Okalta No. 1 Drilling Rig and Gas Flame, in the Turner Valley.
The picture was taken at night

September, 1929
The above chart indicates the sources from which the World's 1928 Production of Petroleum, 1,326,500,000 barrels, was obtained. The extent to which the United States production exceeds that of all countries combined is graphically shown. It will also be noted that South American production now is of greater volume than production in Europe or Asia. Canada's insignificant role as a Petroleum producer is reflected by its grouping among "others".

The Oil Rush to Enniskillen

By M. O. Hammond

Illustrations from prints in the possession of Col. R. B. Harpness, Toronto

BLOBS of grease coming from the black soil of Lambton County in the late fifties started an oil boom which was one of the marks of Canadian progress last century.

As usual in the hopeful New World, the oil discovery was hailed as revolutionary, as comparable only to a gold rush or the staking out of a new tract of free land. Indeed, we might remotely list the discovery of oil as one of the milestones of Canadian advancement, among such incidents as the commencement of the Welland Canal in 1824, the opening of the first railway in 1836, the acquisition of the Hudson’s Bay territory in 1869, the completion of the Canadian Pacific in 1885, and the discovery of gold in the Klondike in 1897.

"We have abundance of oil, but what shall we do with it?" was the general exclamation of press and people, on hearing the news from Lambton, for the future of petroleum had not yet been worked out. Petroleum was as yet entirely the source of “coal oil” for illumination. It was never to drive the tallow candle from its long reign of usefulness, but the use of oil for “gasoline buggies” was not yet dreamed of. That revolution was to come forty years later, when
new wells by the thousand in other lands were brought into production for millions of users far in the future.

Let us look back to the scenes and impressions of those far-off, exciting and hopeful days. Much of Lambton's interior was still heavily wooded. Great elms covered thousands of acres, blanketing the land with shade in summer, discharging all the heat and giving the air a tickling freshness, which one can appreciate.

The mucky land was damp but fertile, and in spring and fall it's sticky depths made travel impossible to all but the bravest.

Petroleum at its native home was discovered in the vicinity of Lake Huron. A hilly region, the limestone was overlaid with sandstones and shales, and the oil seeped to the surface.

The dry wells were a disappointment, but the search continued. It was not until 1865 that a well was completed and produced oil. The first well was completed near Oil Springs, later renamed Oil Creek.

The Ontario oil fields, in which the Canadian petroleum industry had its inception. As time went on, this district would be found pools to rival the prolific output of the Pennsylvania field.

Page Two

It was a day of prosperity for the old United Provinces of Canada, though the political unrest which led to deadlock and Confederation was already apparent. The American Civil War had commenced in April and readers of Canadian newspapers were daily informed of the swiftly moving conflict. Already an increased market for Canadian products was felt under the reciprocity treaty of 1854. The railway boom of the fifties had left its iron bands in all directions and opened back townships to settlement. Immigration was heavy as the rich lands of the centre and north were taken up.

And that from a scientist accustomed to measure his words! Little wonder the average man became excited over the discovery.

Page Three

The illustrations above were reproduced from the Toronto Mail of December 3, 1889. No. 1, Steam cooperage and dry kiln. Today the steel barrel has superseded the wooden barrel and the cooperage shop is not an important department in the modern refinery. No. 2, Retained oil settling tanks, capacity 1,200 barrels each. No. 3, The boiler and pumping machinery. No. 4, Paraffine stills. No. 5, Hard coal cooperage and barrelling works. No. 6, Crude oil receiving tank. No. 7, Barrelling house. No. 8, The jumprock which was a prized piece of equipment in those early days.
near Petrolia. For this, $40,000 is required. Sarnia has subscribed $20,000, and there is little doubt that the remaining half will soon be taken up. The object is to secure a portion of the Oil Springs, the whole of which is now monopolized by Wyoming and the Great Western Railway.

It is when we read the description of Black Creek and Oil Springs, as the centre of the new discoveries, as given by The Globe correspondent, that we realize fully the fulness and crudity of the placer. The village was set in the midst of a huge woods where previous to the discovery of oil the settler's axe had scarcely been heard, though the timber was magnificent and the soil as fertile as any in the Province. There were, by August 1861, 1,600 people at Oil Springs.

"The provision for their accommodation," wrote a correspondent, "is very inadequate and very rough. Thrown together constantly in the woods, with none but such roads as those described connecting them with civilization, they have experienced great hardships and many difficulties. Stories are told of the experiences passed through. It was some months after the discovery of the oil before a water well was dug; and when the task was accomplished the water was found to be so unpleasant that to drink it was impossible.

"Close by the principal hotel there runs a small, sluggish flowing stream. In it diggers were covered with oil washed their dirty selves after the day's work, washed the mud off their boots and quenched the thirst of their horses. From this ditch the water was regularly procured the water of which the tea and coffee were made and in which the salt pork, the staple article of food for many long months, was boiled."

"There was a bed famine which led to curious incidents. No one going to bed in a "hotel" was certain of freedom from interruption. If he was fortunate enough to be assigned a room and bed to himself, he was liable to have a late comer foisted upon him, and nothing but the power of force could have him in possession.

At one period of the Grease City's development it was customary to use a bed twice in one night, one man sleeping in it till midnight, and another man using it from midnight on. We may imagine the condition of the beds under this usage. One Yankee boorer so far forgot himself as to use the bed with his boots on.

When the landlord protested he quietly intimated that it did not matter, "as the boots were old and would not get any hurt."

All sorts and conditions of men made up the population in this oil rush: doctors and dealers, colonists and coppers. Most of the men at first were from various States of the Union, but after a few months the Canadians increased. Women were scarce, but the correspondent notes that life was orderly. Though liquor was freely sold, there was no drunkenness and there had been no rows since the camp opened.

