

GAS BOOM WAS PREDICTED

Continued from Page 1.

Face gas, so called because it is found at the surface of the rock. It has no perceptible odor and burns with an intense heat, but is a poor illuminant. Its properties correspond with those of methane, or marsh gas. It is a hydrocarbon, and is probably produced from the slow distillation of either oil or bituminous shale or other rock, having allied substances contained in the rock stratum below the clay cap.

The second is the commercial natural gas, which is found in more or less deep borings in the rock. The properties of this gas are the same as the above, with this exception, that it possesses a strong odor, resembling that of a strong petroleum. The odor is no doubt due to an admixture of vapors of some volatile liquid hydrocarbon. This gas is probably the production of oil, bituminous shale or other allied substances. By a process of distillation, or decomposition, similar gases to the above are disengaged in coal mines from the fresh out surface of the coal, apertures emitting for a great length of time a copious stream of gas.

SOURCE OF THE GAS.

For the reason given above, it occurred to me the source of surface gas must lie very much deeper than the position in which it is usually found. First, there is no perceptible amount of organic matter to be found in the clay overlying the gas vein. Second, the known existence of strata containing petroleum, bituminous shales, and other organic matter at more or less depths below the surface gas veins, forming a source of supply from which gas may be, and in all probability is, obtained. From the above reasons and other evidences collected, I came to the conclusion that all commercial and surface gas are identical and from the same source of supply. But why the difference in odor? It is well known that ordinary coal gas, used for lighting purposes has to be purified to remove undesirable substances. To produce this effect, the gas is first passed through condensation, and then through the purifiers, where it comes in contact with iron oxide or quicklime, and lastly it is passed through dilute sulphuric acid, used in small plants. In a somewhat similar manner the vapors of volatile liquid hydrocarbons that are probably associated with natural gas, and confer upon it the strong odor, may be eliminated in a natural way. As the gas slowly rises through the crevices in the rock strata, it is brought into intimate contact with the various minerals in solution that are found in the underlying rock strata.

According to a work published by Prof. How, of Dalhousie College, the following list of minerals in solution are found in springs and drill wells flowing from the rock formation below us: Chlorides of sodium, calcium and magnesium, carbonates of soda, sulphate of lime, magnesium, alumina, and soda; peroxide of iron; baryta, strontia, bromides and iodides; hydric sulphide, iron, and sulphurated hydrogen.

What action the above minerals in solution will have upon hydrocarbon compounds, such as natural gas, when held in long and intimate contact with them, I am not prepared to say. That some action will take place is nearly certain, resulting, presumably in some change in the constituents and properties of the gas, such as the removal of the odor-producing elements, as would appear to be the case. If we admit that surface gas is derived from any considerable depth below, which is apparently true, it is certain there are known crevices in the rock extending to great depths, such as the natural spring of mineral water, near Bothwell. I have been informed by a person who bored wells in this vicinity that the same water was encountered at a depth of 700 feet.

SOURCE OF SURFACE GAS.

Owing to the light specific gravity of the gas, it will naturally seek the upper rock strata until stopped by some impervious material, which in the case under consideration is the blue clay. The probable source of natural gas in this locality is the bituminous rock strata, such as the Hudson River and Utica shales. These shales occur or should occur if the continuity of the rock stratum is not broken immediately below the Medina sandstone, from which gas is often procured. These shales are heavily charged with carbonized bitumen, and they outcrop on the south shore of Georgian Bay, and many years ago were used as a source from which rock oil was distilled in a commercial way. It is a well known fact that all bituminous matter, such as soft coal, mineral oil, etc., undergoes slow changes at ordinary temperatures, giving off inflammable gases and losing part of their fuel values by a slow process of combustion and distillation. So we can readily understand how gas can be produced in the depths of the earth if the proper materials and a sufficient heat are present. The heat of the earth in this locality 14 feet below the surface is about 44 degrees, Fahrenheit, and the heat increases about one degree in every 50 feet of descent. At a depth of 1,400 feet, or about the distance below that gas is found, there is a constant temperature of about seventy-two degrees, Fahrenheit. This is a sufficient heat to ensure a slow but constant distillation of organic matter, such as contained in bituminous shales, etc., thus producing inflammable gas. The conditions necessary for storing the products of distillation are a porous or cavernous rock stratum. This, in many cases, is found immediately overlying the Hudson

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Fruit-a-tives are the marvels of modern medicine. They have accomplished more actual cures—done more good to more people—than any other medicine ever introduced in Canada for the time they have been on sale.

