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MS 76
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C. & O. R. R.

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COVINGTON AND OHIO RAILROAD.

(QUOTED FROM REPORTS OF C. B. FISK, ESQ., CHIEF ENGINEER.)

1855: OPERATIONS OF THE ENGINEER CORPS SINCE THE WINTER OF 1853-54.

"T. C. RUGGLES, WHO HAD BEEN AND STILL WAS IN CHARGE OF THE WORK UNDER CONTRACT OF THE WESTERN DIVISION, AND G. L. THORNDIKE AND A. BLAIR, JR., WHO HAD BEEN AND STILL WERE WITH HIM AS RESIDENT ENGINEERS, WERE ALL CONTINUED IN SERVICE ON THIS DIVISION. MR. RUGGLES, ASSISTED BY G. MCKENDREE AS LEVELLER, PERFORMED ALSO THE DUTIES OF RESIDENT ENGINEER ON A PART OF THE DIVISION- - -.

"THE REVISED ESTIMATES OF THE WESTERN DIVISION WERE RETURNED TO ME BY MR. RUGGLES ABOUT THE FIRST OF THIS MONTH (NOVEMBER 1855) AND AS THE WORK ON THAT DIVISION IS ENTIRELY SUSPENDED, THE ENGINEER CORPS EMPLOYED ON IT, WHICH HAS BEEN FOR SEVERAL MONTHS LESSENING, IS NOW ENTIRELY DISPENSED WITH - - - -.

" - - - AND WHENEVER A CONNECTION IS FORMED AT THE WESTERN TERMINUS OF THE COVINGTON AND OHIO WITH THE KENTUCKY ROAD, IT MUST BE BY MEANS OF A BRIDGE ACROSS THE BIG SANDY, CONSTRUCTED I PRESUME, AT THE JOINT EXPENSE OF THE VIRGINIA AND KENTUCKY ROADS- - - THE LINE AT OR NEAR BIG SANDY, AND IN FACT FOR SOME THREE OR FOUR MILES EAST OF THAT STREAM IS NOT CONSIDERED AS FINALLY ESTABLISHED, FOR THERE IS SOME UNCERTAINTY AS TO THE POINT OF CROSSING THE BIG SANDY THAT WOULD BEST ACCOMMODATE THE ROADS TO BE CONNECTED- - - BESIDES THE QUESTION AS TO THE POINT OR POINTS ON THE OHIO RIVER THAT WOULD BEST SUIT THE COVINGTON AND OHIO RAILROAD FOR A DEPOT, OR DEPOTS IS STILL AN OPEN ONE, AND THE DECISION OF THAT QUESTION MAY HAVE SOME EFFECT ON THE LOCATION OF THE PART OF THE ROAD REFERRED TO.

"THE GROUND FOR SEVERAL MILES ABOVE THE BIG SANDY IS VERY FAVORABLE FOR THE CONSTRUCTION OF THE ROAD, AND ADMITS OF CHANGES BE-

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BEING MADE IN THE LOCATION, WITHOUT OCCASIONING ANY MATERIAL DIFFERENCE IN THE COST OF THE WORK.

"A LINE, HOWEVER, WAS RUN ON THIS PART OF THE ROUTE TERMINATING ON THE WEST BANK OF THE BIG SANDY, AND AN ESTIMATE OF ITS COST IS INCLUDED IN THE ESTIMATE NOW SUBMITTED- - -.

" - - - FROM THE MOUTH OF GREENBRIER, WHICH IS 65 MILES FROM COVINGTON, THE LINE PASSES DOWN THE RIGHT BANK OF THE NEW RIVER 54-1/2 MILES TO MILLER'S FERRY, (WITHIN ABOUT A MILE OF THE HAWK'S NEST), WHERE IT CROSSES TO THE LEFT BANK. IT THEN RUNS ON THAT SIDE NEARLY EIGHT MILES TO THE MOUTH OF THE RIVER, WHERE NEW RIVER, UNITING WITH THE GAULEY, FORMS THE KANAWHA. THIS POINT IS 127-1/7 MILES FROM COVINGTON. THENCE THE LINE PASSES ALONG THE LEFT SIDE OF THE KANAWHA RIVER VALLEY 52-1/5 MILES TO THE MOUTH OF SCARY. HERE IT LEAVES THE VALLEY AND PASSES BY WAY OF TEAY'S VALLEY TO MUD RIVER, AND HAVING CROSSED THAT RIVER TWICE, ENTERS THE VALLEY OF THE GUYANDOTTE RIVER 26-1/2 MILES FROM THE MOUTH OF SCARY. IT THEN RUNS DOWN THE RIGHT SIDE OF THE VALLEY OF THAT RIVER 5-3/4 MILES TO THE GUYANDOTTE ON THE OHIO RIVER - - -. CROSSING THE GUYANDOTTE RIVER, THE LINE RUNS ON THE LEFT SIDE OF THE VALLEY OF THE OHIO TWELVE MILES AND REACHES ITS WESTERN TERMINUS AT THE MOUTH OF BIG SANDY. ~~XX XNX XNX XXXXXX XXXXXXXX XXX XXXXXXXX XXXX 44.309~~
~~XXXXX~~ THE WHOLE DISTANCE FROM THE EASTERN TERMINUS AT COVINGTON TO ITS WESTERN TERMINUS ON BIG SANDY IS 223.627 MILES - - - -

" - - - THE WESTERN DIVISION, EXTENDING FROM THE MOUTH OF SCARY TO GUYANDOTTE ON THE OHIO RIVER AND THENCE DOWN THE VALLEY OF THE OHIO TO THE MOUTH OF BIG SANDY, AT THE LINE DIVIDING VIRGINIA AND KENTUCKY, LENGTH 44.309 MILES - - - THE GRADES UNDULATE, THE MAXIMUM GRADE ASCENDING WESTWARD BEING 29.67 FEET, AND ASCENDING EASTWARD 30 FEET ON STRAIGHT LINES, AND SUFFICIENTLY LESS ON CURVED LINES

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TO COMPENSATE FOR THE RETARDING EFFECTS OF THE CURVATURE.

" - - - ESTIMATED COST ON WESTERN DIVISION: 2,255,000 CUBIC YARDS EARTH EXCAVATION, \$455,258.00; 199,500 CUBIC YARDS SLATE AND LOOSE ROCK EXCAVATION, \$82,129.00; 578,000 CUBIC YARDS SOLID ROCK EXCAVATION, \$469,145.00; MISC. WORK \$3,600.00; CHANGING TURNPIKE AND COUNTRY ROADS, ALSO ROAD CROSSINGS \$12,750.00; CONTINGENCIES, \$16,600 - - - - TOTAL \$1,039,482.00.

"MASONRY, VIZ: SQUARE DRAINS, 18,400 YARDS MASONRY \$60,322.00. 5,500 CUBIC YARDS PAVING \$11,000.00; CATTLE GUARDS, FOUNDATIONS AND CONTINGENCIES, \$7,700.00. TOTAL \$79,022.00.

"ARCHED CULVERTS: 4,600 CUBIC YARDS SECOND QUALITY BRIDGE MASONRY \$23,098.00; 1,450 CUBIC YARDS FIRST QUALITY ARCH MASONRY \$18,850.00; FOUNDATIONS AND CONTINGENCIES \$9,000.00. TOTAL \$50,948.00.

"SMALLER CLASSES OF BRIDGES: 9,300 CUBIC YARDS SECOND QUALITY BRIDGE MASONRY \$37,214.00; 350 CUBIC YARDS PAVING \$700.00; FOUNDATIONS AND CONTINGENCIES \$4,400.00. TOTAL \$42,314.00.

"LARGER CLASS OF BRIDGES - - - - TOTAL \$111,592.00: SUPERSTRUCTURE; TOTAL \$12,377.00.

"ADD 10% FOR ENGINEERING, SUPERINTENDENCE AND ~~XXXX~~ CONTINGENCIES, \$144,713.00; ADD SINGLE TRACK SUPERSTRUCTURE AT \$10,000.00 PER MILE, INCLUDING THE REQUISITE SIDINGS AND CONTINGENCIES, ~~\$443,090.00~~ \$443,090.00; ADD WATER STATIONS AND DEPOTS AT \$1,100.00 PER MILE, \$48,740.00: ESTIMATED COST OF WESTERN DIVISION \$2,083,671.00.

" - - - - AMOUNT REQUIRED TO COMPLETE THE ENTIRE COVINGTON AND OHIO IS \$11,612,636 DOLLARS.

" - - - AT THIS TIME ALL THE TRAVEL BETWEEN THE WESTERN TERMINUS OF THE VIRGINIA CENTRAL RAILROAD AND THE OHIO RIVER IS CARRIED ON IN A SINGLE STAGE COACH IN EACH DIRECTION SIX TIMES A WEEK,

FOR LESS THAN HALF THE YEAR; AND THE REST OF THE YEAR BUT BUT THREE
TIMES - - -.

"ON THE WESTERN END OF THE ROAD THE WORK MUST BE CARRIED ON
MOSTLY WITH WHITE LABOR; WHILE ON THE EASTERN END A BLACK FORCE CAN
BE WORKED TO GREAT ADVANTAGE."

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REPORT OF C.B.FISK, CHIEF ENGINEER, AUGUST 31, 1861.

"WORK SUSPENDED.

"WORK ON WESTERN DIVISION, AMOUNT EXPENDED, \$511,341.98."

"POPULATION OF CABELL COUNTY, CENSUS OF 1860: FREE 7,715; SLAVE 305
TOTAL 8,020."

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FROM CHARLESTON COURIER, JANUARY 28, 1873:

" - - - THE LAST RAIL, IT IS CLAIMED, WILL BE LAID TO-MORROW IF GENERAL BRESLIN IS CORRECT WHEN HE ASSERTS THAT THE ARRIVAL OF THE FIRST TRAIN FROM RICHMOND WILL BE WELCOMED AT HUNTINGTON WITH A SALUTE OF 100 GUNS SURELY OUR METROPOLIS COULD AFFORD TO TAKE UP SOME OLD PIECE OF ORDNANCE AND GIVE THEM A PASSING SALUTE. LET THE "CITY FATHERS" LOOK TO IT THAT OUR CITY SHALL NOT BE BEHIND OUR "COUNTRY COUSINS" HUNTINGTON."

FROM RICHMOND WHIG, FEBRUARY 3, 1873:

"WHEN THE TRAIN LEFT RICHMOND ON THURSDAY EVENING, JANUARY 23, COLONEL WHITCOMB, CHIEF ENGINEER, TOLD THE GENTLEMEN WHO WERE ON IT WITH HIM THAT HE WOULD DELIVER THEM IN HUNTINGTON OVER THE CHESAPEAKE AND OHIO RAILROAD BY WEDNESDAY NIGHT, 29TH INSTANT. PUNCTUAL TO THE HOUR, WE, OF HUNTINGTON WHO HAD FAITHFULLY WAITED ON WEDNESDAY NIGHT AND ON TIME, THE HEAD LIGHTS OF THE ENGINE APPEARED AROUND THE BEND AND SHE RUSHED, SCREAMING, INTO OUR TOWN".

THE FIRST THROUGH TRAIN FROM RICHMOND TO HUNTINGTON: "TO SAY THAT THE OCCUPANTS OF THAT TRAIN WERE WELCOMED WOULD BE A FEEBLE WAY OF EXPRESSING THE ENTHUSIASTIC DISPLAY. A YELL BURST FORTH AS THEY CAME UP TO THE PLATFORM AND THE PASSENGERS WERE ALMOST DRAGGED OUT BY EAGER HANDS. SOME GENTLEMEN FROM RICHMOND TOOK A WALK AROUND HUNTINGTON ON THURSDAY A. M. VISITING THE PUBLIC SCHOOL, THE NEWSPAPER OFFICES, THE BANK, AND MANY OF THE STORES; BUT THE FIAT WENT FORTH THAT AT 1:30 THE TRAIN WOULD START BACK FOR YOUR (RICHMOND) CITY. SO AT THAT TIME "ALL ABOARD" WAS THE CRY, AND WITH THE COMPANY INCREASED BY THE ACCESSION OF SEVERAL GENTLEMEN FROM HUNTINGTON, THE 'IRON HORSE' STARTED ON HIS RETURN JOURNEY. THE EXPRESS TAR-

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RIED AT CHARLESTON TILL TOWARD EVENING AND THEN WENT TO KANAWHA, THE COMPANY COMPOSED OF COL. H. D. WHITCOMB, CHIEF ENGINEER; A. H. PERRY, GENERAL SUPERINTENDENT; COL. J. B. BALDWIN, OF STAUNTON; ALBERT LAIDLEY, OF BARBOURSVILLE; H. CHESTER PARSONS, ESQ. DIRECTOR C & O. HUNTINGTON; REV. J. WM. JONES, RICHMOND, CHAPLAIN; W. H. PLEASANTS AND MR. E. A. FISHER, OF THE DISPATCH; MR. ROBERT FISHER AND LADY, AND G. M. MORRIS AND LADY, OF HUNTINGTON; W. S. DOWNER, FORMERLY OF RICHMOND, NOW OF HUNTINGTON; J. HOOE RUSSELL, CASHIER OF HUNTINGTON BANK AND MAJOR P. G. DANDRIDGE, CHIEF ENGINEER S. AND R. R. R.

RICHMOND, VA.

RICHMOND WHIG, FEB. 3, 1873.

A MEETING OF CITIZENS WAS HELD ON FEBRUARY 1, EXCHANGE HOTEL TO PLAN A CELEBRATION WHEN THE FIRST TRAIN CAME IN FROM HUNTINGTON. IT WAS REPORTED TO THE MEETING THAT A DEMIJOHN FILLED WITH WATER FROM THE OHIO RIVER, HAD BEEN BROUGHT TO THE CITY BY THE TRAIN WHICH ARRIVED HERE SATURDAY. ON MOTION OF COLONEL ORDWAY IT WAS REQUESTED THAT THE CUSTODIANS OF THE OHIO WATER RETAIN THE SAME UNTIL THE PUBLIC CELEBRATION TAKES PLACE."

RICHMOND WHIG, FEBRUARY 3, 1873, MONDAY.

"THE FIRST TRAIN FROM HUNTINGTON ARRIVED IN THIS CITY ABOUT SEVEN O'CLOCK SATURDAY A. M. FROM HUNTINGTON - - - - FOUR CARLOADS OF COAL SPECIMENS FROM THE GREAT KANAWHA COAL FIELDS WERE ATTACHED TO THE TRAIN AND BROUGHT TO THIS CITY, CONSTITUTING THE FIRST RECEIPTS FROM THE REGION WHICH PROMISES US ABUNDANT SUPPLIES OF FUEL IN THE FUTURE. SPECIMENS OF THE COAL WERE DISTRIBUTED ABOUT THE CITY LIBERALLY, TO BE EXAMINED. THERE WAS NO RECEPTION METC. AS PEOPLE WERE LED TO SUPPOSE WOULD TAKE PLACE."

RICHMOND WHIG, FEB. 4.

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GENERAL WICKHAM TOLD PLANNING COMMITTEE WHEN THE FIRST
FREIGHT TRAIN WOULD ARRIVE.

RICHMOND WHIG, FEBRUARY 12.

" - - - - ON BOARD THE TRAIN OF JANUARY 31 WAS A DEMIJOHN OF
OHIO RIVER WATER TO BE POURED INTO THE JAMES, AND THUS TO CONSUMMATE
THE MARRIAGE OF THE WEST AND THE EAST, KNITTED WITH BANDS OF STEEL,
NEVER TO BE DISSOLVED- - - -".

RICHMOND WHIG, FEBRUARY 13, 1873.

" - - - YESTERDAY (FEB. 12) WAS THE DAY IT WAS EXPECTED THAT
THE FIRST THROUGH FREIGHT TRAIN FROM THE OHIO WOULD ARRIVE IN RICH-
MOND, BUT INFORMATION WAS RECEIVED OF THE DETAINMENT OF THE TRAIN IN
WEST VIRGINIA."

FREDERICK'S HALL, LOUISA Co., VA.
MARCH 13, 1867.

JOHN B. BALDWIN, ESQ.,

CHAIRMAN COMMISSIONERS COVINGTON AND OHIO RAILROAD.

DEAR SIR:

YOUR NOTE TO MR. WHITCOMB, OF THE LLTH INSTANT, ASKING HIM FOR A COPY OF MY REPORT ON THE PRESENT CONDITION OF THE COVINGTON AND OHIO RAILROAD, AS COMPARED TO ITS CONDITION AT THE TIME OF THE SUSPENSION OF THE WORK IN 1861, MADE LAST DECEMBER TO MR. PELL, OF NEW YORK, WAS FORWARDED TO ME YESTERDAY, WITH THE REQUEST THAT I WOULD SEND IT TO YOU. I REGRET TO SAY THAT I DID NOT RETAIN SUCH A COPY AS WOULD ENABLE ME TO DO SO; BUT BELIEVING THAT THE SUBSTANCE OF THAT REPORT WILL ANSWER YOUR PURPOSE, I SUBMIT THE FOLLOWING STATEMENT:

I MADE A PERSONAL INSPECTION OF THE WHOLE WORK, FROM COVINGTON TO THE WHITE SULPHUR SPRINGS, AND TOOK SUCH NOTES AND MEASUREMENTS AS WERE SUFFICIENT TO BASE AN ESTIMATE OF THE AMOUNT OF DAMAGE DONE, &c.

IN THE GRADUATION OF THE ROAD, (OUTSIDE OF TUNNELS) I FOUND BUT LITTLE DAMAGE DONE (OR LIKELY TO BE DONE) SINCE MY REPORT TO THE BOARD OF PUBLIC WORKS IN 1863, FROM SLIDES OR WASHES IN CUTS OR EMBANKMENTS, EXCEPT AT JERRY'S RUN EMBANKMENT, WHERE A LARGE QUANTITY OF MATERIALS FORMED IN ITS BASE HAVE BEEN WASHED AWAY BY EXTRAORDINARY FRESHETS, AMOUNTING IN THE AGGREGATE TO 70,000 CUBIC YARDS. THE WASHING WILL CONTINUE AT EVERY HIGH FRESHET, BUT YET NOT WITH THE SAME RAPIDITY AS HERETOFORE.

ALL THE MASONRY AND BRICK-WORK IN TUNNELS, BRIDGES AND CULVERTS, FINISHED AS WELL AS UNFINISHED, IS AS PERFECT IN EVERY PARTICULAR AS AT THE TIME OF THE SUSPENSION OF THE WORK. I COULD PERCEIVE NO INDICATIONS THAT IT EVER WOULD BE OTHERWISE.

IN THE TUNNELS THERE HAS OCCURRED BUT A SMALL AMOUNT OF FALLS

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AND SLIDES, THE MOST SERIOUS BEING AT THE WEST END OF THE ONE ON SECTION No. 14, WHERE THE FACE OF THE APPROACH CUT (ON ONE SIDE ONLY) HAS BROKEN INTO THE TUNNEL, PROPER. IT WILL NOT, HOWEVER, RENDER NECESSARY A CHANGE IN THE FACE OF THE APPROACH CUT UNLESS IT SHOULD CONTINUE TO INCREASE, WHICH I DOUBT FOR SOME TIME, YET; AND AGAIN AT THE RED HILL TUNNEL, ON SECTION No. 4, WHERE THE FIRST AND PROBABLY THE SECOND OUTSIDE RIB OF THE TEMPORARY TIMBER ARCHING OF THE WEST END HAVE GIVEN AWAY. MY INFORMATION ON THIS FACT WAS DERIVED FROM PERSONS LIVING CLOSE TO THE WORK, AS THE ENTRANCE WAS CLOSED BY THE MATERIALS WHICH HAVE FALLEN FROM THE FACE OF THE APPROACH CUT. I DO NOT DOUBT IT, FOR MY EXAMINATION OF THE WORK IN 1863 SATISFIED ME THAT THERE WAS DANGER OF IT, UNLESS IT WAS SECURED AT ONCE. IN THE EASTERN END OF THE TUNNEL THE TIMBER ARCHING IS YET SECURE.

OF THE 2,250 BUSHELS OF CEMENT STORED IN THE DIFFERENT HOUSES ON THE LINE, THE WHOLE HAS BECOME WORTHLESS--LOSS \$1,200.00; ON THE BRICK BURNED, DELIVERED AND NOT DELIVERED, FOR THE WORK, PART HAVE BEEN DESTROYED OR CARRIED AWAY--SAY TO THE AMOUNT OF \$2,000.00; ON CORD WOOD FOR BURNING BRICKS \$375.00; ON CROSS TIES \$1,000.00; BURNING OF THE COMPANY'S CEMENT MILL, \$2,500.00; AND FOR SHANTIES PAID FOR BY THE COMPANY, AND NOW DESTROYED, \$1,040; ON ALL STONE QUARRIED, DRESSED, DELIVERED AND NOT DELIVERED, FOR THE VARIOUS STRUCTURES ON THE LINE, THERE IS NO LOSS.

THE ABOVE IS ALL OF IMPORTANCE CONNECTED WITH THE WORK. IT THEREFORE REMAINS BUT TO SUBMIT MY ESTIMATE OF THE COST OF THE WORK DAMAGED, AS FOLLOWS:

GRADUATION: FLOR SLIDES AND WASHES IN CUTS AND EMBANKMENTS FROM THE TIME OF SUSPENSION OF THE WORK TO JANUARY, 1867, FROM SECTION "A" AT COVINGTON, TO SECTION 15, INCLUSIVE - - \$3,000.00; FOR WASHING AWAY BASE OF JERRY'S RUN EMBANKMENT - - \$35,000; FOR SLIDES AND WASHES

FROM SECTION 16 TO SECTION 25, INCLUSIVE, (WHITE SULPHUR SPRINGS
\$1,100. TOTAL \$39,100.

TUNNELS: FOR SLIDES AND FALLS AND DAMAGE TO TUNNELS FROM SECTION "A" TO SECTION 15, INCLUSIVE - - \$1,700.00; FOR DITTO FROM SECTION 15 TO SECTION 25, INCLUSIVE - - \$1,200.00. TOTAL \$2,900.

MISCELLANEOUS: FOR LOSS ON ACCOUNT OF BRICK DESTROYED - - \$2,000.00; DITTO, CEMENT - - \$1,200.00; DITTO, CROSS TIES - - ~~xxx~~ \$1,000.00; DITTO, CORD WOOD - - \$375.00; DITTO, BURNING CEMENT MILL, \$2,500.00; DITTO, SHANTIES - - \$1,040.00. TOTAL \$8,115.00..

WHOLE TOTAL, \$50,115.00. ADD FOR CONTINGENCIES \$1,000.00
MAKING \$51,115.00.

WHEN WE CONSIDER THE MAGNITUDE OF THE WORK DONE, AMOUNTING TO \$2,500,000. ITS REMAINING ~~XXXXXX~~ FOR THE LAST SIX YEARS IN ITS UNFINISHED STATE, EXPOSED TO THE VICISSITUDES OF THE SEASONS, WITHOUT WATCHING TO REMEDY OR RENEW, THE DECAY, OR GIVING WAY OF TEMPORARY STRUCTURES UPON WHICH MANY OF ITS PERMANENT STRUCTURES WERE COMMENCED AND LEFT UNFINISHED, AND WHICH HAS CAUSED THREE-FOURTHS OF THE DAMAGE SUSTAINED, THE ABOVE ESTIMATE MAY APPEAR INSUFFICIENT; BUT IN ANSWER TO THIS I MAKE THE ASSERTION, WITHOUT FEAR OF CONTRADICTION FROM ANY SOURCE, THAT ON NO WORK IN THE UNITED STATES HAS SO MUCH VIGILANCE BEEN EXERCISED AND CARE TAKEN THAT ALL THE WORK SHOULD BE DONE IN THE MOST SUBSTANTIAL AND PERMANENT MANNER. THE CONDITION OF THE WORK NOW ESTABLISHED THAT FACT.

I DEEM IT PROPER TO STATE HERE, THAT THE TIME NECESSARY TO COMPLETE THE ROAD FROM COVINGTON TO THE WHITE SULPHUR SPRINGS WILL BE, IN CONSEQUENCE OF THE WASHING AWAY OR DAMAGE DONE TO JERRY'S RUN EMBANKMENT, PROLONGED THREE MONTHS; AND TO ADD, FURTHER, THAT WHILST ON THE WORK AS MR. C.B.FISK'S PRINCIPAL ASSISTANT ENGINEER, I HAD

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AN ESTIMATE PREPARED (FROM THE CROSS SECTIONS AND FIELD NOTES) OF THE COST TO GRADE THE ROAD FOR A DOUBLE TRACK FROM COVINGTON TO THE WHITE SULPHUR SPRINGS, ASSUMING THAT THE PLACE OF A TEMPORARY TRACK TO JERRY'S RUN AND OVER THE LEWIS TUNNEL WAS ADOPTED, AND ASCERTAINED THAT IT WOULD COST, INCLUDING SUPER-STRUCTURE, \$450,000.00.

HOPING THAT THE ABOVE INFORMATION MAY BE OF SERVICE TO YOU IN DEVISING MEANS TO COMPLETE SO GRAND A WORK, I AM, RESPECTFULLY,

YOUR OB'T SERVANT,

W. A. KUPER, C. E.

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THE

PINE AND THE PALM

GREETING;

OR

THE TRIP OF THE NORTHERN EDITORS TO THE SOUTH IN 1871,

AND THE

RETURN VISIT OF THE SOUTHERN EDITORS IN 1872,

UNDER THE LEADERSHIP OF

MAJ. N. H. HOTCHKISS,
TRAVELING AGENT OF CHESAPEAKE & OHIO AND RICHMOND AND
YORK RIVER RAILROADS.

"IT IS WELL!"

EDITED AND COMPILED BY N. J. VATKINS.

- - - -

BALTIMORE:
J. D. EHLERS & CO'S ENGRAVING AND PRINTING HOUSE,
87 SECOND STREET.
1873.

- CROSSING THE ALLEGHANIES-

THE DISTANCE IS NINETY MILES, AND THE RIDE IS ONE EVER TO BE REMEMBERED FOR BEAUTY OF SCENERY. ALONGSIDE PLEASANT LITTLE VALLEYS, THROUGH AND OVER MOUNTAINS WE GO, UNTIL AT BUFFALO GAP WE ARE 2,240 FEET ABOVE SEA-LEVEL--HIGHER THAN THE SUMMIT OF THE BLUE RIDGE. WE ARE ON THE NORTH MOUNTAIN RANGE, HAVING GONE DIRECTLY ACROSS THE SHENANDOAH VALLEY. ELLIOTT'S KNOB, HERE AT BUFFALO GAP--A VERY NARROW PASS, IS 4,448 FEET HIGH--THE HIGHEST ASCERTAINED PEAK IN VIRGINIA. IT IMPRESSES US LESS BECAUSE OF OUR OWN GREAT ELEVATION; AS WE DESCEND IT SEEMS TO GROW MORE AND MORE LOFTY. THIS IS THE DIVIDE BETWEEN THE ATLANTIC AND MISSISSIPPI. IRON ORE IS ABUNDANT HERE, AND IS WORKED BY A BALTIMORE COMPANY.

PANTHER GAP MARKS THE END OF NORTH MOUNTAIN, AND THE BEGINNING OF MILL MOUNTAIN RANGE. THERE ARE RENEWED APPEARANCES OF THRIFT. THIS IS THE GREAT GRAZING REGION OF THE STATE. FOR A WIDTH OF SEVENTY-FIVE MILES THE LAND IS ONE NATURAL PASTURAGE, COVERED WITH A RICH GROWTH OF BLUE GRASS WHICH NEVER NEEDS RESEEDING. THOUSANDS OF CATTLE ARE DRIVEN IN HERE EVERY SUMMER, BY FARMERS OF OTHER LOCALITIES, AND ARE CARED FOR THROUGH THE ENTIRE SEASON FOR FIFTY CENTS A HEAD. THE GRAZING IS GOOD, AND THE CLIMATE SO FAVORABLE--COOL ENOUGH TO KEEP AWAY FLIES--THE STOCK DOES CAPITALLY, OFTEN COMING OUT IN THE FALL FIT FOR THE SHAMBLES.

THE CHESAPEAKE AND OHIO RAILROAD HAS HAD GIGANTIC DIFFICULTIES TO OVER-COME. WE APPRECIATE THIS FACT MORE FULLY AS WE GO ON. IN THE COURSE OF ITS TWO HUNDRED AND TWENTY-SEVEN MILES THE AMOUNT OF FILLING, CUTTING AND TUNNELLING ACCOMPLISHED IS ASTOUNDING. YET THE WORK IS WELL DONE, AND THE ROAD IS AS SMOOTH AS

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ANY OF OUR LEVEL NORTHERN ROADS, AND IS ADMIRABLY MANAGED. IN TIME, WHEN IT IS COMPLETED TO THE OHIO RIVER, IT WILL FORM A THROUGH LINE, CONNECTING MUCH OF THE WEST WITH TIDE-WATER BY A NEARER ROUTE THAN ANY OTHER. THAT IT WILL THEN PROVE A HANDSOMELY PAYING INVESTMENT THERE IS NO DOUBT. IT IS 9 P. M. WHEN WE SUP AT COVINGTON, AND AS WE LEAVE THERE TWO OF US ROMANTICALLY MINDED, AND WISHING TO TAKE IN THE FULL EFFECT OF SUCH MAGNIFICENT SURROUNDINGS AS ARE ALL ABOUT US, MOUNT THE LOCOMOTIVE WITH THE OBLIGING ENGINEER, MR. C. C. TAYLOR, FOR

A NIGHT RIDE ON THE ENGINE.

