OIL MINGLED WITH OZONE

Great Boom in the Standard Fluid in Southern California.

LOS ANGELES A CITY OF DERRICKS

More Money Pumped Out of the Earth There Than is Dug in the Klondike — Fabulous Land Values.

Next to a gold discovery there is nothing that can cause such a stampede as the finding of oil. The oil fever is a sort of mental germ disease, and when the bacillus gets into a man's mind he casts his steady-going business habits to the winds and rushes off on a search that terminates only when he has struck it rich or has worn himself out in a fruitless chase after this will-o'-the-wisp.

This is the situation in a large part of southern California today. There has been an influx of boomers, oil prospectors and adventurers of all kinds that outdoes the record of Klondike or Cape Nome. Towns have sprung up on the bare sandhills and have advanced in a few months to the rank of cities. All over the region between the coast range and the Sierra Madre mountains, and from Siskiyou to San Bernardino, thousands of outfits are at work putting down wells, while the men who have used up their available cash in acquiring claims are busy with pick and shovel trying to dig down to the oil-bearing sand or are looking for somebody to stake them to carfare back east so that they can float a company on the strength of their few acres of sagebrush. Men who valued their entire worldly possessions a few months ago at a few hundred dollars are now rated at hundreds of thousands; over the whole movement there is the glamour of oil that is worthy to be ranked with the fuel of Aladdin's lamp in its fortune-giving potentialities.

The oil excitement has made some big changes in southern California within the last year or so. It has transformed Los Angeles from a quiet, pleasant residence town into a city of derricks, with the smell of coal oil in the air, and with a big petroleum exchange in which fortunes can be won and lost as readily as they can in Wall street. Los Angeles is the only part of the region in which the development has reached anything like its maximum point, and this restricted district is flowing more than 1,000,000 barrels a year.

Changes in the Town.

The man who left Los Angeles ten years ago and returns there today will find it impossible to recognize the town. The richest finds in this district have been made within the city limits. The boom was started by two men who dug a well with pick and shovel at the corner of Patton and State streets, near the Second Street park. When their strike was followed by others on the other side of the city everybody who owned a lot in the proved district decided to take a try at oil hunting. Men who owned houses in the residence portion of the city caught the fever and proceeded to disfigure their lawns with derricks and lengths of oil pipe. On some of the streets of Los Angeles one will see an ugly black derrick in front of every house, while at least half the residences have a second derrick in the backyard. As a consequence of the fact that the land in the city is split up into many small holdings, no territory ever had a more rapid development than this Los Angeles section. Wells have been put down in some cases not more than fifty or seventy-five feet apart. This naturally followed from the fact that every man was eager to develop his land as far as possible, and when his neighbor drilled two wells within the space of an ordinary city lot, he was compelled to do likewise in self-defense. The result of this is that the oil sand is being rapidly drained of its brown fluid and the life of the local industry has undoubtedly been shortened. It will make a great record while it lasts, however, for down to the present time the Los Angeles district has to its credit more than 7,000,000 barrels of oil, and the city has firmly established itself as the headquarters of the industry in southern California, having a flourishing oil exchange which does a business in oil stocks of more than $100,000 a month, although it is run on a very conservative basis, being controlled by some of the leading business men and oil experts of the city.

Oil Under the Ocean.