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- CONSTIPATION
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Fruit-a-tives are the juices of apples, oranges, figs and prunes. These juices are concentrated—and by a secret process, the juices are combined in a peculiar manner. This new combination is much more active medicinally than fresh juices—yet so perfect is the union that Fruit-a-tives act on the system as if they were in truth a natural fruit, medicinally stronger than any other known fruit.

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These are Fruit-a-tives—sold everywhere for 50c a box or 6 boxes for \$2.50.

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River and Utica shales, and is called by geologists, the Medina sandstone. Above this are still other porous strata, but the extent of the porosity in any of them is uncertain, and here lies the unsatisfactory part of the whole problem. If the actual conditions were evenly distributed every hole drilled to the proper depth would produce gas. But it has been shown from observation and experiment, that rock strata of the same geological horizon vary greatly in density and texture in comparatively short distances. The conditions essential for a productive gas field are: First, a stratum of some organic substance from which gas can be produced. Second, a porous rock stratum to contain the gas. Where both these conditions exist it is nearly certain gas will be found. In choosing a locality for a trial well, it is as well to remember that a great deal of surface gas at any particular point is a sign that natural gas will be struck if the boring were continued to great depths. The reasons for this are that natural gas from great depths may follow a long and tortuous crevice in its upward journey, and when its further progress upward is stopped by the blue clay, it may follow the meanderings of the gravel strata underlying the clay for long distances in its endeavor to attain to the highest position. From the above it will be seen—assuming the gases are identical—that good showings of surface gas at any particular spot does not necessarily indicate that natural gas may be procured immediately below, but in a general way, the showing of surface gas is good within an area of say two or three miles in diameter, to my mind it would be a favorable location to make a series of test borings.

KENT'S GEOLOGY.

The following notes on the several divisions of the rock formations underlying Kent and the surrounding counties, with their names, constituent products, kind of rock, composing them, approximate thickness of the different formations, or epochs, etc., may be of great interest. Rock formations or epochs are recognized not by the material composing them, but by the contained fossils. The authorities are, Dr. J. W. Dawson, Prof. R. B. Jukes, and others connected with the Canadian Geological Survey; Prof. Dana, Minchell, Hunt and others. The formations in descending order are as follows:

Glacial Period. 1.—Depth, 15 feet

superficial deposits of drift matter,

clay, sand and gravel. 2.—Depth 60

feet. Erie or blue clay, products sur-

face gas. Devonian Age. 3.—Hamilton, 250

feet, consisting of bituminous shales,

thin limestone. Products; this shal-

has been regarded as the main origi-

nal source of the oil regions of Ohio

and the same localities gas is often found

in large quantities. It also furnishes

the very best flagging stones. In

some localities there are also coniferous,

oil sulphur springs. 4.—Corniferous,

300 feet, consists of shales, flinty

limestone or chert beds, sandstone.

Products, oil, brackish water, gas in

considerable quantities. It is from

this formation the oil near Bothwell

is procured. 5.—Oriskany, 250 feet,

sandstone, some shale and limestone

intermixed. Products, oil, salt and

water. Upper Silurian Age. 6.—Lower

Helldersburg, 350 feet, consists of

shales, limestone and sandstone. Pro-

ducts, water lime, rock salt, mineral

water, sulphuric acid, hydrogen gas.

