RAILROADS.

ississippi and Tennessee Railroad

CHANGE OF SCHEDULE.

ON and after MONDAY, Sept. 3, 1877, trains will run as follows:

	Leave.	Arrive.
New Orleans Mail daily at....	8:00 p.m	1:17 p.m
Grenada accommodation daily (except Sundays)...	11:30 a.m	9 a.m
Freight and accommodation daily (except Sundays), at..	6:50 a.m	5:00 p.m

Close connections made at Grenada with trains North and South for all points.

☞ For further information, apply to

Ticket Office, 287 Main St., and at Depot.
M. Burke, Superintendent.
James Speed, Ticket Agent.

MEMPHIS & CHARLESTON R. R.
Schedule after July 29, 1877.

	Leaves:	Arrives:
Express train daily at........	11:55 p.m.	5:20 p.m
Mail train daily at............	10:25 a.m.	12:06 p.m
Somerville train daily (except Sunday) at..........	6:00 p.m.	8:10 a.m

Time 20 minutes faster than city time.
The 11:55 p.m. Express is the **Lightning Train** from Memphis, and will **only** stop at **Junctions** and at **Terminal Points.**
The 10:25 a.m. mail train will stop at regular stations
Somerville Train will stop at Regular and Flag stations.
The **Lightning Express Train** makes the **quickest time** ever made to Chattanooga, Knoxville, Lynchburg, Washington, and the East.
Ticket Office—278 Main street and at Depot.
JNO. A. GRANT, Chief Eng'r and Gen'l Sup't.
T. S. DAVANT, Ass't Gen'l Passenger Agent.

Louisville and Nashville and Great Southern Railroad.

11:41 p.m. Night Express—(Daily, except Saturday.)—Connects at Milan for St. Louis and Chicago; at McKenzie for Nashville, Chattanooga, Atlanta and the Southeast; at Guthrie for Hopkinsville, Henderson and Evansville; at Louisville for all points North and East.
1:10 p.m. Day Express—Connects for St. Louis and Chicago; at Louisville for all points North and East.
4:40 p.m. Paris Accommodation—Daily except Sunday.

Arrival of Trains.

Express	4:10 p.m
Mail	7:55 a.m
Accommodation	1:00 p.m

Pullman Palace Cars on either train to Louisville, and on night train to Nashville.
For tickets or information, apply at Ticket Office, 287 Main, northwest corner Madison street.
Jas. Montgomery, Sup't Memphis Div.
James Speed, Ticket Agent.

MEMPHIS & LITTLE ROCK RAILWAY

The Short Line to Arkansas and Texas.

TIME CARD.

	LEAVE:	ARRIVE:
Mail train, daily...........	5:30 p.m.	11:30 p.m

Freight train leaves M. & L. R. R. R. depot (Sunday ex) 7:00 a.m.
Passengers going on this road will take trains at the Depot of the Louisville, Nashville and Great Southern Railroad.
Mail train makes close connection at Argenta for points on Little Rock and Fort Smith Railroad, and at Little Rock with Cairo and Fulton Railroad, for points in Southwest Arkansas and Texas.
Pullman Palace Cars on all night trains.
For tickets and information apply at Ticket-offices 278 and 287 Main street, and at the Depot, foot of Washington street, or at L. and N. and Gt. So. Depot, or to the undersigned.
W. E. SMITH, Sup't., Memphis, Tenn.
R. A. WILLIAMS, Passenger Agent.
M. S. JAY, G. P. and T. A., Little Rock.

AMUSEMENTS.

GRAND CONCERT!

Owing to the inclement weather, and in order to comply with the wish of our citizens to hear Miss EMMA CRANCH, the great vocalist, the concert announced to take place at Estival Park will be given at

COCHRAN HALL, TO-NIGHT.

In addition to Miss CRANCH, the occasion will also be enlivened by ARNOLD'S BAND. The following is the

PROGRAMME:

PART I.

1. Carnival March............M. Carl
2. Overture............C. M. v. Weber
3. De tante palpiti—Rossini...Miss EMMA CRANCH
4. Nocturne............v. H. Pflug

PART II.

1. Selections from opera of Macbeth..........Verdi
2. Ballad—Let Me Dream Again..........Sullivan
MISS EMMA CRANCH.
3. Concert Polka—from Parlow—for two cornet obligatos (by request).
4. Waltzes from the Ballet of Flama...by J. Riviere

PART III.

1. Overture—(Jolly Robbers)..........F. von Suppe
2. Devil Let Loose—serio-comic potpourri (by request)..: a. Ed. Beyer. a. Marziale (La gazza Ladra); b. Andante (Who shall be fairest?); c. Allegro niggero (Walk round); d. Waltz (Love, love!) and (Belle of the Ball); e. Schottisch (Little German Band); f. Andante (Little Sweetheart); g. Schottisch (Down among the Coal); h. Allegro (Can-can); i. (Walk around); k. (Madam Angot); l. (Belle Helene); m. (Mme. Angot); n. Pin mosso (Clear the Track!).
3. There is a Green Hill Far Away..........Gounod
MISS EMMA CRANCH.
4. Bottle Waltz..........by C. Mekendeimer
R. MEISTER..........Manager.

TAKEN UP.

MULE—By Jeff Collins, corner McLean and Union avenues, one dark iron-gray mare mule, 15 hands high; collar and saddle marks.

COW—With one eye out and halter on, near Buntyn Station. W. H. HUGHEY.

PERSONAL.

TO THE PUBLIC—
I can always be found at the office of G. D. Crockett, J. P., northwest corner Main and Madison streets. All claims promptly attended to.
T. S. MALLORY, Constable.

FOR RENT OR LEASE.

NOTICE—PRACTICAL TANNERS—For a term of years, a large and commodious building, 50 by 100 feet, drying-room and offices, with fixtures complete, for the tannery business. Address
L. D. NICKLES, Batesville, Panola Co., Miss.

FOR SALE OR EXCHANGE.

RESIDENCE—No. 366 Union street, good dwelling, containing five rooms and all necessary outhouses, 80 feet front by 137 feet deep. Also, 28 acres of land at Gill Station, with dwelling-house of four rooms and all necessary outbuildings. This place is in a high state of cultivation. Terms to suit purchasers. Apply to
J. A. FORREST, 61 Monroe street.

ROOMS AND BOARD.

ROOMS AND BOARD—85 Adams street. Front and back rooms.

BOARDING—At 392 Poplar street. References required.

FRANKLIN HOUSE—No. 37 Adams street; good rooms, cheap board; transient, $1 50 per day.
ACTON YOUNG, Sup't.

ROOM and board for gentleman and wife, or two single gentlemen, on very reasonable terms, at 166 Union street.

ROOM—Desirable front room, with dressing-room attached; house newly repaired. 100 Court st.

VERY choice rooms, furnished or unfurnished, with board, at 72 Court, near the Square.
MRS. W. B. WIGGS.

WANTS.

SALESMEN—Two in Memphis, and three to travel in Tennessee, Mississippi and Arkansas; $85 a month, hotel and traveling expenses paid to acceptable men. All applicants answered, if stamp is inclosed. Queen City Glass and Lamp Works, Cincinnati, Ohio. se4 eod

TWO ROOMS, with board, for man, wife and two children, in a private family; good price will be paid for first-class board. Address, with full particulars, B., Appeal office.