Pipe lines hundreds of miles in length run over the spots where oil was discovered, and it is rough and ready as to be laughable. Of course there were plenty of barrows, and much hauling was done by horses with yokes in town the streets were suitable, but during the wet season another plan was adopted. A correspondent of The Globe, who has just returned from Black Creek, states that the oil was found to have a population of 300, practically 6,000 and 90,000 barrels of oil from Black Creek. There were a few good stores, well stocked with miscellaneous goods and a small hotel with good beer, which was always well patronized.

"The road from the station is one of the very worst description of roads in the Territory, and it is very rough, and in spring or fall, at which season the road is very bad, and the oil is very primitive. The side of the road is where it seems to be the only ditch which is composed of sand and gravel and mud. The water runs through which they clean one barrel of oil, a 'crutch' of wood formed like a kind of mud sleighing."

"The oil as it came from the wells was mixed with a good deal of water, and the correspondent saw this mixture poured into a tank where it was allowed to settle for a day. Then a spirit was drawn from the bottom as it was pumped, and the water being as a matter of course at the bottom, ran off, and the next duty was to barrel the oil."

"It is certainly an extraordinary sight to look down 50 or 60 feet into these wells and see the oil bubbling up in two or three places at once; but the smell is enough to make a man sick."

The drive to Black Creek showed the advantages of winter traffic. Whereas in August the hauling of two barrels of oil, of 40 gallons each, from the wells to Wyoming was a day's work for one team, now they brought 12 to 16 barrels a day, and the foreman was glad of it.

New shanties told of the coming of settlers to occupy the rich land and the local market.

Petrolia had already a number of wells, largely in control of Boston men, but none was yielding very largely, and the village was dismissed by the glories of Black Creek.

When visitors reached the thriving Black Creek they found it was progressing very fast. Houses were springing up on all sides and stores were increasing. "In a short time," wrote The Globe correspondent, "the place will lose its rough and temporary look and settle down into a staid and sober member of the municipal community."

There were now several flowing wells, and the output of oil had risen from 40,000 for the six months, for not a few of the well owners had brought their families with them. There were as yet no sidewalks, however, and in a few months there will be a state of unmottled mud.

Land was rising in value and as settlers went in and out there would soon be large clearings available, which would be quickly springing up amid the derricks of Black Creek, and the home market would be supplied.

And so, with its hopes and its history, we leave the baby city of Oil Springs to the changing years that were to follow.
and where was the source of all this water. The matter in which this is accounted for is best illustrated by a few diagrams in connection with Figure I. In presenting these I shall point out only the salient features, leaving out details too numerous and involved for a general or popular discussion such as this.

Before we go any further it is in place to repeat something about the nature of the outer parts of our globe (See Part I of this article, Imperial Oil Review, April 1929). Recent investigations indicate that the earth is composed of a rigid outer mass (the zone of fracture) resting on a mobile, but not liquid, zone (zone of flowage). Due to the weight of the overlying rigid part this zone of flowage is not liquid but more or less solid. The word but, if for some reason or another the overlying weight were removed causing a relatively sudden relief of pressure, the zone of flowage might become mobile, and in extreme cases locally liquid, thus giving rise to the phenomena termed vulcanism. The relationship between the zone of fracture and the zone of flowage is indicated in the diagrams in Figure I of this article.

Due to gravity, molecular re-arrangement and other causes, our globe is forever striving to become denser or more compact and, in consequence, tangential compressive stress is everywhere exerted, as indicated by arrows, and as already pointed out in Part I of this article.

With these preliminary principles refreshed in our minds we will now go back to early Cambrian times when deposition was inaugurated along the Cordilleran pro-synclinal belt as shown in Figure I, Stage 1. We will state for the record in this section what was shown in figured plan on the Paleogeographic Charts of the Cordilleran Belt, Imperial Oil Review, April 1928. Thousands of feet of Cambrian sediments were deposited.

Then came the Ordovician Period during which millions of feet of deposits were deposited on top of the preceding strata. Obviously something had to happen during the Ordovician Period. The last deposited sediments at that time were below sea-level, and the land-mass from which the sediments were derived and being carried to this shallow sea, above sea-level, is practically non-existent. This is apparently taken care of by what geologists term isostatic adjustment, which amounts to a downward warping of the geosynclines and an up-warping of the land-mass, accomplished by a slow movement of the plastic material in the zone of flowage from under the geosynclines to parts beneath the land-mass, thus causing the latter to rise as indicated by the arrows in Stage 2, or Figure I. This slow readjustment was going on practically uninterrupted from Cambrian to Permian Times. During, and at the close of Permian Times, the entire geosynclines was uplifted rather suddenly, but not rapidly enough to throw things out of serious adjustment, as was the case in the Appalachian trough in the eastern part of North America. However, a period of erosion was inaugurated here in Western Canada and the Western United States, while at about the same time the Appalachian Mountains were being built. As already pointed out, this factor is of great significance in explaining the presence or absence of many oil fields of Alberta and Montana. After a rather protracted period of erosion, during which time many of the previously deposited sediments were carried off to the deeper sea, deposition in the Cordilleran geosynclines was resumed. In consequence, the Ells (Ferrine) Shales and sandstones were deposited unconformably upon beds as old as Devonian, also upon the Madison Limestone, the Quadrant, Rocky Mountain Quartzite, etc. This unconformable contact is well expressed in the Kewl-Suhar formation of the Field as well as the Turner Valley and gives rise to considerable trouble in correlations and spotty oil production.