WE HAVE GONE OVER TWO GRADES--ONE DOWN AND ONE UP-- OF THREE HUNDRED AND EIGHT FEET TO THE MILE, AND MUST DUPLICATE THE SAME, PRESENTLY. FOR A BRIEF WHILE, HOWEVER, WE HAVE ONLY THE ORDINARY RUNNING TO DO. ORDINARY? STOP: WE HAVE NEVER KNOWN EVEN THIS, BEFORE.

IT IS A BEAUTIFUL MOONLIGHT NIGHT, THE AIR PLEASANTLY BRACING, JUST VAGUENESS ENOUGH IN THE ATMOSPHERE TO RENDER LANDSCAPE VIEWS SHADOW-LIKE, AND STRANGE. ON THE MEAGRE, CUSHIONED SEAT OF THE CAB WE SIT, OPPOSITE THE ENGINEER, LOOKING OUT THE NARROW WINDOW IN FRONT, AND SEEING CONTINUALLY BEFORE US A NARROW, WINDING WAY WHICH WE ARE TO KEEP OR DASH TO UTTER RUIN. THERE'S A SHARP CURVE AHEAD--WHAT WAITS BEYOND? PULL THE REIN, GOOD DRIVER, OR YOUR STEED WILL BOLT THE TRACK--AND THEN? OFF AT THE LEFT--ON OUR SIDE--THERE IS A DARK DROP-DOWN A HUNDRED FEET OR MORE, AND IF WE GO OFF,---

BUT WE LOOK AT THE ENGINEER--HE SITS AS CALMLY AS EVER, GAZING OUT UPON THE WHITE LIGHT THE ENGINE'S LANTERN THROWS FAR AHEAD, HOLDING THE THROTTLE LEVER WITH ONE HAND WITH A SURE GRASP.

THERE IS NO SLACKING OF SPEED--EVEN BEFORE WE KNOW IT THE

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UNPLEASANTLY SUGGESTIVE POINT IS PASSED, OUR STEADY TASK HORSE NEVER FLINCHING, AND WE ARE GLIDING DOWN THE GRADE BEYOND, SAYING EARNESTLY TO OURSELVES, "TRUE, NOBLE COURSER? BEAR US BR VELY ON."

AND NOW WE ARE IN THE VERY MIDST OF THE ALLEGHANY MOUNTAINS, AND PEAKS RISE GRANDLY HEAVEN-WARD ON EVERY HAND. AS WE WIND IN AND OUT AMONG THEM, THE MOON-LIGHT SHADOWS SHIFTING HERE AND THERE ADD PECULIAR WEIRDNESS TO THE SCENE. DEEP RAVINES, WHICH WE LOOK DOWN INTO WITH A HALF-SHudder, LIE IN PITCH DARKNESS BENEATH; THE MOON'S RAYS TIP THE GREAT PEAKS TO SILVER, AND THEY STAND OUT IN STRIKING CONTRAST, THRILLING WITH A GRANDEUR THEY COULD SCARCELY BOAST OF IN THE GLARE OF DAY, & GRAND AS THEY ARE. AND NEW VISTAS OF BEAUTY BREAK UPON US EVERY INSTANT, AS WE CAREER ONWARD,--VALLEYS IN MINIATURE, REACHING AWAY INTO DIMNESS, MOUNTAIN GROUPS OF VARIED FEATURE, WITH A HARMONY OF GROUPING UNUSUAL, OR AN INDIVIDUALITY HITHERTO UNMARKED.

SO MILE AFTER MILE, TILL WE COME TO THE REAL UP AND DOWN OF IT--OR DOWN AND UP. THERE IS A RAVINE, A REGULAR DIVIDE, BETWEEN TWO MOUNTAINS; AND WE MUSY FIRST GO DOWN, THEN UP THE MOUNTAIN-SIDE. AN ENGINE BUILT ON PURPOSE FOR SUCH HEAVY WORK, CALLED A "CLIMBER", WILL HELP HAUL OUR TRAIN. IT STANDS ON A SIDE TRACK AS WE STOP, AND WE SEE THAT IT HAS ITS TENDER ON TOP, AND APPEARS A VERY NONDESCRIPT OF THE LOCOMOTIVE ORDER.

WE SLIP OUR COUPLINGS, AND OUR ENGINE IS FREE. THEN HURRAH FOR A DOWN-HILL SLIDE, WITH THE "CLIMBER" AND ITS LOAD RIGHT IN OUR REAR. THE THROTTLE IS CLOSED, BUT WE SHOOT AWAY MORE AND MORE LIVELY, AS WE GATHER HEAD-WAY, AND ARE LEAVING THE BRIGHT HEAD-LIGHT BEHIND. DOWN WE GO INTO THE SHADOWS, AND OUR

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TRAIN IS LOST SIGHT OF ROUND A CURVE. WILL IT OVERTAKE US? HARDLY. THE DESCENT IS ACCOMPLISHED AND OUR MOMENTUM CARRIES US ON A GOOD BIT TOWARDS THE UP GRADE. LOOKING BACK, WE SEE THE RED GLARE OF THE "CLIMBER", ONLY NOT YET MUCH MORE THAN A STAR, & COMING SLOWLY DOWN-WARD. IT GROWS BRIGHTER AND BRIGHTER,--A FEW SECONDS MORE AND WE HEAR THE DULL THUNDER OF THE TRAIN. LOUDER AND LOUDER IT RESOUNDS IN THE ~~XXXXXXX~~ STILLNESS; THE STAR HAS GROWN TO A STREAMING BEACON RUSHING MADLY UPON US. THEY MUST RUN OVER US, OF A CERTAINTY.

"HE'S BOUND TO RUN US DOWN." SAYS THE ENGINEER, SPEAKING OF HIS CONFRERE BEHIND. "WHAT HAS THE FELLOW DONE WITH HIS BRAKES?", AND THROWING THE THROTTLE OPEN OUR DRIVING WHEELS PLAY ROUND FOR A MOMENT, THEN "BITE", AND THEN CARRY FORWARD,--AND THE TRAIN STOPS A FEW FEET IN THE REAR.

THEN WE CLIMB SLOWLY UP THE STEEP ASCENT, BOTH ENGINES PUFFING WITH A WILL, THEIR SHARP, LABORED PUFFS RINGING OUT CLEARLY ON THE NIGHT AIR.

REACHING THE SUMMIT LEVEL AGAIN OUR "CLIMBER" SWITCHES OFF, AND WE STEAM ON, THROUGH TUNNELS, (ONE OVER A MILE LONG, AND SEVEN YEARS IN COMPLETING,) ACROSS GULLIES, AND ROUND MANY SHARP TURNINGS, AND ABOUT 11 O'CLOCK WE ALIGHT AT

THE WHITE SULPHUR SPRINGS.

IN ANTE-WAR DAYS THIS PLACE WAS THE SARATOGA OF THE SOUTH. THEN IT WAS ACCESSIBLE ONLY BY STAGES, YET IT WAS GAY WITH THE FLOWER OF SOUTHERN ARISTOCRACY. NOW THAT THE RAILROAD OPENS IT UP TO EASY ACCESS IT MUST AGAIN BECOME HIGHLY POPULAR, FOR ITS CLIMATE IS VERY SALUBRIOUS. IT IS ALMOST A-TOP OF THE ALLEGHANIES, JUST OVER THE LINE IN WEST VIRGINIA, AND ENJOYS RARE

PURITY OF ATMOSPHERE.

OF THE PLACE, ITSELF, THERE IS NEXT TO NOTHING--WE MEAN AS A TOWN. IT IS JUST A WATERING PLACE. CLAIMS TO BE NO MORE; WAS ORDAINED TO BE ONLY THAT. ONE IMMENSE HOTEL, FOUR HUNDRED FEET IN LENGTH BY EIGHTY FEET IN BREADTH,--A BRICK STRUCTURE NOT REMARKABLE FOR BEAUTY OF ARCHITECTURE,--SURROUNDED AT AN AGREEABLE DISTANCE BY ROWS OF WHITE COTTAGES, EACH HAVING ITS PLEASANT PIAZZA, AND OVERSHADOWED BY THE LUXURIANT FOLIAGE HERE SO ABUNDANT; A SULPHUER SPRING OF AMPLE FLOW, WITH A WHITE SPRING HOUSE CROWNING IT; A GOOD BATHING ESTABLISHMENT; A STORE AND A MILLINERY; AND PRETTY REACHES OF LAWN BETWEEN WHILES, WITH LITTLE PLATEAUS AND TERRACES FOR VARIETY--THESE MAKE UP THE SPRINGS.

IMAGINE THESE IN THE VERY CENTER OF AN AMPITHEATRE AMONG THE MOUNTAINS--A NATURAL BASIN POSSIBLE ONE MILE WIDE, WITH NARROW OPENINGS ON TWO SIDES--AND YOU HAVE A PRETTY CORRECT IDEA OF THE LOCATION. THE ENTIRE VALLEY COMPRISES SOME EIGHT THOUSAND ACRES OF LAND, INCLUDING THE MOUNTAIN SIDES ADJOINING, AND IS OWNED BY A STOCK COMPANY. MESSRS. PEYTON & CO. LEASE THE SPRINGS, AND ARE PREPARED TO ACCOMODATE TWO THOUSAND GUESTS. THE WATER IS PLEASANT AND IS HIGHLY RECOMMENDED FOR VARIOUS DISEASES. THEY HAVE VERY WARM WEATHER HERE IN SUMMER AT TIMES; BUT NO MATTER HOW WARM THE DAYS, THE NIGHTS ARE ALWAYS COOL, AND SLEEPING UNDER BLANKETS A LUXURY. WE DON'T TAKE THIS FROM ANY OUTSIDE TESTIMONY: WE PROVE IT OURSELVES, IN ONE OF THE SNUG COTTAGES PLACED AT OUR DISPOSAL.

THE MORNING HAS DAWNED. THE FOREST SONGSTER, IN SALUTING THE OPENING DAY, HAS SOFTLY WAKENED THE SLEEPER. THE FULL,

ROUND FACE OF THE SUN SOON APPEARS ABOVE THE NEIGHBORING MOUNTAIN PEAK; THE SILVERY VAPOR GLIDES UP-WARD FROM THE VALE BE-NEATH; THE FLEECY CLOUDS ARE GONE, AND THE DEWY FRAGRANCE OF THE MORNING AIR INVITES TO ACTIVE EXERCISE. THE VISITORS NOW GATHER ROUND THE HEALTH-GIVING FOUNTAIN, AND AFTER QUAFFING ITS WATERS, SEND THEIR WAY TO THE MORNING MEAL. THIS OVER, THE ACTIVE ENJOYMENT FOR THE DAY BEGINS.

THE PLEASANT WALKS THAT PENETRATE THE LAWN AND ENVIRON THE GROUNDS INVITE MANY TO HEALTHFUL EXERCISE. THE BILLIARD SALOON, WITH ITS NUMEROUS TABLES, ENTICE MANY VOTARIES; THE BOWLING ALLEYS SOON RESOUND WITH THE MERRY LAUGH OF YOUTH AND BEAUTY; AND THUS THE HOURS GLIDE AWAY; WHILE FROM ANOTHER PORTION OF THE GROUNDS IS HEARD THE CLEAR, KEEN REPORT FROM THE PISTOL GALLERY, TELLING HOW PROMPTLY YOUNG AMERICA IS PREPARING TO AVENGE HIS INSULTED HONOR.

THE BEAUTIFUL RIDES AND DRIVES, WITH THEIR GLORIOUS MOUNTAIN AND INTERVALE SCENERY ATTRACT SOME; WHILE THE QUIET GAME, THE ALLURING BOOK, OR THE PLEASANT COMPANION SOLACE MANY OTHERS. THUS, THEY TAKE NO NOTE OF TIME, SAVE FROM ITS LOSS, UNTIL THE WARNING SOUND OF THE DINNER BELL RINGS FORTH THE NOONTIDE HOUR, CALLING TO PREPARE FOR THE MIDDAY MEAL. AGAIN THE FOUNTAIN IS THROGGED, AND THEN, TO THE SOUND OF RICH-TONED MUSIC DISCOURSED BY A WELL-TRAINED BAND, THE CROWD, AFTER THE HOUR OF PREPARATION HAS PASSED, ASSEMBLE IN THE IMMENSE AND WELL-FURNISHED DRAWING ROOM FOR A BRIEF, SOCIAL RE-UNION BEFORE PARTAKING OF THE GREAT MEAL OF THE DAY. DINNER OVER, THE DRAWING-ROOM AGAIN BECOMES THE CENTRE OF ATTRACTION. IN THIS ROOM, DURING THE CROWDED SEASON, ARE EACH DAY BROUGHT PLEASANTLY TOGETHER A GAY AND RICHLY DRESSED ASSEMBLY, EXCELLED IN BEAUTY, MANLINESS AND DIGNITY BY NO OTHER CROWD

EVER ASSEMBLED WITHIN THE BROAD LIMITS OF OUR COMMON COUNTRY. .
 HERE CONGREGATE THE FAIREST OF THE FAIR FROM EVERY STATE, AND
 ONE CAN GAZE--AND GAZE ON BEAUTY UNTIL THE HEART REELS IN ITS
 VERY FULLNESS.

THE COMPANY, WEARIED WITH CONVERSE OR THE PROMENADE, RETIRE TO THEIR COTTAGE HOMES OR TO THE INVITING SHADE OF THE WIF-APREAD OAKS, AND UNDER-NEATH WHICH, IN BY-GONE YEARS, THE SAVAGE DANCED OR THE ANTLERED MONARCH OF THE FOREST TOSSED HIS BREST, NOW GIVEN UP TO THE HAPPY CROWD WHO, IN GENIAL CONVERSE, WHILE THE HOURS AWAY UNTIL THE LENGTHENED SHADOWS AND THE FRAGRANT AIR AGAIN INVITE TO THE WALK, OR RIDE, OR DRIVE, OR OTHER ACTIVE EXERCISE. THERE IS HEARD THE SUMMONS TO A SOCIAL RE-UNION AT TEA TABLE, AFTER WHICH THE SPIRIT STIRRING MUSIC CALLS THE YOUNG AND THE GAY TO THE GIDDY WHIRL OF THE BALL ROOM. HERE PLEASURE REIGNS SUPREME, THE HEART-TONED LAUGH, THE WITTY WORD, THE AMIABLE REPORTEE, ALL TELL THAT THOSE ASSEMBLED HERE ARE JUST SKIPPING THE BUBBLES FROM THE OVER-FLOWING CUP OF JOY.

A GOOD ONE WAS PLAYED ON SOME OF OUR PARTY BY THAT GENIAL AND WHOLE-SOULED COMPANION, LUCK. HE CONCEIVED THE IDEA THAT THE REPUBLICAN EDITORS SHOULD HAVE TANGIBLE EVIDENCE OF THE EXISTENCE OF THE "KU-KLUX." HE ROUTED OUT ABOUT A DOZEN OF THEM AT THE UNSEASONABLE HOUR OF FOUR O'CLOCK MONDAY MORNING, AND CONDUCTING THEM TO A SECLUDED SPOT IN AN ADJACENT GROVE, SOLEMNLY APPRIEZED THEM THAT BENEATH THE TUFTED GRASS AT AN INDICATED POINT WAS DEPOSITED A BOWL OF BLOOD FROM THE LAST ALUGHTERED ABOLITIONIST. "DRINK YE ALL OF IT," WAS THE COMMAND; AND EACH, BEING SUPPLIED WITH A STRAW WENT DOWN ON ALL FOURS TO IMBIBE FROM THE

BLOODY FOUNTAIN. 'T WAS QUICKLY EVIDENT THAT THE POTION WAS NOT UNPALATABLE, FOR THESE INORDINATELY BLOOD THIRSTY RADS HAD TO BE PULLED AWAY BY THE HEELS. THEY PRONOUNCED THE MIXTURE A FIRST-CLASS ARTICLE OF "BUMGARDEN" PUNCH, AND SHOWERED BLESSINGS INSTEAD OF CURSES UPON THE SOUTHERN KU-KLUX.

RETURN TO RICHMOND.

WE HAVE SPENT A SABBATH AT THE WHITE SULPHUR~~UR~~--HAVE BATHED IN ITS WATERS--WORSHIPPED IN ITS LITTLE CHURCH--DRANK IN THE PURITY OF THE ATMOSPHERE--ENJOYED THE TRUE, SOUTHERN HOSPITALITY AT THE HANDS OF THE MESSRS. PEYTON AND LUCK--WITNESSED A THUNDER STORM AMONG THE MOUNTAINS--RAMBLED ABOUT IN THE SHADY WALKS, AS YET UNFREQUENTED, FOR "THE SEASON" HAS SCARCELY BEGUN--AND NOW WE BEGIN OUR RETURN TRIP TO RICHMOND AT 8 A. M., IN OUR SPECIAL TRAIN, WHICH STOPS OBLIGINGLY BY THE WAY WHEREVER WE WISH IT; AND WE HAVE AN OPPORTUNITY TO WANDER BY DAY-LIGHT OVER THE RARE ENGINEERING SKILL, THE INDOMITABLE PLUCK, THE UNCONQUERABLE PATIENCE WHICH COMBINED TO BUILD THE CHESAPEAKE AND OHIO RAILROAD, THE CHIEF ENGINEER OF WHICH WAS COLONEL H. D. WHITCOMB.

THOSE STEEP GRADES WE SAW BY MOON-LIGHT--THE STEEPEST IN THE COUNTRY--ARE ONLY TEMPORARY TRACKS. THEY ARE CUTTING, TUNNELLING AND FILLING FOR PERMANENT ROAD-BEDS; AND WHEN COMPLETED THE ROAD WILL HAVE NO HEAVIER GRADING THAN IS EXPERIENCED ON ALMOST ANY X LINE.

IN THE SHORT DISTANCE OF A LITTLE OVER TWENTY MILES THERE ARE SEVEN TUNNELS OF AN AGGREGATE LENGTH OF ELEVEN THOUSAND FEET. ONE OF THESE TUNNELS IS NOW BEING CONSTRUCTED, AND WHEN COMPLETED WILL BE THREE THOUSAND, NINE HUNDRED FEET IN LENGTH. THE TRAIN WAS STOPPED A FEW MINUTES, AND WE WERE GIVEN AN OPPORTUNITY TO

WITNESS THE MAGNITUDE OF THE WORK AND THE MODUS OPERANDI OF BLASTING THE HARD ROCK. SHAFTS WERE SUNK AT THREE DIFFERENT POINTS, AND THE DRILLING MACHINES WERE WORKED BY STEAM POWER. A LARGE BODY OF MEN, MOSTLY CONVICTS FROM THE STATE PENITENTIARY, WERE AT WORK IN THE VARIOUS SHAFTS AND AT BOTH ENDS OF THE TUNNEL IN BLASTING THE ROCK AND REMOVING THE DEBRIS TO NEIGHBORING RAVINES. ON THIS DIVISION OF THE LAND ARE SEVERAL EMBANKMENTS OF NEARLY ONE HUNDRED FEET IN HEIGHT, EACH ONE HUNDRED AND FORTY FEET, AND ONE STILL UNFINISHED AT ONE HUNDRED AND EIGHTY-FIVE FEET. THERE ARE ALSO FIVE BRIDGES OF AN AGGREGATE LENGTH OF EIGHT HUNDRED FEET, AND SEVERAL LARGE, ARCHED CULVERTS.

THE WORK IS A MARVEL OF ENGINEERING SKILL, AND IS BEING COMPLETED WITH A THOROUGHNESS NOT EXCEEDED ON ANY ROAD IN THE COUNTRY. IN FACT, WE HAVE NEVER TRAVELED OVER A BETTER CONSTRUCTED RAIL ROAD THAN THE CHESAPEAKE AND OHIO, AND CAN RECOMMEND IT AS ONE OF THE SAFEST AND MOST PLEASANT LINES OF TRAVEL IN THE UNITED STATES.

NEAR COVINGTON, WHILE GEN. AVERILL, IN THE WINTER OF 1863-4 WAS MAKING A RAID THROUGH THAT SECTION OF VIRGINIA, FOR THE PURPOSE OF CUTTING THE CHESAPEAKE AND OHIO RAILROAD, HE WAS SUDDENLY ATTACKED BY A SUPERIOR FORCE ON HIS FLANKS UNDER GENERALS FITZ HUGH LEE AND EARLY, AND BARELY ESCAPED CAPTURE, LOSING HIS SADDLE BAGS CONTAINING ALL HIS PAPERS AND MAPS. MAJOR JED. HOTCHKISS, (A BROTHER OF THE LEADER OF OUR ESCURSION PARTY), AND AT THE TIME A TOPOGRAPHICAL ENGINEER ON GEN. "STONEWALL" JACKSON'S STAFF, WAS ON THE TRAIN WITH US, AND ASSURED US THAT HE HAD ALL THE CAPTURED MAPS AT HIS HOME IN STAUNTON, AND PRIZED THEM HIGHLY. LEE AND EARLY HAD MATURED THEIR PLANS FOR THE CAPTURE OF GEN. AVERILL,

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AND THOUGHT THEY WERE SURE OF THEIR MAN, WHEN HE PLAYED THEM THE
SLIP AND ESCAPED, MUCH TO THEIR CHAGRIN. BY THE WAY, WE FOUND
MAJOR JED. HOTCHKISS A MAN OF MUCH INTELLIGENCE, A MOST GENIAL

COMPANION, AND EVERY INCH A GENTLEMAN. WE ARE INDEBTED TO
HIM FOR MUCH VALUABLE INFORMATION IN REGARD TO THE TOPOGRA-
PHY, SOIL, MINERALS AND INDUSTRIAL RESOURCES OF VIRGINIA.

HE IS, AT PRESENT, WITH A CORPS OF ENGINEERS, SURVEYING THE
WHOLE STATE BY COUNTIES, AND PUBLISHING MAPS THEREOF BY AUTHORITY
OF THE STATE.

AFTER A SHORT STOP AT STAUNTON, AND A GOOD DINNER AT THE
AMERICAN HOTEL, WE AGAIN PUSHED ON, AND WITHOUT ANY INCIDENT OF
MATERIAL INTEREST, ARRIVED AT RICHMOND AT NINE O'CLOCK P.M.

GEN. WMS. C. WICKHAM, VICE-PRESIDENT OF THE ROAD, AND MAJ, RANDOLPH,
ASSISTANT ENGINEER, WERE ON THE TRAIN AND SHOWED US MANY COURTE-
SIES ON THE TRIP.

COLLIS POTTER HUNTINGTON.

COLLIS POTTER HUNTINGTON WAS BORN OCTOBER 22, 1821, AT HAW-
WINGTON, CONN. HE CAME OF A STURDY PIONEER STOCK FROM WHICH SPRUNG
JUDGE BENJAMIN HUNTINGTON, A GREAT JURIST; SAMUEL HUNTINGTON, ONE
OF THE SIGNERS OF THE DECLARATION OF INDEPENDENCE; DANIEL HUNTING-
TON, A GREAT CONGREGATIONAL PREACHER; FREDERICK DANIEL HUNTINGTON,
A BISHOP IN THE EPISCOPAL CHURCH, AND DANIEL HUNTINGTON, ONE OF THE
GREATEST OF AMERICAN ARTISTS.

HIS FATHER WAS A CONNECTICUT FARMER OF SMALL MEANS, WITH A
LARGE FAMILY CONSISTING OF NINE CHILDREN, OF WHOM COLLIS P. HUNTINGTON
WAS THE FIFTH. HE WAS BROUGHT UP TO WORK AS A FARMER'S SON. THE
EXTENT OF HIS EDUCATION WAS FOUR MONTHS EACH YEAR AT THE PUBLIC SCHOOL
IN THE VILLAGE. WHEN HE WAS FOURTEEN HE WAS HIRED OUT AT FARM WORK
FOR A YEAR. HIS COMPENSATION WAS \$7.00 PER MONTH AND HIS BOARD.

WITH THE PERMISSION OF HIS FATHER HE THEN LAUNCHED OUT AT AN
EARLY AGE PRACTICALLY ON HIS OWN ACCOUNT. HIS CHARACTER WAS HIGH
AND HIS CREDIT WAS CONSEQUENTLY GOOD. HE ACQUIRED ON CREDIT A VERY
SMALL STOCK OF MERCHANDISE, AND FOR THE FOLLOWING SIX YEARS HE TRAVEL-
ED THROUGH THE SOUTH AND WEST, PARTICULARLY VIRGINIA, WHICH WAS THEN
INCLUDED IN WHAT IS NOW WEST VIRGINIA, DISPOSING OF HIS GOODS, AND AT
THE SAME TIME COLLECTING NOYES AS THE AGENT FOR PARTIES WHO HAD TRAV-
ELED THAT TERRITORY PRECEDING HIM. WHILE ON ONE OF THESE EXPEDI-
TIONS HE HAPPENED TO BE AT GORDONSVILLE, VA. WHEN THE LOUISA RAIL-
ROAD, NOW A PART OF THE CHESAPEAKE AND OHIO RAILWAY WAS COMPLETED TO
THAT POINT, JULY 27, 1838. HE HEARD GENERAL GORDON, AND OTHERS DE-
LIVER THE CONGRATULATORY ADDRESSES TO THE CITIZENS ASSEMBLED TO CEL-
EBRATE THAT GREAT EVENT IN THE HISTORY OF THAT VILLAGE.

MEANTIME HIS FATHER DIED, AND WHEN HE REACHED HIS MAJORITY
HE WENT INTO BUSINESS WITH HIS BROTHER AS A MERCHANT AT ONEONTA, N.Y.

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THE FIRM PROSPERED IN A SMALL WAY, AND IN THE YEAR 1849 UPON THE DISCOVERY OF GOLD IN CALIFORNIA, BEING ADVENTUROUS BY NATURE, HE BECAME THOROUGHLY IMBUEDED WITH THE "GOLD FEVER". HE WITHDREW FROM THE FIRM THE SUM OF \$1,200.00 AND STARTED FOR CALIFORNIA BY WAY OF THE ISTHMUS OF PANAMA. THERE HE WAS MANY DAYS DELAYED. HE WAS A TALL STRONG, WELL DEVELOPED YOUNG MAN. HIS CONSTITUTION WAS PERFECT. HE HAD NEVER TOUCHED LIQUOR IN ANY FORM, NOR TOBACCO, AND HE DID NOT GIVE HIMSELF UP TO SLOTH, IDLENESS, OR DISSIPATION DURING THE LONG PERIOD THAT HE HAD TO WAIT ON THE ISTHMUS. IN LATER ~~XXXX~~ DAYS HE WOULD DWELL WITH MUCH INTEREST UPON THE TIME HE SPENT THERE. HE HAD TAKEN WITH HIM A VERY SMALL STOCK OF GOODS WHICH HE, HIMSELF, CARRIED ACROSS THE ISTHMUS; AND HAVING ACCOMPLISHED THAT, HE WENT TO WORK CARRYING GOODS FOR OTHER PEOPLE. MEANTIME HE TRADED PORTIONS OF HIS STOCK, AND WHEN THE TIME CAME FOR HIM FINALLY TO SAIL FROM PANAMA FOR SAN FRANCISCO HIS \$1,200.00 HAD INCREASED TO MONEY AND GOODS WORTH \$5,200.00.

WITH THIS CAPITAL IN HAND HE PROCEEDED FROM SAN FRANCISCO TO SACRAMENTO, WHERE IN A SMALL SHACK IN THE FALL OF 1849 HE ESTABLISHED HIMSELF AS A GENERAL DEALER IN HARDWARE AND MINER'S SUPPLIES. HE IMMEDIATELY FORMED A CLOSE FRIEND-SHIP AND BUSINESS CONNECTIONS WITH MR. MARK HOPKINS, AND CONTINUED BUSINESS THEREAFTER UNDER THE FIRM NAME OF HOPKINS AND HUNTINGTON FOR TWENTY-FOUR YEARS, UNTIL MR. HOPKIN'S DEATH.

IMMEDIATELY UPON THE INFLUX OF THE SETTLERS IN 1849 THERE AROSE AN AGITATION FOR A TRANS-CONTINENTAL TRANSPORTATION LINE. MR. HUNTINGTON EARLY BECAME FULLY IMBUEDED WITH THE FEASIBILITY OF THE PROJECT --- A PROJECT SO GIGANTIC THAT ITS ADVOCATES AT THAT TIME WERE DEEMED IDEALISTIC AND IMPRACTICABLE. HE HOWEVER, NEVER FOR AN INSTANT, RELAXED HIS EFFORTS; AND HE FINALLY SUCCEEDED IN 1861 IN GETTING A CHARTER FOR THE CENTRAL PACIFIC RAILROAD COMPANY OF CALIFORNIA.