7.—Onondaga, 216 feet, consists of

shales, marble, limestone. Products,

plaster of paris, rock salt, mineral

water, brine springs, hydrated sul-

phuric acid. It is from this formation at God-

rich that the salt is obtained, at a

depth of from 964 to 1,180 feet. The

same formation near Chatham will

be reached at a depth of about 1,-

250 feet. 8.—Guelph, 20 feet, the same ma-

terial and products as the Onondaga.

9.—Niagara, 100 feet, consists of

limestone, shales, sandstone. Pro-

ducts, oil occurs in considerable quantities in this formation. At Chicago, at Redbridge, N. Y., lead and copper. 10.—Clinton, 30 feet, consists of red shales and sandstone. Products, impure iron ores. 11.—Medina, 350 feet, consists of brown sandstone used for building purposes. Products, gas, when the rock is of sufficient porosity, the gas originating in the formations below.

Lower Silurian Age. 12.—Hudson River, 400 feet, consists of carboniferous shales, sandstone, limestone, slate. Products, iron, Wisconsin, galena, an ore of lead; Montmorency and Pakenham, Canada, petroleum; near Albany, N. Y., petroleum. 13.—Utica, 250 feet, consists of bituminous shales and thin layers of limestone. Products, the black Utica shale contains in combustible material, in oil rises from the Utica shale.

14.—Trenton, 500 feet, consists principally of dark to black limestone and dark shales. Products, in Kentucky these limestones yield oil very abundantly and also gas.

CHATHAM'S POSITION. Chatham lies immediately above the axis of a syncline. The different rock formations underlying Kent County are not level or straight, but are bent, with a downward curve. This downward curve, as being referred to in geological works as a syncline. The amount as high as 21 per cent. On Grand Manitoulin Island a spring of directivity of the axis of the syncline is a little west of the center, with a downward dip or inclination of the rock strata towards the north. The two sides of the valley or syncline are roughly located near Kingsville, on the west and St. Mary's on the east. In other words, similar formations in other localities. From St. Mary's a syncline crop out near the above Corniferous crop out near the above named localities. From St. Mary's surface goes the rock strata gradually descends till near Chatham, where it touches the lowest point in its descent. Then it gradually ascends till it appears near the surface in the vicinity of Kingsville. Overlying this formation—Corniferous—is another—Hamilton—that fills this syncline on rock valley on a level with the sides.

From the above description it will be seen that a well bored in the vicinity of Chatham would necessarily have to be drilled deeper (plus the depth of the syncline) than one bored in the vicinity of Kingsville. The difference in depth would be somewhere about 375 feet. As before stated, the dip of the syncline is toward the north. This means that a well is Wallaceburg (which town is located on the axis of the syncline) would have to be drilled deeper to reach the same rock formation than would be the case with a well drilled near Chatham. The difference would be about 125 feet. Near Sarnia there are still other formations resting on the Hamilton. These formations are Che-mung and Portage—outcrop at Kettle Point.

If we draw a straight line bisecting Findlay, Ohio, and Leamington, Ontario, and continue the line in a northerly direction, we will find it will pass about three miles to the westward of Chatham. This may be significant, but, unfortunately, no tests of the territory intervening between Findlay and Leamington are possible, as the greater part of the distance is covered by the waters of Lake Erie. Therefore we have no means of knowing whether the gas belt is continuous between these points or not. It would appear, if we may judge from borings near Bothwell and elsewhere, that porous or cavernous rock strata suitable for storing gas or oil occur in isolated patches or fields. The distribution of these porous spots is very irregular, it follows that we are liable to drill into one anywhere within a radius of 30 miles of our drill several holes and not make a strike. These porous fields, as a rule, give no surface indications of their presence. However, if it is admitted, as before mentioned, that a generally plentiful supply of surface gas over an extended area is an indication of a supply of gas in the rock below, then we may be justified in making a series of tests in such localities.

If the foregoing remarks arouse an interest in and lead to the formation of a company for the purpose of boring test wells for gas, they will have answered the purpose intended. In conclusion, I would like to hear the opinions of others on the above subject.

SOFT AND PLEASANT NOT THE ITCHING KIND

Some underwear always seems to rub you the wrong way—a nasty, prickly, disagreeable feeling.