WAITER—One first-class waiter, at 302 Main street. C. QUENTEL & SON.

TO LOAN MONEY—Apply to WOOD, 318 Main street, up-stairs.

SITUATION—In grocery store, or in any business, as salesman, shipping or receiving clerk or collector; reference given. F., Appeal office.

BOARD—By a gentleman and wife in a private family. Address, stating terms and location, J. W., this office.

WHITE GIRL—A good tidy white girl to do cooking and down-stairs work. Apply at No. 14 Talbot street.

YOUNG WOMAN—With good reference, to do general housework: liberal wages; 291 Poplar.

TO BUY—For cash, a small place of ten or fifteen acres near the city, or a dwellinghouse somewhere in suburbs, near the street railway. Apply at this office.

SITUATION—By a lady who thoroughly understands cutting by S. T. Taylor's system; reference, if desired. Address at once, CUTTER, Appeal.

SITUATION—As porter in some first-class business house. Address M. P., Appeal office.

MILLINER—First-class milliner. Leave address at this office.

LADIES' FELT AND STRAW HATS—To shape in the fall styles. Special prices to merchants and milliners. Reshaping ladies' felt hats made a specialty.
W. GOODYEAR, 314 Second street.

BOARD—In edge of town, convenient to street cars, by lady and son. Address LAM, Appeal office.

FOR SALE.

HORSES AND ROCKAWAY—Pair of matched horses and rockaway. Apply to GEO. R. PHELAN.

150 HEAD OF FINE BEEF CATTLE—110 fat Steers, from one-and-a-half to four years old; and forty fat Heifers, for sale by
C. H. JONES, Brownsville, Tennessee.

GINS—Several-second hand gins, nearly new, very cheap. Six new Champion Gins, $100 each.
J. V. PATRICK & CO., 68 Union street, corner Third.

LOTS—Choicest suburban lots, near Boulevard and elsewhere; also, lots in the city and in Fort Pickering, at bargains.
L. B. EATON, Abstract office, 33 Madison.

WAGONS—Two second-hand spring wagons, with tops; all in good order; have been used as baker wagons. Apply at No. 2 Howard's Row.

FRUIT BOXES BY THE MILLION—Of all sizes, at low prices. WILLIAMS & CO.,
Send for price list. Lumber Dealers.

FOR RENT.

RESIDENCE—Nice two-story brick residence, No. 200 Third street. Also, nice COTTAGE, 7 rooms and beautiful grounds, at McGee Station, on Charleston Railroad, half mile from street-cars; will lease for a term of years, if desired.
W. A. COLLIER, 16 Madison street.

134 FRONT, and 7 Adams street. Apply to THOS. FISHER, at the Emmet Bank.

TWO-STORY BRICK—No. 358 Washington street. Apply at 356, corner of Orleans street.

HOUSE—Two-story brick house, with basement, in first-class order, 537 Shelby. Apply on premises, or to WM. JOYNER, 315 Main street.

158 UNION STREET—Cottages 204 and 208 Beale street; and loose cotton pickery, Nos. 5 and 7 Beale street. J. J. LOCKHART, No. 9 Madison street.

ROOMS—Furnished or unfurnished, at Perry House, 43 Poplar st. MRS. C. P. FREEMAN.

STOREHOUSE—No. 3 Howard's Row. E. E. MEACHAM.

AUCTION.

A. M. STODDARD,
GENERAL AUCTIONEER,
228 MAIN STREET.
☞ Sales Daily of Goods of Every Description. ☜

A. E. FRANKLAND,
AUCTION AND COMMISSION MERCHANT,
306 Main Street, opp. Peabody Hotel

TRADE SALES of Boots, Shoes, Hats, Caps, Dry Goods, Hosiery, Clothing, Furniture, Carpets, Groceries, Etc., made daily.

☞ GOODS AT PRIVATE SALE. ☜

TO ADVERTISERS.

The attention of the advertising public is called to the following facts:

The circulation of the DAILY APPEAL is more than double that of any other Memphis daily paper.

The city circulation of the APPEAL is fifty per cent. greater than that of any other Memphis paper.

The circulation of the DAILY APPEAL by mail is eighty per cent. greater than the next highest Memphis daily paper.

The sales of the DAILY APPEAL to news agencies on the Memphis railroads are more than double those of any other Memphis paper.

The APPEAL sends daily to the newsdealers of the principal towns in Mississippi and West Tennessee more than three times the number of papers sent by any other Memphis daily.

The circulation of the WEEKLY APPEAL is more than double that of any other Memphis weekly sent from a daily office.

LOCAL PARAGRAPHS.

—The public schools open the first Monday in October.

—The city council meets at three o'clock this afternoon.

—Thieves stole the Beale street market scales Monday night.

—The Junkerman case will be heard by Justice Galloway to-day.

—F. H. Dowdy yesterday sent us a tomato which weighs one pound two and a half ounces.

—The workingmen will meet to-night in the different wards to select members for the executive committee.

—We have received from Frank Cassells, the well-known colored lawyer, specimens of very fine pears and peaches.

—James Barney, colored, one of the escaped prisoners from the Covington jail, has been apprehended at Osceola.

—*Whisper you will be mine love*, song and chorus, published by Luddew & Bates, Savannah, Georgia, has been received.

—Yesterday was cool and gloomy. In fact, the day was altogether an autumn day, and caused no little chilliness to persons thinly clad.

—The will of Mary Godsey was admitted to probate yesterday, and Isaac A. Chase was appointed administrator with the will annexed.

—Eliza Jackson, who was married in Texas to William Jackson, has filed a divorce petition in the circuit court. Petitioner charges her husband with cruelty.

—Justice Elliott discharged Peter Wahl, charged with cruelty to his son Freddie. According to the evidence in the case, the boy was beaten by the negro Hughes, but not at the instance of Mr. Wahl.

—Dr. John Erskine, health officer, was after a steamboat captain last night for bringing a corpse to the city without permission. The steamer left port before the police could reach her. The body was reshipped hence by the Louisville railroad.

—Our Hebrew congregation Beth-el-Emeth, corner of Second and Monroe streets, will celebrate the New Year's feast, Rosh-Haschona, 5638, *Anno Mundi*, from next Friday evening, September 7th, until Sunday evening, September 9th. The rabbi of this congregation, Rev. Dr. Sarner, will preach on Saturday morning, at half-past nine, in the German, and Sunday morning, at nine, in the English language.

—About eight o'clock last night Richard Shaw, colored, went with a friend to the latter's house, No. 260 Madison street. Upon reaching the house they found there a negro named Charles Turner, and ordered him to leave, but Turner refused. Shaw then fired a pistol to frighten the intruder, and accomplished his purpose, for Charles Turner made haste to leave. The latter then had Shaw arrested on the charge of shooting with intent to kill.

—At the regular monthly meeting of the Shelby County building and loan association, held yesterday afternoon at its office in the Planters building, the death of Hon. A. B. Haynes, the president, was announced, and a committee appointed to draft and present resolutions commemorative of his life. The committee consists of Hon. Jacob Thompson, Dr. D. T. Porter and R. D. Jordan, Esq. An election being held to supply the place of the deceased president, by a unanimous vote Hon. Jacob Thompson was selected, who accepted the position because, as he said, he believed the encouragement of these associations was to the benefit of every one in the community.