The downward sinking of the geosynclines continued with the deposition of the Ells, the Knot-enay, Dakota, Benton or Colorado, the Eagle Sandstone, the MSC, the Missouri River or Belly River Series, etc. To be exact, there were minor fluctuations but nothing serious, and from a structural standpoint, was a period of subsidence happening throughout the Mississippian Period in this vicinity, however, things could not continue on this way indefinitely. The floor of this sinking geosyncline was approaching the upper regions of the zone of flowage. By examining Stage 3, in Figure I, one can see that the rigid outer mass of the earth's surface, the zone of fracture, was becoming thinner and thinner because of the sinking of this Cordilleran geosyncline. The ever present compressive forces were as strong as ever and one can readily surmise that if a break should occur it would be at or near point "X," Stage 3. At a foremost protracted period of gravitropic stress, an impending catastrophe, the late Cretaceous (Bearpaw) marine shales gave way to sandstones, conglomerates, and coarser clastics of the Frontier or Fort Union Beds, because the land-mass that was now rising more rapidly than the geosynclines was sinking and consequently the epi-continental sea had to retreat toward the Gulf of Mexico and the Arctic, leaving in its wake isolated inland lakes and marshes as evidenced by the numerous coal seams in these beds. Isostatic adjustments was evidently taking place.

Finally the inevitable break took place at "X," the point of greatest weakness. A tremendous push from the west telescoped the carefully laid down sediments, crumpled, folded, and faulted them into a mass, and lifted them high above the sea. As shown on the diagram, Figure I, Stage 4. The manner in which this probably took place was illustrated by the laboratory experiments illustrated in Part II of this article, Imperial Oil Review, July 1929. This buckling, wrenching and faulting caused the rocks to give rise to features which are known to all of us as anticlines, synclines, escarpments, thrust faults, etc., etc. Their role in the ultimate production of oil and gas is paramount in importance and one of the principal studies of the petroleum engineer.

This rather sudden relief of pressure caused some of the mobile material in the zone of flowage to become liquid and to work its way toward the surface. As explained in the first of this article, Imperial Oil Review, April 1929 the Swept Area was an extension of the surface of this phenomenon and stand as mute evidence of a local intrusion of molten rock which forced its way.
and gas from their source or "Mother" rock into over, or underlying porous reservoirs took place during and after the great upheaval just described. In areas of least compression, like the Plains, we now had the heavier oils, while in such belts as the Foothills, where the compressive forces were great, causing great pressure and possibly considerable heat, similar to the cracking process in a refinery, only very light oils and wet gases are found today, and in extreme cases, even these have been wholly expelled from the rocks.

Conclusion

The story as herein outlined is imperfect at its best. It is founded upon facts, but the correct interpretation of these is another matter. The personal element enters into the problem. What to one person appears to be of significance is lightly dismissed by another, and so different geologists will give different versions of identical phenomena. The version just presented is old in part and new in other parts. It represents some ideas held by the fathers of geology and some of the very latest hypotheses including some of my own. Whether or not it has any merit, time alone will tell.

*For a strictly scientific presentation of the new horizons given, with some slight differences, see Bulletin of the Geological Society of America, Vol. 20, pp. 275-274, March 1927. "Folded Mountains and Leasery," by A. C. Lawson. The main difference between Prof. Lawson's theory and the one outlined above lies in the interpretations of the great thrust faults, such as the Lewis Thrust Fault. Prof. Lawson regards these faults as under-thrusts while I take them to be over-thrusts. My interpretation is based on results obtained experimentally while Prof. Lawson bases his views on mathematical deductions.

An American tanker loading crude oil at Cartagena for delivery to United States points, founded at Cartagena. This is the largest vessel which has ever been

Page Nine
IMPERIAL OIL REVIEW

THEY CARRY THEIR HOMES ALONG

Given an automotive vehicle, anything from a Rolls-Royce or a Hudson, which would mean the one of your own making, and that of a tourist. Although the tourist is the most adaptable in the world. He is the easiest to be the most catered to, and long before the dim notion of "going up North", crystallizes into a craving that cannot be denied, the publicity experts of every possible tourist haunt are preparing their printed tête-à-tête, those who provide entertainment and creature comforts to make new arrivals into homes and attractions.

Canada is practically a new territory for the modern gypsy to explore, and so every chamber of commerce worthy of the name gets out an illustrated booklet setting forth the advantages of spending some time in its particular municipality. The railways issue pamphlets containing glowing descriptions in word and photograph of the glories of the country along the courses of their iron steeds. The summer resorts contribute literature which almost enables one to sniff the fragrance of pine and feel the savagery of a monster "lunge" on the quivering line, or see one's self gracefully acquiring sun tan on a golden beach beside sparkling blue water. The tourist bureau scours the country for information about roads, camp sites, sleeping and eating accommodation and the many other things that visitors wish to know about.

Who then can blame those possessed by the wander-fever who have a few necessities into duffel bags and the ticket of their choice, and the corner of the boarding of the family chariot, conduct the care of the next door neighbor with and the family and the dog on board, chug bravely off to enjoy a carefree holiday. Thus, from early spring until late autumn the highways teem with cars bearing license plates of every design and color, their drivers driving along new traffic rules and regulations, all with a great deal of enjoyment, much astonishment to find Canada in a state of civilization similar to their own, but most of them delighted with the beautifully uniform customs, unfamiliar customs and the welcome accorded on every hand.

And this welcome is a hearty one, for the tourists, being genuine holiday makers, bring with them not only money to spend but also an infectious atmosphere of good will to all. As one little girl who had charge of a few stalls at a certain farm sale said recently: "They make you feel as if they were old friends." Naturally, then, every Canadian, from the oldest and youngest, strives to make our visitors feel at home.

