LIGNITES.

Preliminary Report of State Geologist E. T. Dumble

ON THEIR UTILIZATION.

A Comparison of the Principal Deposits of Germany and Austria with Those of Texas—How Our Brown Coal Can Be Used.

Hon. John E. Hollingsworth, Commissioner of Agriculture, Insurance, Statistics and History:

Sir—In accordance with your instructions under an act of the legislature directing an investigation into the methods of lignite industry in Europe, I visited the principal deposits of browncoals in Germany and Austria, compared the different varieties with those of Texas, and examined the various methods of utilizing them.

With the limited time which I could give to the investigation prevented my visiting the lignite districts of France and Italy, the results of the inquiry in the factory, full and conclusive, that the resources of these localities was not absolutely necessary, although it would doubtless be instructive in many ways.

During my entire trip I met with the most courteous and with the most ready assistance from the geologists and mining officers, both public and private; and it was only through the opportunities thus afforded that I was enabled, in the time at my disposal, to cover so much ground and gather the necessary information.

The following report, which must be regarded as merely preliminary, I have prepared the results of my investigation. As soon as I can prepare it, a full report will be made which will contain all details, references and descriptions which should be included here.

EUROPEAN BROWNCOAL.

The browncoal of Europe may be divided into four general classes, viz.: 1. Lignite. 2. Common browncoal. 3. Pech coal. 4. Glance coal—all of which have representatives in Texas.

LIGNITE.

In Germany and Austria this term is only used to designate such fossil fuel as fully retains its woody character and which it is usually found accompanying other varieties of browncoal, being composed of those fragments of the original woody material from which the beds of peat have escaped maceration and decomposition. In some places, however, the conditions were favorable to its preservation and forms the main body of the deposit. Sometimes it occurs surrounded by earthy browncoal and often has partings of earthy browncoal or yet inclosed with it following the rings of growth. Much of it as it comes from the mine retains its fibrous character so completely as to be frequently distinguishable from the ordinary wood of the present time, except that it is somewhat darker in color.

COMMON BROWNCOAL.

This name covers a number of varieties, varying in color from yellow to brownish black, and from those having a specific gravity less than water to those of 1.2 and 1.3. Their common qualities are their large percentage of water and their earthy, friable nature. The two most important of these varieties are "Schweelkohl" and earthy browncoal.

Schweelkohl.—This variety, in its purest form, resembles a yellow clay much more closely than it does coal. Its composition and character, as revealed by chemical analysis and the microscope, vary somewhat from the other browncoals, and it is the variety which has the least specific gravity. It is the richest in tarry matter, and is therefore especially desirable for the manufacture of paraffine and oils. It occurs most frequently with earthy browncoal and often in alternating layers with that variety.

Earthy browncoal.—This variety of browncoal is, as its name indicates, of an earthy character, brown to brownish black in color, in its ordinary condition containing as much as 45 or even 50 per cent of moisture. While it somewhat resembles the Pech browncoal, especially in the fatty streaks which occur in it, the German is much more friable than ours and also much inferior in heating value in the raw state on account of the great percentage of water it contains. This is the character of browncoal that is found most largely developed in the district around Halle, A. S., and in the Rhine provinces. Much of it lies very near the surface, in beds varying from a few inches to sixty feet in thickness, and is most often mixed with Schweelkohl in greater or less extent. From this variety of browncoal is manufactured the "raw-paraffin" and browncoal briquettes without bond.

PECH COAL.

A darker and firmer variety of browncoal which contains a smaller amount of water and which often closely resembles jet both in color and fracture, is called Pechkohl. The coal of the Bohemian basins is largely a mixture of common browncoal of somewhat drier nature than the Germany and Pech coal, together with some lignite, and is the equivalent of the latter part of our Texas deposits.

GLANCE COAL.

This is the finest variety of lignitic or browncoal, in certain instances passing into jet. It occurs principally in Styria with other varieties of browncoal, although smaller quantities occur in many localities.

These varieties are again subdivided into minor divisions, and they pass by insensible gradations one into the other, frequently in one and the same bed.

STATISTICS.

The following statistics, taken from the government reports of the empires of Germany and Austria, show to what extent these browncoals were used during the year 1890:

	Tons mined.	Value at mine.
Germany	15,498,434	$ 9,967,812 00
Austria	15,224,056	12,482,603 00
Total	30,672,490	$22,450,415 00
Saxe Duchies	661,560	381,139 00
Austria	14,072,582	9,031,258 00
Hungary	2,270,023	2,949,327 00
Bohemia	12,190,932	8,940,780 00

This amount, over three hundred thousand tons, is nearly 30 per cent of the entire coal (stonecoal and browncoal) production of these empires, which was (for 1890) 102,350 tons. Of the total amount of browncoal mined, the district around Halle, Germany, and Bohemia and Styria, in Austria, produced 80 per cent.

