The
IMPERIAL OIL
REVIEW

AUGUST, 1928
Oil In The Mirror

By J. Ness, Geological Dept.

I T WAS Robert Burns who wrote: “Wash the potter's some prize give us, tae see correls as thers see us.”

He was apparently convinced that the experience would be both humiliating and salutary, and that, viewing ourselves in the light of public opinion, or measuring ourselves by the unbiased and critical standard of the onlooker, although we might suffer largely in our self-esteem, we would become more useful in our daily walk and conversation and less of an afflication to our neighbours. As with the individual so with particular institutions, whether civil or religious. No party, sect, or faction is the embodiment of all the moral and social virtues, but all are equally subject to those strictures of disinterested friendship which afford ample opportunity for self-appraisal.

Industry, at large is equally fortunate, from Burns' standpoint, in that various factors combine to show how public opinion is either for or against various ventures in the realms of commerce, and the Petroleum Industry these days and in particular, cannot but be alive to its shortcomings in view of the spotlight of publicity which attends its every move. Disinterested economists are burning the midnight oil in an endeavour to head the oil men out of the morass of over-production; legislative assemblies are exercising their ingenuity in law-making to increase the output of golden eggs without unduly impairing the health of the goose; abstemious professors are sending forth from their laboratories formulae which will aid the discovery and recovery of petroleum and its products in largely increased quantities; inventive genius is constantly tinkering with one phase or another of our mechanical problems and offering the fruits of its brainstorms as the solution of our difficulties; within the industry itself committees and experts are scheming and devising to standardize equipment, cut drilling and production costs, increase efficiency in refining, transportation and marketing; whilst the bulls and the bears of the Stock Exchanges, backed by the speculating and investing public, build up or tear down the financial structure of the industry without apparent rhyme or reason.

Surely the oil industry, with this multitude of counsellors and critics outside of its own hired help, is provided with an unique opportunity for seeing itself as others see it, and should be thus able to avoid the pitfalls which lie in the path of blundering self-complacency.

There may be some virtue then in seeking to find and appreciate the viewpoint of the disinterested spectator on our particular contribution to industrial progress; but it is rather alarming to note that the oil industry seems to breed few whole-hearted admirers, at least amongst those who put pen to paper.

There are, of course, notable exceptions. Isaac Marcosan has painted vivid and glowing pictures of petroleum's place in the up-building of nations and has cleared away many popular misconceptions as to the part it has played and is playing in world affairs, yet even he finds room for criticism of the industry's policies and practices.

We know that “Oil Scandals” have supplied headlines for journalism in recent times, but that is not surprising when we find that, from the inception of the industry, literature has not been lacking in opportunity of endeavouring to prove that the pen is mightier than the sword when it comes to slaying monopolistic dragons.

For those of our readers who like to trace things from their commencement and learn how petroleum has come to be the “goat” of the commercial upholders, an opportunity to see the oil industry in its infancy through the eyes of an observer trained in the arts and sciences is afforded in “Sketches of Creation” by Alexander N. L. MacDonald, published in the year 1873.

Mr. Winchell was professor of Geology, Zoology and Botany in the University of Michigan, and describes his magnum opus as “a popular view of some of the grand conclusions of the sciences in reference to the history of matter and life, together with a statement of the indications of science respecting the primordial condition.
and the ultimate destiny of the earth's mineral life.

This volume, which by the way offers something interesting reading than its title might suggest, contains a chapter on Petroleum. The author entitles it "Something about Oil" and, as in later days, there seems to be something about oil that calls for the use of the superlative in adjective and adverb.

"The very word (Oil) has brought like magic," says Prof. Winchell. "The smell of the article has turned men crazy. It has opened purse-strings which the crises of the orphaned, the tears of the widowed, and the pleas of religion could never loose. It has made menICO, and a king himself can order his daughter to spare under the crown's wisdom. It has caused men to scorn the two admonitions of the instructed and unprofessional, to trust their own stubborn ignorance in the state of a fortune. It has led the self-reluctant and pursy capitalist to heap contempt on the wisdom and experience of science, to follow the lead of his own folly. All this because 'oil' is a synonym for gold.

When it was positively settled that oil could only be taken from the solid rocks—oil suited to the uses of illumination, making fuel, and lubrication—for women who have the keenest eye and the whole country had done more for our race than they had ever dreamed. No doubt many men made a vital recognition of the services of the Almighty in facilitating the end of money-getting. The picture which memory treasures, however, is that of a herd of precious men, slaughtered each other for the last share of their favored spots where the 'drainage from the coal-impregnated land' and a regard of the laws of gravity and hydrodynamics, had obligingly demonstrated. Indirectly its influence has been always illusory. A 'great surface show' is a great explanation. What Nature plays the spendthrift she retains but little treasure in her coffers. It is the production of petroleum in quantities of economic import that has been always from reservoirs in which Nature for ages had hoarded it up, instead of making a superficial and deceptive display of her wealth.

But there is no illusion that has left a heavier tax upon the folly and credulity of oil-seekers than the bituminous smell emitted by certain rocks, accompanied generally by the visible presence of more or less of the bituminous matter. We wonder if the savants would have included Imperial Oil's venture in the MacKenzie region as an 'industrious indulged, in spite of scientific advice, or in blissful ignorance of scientific teaching'?

An early Pennsylvania Oil Well

It was generally supposed that one locality was as likely as another to yield the oleaginous fluid. It was assumed that the surface conformation of the earth was the only essential condition of coal accumulation, and regions which resembled Venango County or the Oil Creek district in their physical geography were bound to give production. It was thought that coal beds were the source of oil and searchers preferred the borders of coal fields, or even regions underlain by coal. Oil seepsages however, according to Winchell, the real wildling.