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HE WAS FOND OF REFERRING, IN HIS LATER LIFE, TO THE ORGANIZATION OF THAT COMPANY WHICH HAD ITS BIRTH IN THE BACK OFFICE OF THE HARDWARE STORE OF HOPKINS AND HUNTINGTON. THE MEN PRESENT WERE LELAND STANFORD, MARK HOPKINS, CHARLES CROKER AND HIS BROTHER JUDGE CROKER AND MR. HUNTINGTON. THERE WERE ONE OR TWO OTHERS NOT PRESENT BUT WHO, AFTERWARDS HAD FAITH ENOUGH TO BECOME INTERESTED; BUT THESE FIVE MEN PLEDGED THEIR WHOLE PROPERTY, THEIR CREDIT AND THEIR REPUTATION TOWARD THE CARRYING OUT OF THEIR DESIGN. MR. HUNTINGTON'S INITIALS BEING "C.P.", AND HE BEING INSISTENT, IN SEASON AND OUT OF SEASON, IN ADVOCACY OF THE PROJECT, HE BECAME KNOWN AS THE "CENTRAL PACIFIC" HUNTINGTON. UPON THE PROCUREMENT OF THE STATE CHARTER AND THE ORGANIZATION THEREUNDER, MR. HUNTINGTON WAS SENT BY HIS ASSOCIATES AS THEIR GENERAL AGENT WITH FULL POWER TO ACT. HE ESTABLISHED CONNECTIONS WITH THE BANKERS IN NEW YORK, INCLUDING THE THEN STRONG FIRM OF FISK AND HATCH. HE PROCEEDED THEN TO WASHINGTON, AND IN 1862 A FEDERAL CHARTER WAS GRANTED TO THE CENTRAL PACIFIC RAILROAD COMPANY AND A CONTRACT ENTERED INTO WITH THE UNITED STATES GOVERNMENT BY WHICH MR. HUNTINGTON AND HIS ASSOCIATES AGREED TO CONSTRUCT A RAILROAD AND XX TELEGRAPH LINE FROM THE PACIFIC COAST TO A POINT WHERE IT WOULD MEET AND CONNECT WITH THE UNION PACIFIC RAILROAD. THIS POINT WAS SUBSEQUENTLY ESTABLISHED AT OGDEN. WHEN WE REMEMBER THAT THIS RAILROAD WAS TO CROSS THE ROCKY MOUNTAINS AND THE GREAT, UNEXPLORED TERRITORY APPEARING ON THE MAPS AT THAT TIME AS THE GREAT AMERICAN DESERT, THROUGH WHICH THERE ROAMED NUMEROUS TRIBES OF HOSTILE INDIANS AND COUNTLESS MILLIONS OF BUFFALO, AN IDEA CAN BE FORMED AS TO THE DAUNTLESS COURAGE, ENERGY, AND THE GREAT EXECUTIVE ABILITY OF MR. HUNTINGTON AND HIS ASSOCIATES. THE ROAD WAS CONSTRUCTED, AND THE DREAM BECAME A REALITY.

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THERE IS NO QUESTION BUT THAT THE BUILDING OF THIS RAILROAD FORMED THE WELDING LINK BY WHICH THE UNITED STATES BECAME THE GREAT COUNTRY THAT IT IS, INSTEAD OF TWO SEPARATE COUNTRIES, ONE EAST AND THE OTHER WEST, THE NECESSITY FOR WHICH HAD BEEN SUGGESTED BY A STATESMAN ON ACCOUNT OF THE INABILITY TO PROPERLY COMMUNICATE BETWEEN THE FAR EAST AND THE FAR WEST. THIS ACHIEVMENT BROUGHT MR. HUNTINGTON INTO THE FOREMOST RANK OF AMERICAN EMPIRE BUILDERS.

THE SUCCESS WHICH HAD ATTENDED HIS EFFORTS GAVE HIM THE UNSTINTED CONFIDENCE OF THE BUSINESS MEN IN NEW YORK; AND IN 1869 THE CHESAPEAKE AND OHIO RAILWAY COMPANY, WHICH WAS ENDEAVORING, PURSUANT TO A CONTRACT MADE IN 1868 BETWEEN THE COMMISSIONERS OF THE STATE OF VIRGINIA AND WEST VIRGINIA AND THE VIRGINIA CENTRAL RAILROAD COMPANY, TO COMPLETE A LINE OF RAILWAY FROM RICHMOND, VIRGINIA, TO THE OHIO RIVER, SUCCEEDED THROUGH GENERAL WILLIAMS C. WICKHAM, THEN PRESIDENT OF THE COMPANY, IN INTERESTING MR. HUNTINGTON AND HIS ASSOCIATES IN THE UNDERTAKING; AND ON THE 16TH DAY OF NOVEMBER, 1869, A CONTRACT WAS CONSUMMATED AND SUBSEQUENTLY RATIFIED BY THE STOCKHOLDERS, BY WHICH MR. HUNTINGTON BECAME THE PRESIDENT OF THE CHESAPEAKE AND OHIO RAILROAD COMPANY, AND A SYNDICATE WHICH HE HAD FORMED TO FINANCE THE COMPANY. THE WORK WAS COMPLETED ON THE 29TH DAY OF JANUARY, 1873.

MEANTIME, MR. HUNTINGTON HAD CONCEIVED THE IDEA OF BUILDING A CITY ON THE OHIO RIVER AND ANOTHER CITY ON HAMPTON ROADS. HE CARRIED OUT THE FIRST PURPOSE THROUGH THE INSTRUMENTALITY OF THE CENTRAL LAND COMPANY, AND THE LATTER PURPOSE THROUGH THE INSTRUMENTALITY OF THE OLD DOMINION LAND COMPANY. HE FOUNDED AND DEVELOPED WHAT ARE NOW THE CITIES OF HUNTINGTON, WEST VIRGINIA, AND NEWPORT NEWS, VIRGINIA.

MR. HUNTINGTON NEVER FALTERED IN HIS ORIGINAL PLAN OF A

TRANSPORTATION LINE FROM THE ATLANTIC TO THE PACIFIC. HAVING AC-
QUIRED THE CHESAPEAKE AND OHIO, HE EXTENDED HIS LINES FIRST TO
LOUISVILLE, KENTUCKY, AND THEN TO NEW ORLEANS. MEANTIME, HE HAD PLAN-
NED AND PERFECTED THE GREAT SOUTHERN PACIFIC RAILROAD SYSTEM AND HAD
COMPLETED THAT LINE, WITH ITS EXTENSIONS, SO THAT HE HAD IN OPERATION
A LINE OF RAILROAD FROM PORTLAND, OREGON, TO NEWPORT NEWS, VA.

WHAT HAD BEEN TERMED A WILD DREAM BECAME AN ACTUALITY; AND
FOR A NUMBER OF YEARS MR HUNTINGTON--THIS EMPIRE BUILDER-- HAD THE
UNIQUE EXPERIENCE OF TRAVELING IN HIS OWN CAR OVER HIS OWN RAILS
FROM OCEAN TO OCEAN, AND THEN A THIRD OF THE WAY BACK ACROSS THE CON-
TINENT VIA. THE CENTRAL PACIFIC TO OGDEN, UTAH.

MR. HUNTINGTON REMAINED IN CONTROL OF THE CHESAPEAKE AND
OHIO RAILWAY COMPANY, AND WAS ITS PRESIDENT UNTIL 1888. AT THAT
TIME HE FOUND IT NECESSARY TO DEVOTE HIMSELF ENTIRELY TO THE DEVELOP-
MENT OF THE GREAT SOUTHERN PACIFIC SYSTEM, AND HE DISPOSED OF PRAC-
TICALLY ALL OF HIS RAILROAD INTERESTS (? , NOT SO) EAST OF THE MISS-
ISSIPPI RIVER THAT HE MIGHT DO SO. THIS HE CONTINUED TO DO, IN AC-
TIVE CONTROL, CHARGE AND MANAGEMENT, UP TO THE DATE OF HIS DEATH,
14?
WHICH OCCURRED ON AUGUST 13TH, 1900.

MR. HUNTINGTON WAS A VERY STRIKING LOOKING MAN, SIX FEET
FOUR, BROAD SHOULDERED, SPLENDIDLY DEVELOPED, RETAINING HIS PHYSICAL
STRENGTH AND HIS MENTAL ACTIVITY UP TO HIS DEATH. HIS JUDGMENT OF
MEN WAS UNERRING. HE HAD AN AXIOM WHICH HE FREQUENTLY REPEATED-
"TRUST ALL IN ALL, OR NOT AT ALL," AND HIS TRUST WAS RARELY, IF EVER,
ABUSED. HIS KNOWLEDGE OF HUMAN NATURE WAS GREAT, AND IT WAS BASED
LARGELY UPON THE BELIEF THAT HE ENTERTAINED, AND WOULD OFTEN SAY THAT
IF YOU SHOW A MAN THAT YOU BELIEVE IN HIM, HE WILL IN TURN TRY TO SHOW
YOU THAT YOU ARE NOT MISTAKEN.

AS MR. HUNTINGTON INCREASED IN FORTUNE AND IN YEARS HE

TURNED FOR RELAXATION TO IMPROVING THE EDUCATION HE HAD RECEIVED. THE RELAXATION FROM BUSINESS THAT MR. HUNTINGTON TOOK WAS SPENT TO SOME EXTENT IN ASSOCIATION WITH HIS FRIENDS, USUALLY OF A LITERARY CHARACTER, STUDIES IN HISTORY, PARTICULARLY OF THE UNITED STATES AND ENGLAND, AND ESPECIALLY IN THE LIVES AND WORKS OF THE GREAT MASTERS OF PAINTING. HE ACHIEVED A MOST REMARKABLE DEGREE OF KNOWLEDGE IN ALL THOSE LINES. WHEN HE WOULD GO TO EUROPE HE WOULD STUDY THE GREAT MASTER PIECES OF THE OLD DAYS, AND HE WOULD ALSO EXAMINE WITH DEEPEST INTEREST THE WORKS OF THE MODERN SCHOOL, IN WHICH WITH UNERRING ACCURACY, HE OFTEN INVESTED LARGE SUMS; AND HE DID NOT DO THIS SIMPLY FROM THE PRIDE OF OWNERSHIP BUT BECAUSE OF HIS CULTIVATED TASTE AND THE KNOWLEDGE THAT HE DERIVED. THERE WAS HARDLY A BOOK IN HIS LIBRARY OR A PAINTING ON HIS WALLS THAT HE COULD NOT TELL YOU A GREAT DEAL ABOUT, SHOWING YOU HIS FAMILIARITY WITH THEM.

IT IS, OF COURSE AS AN EMPIRE BUILDER THAT MR. HUNTINGTON WILL BE CHIEFLY REMEMBERED--AS THE FOUNDER OF MORE CITIES, AS THE BUILDER OF MORE LINES OF RAILROAD THAN ANY OTHER MAN IN AMERICA.

MR. HUNTINGTON, IN ADDITION TO THE MANY OTHER PROJECTS WITH WHICH HE WAS ASSOCIATED, CONCEIVED AND ORGANIZED THE NEWPORT NEWS SHIPBUILDING AND DRY DOCK COMPANY, WHICH HAS DEVELOPED INTO A VERY LARGE PLANT. ON A STONE MONUMENT IN THE YARD OF THIS GREAT PLANT IS PLACED THIS INSCRIPTION, DICTATED BY HIM:

"WE SHALL BUILD GOOD SHIPS HERE,
AT A PROFIT IF WE CAN, AT A LOSS
IF WE MUST, BUT ALWAYS GOOD SHIPS."

THESE WORDS SPEAK VOLUMES. ONLY A SINCERELY HONEST MAN IN THOUGHT, WORD AND DEED COULD SPEAK AND GIVE EFFECT TO WORDS OF SUCH PREGNANT MEANING. NO MAN CAN BE A BIG MAN IN THE FULL SENSE ^{THAT} ~~XX~~ THE WORD IMPLIES UNLESS HE IS HONEST IN ALL OF HIS PURPOSES.

CHRISTMAS ON THE CHESAPEAKE AND OHIO IN 1873.

BY ¹³DANIEL AHERN, HUNTINGTON SHOPS.

(QUOTED FROM C & O. AND HOCKING VALLEY EMPLOYEES MAGAZINE DEC. 1923)

THE CONNECTING RAILS OF THE CHESAPEAKE AND OHIO WERE LAID IN JANUARY, 1873, EAST OF KANAWHA FALLS. BY DECEMBER, 1873, THE C & O. SHOPS AT HUNTINGTON WERE WELL ORGANIZED AND EQUIPPED, UNDER THE SUPERVISION OF T. J. HAMER, SUPERINTENDANT OF MACHINERY. THE SHOP FORCE WAS COMPOSED OF YOUNG MEN FROM DIFFERENT PARTS OF THE COUNTRY WHO HAD LEFT HOME, HOPING TO BETTER THEIR CONDITIONS. FISK & HATCH, A NEW YORK FIRM, WERE THE FINANCIAL AGENTS FOR THE C & O. AT THE TIME OF THE J. COOK FAILURE; THEY WENT DOWN WITH THE REST, CONSEQUENTLY LEAVING THE C & O. IN BAD CONDITION, FINANCIALLY. DURING ~~THE~~ THE MONTH OF OCTOBER WE WERE PAID FOR THE MONTH OF AUGUST, AND WITHOUT ANY ASSURANCE AS TO WHEN THE NEXT PAY DAY WOULD BE. THE MERCHANTS REFUSED CREDIT TO THE MEN; SO CHRISTMAS EVE FOUND US WITHOUT FUNDS AND WONDERING HOW WE WOULD PROVIDE FOR CHRISTMAS.

HOWEVER, ON CHRISTMAS MORNING THE PAY CAR PULLED INTO THE SHOPS. IT WAS A DARK, GLOOMY MORNING, AND THE PAY CAR LOOKED MORE GLOOMY WITH THE CURTAINS PULLED DOWN. IT CARRIED THIRTY, SIXTY, AND NINETY DAY SCRIPT. WE KNEW VERY LITTLE ABOUT SCRIPT. WE DID KNOW SOMETHING ABOUT GREENBACKS. WE WERE IGNORANT OF FINANCIAL MATTERS IN THOSE DAYS, NOT HAVING HEARD OF FREE SILVER, OR "SIXTEEN TO ONE". CONSEQUENTLY, WE HELD MEETINGS ALL DAY. FINALLY, IT WAS UNDERSTOOD THAT GENERAL WICKHAM (VICE-PRESIDENT OF C & O.) HAD MADE ARRANGEMENTS WITH THE MERCHANTS TO HONOR THE SCRIPTS. IN THIS WAY, THE MEN WERE PROVIDED FOR FOR THE TIME BEING.

IT HAS BEEN TRULY SAID: A SILVER LINING IS ALWAYS SHINING ON THE INNER SIDE OF THE DARKEST CLOUD. THIS WAS OUR CASE. WE

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WERE GIVEN ONE OF THE BEST CHRISTMAS DINNERS WE HAVE EVER ENJOYED.
THIS HOSPITALITY WAS EXTENDED BY MRS. C. L. HEFFNER, WITH WHOM ALL
BOARDED AT THE TIME.

DRIVING OF LAST SPIKE AT SPOT NEAR HAWK'S NEST.

AS TOLD BY JAMES P. NELSON.

EMPLOYEE'S MAGAZINE JUNE, 1917, PAGE 23.

WILLIAM J. BRIGHTWELL WAS BORN IN PRINCE EDWARD COUNTY, VIRGINIA, MAY 4, 1851. HE LEFT HOME, BOARDED A TRAIN AT PROSPECT DEPOT, ON WHAT IS NOW THE N & W., WENT TO LYNCHBURG; THENCE BY PACKET BOAT ON THE JAMES RIVER CANAL TO BUCHANAN. FROM BUCHANAN HE WALKED ACROSS THE MOUNTAINS, 36 MILES, TO JACKSON'S RIVER, AND THERE TOOK A TRAIN ON THE C & O. TO WHITE SULPHUR SPRINGS, THEN THE WESTERN TERMINUS OF OUR ROAD. AT THAT TIME THE BIG JERRY'S RUN FILL AND LEWIS TUNNEL HAD NOT BEEN FINISHED. JERRY'S RUN WAS CROSSED BY A TEMPORARY TRESTLE, AND A TEMPORARY TRACK HAD BEEN CONSTRUCTED OVER THE MOUNTAIN AT LEWIS TUNNEL. FROM WHITE SULPHUR HE WALKED TO WHERE IS NOW BIG BEND TUNNEL, ARRIVING THERE JULY 11, 1869. PREPARATIONS WERE MADE FOR THE CONSTRUCTION OF THAT TUNNEL. THE WRITER OF THIS (J.P. NELSON) WAS SENT TO BIG BEND TUNNEL AS AN ASSISTANT ENGINEER UNDER CAPTAIN RICHARD H. TALCOTT, ARRIVING THERE THE FIRST WEEK IN JANUARY, 1870; AND, ON THE TENTH OF THAT MONTH SAW THE WORK OF ACTUAL CONSTRUCTION BEGIN, WITH SOME CEREMONY, AS THE FIRST SPADE-FULL OF DIRT WAS DIG AT THE 52 FOOT SHAFT AT THE WEST PORTAL.

AT THE TUNNEL MR. BRIGHTWELL FIRED A HOISTING ENGINE ON THE OPPOSITE SHIFT TO C.C. HUNTLEY: THE ENGINEER'S NAME WAS WILLIAM TURNER. WHEN THE TUNNEL WAS FINISHED MR. BRIGHTWELL WENT WITH THE TRACK LAYERS, HELPED LAY THE TRACK FROM BIG BEND TO HAWK'S NEST, WHERE WERE MET THE TRACK LAYERS FROM THE WEST. HE HAD THE HONOR HELPING TO DRIVE THE LAST SPIKE, A CEREMONY THAT WAS PARTICIPATED IN BY GENERAL WILLIAMS C. WICKHAM, VICE-PRESIDENT OF THE ROAD, AND THE VETERAN

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CONTRACTOR, CLAIBORNE R. MASON. BOTH OF THE LATTER NAMED GENTLEMEN STRUCK THE SPIKE, AND OTHERS PRESENT ENJOYED THE SAME PRIVILEGE, SO THAT THE REMNANTS OF THE SPIKE WERE BURIED IN THE CROSS TIE.

THEREAFTER. MR. BRIGHTWELL WENT TO RICHMOND AND RAN A HOISTING ENGINE AT CHURCH HILL TUNNEL UNTIL THE COMPLETION OF THAT WORK. AFTER THIS, HE WENT WITH THE ROAD CARPENTER DEPARTMENT, UNDER MR. C. F. KING, MASTER CARPENTER, FROM STAUNTON TO HINTON. AFTER MR. KING'S DEATH MR. C. W. VANDERGRIFF, OF HONORABLE MEMORY, WAS MADE MASTER CARPENTER FROM CLIFTON FORGE TO HUNTINGTON.

IN 1878 MR. BRIGHTWELL WAS PROMOTED TO CARPENTER FOREMAN, IN CHARGE OF WORK ON BRIDGES, TRESTLES, AND GENERAL CARPENTER WORK. IN 1880 THE WRITER OF THIS SAW HIM DO FINE WORK ON THE TRESTLES ERECTED UNDER SOME DIFFICULTIES BETWEEN HUNTINGTON AND THE BIG SANDY RIVER. WHILE CARPENTER FOREMAN, MR. BRIGHTWELL ARCHED BIG BEN TUNNEL THROUGH-OUT WITH TIMBER EIGHT TIMES; AND WHEN THE BRICK LINING WAS PUT IN HE HAD THE DIFFICULT TASK OF PULLING DOWN THE TIMBER LINING, WHICH WAS ALWAYS ATTENDED BY SOME DANGER, BECAUSE OF THE LOOSE ROCKS AND DISINTEGRATED MATERIAL THAT FELL AS THE TIMBERS WERE REMOVED.

MARCH 15, 1890 MR. GEORGE W. STEVENS, THEN GENERAL MANAGER, ASSIGNED MR. BRIGHTWELL TO TAKE CHARGE OF THE HINTON TOOL CARS--"

Report of A. H. Perry. General
Supt. C. & O. R. R.

Annual Rept. of 1872 -
Western Div. Div.

Road open Hunt. To
Charleston, Dec. 4, 1871. To
Coalburg, March 4, 1872,
To Kan. Falls June 17, 1872.

Road connected up bel
Hawk's Nest & Kan. Falls,
Jan 29, 1873, Train came
to Huntington same day

First through train to
Richmond arrived Feb. 13, 1873
Supposed to be there Feb. 12, 1873,
but was hit by a slide
& first four cars got to
Richmond - four cars of
coal from Coalburg to Richmond
same date.

~~From Oct. 1, 1872,~~

Recollections of Henry Frazer
Chesapeake & O. R.R.

Huntington
Public Relations Dept 1938

True Hist of C. & O. R.R.

Wood's Hist of Albemarle Co.,
Pub about 30 yrs. ago, gives
marriage records.

Frazer above - first
appeared in the C. & O. &
Ohio Lines Division Magazine
Sept. 1937 - July 1938.

n. 336 - Richmond her past &
present tells about 1st
train into Huntington
Richmond.

Mr. Henshaw (1946)

Write - Miss Laura E. Armitage
Research Analyst, C. & O. R. R.
Company - Richmond
She has various pictures, etc.
illustrating C. & O. Hist.

ON ENGAGING THE HUNTINGTON INTERESTS -1869-

REPORT OF PRESIDENT WMS. C. WICKHAM AND DIRECTORS TO STOCK-HOLDERS AT ANNUAL MEETING OF NOV. 25, 1869:

RECEIPTS AND EXPENSES	
EARNINGS FOR FISCAL YEAR ENDING SEPT. 9, 1869:	\$662,674.55
EXPENSES	447,581.63
NET EARNINGS	<u>185,092.92</u>
INC. RECEIPTS OVER 1868	63,320.49
EXCESS OF EXPENDITURES	\$ 40,933.14

ROAD OPENED TO WHITE SULPHUR SPRINGS JULY 1, 1869.

SURVEYS UNDER WAY WESTWARD. PROSECUTION OF WORK TO THE OHIO RIVER.

"CONTRACTS EXISTING IN 1868 CALLING FOR CONSTRUCTION OF THE ROAD FROM COVINGTON TO WHITE SULPHUR SPRINGS INVOLVED AN EXPENDITURE OF NEAR ONE MILLION OF DOLLARS, INCLUDING A CONSIDERABLE AMOUNT OF UNPAID CLAIMS UPON THE SAME ACCOUNT. TO MEET THESE ENGAGEMENTS AND LIABILITIES NO MEANS HAD BEEN PROVIDED EXCEPT THE 7% MORTGAGE BONDS, THE ISSUE OF WHICH YOU HAD APPROVED.

"BELIEVING THAT THE SUSPENSION OF THE WORK WOULD HAVE A DAMAGING EFFECT UPON THE CREDIT AND IN TRUTH UPON THE COMPANY, AND HAVING THE MOST FAVORABLE ASSURANCES OF THE SUCCESS OF THE LOAN, AT LEAST TO AN EXTENT SUFFICIENT TO COVER WORK CONTRACTED FOR, WE DEEMED IT ADVISABLE TO PROCEED, AND X THE FAILURE OF FULFILLMENT OF THESE ASSURANCES LEFT US NO ALTERNATIVE BUT TO RESORT TO TEMPORARY EXPEDIENTS (ALWAYS EXPENSIVE) TO PROCURE THE MONEY TO PROSECUTE THE WORK.

"UNDER THESE DIFFICULT CIRCUMSTANCES WE WERE GLAD TO AVAIL OURSELVES OF AN OPPORTUNITY WHICH OFFERED TO SECURE UPON TERMS SATISFACTORY TO US AND ADVANTAGEOUS TO THE COMPANY THE CO-OPERATION OF GENTLEMEN OF NEW YORK, LARGE CAPITALISTS AND OF HIGH FINANCIAL CREDIT AND REPUTATION, WHO HAVE UNDERTAKEN CHARGE OF THE FINANCES OF THE COMPANY, AND SUBSTITUTING

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SIX% LOAN, WILL ENABLE US TO PRESS THE WORK VIGOROUSLY TO A SPEEDY AND SUCCESSFUL COMPLETION."

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SELECT COMMITTEE OF THIRTEEN APPOINTED TO WHOM SHOULD BE REFERRED THE REPORT OF THE PRESIDENT AND DIRECTORS AS RELATED TO THE CONTRACT MADE WITH CAPITALISTS OF NEW YORK FOR THE COMPLETION OF THE ROAD.

REPORT OF SAID COMMITTEE:

RESOLVED: 1ST. THAT THE STOCKHOLDERS OF THE C & O. RAIL ROAD DO APPROVE OF THE ACTION OF THE PRESIDENT AND DIRECTORS OF THE COMPANY IN NEGOTIATING, ACCEPTING AND RATIFYING THE PROPOSITION AND AGREEMENT OF MESSRS. C. P. HUNTINGTON AND OTHERS, DATED NEW YORK, NOV. 16, 1869, AND DO HEREBY AUTHORIZE AND EMPOWER THE PRESIDENT AND DIRECTORS TO DO WHATEVER MAY BE NECESSARY TO CARRY THE SAME INTO FULL EFFECT.

2ND. THAT THE STOCKHOLDERS WILL PROCEED TO ELECT ELEVEN DIRECTORS, WHO SHALL HAVE AUTHORITY TO CHOOSE FROM THEIR OWN NUMBER A PRESIDENT AND VICE-PRESIDENT OF THE COMPANY.

3RD. THAT THE DIRECTORY SO ORGANIZED SHALL HAVE FULL POWER AND AUTHORITY TO ORGANIZE THE COMPANY IN ALL ITS DEPARTMENTS, TO PROVIDE FOR THE SELECTION AND EMPLOYMENT OF ALL OFFICERS AND AGENTS OF THE COMPANY; TO PRESCRIBE THEIR DUTIES AND DEFINE THEIR AUTHORITY; TO ASCERTAIN AND FIX THEIR COMPENSATION; AND GENERALLY, TO MAKE, FOR THE GOVERNMENT OF THE COMPANY SUCH RULES AS THEY MAY DEEM NECESSARY, SO THAT THE SAME BE NOT INCONSISTENT WITH THE CHARTER OF THE COMPANY OR THE LAW OF THE LAND, AND THAT THEY BE, AT ALL TIMES SUBJECT TO THE AUTHORITY OF THE STOCKHOLDERS IN GENERAL MEETING.

DIRECTORS ELECTED: C.P.HUNTINGTON, N.Y.; A.A.LOW, N.Y.; W.H.ASPENWALL, N.Y.; PLINY FISK, N.Y.; DAVID STEWART, N.Y.; JONAS B.CLARK, N.Y.; H.C.PARSONS W. VA.; GEN. JOHN ECHOLS, STAUNTON, VA; GEN. WMS. C. WICKHAM, HANOVER, VA; GEN. JOSEPH R. ANDERSON, RICHMOND, VA.

(THE DIRECTORS PREVIOUSLY HAD BEEN OF A LOCAL CHARACTER VIZ. 1867-1868); COL. H.C.CABELL, FRANKLIN STEARNS, HORACE L.KENT, GEN. JOHN E. MULFORD, DR.ALEXANDER SHARP, CHARLES E. WORTHAM OF RICHMOND, VA; JOHN WOOD, JR. ALBERMARLE, VA; GEN. JOHN ECHOLS, AUGUSTA, VA.; MAJ. JAMES G. PAXTON, ROCKBRIDGE, VA; DR.JOHN A. HUNTER, GREENBRIER, W.VA; ALEX. R. HUMPHRIES, MONROE, W.VA.; JOHN SLACK, JR., KANAWHA, W.VA.; H.C.PARSONS, PUTNAM, W. VA.; CIL. JOHN S. WITCHER, CABELL, W.VA.)

NOTE THE PREVAILING CIVIL WAR TITLES: GENERALS, COLONELS AND MAJORS.

SUMMARY OF REPORT OF COMMITTEE TO EXAMINE ROAD:
ROADBED IN GENERALLY GOOD CONDITION.

IRON (TRACK) BETWEEN STAUNTON AND FISHERSVILLE, AND IVY DEPOT AND CHARLOTTSVILLE, CONSIDERABLY WORN AND SHOULD BE REPLACED WITH NEW WHENEVER THE FINANCES OF THE COMPANY WILL JUSTIFY IT. THE SAME IS, TO A LESS EXTENT, TRUE OF THAT BETWEEN FISHERSVILLE AND WAYNESBORO, AND GORDONSVILLE AND LOUISA COURTHOUSE. THE RESIDUE OF THE TRACK IS IN GOOD CONDITION; AND THE SKILL AND JUDGMENT WITH WHICH THE WHOLE OF IT HAS BEEN KEPT IS WORTHY OF HIGH COMMENDATION.