The amount of browncoal used in the manufacture of briquettes, coal bricks, tar, paraffine, etc., during the year was a little less than seven million tons, and the remainder, over twenty-three million tons—was used "raw," or just as it came from the mine, without preparation of any kind.

USES OF EUROPEAN BROWNCOAL.

As has already been stated in our circular and in the various reports of this survey, the uses of browncoal are as varied, extensive and important as those of stonecoal. The results of my personal investigations not only fully confirm the statements made heretofore by myself and other members of the survey in regard to the availability of the Texas browncoal for fuel purposes, but add greatly to them.

LIGNITE.

When lignite is found in sufficient quantity it is charred in meilers, kilns or retorts in the same manner as ordinary wood, and yields a charcoal of similar quality and equally suitable for all fuel purposes. This is done in lower Styria, where it occurs in large quantities as a part of a browncoal deposit having a total thickness of over three hundred feet, it is charred in ovens arranged for the recovery of the by-products as well as the charcoal. The charcoal made here is used in iron smelting.

Where the lignite occurs in smaller quantities, as in the province of Saxony and on the Rhine, it is used with the browncoals under steam boilers and for various other fuel purposes.

COMMON BROWNCOAL.

The Schweelkohl, as has already been stated, contains large amounts of tarry matter, and for this reason is especially desired by the schweeleries or factories which manufacture from it the tar and its derivatives, paraffine and oils of various grades. These oils vary in quality from one especially adapted for the manufacture of gas for lighting purposes, through heavy and light oils to a solar oil about equivalent to our best refined petroleum. While the introduction of American and Russian petroleum into Germany has in some measure checked the working of the Scheeleries for oil purposes, the demand for paraffine is so great as to keep the factories still at full work. This industry, as shown by the statistics given, is one of great importance to these districts of Germany, amounting as it does to over $4,000,000 annually, and giving employment to several thousand men.

The records of the German Browncoal association show that in the year 1890 the amount of browncoal used by the companies belonging to the association for the manufacture of tar and paraffine was over twenty million hectolietrs, and the value of the product 17,120,000 marks ($4,280,000). The coke made from the Schweelcoal by this process is called "grude coke," and experience has proved it to be such an excellent fuel for household purposes that the demand is in excess of the supply. It is used in stoves of special construction for cooking and heating. It is of too fine a grain and not compact enough to be of any use in smelting iron.

The earthy browncoal is used "raw," or as it is mined, for household, manufacturing or steam purposes, and is also manufactured into nass-press-stein and briquettes.

Nass-press-stein, or coal bricks, are made by mixing the browncoal with water until it is of a putty-like consistency, compressing by machinery similar to that used in making pressed brick, and then drying these brick in the air. While the amount of this fuel is small in comparison with that of briquettes made by the dry method, it is nevertheless a useful and serviceable fuel for household purposes.

Dry briquettes, made from this variety of browncoal, are in great demand, and the output is increasing yearly. The process of manufacture consists of drying the browncoal by one of the several methods until the water contained in it is reduced to a certain percentage and then compressing it under a pressure equal to that of 1500 to 2000 atmospheres. The resulting briquette is of a lozenge or elliptical shape, some six inches in length and about one inch in thickness, very firm and durable. The compression is so perfect that the briquette will not absorb water even if it be laid in it for some time. The earthy browncoal is preferred for briquette making on account of the ease with which it is pulverized.

In a raw state browncoal is also used for burning bricks, stoneware and drain tile, for which purposes it is preferred to any other fuel. Brick clays and fire clays are often found in close proximity to the browncoal, and the manufacture of bricks, fire brick and tiles, at an extremely low price, is thus rendered practicable, and a great number of mines have brick yards in connection with them, by means of which they are enabled to make use of all their coal, even what would otherwise be refuse.

At one of the larger brick works on the Rhine the experience of several years trial proved that a firing with a mixture of browncoal briquettes and raw browncoal gave better results in actual work than stonecoal alone stonecoal with briquettes, or stonecoal and raw browncoal, and at the time of my visit works were just being completed for briquetting their browncoal for use in this manner.

In using this earthy browncoal for such firing purposes, or under steam boilers and elsewhere, due attention is given to the arrangement of the fire-boxes and grates to suit the fuel. If a flat grate is used the grate-bars are made very narrow and with small intervals between each. The favorite grate, however, is called the "treppen rost," and is a grate arranged in a series of steps by which the air gets proper access to the browncoal without need of a blast sufficient to carry away the smaller particles unburned.

For household purposes stoves of suitable construction for cooking and heating, using raw browncoal or briquettes as fuel, are for sale everywhere in Germany. The briquettes are preferred for fuel on account of their cleanliness and freedom from smoke in burning.

The comparative extent of the use of the various fuels in the ordinary way may be seen from the statistics of the fuel supply of the city of Berlin for the year 1890, taken from the annual report of the Kohlenzeitung:

Stone coal, coke, etc	1,755,383 tons
Bohemian browncoal	242,027 tons
German browncoal briquettes	577,674 tons
German browncoal	21,534 tons
Total browncoal	841,235 tons

Or about 31 per cent of the entire fuel supply.

