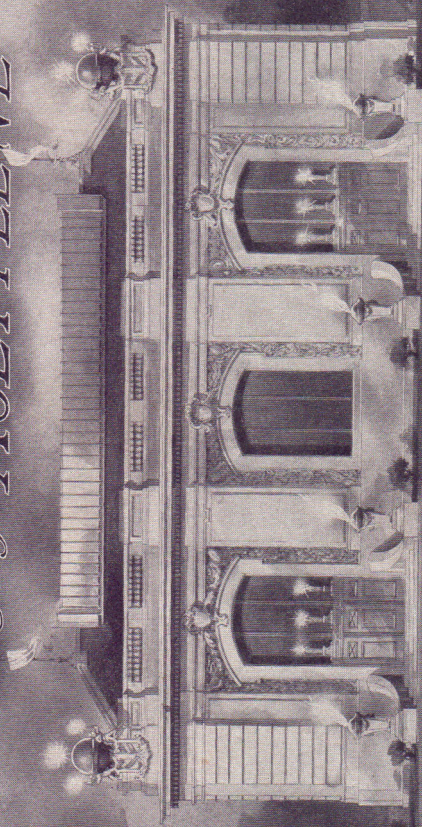


Story of ACETYLENE





*Story
of
Acetylene*



*the new
illuminating
gas.*

COMPLIMENTS OF
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THE STORY OF ACETYLENE

AS TOLD IN QUESTIONS AND
ANSWERS.

BY ELIAS A. LONG,
Editor of the Acetylene-gas Journal.



WHAT is acetylene?
Answer. Acetylene
is a new illuminating
gas, suited to univer-
sal lighting.

Q. How is it pro-
duced?

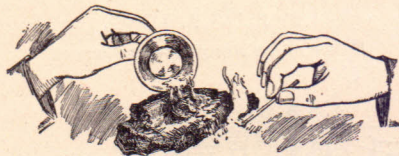
A. It is produced
by a process simple
almost beyond belief. This consists of
slacking a product called calcium car-
bide, closely related to building lime,
known also as "acetylene lime," in
water—nothing more.

Q. That indeed is simple; but how can
gas proceed from such slacking?

A. Remarkable to say, the instant
water—even a thimbleful—touches a
piece of the carbide, crude gas arises
ready for a match.

Q. Is it possible? How long has this means of light production been known?

A. Acetylene was first described as far back as 1836. In that year, Professor Edwin Davy introduced it to the attention of the Royal Society of Dublin, Ireland, but for many years it was treated hardly otherwise than a chemical curiosity, as it was very difficult to produce.



THE INSTANT WATER TOUCHES THE CARBIDE, CRUDE GAS ARISES READY FOR MATCH.

Q. When did it come to the front for common use?

A. This had its beginning in the year 1892, at which time carbide was first made by the application of electricity. This admitted of its production at low cost in commercial quantities; very soon the wonderful carbide was introduced to the world everywhere.

Q. Who discovered the low-cost, electro-manufacture of calcium carbide?

A. It was discovered almost simultaneously by an American, T. L. Willson, and a Frenchman, M. Moissan. The latter, however, acknowledges that Willson is entitled to the honor of priority in its discovery and manufacture.

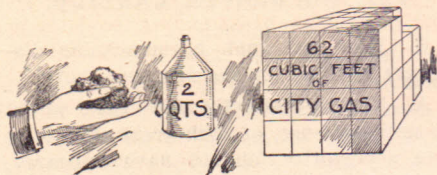
THE WONDERFUL CARBIDE.

Q. How was such a remarkable discovery received by the scientific world?

A. That a distinctly new light, suited to universal use, of such great simplicity and superiority, should have appeared, created a profound sensation everywhere. Professor Lewes of Greenwich, England, recognized as the world's most prominent gas expert, says: "I shall never forget the impression made upon my mind when, in the autumn of 1894, I first generated acetylene by the action of water upon calcium carbide. There was something almost 'uncanny' in the development of this wonderful gas from the simple contact of the carbide with water."