'Surface shows have been the fascination of many. The places of most copious escape to the surface were regarded as the favored spots where the 'drainage from the coal-impregnated land' and a regard of the laws of gravity and hydrodynamics, had obligingly demonstrated. Indirectly its influence has been always illusory. A 'great surface show' is a great explanation. What Nature plays the spendthrift she retains but little treasure in her coffers. It is the production of petroleum in quantities of economic import that has been always from reservoirs in which Nature for ages had hoarded it up, instead of making a superficial and deceptive display of her wealth.

But there is no illusion that has left a heavier tax upon the folly and credulity of oil-seekers than the bituminous smell emitted by certain rocks, accompanied generally by the visible presence of more or less of the bituminous matter. We wonder if the savants would have included Imperial Oil's venture in the MacKenzie region as an 'industrious indulged, in spite of scientific advice, or in blissful ignorance of scientific teaching'?

The Torch Oil by Royalite No. 4

Others flowed a thousand, two thousand, and three thousand barrels per day, and also, that several six thousand barrels per day; and the "Black Diamond" flowed seven thousand five hundred barrels per day! Three years later, that oil producer had brought ten dollars per barrel in gold. Now its escape was the mere pastime of full-grown boys. It floated on the water of Black Creek to the depth of six feet, or a film upon the surface of Lake Erie. At length the stream of oil became ignited, and the column of flame
raged down the windings of the creek in a style of such fearful grandeur as to admonish the Canadian squatting of the danger, so less than the finitude and wastefulness of his oleaginous pastimes. From detailed determinations, I have ascertained that, during the spring and summer of 1862, no less than five millions of barrels of oil floated off upon the water of Black Creek—a national fortune totally wasted, as inherited fortunes are apt to be wasted, by those not educated to an understanding of the amount of labor and time consumed in the accumulation of such fortunes."

This is where we get the 'sick' out of "dying ourselves as others see us."

Imagine our numerous colleagues from Persia and its environs being dubbed as "unsophisticated settlers" or "squatters," and the place which they consider the hub of the universe being referred to as "a wild and wooded region."

And yet, though the passing currents may have made a clefted Beau Brummell out of the simple country swain from Enniskillen and turned his happy hunting ground into peaceful farm lands, the oil industry is still, to a degree, at the mercy of those of its adherents who apparently have not progressed in their economic conceptions and would, in this year of grace 1928, indulge in almost as wasteful a squandering of petroleum reserves as Winchell depicted in 1862.

There may have been some excuse for the shortsightedness of the pioneer oil man. He had overlooked a slumbering giant whose powers and potentials he had no means of gauging, but the highly developed scientific and commercial organization which has grown up in the intervening years has enlisted the best brains of the universe in its service, is fully alive to the dangers of unrestricted production and is ever on the alert to instill, by example and precept, the saving principles of conservation.

We do not know if prayers and supplications mean a great deal to those oil producers who, in times of stress, are prone to play bull in the china shop, but they are certainly strong on slogans and, if they would escape the condemnation applied to their prototypes by the erudite onlooker of half a century ago, we would recommend the words of Burns either as a nightly petition to their particular gods, or to be flaunted on streamers at the multitudinous conventions where oil men, good, bad and indifferent are wont to foregather.—"Oh! had the poet's bony giftie gin us, To see oursel's as thairs see us!"

A beautiful bronze plaque mounted on mahogany was recently presented to the world's largest oil tanker, the "G. O. Stillman" by Mr. C. O. Stillman, President of Imperial Oil, Limited. On the plaque are engraved the Royal Naval Ensign with the "G. O. Stillman" as a naval reserve ship is privileged to fly from its funnel, and Mr. Stillman's private signal which flies from his yacht the "Tribulation."

JOHN L. MACADAM is another outstanding figure in the development of road construction. Telford was mainly concerned with the base. He was the first optimist, whom we could think of, that stone of irregular shape could be so laid as to give the whole mass inherent stability. He did nothing of note, however, as regards to top wearing courses. A covering of graded and pounded down earth he considered a sufficient wearing course for his base.

Macadam's contention was that he could build roads entirely of broken stone without the use of a sub-base. The idea was by no means new. M. Tresquet in France was the first to put it in practice on a small scale. MacAdam, however, formulated it and constructed considerable stretches of road, proving that it would give good service. Although in principle Macadam had nothing new, his method of application had some decidedly novel features. He would first break the stone and fork or screen out any fragments over half a foot thick. This broken stone plus whatever finer it contained was spread over the graded sub-soil to a depth of approximately four or five inches. The whole was then left to traffic to consolidate assisted by maintenance such as levelling off or dragging. After the first course was laid, a second course was spread over containing an appreciable amount of fines. This operation was also left to be consolidated by traffic.

Grading of Mineral Aggregate

The above outline is for the purpose of showing that gradual drift from the old Roman cemented block surface to the wearing courses made up of small fragments and particles. The mass consisted of particles irregular in shape and size interlocked upon consolidation and gave good service by its "inherent stability."

From that it is but a step to the recognition of the importance of elimination of voids or the importance of maximum density in any aggregate mass, hence the idea if one-third of this cubic yard is voids or empty space we then add "if you contemplate the addition of a size that will fit into the spaces between the two inch stone. Assuming that stone is one inch, a third of a cubic yard of this stone may be about one-quarter voids, it will still require about 8% by volume on total of stone small enough in size to fill these voids. The process of grading is identification of the spaces and dust is added to produce a maximum density. Theoretically it should be possible to produce a mass of complete density but in practice it is quite difficult and the general aim is to approach the maximum as nearly as possible. From the above one would immediately anticipate the question, why intermediate size stone? Why not go directly from the two inch to one inch and fill all voids. In the first place, the ordinary stone crusher delivers various sizes which are incidental to the pounding up of stone blocks and boulders. It is, therefore, more economical to utilise these intermediate sizes than go to the special grading to produce dust and which is usually an expensive operation. Taking what is known as crusher run material and grading this as to size by means of rotary screens we may find ourselves short of only a small portion of the work. Grading is the art of classifying mineral matter (stone, sand or dust) as to size of particles. With different sizes of mineral matter at hand, the next step is to determine the voids or empty spaces within a mass containing uniform size fragments and then keep on adding the smaller sizes in their proper order of gradation until a mass of maximum density is obtained. For example, given a cubic yard of two inch stone and

Page Four

Page Five

The Macadam Road

of asphaltic irregular in shape and size interlocked upon consolidation and gave good service by its "inherent stability."