PERSONAL.

MR. R. C. DANIEL and family have removed from Court street to No. 342 Vance street.

MR. A. M. SCARBROUGH, the well-known cotton buyer, has just returned from Liverpool, England.

DR. J. J. ROSS, has returned from a visit to his uncle, Dr. E. E. Westbrook, who is dangerously ill at his home in Madrid Bend.

REV. W. C. HEARN, formerly of the Little Rock conference, but now stationed at Birmingham, Alabama, was in the city yesterday.

MR. A. VACCARO, of A. Vaccaro & Co., left for the north yesterday. He will make additions to their already large stock of wines and liquors.

MR. GEORGE C. HOLST returned from Cleveland yesterday, after a delightful trip and a good time with the Knights Templar at the grand conclave.

MISS JENNIE M. HIGBEE has returned to the city, and will soon reopen the Presbyterian grammar and high school, of which she is principal. Attention is directed to the card of this school, on first page.

NO BUSINESS will be done by the Southern express company to-day between ten and eleven o'clock. The funeral of Alvin Adams takes place at that time, in Boston.

MR. W. T. M'CARLEY, of the Brownsville *States*, is visiting the city in the interest of his journal, which has a large circulation and offers good inducements for advertising.

AMONG the passengers on the steamer Hard Cash were Messrs. M. D. Martin and A. T. Blaine, of Indian Bay; also Mr. George Griffing, of Des Arc. They all come to purchase their fall stocks, and will return with goods this evening.

MR. N. O. RHODES, formerly with J. C. Ward & Co., has accepted a position with G. A. Eckerly & Bros. Mr. Rhodes's extensive acquaintance in Tennessee, Mississippi and Arkansas render him a valuable acquisition to this house.

THE following visitors were registered at the cotton exchange yesterday: S. D. Mangum, Collierville, Tennessee; W. W. Rose, Sunny Side, Mississippi; A. C. Matthews, Des Arc, Arkansas; W. L. Morris, Forrest City, Arkansas; Wils Williams, Humboldt, Tennessee; Captain J. C. Goodrum, Lonoke, Arkansas; N. E. Hughes, Prentiss, Mississippi; Judge Simmons, Sardis, Mississippi; J. B. Phillips, Brownsville.

PROF. J. D. ANDERSON, of the Florence Synodical female college, with his associate teachers, Miss Laura Smith, Miss Genie Ringo, and Miss Moss, left yesterday, being accompanied by a number of young ladies, among them Misses Fannie P. Siler and Mary Lake, of Memphis; Florence Prescott, of Chelsea; Nannie Evans, of Cuba, Shelby county; Lelena W. Williams and Sue Lynch, of Osceola, Arkansas; Mary and Belle Dial, of Monroe county, Arkansas; Ada Monroe, of Lonoke, Arkansas; Ida M'Rae, of Mount Holly, Arkansas; Jennie P. Dade, of Helena, and Mary Carter, of Austin, Texas.

AMUSEMENTS.

Miss Cranch at Cochran Hall.

Owing to the inclement weather, and in order to give our citizens an opportunity to hear the great vocalist, Miss Cranch, the concert announced for Estival park will be given in Cochran hall. Of Miss Cranch a great deal that is good can be said. She is certainly a vocalist of talent, and an artist of much merit. She appears to-night in a number of excellent selections, which will be rendered with her own elegant style. Arnold's band will also contribute to the pleasure of the occasion, which we hope will unite a very large attendance.

LARGEST assortment of corsets in city. L.'s.

NEW COTTON.

Four Bales Sold—Where they Grew, How they Classed, and What they Brought—A Good Beginning.

Yesterday four bales of new cotton were sold at auction in front of the exchange, the price per pound ranging from ten to fourteen cents. Bale No. 1 was received here Saturday last, September 1st, on board the steamer Capitol City, shipped by Mrs. C. R. Miller, of Friars Point, Coahoma county, Mississippi, and consigned to J. S. Richardson & Co. It classed as low middling, and was sold at public auction by Mr. A. E. Frankland to Wm. Frolich & Co., of Memphis, at ten cents per pound. Bale No. 2 was received here Sunday night, the second instant, on board the steamer Coahoma, shipped by Ussery, Robly & Co., of O. K. Landing, Tunica county, Mississippi, and consigned to Hill, Fontaine & Co. It classed as middling, and was sold by Auctioneer Frankland to Wm. Frolich & Co., of Memphis, at thirteen and a half cents per pound. Bale No. 3 was received here Monday evening, the third instant, on board the steamer Hattie Howland, shipped by R. G. Atkinson & Co., of Pine Bluff, Arkansas, and consigned to Schoolfield, Hanauer & Co. It classed as good middling, and was sold by Auctioneer Frankland to G. Falls & Co., at fourteen cents per pound, for Gardner & Co., of New York, the largest cotton-spinners in the United States, and who purchase annually in this market from thirty to forty thousand bales of cotton. Bale No. 4 was received here Monday afternoon, the third instant, on board the steamer Hard Cash, shipped by Hicks & Lyles, of Searcy, Arkansas, and consigned to Hill, Fontaine & Co. It classed as strict middling, and was sold by Auctioneer Frankland to Benjamin Babb at fourteen cents per pound. The above cotton bales are from the legitimate Memphis cotton district.

ATTEMPT AT MURDER.

A White Man Shoots a Negro and Escapes—A Policeman Thereby Loses his Silver Star.

Yesterday afternoon a white man named Rigney shot and wounded a negro roustabout—Bill Johnson—at the wharf. Both men, it seems, were deck-hands, and their difficulty began on the steamer Hattie Nowland. Rigney ordered Johnson to leave the boat, but the latter refused, and thereupon was collared and shoved off the stage-plank. Rigney returned to the rear of the boat, and procuring a pistol, again appeared. Johnson, endeavored to defend himself with a lump of coal. The negro hurled the lump at Rigney, but unfortunately missed him. Thereupon Rigney fired at Johnson, the ball striking him in the under part of the thigh, producing a painful wound, which may result in death. Policeman Cassidy, who was on the wharf, neglected to arrest Rigney, as the mate of the steamer said he would guarantee to have him present when the recorder desired it. The shooting occurred about half-past one o'clock, and as soon as Captain Weatherford was notified, he hastened to the wharf, but only to see Rigney in a skiff which was about landing on the Arkansas sand-bar. Captain Weatherford took Policeman Cassidy's star, and suspended him for final action by the commissioners.

Miss LaPaugh's Card of Thanks.

LADIES AND GENTLEMEN OF MEMPHIS—I thank you; from my heart of hearts I thank you. I thank you for the many acts of kindness and sympathy to me, a stranger alone in your city, far from home and friends. Since the accident to me on the steamer Phil Allin I am indebted for favors to Mr. John Gaston, Drs. Otey, Vance, Mitchell and Marable; to the representatives of the press, *Avalanche* and *Ledger*; to Mrs. Allen and others, and above all I thank Captain Darragh and the Memphis and Vicksburg packet company for promptly defraying all expenses. In conclusion, I advise all New Yorkers to so arrange their accidents as to have them take place in Memphis. I can assure them that the southern people are warm-hearted and very sympathetic. MISS ELIZABETH A. LAPAUGH.

John G. Sick,
Saddles, Harness, Leather and Shoe Findings, at reduced prices 366 Main st.