A great many tests have been made to determine the ratio of fuel value of the German browncoal and stone coal. The results give the ratio between the Westphalian coal and earthy browncoal and briquettes about the following relation in amounts required to produce the same amount of steam:

Westphalian Coal.	German Browncoal.	Briquettes.
1.	2 to 2½.	1¼ to 1½.

The Bohemian browncoal contains less moisture than the common browncoal of Germany, and is therefore a better fuel in its raw state. Throughout Bohemia it is put to every use—domestic, manufacturing or metallurgical—for which stone coal is used, except the smelting of iron ores and production of pig iron. The locomotives, which have very heavy work over the mountain railways, use it exclusively. Brick works, chemical works, glass factories, firebrick and tile works, potteries, cement factories and limekilns are all run successfully and economically with this browncoal as their only fuel. It is used as fuel exclusively by the largest iron and steel works of the country for the processes of converting pig iron into wrought iron and steel and for rolling this into rails, bars, wire, sheet iron and all similar products.

The use of this fuel in this manner was made possible by a close technical study of its character and a practical application of the results to manufacturing purposes. The construction of the fire-boxes and grates is such that the necessary conditions to its best utilization are fulfilled, and when high heats are wanted for smelting iron or heating ingots, as in the manufacture of wrought iron and steel and in rolling-mill work generally, gas firing is resorted to.

This kind of firing, which is the one most generally in use with the browncoal for all purposes where the higher temperatures are required, has several different methods of application, varying with the purpose for which the heat is required, but all having the same general principle at the foundation.

The browncoal is first converted into gas by burning in a producer of some description, usually a rectangular firebox with treppen-rost grate, fed from above. The gases produced in burning are carried off by proper conduits, the tarry matters separated, in part at least, by passing through a hydraulic main, and the remaining fixed gases pass either directly to the furnace or more often through a Seimens regenerative furnace to the place where they are burned. Here they are mixed with heated air and the heat produced by the combustion is ample for any and all purposes for which it may be required. The Bohemian browncoal has also been successfully briquetted after the German or dry method, already mentioned, and a factory has been in operation for several years at Koenigsberg, near Carlsbad.

This coal has also been cooked by several methods, but up to the present time the coke has not been brought into use as fuel. In some places this was prevented by the character of the coke itself, which was unsuited for blast furnace purposes. In other cases, when the coke was suitable for such use, the cost of producing it was so great that it could not successfully compete with the cheap Silesian coke from stonecoal.

In Styria there is found a still drier browncoal which in places very closely resembles jet. It is probably the equivalent of our Laredo coal, except that it contains very much less ash. This browncoal is of excellent quality, and has also been coked by methods similar to those used with the Bohemian, but the coke is not in use at present for the same reasons given above. It has, however, been found not only practical but economical to use thirty per cent and upward of this raw coal in connection with coke from stonecoal in the blast furnace for smelting iron ore and there are iron furnaces which have been in operation for years using this character of fuel.

This browncoal, mixed with a lignitic coal, is used in the same vicinity for rolling mills, steel and wrought iron production, etc. The browncoal of Bohemia and Styria is also used in the manufacture of gas for lighting purposes. It is distilled in retorts of the usual form and the operation differs in nowise from that with ordinary bituminous coal, except that the heated air from the furnace is used to evaporate the surplus moisture from the raw browncoal before it is put in the retort. The gas coke made from the browncoal in Bohemia is sold for use in the zinc works.

In Styria a browncoal similar to that of Texas is briquetted with a bond of stonecoal pitch. Only the smalls are used, because there is usually a demand for all the lump coal that can be mined throughout this whole region, and the briquette industry is therefore not needed. The briquettes are, notwithstanding, sold at a price fully equal to that of stonecoal. The system used is the Coufinhal, and the briquettes are like those now in the museum of the survey, which were made during my earlier experiments.

From these facts it will be seen that the browncoals of Germany and Austria are not only adapted for use as fuel for all purposes, but that they are so used, and used successfully. Moreover, the statistics show conclusively that the browncoal industry of Germany and Austria is one of very great magnitude, and it will be shown by a comparison of the statistics for twenty or thirty years past that the increase in the production of browncoal has kept fully abreast of that of stonecoal.

COMPARISON OF EUROPEAN AND TEXAS LIGNITES.

As stated in the beginning of this report, I have compared our Texas lignites with those of Germany and Austria, and I find that we have representatives of the various classes mentioned. I have personally examined the various classes of browncoal as they occur in the deposits, as they come from the mine, and as they are used in the various applications, and I have compared them with our Texas lignites, both in their physical character and chemical composition, with the result as stated.