If you contemplate the addition of a size that will fit into the spaces between the two inch stone. Assuming that stone is one inch, a third of a cubic yard of this stone may be about one-quarter voids, it will still require about 8% by volume on total of stone small enough in size to fill these voids. The process of grading is identification of the spaces and dust is added to produce a maximum density. Theoretically it should be possible to produce a mass of complete density but in practice it is quite difficult and the general aim is to approach the maximum as nearly as possible.
Brick pavement with Asphalt Filler

Wood block with Asphalt Filler

practice finally engendered the idea of interlocking and density. Next on the scene we find Water Bound Macadam. This introduces the word Binder which in this case is water. In a sense water bound is a misnomer. The bonding is due to the caking of the mineral dust, mainly clays and limonites. The water acts as a carrier and distributor. On the basis of the above idea, however, tremendous road mileage was constructed and surfaced. Before the appearance of the automobile, the horse drawn traffic caused very little wear, whereas its compacting action improved the road. As a rule, in the old days, a well constructed water bound macadam road it required but little new metal (Mineral Matter) to keep it in good order. The cost was reasonable inasmuch as ordinary crusher run material makes a sufficiently well graded mixture. The addition of clay or crushed lime stone increased the binding qualities of the whole but the additional expense was by no means excessive.

The appearance of the motor vehicle has completely altered the situation. Whereas the wheel traffic of former years was of benefit to the macadam road, the rapid moving motor car did little compaction, on the other hand the rubber tire sucked up the fines and spread it over the country side. The shock to the road on a whole has become such that the natural interlocking bond was not sufficient to hold the stone in place. The macadam road first loses its fines, its bond is loosened and finally disintegrates under present day traffic. Losing the fines increases the voidage and allows excessive quantities of water to enter the road causing further disintegration.

BITUMINOUS MATERIALS ON MACADAM ROADS—Surface Water Treating

The deficiency of the water bound macadam as such was recognized even before the introduction of the motor car. It was soon recognized that waterproofing the road would materially prolong its life. As soon as tar oils became available in Europe in ever increasing quantities there started the practice of spreading tar on the surface. The application of this oil showed that a road could be waterproofed at least the surface course. What is still more important is that the excess oil on the surface mixed with the dust and other mineral matter and formed a truly resilient carpet that was not only abrasive, that is, it would resist any rubbing action. Hence the idea that bitumen or bituminous oils could be combined with mineral matter in such a way as to form waterproof, resilient, and non-abrasive mixtures. We are using this term bitumen which in our case, is restricted to materials solid or liquid at ordinary temperatures, soluble in carbon disulphide, and capable of cementing and waterproofing mineral matter. In its broad sense bitumen is a class name including within it all organic substances from a gas down to a solid which are soluble in carbon disulphide.

Further practice and observation showed that those oils that were capable of hardening by exposure gave the best results. This gradually introduced classification as to grade and a study of characteristics and properties of these bituminous oils. It was found, first of all, that the oil had to be of a set consistency to start with. This requirement was conditioned by the fact that the oil is applied by spraying and that only liquid materials that could be sprayed. Heavy oils or even solid bitumens could be brought to any desired fluidity by heating. There is a limit, however, to heating. If a bitumen has been brought to a very high temperature it will chill too fast when striking the road and will not soak in or penetrate into the surface voids. Penetration is one of the main essentials in surface treating, particularly on roads that have not been sealed before.

The treatment oil must, therefore, be at least partially liquid at ordinary temperatures, this requirement being dictated by method of application and need for penetration. The oil distributed on the road, however, must have the property of hardening upon exposure. In a liquid state its binding and sealing qualities are very limited and is likely to be either displaced by passing traffic or washed away by the rains. This hardening or setting must go beyond the stage of fluidity yet not go to the point of brittleness. Thus, surface treating gradually developed to a point where actual requirements could be set down as to what kinds of oils are to be used for particular roads. Thus, a newly built road in liquid asphalt requires an oil that will penetrate as well as seal through the material that has already been sealed, the fluidity of the oil to start with is not so important, that is subsequent treatments become a matter of building up a certain surface rather than penetration.

A charming vista on the Hamilton-to-Galt (Ontario) Provincial Highway. The roadway is stone-filled sheet asphalt. Imperial Canadian-made Asphalt is used throughout.

As the hardening of treating oils usually comes about by evaporation of the volatile or light fractions for application on previously sealed roads it is important to select a material that will harden to the proper consistency without too much of it going off into the air. The important part is what is left on the road, the more of this binding and waterproofing material the greater the improvement.

LIQUID ASPHALTS IN SURFACE TREATING

The above method of preserving straight mineral roads (roads made up of stone or other inorganic materials) was not restricted to the macadam type only. The same treatment is now given to gravel, stone block and even brick pavements. Different roads or even the same roads in different condition, require different treating oils. The development of asphalt as binder for road work gave the whole greater scope. With the essential requirements clarified the asphalt industry produced treating oils or liquid asphalt to suit all purposes. The basic principle underlying the whole is to produce an asphalt binder solid or almost solid at ordinary temperatures and render this liquid by dissolving it in volatile oils, oils that will evaporate upon exposure to the air. It then becomes a simple matter to so vary this solvent oil, both in respect to amount used and volatility, to produce liquid asphalt of any degree of hardening and to leave any percentage of asphalt binder with in and on top of the road.