LATEST shapes in straw goods at Leubrie's.

GREATER reduction in fans, parasols. L.'s.

LARGE stock of fine jewelry at Leubrie's, 247 Main street.

First Bale New Crop Cotton.

EDITORS APPEAL—The first bale of new cotton, proper, consigned to this market, was received by us, Saturday evening, September 1st, per Anchor-line packet Capitol City. It was produced by Mrs. C. R. Miller, on her "Edgefield plantation," near Friars Point, Coahoma county, Mississippi. Said bale, together with a bale from Tunica county, consigned to Messrs. Hill, Fontaine & Co., was sold at auction in front of the cotton exchange, at twelve o'clock yesterday.
JAMES S. RICHARDSON & CO.,
No. 9 Union street.

FINE assortment of jewelry at Leubrie's.

THE Tuscumbia *Alabamian* has a large circulation in North Alabama, and is the best medium for advertising.

SILK and velvet trimmings at Leubrie's.

UNLAUNDRIED shirts, 65c, at Leubrie's.

THE Tuscumbia *Alabamian* has a large circulation in North Alabama, and is the best medium for advertising.

HOSIERY, fine assortment, low prices, at L.'s

National Taste Clearly Defined.

The sale of Atkinson's white rose exceeds that of any other perfume and constantly increasing; can hardly fall short of a quarter of million of bottles annually.

NO OPIUM! No morphia or other dangerous drug is contained in Dr. Bull's baby syrup, for the relief of colic, teething, etc. Price twenty-five cents.

LEUBRIE's, 247 Main street.

LADIES' underwear reduced at Leubrie's.

NEURALGIA.—"Neuril" cures it. Sold by G. W. Jones & Co., Memphis.

FOR gents' underwear, go to Leubrie's.

Wives Know] that the Brow of Care

is often soothed by a delicious supper, to which perfect bread, rolls, biscuit, etc., are so important. To have those delicate products of baking always reliable, the use of Dooley's yeast powder is very important. This article is among the most valuable of the day in its bearing on health. It is put up in cans, always full in weight.

THE Tuscumbia *Alabamian* has a large circulation in North Alabama, and is the best medium for advertising.

EMBROIDERY, 5, 7½, 12½, 15c yd. Leubrie's

UNLAUNDRIED shirts, 65c, 85c, $1, at L.'s.

RED SNAPPERS, lake salmon and Mackinaw trout next Friday morning, at H. Seessel, Sr. & Sons.

Southern Express Company.

Our office will be closed to-day, September 5th, from ten to eleven o'clock, as a tribute of respect to the late Alvin Adams, the originator of the Adams express company.
HUGH A. HAMILTON, Agent.

Notice.

Levi Joy can be found at the store of N. J. Wiggins & Co., 318 Main street, with the books of Taylor, Joy & Co. All those indebted to said firm will please come and settle their accounts on or before the fifteenth instant. After that date they will be placed in the hands of an officer for collection.

They Have Come!
FRESH OYSTERS! FINE SELECTS!
At Signaigo & Co.'s,
278 Second street, opposite Court square.

TIES, ruching, etc., at Leubrie's.

OPINION of Dr. W. C. Cavenagh, Memphis, Tenn.: For weak digestion, general debility, and want of appetite, I cheerfully recommend Colden's Liebig's liquid extract of beef and tonic invigorator. W. N. Wilkerson & Co., agents.

School Books and School Supplies

of all kinds at publisher's prices, at A. F. Dod & Co.'s, 279 Main street.

TOWELS, 10, 15 and 25c, at Leubrie's.

THE Tuscumbia *Alabamian* has a large circulation in North Alabama, and is the best medium for advertising.

GO TO Leubrie's, 247 Main street.

Best Assortment of Hats
At Leidy & Co.'s, 273½ Main street.

CONSULT your own interest by advertising in the Marianna (Ark.) *Index*. Address
PREWETT & BROWN, Marianna, Ark.

Don't be Humbugged,

But save money, *really*, by filling your orders for stationery, blank books, school books, fancy stationery, etc., at A. F. Dod & Co.'s, 279 Main street. A trial will prove it.

'Greenbrier, Robertson county, is the standard whisky.

THE LAST

Session of the American Association for the Advancement of Science—An Increased Interest in the Work and a Very Full Attendance.

New Members Elected—Important Resolutions Adopted—Papers Read—The Chattanooga Excursion—Proposed Visit to Texas by Way of Memphis.

Full Text of Mr. Killebrew's Paper on the Geology and Topography of the Oil Region of Tennessee, with Some Account of the Oil Springs.

Farewells to the Pleasant City and Hospitable People of Nashville—Everybody Well Pleased—The Hosts, as Well as the Guests, Delighted.

Special to the Appeal.]

NASHVILLE, September 4.—The attendance on the last day's session of the Science association was equal, in point of numbers and intelligence, to that of any previous day. The general session was called to order by Chairman Newcomb, when General-Secretary Grote read the following announcement and action of the standing committees: The closing exercises of the Science association will take place in Representative hall, at seven o'clock this evening. A committee is authorized to be appointed, consisting of five members of the association, to introduce scientific studies in the educational institutions of the country. Another resolution authorizes the appointment of a committee of five members to consider the relation of science to the industrial arts, it being required of the committee to report annually, in writing. A resolution urging congress to encourage the advancement of the meteorologic service, and authorizing the appointment of a committee of five to memorialize congress on the subject, elicited a spirited discussion, participated in by Profs. Forsney, Cox, Thurston, Cape and others. The resolution was adopted. The standing committee recommended the appointment of a permanent committee on finance, of which the permanent secretary and treasurer shall be members, whose duty it shall be to create a permanent fund, made necessary by the rapid increase in numbers of the Science association. Four new names were recommended and elected members of the association, as follows: Dr. L. A. Robinson, Nashville; Henry L. Smith, New York; Mrs. H. E. Smith, New York; Mrs. H. K. Ingram, Nashville. Four hundred volumes of the annual report of the board of health of the city of Nashville, containing important topographic and other data, were presented for distribution among the fellows of the association. The donation was made through Dr. J. B. Lindsley, the editor and compiler. The thanks of the association were voted the city for the handsome present. Prof. Safford announced the rules that would govern the excursion to Chattanooga and Birmingham; also read a communication inviting the members of the association to visit Dalton, Georgia. The arrival in the city was announced of Prof. Edward M'Crady, of Sewanee university, regarded one of the ablest biologists of the country. He was a pupil of Prof. Agassiz and of Cambridge university. The general session adjourned, and the various sections were called to order.

In section A, Prof. E. B. Elliott's paper, entitled "The monetary system," has been on reading since yesterday afternoon, and was not concluded at the close of this morning's session of this section. There are two other papers on the programme of section A yet to be read—one "On standard time," by Prof. E. B. Elliott, and "The work of the United States board appointed to test iron, steel and other metals," by Prof. R. H. Thurston. In all probability this section will adjourn before completing its programme.

In section B the paper of Prof. Cope on "The origin of structural venation, or evolution notes on the geology of the Rocky Mountains," by Prof. T. Sterry Hunt; "The habits of the Moqui tribe," by Prof. Edwin A. Barber; "Introduction of the study of Indian language," by Prof. J. W. Powell; "The ancient excavations in western North Carolina," by Alexis A. Julien; "Geology and topography of the region of Tennessee, and the oil springs and wells," by J. B. Killebrew; were read, being about half the number embraced in the programme of this section.