There is an infinite choice of dwelling places. For those who must have their luxuries and can afford to pay for the ultra service, there are palatial hotels where every least wish is anticipated. Along from residential streets a galaxy of signs blossoms overnight. These range from a modest "Tourist" in black and gold in a corner of the living-room window, and various others on the back of the box car bearing the Starboard Pointers with the same familiar flavor as the cottage or the city hotel. These private homes offering a sort of accommodation are located on streets off the main routes of traffic, it is customary to send the mail by the bus to the house to the more travelled streets with a stick or a shingle lettered "rooms" which he has been known to be possible to the passing cars in order to attract.

The summer resorts offer many types of accommodation, too numerous to list here, but one very popular type is where one can enjoy the rustic charm of a cabin for the price of a railroad ticket, cream and jelly on chilly evenings, while meals at the adjoining hotel give a freedom from household duties.

To many the idea of a real holiday is "roughing it." They like to camp where a lovely view holds the attention, or where something unusual is going on, wherever fancy dictates—or the gasoline runs out. These folks usually have a tent in their car and carry along all the necessities of new life except the just-mentioned essentials. Their peculiar needs have been looked after by farmers along the highway who have turned old orchards and fallible fields into camping places. Most of these camps equipped with a kitchen of sorts where the visitor can cook his own meals from garden and dairy products purchased fresh and refreshing, from the gardens, in which some landowners have even gone so far as to erect sleeping cabins, which in winter the visitor and his guests have built stands at their front doors to cope with the results of the camping beds, and are laid out like little villages.

There are young tourists in the touring party, this wayside camping has enormous appeal. The thought of a profitable time running barrenfoot in the soft grass, climbing the gnarled old apple trees, and unconsciously learning never to be forgotten lessons in geography and agriculture. The mother is glad of the rest. The father knows that while the children are interested and happy they are easier to manage, and watches them thrive on the glorious freedom and good food they are hungry to demand puffy cooking and detrimental sweaters.

And then there is the shopping. There is a peculiar attraction about a strange store that fairly coax one to buy something—anything, and every merchant thinks in terms of tourists when laying in his summer stocks. The grocer knows they will stop for package lunches and speedy goods he would not have the wayside picnics. The ice cream parlor lists its enitling names for the sweet and sticky and enlarges its refrigerator accommodation for soft drinks. Hardware stores get in everything useful from lawn swings and tents to can openers. The department stores, the fishing tackle shops, the hot dog stands, these need no bush. The demand for fresh fruits, vegetables and dairy products has become so urgent that farmers have built stands at their front doors to cope with the results of the camping beds.

Some of the farm women who are especially good cooks have found that lunch baskets packed with jellied chicken, preserves, tiny flufly cakes and other delicious sandwiches are eagerly purchased.

THE PRICE OF GASOLINE

While the substitution of beverages for gasoline is not recommended to motorists who are indifferent to the economical performance by their cars, it is helpful to know that whereas it would cost from $2.80 to $3.00 to put ten gallons of the fuel in your car, the cost of filling it with an equal quantity of gasoline would range from $8.00 to $24.00 according to the season. Gasoline is, by some, unsatisfactorily a substitute for gasoline as a liquid, for a ten gallon full of this fluid would cost, on the average city market, about $3.40. Coffee, bought so cheaply at the quick lunch counter at five cents a cup, might eke the car burter and cause other troubles but it would cost $0.00. This brings no means useful information is offered as a prelude to the statement that gasoline enjoys the enviable merit of remaining the cheapest commodity in universal use. Moreover, the average filling station price of gasoline in America today is lower than the average price of the past eleven years and the differential in Canada is even greater than in the United States. Even as their owners, the cars need to be refueled and Imperial products, like the rest of the world, will be sold. For Imperial's service in all parts of Canada send the nearest automobiles by any of the operators to the attendant regarding smooth service and the attendant regarding smooth service and the attendant regarding smooth service. The attendant regarding smooth service.

On the basis of Imperial measure as used in Canada, the average price of gasoline in the United States from 1910 to 1928 was 27.30 cents a gallon, whereas in those years this year's price was 22.00 cents a gallon or 5.20 cents less than the average of the preceding eleven years. In Canada the average price today is 6.50 cents less than the average for the previous eleven years.
The Imperial Oil Review

Imperial Oil Radio Programme

The Imperial Oil Review of Fine Music will be broadcast from the largest and most beautiful broadcasting centres in the United States, with music by outstanding instrumentalists, to make the series one of the most delightful to the music-loving public.

The artists of the coming Imperial Oil Hour of Fine Music

The orchestra is composed of more than fifteen artists. Each section will be completely in every way to the instrument. The instrument will be heard in its most perfect detail. It will accompany the voice and perform classical works and important soloists, some of which will have this Canadian audience hearing the Imperial Oil Hour of Fine Music.

The orchestra will be conducted by Reginald Ross, who has just returned from Europe where he gave a series of pianists recitals and has been engaged as a guest conductor for the Metropolitan Opera Company during the series of Celebrity Concerts in Los Angeles, Hollywood, next year. Among other guest artists engaged for this hour are artists of the operatic world, Austria, Koechler and Chaliapin. The first artist to be heard during the Imperial Oil Hour of Fine Music will be Larionoff, the brilliant soloist of the Imperial Oil Hour of Fine Music.

Dr. D. B. Hopkins

In addition to his work in South America, Dr. Hopkins has investigated the Foothills of the Rockies as well as the Athabasca and Peace River Districts. He usually spends two months of every

One of the interesting sidelights on the routine of oil geology is that while the Dr. Hopkins is reaching Dr. Hopkins from someone who is out of the town in the back yard, or the woods, or somewhere coming up through the stable floor. The location of the oil field is requested to immediately send some geologists and drillers, or personnel, to go there. In the geological department has on file, from its own and the Government's investigations, information as to the oil possibilities of nearly every square foot of Canadian soil.