THE TRESTLEWORK ON THE TEMPORARY TRACK OVER JERRY'S RUN, BEYOND COVINGTON, IS WELL XONSTRUCTED AND VERY SUBSTANTIAL.

THAT OVER JACKSON'S RIVER HAS BEEN RE-PLACED BY A SUBSTANTIAL BRIDGE. THE BRIDGES OVER COWPASTURE RIVER AND WILSON'S CREEK ARE BEING COVERED; AND THOSE OVER CHRISTIAN'S CREEK AND RIVANNA RIVER SOON WILL BE.

A SPACIOUS AND COMMODIOUS DEPOT HAS JUST BEEN BUILT AT WHITE SULPHUR SPRINGS.

WE TESTED THE SCALES, &C. THOSE AT CHARLOTTESVILLE VARIED ABOUT TEN POUNDS IN THE HUNDRED. THOSE AT COVINGTON AND BEAVER DAM WERE INACCURATE, BUT THEIR VARIATIONS WERE SLIGHT.

THE POLICY OF BUILDING AND REPAIRING THE COACHES, CARS AND MACHINERY OF THE ROAD AS FAR AS POSSIBLE IN THEIR OWN SHOPS MUST MEET THE HEARTY APPROVAL OF THE COMPANY, AS IT DOES OF YOUR COMMITTEE.

THE SUPPLY OF FUEL (WOOD) APPEARS TO BE AMPLE AND THE QUALITY GOOD, BUT WE FIND IT NECESSARY AGAIN TO CALL ATTENTION TO THE DESIRABLENESS OF HAVING IT CUT IN UNIFORM LENGTH.

AS THE ROAD PASSES THROUGH THE OUTSKIRTS OF CHARLOTTESVILLE, AND ONLY BY A FEW STRAGGLING BUILDINGS, WE RECOMMEND THAT THE DIRECTORS APPLY TO THE AUTHORITIES OF THAT TOWN TO RESCIND THE ORDER WHICH REQUIRES THEM TO MOVE SO SLOWLY BY IT.

YOUR COMMITTEE DEEPLY REGRETS THAT THE RUNNING OF TRAINS UPON THE SABBATH HAS BEEN RESUMED. WAIVING, FOR THE TIME, ANY COMMENT UPON THE MORALITY, OR RATHER IMMORALITY OF SUNDAY TRAINS WE ARE FULLY SATISFIED THAT THE MATERIAL INTERESTS OF THE COMPANY WOULD BE PROMOTED BY THEIR DISCONTINUANCE AND UNANIMOUSLY URGE THAT THEY BE AT ONCE DISCONTINUED."

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CASH ON HAND SEPT. 30, 1869, \$7,169.25.

HUNTINGTON INTERESTS - 1870. (54 WILLIAM ST. N.Y.)

C. P. HUNTINGTON, PRESIDENT.

REPORT OF PRESIDENT AND BOARD OF DIRECTORS (SUMMARY):

"IN CONSIDERING THE FINANCIAL CONDITION OF THE COMPANY, WHICH DEMANDED IMMEDIATE ATTENTION, IT WAS FOUND NECESSARY TO RAISE A SUFFICIENT AMOUNT OF MONEY TO PAY OFF THE FLOATING DEBT OF THE COMPANY, WHICH AMOUNTED TO MORE THAN A MILLION OF DOLLARS, AND TO COMPLETE AND EQUIP THE ROAD FROM WHITE SULPHUR SPRINGS TO THE OHIO RIVER. AFTER MATURE DELIBERATION, THEY DECIDED THAT THE BEST WAY TO RAISE THE REQUIRED AMOUNT WAS TO ISSUE SIX PER CENT, THIRTY YEAR FIRST MORTGAGE BONDS, PRINCIPAL AND INTEREST PAYABLE IN GOLD COIN, TO THE AMOUNT OF FIFTEEN MILLIONS OF DOLLARS. SUCH BONDS WERE ACCORDINGLY ISSUED, AND A MORTGAGE DEED FOR THE AMOUNT ABOVE MENTIONED WAS EXECUTED AND DELIVERED TO MESSRS. WM. BUTLER DUNCAN AND PHILO C. CALHOUN, AS TRUSTEES. THESE BONDS WERE PLACED ON THE MARKET IN FEB. LAST BY MESSRS. FISK AND HATCH THE FINANCIAL AGENTS OF THE COMPANY; AND, ALREADY, MORE THAN ONE-THIRD OF THE WHOLE AMOUNT HAS BEEN SUBSCRIBED FOR, AND THE SUBSCRIPTIONS PAID - - - - THE MONEY RECEIVED FOR THE BONDS SOLD HAS BEEN USED IN PAYING OFF THE FLOATING DEBT BEFORE MENTIONED IN RETIRING THE FEW OUTSTANDING SEVEN PER CENT BONDS OF THE COMPANY ISSUED UNDER THE TEN MILLION MORTGAGE OF 1867, NOW CANCELLED, IN PAYMENT OF LOANS DUE THE STATE OF VIRGINIA, FOR IMPROVING THE ROAD EAST OF WHITE SULPHUR SPRINGS, AND FOR CONSTRUCTION WEST OF THAT POINT."

BUILDING WESTWARD PROGRESSING FAVORABLY.

"A TELEGRAPH LINE FROM WHITE SULPHUR SPRINGS TO THE WESTERN TERMINUS OF THE ROAD WAS FOUND TO BE A NECESSITY. EFFORTS WERE MADE TO INDUCE THE WESTERN UNION TELEGRAPH COMPANY TO BUILD SUCH

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A LINE, BUT THEY DID NOT PROPOSE SUCH TERMS AS IT WAS DEEMED ADVISABLE TO ACCEPT. THIS COMPANY IS NOW CONSTRUCTING SUCH A LINE." - - - - - (Cost \$22,12.71).

"UNDER THE ADMINISTRATION OF OUR IMMEDIATE PREDECESSORS ARRANGEMENTS WERE MADE FOR THE PURCHASE BY THIS COMPANY OF THE STATE OF VIRGINIA IN THE BLUE RIDGE RAILROAD AND TUNNEL. THESE ARRANGEMENTS HAVE BEEN CARRIED OUT ON THE TERMS AND CONDITIONS APPROVED BY THE LATE BOARD OF DIRECTORS IN NOVEMBER LAST, 1869, AND BY YOU AT YOUR LAST ANNUAL MEETING.

"THIS OBJECT HAS BEEN ACCOMPLISHED BY THE ISSUE OF 20,000 SHARES OF THE CAPITAL STOCK OF THE COMPANY, WHICH HAVE BEEN GIVEN IN PAYMENT FOR THE REQUISITE AMOUNT OF THE BONDS OF THE STATE OF VIRGINIA. A RELEASE, EXECUTED BY THE GOVERNOR OF THE STATE OF VIRGINIA, AND BY THE PRESIDENT OF THE BOARD OF PUBLIC WORKS OF THE STATE OF VIRGINIA, DATED JUNE 29, 1870, AND TAKING EFFECT FROM APRIL 1, 1870, GRANTING TO THIS COMPANY ALL THE INTERESTS AND RIGHTS OF THE SAID STATE, AND OF THE SAID BOARD OF PUBLIC WORKS IN THAT VALUABLE PROPERTY, IS ON FILE IN THIS OFFICE. BY THIS MEANS, THAT SECTION OF THE ROAD WHICH COST THE STATE OF VIRGINIA NEARLY TWO MILLIONS OF DOLLARS, BECAME THE ABSOLUTE PROPERTY OF THIS COMPANY, AND THE WHOLE LINE OF ROAD FROM RICHMOND TO THE OHIO RIVER COMES UNDER THEIR FULL CONTROL AND OWNERSHIP. FROM THE ABOVE MENTIONED DATE (APRIL 1, 1870) THE LARGE ITEM HITHERTO PAID TO THE STATE IN TOLLS FOR THE USE OF THAT ROAD CEASED TO BE A CHARGE UPON THE COMPANY." - - - -

"YOUR PRESIDENT AND BOARD OF DIRECTORS HAVE INVESTED LARGELY OF THEIR MONEY IN THIS ENTERPRISE, AND IT IS THEIR PURPOSE TO PUSH FORWARD THE GREAT WORK TO ITS COMPLETION AS RAPIDLY AS POSSIBLE, WITH A CONSISTENT REGARD FOR ECONOMY.

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"THE VAST, UNDEVELOPED MINERAL AND AGRICULTURAL RESOURCES ALONG ITS ENTIRE LINE GIVE ASSURANCE THAT THE LOCAL ~~XXXX~~ BUSINESS OF THE ROAD WILL SOON YIELD AMPLE RETURNS FOR ALL THAT IT HAS COST. ADD TO THIS THE ALMOST UNLIMITED BUSINESS THAT WILL NATURALLY BECOME TRIBUTARY TO IT FROM BEYOND ITS LINE, AND IT REQUIRES NOT EXTRAORDINARY SAGACITY TO PERCEIVE THAT THE CHESAPEAKE AND OHIO RAILROAD WILL, AT NO DISTANT DAY, ASSUME A POSITION SECOND TO NONE OF THE GREAT TRUNK LINES LEADING WESTWARD FROM THE ATLANTIC COAST - - - - -"

(SIGNED) C.P. HUNTINGTON, PRESIDENT.

1870

EARNINGS

FROM PASSENGERS	\$286,944.93
" FREIGHT	360,481.19
" EXPRESS	11,937.14
" U. S. MAIL	16,556.38
" MISCELLANEOUS	799.65
" RENT OF REAL ESTATE	605.98
	<u>\$677,325.27</u>

EXPENSES

TRAIN EXPENSES	\$135,679.04
DEPOT "	47,752.17
MISC. EXPENSES	17,213.62
TRAIN LOSSES AND DAMAGES	9,155.33
MAINTAINANCE OF WAY	251,365.22
REPAIRS OF DEPOTS, BLDGS.	8,270.78
REPAIRS OF MACHINERY	82,794.16
SALARIES	42,732.78
TAXES	19,408.42
INSURANCE	3,067.51
	<u>617,439.03</u>

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NET RECEIPTS.	\$59,886.24
INCREASE IN REV. FROM PASSENGERS OF	246.71
" " " " FREIGHT "	20,252.37
IN MISC. RECEIPTS	439.65
DECREASE ON EXPRESS FREIGHT	2,544.04
" " U. S. MAIL	3,333.04
TOTAL INCREASE	\$4,650.72.

(THE DECREASE IN MAIL REVENUE WAS DUE TO THE FACT THAT IN THE PREVIOUS YEAR THE SUM OF \$4,082.44 WAS RECEIVED FROM THE ORANGE AND ALEXANDRIA FOR BACK MAIL SERVICE BETWEEN GORDONSVILLE AND CHARLOTTESVILLE.)

CASH AND CASH ITEMS ON HAND SEPT. 30, 1870 -- \$1,544,719.15

1871

TRACK MUCH IMPROVED AND MUCH OF INCOME EXPENDED IN DURABLE REPAIRS. EXPENSE REDUCED UPWARDS OF \$138,000.00. RECEIPTS INCREASED MORE THAN \$90,000.00. NET REVENUE \$290,000.00.

RESOLVED: THAT THE BOARD OF DIRECTORS BE AUTHORIZED AND INSTRUCTED TO ASCERTAIN AND PAY A SUITABLE SALARY TO THE PRESIDENT OF THE COMPANY.

"DEMANDS FOR BONDS CONSTANT AND REGULAR AND HAVE BEEN PLACED BY MESSRS. FISK AND HATCH, THE FINANCIAL AGENTS OF THE COMPANY, FOR THE MOST PART IN THE HANDS OF THE MOST PRUDENT INVESTORS OF CAPITAL IN THIS COUNTRY AND IN EUROPE.

"THEY WERE ORIGINALLY PLACED ON THE MARKET AT NINETY CENTS ON THE DOLLAR; AND AS THE DEMAND FOR THEM INCREASED AND THE PROGRESS OF THE WORK OF CONSTRUCTION GAVE THEM INCREASED INTRINSIC VALUE, THE PRICE HAS BEEN GRADUALLY ADVANCED, UNTIL NOW THEY COMMAND NINETY-FOUR CENTS ON THE DOLLAR; AND NO DOUBT IS ENTERAINED THAT WHEN THE ROAD IS COMPLETED, WHICH WILL BE WITHIN ONE YEAR

FROM THIS DATE, THEY WILL BE SOUGHT FOR AT A PREMIUM ON THEIR PAR VALUE.

"IT IS GRATIFYING TO BE ABLE TO STATE THAT THESE BONDS HAVE COMMANDED, AT ALL TIMES, SINCE THEY WERE FIRST PLACED ON THE MARKET, A HIGHER PRICE THAN THE SIX PER CENT BONDS OF ANY OTHER UNCOMPLETED ROAD IN THE COUNTRY. THAT THE SMALL REMAINING BALANCE OF THE LOAN WILL BE TAKEN UP AS RAPIDLY AS THE WANTS OF THE COMPANY WILL REQUIRE, AND AT STEADILY ADVANCING RATES, IS NOW WELL ASSURED." (QUOTED FROM REPORT OF PRES. AND DIRECTORS.)

AMOUNT OF CASH AND CASH ITEMS ON HAND SEPT. 1, 1871 \$2,274,417.04.

EARNINGS

FROM PASSENGERS	\$713,975.20
" FREIGHT	421,903.92
" MAILS	16,924.00
" EXPRESS FREIGHT	14,442.04
" MISCELLANEOUS	1,100.74
" RENT OF REAL ESTATE	919.15
TOTAL	\$769,265.05

EXPENSES

TRAIN EXPENSES	\$121,592.66
DEPOT "	57,373.64
TRAIN LOSSES AND DAMAGES	17,063.73
MAINTAINANCE OF WAY	148,291.84
REPAIRS OF DEPOTS, BLDGS, &C	7,652.66
" OF MACHINERY	59,323.62
MISC. EXPENSES	7,465.99
GEN. "	18,520.69
SALARIES	47,971.79
TOTAL	\$479,256.62
NET RECEIPTS	290,008.43

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INCREASES

PASSENGER REVENUE	\$ 27,030.27
FREIGHT "	<u>61,422.73</u>
RECEIPTS FROM MAIL SERVICE	367.62
" " EXPRESS FREIGHT	2,504.90
MISC. RECEIPTS	301.09
RENT FROM REAL ESTATE	<u>313.17</u>
TOTAL INCREASE	<u>91,939.78</u>

COST OF CONSTRUCTION, JAN. 1, 1870-SEPT. 30, 1871 \$4,234,919.72

DECEMBER 5, 1872.

"AN EXAMINATION OF THE TREASURER'S STATEMENTS WILL SHOW THAT DURING THE FISCAL YEAR THE BONDS OF THE FIFTEEN MILLION ~~MOX~~ MORTGAGE REMAINING IN THE TREASURY AT THE CLOSE OF THE PREVIOUS YEAR, HAVE BEEN SOLD, THE PROCEEDS OF WHICH HAVE BEEN APPLIED TO THE WORK OF CONSTRUCTION NOW NEARLY COMPLETED.

"AS THE WORK HAS PROGRESSED, THE DECIDED ADVATAGES WHICH IT WILL POSESS IN MANY IMPORTANT RESPECTS OVER ALL OTHER EAST AND WEST THROUGH LINES, BOTH FOR PASSENGER AND FREIGHT THROUGH TRAFFIC, HAVE BECOME GENERALLY KNOWN AND GIVE ASSURANCE OF LARGE REVENUES FROM THROUGH BUSINESS, IMMEDIATELY UPON COMPLETION OF THE LINE.

"THE INECHAUSTIBLE DEPOSITS OF IRON ORES AND COAL, BOTH IN GREAT VARIETY, ON THE IMMEDIATE LINE OF YOUR ROAD AND ITS NEAR PROXIMITY, HAVE ATTRACTED THE ATTENTION OF CAPITALISTS, IRON-MASTERS, AND MINERS IN THIS COUNTRY AND EUROPE, WHO PROPOSE TO

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PROCEED AT ONCE IN THE DEVELOPMENT OF THE MINES, AND IN THE MANUFACTURE, ON AN EXTENSIVE SCALE, OF IRON AND STEEL, AND IN THE ESTABLISHMENT OF KINDRED INDUSTRIES.

"THE CONSUMERS OF SEVERAL VARIETIES OF COAL AT THE EAST AND THE WEST HAVE DISCOVERED THAT THEIR CHEAPEST SOURCE OF SUPPLY IS FROM THE HILL SIDES OF THE GREAT KANAWHA AND ITS TRIBUTARIES, AND ARE ANXIOUSLY LOOKING FOR THE OPENING OF YOUR ROAD, WITH THE INTENTION OF AVAILING THEMSELVES OF THE FACILITIES IT WILL FURNISH FOR BRINGING TO THEM THE NEEDED SUPPLY. THE SHIP BUILDERS OF EUROPE AND AMERICA, AND OTHER CONSUMERS OF TIMBER AND LUMBER ARE LOOKING TO THE SAME QUARTER FOR THEIR SUPPLIES - - - -.

"IN VIEW OF THESE FACTS AND OTHER INDICATIONS THAT THE BUSINESS AWAITING THE COMPLETION OF THE ROAD WILL BE MUCH LARGER THAN IT WAS ORIGINALLY SUPPOSED WOULD OFFER ON ITS IMMEDIATE COMPLETION, YOUR PRESIDENT AND DIRECTORS SOME MONTHS AGO, DECIDED TO ADOPT A MORE THOROUGH AND PERMANENT PLAN OF CONSTRUCTION THAN WAS ORIGINALLY CONTEMPLATED - - - .

"TO PROVIDE THE MEANS FOR THESE INCREASED EXPENDITURES IT WAS DECIDED TO ISSUE AND OFFER FOR SALE SEVEN PER CENT BONDS TO THE AMOUNT OF FIVE MILLIONS OF DOLLARS, PAYABLE TWENTY YEARS FROM JULY 1, 1872, AND REDEEMABLE AT THE OPTION OF THE COMPANY AFTER FIVE YEARS FROM THAT DATE, AND CONVERTIBLE INTO ANY MORTGAGE BONDS THAT THE COMPANY MAY THEREAFTER ISSUE. MORE THAN THREE-FOURTHS OF THESE BONDS HAVE BEEN DISPOSED OF AT THE DATE OF THIS REPORT." - - - -.

"THE CITY OF RICHMOND VOTED \$300,000.00 OF ITS BONDS TOWARDS THE COST OF A BRANCH OR EXTENSION FROM THE DEPOT TO A FAVORABLE POINT ON THE JAMES RIVER. WORK UNDER WAY".

"THE OPENING OF THE CHESAPEAKE & OHIO RAILWAY, NOW SO NEARLY COMPLETED, MAKES THIS VAST INHERITANCE (OF MINERAL WEALTH WHICH THE MUNIFICENT CREATOR HAD BEQUEATHED TO THE PEOPLES OF VIRGINIA AND

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WEST VIRGINIA, AND WHICH IS AS ENDURING AS THE EVERLASTING HILLS IN WHICH HE PLACED IT) AVAILABLE FOR THE PRESENT AND ALL OF FUTURE GENERATIONS; AND NOT ONE OF THE VAST POPULATION WHO NOW OR WHO WILL, IN THE FUTURE, INHABIT THESE STATES, WHETHER THE LARGE, LANDED PROPRIETOR, THE FARMER, THE MAN OF COMMERCE, THE PROFESSIONAL MAN THE ARTISAN, OR THE LABORER, WILL FAIL TO SHARE IN ITS BENEFITS.

"IT IS REASONABLE, THEREFORE, TO EXPECT THAT THE PEOPLES OF THESE STATES WILL FOSTER AND ENCOURAGE EVERY ENTERPRISE WHICH RESULTS SO DIRECTLY AND SO GREATLY TO THEIR ADVANTAGE; AND THAT THEY WILL BY WISE AND LIBERAL LEGISLATION, ENCOURAGE RATHER THAN DISCOURAGE THE EMPLOYMENT OF CAPITAL FROM OTHER STATES IN THE GREAT WORKS OF INTERNAL IMPROVEMENT WHICH YET REMAIN TO BE ACCOMPLISHED. (QUOTED FROM REPORT OF PRESIDENT AND BOARD OF DORECTORS).

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TOTAL EARNINGS	\$777,632.70
EXPENSES	<u>488,687.34</u>
NET EARNINGS	288,945.36.

"ABOUT A YEAR SINCE, THE BOARD OF DIRECTORS AUTHORIZED THE ISSUE OF SEVEN PER CENT MORTGAGE BONDS, THE PRINCIPAL AND INTEREST PAYABLE IN GOLD AND SECURED BY A FIRST MORTGAGE ON THE EXTENSION OF THE MAIN LINE FROM RICHMOND DOWN THE PENINSULA TO DEEP WATER AND ON THE CONTEMPLATED BRANCH ROAD FROM THE MOUTH OF SCARY TO THE MOUTH OF THE KANAWHA AND ALSO ON THE CONTEMPLATED BRIDGE ACROSS THE OHIO RIVER AT HUNTINGTON; AND BY A SECOND MORTGAGE ON ALL THE PROPERTY INCLUDED IN THE MORTGAGE BY WHICH THE FIFTEEN MILLIONS AIX PER CENT LOAN IS SECURED. THESE SEVEN PER CENT BONDS WERE INTENDED TO BE USED IN RETIRING THE FIVE MILLIONS OF DEBENTURE BONDS, TO WHICH REFERENCE WAS MADE IN THE LAST ANNUAL REPORT,

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AND IN PROVIDING MEANS FOR THE COMPLETION AND EQUIPMENT OF THE ROAD BETWEEN RICHMOND AND THE OHIO RIVER, &c. THE FINANCIAL CONDITION OF THE COUNTRY DURING THE YEAR WAS NOT FAVORABLE FOR NEGOTIATION OF NEW RAILROAD SECURITIES IN ANY CONSIDERABLE QUANTITIES; AND AS THE WORK TO BE DONE WAS HEAVY AND CONSEQUENTLY VERY EXPENSIVE, THE COMPANY HAD TO RESORT TO SHORT TIME LOANS TO RAISE THE MONEY TO COMPLETE THE ROAD FROM RICHMOND TO HUNTINGTON - - - - -&c.

THESE LARGE ADDITIONS TO THE ESTIMATED COST OF YOUR WORK WITH THE INABILITY OF THE COMPANY TO MAKE SALES OF ITS SECURITIES, PUT IT OUT OF THE POWER OF THE COMPANY TO MEET ITS OBLIGATIONS AND TO PROTECT ITS CREDIT THROUGH THE LATE FINANCIAL PANIC.; AND ON THE FIRST OF NOVEMBER, TO THE GREAT REGRET OF YOUR PRESIDENT AND BOARD OF DIRECTORS, IT WAS UNABLE TO PAY THE INTEREST THEN DUE ON ITS MORTGAGE BONDS. - - - - -"

SEPT. AND OCT. 1873 PERIOD OF GREAT FINANCIAL DISTURBANCE THROUGHOUT WHOLE COUNTRY. PRESIDENT AND BOARD CAME TO CONCLUSION THAT THEY MUST ASK ACCOMODATION FROM THE HOLDERS OF THE FLOATING DEBT AND OWNERS OF MORTGAGE BONDS. WISHED TO SECURE THE ULTIMATE PAYMENT TO EVERY CREDITOR OF THE FULL AMOUNT DUE, PRINCIPAL AND INTEREST, AND AT THE SAME TIME, RE-ESTABLISH CREDIT OF COMPANY ON PERMANENT BASIS. CONCLUDED TO USE, FOR A LIMITED TIME, THE EARNINGS OF THE ROAD. THEREFORE, AUTHORIZED THE ISSUE OF SEVEN PER CENT, TWENTY YEAR INCOME BONDS, TO THE EXTENT OF TWELVE MILLIONS OF DOLLARS, TO BE USED AT THE RATE OF 85 CENTS OF THE DOLLAR IN RETIRING THE FLOATING DEBT OF THE COMPANY, EXCEPT THAT PART OF IT SECURED BY SIX PER CENT BONDS; AND IN FUNDING THE

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INTEREST DUE, AND TO BECOME DUE ON ITS SIX PER CENT ~~XXXXXX~~
MORTGAGE BONDS TO, AND INCLUDING MAY 1, 1875 AND ON ITS 7%
BONDS TO, AND INCLUDING JULY 1, 1876. HAVE EVERY CONFIDENCE IN ULTIMATE SUCCESS OF ROAD.

--EXTRACTS FROM REPORT OF PRESIDENT.

EARNINGS	\$1,210,508.92 .
EXPENSES	879,700.00
NET EARNINGS	- \$ 330,808.91.

PASSENGER RECEIPTS HAD INCREASED \$100,000.00 OVER 1872,
AND FREIGHT RECEIPTS \$317,000.00.

CONNECTING RAIL OF THE EAST WITH THE WEST LAID JANUARY 29,
1873. ROAD 421 MILES. BRANCH LINES COMPLETED. TUNNELS PROVE
DIFFICULT, SLIDES, &C. PENINSULA EXTENSION LOCATED.

1874.

"THE PROPOSITION OF THE COMPANY, REFERRED TO IN ITS LAST
REPORT FOR FUNDING ITS FLOATED INDEBTEDNESS AND A PORTION OF THE
INTEREST ON ITS MORTGAGE DEBT INTO INCOME BONDS, HAVE BEEN AS-
SENTED TO BY A LARGE MAJORITY, IN AMOUNT, OF EACH CLASS OF CREDIT-
ORS; BUT WE REGRET TO SAY THAT A NUMBER OF CREDITORS OF EACH
CLASS, HAVE THUS FAR WITH-HELD THEIR ASSENT. YOUR PRESIDENT AND
BOARD OF DIRECTORS DEEM IT PROPER TO SAY IN THIS CONNECTION THAT
THE FUTURE OF THIS GREAT ENTERPRISE WHICH HAS COST SO MUCH LABOR
AND SO MUCH MONEY AND IN WHICH SO VAST INTERESTS ARE INVOLVED,
DEPENDS NOW, UPON THE FINAL DECISION OF THOSE BOND HOLDERS AND OTHER
CREDITORS WHO HAVE NOT ASSENTED TO THE PROPOSED TERMS OF SETTLE-
MENT." ----- HAVE CONSIDERED OTHER PLANS - - - "YET CONSTRAIN-
ED TO SAY, BEING THEMSELVES (THE PRESIDENT AND BOARD OF DIRECTORS)

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THE IMMEDIATE APPOINTMENT OF A RECEIVER; AND ON THAT DAY THE COURT APPOINTED MR. HENRY TYSON, OF BALTIMORE, RECEIVER OF THE PROPERTY, INCOMES, FRANCHISES, &C. OF THE COMPANY, WITH THE USUAL POWERS OF RECEIVER, &C. REQUIRING A BOND OF \$50,000.00 WITH THREE SURETIES, WHICH SHOULD BE APPROVED BY A JUDGE OF SAID COURT AS SUITABLE IN FORM AND SUFFICIENCY OF SURETIES. IT IS REMARKED HERE AS AT LEAST, AN EXTRAORDINARY CO-INCIDENCE THAT MR. TYSON, A RESIDENT OF BALTIMORE, WAS IN RICHMOND ON THAT SAID 9TH DAY OF OCTOBER, AND STILL MORE REMARKABLE THAT HE HAD IN HIS POCKET A BOND DULY EXECUTED IN THE EXACT SUM THAT THE COURT HAD, ON THAT DAY, PRESCRIBED, AND THAT THE BOND WAS DRAWN IN THE PRECISE FORM THAT THE COURT APPROVED, AND THAT IT WAS EXECUTED BY THE PRECISE NUMBER OF SURETIES REQUIRED BY THE ORDER OF THE COURT, AND THAT THE SURETIES WERE ALSO ACCEPTABLE TO THE JUDGE WHO HAD ISSUED THE ORDER." -- ALL THIS WAS WITHOUT NOTICE TO THE COMPANY, ALTHOUGH IT WAS WELL KNOWN THAT THE VICE-PRESIDENT OF THE COMPANY, GEN. WICKHAM, WAS WITHIN FIVE MINUTES WALK OF THE COURT HOUSE, &C. - - - AT TWO O'CLOCK THAT AFTERNOON MR. TYSON, ACCOMPANIED BY A U. S. MARSHALL, WAITED UPON THE VICE-PRESIDENT OF THE COMPANY AND DEMANDED POSSESSION OF THE PROPERTY. MODIFICATION ASKED OR A DELAY IN THE EXECUTION. REQUEST REFUSED. PROPERTY SURRENDERED TO MR. TYSON.