In section C three papers were read devoted entirely to the discussion of subjects in chemistry. All the sections met in afternoon sessions, completed their programme as far as possible, and adjourned to meet in general session when the closing exercises takes place, at eight o'clock this evening.

The last session of the meeting of the scientists met this evening at thirty-five minutes past seven o'clock. The standing committee presented the following resolution:

Resolved, That the thanks of this association be extended to the Tennessee historical society for the kind and hospitable manner in which they have received the members of our body, and for the magnificent social entertainment, so splendidly illustrating the hospitality and beauty of Tennessee.

Prof. J. Lawrence Smith spoke on this resolution, and stated that no historical society had a more interesting work than that of Tennessee, the home of an ancient people whose remains are the study of the thoughtful men, of three Presidents of the United States, scene of late mortal strife, but whose bloody chasm is now filled up to the brim with kind offices; the State had an interesting history. Alluding to the good feeling between the people of the sections, he said there was now no rivalry but who should serve the country best.

A resolution was passed thanking the Vanderbilt university for courtesies. Prof. Marsh spoke on this resolution, expressing admiration for the university, and wishing it a great future.

A resolution of thanks to the Young Men's christian association was passed. Prof. Grote here made a few remarks, and said, among other things, that he hoped the association would teach bad theology and good morals.

The next resolution was as follows:

Resolved, That we express feelings of gratitude to the press for the manner in which their columns have been opened for publishing our proceedings in detail.

Major Powell said that the duties of the reporter were arduous in making full reports of meetings like this, and even more so in making abstracts of papers which the authors themselves, it is supposed, made as brief as could be. After describing how rapidly scientific news was disseminated by the press, he said that the papers of the country are a fair record of the progress of science in all departments.

A resolution of thanks to the Fisk university for an invitation which was too late to be accepted, was then passed. Prof. Dall, speaking on this resolution, said that the nature of the Anglo Saxon race is a desire to see fair play, protect the weak and ignorant, and supposed that the prejudice of northern people against the south was largely due from the fear that weak people would be oppressed; was sure that if the conduct of the people of Nashville was an indication of the southern sentiment, there was no danger of that.

A resolution of thanks to the various railroad and steamboat lines who have furnished transportation to members was passed.

Prof. Hunt moved a resolution of complimentary remarks.

The following resolution was passed:

Resolved, That the thanks of this association be tendered to the Western Union telegraph company for their unexpected and generous offer of the use of the lines of their extensive and perfect telegraph system, it being the first time in the history of this association that this great convenience has been offered them.

Prof. Mendenhall spoke of the novelty of the courtesy of the company to this association, and said it was a recognition of what commercial telegraphy owed to science; that the inventor of the telephone was a member of this association.

A resolution of thanks to the cities of Cincinnati and St. Paul, for invitations to hold the next meeting in those cities, was adopted without remark.

A resolution of thanks to the governor and secretary of the State of Tennessee for courtesy, especially in the use of the capitol building for meetings, was adopted.

Prof. Putnam spoke, and expressed gratitude for the admirable and convenient arrangements, which were almost unparalleled in the history of the society.

Resolutions of thanks to the local committee, and to the mayor and citizens of Nashvilles were passed.

Addresses on the resolutions were made by Profs. Cox and Thurston, and were responded to by Prof. Lufton, Dr. Baird and Colonel Gibbs.

The president closed with a brief address, and announced the adjournment of the meeting.

Many of the addresses were full of eloquent expressions of the good feelings nurtured in the course of the few days of the meeting. The citizens of Nashville have cordially done their best for the entertainment of their distinguished visitors. An excursion party of scientists leaves for Chattanooga, north Georgia and Alabama to-morrow morning. On returning, this excursion party will rendezvous at Memphis for their trip to Texas.

Mr. Killebrew's Paper.

Geology and Topography of the oil region of Tennessee, with some account of the Oil Springs and Wells; by J. B. Killebrew, commissioner of agriculture, statistics and mines.

The oil territory of Tennessee occupies the extreme southern end of the great oil belt which extends in a southwesterly direction from Ontario, Canada, through New York, Pennsylvania, West Virginia, Kentucky, and, as far as now known, terminating in Tennessee. The belt widens out at both extremities, bearing to the westward in Canada around Lake Erie, and spreading out laterally in Tennessee, so as to comprise Dickson and Hickman counties, lying west of Nashville. The following counties are included, or supposed to be included, in the oil region of Tennessee, namely: Overton, Clay, Putnam, Fentress, Jackson, Trousdale, Sumner, Davidson, Dickson and Hickman. In all these some petroleum has been found; but by far the most numerous indications have been met with in the counties of Overton, Putnam, Clay and Fentress, all of which lie at the western foot, and even include a part of, the Cumberland table-land. The oil exudations are found mostly within the limits of a belt lying at the western base of the Cumberland table-lands, which belt is about eighteen miles wide, and has a northeasterly and southwesterly direction.

GEOLOGY.

The oil region in Tennessee belongs mainly to that natural division of the State called the Highland Rim, which surrounds, like the rim of a plate, the great silurian limestone basin in which Nashville is situated. For the most part the formations of the oil region pertain to the Sub-Carboniferous, though the streams have cut deep channels through this formation and the Devonian black shale to the Cincinnati or Nashville group of the Lower-Silurian. The Devonian age in the Tennessee oil region, unlike that of Pennsylvania, has but one representative, and that corresponds to the Hamilton black shale of New York. The Corniferous, Marcellus, Portage, Chemung and Catskill are all wanting; also the whole of the Upper-Silurian formations. The Upper-Silurian appears west of Nashville, and to a limited extent in the western part of Sumner county, northeast of Nashville, where the Meniscus gray limestone of the Niagara epoch is present in considerable volume—estimated at one hundred and twenty feet in thickness. It thins out further eastward, and totally disappears in the counties constituting the oil center. The Portage group, in New York and Pennsylvania, consists of shales and comminuted sandstones, and has a thickness of about seventeen hundred feet. The Chemung epoch has the same general lithological character, and in these two members of the Devonian age most of the oil product of Pennsylvania is stored. In Overton county, in which the greatest number of oil-springs occur, there is a great variety of geological formations. The coal measures cap the highest point is the eastern parts of the county, and are also met with near the crests of such isolated peaks as Pilot Knob and Alpine mountain, both outliers of the Cumberland table-land, but separated from it by profoundly eroded chasms. The Sub-Carboniferous, consisting of two groups—the Mountain Limestone and Silicious groups—has a wide-spread development, the Mountain Limestone, about four hundred feet thick, occuring in limited areas, forming benches on the slope of the Cumberland table-land and its outliers, and also appearing on the side of the terrace lands, which occupy a considerable part of the county. The Silicious group covers fully three-fourths of the county, and is the foundation for the clay uplands. This group has two numbers: First, the Lithostrotion or coral beds; second, the Lower Silicious or Protean bed, which underlies the first. The Lithostrotion or coral bed covers extensive areas in the oil region, and may always known by the presence of a fossil coral (*lithostrotion canadense*) resembling a "petrified hornet's nest." This formation is also always characterized by the presence of sinkholes, showing the existence of underground channels. The town of Livingston is built upon a bed of this coral. This bed is about two hundred feet thick, and its top layers consist often of heavy-bedded, grayish limestone, known as the St. Louis limestone. Some of it is highly crystaline, and makes a respectable marble. The Lower Silicious or Protean bed, about two hundred and seventy feet thick, covers all the region around Spring creek, at which place the greatest quantity of oil has been obtained; also, the undulating lands south of Livingston, and the flat lands on the west. It displays itself in frequent depressions in the north and northwest portions of the oil belt. It takes numerous forms; sometimes its top-layers are a fine-grained, exceedingly porous, yellowish sandstone. This often overlies a limestone, bluish, feted, crinvidal. Oftentimes for this limestone is substituted another layer, exceedingly siliceous, filled with nodules of chert, or interstratified with thin and thick layers of the same material. These cherty layers sometimes displace the calcareous material altogether. Again, the Keokuk shales, hard, bluish, thin and calcareous, usurp the place of the sandstone; grayish limestone and cherty layers, and form a continuous shalebed two hundred and fifty feet thick. This is the case in Eagle creek, in the northeastern part of the county. The bluffs below Waterloo falls, on Spring creek, are composed of a great thickness of crinvidal limestone, in which crinvidal buttons and stems form a considerable part of the mass. The same is true with some of the bluffs on Obey's river. Above Waterloo falls the siliceous limestone prevails.