Q. What can you say of the specific nature of calcium carbide?

A. Here again mark the simplicity. Carbide is the product of two of the commonest materials the world affords, limestone and carbon, the latter as found in coke, coal, or even wood charcoal. These materials are finely ground and mixed, and then are melted together in the intense heat of the electric furnace. Carbide is a solid material and as ordinarily furnished looks like crushed stone. In weight, appearance, hardness, harmlessness, and, in fact, in everything except its marvelous affinity for water, it resembles granite. When water touches it, it slacks precisely like common lime.



A SINGLE POUND OF CARBIDE CONTAINS THE EQUIVALENT OF 60 ODD FEET OF COMMON CITY GAS.

Q. What is the lighting value of carbide, taking the pound as a basis?

A. The answer to that question brings to notice the amazing lighting power of this marvelous product. A single pound of carbide—you can hold it in your hand like a piece of coal—contains, to be released by water, five cubic feet of this rich gas, the equivalent of two quarts of the best kerosene, or of sixty-two cubic feet of common gas.

THE GENERATOR.

Q. Is the slacking of carbide with water the ordinary way of producing the gas?

A. As we need a stove in which to utilize fuel, so a generator is needed for utilizing carbide. This is a metal apparatus, which in most cases brings the carbide and water, each from its chamber, together automatically, and delivers the gas to a third chamber or holder, thence to the burner tips as used. The action of an acetylene generator might be com-

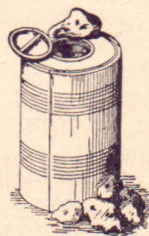
pared to a self-feeding coal stove, except that the labor of attending to it is a mere fraction of that necessary with a stove. An acetylene generator costs about the same as a stove, or less.

Q. Where can I purchase an acetylene generator and a supply of carbide?

A. Reliable manufacturers are ready to wait upon you in the matter of a generator, while carbide is carried in stock and can be delivered quickly from nearly every city in the United States. In small towns, hardware and general stores carry it, or can procure it for you. You can also buy it direct from the manufacturers.

Q. In what manner is carbide handled and delivered?

A. Carbide comes to the purchaser in metal cans having an opening at the top, which is closed against the admission of air or moisture by a screw cap that is easily turned off or on with the



CARBIDE AS SHIPPED AND HANDLED IN TIGHT CANS WITH SCREW CAP.

hand. The can is a convenient receptacle for the carbide until the last pound is used, there being no material depreciation in the carbide during any length of time.

Q. Are there any after products besides gas from carbide slacking?

A. There is slacked lime in considerable amount, and which is identical with common slacked lime. It can be used for mortar making, and has value as a land fertilizer.

Q. What is the chemical nature of the gas produced?

A. This is represented by the formula, C_2H_2 , which indicate its richness in carbon, the luminous element of all lighting gases.

ACETYLENE COMPARED WITH OTHER LIGHTS.

Q. Is there any similarity between acetylene and the widely used city gas?

A. Acetylene possesses the same merits of cleanliness and convenience as the other, but differs from it in being both purer and richer.

Q. How may we know that acetylene actually is richer than common gas?

A. This is seen in the fact that but one-thirteenth the volume of acetylene gas is needed, that is required for common gas, to make a given amount of light.

Q. That difference is astonishing if it can be proven. Can that be done?

A. In practical use, very well, and that by any gas-fitter. If you want a 24-candle light, and ask for an acetylene burner of that power, he will give you one having an aperture that will pass one-half a cubic foot of gas per hour; if for a 24-candle city gas burner, you will get a jet having an orifice to pass six and one-half cubic feet of gas per hour; that is thirteen times as much as the other for the same lighting power. You see, it is a matter of burner-tip measurement of the respective gases.