OCT. 22 COMPANY FILED ANSWER TO THE RULE AND REQUEST OF LARGE NUMBER OF BONDHOLDERS, STOCK-HOLDERS, AND OTHER CREDITORS, REPRESENTING IN ALL, A SUM OF ABOUT TWENTY-THREE MILLIONS OF DOLLARS, THAT VICE-PRESIDENT WICKHAM BE MADE PERMANENT RECEIVER IN PLACE OF MR. TYSON. OCT. 30 MR. TYSON APPOINTED PERMANENT RECEIVER: A STRANGER TO THE PRESIDENT AND BOARD OF DIRECTORS. DOES NOT SEEM RIGHT AND JUST THAT A PROPERTY OF SUCH MAGNITUDE AND OF SO GREAT COST SHOULD BE TAKEN OUT OF THE MANAGEMENT AND CONTROL OF ITS RIGHTFUL OWNERS

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AND BE PLACED IN THE HANDS OF A STRANGER AGAINST THE WISH OF SO
LARGE A MAJORITY OF ALL PERSONS INTERESTED IN IT. WILL USE EVERY
EFFORT LAWFUL AND PROPER TO SECURE REVERSAL OF THE ORDERS OF THE
COURT. IF THIS IS SUCCESSFUL, WILL PLAN FOR A RE-ORGANIZATION.

--EXTRACTS FROM REPORT OF PRESIDENT
C. P. HUNTINGTON AND BOARD OF DIRECTORS.

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THE BILL OF COMPLAINT WAS EXHIBITED AGAINST THE COMPANY BY
A/F. RICHARDS, MORRIS LEWENTHALL AND CHARLOTTE A. CLARKE, OWNERS
OF ABOUT \$120,000 SIX PER CENT GOLD MORTGAGE BONDS, PRAYING FOR A
FORECLOSURE OF THE MORTGAGE.

EARNINGS \$1,459,189.48

EXPENSES 1,112,320.70

PLUS ADDITIONAL EXPENSES OF PREVIOUS YEARS AND MINUS OVER-CHARGE
OF MISCELLANEOUS. \$ 23,033.78.

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- - - -"PROCEEDINGS WERE ACCORDINGLY INSTITUTED BY THE TRUSTEES OF THE SIX AND SEVEN PER CENT MORTGAGE BONDS IN THE STATE COURTS OF VIRGINIA AND WEST VIRGINIA WHICH RESULTED IN THE APPOINTMENT OF GENERAL WICKHAM AS RECEIVER; AND ON THE 20TH OF JANUARY, 1876, THE PROPERTY AND MANAGEMENT OF THE BUSINESS OF THE COMPANY PASSED INTO HIS HANDS, AS RECEIVER UNDER SAID APPOINTMENT."

"IN APRIL, 1876, A "COMMITTEE OF PURCHASE AND REORGANIZATION" WAS SELECTED BY A MAJORITY OF BOND-HOLDERS OF EACH CLASS". COMMITTEE CONSISTED OF A.S.HATCH, A.A LOW, C.P.HUNTINGTON, JOHN CASTREE AND ISAAC DAVENPORT, JR.

AS OF APRIL 18, 1876, "THE COMMITTEE IS GRATIFIED TO ANNOUNCE THAT UP TO THE PRESENT TIME THE HILDERS OF THE \$10,512,400. OF THE FIRST MORTGAGE, SIX PER CENT BONDS, OUT OF A TOTAL OF \$15,000,000.00, AND \$10,892,000 OF THE SEVEN PER CENT MORTGAGE BONDS, OUT OF A TOTAL OF \$12,131,000 OUTSTANDING, HAVE ALREADY SIGNED THEIR ASSENT TO THE PLAN OF RE-ORGANIZATION."

"AT A SUBSEQUENT DATE AN ARRANGEMENT WAS MADE WITH THE "CENTRAL TRUST COMPANY OF NEW YORK", TO RECEIVE AND TO BE THE CUSTODIAN OF SUCH BONDS AS MAY BE DEPOSITED WITH IT, IN PURSUANCE WITH THE PLANS OF THE ~~EXXIX~~ COMMITTEE.

"THE SAID COMMITTEE IS MAKING VERY SATISFACTORY PROGRESS IN ITS EFFORTS TO PROCURE AN ORDER FOR THE SALE OF THE PROPERTY AT AN EARLY DATE ----. THE RE-ORGANIZED COMPANY WILL, BEYOND ANY REASONABLE DOUBT, BE ABLE TO CONSTRUCT SUCH EXTENSIONS OF THE ROAD AS ARE DESIRABLE, AND TO SECURE SUCH CONNECTIONS BY RAIL BEYOND ITS OWN LINE AS WILL GIVE OUR ROAD THE EARNING CAPACITY TO PROVIDE FOR THE PROMPT PAYMENT OUT OF ITS EARNINGS OF ALL THE OBLIGATIONS

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THAT IT WILL ASSUME." (EXTRACTS FROM REPORT OF PRES. C.P.
HUNTINGTON AND B. OF D.)
- - - - -

EARNINGS	\$1,599,512.55
EXPENSES	<u>1,243,035.95</u>
EARNINGS OVER OPERATING EXPENSES	356,476.60.

\$88,068.53 WAS EXPENDED IN NEW RAILS, (1,100 TONS, FASTENINGS,
TIES AND LABOR).

DEC. 1, 1877.

"-----YOU WILL OBSERVE THAT THE NET EARNINGS FOR THE YEAR
WERE \$339,307.89, AND THAT THE NET RECEIPTS WERE \$326,887.23.
THIS LAST AMOUNT WAS EXPENDED UNDER ORDERS OF THE COURT IN PAY-
MENT FOR RIGHTS OF WAY, FOR COST OF FORECLOSURE SUITS, AMOUNTS DUE
TO EMPLOYEES FOR SERVICES RENDERED PREVIOUS TO THE APPOINTMENT OF
A RECEIVER, AND FOR CONSTRUCTION, EQUIPMENT, AND OTHER PERMANENT
IMPROVEMENT OF THE PROPERTY.

"IN ADDITION TO THE ABOVE, THE SUM OF \$137,107.31 HAS
BEEN PAID DURING THE YEAR OUT OF THE GROSS EARNINGS AND UNDER THE
AUTHORITY OF ORDERS GRANTED BY THE COURT, IN WHICH IS INCLUDED THE
COST OF 3L-1/2 MILES OF NEW STEEL RAILS, THE LAYING OF THEM, AND
ALSO EXTENSIVE REPAIRS AND RE-BUILDING OF LOCOMOTIVES.

"AT THE DATE OF OUR LAST REPORT IT WAS BELIEVED THAT THE
WORK OF THE "COMMITTEE OF PURCHASE AND RE-ORGANIZATION" WOULD
HAVE BEEN COMPLETED IN THE SPRING OF THE PRESENT YEAR. THAT COM-

MITTEE WAS DELAYED IN THEIR WORK AWAITING THE JUDICIAL DETERMI-
NATION OF SEVERAL LEGAL QUESTIONS WHICH WERE THEN PENDING IN

THE COURTS, THE MOST IMPORTANT OF WHICH WAS THE QUESTION AS TO
WHETHER OR NOT THIS COMPANY WAS LIABLE TO THE STATE OF VIRGINIA
FOR TAXES; AND IF SO, TO WHAT AMOUNT?

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IT IS KNOWN TO MOST, IF NOT ALL OF YOU, THAT THEN THE MANAGEMENT OF THE COMPANY WAS TRANSFERRED BY THE OLD BOARD OF DIRECTORS TO THE PRESENT BOARD IN 1869, A LARGE AMOUNT OF MONEY WAS SUBSCRIBED AND PAID IN BY THE MEMBERS OF THE PRESENT BOARD AND THEIR ASSOCIATES FOR THE PURPOSE OF AIDING IN THE COMPLETION OF THE ROAD TO THE OHIO RIVER; AND THAT AFTERWARDS THE SAME GENTLEMEN INVESTED VERY LARGELY OF THEIR MONEY IN THE SECURITIES OF THE COMPANY, AND, IN FACT, HAVE FURNISHED THE LARGER PART OF THE MONEY WHICH WAS FOUND TO BE NECESSARY FOR THE COMPLETION OF THE WORK.

"THESE LARGE ADVANCES WERE MADE UNDER ASSURANCES OF THE BEST COUNSEL OF VIRGINIA, INCLUDING MEMBERS OF THE BOARD OF PUBLIC WORKS AND OTHER OFFICERS OF THE STATE OF VIRGINIA THAT THE PROPERTY WOULD REMAIN EXEMPT FROM TAXATION ON THE PART OF THE STATE UNTIL THE PROFITS OF THE COMPANY SHALL AMOUNT TO TEN PER CENT A YEAR ON THE CAPITAL. THE QUESTION HAS BEEN TESTED IN THE COURTS OF VIRGINIA, AND FINALLY, IN THE SUPREME COURT OF THE U.S., IN WHICH IT WAS DECIDED THAT THIS COMPANY WAS NOT EXEMPT FROM TAXATION ON THAT PORTION OF THE ROAD WHICH WAS FORMERLY THE PROPERTY OF THE VIRGINIA CENTRAL RAILROAD COMPANY.

"PREVIOUS TO THIS DECISION A DECREE OF FORECLOSURE AND SALE HAD BEEN ENTERED IN THE CIRCUIT COURT OF RICHMOND.

"AFTER THIS DECISION, AN ORDER WAS ENTERED IN THE SAME COURT, MAKING IT THE DUTY OF THE COMMISSIONER, WHO HAD PREVIOUSLY BEEN APPOINTED TO ASCERTAIN THE ASSETS AND LIABILITIES OF THE COMPANY, TO ASCERTAIN AND REPORT THE AMOUNT DUE TO THE STATE OF VIRGINIA UNDER THE RULING OF THE SUPREME COURT OF THE U. S. THE SAID COMMISSIONER REPORTED THE AMOUNT DUE FOR THE YEARS 1871-1877, AS \$(6,264.16; AND UPON THE COMING IN OF THE SAID REPORT THE SAID CIRCUIT COURT OF THE CITY OF RICHMOND ENTERED A SUPPLEMENTARY DECREE

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ORDERING THE SAID SUM OF \$96,264.16 WITH INTEREST ON \$80,865.20 PART THEREOF FROM THE 15TH DAY OF JUNE, 1877 TO BE PAID TO THE STATE OF VIRGINIA BY THE PURCHASERS OF THE PROPERTY IN SIX INSTALLMENTS OF EQUAL AMOUNTS, ON A CREDIT OF 6, 12, 18, 24, 30 AND 36 MONTHS, RESPECTIVELY.

"UPON THE ENTERING UP OF THIS DECREE THE THEN ATTORNEY GENERAL OF THE STATE GAVE NOTICE OF HIS INTENTION TO APPEAL THEREFROM, CLAIMING THAT THE AMOUNT DUE TO THE STATE FOR TAXES AND PENALTIES WAS ABOUT THE SUM OF \$235,000.00, AND SIXTY DAYS WAS ALLOWED BY THE COURT FOR THE ATTORNEY GENERAL TO MAKE UP HIS CASE- - -".

"THE ATTORNEY GENERAL DIED; ANOTHER TOOK HIS PLACE. EFFORTS WERE MADE TO CONVINCE HIM THAT THE COMPANY SHOULD NOT BE HELD LIABLE FOR NOT REPORTING TAXABLE PROPERTY WHEN IT FULLY AND IN GOOD FAITH BELIEVED THAT ALL OF ITS PROPERTY WAS EXEMPT, AND ENDEAVORED TO ^{DISSUADE} ~~REEXAMINE~~ THAT OFFICER FROM TAKING THE CASE TO THE COURT OF APPEALS, ON THE GROUND THAT WHATEVER THE LEGAL TECHNICALITIES MAY BE, THE EQUITIES IN THE COMPANY ARE SO CLEAR AND BROAD, THAT THE PEOPLE OF THE OLD COMMONWEALTH OF VIRGINIA COULD NOT AFFORD TO TAKE ADVANTAGE OF THESE TECHNICALITIES--EVEN IF THEY WERE WITH THE STATE,--WHICH WE DO NOT BELIEVE--AND THAT ONE COMPANY COULD THEN GO ON AND SECURE CONNECTIONS WITH THE WESTERN ROADS, IN ACCORDANCE WITH THE ORIGINAL PLAN, THE ADVANTAGES OF WHICH WOULD BE FAR GREATER TO THE STATE OF VIRGINIA THAN TO THE PROMOTORS OF THE ENTERPRISE, AT LEAST FOR MANY YEARS.

"THESE VIEWS WERE ACCEPTED. AGREEMENT WAS MADE TO PAY \$96,264.16 BEFORE THE LAST DAY OF NOVEMBER, 1877, AS A FULL SETTLEMENT OF ALL CLAIMS OF THE STATE AGAINST THE COMPANY. THE AMOUNT OF \$80,000.00 OF CERTIFICATES ISSUED BY THE RECEIVER IN ACCORDANCE WITH AN ORDER OF THE COURT, HAVE BEEN DISPOSED OF; AND WITH THE

PROCEEDS OF THE SAME, AND OTHER MONEY IN THE HANDS OF THE RE-
CEIVER ~~XX ACCORDANCE WITH AN ORDER OF THE COURT XXXXXXXXXXXXXXXXXXXX~~
POSED MOUNT AGREED UPON, \$96,264.16 HAS BEEN PAID.

"THERE NOW APPEARS TO BE NO REASON WHY A SALE OF THE PROP-
ERTY MAY NOT BE REACHED ON, OR ABOUT APRIL 1, 1878. MORE THAN
NINETY PER CENT OF THE SIX PER CENT BONDS, AND MORE THAN 93 PER
CENT OF THE SEVENS HAVE BEEN PLACED AT THE DISPOSAL OF THE COM-
MITTEE OF PURCHASE AND RE-ORGANIZATION." (EXTRACTS FROM REPORT
OF PRESIDENT C.P.HUNTINGTON AND B OF D.).

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JAN.7, 1879

FIRST ANNUAL REPORT OF THE CHESAPEAKE AND OHIO RAILWAY COMPANY.

THE COMMITTEE OF OYRCHASE AND RE-ORGANIZATION TURNED OVER
PROPERTY ON JULY 1, 1878, TO THE NEW COMPANY, ORGANIZED UNDER COR-
PORATE NAME C & O RAILWAY COMPANY.

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EARNINGS FOR FISCAL YEAR: \$1,936,360.68

OPER. EXPENSES 1,594,739.10

EARNINGS OVER OPERATING EXPENSES 341,621.58

- - -

RESOLVED BY STOCK-HOLDERS: APPR VAL OF COMMITTEE IN RE-
GARD TO THE TRUST DEED FROM THE C & O RAILWAY COMPANY TO THE GEN-
TRAL TRUST COMPANY, OF NEW YORK FOR THE PURPOSE OF SECURING THE
VARIOUS BONDS AND COUPONS THEREIN DESCRIBED AS SERIES A AND B UPON
THE TRUST THEREIN STATED AND SET FORTH; AND THE TRUST DEED FROM ~~XX~~
SAID COMPANY TO ALEXANDER B. GREEN AND ISAAC E. GATES FOR THE PUR-
POSE OF SECURING THE VARIOUS BONDS AND COUPONS, &c.- - -"

DECEMBER 30, 1879: SECOND ANNUAL REPORT.

TOTAL EARNINGS

\$1,891,542.27

OPERATING EXPENSES		<u>\$1,507,332.67</u>
		384,209.60.
DECREASE IN GROSS EARNINGS	\$44,818.44	
" OPERATING EXPENSES	87,406.43	
INCREASE NET REVENUES	42,588.02,	AS COMPARED WITH
PREVIOUS YEAR.		

MOVED DURING YEAR 378,663 TONS OF COAL, AN INCREASE OF 38,887 TONS OVER PREVIOUS YEAR.

"UNDER THE PLAN OF RE-ORGANIZATION, YOUR COMPANY TOOK THE RAILROAD AND PROPERTY FROM THE RECEIVER, SUBJECT TO A VERY MODERATE CURRENT FIXED INTEREST-CHARGE, CONSISTING MOSTLY OF THE OLD VIRGINIA CENTRAL R.R. FUNDED DEBT AND INTEREST, TOGETHER WITH THE EXPENDITURES FOR REORGANIZATION AND PURCHASE MONEY, AMOUNTING IN ALL, TO LESS THAN \$2,350,000.00, BEARING SIX AND EIGHT PER CENT INTEREST PER ANNUM. THE COMPANY HAS CALLED IN FOR PAYMENT THE EIGHT PER CENT BONDS JAN'y 1, 1880, GIVING TO THE HOLDERS THE PRIVILEGE OF EXCHANGE FOR THE NEW TWENTY-YEAR, SIX-PER-CENT AT PAR AND ACCRUED INTEREST (A RATE LOWER THAN IT PROPOSES TO ACCEPT ANY CASH THAT MAY HEREAFTER BE MADE), AND MOST OF THEM WILL DOUBTLESS, SO ELECT. AS THE MORTGAGE SECURITY OF THESE LATTER BONDS IS THE FIRST LIEN ON THE ENTIRE PROPERTY AND ITS AMOUNT IS INCONSIDERABLE, THEY RANK AMONG THE VERY SAFEST INVESTMENTS, AND MAY BE EXPECTED TO REACH, AS TIME PASSES, MUCH HIGHER RATES.

"BY THE CONSENT OF THE MORTGAGE CREDITORS, THE INTEREST OF THE LARGER PART OF THE FUNDED DEBT IS PAYABLE FOR SOME YEARS IN PREFERRED STOCK IN ORDER TO ALLOW TIME FOR THE DEVELOPMENTS OF LOCAL INDUSTRIES ALONG THE LINE, AND FOR THE NEIGHBOR COMPANIES TO

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EFFECT CONNECTION WITH OUR ROAD. THE ANNUAL INTEREST PAYMENTS ON FUNDED DEBT WILL FOR SOME TIME, BE VERY MODERATE, IN PROPORTION TO THE COST OF THE PROPERTY, AND QUITE WITHIN THE CURRENT NET REVENUE EVEN IN THE PRESENT IMPERFECT STAGE OF ITS LOCAL BUSINESS AND THROUGH CONNECTIONS. THE CASH REQUIREMENTS FOR INTEREST ON MORTGAGE DEBT FOR THE NEXT TWO YEARS WILL BE SUBSTANTIALLY THE SAME AS AT PRESENT--\$133,000.00 PER ANNUM. FOR THE YEAR ENDING SEPT. 30, 1882, THEY WILL BE, APPROXIMATELY \$358,000.00; FOR 1883, \$658,000.00; AND FOR 1884 \$883,000.00, EXCLUSIVE OF THE INTEREST OF THE SERIES A BONDS YET TO BE ISSUED."

ELIZABETHTOWN, LEXINGTON AND BIG SANDY RIVER R.R. TO EXTEND TO BIG SANDY RIVER, HAVE TO SELL \$1,200,000.00 FIRST MORTGAGE BONDS THAT THE HOLDERS OF THE SECURITIES OF THE C & O. WILL FREELY TAKE OF THESE BONDS THERE SHOULD BE NO REASON TO DOUBT". FOR THIS REASON, NECESSARY FOR THE COMPANY TO RESORT TO A PORTION OF THE \$2,000,000.00 SERIES "A" BONDS, RESERVED FOR EXTENSION PURPOSES, UPON WHICH THE INTEREST WILL BEGIN TO RUN AS SOON AS ISSUED, AND WHICH ARE A PERFECT SECURITY FROM THE START". (EXTRACTS FROM REPORT OF PRESIDENT).

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DEC. 16, 1880--THIRD ANNUAL REPORT.

TOTAL GROSS EARNINGS	\$2,514,245.81
OPERATING EXPENSE	<u>1,945,018.18</u>
	\$ 569,227.63

INCREASE OVER 1879 OF 185,018.03.

- - - -

EXTENSION STILL GOING FORWARD. LINE TO NEWPORT NEWS SHOULD BE COMPLETED BY JULY, 1881.

- - - -

"FINANCIAL CONDITION OF COMPANY, GOOD. BONDS FALLING DUE WITHIN THE NEXT FIVE YEARS, AMOUNTING TO \$840,407 (MANY OF WHICH BORE EIGHT PER CENT INTEREST), HAVE BEEN CALLED IN AND PAID WITH THE PROCEEDS OF TWENTY-YEAR-SIX PER CENT BONDS, WHICH HAVE BEEN SOLD AT CONSIDERABLY ABOVE PAR." (FROM REPORT OF THE PRESIDENT).

MARCH 16, 1882. FOURTH ANNUAL REPORT.

GROSS EARNINGS	\$3,375,968.01
EXPENSES	2,743,430.03.
NET EARNINGS	\$ 632,537.98.
INCREASE FOR TWELVE MONTHS	\$ 187,597.54.

"REGULAR TRAFFIC TO NEWPORT NEWS. ONE HUNDRED AND SIX OCEAN STEAMERS HAVE TAKEN FUEL AT THE WHARVES SINCE THE FIRST ONE COALED THERE IN AUGUST. LARGE GRAIN ELEVATOR BEING CONSTRUCTED. THROUGH TRAFFIC TO LOUISVILLE AND THE SOUTH-WEST AFFORDED BY THE ELIZABETHTOWN, LEXINGTON AND BIG SANDY RAILROAD.

"ERECTION OF GRAIN ELEVATOR AT NEWPORT NEWS FINANCED BY A ~~ON~~ GUARANTEE OF THE BONDS OF THE CHESAPEAKE AND OHIO GRAIN ELEVATOR COMPANY TO THE AMOUNT OF \$700,000.00, WHICH STOCK-HOLDERS RATIFIED.

"EXTENSION OF ROAD TO OLD POINT COMFORT, AND ALSO FOUR BRANCH LINES UNDER CONSTRUCTION ALONG MAIN LINE". (EXTRACT FROM REPORT OF (PRESIDENT).

RESOLUTION BY STOCKHOLDERS MARCH 15, 1883.

THAT THE ACTION OF THE PRESIDENT AND DIRECTORS IN EXECUTING A MORTGAGE OR DEED OF TRUST, TO JOSEPH P. LLOYD AND FRANK H. DAVIE, TRUSTEES, DATED JUNE 1, 1882, UPON THE BRANCH ROAD FROM THE MAIN LINE AT OR NEAR NEWPORT NEWS,, IN THE COUNTIES OF WARWICK AND ELIZABETH

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CITY, IN THE STATE OF VIRGINIA, TOGETHER WITH THE TWO WHARVES TO BE BUILT BETWEEN THE MERCHANDISE WHARF AND THE COAL WHARF, ERECTED AT NEWPORT NEWS, AND SUCH STATION BUILDINGS ERECTED, OR TO BE ERECTED, FOR THE USES, OR PURPOSES OF THE COMPANY ON THE LINE OF SAID ROAD, AND AT OLD POINT COMFORT, INCLUDING ALL LANDS, TRACKS, AND WATER FRONT ON THE LINE OF SAID ROAD BELONGING TO THE COMPANY, AND ALL RIGHTS, PRIVILEGES AND FRANCHISES THERETO BELONGING, OR IN ANY WISE, APPERTAINING; AND ALSO ALL THAT RAILROAD OF THIS COMPANY, BUILT, OR TO BE BUILT, FROM A POINT ON ITS LINE AT, OR NEAR THE MOUTH OF SCARY RIVER, IN THE COUNTY OF PITNAM, STATE OF WEST VIRGINIA, THROUGH THE COUNTIES OF PUTNAM AND MASON, W. VA., TO A POINT ON THE OHIO RIVER AT, OR NEAR THE MOUTH OF THE GREAT KANAWHA RIVER, IN THE SAID COUNTY OF MASON, AND ALL THE FRANCHISES, RIGHTS, AND PRIVILEGES THERETO BELONGING, OR IN ANY WISE APPERTAINING, AS THEREIN DESCRIBED, TO SECURE AN ISSUE OF THREE THOUSAND BONDS OF ONE THOUSAND DOLLARS EACH, KNOWN AS SIX PER CENT, MORTGAGE GOLD BONDS, OF 1922, BE, AND THE SAME IS HEREBY RATIFIED, APPROVED, AND CONFIRMED.

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RESOLUTION: THAT THE PRESIDENT AND DIRECTORS BE HERENY AUTHORIZED AND EMPOWERED TO CAUSE TO BE MADE, FROM TIME TO TIME, SUCH BRANCH RAILROADS AND LATERAL WORKS, NOT EXCEEDING TWENTY MILES IN LENGTH, AS THEY MAY DEEM ADVANTAGEOUS TO THIS COMPANY.

- - -

849,018 TONS OF COAL WERE SHIPPED IN 1882, AN INCREASE OF 158,459 TONS OVER 1881.

MARCH 20, 1884: SIXTH ANNUAL REPORT.

GROSS EARNINGS	\$3,906,791.00
OPER. EXPENSE, INCLUDING TAXES	<u>2,599,933.44</u>
EARNINGS OVER OPERATING EXPENSE	1,306,858.44.

INTEREST REQUIREMENTS UPON THE FUNDED DEBT, EXCLUSVIE OF
THAT PORTION OF THE INTEREST COUPONS WHICH, BY THEIR TERMS,
WERE WHOLLY OR PARTLY PAYABLE IN PREFERRED STOCK, \$979,260.00

TOTAL INTEREST LIABILITIES IN CASH FOR THE CURRENT YEAR 1884
WILL BE \$1,279,260.00.

177 OCEAN STEAMERS SUPPLIED WITH FUEL FROM COMPANY'S WHARVES
AT NEW PORT NEWS.

IMPROVEMENTS GOING FORWARD, AND CONTINUING PLANS FOR THROUGH
TRAFFIC AND CONNECTIONS WITH THE NORTH-WEST.

STATEMENT OF LIABILITIES DEC.31, 1883, ISSUED BY THE TREAS-
URER, SUMS UP TO \$68,065,493.46.
- - - - -

MARCH 19, 1885 SEVENTH ANNUAL REPORT.

GROSS EARNINGS (DECREASE 10%)	\$3,538,605.16
OPER. EXPENSE, INCLUDING TAXES	<u>2,498,744.10</u>
EARNINGS OVER OPERATING EXPENSES (DECREASE 20%)	1,038,861.06.

LOSS OF BUSINESS CAUSED DECREASE AND LOW RATES.

NO INCREASE IN FUNDED DEBT, AND \$107,000.00 OF THE EQUIP-
MENT BONDS HAVE BEEN RETIRED. RATHER THAN PART WITH ANY OF THE
BONDS OF 1922 AUTHORIZED FOR THE OLD POINT COMFORT AND OTHER
BRANCHES AT LESS THAN THEIR FACE VALUE, THE DIRECTORS BORROWED,
ON SHORTER TIME, SUCH SUMS AS HAVE, FROM TIME TO TIME, BEEN NEED-
ED.

UNDER THE PLAN OF REORGANIZATION OF 1875, WITH A DESIRE TO
ULTIMATELY SAVE TO THE INVESTORS EVERY DOLLAR OF THEIR OUTLAY, AND
IN ORDER TO ALLOW THE DEVELOPING BUSINESS TIME TO OVERTAKE THE RE-
QUIREMENTS OF THE FUNDED DEBT, THE COMPANY UNDERTOOK TO PAY THE
FULL SIX PER CENT INTEREST UPON THE SERIES "B" BONDS OF 1908, FROM
AND AFTER NOV.1, 1883.

THE NET EARNINGS HAVE NOT QUITE KEPT PACE WITH THE INCREASE IN ANNUAL INTEREST REQUIREMENTS. THE WISDOM OF POSTPONING THE PAYMENT OF CASH INTEREST ON THE CURRENCY BONDS OF 1918 UNTIL THE NET EARNINGS SUFFICED, WILL BE OBVIOUS TO ALL. A PROSTRATION OF TRADE HAS IMMEDIATELY FOLLOWED EACH LARGE OUT-LAY OF THE COMPANY, SO AS TO DEPRIVE IT OF IMMEDIATE RETURNS; BUT OUR ORIGINAL EXPECTATIONS OF THE ROAD AS AN EARNING PROPERTY, AND OF THE FINAL OUTCOME AS AN IMPORTANT TRUNK LINE WITH MINERAL TONNAGE AND RESOURCES OF ITS OWN, ARE NONE THE LESS, FIRMLY HELD. (EXTRACT FROM REPORT OF PRESIDENT).

DECREASE IN REVENUE FROM COAL OF \$70,255.46.

LIABILITIES DEC. 31, 1884	\$69,215,816.32
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JAN. 1886--EIGHTH ANNUAL REPORT.

GROSS EARNINGS	\$3,361,235.47
OPER. EXPENSE	2,374,159.92
SURPLUS	987,075.55
TAXES, STATE AND MUNICIPAL	91,652.25
SURPLUS	<u>895,423.30.</u>

DECREASE \$177,369.69 IN GROSS EARNINGS

" 88,560.59 IN OPER. EXPENSE

" IN SURPLUS OF \$88,809.10, OR 8.25%.

TAXES INCLUDE ALL FOR 1885. COMPANY ALSO PAID \$244,745.12 IN TAXES ASSESSED IN PREVIOUS YEARS, OF WHICH \$193,721.87 WENT TO WEST VIRGINIA FOR THE YEARS 1879-1884, INCLUSIVE. IN SEPARATE INCOME ACCOUNT.

