

Northern Kentucky Views Presents:

The New Kentucky River Bridge

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THE NEW KENTUCKY RIVER BRIDGE

A DESCRIPTION OF THE GREAT STRUCTURE, WITH SKETCHES OF PROMINENT MEN CONNECTED WITH IT.

THIS ENTERPRISE WHICH HAS JUST BEEN COMPLETED IS ONE OF STUPENDOUS PROPORTION WHEN CONSIDERED WITH REFERENCE TO THE SMALL RESOURCES AND FEW MEN THAT WERE BACK OF IT. IT NOW ASSUMES A PROMINENT PLACE IN THE AFFAIRS OF THE CARROLL COUNTY PUBLIC. THE IDEA OF A BRIDGE ACROSS THE KENTUCKY RIVER AT THIS PLACE WAS CONCEIVED AS FAR BACK AS THE '70'S, PRIOR TO THE RECOLLECTION OF MANY NOW LIVING, AT WHICH TIME THE FIRST CHARTER WAS GRANTED, BUT NOTHING EVER CAME OF IT.

IT WAS NOT UNTIL THE FALL OF 1897 THAT THE SPIRIT OF ENTERPRISE IN CARROLL COUNTY HAD GROWN TO SUCH HEROIC PROPORTIONS AS TO LEAD TO AN EARNEST SYSTEMATIC EFFORT TO CONSTRUCT THE BRIDGE. AT THAT TIME THE WELL-KNOWN PUSH, ENERGY AND DETERMINATION OF M. I. BARKER, JAMES F. JETT, H. L. DOWNS AND OTHERS RECEIVED SUFFICIENT SUPPORT FROM CARROLL COUNTY AND THE CITY OF CARROLLTON AS TO ALLOW THE MATTER TO TAKE DEFINITE SHAPE.

IN NOVEMBER, 1897, THE FIRST PRELIMINARY SURVEY WAS MADE AND THE PROMOTION OF THE FINANCIAL END OF THE LARGE SCHEME WAS GIVEN ESPECIAL ATTENTION.

IN THE FALL OF 1898 ALL MATTERS HAD PROGRESSED TO SUCH A POINT THAT A COMPANY WAS FORMED, A CHARTER OBTAINED, AND A NUMBER OF THE LEADING CITIZENS OF THE CITY AND COUNTY BECAME STOCKHOLDERS, SOME OF THEM EVINCING A SPIRIT OF GREAT LIBERALITY. IN THE ORGANIZATION MR. M. I. BARKER WAS MADE PRESIDENT, JAMES M. GAUNT VICE-PRESIDENT, M. L. DOWNS SECRETARY AND JAMES F. JETT TREASURER; AND THESE GENTLEMEN, TOGETHER WITH RALPH M. BARKER, CONSTITUTED THE FIRST BOARD OF DIRECTORS.

THE GENERAL PUBLIC IS AWARE OF THE FACT THAT A BITTER CONTROVERSY WAS WAGED ON ACCOUNT OF THIS BRIDGE WITH CERTAIN PARTIES WHOSE INTERESTS WERE INIMICABLE TO THE BRIDGE, BUT THE PUBLIC DOES NOT KNOW OF THE BITTERNESS AND INTENSITY OF THE FIGHT, AND THE PERSISTENCY WITH WHICH IT WAS WAGED THROUGH THE SUMMER OF 1899. IT IS SUFFICIENT TO SAY THAT CERTAIN INFLUENTIAL STEAMBOAT INTERESTS ANTAGONIZED THE BUILDING OF THE BRIDGE. THE GENTLEMEN WHO WERE PROMOTING IT WERE FOUGHT THROUGH SEVERAL UNITED STATES ENGINEERS' OFFICES AND UP TO THE SECRETARY OF WAR, THOSE WHO OPPOSED THE SCHEME DEMANDING THAT THE BRIDGE SHOULD BE PLACED AT SUCH AN ALTITUDE AS TO PLACE IT ENTIRELY BEYOND THE MEANS AND RESOURCES OF THE PROJECTORS. IT WILL BE REMEMBERED THAT THE COMMISSION OF UNITED STATES ENGINEERS