Immediately below the Sub-Carboniferous comes the Devonian black shale, highly charged with petroleum and, fissured by numerous vertical crevices, which make it resemble, where exposed, a tessallated floor. It is seldom met with—is a top formation. A few limited areas, when it appears as such, may be found near the mouth of Eagle creek and in the beds of some of the streams as they approach Obey and Cumberland rivers. It is, however, a very persistent formation, and may always be found throughout the State in its proper geological horizon. Its usual thickness in the Tennessee oil region is from twenty-six to thirty-five feet. The Cincinnati and Nashville group of the lower Silurian presents itself in the beds or in closing banks of the principal streams as they approach the Cumberland river.

On Spring creek the rocks of the Cincinnati group come to the surface below Waterloo falls; on Roaring river, below Crawford's mill, and on Obey river, just below the mouth of Franklin creek. The following section, taken in the region around the oil wells at Spring creek by Dr. Safford, but since corrected by myself to correspond with the result of the borings, will serve to illustrate the geological, lithological and paleontological features of the strata at this place. The section given is really a combination of two sections, so as to include both the lower coal-measures and the Sub-Carboniferous formations:

Coal-measures, sandstones and slates	250 feet
Mountain limestone strata, bedded, filled with pentremites; some of the layers argillaceous	432 feet
Lithostrotion or uper scheeans limestone, containing Lishostrotion canadense	203 feet
Protean or lower Silurian, flinty layers and fetid limestone	—269 feet
Black slate	38 feet

TOPOGRAPHY,

As might be inferred from the great diversity of geological formations, the topographical features are striking, and show variety in an eminent degree. There are ragged hights, rolling plains, level plateaus, rocky gorges, and sunk valleys and coves, sheltered between the massive walls of towering hills. The Cumberland table-land has scolloped edges, displaying very rugged contours, steep escapements, sloping sides, roughened by shapeless boulders. The sides of the mountain are furrowed by many a stream. Chasms, great and terrible, profound in their depths, and striking in their suddenness, form one of the principal features of the western mountain side; spurs shoot out for many a mile into the lower plains. Many of these are dissected by transverse gorges, leaving isolated peaks nearly or quite as high as the Cumberland mountain itself. The top of the mountain has all the characteristics peculiar to this division of the State; that is to say, level areas on the summit, a thin soil resting upon a conglomerate sandstone, from the crumbling down of which it has been derived, scraggy timber, open vistas, pastures and chalybeate-water. Two or three seams of good coal are usually found under the cap of conglomerate rocks, interstratified with shales and sandstones. The soil of the mountain is adapted to the growth of apples, Irish potatoes, and garden vegetables generally. The land is thinly wooded, the surface covered usually in summer with a luxuriant growth of native grasses and pea vines, and furnising a large amount of highway pasturage. But few habitations are found here, and this part of the oil region is almost as wild as when the Indian roamed in all his fearless independance through its silent forests. Upon this mountain there is every condition of health. There is life-giving property in the atmosphere, that imparts elasticity to the frame, giving joy to the heart, animation to the soul. The mind and body receive a new vitality by being bathed in this pure mountain air, which produces an exhileration of spirits beyond that of drugs. Consumption never occurs here. The time is not now but it will come when the edges of this mountain will be covered with the palaces of the rich and the cottages of the poor, who will come to enjoy the perpetual delight of breathing the mountain air. The main features of the oil belt are easily described. It may be represented by a nearly level plain, cut from northeast to southwest by a valley half a mile wide, and four hundred feet deep. This is the valley of the Cumberland river. Opening into the Cumberland valley on the eastern side is the long dividing valley of Obey's river, with a general direction from east to west. A number of smaller streams, with valleys of their own extending outward at nearly right angles to the river, with their ramifications, cut up this plain into innumerable winding spurs pointing to the river like the bent or zigzaged teeth of a saw. These ramifications of valleys run back among the highlands, gently rising toward their head. These valleys are always skirted by hills ranging from one hundred to four hundred feet in hight. Many of the creeks are short, and inclosed always by high bordering ridges. So numerous are these breaks that some have doubted that they have been produced by erosion, and think that they mark the course of the great cracks formed in the underlying rocks as they were hardening or shrinking, or yielding to the forces of subsidence and upheavals during the unstable period of geological eras. With this opinion I cannot agree. The rocks are approximately horizontal. A few gentle curves in the strata are met with here and there, for many long anticlinals and synclinals, but at no place do these depressions correspond with the profoundly eroded surface. Indeed, it often occurs that no disturbance of strata is exhibited where the gorges are deepest. At some few places there are signs of disturbance. Near the mouth of Ashburn creek the strata all dip northeasterly, at an angle of some five degrees, and fissures appear in the Nashville limestone, from which petroleum issues.

OIL SPRINGS AND WELLS.

Having given the general geological features and topographical outlines of the central oil region, it remains to give a few general facts in reference to the oil-wells which have been bored and the oil-springs which are found in numerous localities in this oil region. On Spring creek the productive wells were sunk near the eastern margin of that stream, in a low, flat place, inclined to be swampy. An expanse of rolling land spreads out eastwardly for about three miles. On the southeast and northeast spurs rise to the hight of one hundred feet or more, showing on their sides thick ledges of the St. Louis limestone. Beyond these spurs, on the east, the gray outlines of the Cumberland table-lands appear, giving grandeur and beauty to the scene. This oil-valley is three and a half miles long by three-quarters of a mile wide. Its elevation above the sea is about nine hundred and sixty feet. All the wells bored at this place were commenced about one hundred and seventy-five feet above the black shale. The following is a section of the Jackson well, the deepest one bored in the valley:

Alluvial soil	7 to 9 feet.
Flinty limestone	165 feet.
Black shall	35 feet.
Nashville works	293 feet.
Total	530 feet.