Probably nowwhere else in the world is there such a picturesque oil field as exists at Summerland, in Santa Barbara, where the wells have been pushed right out into the Pacific and oil is being pumped from beneath the waters of old ocean itself. The town is situated beside the ocean on the sides of steep hills. Between the hills and the water there is a narrow strip of level land a quarter of a mile wide and a mile long. Five years ago a man named Williams sunk a well on the beach in front of the town and struck oil, and started what is known in California as "the beach rush," which has covered the narrow level strip in front of the town with a forest of derricks. A year after this discovery J. B Tredwell built an oil wharf out into the ocean and sunk a well from it. He drilled through the first oil sand which is less than 100 feet below the surface, and struck a second oil bearing stratum, which has proved more profitable than the first one. Mr. Tredwell now has over 1,200 feet of oil wharves carrying a dozen wells, and his example has been followed by other prospectors until the coast waters for a mile or more break under piers, which carry hundreds of derricks. Up to date the Summerland wells have not produced as large a flow as those in some of the other sections, but on the other hand the cost of drilling is less and it is not necessary to go down more than 200 feet to reach the lower bearing stratum. It is a noteworthy fact that the further out from shore a well is drilled the thicker the oil stratum is found to be, and as the coast waters are comparatively shallow for a long distance out it is probable that within a few years there will be oil derricks half a mile or more out to sea. One great advantage of the Summerland district is that the oil can be loaded directly from the wharves on which it is produced into tank vessels, it sells for $1 a barrel at the pier.

Kern River District.

At the present time the liveliest section of the California oil fields is the Kern river district. The first discovery in this section was made about six miles from Bakersfield, in May, 1899, at a depth of only sixty feet. Later in the same year the "Discovery Well" was put down to a depth of 350 feet, and began producing oil at the rate of thirty barrels a day. This started the rush to Bakersfield, and since that time thousands of wells have been sunk. Most of them yield a flow of from twenty-five to seventy-five barrels per day, although hundred-barrel gushers have been found not infrequently. The oil stratum is of exceptional thickness, in many places from 300 to 500 feet through. This promises a long period of productivity which will make the total return from each well extraordinarily profitable. A number of experts who have examined the field have estimated the probable flow of oil at from 130,000 to 200,000 barrels per acre.

The topographical situation of the Kern river field is peculiar. It lies at the southern end of the San Joaquin valley, just above the junction of the Sierra Nevada and the Coast range. Thus the field is surrounded on three sides by mountains, which form a basin filled with shale and oil-bearing sand, which is held by strata of clay above and below. This situation has impressed every oil expert who has visited the region and it is a fact that practically every well that has been put down within this basin—"inside the dish-pan," as they say in Bakersfield—has been a profitable producer.

A Remarkable Revival.

Bakersfield is the center point of the Kern river excitement, and it is in all respects a remarkable place at present. It was considered a dead town in California up to the time of the oil discoveries. The land was about as unpromising for agricultural purposes as could be found within the limits of the state and the Southern Pacific Railroad company, which held most of it, was glad to dispose of it at the rate of $2.50 per acre. Even after the first discovery the railroad company did not awake to the value of the bonanza which it held, and sold a good many acres at this price, which it would be glad to buy back now at $1,000 apiece. Hundreds of acres that the Southern Pacific let go at from $2.50 to $7 have changed hands four or five times since then, always at a rising scale, which now reaches from $1,000 to $10,000 per acre.

A good many fortunes have been made in the Kern river field within the last twelve months and some of the richest men in that section today are men who worked in dry goods shops and grocery stores for $30 a month no longer ago than last year. For instance, the biggest firm in Bakersfield district is Chansior & Canfield, and the head of the firm, "Joe" Chansior, now the most prominent figure in California oil operations, is a young man about twenty-eight or twenty-nine years old, who has made a modest fortune of something like $15,000,000 within the last year and a half. It is said that Chansior was working as a clerk in a Los Angeles grocery store when he became interested in the oil fields in the Ventura county district about two years ago. He had no money with which to take up land and sink wells, but he managed to raise $3,000 on a note by promising to give the lender one-half of the proceeds. The three thousand sufficed to put down three wells, two of which were profitably productive, while the third was a gusher. It is said that within a year of the time he borrowed the money Chansior paid the man who loaned it to him $178,000, which represents a very good rate of interest even for California.

Chansior and his partner were among the first prospectors of the Kern river district. They bought up as much land as they could secure and were among those who obtained land from the Southern Pacific at $2.50 an acre, which they would not part with for less than $10,000 an acre. Chansior owns some of the finest wells in the Kern river district, and is in a fair way to become one of the richest men in the country.

Fortunes in Values.