COMPANY UNABLE TO MEET THE FULL AMOUNT OF THE INTEREST MATURING ON THE SERIES "B" BONDS, AND THE BOARD DECIDED IT BEST TO OFFER ONLY ONE-HALF OF THE COUPONS IN CASH, AND THE REMAINDER IN

COUPON INTEREST SCRIP, WHICH WAS UNIVERSALLY ACCEPTED BY THE BOND-HOLDERS. THIS WAS BEFORE MATTERS IN THE TAX SUIT HAD BEEN DETERMINED, AND THE BOARD HOPED THAT THE EARNINGS WOULD IMPROVE SUFFICIENTLY TO WARRANT THE PAYMENT OF THE ONE-HALF CASH PAID MAY AND NOV. 1ST, WHICH AMOUNTED TO \$450,000.00

THERE REMAINED, HOWEVER, FROM THE OPERATIONS OF THE ROAD FOR 1885 ONLY \$274,971.06 TOWARDS THE INTEREST ON THE SERIES B BONDS, AND THE PAYMENT OF ONE-HALF CASH ON COUPONS MATURING MAY 1ST AND NOV. 1ST, AND PROVIDING FOR THE \$224,745.12 OF TAXES FOR ~~RE~~ PREVIOUS YEARS RESULTED IN A CORRESPONDING INCREASE IN THE FLOATING DEBT.

COMPANY'S FLOATING DEBT:

BILLS PAYABLE AND DEMAND LOANS	\$1,748,576.35
UNPAID COUPONS AND TAXES DUE	529,662.25
OTHER UN-PAID ACCOUNTS	802,474.46
INTEREST SCRIP SERIES "B" BONDS	<u>405,000.00</u>
	\$3,530,713.06
AVAILABLE ASSETS OF COMPANY	<u>1,079,608.31</u>
SUM UNPROVIDED FOR	\$2,451,104.75

SO LARGE A FLOATING DEBT NATURALLY PREJUDICES THE VALUE OF THE JUNIOR SECURITIES AND VALUE STILL MORE UNSETTLED BY UNCERTAINTY ATTENDING THE AMOUNT OF SURPLUS THAT WILL REMAIN FOR DISTRIBUTION. THE INTEREST ON THE FLOATING DEBT REPRESENTS ABOUT ONE PER CENT OF THE PAR VALUE OF THE SERIES "B" BONDS; AND IT WOULD, WITHOUT DOUBT, BE ADVISABLE FOR THE HOLDERS TO PROVIDE FOR THE LIQUIDATION OF THE FLOATING DEBT, AND AT THE SAME TIME REDUCE THE RATE OF INTEREST ON THEIR SECURITIES BY BRINGING THE INTEREST LIABILITIES WITHIN THE EARNING POWER OF THE ~~ROAD~~ ROAD. SUCH A MEASURE WOULD, IN THE JUDGMENT OF YOUR BOARD, STRENGTHEN THESE SECURITIES. (EXTRACTS FROM REPORT OF PRESIDENT)

JANUARY 1887. NINTH ANNUAL REPORT.

GROSS EARNINGS	\$4,096,048.55
OPER. EXPENSE	<u>2,867,981.98</u>
SURPLUS	\$1,288,066.57.

COMMENCING WITH JULY 1, 1886, ROAD LEASED TO NEWPORT NEWS AND MISSISSIPPI VALLEY CO. FOR A PERIOD OF 250 YEARS.

COMPANY FAILED TO EARN THE 1% INTEREST PAID ON SERIES "B" BONDS MAY 1ST, AND THE 1-1/2% PAID NOV. 1, BY THE SUM OF \$198,907.81. DISAPPOINTING TO HOLDERS OF BONDS.

IN JULY, 1886 A PROPOSITION WAS MADE TO THE HOLDERS OF SERIES "B" BONDS TO REDUCE RATE OF INTEREST ON THEIR HOLDINGS TO FOUR PER CENT PER ANNUM, AT THE SAME TIME EXTENDING THE MATURING OF THE BONDS TO ONE HUNDRED YEARS FROM MAY 1, 1886, IN CONSIDERATION OF WHICH, STOCK OF THE NEWPORT NEWS AND MISS. VALLEY COMPANY EQUAL TO 25% OF THEIR HOLDINGS WOULD BE ISSUED TO THE HOLDERS OF THE BONDS. AT THE SAME TIME, IT WAS PROPOSED TO THE HOLDERS OF THE CURRENCY BONDS OF 1918, TO EXCHANGE THEIR BONDS FOR STOCK OF THE N N & M V Co. ~~xxxxxx~~ AT THE RATE OF \$125.00 OF STOCK FOR \$100.00 OF BONDS. MANY ACCEPTED.

EQUIPMENT TRUST BONDS WERE ISSUED DURING THE YEAR AMOUNTING TO 472,000.00; AND \$111,000.00 WERE RETIRED, LEAVING THE AMOUNT OUTSTANDING \$361,000.00 GREATER THAN AT THE CLOSE OF 1885. (EXTRACTS FROM PRESIDENT'S REPORT).

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DEC. 31, 1886: FIRST ANNUAL REPORT NEWPORT NEWS & MISSISSIPPI VALLEY COMPANY.

C & O. STILL UNDER LEASE. THE NEWPORT NEWS AND MISS. VALLEY CO. WAS INCORPORATED IN CONN. MARCH, 1884, FOR THE PURPOSE OF AFFORDING AN OPPORTUNITY OF UNITING IN ONE OPERATION, UNDER ONE

MANAGEMENT THE ELIZABETHTOWN, LEXINGTON AND BIG SANDY R.R.,
THE C & O. RAILROAD, THE CHESAPEAKE, OHIO AND SOUTHWESTERN
R.R. C.P.HUNTINGTON, PRESIDENT.

C & O

EARNINGS	\$4,096,048.55
SURPLUS OVER OPER. EXPENSE	1,068,972.31.
	- - - - -

OCTOBER 27, 1887, WMS. C. WICKHAM APPOINTED RECEIVER.
SERVED UNTIL HIS DEATH ON JULY 23, 1888. AGED 68.

FEB. 7, 1888, THE FINANCIAL HOUSE OF DREXEL, MORGAN AND
COMPANY AGREED TO CO-OPERATE IN RE-ORGANIZATION OF C & O. WITH-
OUT SALE.

DREXEL, MORGAN & Co., AGREED TO CO-OPERATE IN THE ORGANIZA-
TION UPON A PLAN EQUITABLE TO ALL INTERESTS, AND WHICH WOULD PUT THE
PROPERTY ON A SOUND, FINANCIAL BASIS. AT THEIR SUGGESTION,
C.B.COSTER R.J.CROSS, AND ANTHONY J. THOMAS UNDERTOOK TO ACT
AS A COMMITTEE TO CARRY THE RE-ORGANIZATION THEN PROPOSED INTO
EFFECT. IN SEPTEMBER, 1888, IT WAS SHOWN TO THE COURT THAT
THE C & O. WAS PREPARED TO MEET ALL OF ITS OBLIGATIONS AS THEY
MATURED AND TO TAKE THE POSSESSION AND MANAGEMENT OF ITS PROPERTY
AGAIN; SO THE RECEIVERSHIP WAS TERMINATED, WITH M.E. INGALLS AS
PRESIDENT, OCTOBER 1, 1888. THE LEASE WITH THE NEWPORT NEWS
AND MISSISSIPPI VALLEY CO. WAS AUTOMATICALLY CANCELLED.

1874: DEPOTS.

DEPOTS WERE BUILT AT QUINNIMONT AND GUYANDOTTE, AND ONE REMOVED FROM WEST GUYANDOTTE TO SEWELL. (A.R. 1874.P 23).

1874:

COAL SHIPPED DURING FISCAL YEAR:

QUINNIMONT	- - - - -	2,052.60	TONS
CANNELTON	- - - - -	30,588.99	"
PAINT CREEK	- - - - -	239.04	"
BLACKSBURG	- - - - -	1,411.56	"
COALBURG	- - - - -	5,961.28	"
LEWISTON	- - - - -	1,768.12	"
BROWNSTOWN	- - - - -	.68	"
ST. ALBANS	- - - - -	8,044.11	"
HUNTINGTON	- - - - -	.10	"
		50,301.18	TONS.

(A. R. 1874, Pgs. 38-39).

1874:

WITH THE COMPLETION OF THE ROAD CHIEF ENGINEER H.D. WHITCOMB LEFT THE SERVICE.

1875: RECEIVERSHIP.

ON OCTOBER 4, 1875, CERTAIN BOND-HOLDERS ASKED FOR THE APPOINTMENT OF A RECEIVER, WHICH WAS DONE ON OCTOBER 9, WITH HENRY TYSON, OF BALTIMORE NAMED AS RECEIVER. GENERAL JMS. C. WICKHAM WAS APPOINTED RECEIVER ON JANUARY 26, 1876.

1878:

ONLY JULY 1, 1878, THE NEW COMPANY WHICH HAD BEEN ORGANIZED ASSUMED THE CORPORATE NAME OF CHESAPEAKE AND OHIO RAILWAY, WITH C. P. HUNTINGTON AS PRESIDENT.

(A. RS. 1875 AND 1878).

AMOUNT PAID FOR EXTENSION FROM COVINGTON TO HIO RIVER, BY LAST RE-
PORT - - - - - \$17,893,179.82

AMOUNT " FOR YEAR ENDING SEPT. 30, 1873:

EXTENSION OF ROAD - - - - -	3,376,464.91
ALLEGHANY DIV. - - - - -	194,303.50
GREENBRIER DIV. - - - - -	267,230.75
FIRST NEW RIVER DIV. - - - - -	397,040.61
SECOND " " " - - - - -	654,608.40
KANAWHA DIV. - - - - -	47,068.85
EASTERN DIV. - - - - -	153,827.16
CONTINGENT EXPENSES - - - - -	21,086.59
	<u>5,111,630.77</u>

AMT. PAID FOR COST OF TENEMENT HOUSES, W. VA. - -	13,371.98
" " TEN DOUBLE HOUSES, W. VA. - - - - -	16,000.00
" " COST OF DWELLING HOUSES, HINTON - -	9,276.75
" " STREET IMPROVEMENTS, HINTON - - - - -	864.61
" " COAL PROPERTY, BLACKSBURG, W. VA. - - -	8,000.00

(ANNUAL REPORT, 1873, Ps. 19--23).

NUMBER OF PASSENGERS LEAVING HUNTINGTON, FISCAL YEAR ENDING
SEPT. 3, 1873: 12,057. NUMBER OF PASSENGERS ARRIVING HUNTINGTON
FISCAL YEAR ENDING SEPT. 3, 1873, 11,853.

(ANNUAL REPORT, 1873, P. 44).

TONS OF COAL FROM CANNELTON - - - - -	15,700.56
St. ALBANS (" " P49	5,491.35
TOTAL TONNAGE REC. AT HUNTINGTON	53,590.78
" " SENT FROM " " P 69)	89,777.82.

1874:

TOTAL AMOUNT PAID FOR EXTENSION OF ROAD FROM COVINGTON TO
OHIO - - - - - \$23,394,263.69.

(1874 ANNUAL REPORT, P. 15).

LOW WATER THE PRESENT SEASON. THE EARTH-WORK OF THIS SECTION OF LINE IS INCONSIDERABLE, THE GRADES AND ALIGNMENT ARE FAVORABLE.

BRANCH LINES.

"- - - - FOUR BRANCH LINES HAVE BEEN COMPLETED OR ARE IN PROGRESS. THE FIRST, GOING WEST, IS AT GOSHEN 7 MILES LONG, FOUR OF WHICH ARE UNDER CONSTRUCTION. SEVERAL BEDS OF IRON ARE REACHED BY THIS LINE. THE SECOND IS AT LOWMOOR, BETWEEN JACKSON'S RIVER DEPOT AND COVINGTON, $2\frac{1}{2}$ MILES LONG. THIS IS COMPLETED, AND LARGE SHIPMENTS OF IRON ORE ARE PROMISED AT AN EARLY DATE. THE THIRD IS AT QUINNEMONT ON NEW RIVER, AND IS ONE AND A HALF MILES LONG, NEARLY COMPLETED, AND LEADS TO A COAL MINE WHICH IS THE NEAREST TO A TIDEWATER OF ANY YET OPENED ON THE LINE OF THE ROAD. A LARGE IRON FURNACE HAS BEEN ERECTED AT THIS POINT, TO GO INTO BLAST NEXT SPRING. THE FOURTH BRANCH IS AT ST. ALBANS, $1\frac{1}{2}$ MILES LONG, CONNECTING THE RAILROAD AND THE NAVIGATION OF COAL RIVER, AND ENABLES THE PETONA CANNEL COAL COMPANY, AND CERTAIN LUMBER COMPANIES, TO SEND THEIR PRODUCTS BY THE LINE, BOTH TO THE CHESAPEAKE AND THE OHIO.

"AT THE OPENING OF OUR LINE THERE WERE BUT TWO COAL MINES TRIBUTARY TO THE LINE. THERE ARE NOW, EITHER IN OPERATION, OR NEARLY READY, 8 AND 3 OTHERS ARE IN PREPARATION AND WILL BE OPENED SOON. TWO IRON FURNACES ARE BEING BUILT AT, OR NEAR CLIFTON FORGE - -"

(SIGNED) H. D. WHITCOMB.

(ANNUAL REPORT, 1873, Ps 29-33).

1873:

DISBURSEMENTS.

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LINE WAS INTENDED TO BE AND SHOULD BE, FOR THE MOST PART ON THE RIVER, OR LOWER SIDE. THERE ARE, YET, A FEW UNFINISHED CUTS AND EMBANKMENTS, WHICH ARE AVOIDED BY CURVES, OR CROSSED BY TRETTLES IN MOST CASES ON THE REGULAR GRADE. THE COST OF COMPLETING THE ROAD-BED WILL NOT BE LARGE, AND THE WORK CAN BE DONE WITHOUT INCONVENIENCE DURING THE CURRENT, FISCAL YEAR.

"THE GREENBRIER DIVISION WAS TRANSFERRED TO THE TRANSPORTATION DEPARTMENT AUGUST 1ST, AND THE REMAINDER OF THE LINE SEPTEMBER 1ST (1873).

"THERE WAS ONE CONSIDERABLE RISE IN NEW RIVER DURING THE YEAR--THE HEAVIEST OBSERVED SINCE THE SURVEYS BY THIS COMPANY WERE COMMENCED. THE RISE WAS, BY NO MEANS, SUCH A FLOOD AS OCCURRED IN 1861, AND NO DAMAGE WORTHY OF MENTION WAS CAUSED BY IT.

"THE LEWIS TUNNEL WAS COMPLETED SO THAT THE TEMPORARY TRACK OVER IT WAS DISPENSED WITH IN JULY. THIS TUNNEL IS ABOUT 4,000 FT. LONG, AND IS DRIVEN THROUGH SOLID ROCK.

"THE CAR SHOP AT HUNTINGTON, 300 X 90, FT. IS COMPLETED; THE FOUNDATION WALLS FOR THE REMAINING PORTION OF THE SMITH(S SHOP HAVE BEEN LAID. A PORTION OF THE ROUND HOUSE FOR LOCOMOTIVES (13 STALLS) AT STAUNTON, IS COMPLETED; AND THE WALLS FOR THAT AT HUNTINGTON (15 STALLS) ARE READY FOR THE ROOF TO BE LAID.

THE WORK WEST OF HUNTINGTON

"THE LINE HAS BEEN DEFINITELY LOCATED AND CONNECTED WITH THAT OF THE E L AND B S. RR. AT THE KENTUCKY LINE. ONE OF THE TWO RIVER PIERS FOR THE BIG SANDY BRIDGE HAS BEEN LAID TO 6 FT. ABOVE LOW WATER, AND THE FOUNDATION OF THE OTHER LAID. THESE PIERS REST ON A COMPACT BED OF BOULDERS WHICH LIE FROM 12 TO 14 FT. BELOW LOW WATER. THE FOUNDATIONS FOR THE PIER OF TWELVE POLE CREEK BRIDGE ARE IN PROGRESS WITH THE HOPE OF HAVING THE MASONRY BUILT ABOVE

EXCAVATIONS AND EMBANKMENTS ON THE LOWER NEW RIVER AND THE CONNECTING RAIL WAS NOT LAID UNTIL THE 29TH OF JANUARY LAST.

"THE JUNCTION WAS MADE ABOUT $\frac{3}{4}$ S OF A MILE EAST OF THE NEW RIVER BRIDGE, AND SEVEN MILES WEST OF THE POINT EXPECTED LAST YEAR.

"AS IT WAS DESIRABLE TO OPEN THE ROAD FOR BUSINESS AT THE EARLIEST, PRACTICABLE DAY, A LARGE FORCE WAS EMPLOYED, WORKING AT MANY POINTS NIGHT AND DAY AT THAT INCLEMENT WSEASON, REDUCING THE UNFINISHED CUTS AND REMOVING THE SLIDES WHICH ARE COMMON ON NEW ROADS AT THAT SEASON OF THE YEAR. SOME OF THE SLIDES WERE OF A CONSIDERABLE SIZE, AND THE MATERIAL DIFFICULT TO MOVE. SOME OF THE CUTS ~~XXXXXX~~ TO BE REDUCED WERE IN SOLID ROCK, WHERE AT EVERY BLAST THE TRACK HAD TO BE REMOVED AND THEN RE-LAID, TO ALLOW THE PASSAGE OF TRAINS. THE ROAD WAS OPENED FOR BUSINESS IN MARCH (AND FOR PASSENGER TRAINS APRIL 1), BUT UNTIL JUNE THE TRAINS COULD NOT BE RUN WITH REGULARITY. SINCE THEN, THERE HAS BEEN NO SERIOUS INTERRUPTION. IT IS SCARCELY NECESSARY TO SAY THAT WORK DONE UNDER SUCH CIRCUMSTANCES IS NOT DONE AT A MINIMUM COST. IT IS, PERHAPS, WITHIN THE TRUTH, TO SAY THAT THE MATERIALS WHICH FOR THE MOST PART, COMPOSE THE SLOPES ON NEW RIVER CAN BE MOVED AT HALF THE COST IN THE DRY SEASON; WHILE DURING THE PAST WINTER AND ENSUING SPRING, WHICH WAS VERY LATE, WE WERE COMPELLED TO WORK IN THIS MATERIAL NIGHT AND DAY, AND FREQUENTLY TO THE POINT OF EXHAUSTION, IN ORDER TO KEEP THE TRAINS RUNNING. THE LARGE MASS OF THESE SLIDES IS NOW REMOVED; AND IT IS NOT PROBABLE THAT THE TROUBLES OF THE **PAST** YEAR WILL OCCUR AGAIN. FOR THE MOST PART, THE MATERIAL WAS DEPOSITIED IN EMBANKMENTS WHERE IT WAS NEEDED; AND IT IS PROPER TO SAY THAT WHEN ALL THE SLIDES WHICH ARE LIKELY TO OCCUR ARE REMOVED, THERE WILL BE NO SURPLUS; CERTAINLY NOT ENOUGH TO COMPLETE THE DOUBLE TRACK WHICH ON THIS PART OF THE

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BOLTON, RES. ENG. CHURCH HILL TUNNEL, RICHMOND, WHO DIED SUD-
DENLY FROM INJURIES RECEIVED ON THAT PART OF THE WORK."

(SIGNED) H.D. WHITCOMB, CHF. ENG.

(ANNUAL REPORT, 1872, PAGES 29--36).

1872.

DISBURSEMENTS.

AMOUNT PAID FOR EXTENSION OF ROAD FROM COVINGTON TO OHIO RIVER,
INCLUDING THE SEVERAL DIVISIONS, BY LAST REPORT - \$5,120,316.68

AMOUNT PAID FOR SAME DURING YEAR ENDING SEPT. 30, 1872, AND
ON ACCT. GENERAL CONSTRUCTION FROM NOV. 1869 ^{TO} DATE 12,772,863.14.
\$ 17,893,179.82

AMT. PAID FOR DEPOT BUILDINGS IN KANAWHA AND
WESTERN DIVISIONS DURING YEAR ENDING SEPT.
30, 1872 24,592.21

AMT. PAID FOR CROSS TIE AND TIMBER ACCT. KAN-
AWHA AND WESTERN DIVISIONS, FROM COMMENCEMENT TO
SEPT. 30, 1872 - - - - - 193,430.29

AMT. PAID FOR SAW MILL COALSMOUTH, W. VA. 20,835.32

" " " COST OF TENEMENT HOUSES, HUNTING-
TON, W. VA. - - - - - 12,334.15

AMT. PAID FOR MATERIALS ON HAND HUNTINGTON SHOPS 10,972.17

(ANNUAL REPORT 1872. Ps 21-22).

1873:

REPORT OF CHIEF ENGINEER H.D. WHITCOMB, DATED OCT. 1873.
CONNECTING RAIL LAID.

"AT THE DATE OF THE LAST ANNUAL REPORT A CONSIDERABLE AMOUNT
OF GRADUATION AND 56 MILES OF TRACK REMAINED UNFINISHED ON THE NEW F
VER DIVISIONS, WHICH IT WAS HOPED WOULD BE COMPLETED BY THE LAST
OF DECEMBER. THE FORCE EMPLOYED WAS WEAKENED IN NOVEMBER, AND
XTILL MORE SO IN DECEMBER; THE WINTER SET IN EARLY, AND THE WEA-
THER WAS UNFAVORABLE FOR SUCH WORK --. SO FAR AS PRACTICABLE, THE
DRADUATION AT DELAYED POINTS WAS CARRIED ON NIGHT AND DAY; BUT IN
SEVERAL PLACES THE TRACK HAD ⁷⁹ TO BE LAID OVER OR AROUND UNFINISHED

"THE MACHINERY FOR TRANSFERRING FREIGHT BETWEEN THE RIVER AND THE CARS IS SUFFICIENT FOR THE PRESENT BUSINESS, BUT WILL NEED ENLARGEMENT TO ACCOMODATE THAT WHICH MUST SOON BE OFFERED. A GRAIN ELEVATOR WILL ALSO BE NEEDED AT HUNTINGTON.

CONNECTIONS WEST AND NORTH OF THE OHIO RIVER.

"A PARTY OF ENGINEERS, UNDER THE DIRECTION OF C.G.DANDRIDGE HAS BEEN EMPLOYED IN PERFECTING THE SYMMS CREEK LINE AND THAT FROM HILLSBOROUGH TO DAYTON, AND ARE NOW ENEGAGED ON THE LINE TO CINCINNATI. THE RESULTS OF THESE SURVEYS, AS FAR AS REPORTED, ARE VERY SATISFA CTORY.

-ENGINEER CORPS -

"ALLEGHANY AND GREENBRIER DIVISIONS, UNDER CHARGE OF PEYTON RANDOLPH, DIV. ENG., AND 6 RESIDENT ENGS. FIRST: NEW RIVER, UNDER R.H.TEMPLE, DIV. ENG., WITH 5 RESIDENT ENGS. AND, SECOND, NEW RIVER DIVISION, UNDER C.R.HOWARD, DIV. ENG., WITH 5 RESIDENT ENGS.

"KANA HA AND WESTERN DIVISIONS, WITH SHOPS AND VARIOUS BUILDINGS AND FIXTURES AT HUNTINGTON, WERE UNDER THE CHARGE OF H.T. DOUGLAS, DIV. ENG. UNTIL THE LINE WAS FINALLY TRANSFERRED TO THE TRANSPORTATION DEP'T. ONE RES, ENG., GOUVERNEUR MORRIS, IS NOW EMPLOYED ON THIS PART OF THE LINE. THE EXTENSION OF THE SHOPS IS ~~UNDER~~ THE CHARGE OF W. G. WILLIAMSON, WHO WAS ASSISTANT TO COL.DOUGLAS IN THIS DEPARTMENT.

"C.G.DANDRIDGE, DIV. ENG., HAS BEEN IN CHARGE OF THE SURVEYS FOR CONNECTIONS IN THE STATE OF OHIO.

"SINCE THE LAST, ANNUAL REPORT, TWO DEATHS HAVE OCCURRED IN THE CORPS: COL. JOHN F. JORDAN, RES. ENG. AT LEWIS TUNNEL, WHO DIED AFTER A PAINFUL AND PROLONGED SICKNESS; AND MR. JAMES

IN THE BRIDGES AT TWELVE POLE AND BIG SANDY WILL REQUIRE CONSIDERABLE TIME.

LOCOMOTIVE HOUSES AND WORKSHOPS.

"THE FOUNDATION WALLS OF A PORTION OF THE LOCOMOTIVE HOUSE, NEAR STAUNTON, THE END OF THE EASTERN DIVISION, ARE UNDER CONTRACT AND WILL BE COMPLETED THIS SEASON. THE BUILDING WILL BE ERECTED IN THE SPRING (1873). A SIMILAR BUILDING WILL BE PROVIDED AT THE MOUTH OF GREENBRIER, THE END OF THE MIDDLE DIVISION, THE GRADUATION FOR WHICH IS IN PROGRESS. ONE-FOURTH OF THE LOCOMOTIVE HOUSE AT HUNTINGTON IS COMPLETED AND OCCUPIED.

"THE WORKSHOPS AT HUNTINGTON ARE IN PROGRESS. THE MACHINE AND CAR SHOPS HAVE EACH BEEN COMPLETED FOR 120 FT. AND THE BLACKSMITH'S SHOP FOR 60 FT. THE REMAINDER OF THE CAR SHOP IS UNDER CONTRACT AND WILL PROBABLY BE UNDER ROOF BY THE CLOSE OF THE YEAR (1872). THIS BUILDING, WHEN COMPLETED, WILL BE 300 BY 90 FEET. BESIDES THESE, A FIRE-PROOF OIL HOUSE, A BRICK OFFICE, AND A HOUSE FOR STATIONARY ENGINE HAVE BEEN BUILT.

"STATION HOUSES AND FIXTURES.

"COMBINED FREIGHT AND PASSENGER HOUSES HAVE BEEN PROVIDED AT THE PRINCIPAL STATIONS ON THE KANAWHA AND WESTERN DIVISIONS, AND HAVE BEEN CONTRACTED FOR AT SOME POINTS ON THE GREENBRIER DIVISIONS. A HANDSOME, BRICK PASSENGER HOUSE HAS BEEN ERECTED AT HUNTINGTON, AND FOURTEEN COMFORTABLE DWELLINGS FOR EMPLOYEES AT THE SHOPS.

"THE COAL TIPPLE ON THE OHIO RIVER HAS THE CAPACITY TO DISCHARGE 750 TONS A DAY, AND THERE IS ROOM ON THE RIVER FRONT FOR ADDITIONAL WORKS, AS THEY MAY BE NEEDED. THE RIVER BOTTOM, AT THE TIPPLE HAS BEEN DREDGED SO THAT THERE IS FROM 5 TO 6 FT. OF WATER AT ALL TIMES.

TAKEN AROUND THE CUTS BY CURVES OF PRACTICABLE RADIUS; WEST OF MILLER'S FERRY THIS CAN RARELY BE DONE. THE COMPLETION OF THE GREENBRIER AND FIRST NEW RIVER DIVISION WILL GIVE THE CONTRACTORS AN AMPLE FORCE; AND IT WILL BE EMPLOYED AT EVERY AVAILABLE POINT, WITH THE EXPECTATION THAT THE ROAD-BED WILL BE READY FOR THE TRACK EARLY IN DECEMBER. ON THE EASTERN PART OF THE DIVISION THE TRACK CAN BE LAID FOR 13 MILES WITHOUT INTERRUPTION. FOR THE REMAINING DISTANCE, IT WILL BE LAID FROM THE WEST. THE MASONRY, WITH FEW EXCEPTIONS, IS COMPLETED--THE BRIDGE OVER NEW RIVER IS READY FOR THE TRACK.

KANAWHA DIVISION.

"THE TRACK WAS COMPLETED LAST SPRING AND IS IN EXCELLENT CONDITION. THERE HAVE BEEN FEW SLIDES SINCE THE LAST REPORT, AND THERE IS REASON TO THINK THAT THIS CAUSE OF EXPENSE ON THIS DIVISION HAS NEARLY CEASED. AMPLE SIDINGS HAVE BEEN LAID AT COALBURG FOR THE COAL TRAFFIC; AND OTHERS ARE UNDER CONSTRUCTION AT CANNELTON, WHICH WILL BE READY FOR THE CANNEL COAL MINED AT THAT POINT, IN A FEW WEEKS. A BRANCH TRACK, ONE AND A QUARTER MILES LONG, FROM ST. ALBANS TO LOCK NO. 1, ON COAL RIVER, HAS BEEN ORDERED AND WILL BE READY BY THE TIME THE ROAD IS OPENED, TO RECEIVE THE CANNEL COAL FROM PEYTONA.

WESTERN DIVISION.