I have submitted average specimens of our Texas browncoals to the highest authorities on this subject in Germany and Austria, and they, without exception, confirm my statement and unite in pronouncing the Texas browncoals of excellent quality, fully equal to the Bohemian and equally suitable for use for all domestic, industrial and metallurgical purposes. I have therefore the pleasure of reiterating the statement made several times already, and each time supported by stronger evidence, that Texas has in the immense deposits of browncoal a cheap fuel which can be used for every purpose for which fuel is needed.

It should, however, be plainly understood, in the beginning, that the browncoals of Texas will be found to differ very widely in quality, and it will require analyses of each deposit to tell with certainty for what purpose it is best adapted. Deposits will be found containing too large a percentage of ash, and some, perhaps, too large a percentage of sulphur, to be of value as fuel, although other uses may be found for them. Those that are suited for briquetting without bond may not serve equally well for other purposes, and some of the varieties of browncoal will not form a briquette at all by the dry method.

It is impossible, with detached basins of browncoal, formed under somewhat diverse conditions and stretching across an area 700 miles in length, that all should be equally good. That there is an abundance of the material that is of a most excellent quality is shown by the examinations and analyses already made by the survey of deposits and specimens from all portions of the lignite belt, and yet other of these analyses also prove the existence of deposits which are comparatively worthless.

Therefore, in any undertaking having browncoal as its basis of supply, either as fuel or raw material for manufacturing purposes, an accurate knowledge of the material should be obtained before operations are begun.

UTILIZATION OF TEXAS BROWNCOAL.

The fact of the great fuel value of the browncoal having been thus fully decided, I have endeavored to secure all possible information, and when practicable the detailed drawings or plans of the various kinds of ovens, fire-boxes, grates and appliances for using browncoal. Some of these are the subjects of patents, and can therefore only be used under royalty or purchase; others, and some of these the most important, are not patented and are free to all.

Through the kindness of the owners of the iron works and rolling mills in Bohemia and Styria, I have secured plans in detail of the fire-boxes, gas producers, and arrangements by means of which they use the raw browncoal for the purposes stated. I have also the plan of the blast furnaces which are now in operation, using a mixed fuel of coke and raw browncoal.

From the manufacturers of locomotives I will have detailed plans of the fire-boxes used on such locomotives as are intended for browncoal. All of these plans and methods are applicable for the use of our Texas browncoal for similar purposes.

The machinery for the production of briquettes by the dry method is manufactured in Germany, the most of it under patents. General descriptions and estimates of the cost of erection are in the office.

Presses and machinery for the production of briquettes, using pitch as a bond, are manufactured in Germany, France and England. I have plans and estimates of the different styles and sizes of these, showing approximate cost of erection and operation.

Plants for the production of tar, paraffine, oils, etc., from the browncoals are of a much more complex nature. General plans and estimates are now in the office, and details will be furnished me as soon as they can be prepared.

Some of the principal uses of our browncoal will undoubtedly be in the manufacture of brick, firebrick, drain tile, paving tile, stoneware, pottery, glassware, cement and lime. Plans for the construction of ovens especially designed for these purposes and in successful use in Germany with browncoal firing are also being prepared.

All of these are at the service of those interested in the subject.

It can be stated now from experiments and analyses already made, both by private individuals and by the survey, that we know that we have in the Texas browncoals certain varieties that are rich in tarry matter which will serve as a source of paraffine, and that some varieties can be briquetted with pitch as a bond and others by the dry method.

Special examinations and tests of our Texas browncoal by the largest browncoal manufacturing establishment in Europe, by the various methods of briquette manufacture in Germany and France, and by other specialists, are now in progress, and as soon as their final reports are received the results will be published, together with the details of the various plants, estimates of the cost of erection, operation, etc.

Austin, Tex., Nov. 18, 1891.

Order for Thanksgiving dinner of Turner & Dingee next Wednesday.

To Stockmen.

The Daily GAZETTE can always be found at sale at B. Glicks, [illegible] No. 503 Main street, near the opera house, near St. James hotel, Kansas City, Mo.

The most complete line of fresh fruits, dried fruits, etc., ever put to the market is found at Turner & Dingee's.

None but the best of Belle of Nelson whiskey served over the Mansion bar.

Have you tried those [illegible] potatoes at Turner & Dingee's? They are out of sight.

CLASSIFIED COLUMN.

SPECIAL NOTICES.

Parties answering advertisements below must address the advertiser and not THE GAZETTE, as this paper has nothing to do with the advertisement further than to print it.

THE GAZETTE cannot undertake to forward replies unless prepaid and addressed envelopes accompany advertisements.

No "personal" notices printed unless accompanied by the name of advertiser.

Advertisers should remember that letters directed to initials only, are not delivered through the postoffice. If initials are used they should be directed to the care of some person, firm or postoffice box. Advertisements can be left at our office, or sent through the mail to THE GAZETTE, Fort Worth, Tex.

In answering advertisements, mention this paper.

ARE YOU IN NEED?