In the following articles in which we will deal with the production of asphalt we shall describe the technical producing liquid asphalt at greater length. Here we are more concerned with the scope of the work. We have covered consider- able space in showing the general development of roads, the outstanding fact being that with the increase in load, speed and volume of traffic the road of yesteryear became inadequate today. This, however, does not mean that the secondary road is diminishing in mileage, in fact there is a greater mileage of secondary roads now than there was ever before, representing an immense investment in capital. Civilization is only a matter of degree. Uniformity is non-existent. On our present day highways the high powered motor car is constantly passing the home and cart. The first class pavement very frequently parallels the earth road and the quality of our highways varies in the same degree as the different sections of the country on a whole. Hence, the different methods of construction aim large ly at the creation of a road that would come within the means of the particular locality.

YOU NEVER HEARD THIS ONE!

A motorist arrived tired and late at the "Crab and Oyster" and put up there for the night. When he opened his eyes next morning he was rather surprised to find the chambermaid already in his room with his cup of early tea.

"Did you hear you knock!," quoth she.

"Oh, no, sir, you wouldn't," she replied, "you see, I'm Ethel!"

Page 76
Mr. T. C. McCobb

Mr. T. C. McCobb

In recognition of his excellent work there he was appointed Chief Accountant for the International Petroleum Company, and he retained that position until January 1st, 1917, when he was transferred to Imperial Oil Limited and placed in charge of refinery accounting. In July of 1917 Mr. McCobb was appointed Assistant-Secretary and Treasurer of Imperial Oil Limited, or The Imperial Oil Company, Limited, as then it was known.

With this appointment he removed to Sarnia, where he has since resided. In 1920 Mr. McCobb succeeded Mr. W. T. McKee as Assistant-Secretary and Treasurer, and later in that year he was called upon to assume also the title and duties of Secretary. He carried on all secretarial work until September 1st of 1921, on which day Secretary and Treasurer were divided, Mr. James H. Archbold appointed as Secretary of the Company and Mr. McCobb as Treasurer.

Mr. Archbold resigned in 1923, and Mr. McCobb succeeded him in that position, continuing in that capacity until the death of Mr. Kennedy, upon whose death in 1926 the title of Secretary and Treasurer were once again combined, and Mr. McCobb again called to serve in a dual capacity.

As Secretary and Treasurer of Imperial Oil Limited, Mr. McCobb has been in charge of accounting for both the Marketing and Refining Departments, and has therefore been continuously in contact with a great many Imperial Oil employees. Through a voluminous mail and occasional visits he is well known in our six refineries and our twelve marketing divisions from coast to coast. Under his hand has been carried out an administrative policy which has been reflected not only in greater efficiency but in most cordial relations throughout the rank and file of Imperial employees.

Characteristic of Mr. McCobb has been an intense devotion to his many duties, but the burden of his work has not restrained him from active participation in community development work and in sports. A man of wide interest and broad sympathies, he has endeared himself to his associates both in and out of the organization.

In summing up his evening he was a familiar figure upon the Sarnia Golf Club, and was President of this club.

He has always shown a keen and kindly interest in the development of his home town. His influence and prestige will remain an asset to all his associates here.

I countless radio 'tuners, with or without adenosin, could be impressed upon us that, though the song is ended, still the memory linger, and will ever be in the hearts of all Imperial employees in Toronto and Hamilton. Mr. McCobb, one of the best-known personalities in both these cities, is a very special case.

The memory of a glorious care-free day in the open will long be treasured. Various factors contributed to the success of this function which was sponsored by the 56 Church St. Club. Our Company Directors, when approached regarding a whole day celebration and the participation of the ambitious City employees, gave but suggestions that were eagerly accepted. This for a number of reasons, but to demonstrate that the Board was fully appreciated.

Representatives from both cities were present in numbers in making the necessary arrangements as perfect as human frailty would permit, and their efforts resulted in the proceedings being conducted with every possible smoothness.

La Salle Park, looking down on the more or less limpid waters of Hamilton Bay, proved an ideal picnic ground, with its spacious sports field, beautiful shady trees, inviting swimming beaches; and all the fun of the fair, providing rest, recreation, and amusement for young and not so young.

We don't say "old" as the combination of sunny skies and partially cooling breezes served up by that much maligned individual the Weather Man, made it a joy to be out of doors, cajoled back some of the prismatic vapour into creating rheumatic joints, seat staid elders frisking on the merry-go-round or daring the roller-}

Page Nine

Page Eight

Imperial Oil Company, taking over its extensive holdings in the Republic of Peru in December of 1914, and there he installed a complete new system in the Production, Sales and Market Depart-
ments of International Petroleum.

Imperial Oil Company, taking over its extensive holdings in the Republic of Peru in December of 1914, and there he installed a complete new system in the Production, Sales and Market Depart-
ments of International Petroleum.

Page Nine

Page Eight

All On A Summer Day

All On A Summer Day

An entire issue of the Review could be filled with reminiscences of that picnic, but we can only touch on the highlights.

The arrival of our President's yacht, the Tahiti, gay with flags and banners and with O. Stillman, Mr. G. H. Smith, and Mr. Victor Ross, Vice-Presidents and Mr. W. B. Elsworth on board was the signal for the sports programme to begin, and for a considerable part of the afternoon the official party were interested spectators.

All the events were closely contested and there was a happy division of the spoils between the athletes or near athletes of the Ambitious and Queen Cities.