Q. Will you tell me how the superiority of acetylene as to quality is manifest?

A. When it is said that acetylene, so wonderful in many ways, is, as to quality, virtually pure daylight, a true description thereof is given. Such a characterization carries with it, of course, the fact of superiority over every other artificial illuminant in use.

Q. Is there any direct evidence on this point of high quality over other illuminants?

A. Yes, plenty of common, as well as scientific evidence, so to put it.

YOU READ NEWSPAPERS.

Q. What common evidence on that point can be offered?

A. Well, everybody reads newspapers. Now, you hold a paper under the glare



"WELL, EVERYBODY READS NEWSPAPERS."

of kerosene, or the incandescent electric bulb, or city gas, and the surface shows a yellowish hue; take it to daylight, and it will appear white. Take the same paper to acetylene light, and it will appear precisely as it does at a window by day. The paper will be a clear white, natural to the eye, and the print so plain as to impose the least possible task in reading. Many persons who require spectacles for reading by the yellow glare of kerosene, city gas, or electric globes, need none with acetylene. This newspaper test can be made by anyone wherever there is acetylene. It is most convincing.

Q. But the electric arc light possesses this quality of whiteness you mention in acetylene, does it not?

A. The arc light, in some measure, may approximate such whiteness, but this difference must be noted: It is not a

common house illuminant. Second, acetylene has a steady flame and light diffusion, while the arc light is very unsteady, causing an intense strain on eyesight. Besides, the arc light shows changeableness in color.

Q. But is not the Welsbach gas jet equal to acetylene in whiteness?

A. Far from it. The Welsbach casts a ghastly greenish-white hue that is positively sickening to some people, and very different from the soft, daylight white of acetylene.

COLORS AS SEEN BY ACETYLENE.

Q. What other common tests of the superiority of acetylene can you mention?

A. There is the equally convincing one of colors as seen by different lights. Under acetylene all colors and shades are distinguishable as by daylight. You can match the most delicate fabrics, paints, etc., by acetylene. Blue can be distinguished from black and green, as cannot be done by gas, kerosene and other artificial lights.

Q. And photography shows what?

A. Photographs can be taken by the acetylene light as in no other artificial light. Tests have shown that to fully expose a certain plate in direct sunlight took one second, in diffused daylight twelve seconds, in acetylene light (1 cubic foot) three seconds. Acetylene photo-

graphs are remarkable for their clear outlines and deep shadows. Acetylene makes possible the taking of photographs at any hour of the night.

Q. Can you mention any other points favorable to acetylene?

A. It is impossible to do this new light adequate justice by description. It must be seen to be fully appreciated. In brief, it may be said that it possesses the illuminating quality of daylight, the convenience of city gas, economy below the average of lights, and intrinsic safety beyond any other common illuminant. Every added step you may take in investigating this new discovery will show its superiority as an illuminant for the million.

ADAPTABILITY OF ACETYLENE.

Q. You have used the term city gas. Does that imply that a gas illuminant, including acetylene, is only suited to city lighting on a large scale?

A. Oh, no. It is an additional high recommendation that in acetylene we have a lighting gas with every advantage of common city gas, and which can be used as widely as kerosene. It can be used anywhere and everywhere, from lighting an acetylene lamp to lighting a large city.

Q. Cannot common city gas be used for all purposes?

A. No, it cannot. Its use is debarred

from many towns because of the great cost of building gas works.

Q. How do the two gases differ in this respect of costly works?

A. Most widely. The production of common gas involves so large an outlay that only towns of considerable size can afford to use the gas. Even there its cost demands a high price to the user, while frequently the product is so inferior as to gail the consumer. Acetylene, from its simplicity, can be made with economy on a scale as small as the lighting of a dwelling or a single room. Its use is brought down even to bicycle lamps by hundreds of thousands. The cost of a first-class acetylene generator, suited to light a house, is about as much as a common stove or furnace. In this way each home owner has the advantage of superior illumination by gas from his own independent gas plant.