IF YOU
Want money,
Want a cook,
Want boarders,
Want a partner,
Want a situation,
Want to rent rooms,
Want a servant girl,
Want to sell a house,
Want to sell plants or grain,
Want to exchange anything,
Want to sell groceries, drugs,
Want to sell household goods,
Want to make any farm loans,
Want to sell or trade for anything,
Want to find customers for anything,
Want to sell or buy horses, mules or cattle,

USE THIS COLUMN.

GAZETTE'S LETTER LIST.

List of letters remaining uncalled for in the counting room on Satuday, November 21, 1891. Persons calling for them will please say advertised.

A., 3.	N. E. H., 2.	[illegible]
D. M. O., 1.	O. [illegible]	
H. C., 3.	[illegible]	
J. B. L., 4.	R. E. X., 1.	
K. J., 1.	W. R. 1.	
	No. 295.	

Watch this letter list, which is changed daily, for answers to your advertisements, and call for them in person, or send THE GAZETTE ADDRESSED STAMPED envelope so they can be forwarded to you. This rule applies to only such letters as are addressed care of THE GAZETTE. Remember, we do not hold answers longer than seven days after date of receipt.

PERSONAL.

PERSONAL—Send 10c for big package of cabinet size pictures, also full descriptions (including residences) of respectable ladies who want to correspond for matrimony; 5000 daily mounting every age and condition; living everywhere; [illegible] beautiful and wealthy. HEART AND HAND AGENCY, Drawer 697, Chicago, Ill.

WANTED—One million people to buy, sell or exchange books. [illegible] Hoaz's book store 906 Main street, Fort Worth, Tex., School books a specialty.

LOST.

POCKET-BOOK—Found, a leather pocket-book, on Lamar street between Fifth and Sixth streets. Owner can get same at Gazette office.

HELP WANTED.

FEMALE.

DININGROOM GIRL—Wanted at the Cottage restaurant, 709 East Fourth street. tf

HOUSE GIRL—Wanted, a girl of good appearance for house girl; must furnish satisfactory reference. Apply to Mrs. W. [illegible] Hallman at Gazette office. tf

MALE.

WANTED—For the United States army able-bodied, unmarried men, between the ages of twenty-one and thirty. Good [illegible], clothing and medical attendance. Applicants must be able to read and to furnish satisfactory evidence as to age, character and habits. Recruiting office for Twenty-third infantry at Mansion hotel, Fort Worth.

BLACKSMITH—Wanted, a first-class carriage blacksmith at E. H. Keller's carriage factory, Fort Worth.

GOOD, reliable man for Fort Worth to sell pianos and organs and other goods. Write or call on Collins & Armstrong, [illegible]

WANTED—On salary and expenses paid a man to travel and take orders. Apply at 110 East First street.

WANTED—A boy twelve to fifteen years old to take care of horse and cow and make himself generally useful about the place. Inquire of A. W. Caswell, board of trade building.

FOR SALE OR EXCHANGE.

Advertisements under this heading, 3 lines 1 day, 40c.; 2 days, 60c.; 3 days, 75c.; 1 week, $1.45; 1 month, $3.65 in advance.]

WANTED—To sell or exchange for cattle, three [illegible] (one imported), six good grades, two fine stallions. Address W. R. Moore, Austin.

WANTED—TO EXCHANGE.

WANTED—To exchange for cattle, Fort Worth residence property, consisting of four new dwellings on Belknap street, two blocks east from courthouse, 200 feet front, 80 feet back; complete water and sewerage connections; present monthly income, $120. H. B. Sanborn, Houston, Tex.

LIST OF BARGAINS.

$15,000 FARM for exchange for any kind of merchandise.

60 HEAD of good young mules to trade for stock of merchandise.

I HAVE got two or three good bargains in a nice little home for the next three or four days.

I WILL trade some A 1 residence property for merchandise of most any kind.

Address W. L. Ligon, 612 Main street, Fort Worth, Tex.

TYPEWRITERS.

[Advertisements under this heading, 3 lines 1 day, 40c.; 2 days, 60c; 3 days, 75c.; 1 week, $1.45; 1 month, $3.65 in advance.]

ERNEST R. SCOUGALE,
STENOGRAPHER AND TYPEWRITER,
Room 8, Powell Building, Fort Worth.
Telephone 78.

T. M. JONES & CO.

THE TYPEWRITER AGENTS.

OFFICE DESKS, FILING CASES,

LEGAL BLANK CASES.

TYPEWRITERS SOLD ON EASY TERMS

WRITE FOR CATALOGUE AND PRICE LIST

729 Main street, Dallas, Texas.
Mention the Fort Worth Gazette.

FOR SALE---MISCELLANEOUS.

[Advertisements under this heading, 3 lines, 1 day, 40c; 2 days, 60c; 3 days, 75c; 1 week, $1.45; 1 month, $3.65 in advance.]

FOR SALE—[illegible] interest in the Fort Worth commercial club, at a very low price. C. C., Gazette office.