Mr. O. Stillman, Mr. Sinclair and Mr. Smith taking it easy in between events at the combined picnic of Toronto and Hamilton Divisions.

Hamilton had no say in the destination of the Sinclair Cup, which is contended for by tug-of-war teams from the Office Works and Service Stations of Toronto.

The events included a 100 yard dash, swimming, croquet and an excellent all-day lunch served in a beautiful garden setting.

Over a thousand persons were conveyed to the scene of activities and festivities by practically every vintage of automobile, from the early efforts of 'Henry' to the palatial Grey Line coaches which carried part of the Toronto contingent.

Even the Scotsman who walked the thirty odd miles from the Queen City found the Lake Shore highway, all for fun on a summer morning, but was, unfortunately, too exhausted to take part in the sports on the high day.

An entire issue of the Review could be filled with reminiscences of that picnic, but we can only touch on the highlights.

The arrival of our President's yacht, the Tahiti, gay with flags and banners and with O. Stillman, Mr. G. H. Smith, and Mr. Victor Ross, Vice-Presidents and Mr. W. B. Elsworth on board was the signal for the sports programme to begin, and for a considerable part of the afternoon the official party were interested spectators.

All the events were closely contested and there was a happy division of the spoils between the athletes or near athletes of the Ambitious and Queen Cities.

Mr. O. Stillman, Mr. Sinclair and Mr. Smith taking it easy in between events at the combined picnic of Toronto and Hamilton Divisions.

Mr. O. Stillman, Mr. Sinclair and Mr. Smith taking it easy in between events at the combined picnic of Toronto and Hamilton Divisions.
WHAT THE CAMERA CAUGHT AT LA SALLE PARK

Upper Centre:—The arrival of the “Tulisa” with Messrs. G. H. Smith, C. D. Stillman, Victor Rass and W. R. Elsworth on deck. Upper left—Prize-winning babies, Wilfred King and Edward Godfrey; “Bill” Bacon at centre piece. Upper right: P. F. Sinclair flirts with an Irish calleen, Lorna Summersville, whilst Miss Hurry has no difficulty in coaxing a smile from the runner up. (Editorial apologies for not having this competitor’s name). Middle left—“Speed cap” and “Stop” signs forgotten as the Yurmi enter the home stretch. Panorama:—Some of the many who co-operated in making the first joint celebration of Toronto and Hamilton employees a huge success.
The spectators wondered, and still the wonder grows, how it was that so many plain and, to say the least of it, unimportant fathers could lay claim to such beautiful children. Not that it was not noted that the youngsters invariably inherited their looks from the maternal side. Possibly the good-nature which shone from every baby face could be averted from the children. The 'Mystery Man', the Rube what the sportsmen and the motorists called him, did not remain in hiding long. Although the committee tried to mislead the competitors by selecting an individual who was as opposite as the poles from the miserable specimen described in the program, the Hamilton Credit Dept. could evidently smell a five dollar bill under any disguise and Miss Poisson uncovered the Rube and claimed the reward. 'Poison,' by the way, is a real Scottish name, which perhaps helps.

What was heralded as a peppy affair was to be a big game between Premiers and Royalties, in the '56 league, failed to live up to its advance notices, the Royalties apparently suffering from nerves, sun-stroke, sleeping-sickness or other complications. An easy win gave Premiers the premiership for the first series of the league race. The ball fans were not disappoint- ed in the evening encounter however, as the select of Toronto and Hamilton gave a great exhibition, the Hamiltonians deservedly winning the fast and snappy game.

As a last attempt at a marksman behind the lofty crags of Hamilton's beloved and fathomless mountain wall of the telephone called the faithful fox-busters to their test, and whilst the tired kiddies and no less exhausted parents hopped the busses for home, 'Twas the end of a perfect day.

**APPOINTED TO INTERNATIONAL BOARD**

Mr. F. B. Bimel Will Supervise Casingshead Production

Some time ago it was recognized that continued prosperity on the part of the oil industry was almost entirely dependent upon a system of strict economy and careful conservation of all immediately available and potential resources. Extending the thoroughness with which this policy is being carried out, is the appointment of Mr. F. B. Bimel to the Board of The International Petroleum Corporation where he will be associated with Vice-President A. M. McQueen, and will have charge of casinghead gasoline production in Peru and Colombia, as well as for Imperial Oil, Limited in Canada. Mr. Bimel's record of achievement in the production of casinghead assures a very important development in conservation of every marketable fraction of petroleum coming from the South American and Canadian fields. For the last six years he has spent nearly all of his time in the developing and extending equipment to control the output of productive territories.

Mr. Bimel is a young man, but has had much experience into his life. His training has been practical, not theoretical, and he was a pipeline man with the Commissary Department of a large oil producer. Two years later Mr. Bimel was actively engaged in pipeline construction, and after three years was made Chief Engineer of the Big Moose pumping station near Sherbrooke. Some time later he became General Foreman on an important pipeline construction job.

Mr. F. B. Bimel

In 1915 the industry was harassed by a problem having to do with corrosion of underground piping, particularly such lines that had traversed low, wet districts. It was Mr. Bimel's task to handle the first large job of applying cement casing to a pipeline. With his crew of six, Mr. Bimel made a complete concrete casing around an entire line, and this practice effectively solved the problem of corrosion. In 1915 he became a producing assistant in an important oil field, and three years later was made Superintendent of the Gasoline Department of a Louisiana Company. In 1922 leaders of the industry were greatly interested in the possibilities of increasing the recovery of light ends, both in the producing fields and at the refineries. Mr. Bimel was entrusted with the work of carrying out the theories of the industry and became actively engaged in supervising the erection of absorption and compression plants. The result of his work was a very considerable increase in production of light ends, and largely due to his efforts, the industry is today approaching a perfection of productive organization whereby every bit of gas, ether free or contained in crude oil, will be safeguarded from the time of the pumping of a well to the time of its ultimate consumption as fuel.