AMERICAN INDEPENDENCE.

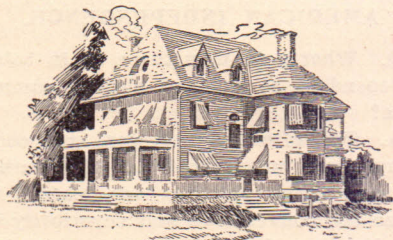
Q. What gain may there be in being independent of gas and electric companies?

A. Too often after a coal gas company has put down its distributing pipes, and its patrons have learned to prize the convenience and superiority of gas lighting, the company, realizing that it has a monopoly, becomes unreasonable in the matter of price, or unfair in providing an inferior grade of light at the

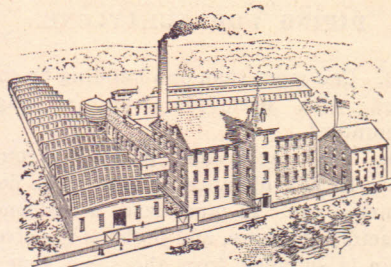
price of the best, and other things intolerable to American ideas of independence. From this the consumer has no adequate redress, save to go back to kerosene after having been at the expense of piping his building for gas. In the case of electric lighting the complaints are apt also to be against high price for inferior service. Here the added complaint is much heard that the current is turned off too early on dark mornings, and is not on soon enough in the afternoon. This fault is of special frequency in factories, offices, stores, etc., where the earning capacity of employees depends on a good light.

Q. That does sound grievous. And does acetylene offer any special remedy against such troubles?

A. It plainly does, as you can see. If gas or electricity have been installed for the reason that something better than



ONE OF THE TENS OF THOUSANDS OF RESIDENCES LIGHTED WITH INDEPENDENT ACETYLENE GENERATORS.



SILK MILLS AT MIDDLETOWN, CONN., LIGHTED WITH ACETYLENE. ONE OF HUNDREDS OF LARGE FACTORIES NOW USING ACETYLENE.

kerosene is wanted, even if it costs more, then in acetylene a far better light is had at a cost about as low or lower than kerosene. Acetylene is not only better at less cost, but it makes every owner of a home, store, office, factory, and the trustees of churches, schools, etc., forever free from the unpleasant feature of patronizing a local lighting company. Each one owns and manages his own inexpensive gas plant with true independence.

Q. If a building is piped for any gas, will the same piping answer for acetylene?

A. Perfectly so. All that need be done is to detach the house piping from the street flow, or from the gasoline machine, make the connection with the acetylene generator, then go ahead. The change involves a small cost for acetylene burners.

PIPING FOR ACETYLENE.

Q. Can more than one building be supplied with acetylene from a single generator?

A. Yes. Acetylene passes through pipes to any distance as readily as does common gas. In most cases a residence, a factory, or store, and perhaps the street lamp is supplied from the same generator. Frequently a church and the parsonage, with one or more street lamps, are supplied from one apparatus.

Q. In case acetylene is introduced for one's own lighting, where is the gas produced?

A. Usually the generator is placed in the cellar or in an outhouse that is warm enough to keep the water needed in generation from freezing. From there pipes lead to wherever the lights are desired.

Q. What is the expense of piping for acetylene?

A. This varies much according to locality. In general, the cost of the larger piping for common city gas is sufficiently low that houses of laboring people in cities are piped. For acetylene the cost is still less because of the smaller pipes required. From \$6.00 to \$20.00 will cover the cost in most cases. Since acetylene has come, no house, wherever located, should be erected without being furnished with gas pipes.

Q. Is acetylene used on a smaller scale

than for regular house lighting generators?

A. Oh, yes; generators are coming in at a small price, suited to furnishing as low as one or two jets for the reading table, piano lamps, or for dental, surgical, stereopticon and microscopical uses, street lights, pier lights, etc. Acetylene bicycle lamps are in extensive use, and some table lamps have been introduced.