FOR SALE—A well-located [illegible] and tin store, etc., and nice new two-story residence; a great bargain. Apply to W. D. Pittman, Fairfield, Tex.

FOR SALE—[illegible] 25 cents per hundred. Gazette office.

COAL—TO THE PUBLIC—We are prepared to furnish Thurber coal on short notice in carload lots, delivered on Texas and Pacific railway tracks, either at Fort Worth or Dallas, and at very low prices. For further particulars, call on or address, Texas and Pacific Coal Co., Room 67, Hurley Building, Fort Worth, Tex. Mention the Fort Worth Gazette.

SAFES—NEW AND SECOND-HAND SAFES for sale by H. W. Peak, 106 Houston street, Fort Worth. Mention the Fort Worth Gazette.

WANTED---MISCELLANIOUS.

[Advertisements under this heading, 3 lines 1 day, 40c.; 2 days, 60c; 3 days, 75c; 1 week, $1.45; 1 month, $3.65 in advance.]

SECOND-HAND FURNITURE WANTED—I will pay you the highest price in cash for your furniture and household goods. 107 West Weatherford street.

DYE HOUSE—[illegible] dye house. Ladies and gents clothing cleaned and dyed. Only reliable house in the city. 304 Houston street.

CLASSIFIED COLUMN.

FOR RENT.

FOR RENT—ROOMS.

[Advertisements under this heading, 3 lines 1 day, 40c.; 2 days, 60c.; 3 days, 75c.; 1 week, $1.45; 1 month, $3.65 in advance.]

FOR RENT—Three nice rooms [illegible] for light housekeeping [illegible] to an excellent boarding house [illegible] to business center. Terms reasonable. Fosdick & Furman.

FURNISHED ROOMS—To rent, [illegible] nicely situated; a suite [illegible] furnished or rooms for light housekeeping. Apply 611 East Fourth street.

FURNISHED ROOMS—To rent, [illegible] East Weatherford street. Apply at 307 East First street.

FOR RENT—Elegantly situated [illegible] rooms, large and airy, [illegible] floor above Maddox & Ellis' [illegible] Main street. Apply to W. [illegible] Hallman implement company, [illegible] Seventh and Rusk street.

ROOMS FOR RENT—[illegible] or unfurnished rooms [illegible] or second floor. Best location. Apply at 1004 Lamar street.

TO RENT—Rooms in suite or single, with table board. Mrs. [illegible] Dexter, 605 West Fifth street.

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310 Lamar street—Nicely furnished [illegible] with board; also [illegible] solicited.

FOR RENT—DWELLINGS.

[Advertisements under this heading, 3 lines 1 day, 40c.; 2 days, 60c.; 3 days, 75c.; 1 week, $1.45; 1 month, $3.65 in advance.]

FOR RENT—Three-room house on Seventh street, between Avenue A and Lexington street. Apply at 810 West Second street.

FOR RENT—STORES AND BUILDINGS.

[Advertisements under this heading, 3 lines, 1 day, 40c.; 2 days, 60c.; 3 days, 75c.; 1 week, $1.45; 1 month, $3.65 in advance.]

STORE-ROOM—For rent, [illegible] in the opera house building. Apply at the opera house box office. tf

WANTED---BOARDERS.

[Advertisements under this heading, 3 lines, 1 day, 40c.; 2 days, 60c.; 3 days, 75c.; 1 week, $1.45; 1 month, $3.65—in advance.]

BOARD your family at the Cottage restaurant, 309 East Fourth street. This house is now open to transients. Good home-like fare. Only white used to cook. One hand-some furnished room for rent.

WANTED—BOARD AND ROOMS.

[Advertisements under this heading, 3 lines 1 day, 40c; 2 days, 60c; 3 days, 75c; 1 week, $1.45; 1 month, $3.65 in advance.]

WANTED—Board and room in family by a young business man; must be reasonable. Refer to exchanged. Address H. Gazette. tf

FINANCIAL.

[Advertisements under this heading, 3 lines 1 day, 40c.; 2 days, 60c.; 3 days, 75c.; 1 week, $1.45; 1 month, $3.65 in advance.]

WANTED—To buy some good [illegible] notes, amounts not [illegible] $1000. Only first liens need apply. Address, giving full details, Box 342, City.

MONEY TO LOAN—On diamonds, watches, jewelry, etc. Business [illegible] confidential. Will call on parties when desired. A large stock of unredeemed pledges for sale cheap. Texas Pawnbroker, 309 Houston street.
Mention the Fort Worth Gazette.

AGENTS WANTED.

[Advertisements under this heading, 3 lines, 1 day, 40c; 2 days, 60c; 3 days, 75c; 1 week, $1.45; 1 month, $3.65—in advance.]

WANTED—Twenty salesmen in [illegible] as a side line, our "Cash" [illegible] every cigar, with gold-tipped [illegible] big pay. C. O. D. [illegible] Winston, N. C. Mention the Fort Worth Gazette.