Mr. Bimel's home is now established firmly and comfortably in one of the great cities of the world.
These cars are constantly in use inspecting and repairing equipment

leaving a film behind; furthermore, a slight pressure will squeeze out water. Oil always leaves a film, and this film, according to its viscosity, will sustain a weight of several hundred pounds per square inch.

The piston and cylinder walls of an engine appear to the naked eye as having a high polish, and to the hand as being mctically smooth, yet, if examined minutely under a powerful microscope, the jagged edges of a saw blade will be revealed. Imagine what would occur should these two pieces of metal be rubbed together without a lubricant between them! The action and discordant noise will be similar to that produced by rubbing two files against one another. The teeth will grip and tear each other apart; and more wear will take place in a few seconds than will occur in months of normal operation. Lubricating oil not only fills up these minute depressions in the two metals but actually interstices a film between them. There is therefore little friction between the piston and cylinder—the friction occurring within the oil itself. Everyone knows that the ball bearing is the best known means of reducing friction. Analysis shows lubricating oil to be made up of molecules which are perfect globes. These globes roll over one another on the ball bearing principle.

One must not be content with merely oil. Different oils have distinct characteristics. An oil for instance must have sufficient body to fill up the crevices in the metal and provide sufficient film at high temperatures. We have shown that water, although a lubricant, will not do, neither will a poor grade of oil prove successful. Different makes of engines differ in their lubricating systems. Likewise the correct grade of lubricant must be chosen to suit a specific purpose, and it is therefore economy to follow chart grades, rather than the whim of the moment while at a filling station.

It should be apparent from the foregoing that neglect is costly. You will say that the driver has not time for daily attention—the equipment cannot be spared for its weekly inspection, general lubrication, and tightening up of loose parts. Yet, more time will be lost by break downs, serious lay-ups in the garages, from neglect, than an hour or two spent per day and half a day per week. Your pocket will not suffer at the time, perhaps, yet you will have to dig down to meet expensive overhauls, and finally you will have to purchase a new vehicle before its predecessor becomes of age. If your business warrants continuous use of your equipment without provision for attention, then a spare truck should receive your consideration. Do not "rob Peter to pay Paul."

The most serious malady in motor truck operation, following improper lubrication and neglect, is overloading. Many operators are proud of a truck's accomplishments under overload conditions. The salesman has drummed into their heads that a large factor of safety has been built into the machine. One is often compelled to wonder if such operators keep a cost record and if they realize that overloading is similar to borrowing money from a bank at a high rate of interest. The capital has to be paid back eventually, and perhaps the loan will be called at an inconvenient moment. Consider "factor of safety" as an average only. Two bars of steel, thought to be identical, may test one far above and the other far below the average for the specific metal. The exact strain or shock a part may be subjected to is not known, and thus a "factor of safety" has been provided to care for uncertainties, and not a provision for carrying overloads.

An axle not only has a bending strain from severe jugs under overload conditions, but also a twisting or torsional strain. When the brakes are set, the wheels are locked to the axle, and it is the latter which has to bear the brunt of overcoming the momentum of the truck and load. The force is applied at the rim of the wheel, and the distance between rim and hub is an additional leverage on the axle. Everyone is aware of the ease with which a heavy weight can be moved by a crowbar and block—and thus will realize the tremendous strain imposed upon the axle shaft of the truck, due not only to extreme weight, and momentum, but also to the leverage applied. Yet another cause of axle strain which is greatly increased by overloading is the end thrust on the axle bearings. Passengers in the rear seat of an automobile experiencing a quick turn are often thrown sideways. The extent of side thrust may thus be realized when a heavily overloaded truck deviates from its course. The tendency is not only to push the axles through the wheels operating on the outer radius of the circle, but in addition there is a bending strain which tends to snap the axle in two.

These two strains operate together, the former being taken by the bearings and the latter by the axle stock itself. This is only an example of the strains occurring at one part of the truck; one could go on describing others ad infinitum. Surely that in the old days, time was spent in showing how the horizon could be crossed in so many miles per hour. Today we speak of miles per minute. We are much more apprehensive of the load which we carry. We are also more sensible of the strain on our machinery.

We believe that the above suggestions will prove of value to motor truck operators. The full story of their value and effectiveness can be had only from the operators themselves. And they will appreciate it. And they will appreciate it, whether told to them by their salesmen or by an independent authority.
SARNIA REFINERY

Reminiscence of the Early Days of Sarnia Refinery.

The history of Sarnia Refinery forms a continued story of the evolution of the one unit of heat and power which a period of years during which the refining of petroleum has been developed. The present state of the industry is today. The speeding up of modern methods, coupled with the ever-increasing demand for petroleum products necessitated improvements in the methods of refining. Sarnia Refinery is the result of this development, and stands as a monument to the growth of the petroleum industry, the largest industry in the British Empire. The situation of the Sarnia plant is strategic, it being located on the shores of the St. Clair River and at one of the Canadian Ports of Entry. The Refinery was the center of the situation in the early days of Imperial Refineries in Canada.

In the Spring of 1897 The Imperial Oil Company Limited selected the site now occupied by Sarnia Refinery. This had been occupied since 1871 by a small plant originally constructed by a name where the same firm had its naval oil producing centers in Canada. It was in and about Sarnia that the refining business had its inception with the old time stills and a process which involved the wastage of a large portion of the product and of heavy residue tar at the bottom due to the lack of a market for these products; a marked contrast with today when one can demand that every particle of crude that comes from the still finds a market as one or another of the numerous uses of petroleum products.