Q. Could not a number of stores or buildings be lighted from the same generator?

A. Yes, and it is frequently done. Whole towns and villages, in many cases, are lighted from one central generator, the gas being distributed by pipes like ordinary city gas.

POSITIVE SAFETY, INSURANCE.

Q. An important question I desire to ask is this: Is acetylene safe for ordinary use?

A. That is important, and in answer it is a pleasure to say that when nature gave up the secret of this last great light, it was not as a thing to be received with alarm. As acetylene excels in many other points, so it also positively excels in safety.

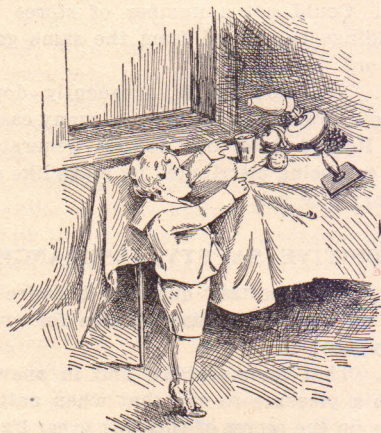
Q. Can you here give in brief some assurance on this point?

A. Yes; almost in one word, namely: the position of the great fire insurance underwriting boards in America. You

must know that these boards are expert in sizing up the hazard of any new combustible, and their decisions, based on a stern dollar-and-cents view of fire losses, will be accepted as most weighty.

Q. Do you mean that the fire insurance companies approve of acetylene?

A. Yes, precisely that. As a new and unknown illuminant, their attitude at



OBVIOUSLY SAFER THAN KEROSENE.

first was properly guarded. But the value of their decision is found in the fact that their own investigations, coupled with the extensive and safe use of the gas by the people, convinced them of its safety, and for a long time they have gladly permitted both its generation and

use in buildings without any change in cost of insurance.

Q. How, in a word, may its superior safety, as compared with city gas, be described?

A. In the first place, you use such a small quantity of acetylene to get a great deal of light. As previously stated, it requires thirteen times as much city gas to make a given amount of light as it requires of acetylene. In the second place, the odor of unconsumed acetylene immediately leads to its detection in case of leak. And thirdly, if a burner should accidentally be left open the quantity of acetylene which would escape, being so very small, would not be enough to cause either explosion or asphyxiation within twenty-four hours even in a small room.

Q. What, in brief, makes acetylene safer than kerosene?

A. It is a stationary pipe-delivered light, where kerosene lamps are veritable torches, handled about by persons of all ages, even children. The flame of acetylene is far from the main source of supply—the generator—being conducted therefrom by gas piping, while with kerosene the fire is within a few inches from a quart or thereabouts of a highly inflammable oil.

Q. How does acetylene compare with gasoline for safety?

A. To say that gasoline lamps are even more dangerous than kerosene covers this

ground. The reason of its great danger is that gasoline gives off at low temperatures a very explosive vapor, and the fluid itself will burn at a much lower temperature than kerosene. Hundreds of persons are injured, many fatally, every year by gasoline explosions. The State of Iowa takes the lead in prohibiting by severe penalties both the sale and use of the dangerous stuff, a warning to the prudent everywhere.

THE DANGER REPORTS.

Q. But some reports have been spread stating that acetylene is unsafe, have there not?

A. That is correct, but such were to have been expected.

Q. Why were such to have been expected?

A. Because rival lighting interests would see pecuniary gain if this new illuminant was retarded, and there has been no hesitation in encouraging the circulation of reports, however unfair, against this winning competitor.