You know how that kind makes you squirm.

Ceetee UNSHRINKABLE UNDERWEAR

made from the best and finest qualities of Australian Wool—much finer than the Canadian wools—retains all the original qualities of the wool and is soft and elastic.

It is as soft and fits as well at the end of the season as at the beginning.

Insist upon seeing this trade mark. Ceetee's retail price is 10c and 15c, but you can get it for 8c and 12c.

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GEN. BOOTH'S PREDICTION.

Hale Old Leader of Salvation Army Talks of His Death.

"Suppose I should die to-night, and the news should flash around the world that General Booth has gone, what would become of the Salvation Army? Do you suppose I am such a fool, after having expended so much energy and hard labor, as not to have made ample provision for perpetuating my work?"

General Booth, standing in a the-atre before 2,000 people at Bath recently, thus spoke in anticipation of his own death.

"I have often been asked that question," he added, "Some people seem to think that the Army exists only because I do, and that if I should die, the organization would go to pieces; but this is not so. I am not going to die for some time yet, though I may be getting a little old. I wish to say, however, that when I do die, it will be found that every possible means of carrying on the work without me has been provided."

The General, on his motor tour, dined with many hosts, and to these he gives precise instructions for the preparation of his vegetarian lunch.

"Take two small carrots, one turnip, and small Spanish onion; cut up fine; and heaped tablespoonful of pearl barley, and boil till tender before serving. Add finely chopped parsley and butter of size of walnut. Serve with crisp toast. A few green peas added to this soup is an improvement."

The Big Locks At the Soo.

The greatest attraction at Sault Ste. Marie is the locks which raise the water of Lake Huron to the level of Lake Superior. Fifty years ago that of Lake Superior. Fifty years ago that the first lock was opened. It was a small affair compared with the present locks. On the American side two locks are in operation. The larger of these is 300 feet long, 100 feet wide, deep enough to permit the passage of vessels drawing twenty-one feet of water, and big enough to permit four large vessels to pass through at once. On the Canadian side there is also a lock, greater in length, but of less width, and of sufficient dimensions to allow three vessels to be raised or lowered at once. All the shipping from the upper to the lower lakes must go through the three locks. The commerce passing through these canals is by far the greatest in the world. In 1904 the Suez canal passed approximately 12,000,000 tons of shipping. In the same year the locks at Sault Ste. Marie carried 31,546,106 tons. Yet all this business in the "Soo" must be done in seven months, while the Suez canal is in operation all the year round.—Four Track News.

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You Must Save

It's not hard to save \$50 a year—\$1 a week—when you MUST. It's not hard to protect your family, and lay up money for a day when you are ready to stop work.

An Endowment Policy in the Mutual Life makes you save, where, otherwise, the small yearly premiums would slip away in extravagances.

Write us for further particulars about our new policies, annual report, list of investments, etc.

Address, Head Office, Waterloo, Canada.

GEO. H. REDPATH, GENERAL AGENT, CHATHAM.

E. B. JONES.

FASHION'S FORECAST

THE FALL HAT AND ITS FADS AND FANCIES.

Small Shapes the Vogue—Taffeta Built Into Smart Tailored Hats. Mahogany Brown and Gray a Striking Combination.

In a few weeks summer hats will be "called in," consequently the question trembling on the lips of every other woman one meets is, "What shall I get for a fall hat?" As it is going to be a "please yourself" season, there are no hard and fast rules to govern the selection. There will be all sizes and shapes from which to choose, but the essential thing is to choose the thing that is becoming.

Paris is trying again to foist upon us the small hat, not the run mad



TOQUE OF OLIVE GREEN.

chapeaux she sent over last fall, but toques and turbans, with legitimate back and front that one does not have to puzzle over to tell 'tother from which.

Pressed shapes will be all the go with colder weather. Silk braid, folds of velvet and silk combined to make the body of the hat and the frame covered smoothly with velvet and felt—these will be de rigueur. But there will be many draped hats worn, and plain taffeta will be built into some very smart tailored hats.