In the early days the landscape was dotted with amateur refining plants with their cheese-box stills; coal oil was the trade staple of the oil world.

Neglect fuels, bunkers, lubricating oils of all descriptions, waxes, greases, asphalt, and other products.

With the advent of the automobile and internal combustion engines in general, the petroleum industry was called upon to segregate products inherent in the different types of crude oil which during the infancy of the oil industry were considered as products to be burnt in the easiest and cheapest way—notable among which was gasoline—and which today is the product of major importance in refining.

Then again, consider the old tallow candle with its smoky and odoriferous burning and contrast it with the paraffine candle now being purchased on the market. Consider the old dirt roads made and maintained by every male member of the family who once a year with pick and shovel turned the washings from the side ditch onto the crown of the road only to be washed back again by the ensuing spring frosts and seasonal rainstorms, and contrast these with our modern asphalt paved roads of smooth permanent finish. All this was made possible by modern progress and with this demand the refining industry kept pace.

In the development of lubricants the refinery has painstakingly carried out a most exciting and difficult task. From the one product, crude petroleum, it has been necessary to evolve the heavy cylinder stocks required to lubricate a slow-moving, cumbersome machine, and the highly refined, pure lubricating oil with just the proper characteristics to form a film, mere thousands of an inch thick, yet of tenacious quality to adhere between barely removed, rapidly-evolving surfaces, and to hold its body under the intense heat and the rigoros stresses to which it is subjected.

Many are the changes in the products demanded as the knowledge of man increases, and the application of this knowledge is producing comfort unknown to our forefathers.

But let us diverge for a period and contrast refining methods, ancient and modern,—the original three crude stills with a throughput of only 300 barrels per day and the present battery with a throughput of 15,000 barrels per day. A few years ago the first still used was under the old-time operator built his fire, forcing it gradually, and first distilling the lightest fractions, gasolines, which were wasted. A little more fire and a kerosene product, still more fire and the gas oils came overhead. But how did they distinguish the product from another? Experience! The old-time operator sampled and weighed the overhead streams, listened to the gurgling of the oil boiling and knew from years of practice and these indications that when he had distilled all of the gasoline or kerosene, etc. which the still would yield. But in the gasoline many kerosene fractions were in solution, likewise in the kerosene many gasoline fractions were held in solution, thus making it necessary for the Government to impose specifications for the boiling point of kerosene for the protection of the public at large.

But today this picture has been changed by modern science. The chemist now analyzes the crude to be processed and determines the exact temperature at which all gasoline or kerosene fractions will distill. He passes this information to the engineer, who in turn designs stills having the necessary heat exchange, the proper type of fractionating and rectifying and condensing equipment to produce precisely the results pre-determined by the chemist. Further, the still now assumes one duty only instead of the multitude of duties formerly imposed upon it. As a consequence, modern refining requires a definite amount of heat uniformly transmitted to any one still and a continuous flow of oil to this same still, resulting in a continuous stream overhead of a product uniform throughout and of superior quality to that previously obtained.

Under the old methods of refining quantities of heat were dissipated for which no economic return was earned, while today every calorie must be accounted for, and the maximum proportion turned to useful work. As great a contrast is seen in the
production of lubricating oils which have evolved from the poorly fractionated oil. At the plant, all of which were processed in atmospheric to our modern and superior automotive lubricating oils "Marvelube" which are produced continuously in a new type of battery. It is interesting to note that the operators handling these modern stills do not see the oil from the time it enters as an unrefined crude stock until it is transformed to the closely fractionated transparent oils making up the various grades sold on the market.

One must not, however, gain the impression that the "old timer" in the oil industry was producing inferior products-for he actually produced grades of petroleum products in keeping with the demands and machines of his time. But science is creating new and improved apparatus of all descriptions demanding superior petroleum products and the oil industry is in pace with this progress always—maybe a step ahead.

Echoes of Negritos

New Educational Facilities Keep Pace with Increasing Needs in Peru

The first of April last was the occasion of the inauguration of the new school house in Negritos, Peru, which the Peruvian children along with those of the employees of the Company are now attending. The new edifice commands a very fine view of the sea and town and is a fine addition to the many buildings now in Negritos. Educational facilities in Peru since the advent of the International Petroleum Company have made rapid strides and the opening of the new school house completes a program which is keeping pace with the development of the Imperial Oil colony there.

The occasion of the inauguration of the new school house was of one much good will. Mr. George Bracke, manager at Negritos, in his address made a formal delivery of the school on behalf of the International Petroleum Company to Senior Ricardo Palacios, superintendent of schools.

A burst of applause which emphasized the affection and respect in which Mr. Bracke is held followed the translation of his address into Spanish.

The sponsors of the occasion were: Mr. and Mrs. George W. Bracke, Mr. and Mrs. Arthur Idings, Mr. W. L. Mackenzie Jr., Sr. Guillermo M. Gamastra, Sub-perfect of the Province, and Sr. Gamastra and Mrs. Nellie Bracke who took the place of Dr. and Sr. Carrillo Lecca, who unfortunately absent.

At the close of the ceremony the school teachers pinned on the breast of the sponsors silver medals as a momento of the occasion.

Senior Gamastra in his address thanked the Company and Mr. Bracke on behalf of the Government of Peru for the generosity of the Company in providing the school and this he said presented an example of generous cooperation with the Government in the work of public instruction in which the patriotism of the mandatory of Peru reveals such a keen interest.

Senior Miguel Castro Saezeda, inspector of instruction for the Government also spoke, lauding the Company, who by their altruistic works, have won for themselves great merit in Peru.

After the inauguration, the national hymn was rendered by the school band, The Boy and Girl Scouts brigade gave an interesting exhibition of exercises which was later followed by entertainment arranged for the invited guests in the large hall of the building.