Q. Where do some of my friends get the impression that acetylene is dangerous?

A. Almost immediately after this wonderful gas was discovered, endless experiments were made with it, in and out of the laboratories. Unfortunately, some tried to liquefy it by compressing it under very great pressure—600 pounds

and upwards to the square inch—and while so experimenting with liquid acetylene, accidents occurred which might happen with air or steam at these high pressures, and these accidents were advertised at a time when the whole subject of acetylene was new and largely talked of in the newspapers. These accidents, notice, occurred under the enormous pressure of 600 to several thousand pounds to the square inch. To-day acetylene is generated and distributed through house pipes at the same pressures that ordinary city gas is distributed, namely: two ounces to the square inch; and when we say acetylene is not dangerous we refer to gaseous acetylene and the manner it is handled and used to-day.

Q. But is it not possible to have accidents with acetylene?

A. Certainly, it is possible. Few things are on the exempt list as a cause of accidents. Many a child has been accidentally drowned in a tub of water. Thousands of lives are destroyed yearly by scalds and fires. Kerosene lamps cause innumerable accidents and deaths. The same is true of kicking horses, farm machines, and a thousand common things.

Q. Then just where does acetylene stand comparatively as to danger?

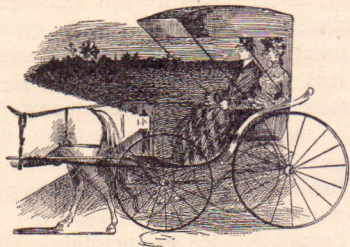
A. Simply as the safest of common illuminants, kerosene not excepted.

Q. Can you mention any single element of danger in acetylene?

A. The one thing of taking a light to the generator when opening it, would be about like throwing a lighted match into a waste paper basket.

Q. Is there any need of doing the former thing?

A. No. Such source of danger is entirely avoided by simply charging the generator by daylight, as every maker directs.



NIGHT RIDE WITH THE LIGHT OF AN ACETYLENE DASH LAMP.

Q. Are all generators on the market good ones?

A. No. Only such as the insurance underwriters have approved should be made use of. The extreme simplicity of the principle of bringing carbide and water together to make acetylene has caused thousands of men with some mechanical ideas, but little knowledge of gas, to design generators, and many such have been sold without affording satis-

faction to the users, since the qualities and nature of the gas, and its raw material, have not been understood sufficiently by these inventors.

THE MATTER OF CONVENIENCE.

Q. How does acetylene compare with kerosene, for instance, in the labor required to attend it?

A. The labor is very much less, because it is a pipe-delivered gas, where kerosene is burned from movable lamps.

Q. What would you mention as the advantage of a piped gas?

A. First, safety as aforementioned; then cleanliness, and lastly convenience.

Q. How is the cleanliness apparent as compared with oil?

A. In the fact that you get entirely rid of the grease and odor of kerosene, together with mussy lamps, chimneys, oil cans, wicks and greasy wiping towels. Your gas is on tap ready for the match in any room where wanted. Acetylene greatly reduces the labor of housekeeping.

Q. Do not the burners or other parts of acetylene lighting need attention?

A. Where kerosene lamps must be cleaned and filled daily, acetylene requires nothing of the sort, save as occasionally the tip openings should be examined to remove any encrustation of carbon, as in the care of common gas tips, which takes but a moment of time.

Q. The generator needs some attention, does it not?

A. Yes; but that is located in a room by itself, and the attention is slight, being coarse work, like tending a coal heater, and quickly done. This once performed answers for all the tips of the building or system.

ACETYLENE IMPARTS BEAUTY.

Q. Does acetylene add to the beauty of the home?

A. Very much, indeed. In the first place, suitable gas fixtures are everywhere recognized as assisting greatly in furnishing a room. Then the quality of the light and its effect on wall decorations, pictures, plants, carpets, etc., not to say the attire and complexions of persons, is wonderful for good appearances.

Q. Is there any evidence to indicate the general superiority of gas lighting over kerosene besides that you have stated?

A. Yes. Ample proof is found in the enormous use of city gas, even where kerosene is available at lower cost.

SUPPLY AND LIGHTING POWER OF CARBIDE.