ASSEMBLED AT CARROLLTON BY ORDER OF THE SECRETARY OF WAR TO VIEW THE SITE, HEAR PROOF AND DETERMINE THE HEIGHT AT WHICH THE BRIDGE SHOULD BE PLACED. IT WILL ALSO BE REMEMBERED THAT THE SAME STEAMBOAT INTERESTS WERE HERE WITH THEIR CONTENTION THAT THE BRIDGE SHOULD BE SKY-HIGH, BUT THE BRIDGE PEOPLE FOUGHT MANFULLY, AND IN THEIR EFFORTS WERE ABLY SECONDED BY THAT GREAT CONGRESSMAN, THE HON. ALBERT S. BERRY, WHO CAME AND MADE AN ADDRESS BEFORE THE BOARD. THE HEARING WAS ADJOURNED TO CINCINNATI BEFORE A DECISION WAS REACHED, AND IT WAS NECESSARY FOR THE BRIDGE PEOPLE TO TAKE NUMEROUS WITNESSES AND ADVOCATES TO THAT CITY, FOR THE STEAMBOAT INTERESTS WERE THERE CONTESTING EVERY INCH OF GROUND.

COL. BERRY WAS THERE, ALSO, AND MADE A VERY FORCIBLE ARGUMENT- A DETERMINED EFFORT. THE DECISION OF THE BOARD WAS REGARDED AS VERY UNFAVORABLE TO THE BRIDGE INTEREST; IN FACT, THERE COULD HAVE BEEN NO BRIDGE BUILT AT THIS TIME, IF A REVERSAL OF THE DECISION HAD NOT BEEN OBTAINED. COL. BERRY AND CERTAIN OFFICERS OF THE BRIDGE WENT ON TO WASHINGTON, AND GOT A HEARING BEFORE THE SECRETARY OF WAR, AND AFTER A MOST VIGOROUS AND DETERMINED PROSECUTION OF THEIR AIM, SUCCEEDED IN GETTING, NOT A REVERSAL EXACTLY, BUT A COMPROMISE. THIS COMPROMISE REQUIRED, THAT THE BRIDGE SHOULD STAND EIGHTY-ONE FEET ABOVE LOW WATER IN THE CLEAR, AND IT IS REMARKABLE AMONG HIGHWAY BRIDGES IN THAT ONE FEATURE. IN THE TIME OF OUR DISTRESS ALL EYES WERE TURNED TO COL. BERRY FOR ASSISTANCE, AND HE CHEERFULLY GAVE IT IN EACH SEPARATE MOVE BY THE BRIDGE PEOPLE, FOR HIS EXPERIENCE AND HIS ABILITY POINTED OUT THE EASIEST SOLUTION OF EVERY PROBLEM.

THE PERMIT FROM THE SECRETARY OF WAR, AND WITH IT A FINAL SETTLEMENT OF ALL DIFFICULTIES, WAS SECURED IN JULY, 1899, AND THE CONTRACT WAS LET TO THE INDIANA BRIDGE COMPANY, OF MUNCIE, IND., AND ACTIVE WORK BEGAN ON AUGUST 29TH, FOLLOWING.

DESCRIPTION

THE ENTIRE LENGTH OF THE STRUCTURE FROM ONE EXTREME OF EARTH-FILL TO THE OTHER END IS 1,825 FEET. THE WOODEN APPROACH ON THE EAST SIDE IS 465 FEET; THAT ON THE WEST SIDE, 345 FEET. THE BRIDGE CONSISTS OF THESE WOODEN AND EARTH APPROACHES, TOGETHER WITH 550 FEET OF STEEL WORK, THE LATTER BEING MADE UP OF A MAIN SPAN OF 300 FEET, TWO END SPANS OF 75 FEET EACH, AND 100 FEET OF STEEL TRESTLE WORK.

THE MAIN SPAN OF 300 FEET CONSISTS OF TWELVE PANELS OF TWENTY-FIVE FEET EACH, AND IT IS FIFTY FEET HIGH FROM CENTER TO CENTER OF PINS. A GENERAL IDEA OF THE BRIDGE WILL BE OBTAINED FROM THE PICTURE SHOWN IN THIS EDITION, BUT IT DOES NOT SHOW THE BRIDGE IN ITS FINISHED STATE. THE BALUSTERS REMAIN TO BE PUT ON EITHER SIDE.