WANTED—Salesmen on salary or commission to handle the New Patent Chemical Ink Erasing Pencil. The greatest selling novelty ever produced. Erases ink [illegible] in two seconds; no abrasion [illegible] 200 to 500 per cent profit. One agent's sales amounted to $61 in two days; another $32 in two hours. We want one energetic general agent for each state and territory. For terms and full particulars address The Monroe Eraser Mfg. Co., La Crosse, Wis., Box X 44. Mention the Fort Worth Gazette.

Don't forget the consumer. Sometimes your competitor offers his best inducements everywhere he goes. Please the people who purchase your line of goods. Once get them and they will stick as long as you give them satisfaction. The consumers read, and through the Gazette you can talk to them.

EVEN the smallest advertisements properly displayed pay good returns in proportion to their cost. Why not try them in THE GAZETTE. They are sure to pay you handsomely.

FORT WORTH IRON WORKS.

FORT WORTH, TEXAS.

General Founders and Machinists.

MANUFACTURERS OF

The Celebrated Fort Worth Well Drilling Machinery

And the Day Compression Ice Machine.

ARCHITECTURAL IRON WORK A SPECIALTY.

MENTION THE FORT WORTH GAZETTE.

MANY places in the South which were almost unknown a few years ago, have been advertised so extensively and advantageously that millions of dollars of northern capital have been attached thereto. This shows what advertising will do, and ought to be a hint to you.

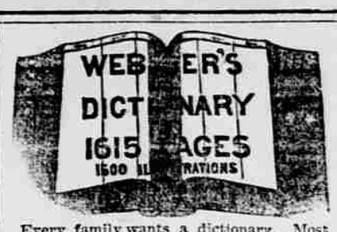
Wholesale and Retail.
FORT WORTH ICE CO.,
TELEPHONE NO. 200.

HOT weather does not deter the perennial [illegible] for the Gazette, and its advertising columns are a perfect mine of information.

Webster's International Dictionaries
The Genuine Oxford Teacher's Bibles.
Holman's Family Bibles.
BLANK BOOKS AND OFFICE SUPPLIES
"Hurst's Superfine Stationery" (sample books free). Beautiful Gift Books and Albums. Leather Goods. Gold Pens.

H. N. CONNER & CO
207 HOUSTON STREET.

Many a Fortune Has Been Made by Advertising. One Was Never Lost By It.



Every family wants a dictionary. Most families want ten dollars also.

Some families want the ten dollars also so much that they go without the dictionary.

THE GAZETTE has the best reprint of the Original Webster's Dictionary.

It has the best print, the best binding, the most words, the best illustrations.

With the Weekly GAZETTE one year it costs only $4; with the Daily one year only $10.

Regular subscribers to THE GAZETTE can secure a copy of this dictionary for $3.00, sent by express, or for $2.50 delivered at our office.

You are invited to call at our office and inspect the book itself, and see how much superior it is to other cheap dictionaries.

KOPPERL, TEX., Feb. 1, 1891.
The Fort Worth Gazette, Fort Worth, Tex.

DEAR SIR—I think the Webster's dictionary sent me with your daily paper, THE GAZETTE, as a premium, is well worth the price paid for the paper, and that is saying a great deal, for I consider the daily GAZETTE one of the best and most newsy papers in the state. Yours respectfully, M. S. GREER.

MONTAGUE, TEX., Jan. 31, 1891.
Democrat Publishing Co., Fort Worth, Tex.

GENTLEMEN—The Webster Dictionary I received as a premium with your Daily GAZETTE I have examined and am pleased beyond expectations, and would not be without it for twice the cost. Yours truly, JOHN S. HAGLER.

HAMILTON, HAMILTON COUNTY, TEX., Aug. 16, 1890.
Fort Worth Gazette, Fort Worth:

GENTLEMEN—I received the Original Webster's Unabridged Dictionary. I am well pleased with it. I would commend it to all who wish a cheap standard, up to the time of its revision. I know many who can get it who will not make the outlay for an illustrated and revised edition. I am yours very truly, etc., C. C. POWELL.

It is a thousand times better than those trashy dictionaries so much advertised by newspapers. C. C. P.

KOPPERL, TEX., Aug. 16, 1890.
The Democrat Publishing Company, Fort Worth, Tex.:

GENTS—The Webster's Unabridged Dictionary was received in due time, and I have examined it and am well pleased with it. It is one of the best premiums that I have seen offered with ANY paper. It is worth more than the money paid without the paper. Very truly yours, RICE MAXEY, P. M.

BONHAM, TEX., Aug. 9, 1890.
To the Fort Worth Gazette:

After a cursory examination I can say that I am well pleased with THE GAZETTE'S Original Webster's Unabridged Dictionary. I think it just such a book as should be in the hands of every earnest seeker after knowledge, and no well-regulated library can be complete without one, and the unparalleled offer makes it in the reach of all, and I would say to those wishing a Dictionary that they will find THE GAZETTE'S Dictionary to be just as good as higher-priced works, and in addition to getting one of the best Dictionaries at a nominal low price, you get one of the best papers now circulated in our great state. Yours truly, B. C. BRAGG.