Q. Is it not true that kerosene and natural gas are becoming scarcer and higher priced year by year?

A. That is true, and the reason is

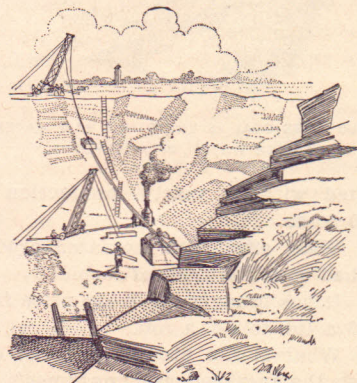
plain. The wells from which these natural products are obtained are steadily giving out, and the territory thereof is growing more and more limited. The falling off in recent years has been amazing, and the prices steadily advancing.

Q. May not acetylene be similarly affected in time?

A. One thing in favor of acetylene is that its raw materials are absolutely unlimited. It is impossible ever to corner them. So long as limestone abounds nearly everywhere, and the earth contains coal beneath and wood above its surface, the materials for carbide, or "acetylene lime," will be at hand.

Q. Is carbide now an article of general manufacture?

A. New as is this light, there is hardly

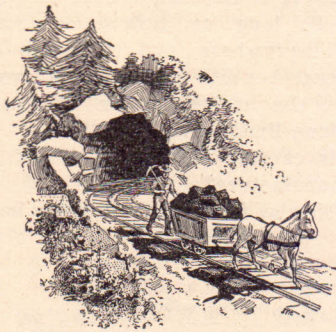


EXHAUSTLESS QUARRIES FURNISH LIMESTONE ONE OF THE RAW MATERIALS OF ACETYLENE.

a civilized nation in which carbide is not extensively manufactured at one point or another.

Q. How great is the present output of carbide?

A. According to an article in the November, 1899, issue of the Acetylene Gas Journal (Chicago, Ill.), the present total annual production of carbide in the world reaches 282,300 tons, divided among nine countries. The United States is



**EXHAUSTLESS COAL IS THE OTHER RAW MATERIAL,
BESIDES WATER, OF ACETYLENE.**

credited with a yearly production of 60,000 tons.

Q. What effect has increased production had upon the price of carbide?

A. It has brought down the price from \$2,000 a ton to \$75 a ton.

Q. What is the present price of carbide to the average small consumer?

A. It is sold as low as \$3.75 per 100 pounds at the extensive carbide works

located at Niagara Falls, N. Y. It is kept in stock in many places throughout the country at a price which represents freight charges added to the above figure. In California, where the prices are highest, it costs but five cents a pound in 100-pound lots.

COST OF ACETYLENE: COMPARISONS.

Q. What is the cost of lighting with acetylene as compared with other artificial lighting?

A. At the present price of carbide acetylene costs about the same for a given amount of light as ordinary city gas at \$1.00 or \$1.20 per thousand cubic feet, and is the equivalent to incandescent electric light at one-third cent per hour 16-candle power (much less than the cost of electric light anywhere). Acetylene is about as expensive as kerosene with the best lamps.

Q. But there is the cost of a generator in acetylene lighting, is there not?

A. Yes; but divided over a lifetime the cost is small per year. You must remember also that the large expense of lamps, chimneys, wicks, etc., used with kerosene is wholly done away with.

Q. What have you to say of the gasoline gas lamps offered in some places?

A. To state, on the admission of dealers themselves, that the light is inferior even to city gas; that the flame in its very nature is most variable in power;

that mantles are required, many of which break on the first lighting, because so fragile they can be shaken to pieces; and that gasoline, everywhere known as dangerous, is suspended in a receptacle overhead in the living or other room where this gas is used, would seem to be serious enough objection to the use of such.

PROGRESS OF ACETYLENE.