The locality mentioned by the writer was an area near where Dr. Hopkins is looking at and in ninety-nine cases out of a hundred the "discoverer of oil" is found to be labouring under a delusion. Dr. Hopkins then writes a diplomatic answer which although it blights the hope of an opulent future tries to bring the dreamer back to earth as gently as possible and save him from reckless expenditure of his savings in fruitless drilling.

Dr. Hopkins holds the degrees of A.B. and A.M. in both medicine and science; considerable time before he joined the Imperial organization, was with the United States Geological Survey. He is a member of the Geological Survey of Washington, the Washington Academy of Science, the American Association of Petroleum Geologists, the Canadian Institute of Mining and Metallurgy, and the Geological Society of America.

Dr. Hopkins has contributed liberally to geological literature. Among his writings are the following books: "Asbestos Mine and Soapstone Deposits of Georgia," "The Sotto-Red River Oil Fields, Ontario," "Conicas Oil Field, Texas," "Oil Possibilities of Hachichyegue Anticline, Alia."

Perhaps one of the secrets of Dr. Hopkins' successful career is his ability to remain interested in mining matters. She accompanied her husband on his trips of investigation, and is a member of the Women's
Ready Made Farms

S P I N N I N G smoothly along the highway amid lovely rustic scenery, Maurice Motorist is brought back to the realities of life by a sudden lunch that all is not well with his car. The postpone becomes a dead certainty as the engine ceases to hum. He gets out, looks at the tires and under the hood and ponders despairingly at the rustic scenery which has lost all its charm. Miles from anywhere! Other cars whiz heartlessly by, as he spreads the contents of the tool kit in the dust. But just as he is hesitating between a spanner and a screwdriver, a voice inquires, "What seems to be the trouble?" and he finds that a regular travelling workshop has stopped beside him, in charge of a competent mechanic who in a very short time speeds him on his way rejoicing and wondering, and who in response to thanks and a tentative offer of reward replies, "Not at all, sir, I'm just following the Company's instructions." How did it happen? This magical appearance of an automotive mechanic and his shop is easily explained as one of the many incidents in the routine of an Imperial Oil, Limited, road inspector.

Imperial Oil, Limited, through its eighteen authorized direct branches serves the public by motor truck in almost every town and hamlet in the Dominion. The immense territory covered, coupled with the Company's desire to give prompt and uninterrupted service to the cities, but the bulk of the fleet is in lots of two or three and even individual trucks, is utilized to look after the requirements of the smaller towns, rural communities and the farmer.

To inspect and maintain city equipment, where skilled mechanics are always available, is a comparatively simple matter compared with the difficulties in upkeep of trucks scattered here and there over the entire map of Canada. In the Provinces of Ontario and Quebec alone, Imperial Oil, Limited operates twelve repair depots. These are so located that all equipment within a certain radius can be brought in periodically for general overhaul and attention. Each of these repair depots carries spare vehicles for relief of equipment in the zone in which the equipment is operated. These zones are further divided into six districts covered systematically by travelling inspectors, who are responsible for the efficiency of the drivers and for minor mechanical maintenance of the vehicles in their territory.

While the drivers of the outlying equipment are responsible for the cleanliness and proper maintenance of their equipment, and general tightening up of such loose parts as can be attended to by the average layman, it is the inspector's duty to see that this work is accomplished, as these three things are of paramount importance to the life of any piece of machinery.

The inspector is provided with a small workshop car, equipped with a stock of necessary parts and the full complement of tools.

The inspector not only effects mechanical road repairs, but makes a complete report on the condition of the truck, together with his observations on the care and attention given by the driver.

This constant and systematic inspection of vehicles keeps Divisional offices fully informed as to the efficiency of their drivers and the mechanical condition of the equipment. It avoids other than accidental breakdowns and the consequent loss of business due to interrupted service. As minor repairs are effected before they assume to serious maladies, greater economy in maintenance is obtained, with ultimate longer life of the vehicle.
THE PICNIC HAMPER

EDITOR'S NOTE:

PICNICS have become an institution in many of Imperial Oil's divisional and refinery points as well as in the districts in South America where International Petroleum operates. We have considered it fitting in this issue to assemble the accounts of these festive events in one section so that all who participated in the various outings may have a record of the pleasant occasion.

BRANDON

A PLEASANT change from the daily round and common task was experienced by the staff of Brandon Division, when with their families and friends they motored to Minnedosa Lake on August 14th for the annual picnic, at the invitation of the Minnedosa branch of the Wholesale Club. Some 20 automobiles carrying over 100 passengers formed a very imposing if somewhat noisy parade as they drove out to the Lake, adjoining the world in route, through the medium of conspicuous poster, that this was "Our Picnic."

The local weatherman gave things a good start donating a perfect picnic day, as has been his custom for some years. On arrival at the lake the tempting waters proved an irresistible magnet, and for the time being all else was forgotten while the nautiatric experts exerted themselves. The sports program was very enthusiastically entered into by everybody. An innovation in the form of a horseshoe tournament was a great success and proved beyond all doubt the supremacy of the warehousing staff in this manly art. This event was very capably handled by Frank Woodman and Les Tennant. The races for the kiddies and ladies, which in the meantime were running off under the direction of W. R. Wallace, resulted in the discovery of much hitherto unsuspected talent, and the scattering of many records.

Miss Barker and the ladies of the refreshment committee even surpassed their previous efforts when they prepared a veritable banquet, and when this had been devoured by the hungry horde, Manager F. T. Norris presented the prizes to the successful contestants in the various events.

The event of the evening was the ball game between the office and warehouse staffs. Whirlwind August and his "Warehouse Wonders" were no match for the "Pen Pouchers," who sent the peloton on several endurance flights while they ambled around the diamond. Huck sawyers pitched airtight ball for the office and this, together with some clever fielding on the part of Chief Neabish, resulted in the crushing defeat of the warehouse boys. The latter tried to regain their lost laurels in the tug-of-war, but were again unsuccessful.