Eleven wells were bored within one area of 150 feet. Oil was found in two or more zones, one at from 19 to 26 feet below the surface, and the other (by far the most productive zone), from 51 to 69 feet. Probably 20,000 barrels of oil flowed from the wells, some others yielding a less quantity. The following is a brief record of the wells: Newman well, at 26 feet, 2600 barrels; at 51 feet 7 inches, an immense flow—supposed to be many thousand barrels. Jackson well, no oil; sunk 530 feet. Douglass well, at 22 feet, 40 barrels per day; supply shut off when the big strike was made in Newman well; at 69 feet 8 inches 110 feet per day was afterward taken out with strong salt water. Hoosier well, at 52 feet 6 inches 39 barrels per day. Hoosier well No. 2, at 55½ feet, 25 barrels per day. Hoosier well No. 3, at 53½ feet, 160 barrels oil per day. Five other wells were bored without striking oil. Out of the eleven wells bored, five were productive and six were dry holes.

Three facts stand out quite prominently in the records of the borings on Spring creek: First—The area of the oil was very limited. Second—All the oil was obtained from the crivices or cavities of a hard silicous rock one hundred and twelve to one hundred and fifty-five feet above the black shale. Third—The subterraneous crevices or caverns had for the most part no connection with one another, but were distinct, each one holding its treasured supply of oil, and oftentimes occurring one immediately above the other.

Passing now in a northerly direction through Livingston and beyond some ten miles, on the waters of West Fork, we enter upon an oil region only known by its wastage. The West Fork hews its way down through the St. Louis limestone, Waverly sandstone and Keokuk shales. The bluffs rise for the most part abruptly from the water's edge, with occasionally narrow strips of bottom-land. The stream is one of great rapidity. Koyer's farm, upon which the oil indications are most numerous, is within four miles of the mouth of West Fork. The bluffs on the river show a succession of wrinkles, and the limestones are soft and much eroded by atmospherical and pluvial agencies. The hills are oftentimes sloping and covered by a coating of unctious clay. The following section was taken on the east side of the stream, just above where the oil indications are most numerous:

SECTION AT KOGER'S FARM ON WEST FORK.

On high points above, back from the stream, sandstone, fine graned and buff-colored, 10 feet; buff-colored sandy limestone, 6 feet; gray crystallized limestone, 79 feet; calcareous shales, blue and gray, 37 feet; three beds of bluish and buff-colored limestone, inclined to be shaly, some few sandy layers, 113 feet; sand and alluvium resting against foot of bluff, 6 feet. This last is a small bottom, about 115 feet wide, lying adjacent to the water's edge. The sands of this bottom are thoroughly steeped and saturated with oil. By sinking a hole anywhere in this small strip, or in the bed of the stream, petroleum rises to the surface in brownish or bluish disks, which float away on the surface of the stream. The bluish disks are beautiful in their irridescence, displaying in the light all the colors of the rainbow. At this place many gallons may be collected in a day. The oil-saturated sand extends for the distance of one hundred yards or more. On the east side of the stream, after ascending the bluff, there is a level plateau extending two miles or more eastward, in the direction of East Fork. The ridge spoken of is made of mountain limestone, capped by the lower sandstone of the coal measures. At a point a little above the Koger farm, where the Livingston and Jameston road crosses West Fork, oil occasionally oozes out from the bank of the stream, and just below are several places where salt water comes from the bluffs, leaving a saliy incrustation upon the face of the rock. Below the Koger farm half a mile a saw-mill stands upon a short tributary stream, a few yards from West Fork. In blasting out rock, oil was found in the pores and crevices of the rocks. Still lower down the stream and one mile above its union with East Fork, the mass of slimy mud in the stream is thoroughly saturated with petroleum. By pushing a stick down in this mud gas and petroleum ascend to the surface from the spongy mass. The very atmosphere at this place is redolent of petroleum, and one can scarcely touch the earth for a space of several hundred feet, without having his olfactories offended by the odor of the oil. The formations here agree precisely with those at the Koger farm. The Waverly sandstone appears on the hights above in some greater thickness, and one layer of sandstone a foot thick is found interstratified with the Keokuk slates, which here take the place of the siliceous rocks. Just below the junction of East and West Forks, about three-quarters of a mile, a flow of oil comes out of the bed of Obey's river. This is on the land of James Lacey; when the water is low, the sand taken from this place is so saturated with oil as to make a bright flame. At Goose Neck Bend up East Fork three miles above its junction with West Fork, there is an oil spring, and several more are reported to exist higher up the stream. One-half mile below Lacey's another spring breaks out near the center of Obey's river; the oil has been seen here for fifty years. Three miles further down, near the mouth of Franklin creek, oil is seen coming out of the bed of the river, immediately under a bluff three hundred feet high. The oil oozes out beneath thirty feet of black shale. The rocks above the shale at this point are filled with siliceous crenoidal stems in such abundance as almost to make up the mass. The oil here is lighter than that on West Fork and plays in its rainbow hued disks upon the surface of the water. Between the mouth of Franklin creek and Lacy's farm the river cuts through the black shales. Franklin creek is in Fentress county, and runs west, emptying into Obey's river. It is about three miles long. One mile above its mouth there is a gravelly bar, which is steeped in petroleum. The pebbles look as though they had been immersed or boiled in petroleum. The oil is above the black shale. The ascent from the mouth of the creek to this place is fifty feet, or more. There are several long sags in the strata here, and greenish and bluish shales are seen in the overlooking bluff. This oil-seep is near the ragged edge of the Cumberland mountains. Near the mouth of Eagle creek there are many indications of oil. Seeps occur at intervals from its mouth for six or eight miles up the stream. Eagle creek, as will be seen by reference to the general description of Overton county, rises five miles north of Livingston, flows north and northwest, and enters Obey's river, seven or eight miles below the mouth of West Fork. Its entire length, in a straight line, is about ten or twelve miles. On Trammell's creek, in Sumner county, oil was found at the distance of thirty feet in the black shale. It was a very heavy lubricating oil. In Dickson county, west of Nashville, oil has been found in the Nashville rocks at the depth of five hundred and forty-two feet.

The following conclusions may be deduced from the facts presented: First, that the petroleum in Tennessee is not confined to any particular formation, but finds its storage in the crevices of the siliceous rocks of the lower Carboniferous, as on Spring creek; in the black shale, as on Tramell's creek; in the Nashville rocks, as on Eagle creek, at Butler's landing, and in Dickson county, west of Nashville. The spring or natural outlets show a similar range of formations. At Spring creek oil exudes from the alluvial deposits lying above the lower member of the Siliceous group; on Kogers's farm, on the west fork, from alluvium, based upon layers of shaly limesone; on Eagle creek and Franklin creek, from fluviatile deposites, resting on the black shale; on Obey's river, just below the mouth of Franklin creek, from beneath the black shale, and at numerous places from this point down to the mouth of the river, oil bubbles up from the Nashville rocks. Second, the conditions of storage in the Tennessee oil region are not so favorable for the preservation of petroleum as they are in the oil region of Pennsylvania. In Tennessee the oil finds a lodgment only in the crevices of rocks lying above or below the black shale, rarely in the black shale. The wells will probably be quickly exhausted. There is wanting a porous, absorptive sandstone, surrounded by an impervious formation to prevent leakage. The unusual number of oil springs shows that nature has not provided sufficient storage for her precious products. The remains of organic life, animal and vegetable, disseminated through argillaceous material, constitute in abundance the elements necessary for generating petroleum, but the provisions to prevent wastage are inadequate. Owing to the absence of porous sandstone the oil supply in Tennessee, as has been stated, is collected in fissures, or cavities, which are soon emptied. There will probably be proportionably more wells known as "spouters" in the Tennessee than in the Pennsylvania oil region, and fewer durable wells. In the "spouters" the oil is forced up above the surface by gas-pressure.