"THIS DIVISION IS COMPLETED TO HUNTINGTON; THE TRACK IS WELL BALLASTED AND IN FINE ORDER. THE LINE WEST OF HUNTINGTON HAS BEEN LOCATED, EXCEPT THROUGH THE TOWN OF CEREDO AND AT THE CROSSING OF BIG SANDY, THE TERMINUS OF THE ROAD. THIS REMAINING SECTION SHOULD BE PUT UNDER CONTRACT AS SOON AS THE CONNECTING ROAD IN KENTUCKY IS COMMENCED. THE GRADUATION IS LIGHT; BUT THE MASONRY

PROGRESS OF THE WORK, WHICH WERE INCREASED BY THE WET WEATHER. THE MOST SERIOUS OF THESE OCCURRED AT THE WESTERN PORTAL, OF THE TUNNEL AT STRETCHER'S NECK, AFFECTING ABOUT 80 FT. OF THAT WORK WHERE IT WAS LINED WITH MASONRY. THE PRESSURE OF THIS SLIDE, WHICH WAS VERY EXTENSIVE, WAS SUFFICIENT TO DISTORT THE ARCH, AND TO SOME EXTENT, CRUSH THE HARD SAND-STONE OF WHICH THE PORTAL MASONRY IS BUILT. IT WOULD HAVE REQUIRED MORE TIME, AND A LARGER FORCE THAN WE COULD COMMAND TO REMOVE THIS MASS OF SLIDING MATERIAL; AND AN INTERIOR ARCH WAS INTRODUCED TO RESIST THE STRAIN. THE WIDTH OF THE TUNNEL FOR THIS 80 FT. IS CONTRACTED TO 21 FT. WHEN THE 2ND TRACK IS LAID, THIS SLIDE CAN BE REMOVED AND USED IN GRADUATION, WHICH, FOR THE 2ND TRACK ON THIS DIVISION, WILL BE ALMOST EXCLUSIVELY IN EMBANKMENT. THE MASONRY CAN BE TAKEN OUT AND REBUILT FOR THE PROPER WIDTH.

SECOND NEW RIVER DIVISION.

"THE EXCAVATION IN THIS DIVISION, WHETHER IN EARTH, OR IN ROCK, HAS BEEN DIFFICULT AND EXPENSIVE. FOR NEARLY ITS WHOLE LENGTH THE LINE IS LAID ON A STEEP MOUNTAIN-SIDE, OR IN SAND-STONE CLIFFS, SOME OF WHICH, OVER-HANG. THE PREVAILING MATERIAL IS COMPOSED OF ANGULAR BLOCKS, OR SAND-STONE, VARYING IN SIZE FROM SMALL FRAGMENTS TO MASSES CONTAINING HUNDREDS OF CUBIC YARDS IMBEDDED IN A TENACIOUS CLAY. IT IS AN EXPENSIVE MATERIAL TO MOVE, ESPECIALLY IN WET WEATHER, WHEN IT IS ALSO SUBJECT TO SLIDES.

SEVERAL SECTIONS ARE IN ARREARS. THE FORCE ON THIS DIVISION HAS NEVER BEEN SUFFICIENT TO PUSH THE WORK; AND THIS IS ESPECIALLY THE CASE WEST OF MILLER'S FERRY, WHERE THE LINE, FOR A FEW MILES, ENCOUNTERS CLIFFS OF SANDSTONE. ON OTHER PARTS OF THE DIVISION, WHERE THE MAIN LINE CANNOT BE COMPLETED IN TIME, THE TRACK CAN BE

SECTION 28, WHICH IS NEARLY DONE. THE TRACK IS CARRIED AROUND THIS CUT ON A TEMPORARY LINE.

GREENBRIER DIVISION.

THIS DIVISION IS COMPLETED, WITH THE EXCEPTION OF THE MASONRY IN THE TUNNEL ON SECTION 42, AND SOME TRIMMING IN THE TUNNEL AT GREAT BEND. SEVERAL MILES OF THE TRACK HAVE BEEN BAL-
LASTED AND THE WHOLE WILL PROBABLY BE FINISHED BEFORE WINTER. THE TUNNEL ON SECTION 42 HAS CAUSED SOME TROUBLE. AT ABOUT 200 FT. FROM THE WESTERN PORTAL THE MATERIAL CHANGED ABRUPT-
LY FROM A SOUND LIME-STONE TO CLAY. AT THIS DIVISION LINE, WATER PENETRATED, SOFTENING THE CLAY AND BRINGING HEAVY STRAINS ON THE TIMBER SUPPORTS. NO, SERIOUS ACCIDENT OCCURRED, HOWEVER, OWING TO THE SKILL OF THOSE IMMEDIATELY IN CHARGE OF THE WORK; AND THE TUNNEL, INCLUDING ITS MASONRY, WILL BE COMPLETED BY DEC. 1ST. THE TRACK WAS LAID THROUGH IT IN JULY. THE HEADING OF THE TUNNEL AT GREAT BEND WAS OPENED IN MAY, AND THE TRACK LAID THROUGH THE TUNNEL EARLY IN THE PAST MONTH (SEPT.). THE ROOF, UNDER THE CREST OF THE MOUNTAIN, WAS TREACHEROUS AND THE CAUSE OF SOME FATAL ACCIDENTS BEFORE IT COULD BE SECURED; THIS DELAYED THE OPENING OF THE TUNNEL NEARLY TWO MONTHS. THIS WORK WAS COMMENCED IN MAY, 1870, AND COMPLETED IN TWO YEARS AND FOUR MONTHS; THE TUNNEL IS 6,400 FT. LONG, IN RED SHALE, WITH A FEW STRATA OF SANDSTONE. THE BRIDGES AT THE FIRST AND SECOND CROSSINGS OF THE GREENBRIER ARE COMPLETED; THE NEW SUPER-
STRUCTURE OF THE THIRD CROSSING IS IN PROGRESS.

FIRST NEW RIVER DIVISION.

THE GRADUATION IS SO NEARLY COMPLETED THAT THE TRACK WHICH IS NOW BEING LAID OVER IT WILL NOT BE DETAINED AT ANY POINT. THERE HAVE BEEN MANY TROUBLESOME SLIDES DURING THE

THE RAILS WILL ALL BE LAID BY THE LAST OF DECEMBER. AT THIS DATE THE TRACK IS LAID FOR 48 MILES WEST OF THE WHITE SULPHUR SPRINGS, AND IS NOW PROGRESSING AT THE RATE OF ABOUT 5 MILES A WEEK. FIFTY-SIX MILES REMAIN TO BE LAID, OF WHICH 40 MILES WILL BE LAID FROM THE EAST, AND THE REMAINDER FROM THE WEST- - -

WORK EAST OF WHITE SULPHUR SPRINGS.

THE LICK RUN EMBANKMENT WAS COMPLETED THE 1ST OF MAY (1872), THE TIME SPECIFIED IN THE CONTRACT FOR THE NEW WORK. JERRY'S RUN EMBANKMENT WAS COMPLETED IN FEBRUARY, NEARLY THREE YEARS IN ADVANCE. THE MATERIAL IN THESE ENORMOUS MASSES IS STILL SETTLING, BUT NOT TO A DEGREE TO CAUSE SERIOUS INCONVENIENCE. THE LEWIS TUNNEL IS IN THE HANDS OF MASON AND HOGE WHO WERE THE CONTRACTORS AT JERRY'S RUN. IT IS BEING DRIVEN STEADILY AT A RATE TO OPEN THE HEADING IN MARCH NEXT (1873), AND THE WHOLE TUNNEL SHORTLY AFTERWARD. FIVE HUNDRED AND FIFTY FEET OF HEADING REMAIN TO BE TAKEN OUT AT THAT DATE. THIS TUNNEL IS ABOUT 4,000 FT. LONG.

"ABOUT ONE-HALF OF THE ALLEGHANY TUNNEL IS NOW LINED WITH BRICK; THE REMAINING PART IS CONSIDERED SAFE FOR THE PRESENT - - - - THE FORCE WHICH WAS EMPLOYED IN THIS WORK IS NOW TRANSFERRED TO LAKE'S TUNNEL, WHERE A SHORT SECTION IS STILL UNPROTECTED.

"THE ONLY REMAINING, TEMPORARY TRACK ON THIS PART OF THE LINE IS OVER THE LEWIS TUNNEL; THE GRADE IS NOT SO HEAVY, NOR ARE THE CURVES SO SHARP AS ON THE PORTIONS DISPENSED WITH; AND THIS WILL BE DISCONTINUED ON THE OPENING OF THE TUNNEL - - - -

ALLEGHANY DIVISION.

"THE 5-1/2 MILES OF THIS DIVISION WEST OF THE WHITE SULPHUR SPRINGS ARE FINISHED, WITH THE EXCEPTION OF ONE CUT, ON

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LAY OF COAL OPERATORS IN COMMENCING THEIR SHIPMENTS. ELEVEN THOUSAND TONS HAVE BEEN SHIPPED IN THE LAST THREE MONTHS AND WILL SOON BE INCREASED BY NEW SHIPPERS."

(ANNUAL REPORT 1872. P. 28).

AMOUNT OF FREIGHT SENT AND RECEIVED AT HUNTINGTON DEC. 1871--
-- SEPT., 1872.

SENT, 2,553.66 TONS; RECEIVED 6,609.22 TONS. TOTAL (,362.88 TONS

MILTON SENT	888.96 TONS:	REC'D	250.42 "	"	1,139.38 "
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ST. ALBANS "	446.99 "	"	246.42 "	"	693.41 "
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CHARLESTON "	1,228.82 "	"	921.93 "	"	21,150.75 "
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COALBURG "	5,103.64 "	"	294.54 "	"	25,398.78 "
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PAINT CREEK "	19.34 "	"	55.79 "	"	75.13 "
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CANNELTON "	1.28 "	"	147.37 "	"	148.65 "
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LOUP CREEK "	36.79 "	"	332.38 "	"	339.17 "
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KANAWHA FALLS	31.53 "	"	1,168.80	"	1,200.33 "
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(ANNUAL REPORT, 1872. P. 84-85.)

1872.

REPORT OF CHIEF ENGINEER H.D. WHITCOMB, DATED OCT. 1, 1872:

"THE LAST ANNUAL REPORT STATED THAT IT WAS REASONABLE TO. ~~XXXXX~~ LOOK FOR THE COMPLETION OF THE WHOLE LINE TO HUNTINGTON BY THE 1ST OF OCTOBER, 1872. THIS EXPECTATION HAS NOT BEEN REALIZED. THE WINTER WAS LONG AND SEVERE FOR THIS LATITUDE, AND WAS FOLLOWED BY WEATHER VERY UNFAVORABLE FOR OUT-SIDE OPERATIONS, WHICH LASTED UNTIL AUGUST. IT WAS FOUND IMPRACTICABLE TO GET FORCE ENOUGH ON THE LINE WEST OF THE WHITE SULPHUR SPRINGS TO COMPLETE IT AT THE EXPECTED TIME, AND THE EFFORTS MADE BY THE CONTRACTORS TO COMPLY WITH THEIR CONTRACTS AS TO TIME ARE WORTHY OF CONSIDERATION. SHOULD THE REMAINDER OF THE YEAR BE AS SUITABLE AS IT ORIGINALLY IS FOR THIS KIND OF WORK AND THE FORCE IS NOT SERIOUSLY

IMPAIRED AT THE ELECTION, THERE IS GOOD REASON TO EXPECT THAT

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ABSTRACT FROM BOOKS OF CHf. ENG.
(ANNUAL REPORT, 1871, PAGE 41).

TELEGRAPH LINE

IN ANNUAL REPORT 1870, PRESIDENT C.P. HUNTINGTON STATED,
"A TELEGRAPH LINE FROM WHITE SULPHUR SPRINGS TO THE WESTERN
TERMINUS OF THE ROAD WAS FOUND TO BE A NECESSITY. EFFORTS
WERE MADE TO INDUCE THE WESTERN UNION TELEGRAPH CO. TO BUILD
SUCH A LINE, BUT THEY DID NOT PROPOSE SUCH TERMS AS IT WAS DEEM-
ED ADVISABLE TO ACCEPT. THIS COMPANY IS NOW CONSTRUCTING
SUCH A LINE. IT IS ALREADY COMPLETED AND IN OPERATION FROM CAT-
LETTSBERG, KY. TO CHARLESTON, W. VA., AND WILL SOON BE COM-
PLETED TO WHITE SULPHUR SPRINGS - - - BY AMOUNT PAID FOR
CONSTRUCTION C & O TELEGRAPH LINE - - - \$15,262.17."

(ANNUAL REPORT 1870, PGS. 10-13).

AMOUNT PAID FOR CONSTRUCTION C & O. TELEGRAPH LINE, 1871,
7,550.54 (1871 A.R. P19)

1872

ROAD FROM HUNTINGTON TO KANAWHA FALLS OPENED:

GENERAL SYPERINTENDENT A. H. PERRY REPORTED, AS OF OCTO-
BER 1, 1872: "WESTERN DIVISION; THIS PART OF THE ROAD WAS OPEN
ED FOR BUSINESS FROM HUNTINGTON TO CHARLESTON DEC. 4, 1871; TO
COALBURG MARCH 4, 1872 AND TO KANAWHA FALLS JUNE 17, 1872.

"OWING TO THE UNFINISHED CONDITION OF THE ROAD AND WET WEA-
THER, THE TRAINS WERE QUITE IRREGULAR, BEING FREQUENTLY INTER-
RUPTED BY SLIDES FOR SEVERAL WEEKS.

"EARNINGS FOR THE TEN MONTHS (ON THIS PART OF THE ROAD) HAVE
BEEN \$1,676.91, (INCREASING FROM \$2,400 IN DECEMBER TO \$13,900
IN SEPTEMBER); THE EXPENSES BEING \$55,556.81, MAKING NET EARNINGS
\$6,120.10. THE EARNINGS HAVE NOT BEEN AS LARGE AS WAS EXPECTED,
(ALTHOUGH CONSTANTLY INCREASING) OWING PRINCIPALLY TO THE DE-

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ABSTRACT FROM BOOKS OF CHIEF ENGINEER SHOWING COST OF
CONSTRUCTION FROM 1ST JAN., 1870, TO 30TH SEPT., 1871.

GRADUATION AND MASONRY	\$ 3,389,970.23
CONTINGENT CONSTRUCTION AND CONTINGENCIES OF CONSTRUCTION - - - - -	179,881.39
(INCLUDES SINKING DEEP SHAFT GREAT BEND TUNNEL, ARCHING (ALLEGHANY TUNNEL, CARS FOR JERRY'S RUN EMBANKMENT, (OLD RAILS, &C.)	
ENGINEERING - - - - -	172,377.24
LIME AND CEMENT - - - - -	89,347.17
BALLAST - - - - -	89,132.41
MACHINERY, TOOLS, &C. - - - - -	83,960.56
BRIDGE SUPERSTRUCTURE - - - - -	54,661.96
EQUIPMENT - - - - -	52,285.20
TRESTLE - - - - -	32,355.95
BUILDINGS - - - - -	19,867.67
ENGINEERING CONTINGENCIES - - - - -	18,717.23
SUPERSTRUCTURE AND TRACK - - - - -	17,968.80
ALLEGHANY BRICK-YARD - - - - -	12,258.78
ENGINEERING INSTRUMENTS - - - - -	6,854.56
STATIONERY, PRINTING AND ADVERTISING - - - - -	6,015.70
OFFICE EXPENSES, AND SALARY OF CLERK - - - - -	4,191.07
LAND DAMAGES AND RIGHT-OF-WAY - - - - -	3,327.45
FEES OF ATTORNEYS, CLERKS, &C. - - - - -	1,179.06
OLD ACCOUNTS---TRACK, ALLEGHANY DIVISION - - - - -	504.82
# TELEGRAPH - - - - -	62.47
	<u>\$4,234,919.82</u>

STRUCTED IN THE UPPER PART OF THE TOWN, AT THE FOOT OF 23RD STREET. ANOTHER BRANCH LEAVES THE LINE ON THIRD STREET, AND AFTER REACHING THE RIVER BANK, CURVES NORTH-WARD AND RUNS TO TENTH STREET. THE FREIGHT BUILDINGS WILL BE LOCATED HERE, AND THE MAIN TRANSFERS OF ORDINARY FREIGHT TO, AND FROM STEAMERS BE MADE HERE. THE RIVER BANK, FOR A CONSIDERABLE DISTANCE, HAS BEEN SLOPED FROM HIGH TO LOW WATER MARK, WITH A SUITABLE GRADE FOR THIS PURPOSE. IN ADDITION TO THESE, AN INCLINED PLANE TO ENABLE COAL TO BE TRANSFERRED TO BARGES WILL BE MADE ABOUT THE FOOT OF 20TH STREET.

ENGINEER CORPS.

"ALLEGHANY AND GREENBRIER DIVISIONS, UNDER CHARGE OF PEYTON RANDOLPH, DIV. ENG., ASSISTED BY SIX RESIDENT ENGINEERS.

FIRST NEW RIVER DIVISION, UNTIL RECENTLY UNDER CHARGE OF GEO. MCKENDREE, DIV. ENG., ASSISTED BY 4 RESIDENT ENGINEERS. MAJ. MCKENDREE RESIGNED, TO BECOME A CONTRACTOR /ON THE ROAD, AND R. H. TEMPLE WAS APPOINTED IN HIS PLACE.

"SECOND NEW RIVER DIVISION UNDER CHARGE OF C.R. HOWARD, DIV. ENG., AND 5 RESIDENT ENGINEERS.

"KANAWHA AND WESTERN DIVS. UNTIL RECENTLY UNDER CHARGE OF W.A. KUPER, PRINCIPAL ASST. ENG., ASSISTED BY D.L. RUFFNER, DIV. ENG., AND 6 RESIDENT ENGINEERS. MR. KUPER RESIGNED FOR A MORE IMPORTANT CHARGE, AND H.T. DOUGLASS WAS APPOINTED IN HIS PLACE. COL DOUGLAS WAS PREVIOUSLY IN CHARGE OF BRIDGE SUPER-STRUCTURE, AND OF THE CONSTRUCTION OF THE SHOPS AT HUNTINGTON."

(SIGNED) H. D. WHITCOMB, CHF. ENG.

(ANNUAL REPORT, 1871. PAGES 29-40).

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MACHINE AND CAR SHOPS, FOUR IN NUMBER, 300 FT. BY 90 OR 100 FT. AND THESE LATTER CAN BE EXTENDED TO 500 FT. IN LENGTH, IF DESIRED. BESIDES THESE, A FOUNDRY AND A ROUND-HOUSE FOR THE CONSTRUCTION OF FREIGHT CARS ARE INCLUDED IN THE PLAN. THERE IS A QUARRY OF EXCELLENT STONE NEAR THE SITE OF THE SHOPS, AND THE BRICKS ARE MADE "ON THE SPOT". THE WORK WHICH HAS BEEN DONE IS OF THE VERY BEST VHAECTRE.

"AT LEAST, TWO OTHERBESTABLISHMENTS WILL SOON BE NEEDED BETWEEN RICHMOND AND HUNTINGTON - - - - - THE SITES HAVE NOT BEEN SELECTED - - - - -

STATION HOUSES.

"A COMBINED FREIGHT AND PASSENGER HOUSE HAS BEEN BUILT AT ALLEGHANY. THE HOUSES FOR THE KANAWHA AND WESTERN DIVISIONS ARE UNDER CONTRACT, WITH THE EXCEPTION OF THE PASSENGER HOUSE AT HUNTINGTON. THESE WILL BE OF WOOD, AND OF A SIMILAR DESIGN TO THOSE ON THE EASTERN PART OF THE ROAD, EXCEPT THE PASSENGER HOUSE AT HUNTINGTON, WHICH WILL ALSO CONTAIN THE OFFICES FOR THE WESTERN DIVISION OF THE ROAD, AND WILL BE OF BRICK. THIS BUILDING HAS NOT BEEN CONTRACTED FOR YET.

CONNECTIONS WITH THE KANAWHA AND OHIO RIVERS.

"A BRANCH TRACK HAS BEEN CONSTRUCTED FROM THE MAIN LINE TO THE RIVER'S EDGE AT LOW WATER AT ST. ALBAN'S, OR THE MOUTH OF COAL RIVER, ON THE KANAWHA. THIS WILL MAKE A CONNECTION WITH STEAM-BOATS PLYING BETWEEN THIS POINT AND THE OHIO, AND HAS BEEN THE PRICIPAL LANDING FOR THE RAIRLROAD IRON BROUGHT FROM PARKERSBURG AND WHEELING IN BARGES.

"AT HUNTINGTON, WHICH IS THE POINT FOR CONNECTION WITH THE OHIO RIVER, PROPER, ANOTHER SIMILAR, BRANCH TRACK HAS BEEN CON-

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NO RECENT REVISION OF THE ESTIMATE FOR COMPLETING THE ROAD-BED HAS BEEN MADE. THE AMOUNTS ALREADY PAID THROUGH THIS OFFICE WILL BE FOUND IN THE STATEMENTS APPENDED. THESE INCLUDE, AS WILL BE SEEN, PAYMENTS FOR SEVERAL OTHER ITEMS THAN THOSE OF GRADUATION, MASONRY AND BRIDGING, FOR WHICH THE ESTIMATE OF LAST YEAR WAS MADE. AS THE FOUNDATIONS FOR MASONRY ARE NEARLY ALL SECURED, AND THE EXPENSIVE MACHINERY FOR TUNNELS, THE EQUIPMENT OF CARS FOR JERRY'S RUN EMBANKMENT, AND THE RAILS FURNISHED CONTRACTORS BY THE TRANSPORTATION DEPARTMENT ARE PROVIDED,, THE FURTHER CONTINGENCIES OF CONSTRUCTION SHOULD BE A SMALL PER CENTAGE ON THE COST OF THE WORK. IT IS THEREFORE PRACTICABLE TO MAKE A CLOSE ESTIMATE OF THE COST OF COMPLETION, AND I REGRET THAT IT CANNOT BE MADE IN TIME FOR THIS REPORT. FROM THE DATA BEFORE ME, I THINK THE ESTIMATE SUBMITTED LAST YEAR WILL BE FOUND SUFFICIENT, IF ALLOWANCE IS MADE FOR THE INCREASED COST OF THE KANAWHA AND WESTERN DIVISIONS, DUE TO EXCESSIVE SLIDES. THAT ESTIMATE WAS FOR GRADUATION, MASONRY, AND BRIDGING, \$6,743,204. THE FINAL COST WILL, I ANTICIPATE, NOT VARY MATERIALLY FROM \$7,000,000.

WORKSHOPS.

WORKSHOPS FOR BOTH CONSTRUCTION AND REPAIRS OF ENGINES AND CARS HAVE BEEN CONTRACTED FOR AT HUNTINGTON. THE PLAN CONTEMPLATES A FIRST-CLASS ESTABLISHMENT IN EVERY RESPECT. THE FOUNDATIONS OF PARTS OF THE ENGINE HOUSE, MACHINE-SHOP, AND SMITH SHOP, ARE LAID, AND THE WALLS OF THE LATTER, COMPLETED. IT IS INTENDED TO FINISH 1/4TH OF THE ENGINE HOUSE THE PRESENT YEAR, AND ABOUT 1/3RD EACH OF THE MACHINE AND SMITH SHOPS. THE ENGINE HOUSE IS DESIGNED FOR 42 LOCOMOTIVES; THE SMITH SHOP WILL BE 160 FT. BY 60 FT; THE

ANY OTHER PART OF THE LINE. THE CHARACTER OF THE WORK IS NOT SUFFICIENTLY DEVELOPED, AS YET TO ENABLE US TO SAY WHETHER THERE WILL BE SERIOUS SLIDES. IF THE FORCE ENGAGED UP ON IT CAN BE MAINTAINED DURING THE WINTER MONTHS, I APPREHEND NO DIFFICULTY IN COMPLETING THIS SECTION IN MAY, NEXT. IF, HOWEVER, THERE SHOULD BE THE SAME TROUBLE WITH THE LABOR AS WAS EXPERIENCED LAST WINTER ON THE KANAWHA AND WESTERN DIVISIONS, AND THERE IS REASON TO EXPECT IT, THERE ARE STILL FROM THREE TO FOUR MONTHS BEFORE THE TRACK CAN BE LAID TO THE WORK. THE MASONRY ON THE NEW RIVER BRIDGE ON SECTION 121 IS COMPLETED, AND THE FINAL ESTIMATE RETURNED. THE CONTRACTORS FOR THE IRON SUPER-STRUCTURE ARE ERECTING THE SCAFFOLDING FOR THE CHANNEL SPAN; AND UNLESS THERE SHOULD BE A HEAVY FLOOD IN THE RIVER BEFORE THE IRON-WORK CAN BE TRANSPORTED AND PUT INTO PLACE, THIS VERY IMPORTANT WORK WILL BE READY FOR US IN AMPLE TIME. IT IS VERY IMPORTANT TO HAVE THIS CHANNEL SPAN ERECTED THIS FALL. SUCH IS THE VIOLENCE OF THE CURRENT AT THIS POINT THAT IT HAS BEEN THOUGHT IMPRACTICABLE TO ERECT FALSE WORK IN IT EXCEPT AT VERY LOW WATER MARK, AND EVEN THEN IT HAS BEEN QUITE DIFFICULT AND EXPENSIVE.

"FROM THE STATEMENTS MADE OF THE UNFINISHED GRADING, YOU WILL SEE THAT WE EXPECT TO BEGIN LAYING TRACK WESTWARD FROM WHITE SULPHUR NOT LATER THAN MAY 1ST; THAT WE EXPECT TO PASS THROUGH THE GREAT BEND TUNNEL EARLY IN JULY; AND TO HAVE THE ROAD-BED BETWEEN THE TUNNEL AND MILLER'S FERRY READY FOR THE RAILS BY THAT TIME, OR AS SOON AFTERWARD AS THEY CAN BE LAID. THIS DISTANCE IS 59 MILES. BETWEEN MILLER'S FERRY AND THE MOUTH OF THE NEW RIVER, WHERE WE JOIN THE TRACK TO BE LAID THIS PRESENT YEAR, THE RAILS WILL BE LAID FROM THE WEST. IT IS REASONABLE TO LOOK FOR THE COMPLETION OF THE WHOLE LINE TO HUNTINGTON BY THE 1ST OF OCTOBER, 1872.

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"PROCEEDING WESTWARD, SECTION 62, ON WHICH IS THE HOWARD TUNNEL 750 FT. LONG, IS COMPLETED, AND THE FINAL ESTIMATE RETURNED. THERE ARE NO EXPENSIVE SECTIONS BETWEEN THIS AND STRETCHER'S NECK TUNNEL ON SECTION 92,, EXCEPT AT RICHMOND'S FALLS, WHERE A LARGE FORCE IS EMPLOYED. THE FOUNDATIONS OF THE MORE IMPORTANT BRIDGES ARE SECURED; THE LIGHTER SECTIONS NOT NOW UNDER CONTRACT WILL BE PLACED IN GOOD HANDS THIS MONTH, AND THERE IS AMPLE TIME FOR THEIR COMPLETION. THE TUNNEL THROUGH STRETCHER'S NECK, WHICH IS 1,900 FT. IN LENGTH AND WHICH SAVES ABOUT FOUR MILES IN DISTANCE, WAS PUT UNDER CONTRACT IN NOV. LAST: 1,050 FT. OF HEADING AND 1,500 FT. OF BOTTOM REMAIN TO BE TAKEN OUT. IT IS WORKED FROM AN OPENING AT THE EASTERN PORTAL, AND FROM A SHAFT NEAR THE WESTERN PORTAL. WHILE A BENCH OF THE CUT ON THE WESTERN APPROACH WAS BEING EXCAVATED AND BEFORE THE INTENDED PORTAL HAD BEEN REACHED, A HEAVY SLIDE TOOK PLACE ON THE NORTH SLOPE, WHICH THREATENED TO INVOLVE A PART OF THE GROUND WHICH IT WAS INTENDED TO TUNNEL. AS IT WAS DESIRABLE TO TUNNEL IN UNDISTURBED GROUND AND AS IT WOULD HAVE BEEN IMPRACTICABLE TO REMOVE ALL THE EARTH TO THE SOLID ROCK BY AN OPEN CUT (AT LEAST IMPRACTICABLE AS REGARDS TIME), THIS SHAFT WAS SUNK IN REAR OF THE SLIDE AND CARRIED DOWN TO THE TUNNEL HEADING. THE APPROACH CUT HAS SINCE BEEN TAKEN OUT TO GRADE, AND IS NEARLY COMPLETED. NO SERIOUS DIFFICULTY IS NOW APPREHENDED IN TAKING OUT THE BOTTOM AND ARCHING THIS PART OF THE TUNNEL; WHILE THE SHAFT ENABLES THE CONTRACTORS TO GO ON WITH THE WORK UNDER THE RIDGE WHILE THE WORK IN THEIR REAR IS BEING SECURED. THE REMAINDER OF THE TUNNEL IS IN ROCK WHICH HAS, THUS FAR, REQUIRED NO SUPPORT. THIS WORK SHOULD BE COMPLETED IN AMPLE TIME. THE LINE WEST OF STRETCHER'S NECK IS UNDER CONTRACT. THERE ARE SEVERAL HEAVY SECTIONS; THE EARTH EXCAVATION IS GENERALLY DIFFICULT, AND THE SHOLE WORK LESS ACCESSIBLE THAN

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"THE PROGRESS AT GREAT BEND TUNNEL HAS BEEN CREDITABLE TO THE CONTRACTOR. THIS TUNNEL, THE LONGEST ON THE ROAD, IS ABOUT 6,500 FT. OR NEARLY 1-1/4 MILES IN LENGTH. IT IS GENERALL IN RED SHALE, OF EASY EXCAVATION, BUT REQUIRING IMMEDIATE SUPPORT. SOME VERY HARD SANDSTONE IS, HOWEVER, MET WITH, AND THIS WAS PARTICULARLY THE CASE IN SINKING THE SHAFTS. IT IS PROABLE THAT A LARGER PORTION OF THIS ROCK WILL BE MET WITH IN THE BODY OF THE TUNNEL IN FUTURE.