A dance was held at the Pavilion later in the evening and a goodly number of the pickycheckers remained to trip the light fantastic till the end of a perfect day.

REGINA

A CLOUDLESS sky, and a warm sunny day welcomed on Saturday, July 15th, the employees of the Imperial Oil Company, who with their families and friends, about four hundred in all, travelled to Regina Beach, some by the ten a.m. train, others came down by car, to have a real happy day in the open air.

The success of the Picnic was largely due to the thorough preparation made by the various Com-

mittees under their Chairman, Mr. E. A. Dorschak.

Frank and Dan Topp preceded the party, arriving on Friday evening, and found everything ready on their arrival.

The sports were ably conducted

by Isaac Dawson and his Committee, which consisted of some thirty events, enabling all to take part from the oldest to the youngest, and were very keenly contested.

Meals were eaten under the shady trees on the Beach, all being served with an unlimited supply of ice cream, soft drinks and other summer dainties.

Mr. Leach distributed the prizes at the conclusion of the program. A special feature was the gift of a prize to every little competitor, whether successful or not.

Mr. Wannamaker was the recipient of the special prize of one ton of coke awarded to the father of the largest family under fifteen years of age, having with him two girls and five boys.

The remainder of the day was pleasantly spent in water sports, most of the crowd enjoying a dip in Long Lake, after much strenuous exertion, until time for departure at seven o'clock, all vowing the 1929 Picnic an unqualified success.

TORONTO-HAMILTON

IT'S always fair weather when the fire-ladys get together," and when the fire Ethyl charged the correspondent Premiers and miscellaneous Marvellouses of Toronto the Toronto employees, their wives and progeny to the scene of the reunion, while the more photogenic numbering around seven hundred, dotted the Hamilton Highway with every known species of automobile and a few that defied classification.

The Hamiltonians made the shorter journey from their Mountain Home by similar means and owed the total attendance to somewhere in the neighborhood of thirteen hundred. La Salle Park is an ideal spot for a picnic, with its spacious grounds, beautiful shade, bathing beach, dance pavilion and Midway offering a variety that caters to the taste of all.

The Whistlestop Race

One of the Toronto-Hamilton events—The Whistlestop Race

had their innings later.

There was keen rivalry and the winners of the various events had to exert all their effort. The novelty races caused a great deal of amusement; the frantic scramble for the ladies' slips; the delicate manner in which the fair contender every little pie-plate on their partners' fingers; the desperate finish to the race-car, where a dark horse won by a

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enclosing a map showing approximately where he presumably intended the well to go down. Copies of this map, showing the Professor’s windings, mental and otherwise, were distributed at the picnic and a handsome reward offered for the discovery of the sample bottle of Marvleche which the scientist had planted as bait.

For the enlightenment of the readers of the Review, we publish the map, having clearly marked it the location of the treasure.

Had this been done in the first place, it would have simplified matters greatly for the competitors, who found the trail hard to follow and the map not always of assistance. We rather fear that the “Geologist” drew the map with his tongue in his cheek, to repay the Drilling Department for some of the unkind things that drillers say aren’t geologists.

Armed with these maps the sleuths of Hamilton and Toronto took up the trail and could be seen all over the landscape, climbing trees, rooting in the ground, digging up the sky and even diving in the lake.

There was a Jack and Jill climax to the search. Mr. and Mrs. Cobb of Toronto had been hot on the scent. Mrs. Cobb advised her husband to investigate a steep declivity and when he looked around he found the treasure. The rain had made the grass slippery and “Jill” fell down, fortunately without breaking her crown. “Jack” perforce went tumbling after her and, after retrieving her better half, looked around and found the treasure.

It perhaps will be unwise to repeat this sort of competition next year, lest there be an epidemic of men throwing their wives over cliffs or pushing them down hills.

As the evening came on the strains of music drew the danceleaders to the Pavilion and intimated to the Patrons that it was time to retire.

Gradually the crowd filled up and stole away; the autos collected their quota of tires but satisfied humanity and coughed and chugged their way homeward; the 1929 Hamilton-Toronto picnic had passed into history.

The various prize winners were as follows, and as in former years, the official who contributed most to the success of the event was our ever-faithful announcer—S. S. Scott.

Chloris Patricia Sutton whom the judges at the Toronto-Hamilton picnic chose as the best baby under one year old.

A treasure hunt with a real map was one of the features of the Toronto Hamilton picnic. Black circle for the benefit of our readers.

The location of the treasure is marked by a

“bone”, that being the only part of his anatomy to cross the line and the puffer and blowing in the balloon race which left the ladies as breathless as if they had run a marathon.

The Sinclair Trophy for the tag-of-war was again annexed by the husky exponents from Princess Street, Newmarket.

Much credit was due to the committee in charge of the sports, operating as they were under difficulties imposed by the weather, and the successful competitors were delighted with the wise, varied and beautiful selection of prizes which rewarded their efforts.

The Inter-City baseball game produced a high-class brand of softball, Toronto securing revenge for their last year’s defeat by winning 18-13. It was Big League stuff, even to the insults hurled at the umpires by the partisans, but any assistance Hamilton may have had from behind the plate was more than offset by the Toronto umpire on the bases. This is by no means a reflection on the ability of the two well-meaning officials, but is merely the impression left by the comments of the more vocal of the spectators, which, if taken seriously, would demand the purchase of Harold Lloyd spectacles for two of our most esteemed colleagues.