THE MAIN PIERS ARE SOMEWHAT OF A NOVELTY. MOST BRIDGES OF THIS SPAN AND HEIGHT ARE SET UPON PIERS BUILT OF MASONRY.

IN THIS SPECIAL CASE IT WAS FOUND THAT THE WEIGHT OF THE STONE PIERS WOULD BE SO GREAT THAT IT WOULD BE ALMOST IMPOSSIBLE TO FIND A SUITABLE FOUNDATION FOR THEM IN THE MATERIAL WHICH FORMED THE RIVER BANKS.

IT WAS DECIDED, THEREFORE, TO USE THE PLAN OF MAKING THE PIERS OF STEEL TUBULAR COLUMNS, AND FILLING THE TUBES WITH CONCRETE. A GENERAL DESCRIPTION OF THE PIERS FOLLOWS:

BEGINNING AT THE TOP OF THE PIERS, WE HAVE A LARGE THICK CAST SHOE TO RECEIVE THE WEIGHT OF THE BRIDGE, WHICH RESTS UPON A PLATE $1\frac{1}{4}$ INCHES THICK, WHICH, IN TURN, RESTS UPON A LARGE CAP THAT COVERS THE ENTIRE TOP OF THE COLUMN. THIS CAP BEARS UPON THE CONCRETE FILLING OF THE COLUMN.

IT WOULD BE WELL IN PASSING TO DESCRIBE THE NATURE OF THE CONCRETE WHICH IS USED TO FILL THE TUBES. IT IS A MIXTURE OF BROKEN STONE AND CEMENT MORTAR. THE MORTAR IS COMPOSED OF PORTLAND CEMENT OF THE BEST GRADE, AND THE STONE IS ADDED BEFORE PLACING IN THE TUBES. THE NATURE OF THIS CEMENT IS SUCH THAT THE MORTAR OF WHICH IT IS MADE BECOMES UPON SETTING, AS HARD AS MANY KINDS OF GOOD LIMESTONE. THE RESULT OF THIS FIRM SETTING OF MORTAR IS THAT THE ENTIRE MASS OF CONCRETE, COMPOSED OF THE BROKEN STONE AND MORTAR, IS UNITED INTO ONE SOLID, HOMOGENEOUS BODY FORMING A PILLAR OF HARDEST STONE, ENCASED IN A STEEL SHELL- THE LOWER HALF OF THE SHELL BEING $\frac{1}{2}$ INCH AND THE UPPER HALF $\frac{3}{8}$ INCH IN THICKNESS.

EACH PIER IS COMPOSED OF TWO OF THESE TUBES, EIGHT FEET IN DIAMETER AND SEVENTY FEET HIGH, BRACED TOGETHER WITH THREE PANELS OF BRACING, EACH PANEL COMPOSED OF TEN-INCH CHANNEL STRUTS AND A DOUBLE SET OF RODS $1\frac{3}{4}$ INCHES SQUARE. THIS BRACING IS PLACED BETWEEN THE COLUMNS AND PREVENTS ANY MOVEMENT UP OR DOWN STREAM. MOTION TO OR FROM THE RIVER IS TAKEN CARE OF IN A MANNER DESCRIBED FURTHER ALONG.

EACH OF THE COLUMNS, PROPER, IS PLACED ON A PEDESTAL OF THE BEST CLASS OF MASONRY. THIS PEDESTAL IS ELEVEN FEET SQUARE AT THE TOP, EIGHTEEN FEET SQUARE AT THE BOTTOM AND THIRTEEN FEET HIGH. THE BOTTOM OF THE MASONRY IS AT SUCH A LEVEL AS TO INSURE ITS NEVER BEING UNCOVERED BY THE WATER IN THE RIVER. DIRECTLY UNDER THE MASONRY IS A PLATFORM OF TIMBERS, ONE FOOT SQUARE AND THREE FEET THICK, AND PLACED UPON THE TOPS OF THE PILES WHICH WERE SAWN OFF TO A UNIFORM HEIGHT.

THESE PILES WERE ALL DRIVEN AS FAR AS THEY COULD BE FORCED BY A HAMMER WEIGHING 2,500 POUNDS AND FALLING 30 FEET. THE AVERAGE PENETRATION OF THEM IS ABOUT TWENTY-ONE FEET INTO THE SAND AND GRAVEL MATERIAL UNDERLYING THE RIVER MUD, MAKING THE ENTIRE DEPTH BELOW THE TOP OF THE STONE PEDESTALS 37 FEET.