Q. What has the progress of this new gas, as regards use, been like to date?

A. The progress of acetylene is one of the wonders of the age. It is less than six years since Professor Lewes made his first practical acquaintance with carbide; to-day its use extends over the civilized world.

Q. To what use is it chiefly put?

A. Its most extensive employment, on the basis of carbide consumption, has been in lighting dwellings, factories, churches, hotels and all manner of buildings.

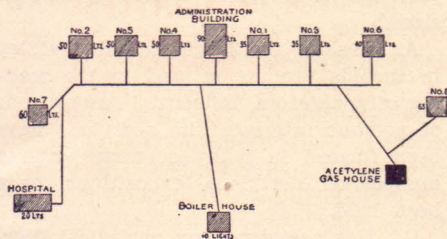
Q. Can you state to what extent such lighting prevails?

A. It is estimated that to-day not less than 30,000 buildings, having 300,000 gas tips, are lighted by acetylene in America, and the number is increasing rapidly. Hundreds of manufacturers and dealers in all parts of the country are now introducing generators. Its use in many foreign lands is proportionately great.

Q. What has been the demand for buildings larger than those named?

A. Many buildings, such as factories,

universities, hospitals, asylums, homes, etc., using upwards of 50 lights, employ acetylene with marked satisfaction. One large factory in Buffalo, N. Y., has used 350 acetylene jets for several years. The Ohio State Industrial Home, Rathbone, Ohio, recently illustrated in the Acetylene Gas Journal, uses about 600 acety-



ELVEN LARGE BUILDINGS OF THE OHIO STATE GIRLS' INDUSTRIAL HOME LIGHTED WITH 600 ACETYLENE JETS FROM ONE GENERATOR.

lene burners in its large buildings. The Nebraska Wesleyan University is acetylene-lighted with great success. Many similar cases could be cited.

Q. Is acetylene put to any large use besides lighting buildings?

A. Next to buildings its use is perhaps most extensive in bicycle lamps, of which is estimated 400,000 are employed in America.

Q. Has the new gas come into use in any other ways besides those named?

A. Yes, in more ways than can be mentioned. It is used by railroads, both for station and car lighting; headlights

on locomotives and on trolleys; for street lights, pier lights, boat lights, water lighting, etc.; for dental, surgical, microscopical use and photography, and widely in the mechanical and fine arts.

ASSOCIATIONS, LITERATURE, ETC.

Q. As a new industry, how is the importance of acetylene otherwise emphasized?

A. Besides the large capital invested in carbide production, and in the making of generators, influential associations of persons interested in acetylene have been formed in many countries, and a number of acetylene expositions have been held.

Q. Has acetylene any periodical literature?

A. There is an American paper devoted to the subject, *The Acetylene Gas Journal*, Chicago, Ill., 50c a year; and one similar periodical in England, one in France, and several in Germany.

Q. Is there any other acetylene literature?

A. Besides some instructive advertising pamphlets issued by generator makers, a number of standard books and also educational pamphlets have appeared on the subject of acetylene. Recently the State Agricultural College of Pennsylvania published an excellent unbiased work written by Prof. George Gilbert Pond, Ph. D., on acetylene, for gratuitous distribution.

CONCLUSION.

Q. If asked to sum up in a word the distinctive merits that have won for this new gas prominence in a brief time, what would be your answer?

A. Sunlike quality; ease and economy of production; safety; wide adaptability; unlimited supply.

Q. And how, in a word, would you sum up the chief disadvantages of older light rivals?

A. City gas inferior, and requiring heavy initial investments for works. Natural gas growing scarce and costly. Kerosene decreasing in production, increasing in price, while the quality of the light, greasiness and odor of the oil do not improve. Electricity expensive and dangerous. Gasoline gas—dirty, smoky, unsteady, troublesome and dangerous.

Q. And who, additionally, may be expected at an early date to be included in the great family of acetylene admirers and users?

A. Millions, when once they have been educated to the intrinsic worth of this, Nature's last great gift to the world.

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