THREE CONDITIONS ARE NECESSARY ANTECEDENTS TO A PRODUCTIVE OIL REGION:

First—There must be the elements for generating oil or mother-rock.

Second—There must be an ample storehouse, provided either in the interstices of a porous sandstone, which is best, or in cavities in limestone, or fissures in or between other strata.

Third—These storehouses must be sealed up in an impervious formation, but this impervious surrounding must include both the mother or generating-rocks, and the storage rocks are not to come between them.

Petroleum may be generated and lost for want of a suitable reservoir to collect and preserve it; or there may be a reservoir, but no elements existing for its generation; or there may be both of these, but the want of an impervious surrounding may permit the oil to dribble away as fast as formed. All these conditions must coexist or a productive oil-field is impossible.

The most difficult problem to solve is how the oil is generated or from whence it comes that is found in the cavities of a hard, impervious, flinty rock, which shows no remains of organic life. But one solution presents itself to my mind, and that is, the place now occupied by these cavities may have been filled with organic matter, which has been transmuted into petroleum in Nature's lampless laboratory.

Personal Sketches.

Johnson's new *Illustrated Universal Encyclopedia* contains the following brief sketch of the life and works of Dr. John Berrien Lindsley, M.D., D.D.: "He was born at Princeton, New Jersey, October 24, 1822; educated in Nashville, Louisville, Philadelphia and Paris; was elected, in 1856, professor of chemistry and dean of the faculty of the medical department of the university of Nashville; in 1855 was made chancellor of that university, which, for several years before the war, had classes of six hundred students. After the death of his preceptor, the celebrated Dr. Troost, from whom he imbibed the love of the sciences, he became the curator of his splendid cabinet, which, in 1874, was purchased by the Kentucky library association, and thrown open to the public; has contributed papers on education to the press, also to the *Theological Medium*, the quarterly of the Presbyterian church. From 1873 to 1876 was engaged in compiling the medical annals of Tennessee, in connection with the great historian, J. G. M. Ramsey.

In connection with the above, Dr. Lindsley has been chosen health-officer of the city of Nashville, and has now in press a full and complete report of his first year's labors—a handsome octavo volume of two hundred pages.

From the same encyclopedia the following brief sketch of the life and works of Prof. O. C. Marsh is excepted. Othniel Charles Marsh, F. G. S., was born Lockport, New York, October 29th, 1831; prepared for college at Phillips academy, Andover, Massachusetts, graduated at Yale college 1860, and at Yale scientific school in 1862; prosecuted scientific studies at the university of Berlin, Heidelberg and Breslau, 1862-65, and was appointed professor of paleontology in Yale college, 1866. He has written largely upon that science in the *American Journal of Science* and elsewhere. For the last few years he has been investigating the extinct animals of the Rocky Mountain region in North America, discovering more than two hundred animals before unknown, most of which he has described. In 1875 he was engaged in the preparation of an extended memoir on this subject.

The latter named paper was read before the science association at Nashville at the present session.

Nashville *American:* Prof. Cope, who is now attending the meeting of the American association for the advancement of science, ranks as one of the first naturalists in the world. His work has been highly commended by Mr. Darwin, and Prof. Owen, of the British museum, pronounces him one of most thorough workers in the whole field of science. With such a career at thirty-seven years of age, the promise of Prof. Cope's future is pregnant with still greater achievements in the vast field of investigation to which he has been called to work. He was born in the city of Philadelphia in 1840, was educated at various schools, and by the private tuition of Dr. Thomas, author of the *Pronouncing Gazeteers of the World* and the *Biographical Gazetteer.* He took a three years practical medical course in the University of Pennsylvania, and studied anatomy in Europe in 1863-4. He was professor of natural science in Hartford college, Philadelphia, for several years, and has been curator and corresponding secretary of the Academy of Natural Sciences. He early exhibited a taste for the natural sciences, and has devoted himself to biology in all its bearings. His work has extended into three fields, namely: that of zoology proper, of paleontology, or history of the life of the past, and special studies of the phenomena of evolution. In the furtherance of the science of geology and paleontology, he has made extensive collections in the eastern States, and has conducted several exploring expeditions in the west. In 1871 he explored the cretaceous formations of Kansas; in 1872, the eocene of Wyoming; in 1879, the tertertiary beds of Colorado; in 1874, employed by the U. S. G. G. survey, under Lieutenant G. M. Wheeler, in New Mexico; in 1875, in northern Montana; and the present year has several parties exploring the western regions. The result of these expeditions has been the creation of a collection of over five hundred species of extinct vertebrate animals, of which Prof. Cope has made known to science at least three hundred species. The structure of these animals is in the highest degree remarkable, and has been published in numerous papers, read before the scientific societies of Philadelphia, or published in the reports of the Hayden United States government survey of the Territories, to which he is paleontologist of vertebrata, or in those of Lieutenant Wheeler. In zoology, Prof. Cope has chiefly published essays on fishes, batrachians and reptiles of various parts of the world, and has made various new observations on the anatomy of these animals, which have resulted in new views of their systematic arrangement. In the history of the modern doctrine of evolution, Prof. Cope has had a share. He early resisted the too exclusive use of the doctrines of natural selection and avatism which the English naturalists have adopted, and proposed that the history of the origin of variation is the true field of the history of evolution. He has published a number of papers on the subject, commencing in 1869, which are to be found in the proceedings of the Philadelphia scientific societies and the *Pennsylvania Monthly Magazine.* He has carried the question into metaphysics, adopting the Leibnitzian view of the origin of "instinct" and reason, has insisted on the importance of consciousness as a factor in evolution, and has opposed the purely automatic school in the question of will. He is the author of the doctrine of "acceleration and retavation," of "repetition," of the "doctrine of the unspecialized," and of a theory of the origin of the will.

NEW PUBLICATIONS.

A HOME FOR THE IMMIGRANT is the title of a descriptive pamphlet published by the Jefferson County immigration society, Arkansas.

THE SEPTEMBER number of Bentley's *Book-Buyer* is out. This work is devoted to the review of books, magazines and general literature.

THE CHRONICLE, a weekly journal devoted to insurance, and edited by J. J. W. O'Donohue, New York, makes its appearance regularly and sustains its well-earned reputation.

WE have received the *Order of Parade and Review* at the twentieth triennial conclave of the grand encampment, K. T. of the United States, held in Cleveland, Ohio, August 28th.

THE fourth number of *Vick's Floral Guide* for 1877 has reached us, and is replete with interesting information. From January on the *Floral Guide* will be issued as a monthly magazine.

FACTS FOR FARMERS is the title of a pamphlet issued by the merchants and business men of Hope, Hempstead county, Arkansas. The pamphlet is printed by Blackburn & Story.

VALUE MEASURE, INTRINSIC AND EXTRINSIC, is the title of a paper by Timothy Wright, whose purpose is to give a scientific and final solution of the monetary problem. The paper is issued from the press of J. F. Sherry, Washington.

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