THIS FOUNDATION CARRIES THE WEIGHT OF THE ENTIRE STRUCTURE DOWN PAST THE BANKS PROPER AND PLACES IT ON THE HARD AND UNYIELDING BED OF GRAVEL AND BOULDERS LYING UNDER THE RIVER.

ON EACH SIDE OF THE RIVER THE TWO COLUMNS ARE SUPPORTED BY 98 OAK PILES, 12 TO 18 INCHES IN DIAMETER AND AVERAGING 21 FEET LONG, BELOW THE POINT OF CUT-OFF AT THE TOP.

BY MEANS OF THESE PEDESTALS THE WEIGHT IS DISTRIBUTED OVER AN AREA OF 20 X 50 FEET, GIVING A SUFFICIENTLY LOW PRESSURE PER SQUARE FOOT TO COME WITHIN THE MOST CONSERVATIVE LIMITS OF THE BEST PRACTICE AMONG ENGINEERS, FOR ESTABLISHING THE BEARING POWER OF FOUNDATIONS.

AN INSPECTION OF THE PICTURE OF THE BRIDGE, IN THIS EDITION, WILL SHOW THAT THE POSTS, UNDER THE SHORE ENDS OF THE SPANS (75 FOOT TRUSSES), ARE BRACED TOGETHER IN ALL DIRECTIONS IN SUCH A WAY AS TO FORM A TOWER CAPABLE OF RESISTING AN OVERTURNING FORCE.

THE TOPS OF THOSE TOWERS AND THE TOPS OF THE MAIN PIERS ARE CONNECTED BY THE 75 FOOT TRUSSES SPANNING THE SPACE BETWEEN THEM. THE "LOWER CHORD" OR TENSION MEMBERS OF THE TRUSSES ARE HERE MADE CAPABLE OF RESISTING COMPRESSION SO THAT THE MAIN PIERS MAY BE HELD RIGIDLY IN A VERTICAL POSITION AND NOT ALLOWED TO SWAY WHEN PUSHED BY DRIFTWOOD OR CRAFT IN THE RIVER.

SUCH COLUMNS ARE NOW EXTENSIVELY USED INSTEAD OF MASONRY IN THOSE REGIONS WHERE STONE IS HARD TO OBTAIN, OR WHERE THE UNDERLYING MATERIAL IS OF SUCH A CHARACTER AS TO BE INCAPABLE OF SUPPORTING THE GREAT WEIGHT OF THE HIGH MASONRY PIER.

THE CONSTRUCTION OF THE BRIDGE AS TO MATERIAL AND WORKMANSHIP WAS SPECIALLY LOOKED AFTER WITH THE IDEA OF MAKING IT STRICTLY IN CONFORMITY WITH THE BEST MODERN PRACTICE OF ENGINEERS. EVERY INCH OF STEEL WAS THOROUGHLY TESTED ACCORDING TO SCIENTIFIC METHODS BEFORE IT WAS PLACED. EVERY ARTICLE IN THE GREAT STRUCTURE, FROM THE PILES THAT WERE SUNK DEEP IN THE EARTH UP TO THE SUMMIT OF THE BRIDGE, WAS NEEDED TO MEET THE HIGHEST REQUIREMENTS, AND EVERYTHING DONE IN THE PROCESS OF CONSTRUCTION WAS LOOKED AFTER BY A MOST CAPABLE AND CONSCIENTIOUS GENTLEMAN, AND REQUIRED TO BE DONE IN THE MOST PERFECT MANNER. THE ENTIRE STEEL WORK IS DESIGNED TO CARRY A RAILROAD TRACK, BEARING AN ELECTRIC LOCOMOTIVE, WEIGHING 80,000 POUNDS AND HAULING TWO HEAVILY LOADED FREIGHT CARS.