Imperial Oil Review

The English Team

A Football Match in Peru

By E. W. Gray, Talaara

The last international football match in England led to a discussion among the employees of the International Petroleum Company in Talaara, Peru, as to whether English football was on a par with that of Scotland.

It is not very often that native sons of England and Scotland have had a chance in Talaara to test the inherent sporting rivalry that seems to exist among the employees there.

Accordingly, a football match was arranged between the merry sons of England and the exponents of the Scottish Clan.

The Scots, although informing the world at large, "Hoote! Mon, Ye caana sit on a whistle!" sought with subtle strategy to shatter the morale of the English team by producing a piper (T. E. McDonald) clad in the attire peculiar to such "musicians." But, much to the disappointment of the Scots, the Englishmen did not sit away on the hearing of the skirling of the pipes, though, no doubt, a cup of tea prevented nervous protration.

It was unfortunate that the Peruvians present missed out on the weird sounds of approval emitted by some of the Scots onlookers and they were for a few minutes under the impression that the piper was in grave danger.

A strong wind prevailed through the match and this fact, combined with the light ball used and the extremely hard ground upon which the game was played, rendered good ball control almost impossible; but under the circumstances a good match was played.

The English team won the toss and decided to kick against the wind. During the first half of the match the play was more or less even, with the play perhaps in favour of the Scots. Notwithstanding the fact that they were playing against the wind, the English forwards scored following a frenzied scramble around the Scots goal mouth, which proved to be the only goal of the match.

It was not until the second half that the English team were really superior. To be impartial it must be admitted that the Scots were unlucky not to have scored at least one goal; two wonderful opportunities being missed. In the second half the Scots forwards neglected the rolling pass for which Scots football is famous and against the strong wind this policy proved to be fatal. Although England won by the only goal scored, this score was not in keeping with the maintained superiority of the English team in the second half of play.

It has been rumored since the match that the Scots are studying the game of football. The instruction by mail and it is expected they will display their newly acquired talent in a return match to be played in Negritos in the near future.

The English players are:

Forrest Ross, Left to Right: E. W. Gray, E. V. Brown, W. Pye, R. Kindlerly, C. Bagley.


The Scottish players are:

Forrest Ross, Left to Right: A. Arcus, G. McClymont, J. Wine.

CALGARY

THE high powered bowling of the Cracking Coil Team wrested the championship of the Calgary Refinery Bowling League from the Treators in a closely contested play-off on May 25th last, at Windsor bowling alleys.

The ten teams entered were all drawn from the Refinery staff; the dynamic "Spark Plugs" captured emerging triumphant with a one-pin lead in the third game. To them comes honor and the possession of the cup donated by the Windsor Alleys. Through the courtesy of one of the executive heads of the Refinery a raffle was held on a valuable radio set, the proceeds of which were used to provide the members of the winning team with gold medals. The radio was won by Herbert Hetherington of the Calgary Marketing Division.

IMPERIAL

ON THE twenty-third of June last some 150 parents and friends gathered in the assembly room of the Imperial School for the closing exercises.

The school board, consisting of D.M. Allan, C.V. Humphreys and L.J. Inner, was present and the principal speaker of the day was Dr. A.H. MacKay, Provincial Superintendent of Education who congratulated the board, the teachers and the pupils on their excellent equipment and splendid work.

Dr. MacKay said he doubted very much if a better equipped, better lighted, better staffed school could be found anywhere in Nova Scotia. He was followed by the principal, Miss Simms, who spoke briefly on the work of the school.

During the past year there were 145 students enrolled divided as follows: 47 in the advanced room, 46 in the intermediate and 52 in the primary. The average attendance was good.

TORONTO

Mr. C.O. Stillman, our President, has been appointed Vice-Commodore of the Royal Canadian Yacht Club and complying with R.C.Y.C. tradition, has been serving his time before the mast as a member of a racing crew. In this subordinate capacity Mr. Stillman has lent further evidence to the generally accepted doctrine that an essential qualification for issuing orders is an unqualified aptness to obey them.

SARNA

Lord Dufferin, son of the late Lord Dufferin, formerly Governor-General of Canada, accompanied by Lieutenant-Governor W.D. Ross and Col. Adamson, were the guests of Imperial Oil, Limited at Sarnia, while visiting the refinery during an extended cruise on H.E. Mathews’ yacht “Condor.”

“Faithful Service”

As a mark of appreciation, the crew of the Imperial Oil’s “Faithful Service” presented to the Captain, Mr. W. Marvely, a silver cup etched with their best wishes to mark his long service with the company.

MISS AMELIA EARHART, the daring woman aviatress, in taking off at Trepassey, Newfoundland, for her Atlantic flight to England in the aeroplane “Friendship” described her flight as a pleasurable venture.

The take-off was the hardest strain of the trip and not until she had flown half an hour along the coast and headed out to the open sea could Miss Earhart be confident the “Friendship” was definitely on its way.

The “Friendship” was furnished with fuel and oil through our St. John’s, Newfoundland, Division.
“Santa Maria” at Talara

THE first visit of the Grace Line boat M/V “Santa Maria” to the Port of Talara was an occasion of great interest to the entire settlement and marked, to the gratification of all concerned, another notable step in the development of transport between the north and south Americas. The “Santa Maria,” as the picture above shows, is a very handsome vessel, and her appointments are all in keeping with her splendid lines. While at Talara she refueled, and below is a picture of a large barge loaded with a thousand drums of oil which were delivered to the new liner. In the background is part of the International Petroleum Company’s Talara refinery, and a section of the employees’ residential district. In the photograph at the lower left are, left to right: Mr. Brake, Manager at Negritos, with his son Jackie, Captain Parker of the “Santa Maria,” and Mr. Dunlop, Manager at Talara.