Was the Treasure Hunt a success? From the point of view of those who would like to pick up “easy money” decidedly not, but it afforded some hours of employment, if not enjoyment, for the staff from which heroes are made. The programme announced that an Imperial Oil geologist visited La Salle Park and was so deeply impressed by the encouraging appearance of the structure, the fossil evidences, the exactions and the inclusions, the lateral variation and the sedimentation, the general disintegration of the strata, that he made a location for a test well. His mind engrossed with other matters, he went off to China to hunt Dinosaurs without turning in a report to the Drilling Department. He later sent a radio message from Sputzbergen saying that he had forgotten the exact location of the structure, but...

Judging by the happy smiles, Calgary Division picnic was an unqualified success.
CALGARY
(By D. H. Morris)

Esprit De Corps was never more exemplified than at Bowness Park, Calgary, on Wednesday afternoon, August 21st, when the employees of Imperial Oil, Limited and their families gathered there to participate in the Annual Picnic.

For those who could not make the trip by automobile a private street car was chartered, and all were in readiness for the jollification by three o'clock, when the Sports Committee spudded in for the opening event.

The programme of sports provided entertainment as well as for the display of athletic prowess of all concerned. The arrangements were in the hands of Messrs. Thomasson and Blair who are to be commended on the clock-like regularity of the events and the manner in which the enjoyment of both old and young was taken care of.

The Production Department scored the highest number of points in the track events. The boys and housemen won the quoting competition and the Tug-of-War. In the latter they were opposed by the Sales Department and gained their victory by two straight pulls.

The Sales Department, however, regained some of their lost laurels when they were on the long end of an 8-7 score in a game of softball, and thus qualified to meet the Producing Department. The game was called on account of darkness, with the Sales leading 6-5.

The ladies' softball game was won by the Producing Department who defeated the Sales 23-14 after a keen struggle. The rivalry in both camps was at high pitch, as their managers, Messrs. Young and Campbell, had put the ladies through their drill a couple of weeks beforehand.

A crowd of two hundred sat down to supper in the pavilion, and the good things supplied were rapidly demolished by appetites sharpened by an afternoon's fun in the open air. After the hearty supper everyone was in splendid fettle to smile at the photographer when the group picture was taken.

The cordial goodwill of Mr. and Mrs. J. H. McLeod who took the prizes in the amusements was a contributing factor to the success of the outing. Mr. McLeod presented the prises and very ably congratulated the winners.

A most enjoyable day was brought to a close with dancing in the pavilion, the music being provided by the Bowness Orchestra.

COLOMBIA

Successful as were the picnics held by Imperial Oil employees at Canadian points this summer they fade by comparison with the celebrations at El Centro and Barranca Bermeja, Colombia, on the national holidays, July 20th and 21st. National holiday in the oil fields of Colombia is a triple barreled event; a July 1st, July 4th and Colombian festivity all combined. The tri-national enthusiasm thus aroused was given full expression in the festivities planned by Mr. P. F. Shannon of the Tropical Oil Company and his able assistants: Messrs. S. Miller, H. Bryden, H. Groend, J. Saunders, S. Loader and Goldsteim.

Perhaps the outstanding success of the celebration was a rodeo and barbecue at the El Centro Ball Park. This was followed in the evening by a dance at the Club Internacional.

The next day the scene shifted to Barranca Bermeja where aquatic events, a golf tournament and a joyous trainload of South American punchers.
HER AND THERE

Owen Sound

WITH only five men from whom to select a five-man rowing team, the Imperial Oil Stanley Cup at Owen Sound proved that a wide selection of rowing talent is just essential.

This Imperial team has won the Georgian Rowing Challenge Cup of the Owen Sound Commercial League during the last three years, as well as the prize for the highest team score this year with 1,254 points. The individual players also won distinction, Mr. N. MacDonald carrying off the prize for highest three games and highest single, with Mr. A. Whinfield coming second in both cases.

ANOTHER HAVERTON HILL RECORD

The following is an article recently published in "Famly" a British weekly society journal and describes the efforts of the Empire, the Colgate's latest addition to the fleet of Imperial Oil Limited.

TWIN-SCREW motor ship Colgate, which recently carried thousands of passengers across the Western Atlantic, is the latest addition to the fleet of Imperial Oil Limited.

The twin-screw motor ship Colgate, which recently carried thousands of passengers across the Western Atlantic, is the latest addition to the fleet of Imperial Oil Limited.

The vessel, which was built by the same firm - the Furness Shipbuilding Company, Limited, of Haverton Hill - for American owners. The Colgate's owners are Imperial Oil Limited, Toronto, and she is an up-to-date tanker of the twelve-deck type with a capacity of 10,000 tons. The machinery consists of twin screw, single acting, reversible, air-injection, six-cylinder Diesel engines, designed to develop a total of 6,000 H.P. The cylinder bore is 680 mm. and the piston stroke 1,300 mm. The service speed of the loaded vessel is 12 knots. The auxiliary machinery includes two water-slide boilers and two waste heat exhaust boilers. The latter supply steam for the cargo pumps and other steam auxiliaries.

VENERABLE G. R. Thornton, M.A., Archdeacon of Stanley in the Falkland Islands was a recent visitor at the Imperial Oil Refinery Plant. Captain Henry M. Phipps, Manager of the Imperial Oil Refinery Company, the following description of his impressions. Archdeacon Thornton entitled this little essay "The Impressions of a Wandering Preacher."

If there is any pride in the Home Rule movement, there is a corresponding amount of real good will, and also to do something of (all) work that is in his own line of activity, let him break away for a time from the stay-at-home who will never let him wander if they can help it, and come right out here to one of the oil fields in Peru, Colombia or Argentina.