BARKER - JETT - ORR - DOWNS

A NUMBER OF PERSONS SUBSCRIBED LIBERALLY TO THE STOCK. THE COUNTY WENT HER LIMIT, AND SO DID THE CITY OF CARROLLTON. BUT AFTER ALL THIS HAD BEEN DONE, THE BRIDGE COULD NOT HAVE BEEN BUILT BUT FOR THE AID EXTENDED BY TWO GENTLEMEN -- MR. M. I. BARKER AND MR. J. F. JETT. THEY LENT THE COMPANY THEIR FINANCIAL CREDIT; THEY GUARANTEED, BEFORE THE CONTRACT WAS LET THAT THE COUNTY WOULD SUBSCRIBE \$20,000, AND THAT THE CITY WOULD SUBSCRIBE \$6,000, AND THEN VOUCHERED FOR THE LEGALITY OF THE SUBSCRIPTIONS OF BOTH COUNTY AND CITY. THEY WENT INTO BANK AND BORROWED LARGE SUMS OF MONEY TO PAY FOR THE WORK AS IT PROGRESSED, PENDING THE DEPAID PAYMENTS BY THE CITY AND COUNTY. IN SHORT, THEY DID FOR THE ENTERPRISE WHAT FEW OTHER PERSONS WERE FINANCIALLY ABLE TO DO--AND WHAT NO OTHER INDIVIDUALS WERE WILLING TO DO. ALL HONOR TO MESSRS. BARKER AND JETT.

AGAIN JUDGE JOHN J. ORR STOOD SHOULDER TO SHOULDER WITH THE OTHER TWO GENTLEMEN, CONFERRING WITH THEM FREQUENTLY AND DID WITHIN HIS POWER TO HAVE THE COUNTY BEAR A JUST SHARE OF THE BURDEN. THERE WERE TECHNICALITIES THAT MIGHT HAVE JUS-

TIFIED SOME MEN, OFFICIATING IN THE PLACE OF COUNTY JUDGE, IN WITHHOLDING THE \$20,000 OR IN REFUSING TO SUBSCRIBE AT ALL, BUT JUDGE ORR TRAMPLED THEM UNDER FOOT AND CONSIDERED THE GREAT QUESTION ON ITS MERITS, FEELING^{*} ASSURED THAT IT WAS BUT RIGHT THAT THE COUNTY SHOULD BEAR A LARGE PART OF THE EXPENSE. ALL HONOR TO JUDGE ORR.

BUT SOME ONE WAS NEEDED WITH A FULL APPRECIATION OF THE OPPORTUNITY, AND WITH POWER TO COMBINE ALL AVAILABLE FORCES IN AN EFFORT TO ACCOMPLISH THE GREAT WORK. THE OCCASION PRODUCED THE MAN IN THE PERSON OF MARTIN L. DOWNS, ESQ., AND WE KNOW OF NO OTHER MAN WHO COULD HAVE SUCCEEDED SO WELL.

ALL HONOR TO THE "BIG 4" -- MESSRS. BARKER, JETT, ORR AND DOWNS!

THE INDIANA BRIDGE COMPANY

THE CONTRACT WAS LET TO THE INDIANA BRIDGE Co., OF MUNCIE, INDIANA, AND FOR ABOUT FOURTEEN MONTHS THE WORK HAS BEEN IN PROGRESS. UNLESS THE INDIANA BRIDGE Co. DESERVED PRAISE, THERE COULD BE ABSOLUTELY NO REASON WHY THE "DEMOCRAT" SHOULD BESTOW IT. BUT THAT COMPANY DOES DESERVE UNSTINTED PRAISE. FROM THE INCEPTION OF THE WORK TILL THE DAY IT WAS TURNED OVER TO THE OWNER-COMPANY, THE INDIANA BRIDGE COMPANY MET EVERY REQUIREMENT OF HONOR AND GOOD WORKMANSHIP, WHETHER STIPULATED IN THE CONTRACT OR NOT. INDEED, IT DID MORE THAN WAS REQUIRED IN THE AGREEMENT, IN SEVERAL RESPECTS, AND IT IS GRATIFYING TO REALIZE IN THIS AGE OF GREED AND SELFISHNESS THAT A GREAT SOMpany LIKE THE INDIANA BRIDGE Co. CAN BE FOUND WITH SUCH A LIBERAL POLICY--THAT OF WEAVING INTO THE WARP AND WOOF OF ALL ITS OPERATIONS THE PRINCIPLES OF HONOR AND INTEGRITY.