There are hundreds of stories less remarkable than this only in degree going the rounds in Bakersfield, and the town is mad with oil excitement. It is a lively town nowadays in which every kind of a gambling game is run wide open. Day laborers are receiving $10 and $12 for ten hours' work and hotel prices make the Waldorf-Astoria seem cheap by comparison. Nobody in Bakersfield believes that the oil lands have reached the limit of their real value as yet, and a great deal of land speculation is going on. So well informed a man as Mr. C. A. Canfield said recently that $30,000 per acre was a conservative estimate for the real value of the land within the proved district. Should the production of the wells come up to the estimates of the oil experts who have examined them, the value of the territory already exploited will amount to something like $800,000,000.

There is a side to the California oil discoveries which renders them of widespread importance. This is the probability of the future development of oil as fuel. None of the oil taken from the California fields is refined for illuminating purposes, but a wide field of usefulness is being found for it as a substitute for coal, for heating and steam making purposes. Already the Southern Pacific and Santa Fe railroads are using it in nearly all their locomotives in California as fuel. These two companies alone are using 100,000 barrels of oil a month for this purpose and the Santa Fe road recently placed an advance order for 1,250,000 barrels for future delivery. In addition to this the sugar beet factories and other manufacturing plants of California are rapidly replacing coal with oil, and its uses for this purpose are likely to create a steady and strong demand for all the oil that can be produced in the California fields for many years to come. The great difficulty that has heretofore retarded the industrial development of California has been the high price of fuel. Coal costs on the average about $6.50 a ton. Under present conditions oil sells at from $1.00 to $1.25 per barrel, and $6.50 worth of oil will do the work of a ton of coal, and in the opinion of many persons will do it better than the coal itself. The oil, therefore, promises to make its own market and to prove of the greatest importance to the whole Pacific coast region in encouraging its industrial development and making it one of the great manufacturing centers of the United States.

OUT OF THE ORDINARY.

The magnitude of the operations carried on incidentally by David Rankin, the Missouri cattle king, may be imagined when it is remembered that at his ranch in Atchison county this year he will plant 10,000 acres of corn alone, employing about 250 men and utilizing 600 horses.

Ireland lost by emigration last year 45,288 souls, an increase over 1899 of 3,347. Over 82 per cent of these were between the ages of 15 and 35. Of the total number of emigrants 37,795 came to the United States, Great Britain received 6,060, New Zealand 64, Canada 472 and Australia 834.

There are 7,400 members of the New York police force for all the boroughs—7,368, to be exact. The number of arrests made by the New York police last year was 138,875, or an average of between eighteen and twenty for each policeman. In 1890 the expenses of the New York police department were $11,182,500. This year they are $11,162,000.

The private letter books of Robert Morris, the financier of the revolution, which were lost for several generations, were brought to light in Washington recently and have been deposited in the congressional library. Another acquisition by the library is the original manuscript setting forth the various decrees by which the titles were conferred on Columbus by the pope for the discovery of America.

A mammoth black walnut tree on the farm of E. P. Gaus in Williams county, Ohio, has just been sold for $4,000. Several lumber dealers have examined chips from this tree, and all have declared it to be the finest specimen of that kind of wood they ever saw. The tree was eight feet in diameter forty feet above the stump and extended seventy-three feet from the butt to the first limb.

Consul Warner reports from Leipsic that a new method of street car advertising was started in that city on January 1 last. In every street car are hung copies of a bi-weekly newspaper, a journal which contains advertisements, railroad time tables, a few jokes and notices of the performances to be given at the different theaters. The newspapers are fastened on racks which are hung upon hooks in the corners of the cars. The passengers have the privilege of taking the papers down and reading them.

Persons traveling by rail over any of the first-class eastern lines can scarcely help noticing the tastefully-kept lawns and grass plats around the passenger stations. Few travelers have known, however, that the railway companies employ professional gardeners and a large force of assistants who do nothing but attend to the beautifying of the company's grounds. Andrew S. Carson, head gardener of the Pennsylvania Railroad company, has just died in Philadelphia after a continuous service of thirty years. He was retired under the pension rule of the company on January 1, 1900. He was succeeded by his son, Joseph C. Carson, who is now in charge of the department of landscape gardening.