Outing hats are the first to make their appearance in the shops. The effects are made rather high, with crowns and rolling brims raised high at the sides. They are of white and light tan, French felt and trimmed with silk or velvet, stuff wings and pom-poms. A pale tan silk and blue pom-pom with light blue silk and blue pom-pom. Miners are predicting a great run for brown hats. Among the new color effects are brown combined with Du Barry pink, peacock blue and bright green, while a mahogany brown combined with gray is very chic. Black hats, too, are very smart.

Great quantities of ostrich feathers are a fall hat trimming, but those sickly looking uncured feathers that have dropped pathetically on so many summer hats have had their day. Winter will see none of them. Wings, quills, breasts and fancy feathers will wave above every woman's head on every hatted occasion.

What with the new winged effects, lovely ostrich feathers, beautiful flowers, the new hats promise to be wonderfully smart and attractive.

The hat seen in the illustration is a smart model with the stamp of Paris upon it. It is an elongated toque with a high arrangement at the back of ribbon loops and tawny yellow roses.

AMY VARNUM.

Rapping on Wood.

"And then she—pretty frequently he—reaches under the chair and conscientiously knocks three times on the frame of it."

Undoubtedly most persons do it simply for the airy persiflage of it, but there are plenty of others to whom it represents a pretty vital precaution against being overtaken by an ill from which they have declared themselves free so far.

The custom is said to have had a religious origin. The three knocks signified an appeal to each of the three persons of the Trinity, and the substance rapped upon was of wood, because Christ was crucified upon a cross of wood.

Hot Soda Baths.

Hot soda baths are recommended by some persons for rheumatism, and the way they are taken is this: Fill the tub half full of water as hot as can be borne, add half a pound of common baking soda and immerse the body for at least twenty minutes, keeping up the temperature by the addition of hot water from time to time. Yaseline or cold cream should be rubbed into the skin after the latter has been dried in, order to replace the natural oil.

A Vegetable Pear.

This strange fruit, which has been served as a novelty at a few dinner parties recently, is an Avocado pear



from South Africa. The outside is a hard shell, but on splitting it open a kernel is found inside. The portion between the shell and the kernel only is eaten, with pepper and salt.

Your Liver

the bowels. Ask your doctor if this is not true. Ask him at the same time if he knows a better laxative than Ayer's Pills. All vegetables, sugar-coated. Dose, only one pill, at bedtime.

You cannot possibly enjoy good health when the liver is inactive and the bowels constipated. You must keep the liver active. You must have daily action of the bowels. Ask your doctor if this is not true. Ask him at the same time if he knows a better laxative than Ayer's Pills. All vegetables, sugar-coated. Dose, only one pill, at bedtime.

DISTRICT

UP THE CREEK.

A. S. Maynard has purchased H. O'Leane's farm; price \$8,000.

The Rev. Mr. MacGillivray, City, occupied the pulpit of St. Paul's on Sunday.

Mrs. Benj. Rothwell, whose life has been in the balance for a few days, is reported as improved today.

A petition is in circulation here asking for a daily mail service. Will Shoblen and wife, Blenheim, were the guests of friends on the creek, Sunday.

Mrs. James Johnston is lying seriously ill.

James Liddy's health is in such a condition as to cause his friends much anxiety.

A. B. McCaig, M. P. P., was an up the creek visitor on Sunday.

Carrie McCormick, the little linnet of St. Paul's, sang a solo surpassingly sweet at Sunday's service.

The Rev. Mr. Tydell, Zion, will preach from the pulpit of St. Paul's next Sunday.

H. Clements, M. P. City, was an up the creek visitor this week.

Aggie McCormick returned home on Saturday, after a four months' sojourn in Chicago.

For the table—for cooking—

WINDSOR TABLE SALT is without an equal. Always the same perfect quality.

JEANNETTE'S CREEK.

The Methodist church will hold their harvest home services on Sunday next at three p. m. The choir will give special music. A supper and concert will be given on Monday evening.

Monday forenoon the dwelling own-

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