OTHER IMPORTANT PERSONAGES

MR. C. M. KIMBROUGH, THE PRESIDENT OF THE COMPANY, IS A MAN AMONG TEN THOUSAND. BROAD-MINDED AND NOBLE SPIRITED, HE HAS THE CAPACITY TO SUCCESSFULLY ADMINISTER GREAT AFFAIRS WITHOUT ENTERING IN A LEAGUE WITH DISHONOR.

HIS COMPANY HAS CONSTRUCTED AND IS CONSTRUCTING GREAT STEEL BRIDGES, VIADUCTS, ELEVATORS, ETC., ALL OVER THE UNITED STATES AND IN SOME OTHER COUNTRIES, EMPLOYING NUMEROUS LARGE CREWS OF MEN. IT IS FORTUNATE THAT THE CARROLLTON & PRESTONVILLE BRIDGE Co. DEALT WITH SUCH A LIBERAL MAN; OTHERWISE THE KENTUCKY RIVER BRIDGE WOULD NOT HAVE BEEN CONSTRUCTED.

MR. S. B. KNOX, THE INDIANA BRIDGE COMPANY'S AGENT, HAD MUCH TO DO WITH PROVIDING WAYS AND MEANS FOR THE LOCAL COMPANY. HE JOINED OUR CITIZENS IN THEIR FIGHT WITH THE ANTAGONISTIC POWERS OF THE RIVER INTERESTS, AND IN EVERY CONTEST FROM CARROLLTON TO WASHINGTON WAS A HERO IN THE STRIFE.

THE CONSTRUCTION COMPANY'S SUPERINTENDENT WAS MR. JOHN D. PALMER, AND HE WAS THOROUGHLY IMBUED WITH THE SPIRIT THAT SHAPES HIS COMPANY'S POLICY--HONESTY AND FAIR DEALING. NO MAN EVER CAME AMONG US AND MADE SO MANY WARM FRIENDS IN AN EQUAL PERIOD OF TIME. BE IT SAID TO HIS CREDIT, HE GAVE PREFERENCE

TO LOCAL LABORERS, VERY FEW MEN HAVING BEEN BROUGHT FROM ABROAD.

THE BRIDGE WAS DESIGNED AND SPECIFICATIONS PREPARED BY MR. GEORGE T. WAITE, A CIVIL ENGINEER OF CINCINNATI, WHO ALSO SUPERINTENDED THE CONSTRUCTION FROM START TO FINISH, MOVING HIS FAMILY HERE. INTENDING THE BRIDGE BOTH FOR THE PURPOSE OF HIGHWAY TRAVEL AND THAT OF AN ELECTRIC RAILWAY, THE LOCAL COMPANY'S FIRST AIM WAS TO GET A THOROUGHLY CAPABLE AND CONSCIENTIOUS ENGINEER--AND SUCH A MAN WAS FOUND IN THE PERSON OF MR. WAITE. BESIDES HIS SCIENTIFIC ACCOMPLISHMENTS HE HAS A LOFTY PRIDE IN HIS PROFESSION. ACCORDINGLY ALL HIS REQUIREMENTS WERE BACKED BY BOTH KNOWLEDGE AND A REFINED SENSE OF RIGHT. CONSEQUENTLY THERE WAS NEVER ANY SERIOUS CLASH. BOTH PARTIES TO THE CONTRACT ARE PLEASED WITH HIM. THE DEMOCRAT WOULD HAVE PRESENTED MR. WAITE'S PORTRAIT BUT FOR HIS INDISPOSITION TO FURNISH A PHOTOGRAPH, DUE NO DOUBT BOTH TO MODESTY AND HIS REGARD FOR PROFESSIONAL ETHICS.

IT IS A GREAT BRIDGE, COSTING SOMETHING LESS THAN \$100,000. ITS CONSTRUCTION IS A PROUD ACHIEVEMENT AND MARKS AN EPOCH IN THE MATERIAL DEVELOPEMENT OF THIS SECTION OF KENTUCKY.

THE FIRST DAY THAT THE KENTUCKY RIVER BRIDGE WAS OPENED MORE THAN 4,000 PEOPLE CROSSED OVER INTO CARROLLTON. A COUNT WAS KEPT UNTIL 10 O'CLOCK--3,500.