IN THE FIELD OF ELECTRICITY

Effect of the Decision Invalidating the Berliner Telephone Patent.

COMPETITION IN TELEPHONE BUSINESS

Opposition Companies Spreading Rapidly in the East—Electrical Pressures—Points on Artificial Illumination.

Electricians declare that the recent decision of Judge Brown of the United States circuit court for the district of Massachusetts, that the patent issued November 17, 1891, to Emile Berliner was invalid and dismissing the suit brought by the American Bell Telephone company against other companies, is a great victory for the independent telephone field. In speaking of the decision Charles A. Brown, in the Western Electrician, says:

"In respect to the interests involved, the suit surpasses any prior patent suit. If the claims of the American Bell Telephone company regarding this patent had been sustained it would have given that company or its successors the absolute monopoly of all forms of telephone transmitters now in commercial use. Some form of transmitter is absolutely essential to the carrying on of the telephone business. By controlling, therefore, this essential detail of telephonic apparatus, the American Bell Telephone company would have been put in complete control of the telephone business of the country as it is now carried on. When it is considered that throughout the United States there have grown up, in the seven years since the expiration of the fundamental telephone patents, vast interests independent of the American Bell Telephone company—interests which have covered the whole country with a network of wires and have established exchanges in many of the important cities of the country, as well as a multitude of small towns—the importance of this decision may be appreciated. Since the expiration of the fundamental Bell telephone patents the growth of telephony has far exceeded all its growth prior to that time. There is hardly a farming community in the country which has not its system of private lines.

"The decision will have the effect of relieving the apprehension of manufacturers and investors who are interested or likely to be interested in independent telephone enterprises, on the score of any fundamental patent controlled by the American Bell Telephone company at the present time, and will give a decided impetus to new telephone enterprises, so that it may be looked upon with certainty that there will be more development of the telephone industry in the immediate future than there has been even in the past. It must not be forgotten, however, that the American Bell Telephone company still controls a vast number of patents upon telephonic apparatus, probably reaching 2,500. It is possible that, having failed in its effort to control the telephone situation by one broad, underlying patent, it may now be the policy of that company to harass independent telephone company enterprise by a multiplicity of suits upon subsidiary patents. There is none of these patents, however, which can be a cause of great apprehension on the part of the independent telephone interests at the present time."

Telephone Competition.

According to the last annual report of the Bell company there were 1,580,000 instruments out in 1899, whereas in 1900 there were 1,950,000. As each station has two instruments, a receiver and a transmitter, that would mean, if all were in use, 1,000,000 subscribers, or perhaps slightly less, as many have more than one set. If one is to accept the figures of Judge Thomas, the president of the Independent Telephone Association of the United States, the opposition musters already 1,500,000 subscribers in some 5,000 or 6,000 companies or co-operative concerns. Judge Thomas has stated that while there are now 2,500,000 subscribers here, 7,500,000 stations could be maintained at reasonable prices on the existing basis of population, and he believes that figure can now be reached in five years. In other words, by 1905 the telephone investment in this country will easily have passed $1,000,000,000. The question is, how much of this vast amount of new work shall be Bell, and how much shall be secured by the independents. The Bell telephone apparatus proper in this country is all made by one concern, which has factories in New York and Chicago. There are already at least seventy recognized makers of independent apparatus, mostly in the west, and it is predicted that the number will have doubled before the year is out. Some of the independent manufacturers have already equipped large exchanges, among which may be mentioned those at St. Louis, Pittsburg, Baltimore, Atlanta, Cleveland, Rochester, Terre Haute, Indianapolis and other cities, and they have contracts ahead for very heavy work.

Open-Air Telephones.

The nearest approach to wireless telegraphy in point of convenience of communication is the open-air telephone, for use in the public streets. When this has come into use you can jump off a street car at any corner, call up "central" and talk with your pastor or your best girl—and have it all over in a second.

