and from other troubles women often have. All of this time I was unfit for work and was taking the different medicines that I thought were good. I saw the advertisement in the papers of Lydia E. Pinkham's Vegetable Compound and have taken it faithfully. I am now in good health and do all my own work. I recommend it to others and give you permission to publish this letter in your little books and in the newspapers as a testimonial."—Mrs. D. Cassady, Box 461, Paris, Ontario.

This medicine which helped Mrs. Cassady so much is worthy of your confidence. If you are troubled with such ailments as displacements, inflammation, irregularities, or other forms of female weakness you should give it a trial now.

Lydia E. Pinkham's Private Text-Book upon "Ailments Peculiar to Women" will be sent to you free upon request. Write to The Lydia E. Pinkham Medicine Co., Lynn, Mass. This book contains valuable information.

Genuine

BAYER

Aspirin

WARNING! Say "Bayer" when you buy Aspirin.

Unless you see the name "Bayer" on tablets, you are not getting Aspirin at all. Accept only an "unbroken package" of "Bayer Tablets of Aspirin," which contains directions and dose worked out by physicians during 22 years and proved safe by millions for

Colds	Headache	Rheumatism
Toothache	Neuralgia	Neuritis
Earache	Lumbago	Pain, Pain

Handy "Bayer" boxes of 12 tablets—Also bottles of 24 and 100—Druggists.

Aspirin is the trade mark (registered in Canada) of Bayer Manufacture of Monoaceticacidester of Salicylicacid. While it is well known that Aspirin means Bayer manufacture, to assist the public against imitations, the Tablets of Bayer Company will be stamped with their general trade mark, the "Bayer Cross."