After visiting each of these as a travelling archdeacon of the Anglican Church, I can testify to the warm welcome that he will get from these folk who are just the pick of the earth and who carry on their arduous work in these difficult tropical countries, making the earth yield up her treasure which is of more ultimate value to the world almost than gold itself. A weary-hearted crowd you could hardly meet and whether dressed in clean ducks to go visiting or coming straight off duty on a week, when you can only get the identity by the smile, they are just the same every time and are pleased to have you sitting around. The hours of work go almost by clockwork and by 6.00 a.m. in the morning those on day duty are out at their job and a good grumbling job it usually is in that sort of weather. Nobody seems to grouch and very few quiet unless health makes it imperative to do so. In the absence of all the good things that folk have at home in such plenty, these cheery boys make their own pleasures and get a kick out of things that you would not think of elsewhere. The weekly picture show always draws a couple with some tropical slides is always a铝合金 of failing joy and there are some wonderful pets in the camp, from a big snake which had 42 babies at one sitting to wild cats warranted to be a snake to scratch and even a weird-looking mother sloth who carried her baby sloth on her chest. It is great chance for the workmen to have some leisure for these men also for

NEW BRIDGE AT MONTREAL

On Tuesday morning, July 10th last, the final rivet in the bridge which links Montreal with the south shore of the St. Lawrence was driven home, completing a structure which was begun on May 26th, 1924. Thirty-six thousand tons of steel, as much as a hundred and thirty-five thousand, six hundred and sixty-six, three thousand rivets, and six hundred and fifty concrete were used in the construction of this bridge. There are twenty-five steel arches and twenty-two arches at both extremities. The

The tankship "Intidac" which is in service along the west coast of South America. She is used to carry refined products from the International Petroleum Company's refinery at Talara. The "Intidac" is 360.3 feet long and her capacity is approximately 6,000 tons.
IMPERIAL OIL REVIEW

length of the bridge is approximately two miles and the width 713 with a roadway 37.6 feet wide having a car track on the east side and five-foot sidewalks. The clearance over the channel is 180 feet.

While the pneumatic hammers clanged on the last rivet and the whistle of the city shrieked their acclaim, two Imperial Oil Limited tankers, S.S. Royalite and S.S. Windsorite, came steaming down the river. They were the first ships to pass under the bridge and unconsciously put the finishing touch on the opening ceremonies.

IMPERIAL OIL RADIO PROGRAMME

(Continued from Page Twelve)

One of the foremost conductors of the day is Mstislav Rostropovich, who made his debut with the Metropolitan Opera Company, New York, in 1923, and has appeared as soloist with the New York Symphony Orchestra under Walter Damrosch more than fifty times. A few seasons ago he sang in Toronto with the Mendelssohn choir and made a deep impression.

When Hulda Lashamba sings, we hear the pure lyric voice. This lovely singer was born in New York and when a young girl was a pianist of remarkable ability. Since her debut in New York under Walter Damrosch, she has appeared with practically every symphony organization in the United States.

An aristocrat among violinists is Albert Spalding who has charmed music lovers in every music center of the world. He has been compared with Kreisler, the master who has held the music world in thrall. Critics have strained their vocabularies in finding suitable adjectives to praise his genius.

The world's greatest string ensemble is the London String Quartet, founded in London, England, in 1906, and consisting of John Pennington, first violin, Thomas Parry, second violin, Philip Salten, viola, and C. Warlock Evans, 'cello. They have inspired composers to write chamber music and more than a hundred new works have been composed by them.

The Amadeo trio, harp, 'cello and flute, is composed of three artists—all of whom are internationally known as artists of the first rank on their respective instruments. Marie Miller, the harpist, is the acknowledged peer of women harpists. The 'cellist, Willem Dufresne, has thrilled the world, winning acclaim of critics everywhere. John Ams, the flutist, plays with exquisite tone and faultless technique.

A series of broadcasts featuring a seven piece instrumental ensemble and local guest artists is also being offered by Imperial Oil Limited through the Maritime chain of stations. The programs will begin on October 6th and will be on the air from 10 to 11 o'clock Atlantic Standard Time. They will originate at Halifax at station CCHS and will be distributed by wire to stations CACB at Sydney, CFCY at Charlottetown and CFBQ at Saint John, and will go on the air from these stations also.

IMPERIAL PERSONALITIES

(Continued from Page Thirteen)

Auxiliary of the Canadian Mining Institute.

Golf is said to be Dr. Hopkins' favourite recreation, although he has very little time to perfect his game. It has been unkindly suggested that as digging up the earth comes naturally to a geologist, the signs on the links patronized by Dr. Hopkins should be changed after he has played, from "Please replace the turf" to "Please return the place."

The efficiency and loyalty of Dr. Hopkins' staff are strong testimony to his qualities of leadership and organization.

A recent aerial view of Imperial Oil's refinery at Regina, Saskatchewan.

The construction of Regina Refinery was begun early in 1926 and it first went into operation on September 9th, 1926. Tankage and the various stills are easily discerned in the aeroplane view. At the lower right-hand corner is a group of Company houses which are occupied by members of the refinery staff and just behind this block of model homes is the club house which is the centre of all social and sporting activities among the Company's employees at this plant.

Imperial Oil Limited, service stations won the first, second and third prizes awarded last summer by the Toronto Horticultural Society for the most attractive gasoline station gardens. The Society offers medals to various civic and commercial organizations, and the gardens entered in these contests are under observation during the entire summer. Imperial Oil service stations captured all prizes as follows: first prize, Old Mill Station; second prize, River and Holland Street Station; third prize, College and Shaw Street Station. Above is pictured the Old Mill Service Station.
EAST AND WEST

Two of the six refineries of Imperial Oil, Limited. Above: Montreal, which lies on the level plain towards the east end of the island. Below: Loco, which nestles in the forests at the foot of the Rockies, north of Vancouver. Both pictures are recent aerial views of these refineries.