William Gray of Hartford, Conn., the inventor of the regulation booth telephone, has concocted the scheme, and fifty of the machines are now being put together by the Gray Telephone Pay Station company. One will soon be put up for trial on one of the street corners in New Haven. If the device proves as successful as its inventer imagines that it will, the introduction of the machine throughout the United States will depend only on the consent of the municipal authorities.

This outdoor telephone is of the height and shape of a police or fire alarm box. The slender iron post that bears the box and the box itself have a white aluminum finish. The sides of the box bear the blue bell, the emblem of the telephone pay station.

The door can be unlocked by dropping 1 cent in the slot, and the coin can be recovered upon the opening of the door. Inside the box is a mechanical pay station telephone with the slots for dimes, nickels, etc., and on the inside of the door hangs a telephone directory.

The receiver is attached to the back by a short arm, and beside it hangs the transmitter. Connection with the central office is made in the usual way, and when central gets the person wanted and the money is deposited conversation may proceed.

The door of the box is on beveled hinges and shuts itself by gravitation after the telephone has been used.

It is apparent that such street stations will make telephoning so easy that there will be a general demand for their introduction. Of course, they cannot be put in without the consent of the local authorities, and they may be regarded as an obstruction in the street, although they will take up no more room than fire alarm or police telephone boxes.

It is suggested that the telephone call box may supplant both of these, and make them no longer necessary, as it is intended to permit the police to use the boxes free for messages to station houses and even permit the free use of them to anybody who wants to communicate with the police.

Electrical Pressures.

Until very recently it was not deemed safe to transmit power in the form of electricity at a greater pressure than 10,000 or 15,000 volts. Between Niagara and Buffalo a voltage of 11,000 is now employed, but this will be doubled before many weeks. The pressure on the Folsom-Sacramento line in California is 11,000 volts. A line in Colorado which operates machinery in mines near Canyon City transmits its current at 20,000 volts. The two most remarkable transmission plants in this country and probably in the world, in point of voltages, are those at Telluride, Colo., and the line from San Bernardino to Los Angeles, Cal. The former is short, but carries the current at 40,000 volts. This pressure was adopted as a regular thing after a series of tests in which a voltage of 50,000 was successfully sustained for thirty-seven consecutive days. The San Bernardino line, though, while worked at only 33,000 volts, is eighty-three miles long, and carries no less than 10,000 horse power. On the whole, electricians regard it the boldest achievement in electrical transmission yet recorded.

Within the next few months an even more notable success will probably be announced from California. A corporation which now controls several power houses and is supplying current to towns and mining districts in Yuba and Nevada counties, has nearly completed a line to Oakland and San Francisco that will be 140 miles in length. On some of its existing lines the company is transmitting at 16,000 and 24,000 volts. But the transformers will be capable of giving 40,000, 50,000 or 60,000 on the Oakland route. Operations will begin at 40,000 volts, and the higher pressure will be resorted to as soon as the losses which result from an increasing "load" exceed 10 per cent. The line is being constructed with a view to standing 60,000 volts regularly.

The chief requisite to the safe handling of high voltage is good insulation, just as mere strength is to a steam pipe carrying fivefold greater pressure than another. A few years ago electricians would have stood aghast at the idea of employing 60,000 volts in actual service. But it will probably not be long before they try to beat even this astonishing record.

These figures afford a basis of comparison for a new plant which is about to be opened in Minnesota. It supplies St. Paul with electricity from Apple river, twenty-seven miles away. The four dynamos utilized have a collective capacity of only 4,000 horse power, but the current, although generated at 800 volts, is transformed up to 25,000 volts for transmission purposes only. When it gets into St. Paul it is transformed down again. It will be observed that the pressure here employed is at present equaled or surpassed in very few instances in the world, and exceeds that to be tried at Niagara in the near future.

Artificial Illumination.