COLORADO, TEX., Aug. 9, 1890.
Gazette, Fort Worth, Tex.:

GENTLEMEN—Am well pleased with Webster's Unabridged Dictionary sent with Weekly GAZETTE. Yours truly F. L. DEARBORNE.

LLANO, TEX., Feb. 3, 1891.
The Fort Worth Gazette, Fort Worth, Tex.

GENTLEMEN—Your dictionary received and gives entire satisfaction, and is worth many times what it cost, as it is well finished. I would advise everyone to get a copy. Yours truly, M. G. TERRY.

ROANOKE, TEX., Feb. 1, 1891.
Editor Gazette.

DEAR SIR—I received Webster's Dictionary. It is a very useful book, and is needed in all families. The price, $10, for dictionary and the Daily GAZETTE is very cheap. The dictionary is worth the money that both cost. JOSEPH GRACE.

PUTNAM, TEX., Feb. 17, 1891.

DEAR SIR—I received your dictionary and was well pleased; so I like your book and I like your paper. Your WEEKLY GAZETTE and your book are worth $10. Yours truly, WHITE TANNER.

RUNNELS, TEX., Feb. 12, 1891.
The Democrat Publishing Company:

DEAR SIRS—Your dictionary received and am highly pleased with it, and think it is doubly worth the money paid for it. Very respectfully, J. E. GILLIAM, Runnels, Tex.

LAMPASAS, TEX., Feb. 8, 1891.
Fort Worth Gazette.

GENTS—The dictionary sent to me as premium I think is a good book so far as I have been able to examine it. I am yours truly, etc., J. E. CRISWELL.

CROSS CUT, BROWN COUNTY, TEX., Aug. 14, 1890.

GAZETTE—The Webster's Unabridged Dictionary I bought of you is just splendid—worth three times what it cost. It is everything that THE GAZETTE claims for it. Use my name if you wish. D. LINDLEY, M. D.

REGENCY, TEX., Aug. 15, 1890.

Received the Webster's Unabridged. Consider it the cheapest book I ever bought; it is a marvel of cheapness. Success to THE GAZETTE. D. A. MOORE.

ERA, TEX.
To the Gazette.

The unabridged dictionary received from your office as a premium is everything and much more than you claim for it. No family should think to do without it. The book is well bound and worth double its cost anywhere. J. L. FOOKS.

PUTNAM, TEX., Feb. 17, 1891.

DEAR SIR—I received your dictionary and was well pleased; so I like your book and I like your paper. Your WEEKLY GAZETTE and your book are worth $10. Yours truly, WHITE TANNER.

WHAT THEY SAY

PINE MILLS, TEX., Feb. 9, 1891.
To the Gazette, Fort Worth, Tex.

Your premium Webster's dictionary to hand, and after a careful examination of material and finish, believe it equal in value to any edition I have seen. To say I am highly pleased fails to express my pleasure. Yours truly, J. H. KNIGHT.

BIG SPRINGS, TEX., Feb. 9, 1891.
Editor Gazette, Fort Worth, Tex.

The Webster's dictionary sent me I find it to be very complete as the best book for the money by long odds, yet placed on the market. I paid $13 for one several years ago that, with the exception of binding, is no more complete. Yours truly, F. O. VAUGHAN.

FORT WORTH, TEX., Feb. 7, 1892.
Democrat Publishing Company:

I am well pleased with the dictionary, and think it is strange that you can furnish it at that price. I think it the cheapest book I ever bought. Yours truly, L. PERKINS.

CLARENDON, TEX., Feb. 5, 1891.
Democrat Publishing Company, Fort Worth.

SIRS—The Webster's dictionary gives every satisfaction. We have taken the Daily GAZETTE for years and think the dictionary and GAZETTE for a year at $10 a great bargain. Truly yours, MCCLELLAND BROS., Real Estate Dealers.

GAINESVILLE, TEX., Jan. 30, 1891.
Fort Worth, Gazette.

DEAR SIR—I received the Webster's dictionary. It was very nice, and I like THE GAZETTE also. F. J. HALL.

MILLSAP, TEX., Jan. 10, 1891.
Dear Gazette.

After having been almost a constant reader of THE GAZETTE and its predecessors for eleven years, I feel that I cannot keep house without it, and as I received your premium dictionary a few days since, am of the opinion that as an educator you are keeping up with the times.

Accept my thanks for the book and best wishes for your future success and that of Texas. Respectfully, T. A. L. SCOTT.

KOPPERL, TEX., Feb. 7, 1891.
The Democrat Publishing Company, Fort Worth, Tex.:

GENTS—All five of the premium Dictionaries came in due time and all were well pleased with them. It is all that I claimed for it, and I think