Dr. Louis Bell, in lecturing on electrical illumination before the New York Electrical society, said that the question of artificial illumination was one about which there was a great deal of popular misconception. More illumination fails from being too bright than from not being bright enough. One of the fundamental principles of illumination is that the source of lighting should be unobtrusive. This is the direction in which most artificial lighting errs. Instead of helping the vision it often hinders it, for the reason that a bright point of light in the field of vision causes the pupil to shut up and protect itself, reducing the amount of light, so that one cannot see with anything like the convenience which the degree of light would seem to indicate. When Hell Gate in the New York harbor and the entrance to the sound were lit by large lamps surmounting high towers there were constant complaints from the pilots of various boats that the lights bothered them. The authorities retorted: "That cannot be; we are giving you fine illumination." So they were, but they were giving it from radiants so bright that the eyesight of the pilots was dazzled and they could not see the surrounding objects. The highest artificial brilliancy in commercial use comes from the arc light, which may give anywhere from 20,000 to 50,000 candle-power per square inch in certain parts of its arc. Some estimates have run as high as 100,000 candle-power per square inch of radiant surface. The direction of illumination is of the greatest importance. It should come always from either above or from the side. Light reflected from snow is peculiarly severe, and often produces a species of inflammation resulting in snow blindness. This comes, not from its great brilliancy, for it is not even bright as the sunlight, but because it strikes upward from the snow, entering the eye from an unfamiliar direction, and probably concentrating its strength on the part of the retina least able to withstand that particular source of pounding by light rays. It has been found that blackening the lower eyelids with burned cork will arrest the development of snow blindness. In speaking of the Nernst lamp, Dr. Bell explained that the principle involved in its operation is that of the formation of an electric arc, heating to an enormous degree a thin pencil or slip of highly refractory material, which becomes conducting, and rising to an intense temperature, gives out a great deal of light. Dr. Bell expressed the belief that in six months or a year the Nernst lamp would become quite a common sight in this country.

Electrical Notes.

Montreal, which has enjoyed about the cheapest electric lighting rates in America, because of the keen competition between two rival companies operating water powers, is to have a $25,000,000 combination of all the lighting and power companies in the city, and its effect on the lighting rates is awaited with interest.

A Missouri editor has had erected, equipped and connected with his printing office an extensive system of telephone lines, going not only to nearby towns, but also to numerous farmhouses. His original object was solely to gain news more easily for his paper. The enterprise has developed until now he has an extensive rural telephone system.

Some 900,000 miles of electric wire were in use for telephony in the United States in 1899, with 1,000,000 telephone instruments and 400,000 stations. It is estimated that the capital employed in this industry in the United States approximates $100,000,000. The telephones of the whole world are estimated to number 1,500,000, with 1,750,000 miles of wire. The telephone service in this country thus approximately equals that of all other countries combined. In 1876 there were 200 instruments working in Europe and 280 in the United States.

According to the Electrical World W. S. Burnett and W. H. Goodhal of Milwaukee, Wis., are the inventors of a device which permits the calling of any subscriber on a party telephone line without disturbing the other subscribers on the same line. The apparatus is called the multiplex telesig. It is said to be possible by the use of the new device to maintain on one circuit telephone service, station signaling on railroads, police and fire signaling, messenger service, etc. A number of submarine mines may be placed in circuit and any of them exploded without affecting the others.

The electric searchlight that is to be installed on the electric tower of the Pan-American exposition at Buffalo, N. Y., says Electricity, is designed to attract much attention. The searchlight, which is a thirty-inch projector, will be the most wonderful light of its kind ever erected, and it will be operated on the 360-foot level of the electric tower. In order to more definitely locate this 360-foot level it may be further pointed out that it is the level at which the tower makes the last contraction, and this is only thirty-one feet below the extreme apex or highest point of the tower and statue of the Goddess of Light that will surmount it. The beam from this searchlight will flash through the sky with a brilliancy that will cause it to be seen for a distance of at least fifty miles.

Colorado Will Hang Murderers.

DENVER, May 1.—The bill restoring capital punishment by hanging for murder in Colorado becomes a law without the governor's signature, the time in which he could veto it having expired last night. Under the law, which becomes effective July 1 next, the jury will fix the penalty in murder cases.