"SHAFT No. 1, WHICH IS 369 FT. DEEP, AND IN WHICH WORK WAS SUSPENDED IN JULY, 1870, WAS REOPENED IN FEBRUARY, LAST AND HAS SINCE BEEN COMPLETED, AND THE HEADINGS ARE STARTED. THIS WORK WAS DONE BY A 'COMPANY FORCE' AND VERY SATISFACTORY. SHAFT No. 2 WAS COMPLETED BY THE CONTRACTOR LAST YEAR; AND THE HEADINGS FROM IT HAVE BEEN DRIVEN 1,200 FT.. THERE IS NO LONGER ANY TROUBLE WITH WATER IN ANY PART OF THE TUNNEL. THE TOTAL LENGTHS PENETRATED ARE 2,854 FT. IN FULL SECTION AND 1,125 FT. OF HEADING--IN ALL, 3,979 FT. THE LONGEST DRIVE YET TO BE MADE IS BETWEEN SHAFTS 1 AND 2, WHERE 1,400 FT. OF HEADING AND 1,940 FT. OF BOTTOM REMAIN. THE RATE OF PROGRESS IN THIS PART OF THE TUNNEL, IN HEADING, FOR THE PAST THREE MONTHS, HAS BEEN 113 FT. PER MONTH, AND IN BOTTOM, RATHER MORE; AND THERE IS NO REASON TO ANTICIPATE A REDUCTION IN FUTURE TO LESS THAN 100 FT. TO EACH HEADING PER MONTH; AND AT THIS RATE, THE HEADING WILL BE COMPLETED MAY 1ST, AND THE FULL SECTION SHORTLY AFTERWARDS. THE DRIFT BETWEEN SHAFT 2 AND THE WESTERN PORTAL WILL BE COMPLETED IN DECEMBER; AND THAT BETWEEN THE EASTERN PORTAL AND SHAFT IN JANUARY. THERE ARE POSSIBLY FOUR MONTHS WORK LEFT IN THE WESTERN APPROACH CUT. WE MAY REASONABLY EXPECT TO HAVE THIS TUNNEL READY FOR THE TRACK JULY 1--POSSIBLY AT AN EARLIER DATE.

"FOUR HUNDRED FEET OF FULL SECTION AND 1,375 FT. OF HEADING HAVE BEEN REMOVED; AND FROM 350 TO 360 FT. ARE NOW BEING MOVED MONTHLY. THE LONGEST DRIVE TO BE MADE IS BETWEEN THE MAIN SHAFTS, WHERE 1,577 FT. OF HEADING, AND 1,900 FT. OF BOTTOM REMAIN. THIS IS WORKED FROM TWO FACES. THIS TUNNEL WILL PROBABLY BE COMPLETED IN OCTOBER, 1872; AND ITS COMPLETION WILL DO SWAY WITH ALL THE REMAINING, TEMPORARY WORK.

"WE HAVE MADE FAIR PROGRESS IN EXTENDING THE ARCHED PORTIONS OF ALLEGHANY TUNNEL. IT IS NOW COMPLETED TO WITHIN 50 FT. OF THE WESTERN SHAFT, AND MOST OF THE TREACHEROUS PORTIONS OF THE ROOF ARE SECURED. THE AMOUNT OF TRIMMING ON THE SIDES AND ROOF HAS BEEN MORE THAN WE EXPECTED, AND HAS DELAYED THE WORK; BUT THIS IS NOW OUT OF THE WAY, AND BETTER PROGRESS MAY BE EXPECTED IN THE FUTURE. THE BRICKS FOR IT ARE MADE AND LAID BY A "COMPANY FORCE" AND THE WORK HAS BEEN DONE THOROUGHLY, AND WITH EXCELLENT MATERIALS.

"THE GRADING AND MASONRY BETWEEN THE PRESENT TERMINUS AND THE GREAT BEND TUNNEL ARE IN A FORWARD CONDITION. THE LIGHTER WORK WILL ALL BE UNDER CONTRACT THIS MONTH, TO BE COMPLETED MAY 1, 1872. THE MASONRY OF 1ST AND 3RD CROSSINGS OF THE GREENBRIER IS DONE, AND FINAL ESTIMATES ARE RETURNED. THE MASONRY OF THE 2ND CROSSING IS ABOVE ORDINARY WATER, AND WILL SOON BE COMPLETED. THERE IS NO OTHER IMPORTANT MASONRY ON THIS PART OF THE WORK WHICH IS NOT EITHER COMPLETED, OR OUT OF THE WAY. IN SECOND CREEK TUNNEL ONLY 600 FT. REMAIN TO BE TAKEN OUT IN THE MANN TUNNEL ONLY 450 FT.; THE HEADING IN THE LATTER WILL BE THROUGH THIS MONTH.

"THERE IS NO WORK ON THIS PART OF THE LINE WHICH OUGHT TO BE DELAYED LATER THAN MAY 1, 1872, AND IT WILL PROBABLY BE COMPLETED BEFORE THAT DATE.

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"IN THE HEAVY EMBANKMENT AT JERRY'S RUN, THE CONTRACTORS HAVE DEPOSITED 263,500 CU. YDS OF BORROWED MATERIAL, 54,000 CU. YDS. OBTAINED FROM ADJACENT, UNFINISHED CUTS, AND 152,000 CU. YDS FROM THE SLOPES AND DOUBLE TRACK IN THE CUTS FROM TWO TO SIX MILES EASTWARD. IN ALL, 469,500 CU. YDS. IN ADDITION, ABOUT 11,000 CU. YDS. HAVE BEEN HAULED IN FROM THE ~~WESTERN~~ APPROACH CUT TO LEWIS' TUNNEL. ABOUT 50,000 CU. YDS. ARE NOW REQUIRED TO COMPLETE THIS EMBANKMENT, AND IT WILL BE READY FOR THE RAILS IN EARLY SPRING. IN ADDITION TO THE AMOUNTS HAULED INTO THIS EMBANKMENT THE CONTRACTORS HAVE ~~MOVED~~ 27,000 CUBIC YARDS TO OTHER EMBANKMENTS ON THAT PART OF THE LINE. THE WIDENING AND OPENING OF THE HEAVY SLATE CUTS EAST OF JERRY'S RUN HAVE GREATLY IMPROVED THAT PART OF THE ROAD, ~~THESE CUTS~~ AND WILL TEND TO PREVENT SERIOUS SLIDES IN THE FUTURE. THE COMPLETION OF THE EMBANKMENT MENTIONED WILL DISPENSE WITH THE TEMPORARY TRACK NEAR MILLSBORO WHICH HAS BEEN OPERATED SINCE MAY, 1857, AND ALSO WITH THE MORE DIFFICULT PART OF THE TEMPORARY TRACK ON THE ALLEGHANY GRADE. BY EARLY SPRING, THIS TRACK WILL BE ONLY ONE MILE AND A HALF IN LENGTH OF COMPARATIVELY ^{EASY} ~~DIFFICULT~~ GRADES.

"THE LEWIS TUNNEL, WHICH COMMENCES ABOUT HALF A MILE WEST OF JERRY'S RUN, IS NOT IN SO FORWARD A CONDITION. THE PRESENT CONTRACTORS TOOK CHARGE OF IT IN JULY, 1870; UP TO THAT TIME, NOTHING OF MOMENT HAD BEEN DONE TO THE TUNNEL SINCE THE WORK WAS STOPPED, PREVIOUS TO 1861. THE SHAFTS WERE IMMEDIATELY RE-OPENED; AND AFTER MUCH HINDRANCE FROM WATER, AND THE HARDNESS OF THE ROCK WERE SUNK TO GRADE. VERY RECENTLY, THE BURLEIGH STEAM DRILL HAS BEEN INTRODUCED INTO TWO OF THE HEADINGS. THE EXTREME LENGTH OF THIS TUNNEL IS ABOUT 4,000 FT. IT IS NOW WORKED FROM FOUR SHAFTS, TWO OF WHICH ARE AT, OR NEAR THE PORTALS.

"THE GRADUATION AND MASONRY ON THE KANAWHA AND WESTERN DIVISIONS WAS SUFFICIENTLY ADVANCED IN MAY TO ALLOW THE TRACK-LAYING TO BE COMMENCED; AND HAD THE RAILS BEEN DELIVERED ACCORDING TO CONTRACT, BEFORE THE SEASON OF LOW WATER IN THE UPPER OHIO, THE TRAINS WOULD NOW BE RUNNING FROM HUNTINGTON TO THE FALLS OF KANAWHA. AS IT IS, ONLY 30 MILES OF TRACK ARE LAID; AND THE LARGEST PART OF THE IRON FOR THE REMAINDER IS AT PARKERSBURG, AWAITING A RISE IN THE OHIO.

"THE COST OF GRADUATION ON THESE TWO DIVISIONS HAS BEEN INCREASED BEYOND THE ESTIMATE SUBMITTED LAST YEAR, BY FREQUENT AND VERY TROUBLESOME SLIDES; AND IN A FEW INSTANCES, EXPENSIVE FOUNDATIONS HAVE INCREASED THE COST OF MASONRY. A GREAT DEAL OF HARD, CEMENTED EARTH HAS BEEN MET WITH, ALSO, ON WHICH SOME EXTRA ALLOWANCES HAD TO BE MADE. IN A FEW INSTANCES THE SLIDES HAVE BEEN SO SERIOUS AS TO COMPEL AN ABANDONMENT OF PORTIONS OF THE LINE AFTER THE CUTS HAD BEEN TAKEN OUT; BUT IN MOST CASES, THE ORIGINAL LINE WILL BE RESUMED AFTER THE TRACK IS LAID, WHEN THE SURPLUS MATERIAL CAN BE UTILIZED IN FORMING THE DOUBLE TRACK EMBANKMENTS.

"THE HEAVIER SECTIONS ON THE EASTERN PART OF THE ROAD WERE PUT UNDER CONTRACT, TO BE COMPLETED IN THE SUMMER OF 1872, AND THE WORK ON THEM HAS PROGRESSED SATISFACTORILY.

"THE CONTRACTORS FOR THE HEAVY WORK IMMEDIATELY WEST OF MILLBORO HAVE COMPLETED THE THORNY BRANCH EMBANKMENT, WHICH REQUIRED OVER 100,000 CU. YDS. AND HAVE DEPOSITED IN LICK RUN EMBANKMENT 383,000 CU. YDS. OF THE 550,000 WHICH IT WAS ESTIMATED WOULD BE REQUIRED THERE. THEY ARE NOW MOVING ABOUT 40,000 CU. YDS. MONTHLY; SO THAT THIS SECTION OF THE TRACK SHOULD BE READY FOR THE TRACK BEFORE MAY, NEXT. THE CULVERT, WHICH IS 495 FT. LONG AND 14 FT. SPAN, IS COMPLETED.

AND THAT THE MOST COSTLY SECTION IS UNDER \$100,000.00. THE ROAD-BED BETWEEN MECHUM'S RIVER AND WAYNESBORO (17 MILES) COST ABOUT \$90,000.00 PER MILE IN TIMES WHEN SUCH WORK COULD BE DONE MUCH CHEAPER THAN NOW; AND THE GRADUATION AND MASONRY BETWEEN COVINGTON AND WHITE SULPHUR SPRINGS, 22 MILES, AVERAGED EVEN MORE. THE COST OF THE 62 MILES LYING IN THE VALLEY OF NEW RIVER WILL PROBABLY NOT EXCEED THAT OF ANY 62 CONSECUTIVE MILES BETWEEN CHARLOTTESVILLE AND THE OHIO RIVER.

"THE LINE IS NOW FINALLY ADJUSTED EXCEPT ON THE 8 MILES BETWEEN HUNTINGTON AND THE MOUTH OF BIG SANDY - - - -.

CONSTRUCTION.

"WE HAVE BEEN FAVORED WITH UNUSUALLY GOOD WEATHER FOR WORK SINCE THE CONTRACTS WERE MADE IN MARCH 1870. THE WINTER AND EARLY SPRING SEASONS IN THE KANAWHA VALLEY ARE REPRESENTED TO BE UNUSUALLY WET, AND THE ROADS AT THAT TIME, TO BE VERY BAD. THIS WAS THE CASE FOR ONLY A LIMITED PERIOD LAST YEAR. THE CONTRACTORS COULD HAVE WORKED A FULL FORCE TO ADVANTAGE IN ALMOST EVERY MONTH. THE FORCE WHICH WAS REPORTED TO BE ON THE LINE IN OCTOBER LAST WAS LARGELY DIMINISHED IN DECEMBER; AND THAT WHICH WAS ON THE KANAWHA AND WESTERN DIVISIONS WAS NEVER FULLY RESTORED; AND ON THAT PART OF THE LINE THE WORK HAS BEEN DELAYED IN CONSEQUENCE. THE CUSTOM WHICH THE COLORED LABORERS HAVE OF LEAVING THE WORK AT CHRISTMAS, AND TO A LESS EXTENT, DURING HARVEST, IS THE GREATEST OBJECTION MADE TO THEM. IN FREEDOM FROM DISSIPATION AND STRIKES AND IN THE GOOD BEHAVIOR THEY HAVE ALMOST WITHOUT EXCEPTION, EXHIBITED THE COLORED LABORERS HAVE GIVEN GREAT SATISFACTION TO THE CONTRACTORS. ON THE EASTERN PART OF THE LINE, A FULL FORCE HAS BEEN EMPLOYED, AND WITH THE EXCEPTIONAL PERIODS MENTIONED, THERE HAS BEEN NO DIFFICULTY IN MAINTAINING IT. --60--

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MARK AND SEVERAL FEET ABOVE THE GRADE FORMERLY RUN. THIS DRIFT WAS FOUND ON A SHELF OF ROCK UNDER A PROJECTING CLIFF, WHERE IT WAS EVIDENT THE RIVER, ALONE, COULD HAVE PLACED IT. IT WAS OF COURSE NECESSARY TO CHANGE THE GRADE AT THIS POINT, AND TO SOME EXTENT, THE ALIGNMENT. VERY FORTUNATELY, OUR MAXIMUM GRADE OF 21 FT. PER MILE WAS SUFFICIENT TO REACH THE GRADING IN PROGRESS ON THE KAN-AWHA DIVISION, 3-1/2 MILES WEST.

"AT THE BLUE HOLE, THE RIVER AFTER FALLING 20 FT. TO THE MILE FOR 5 CONSECUTIVE MILES, AND FOR A PART OF THE DISTANCE AT A MUCH GREATER RATE, TURNS SHARPLY TO THE RIGHT MORE THAN 120 DEGREES, AND THEN PASSED BETWEEN SAND-STONE CLIFFS 425 FT. A-PART AT THE LEVEL OF THIS HIGH-WATER MARK. THIS IS THE NARROWEST PASS WE HAVE YET MEASURED IN THE NEW RIVER VALLEY, AND THE WATER IN EXTREME FLOODS, RISES MORE THAN 20 FT. HIGHER ABOVE ITS ORDINARY SURFACE THAN AT ANY OTHER POINT WHERE OUR LINE TOUCHES IT. WITH THESE FACTS BEFORE US, IT WAS ONLY PRUDENT TO THROW THE LINE INTO CUTTING AT POINTS EXPOSED TO THE CURRENT; AND TO DO THIS IT BECAME NECESSARY TO PASS IN THE REAR OF OVER-HANGING MASSES AT SOME POINTS, AND TO TUNNEL OTHERS. FOUR OF THESE TUNNELS WILL, PROBABLY BE MADE, THE LONGEST ABOUT 600 FT.

"THE ESTIMATED COST OF THIS PART OF THE LINE, HOWEVER, DOES NOT EXCEED THAT HERETOFORE SUBMITTED, AS THE RAISING OF THE GRADE PROVED TO BE AN ECONOMICAL MEASURE. AS THIS PART OF THE ROAD HAS BEEN CONSIDERED VERY FORMIDABLE BY PERSONS FAMILIAR WITH THAT PART OF NEW RIVER, IT WILL GRATIFY THE FRIENDS OF THE ENTERPRISE TO KNOW THAT THE ESTIMATED COST OF THE GRADUATION AND MASONRY ON THE 8 MILES BETWEEN THE NEW RIVER BRIDGE, JUST ABOVE HAWK'S NEST AND THE MOUTH OF THE RIVER DOES NOT EXCEED \$50,000.00 PER MILE;

C. M. BOLTON HAD CHARGE OF SURVEYS NEAR AND IN RICHMOND - - - -".

(SIGNED) H. D. WHITCOMB,
CHIEF ENGINEER.

(ANNUAL REPORT, 1870, PAGES 32--36)

1871: PRESIDENT C.P. HUNTINGTON'S SUMMARY OF WORK ACCOMPLISHED:

"AT THE DATE OF THIS REPORT, (NOVEMBER, 1871) THE WHOLE OF THE WORK, FROM THE MOUTH OF THE NEW RIVER TO THE CITY OF HUNTINGTON (HUNTINGTON INCORPORATED FEB. 27, 1871) ON THE OHIO RIVER, IS COMPLETED, WITH THE EXCEPTION OF TRACK LAYING ON A PART OF THE DISTANCE. THIS TRACK LAYING WILL BE COMPLETED AND THE CARS WILL BE RUNNING DAILY OVER THIS PORTION OF THE LINE IN ALL PROBABILITY, BEFORE THIS REPORT WILL REACH YOU. A FAILURE ON THE PART OF SOME CONTRACTORS TO DELIVER RAILS AT THE DATES SPECIFIED IN THEIR CONTRACTS, AND AN UNUSUALLY LOW STAGE OF WATER IN THE OHIO RIVER WHICH PREVENTED THE TRANSPORTATION OF RAILS FROM PARKERSBURG, HAVE DELAYED THE OPENING OF THIS PART OF THE LINE TO PUBLIC USE FOR SEVERAL MONTHS. THAT PORTION OF THE LINE BETWEEN THE MOUTH OF NEW RIVER AND WHITE SULCHUR SPRINGS, 102 MILES, IS ALL UNDER CONTRACT, AND THE GRADING AND MASONRY ON 11 MILES OF IT IS COMPLETED- - - -".

(ANNUAL REPORT, 1871, PS 10-11).

1871:

CHIEF ENGINEER WHITCOMB'S REPORT OF PRESIDENT OCT. 1, 1871:

LOCATION OF THE LINE OF ROAD:

"THE CAREFUL RE-SURVEYS WHICH WERE MADE LAST YEAR - - - RESULTED IN MARKED IMPROVEMENTS. FOR THE FIRST TIME, THE LINE BETWEEN MILLER'S FERRY AND THE MOUTH OF NEW RIVER WAS RUN WITH THE CURVES; AND IN THE COURSE OF THE SURVEY, IT WAS FOUND THAT AT A POINT $2\frac{1}{2}$ MILES ABOVE THE MOUTH OF THE RIVER, CALLED THE BLUE HOLE, DRIFT HAD BEEN DEPOSITED AT A RECENT DATE 68 FT. ABOVE LOW WATER

TIME NECESSARY FOR COMPLETION.

"IF, AS IS CONTEMPLATED, THE TUNNEL ON THE FIRST NEW RIVER DIVISION AT STRETCHER'S POINT, BE PLACED UNDER CONTRACT TO COMPETENT PARTIES THIS SEASON, AND THE REMAINDER OF THE LINE BE PUT UNDER CONTRACT EARLY NEXT SPRING, THE WHOLE ROAD CAN BE OPEN BY JULY, 1872, PROVIDED THE TUNNEL AT GREAT BEND IS COMPLETED. IT WOULD BE PREMATURE TO ATTEMPT AN EXACT ESTIMATE OF THE TIME REQUIRED TO COMPLETE THIS TUNNEL. THE WORK IS NOT SUFFICIENTLY DEVELOPED. THE CONTRACTOR HAS BEEN ABLE, DURING THE TIME HE HAS WORKED, TO AVERAGE RATHER OVER 100 FT. PER MONTH IN EACH HEADING OPENED; AND IF THIS RATE BE MAINTAINED, THE TUNNEL WILL BE COMPLETED AT THE DATE MENTIONED FOR THE COMPLETION OF THE REMAINDER OF THE LINE. I DO NOT CONSIDER LEWIS' TUNNEL AN OBSTACLE IN OPENING THE WHOLE LINE, ALTHOUGH IT WILL REQUIRE, PERHAPS AS LONG A TIME TO COMPLETE AS THAT OF GREAT BEND, BECAUSE THE TEMPORARY TRACK AFFORDS A MEANS OF SURMOUNTING IT IN CASE OF DELAY. A SIMILAR TEMPORARY TRACK IS PRACTICABLE AT GREAT BEND, BUT IT IS NOT RECOMMENDED FOR THE POSSIBLE, FEW MONTHS THAT WE MAY BE DETAINED."

-ENGINEER CORPS-

KANAWHA AND WESTERN DIVISIONS: IN CHARGE OF W.A. KUPER, PRINCIPAL ASST. ENG. AND 7 RESIDENT ENGINEERS.

ALLEGAHANY AND GREENBRIER DIVISIONS: UNDER PEYTON RANDOLPH, DIV. ENG. AND SIX RESIDENT ENGINEERS.

GEO. MCKENDREE HAD CHARGE OF PARTY ENGAGED IN REVISING THE LINE FROM MOUTH OF GREENBRIER TO BOWYER'S FERRY, ON NEW RIVER; AND ON CONSTRUCTION WILL HAVE CHARGE OF THE FIRST NEW RIVER DIVISION.

C. R. HOWARD HAD CHARGE OF PARTY ENGAGED IN REVISING THE LINE FROM BOWYER'S FERRY TO HEAD OF KANAWHA, AND ALSO CHARGE OF CONSTRUCTION ON THE SECOND NEW RIVER DIV.

ESTIMATE IS AS FOLLOWS, SUBJECT TO MODIFICATION WHICH MAY RESULT FROM SURVEYS OF THE PRESENT YEAR, AND WHICH WILL PROBABLY REDUCE THE AMOUNT:

EAST OF W S S. NOW UNDER CONTRACT	\$ 926,586.00
ARCHING, NEC. IN TUNNELS ON ALLEGHANY DIV	80,000.00
ALLEGHANY DIV, WEST OF W S S.	290,813.00
GREENBRIER DIV.	1,600,523.00
FIRST AND 2ND NEW RIVER DIVS.	1,894,387.00
KANAWHA DIV.	895,292.00
WESTERN DIV.	1,055,603.00
TOTAL - - -	\$6,743,204.00

"THE ABOVE ESTIMATE INCLUDES ALL THE EXPENDITURES OF THE PRESENT YEAR SINCE APRIL 1ST, AND IS FOR A COMPLETE ROAD BED, GRADED FOR A SINGLE TRACK, WITH MASONRY FOR DOUBLE TRACK IN BRIDGES AND ARCH CULVERTS.

"IF THE AMOUNT NECESSARY TO COMPLETE THE ROAD EAST OF THE W.S.S. BE DEDUCTED FROM THE ABOVE, IT LEAVES THE AMOUNT NECESSARY TO COMPLETE THE 200 MILES WEST OF THE PRESENT TERMINUS \$5,736,618, OR FOR GRADING AND BRIDGING, AN AVERAGE PER MILE, OF \$28,683.00. AS A REVISED ESTIMATE OF THE WORK NOW UNDER CONTRACT HAS JUST BEEN COMPLETED, AND AS IT IS POSSIBLE THE RESULT OF THE REVISION OF THE LINE ON THE NEW RIVER DIVISION WILL BE TO REDUCE THE ESTIMATE OF LAST YEAR--WHICH IS THE ONE SUBMITTED ABOVE--, I FEEL CONFIDENT THAT THE SUM MENTIONED WILL BE FOUND AMPLE FOR THE PURPOSE.

"NO ESTIMATE FOR THE TRACK IS SUBMITTED IN THIS REPORT, AS THE CHARACTER OF THE RAIL TO BE USED HAS NOT YET BEEN FULLY DECIDED UPON. NOR, DO I PRESENT ANY ESTIMATE FOR BUILDINGS OR EQUIPMENTS. THE FORMER WILL NOT BE EXPENSIVE; THE LATTER WILL, OF COURSE, DEPEND UPON THE AMOUNT OF BUSINESS DEVELOPED.

JAN. 1.

"ON THE WESTERN DIVISION, THE PROGRESS HAS NOT BEEN SO RAPID. A CONSIDERABLE AMOUNT, ABOUT \$500,000.00 WAS EXPENDED ON THIS DIVISION BY THE STATE OF VIRGINIA, PREVIOUS TO 1861. OF THE REMAINING PART TO BE DONE AND UNDER CONTRACT, 25% OF THE GRADING AND 30% OF THE MASONRY HAS BEEN DONE; AND PROBABLY 33% IN ADDITION MAY BE DONE BY JAN. 1ST. AT THE SAME RATE OF PROGRESS, THE DIVISION CAN BE COMPLETED EARLY IN THE SUMMER. THIS DEPENDS UPON THE PRACTICABILITY OF MAINTAINING THE PRESENT FORCE DURING THE WINTER MONTHS.

"THE AMOUNT OF GRADING AND MASONRY MAY BE CONSIDERABLY REDUCED, TEMPORARILY, BY SUBSTITUTING TRESTLE WORK IN LIEU OF EMBANKMENTS AND CULVERTS AT SEVERAL POINTS; AND AS IT IS CERTAIN THAT THE WORK AT THESE POINTS CAN BE DONE MORE ECONOMICALLY BY TRAINS AFTER THE TRACK IS LAID, IT WILL PROBABLY BE RESORTED TO; AND IN THIS CASE THE PER CENTAGE REPORTED AS DONE WILL BE CONSIDERABLY INCREASED. THE FOLLOWING STATEMENTS WILL SHOW THE AMOUNTS PAID TO CONTRACTORS AND THE ESTIMATED COST OF WORK TO BE DONE BY THEM ON CONTRACTS ALREADY MADE, PROVIDED NO TRESTLE WORK IS USED:

	WORK DONE.	TO BE DONE.	TOTAL
EAST OF WHITE SULPHUR SPRINGS	\$147,195	\$809,391	\$ 926,586.00
ALLEGHANY DIV. WEST "	\$1,288.00	27,414.00	58,742.00
GREENBRIER "	124,091.00	\$1,018,362.00	1,142,453.00
2ND NEW RIV. DIV.	22,302.00	34,698.00	57,000.00
KANAWHA DIV.	318,000.00	577,292.00	895,292.00
WESTERN DIV.	232,163.00	727,321.00	959,484.00
	\$ 845,039	\$3,194,518	\$4,039,484

" FOR COMPLETING THE WHOLE ROAD, INCLUDING MASONRY, GRADUATION AND BRIDGES; BUT NOT INCLUDING TRACK, BUILDINGS, OR EQUIPMENT, THE

HAS BEEN DONE ON SECTION No.40, OWING TO IMPEDIMENTS OUT OF THE POWER OF THE CONTRACTORS TO REMOVE. THE WORK IS NOW GOING ON SATISFACTORILY. THE CONTRACTOR ON SECTION No.42 ON WHICH IS A TUNNEL ABOUT 1,100 FT. LONG, IS PROGRESSING SATISFACTORILY. THE TUNNEL HAS BEEN DRIVEN 100 FT. IN LIME-STONE, AND THUS FAR WILL NEED NO LINING, EXCEPT, PERHAPS, FOR A FEW FEET AT THE PORTAL.

"ON SECTION #23 CONSIDERABLE WORK HAS BEEN DONE. THE THREE PIERS OF THE THIRD GREENBRIER BRIDGE ON SECTION 58 ARE SEVERAL FEET ABOVE LOW WATER. THERE WILL BE NO DIFFICULTY IN RESUMING THE WORK AS SOON AS THE WEATHER WILL PERMIT, IN THE SPRING. AT THE GREAT BEND TUNNEL, ON SECTIONS 60 AND 61 THE APPROACH CUT HAS BEEN COMPLETED AND 100 FT. OF TUNNEL DRIVEN. SHAFT No.1 WAS SUNK ABOUT 70 FT. AND THE WORK ON IT SUSPENDED, TEMPORARILY BY MY ORDER. SHAFT No.2 HAS BEEN SUNK TO GRADE, AND THE HEADINGS FROM IT WILL BE STARTED IN NOVEMBER. A SHAFT HAS BEEN SUNK AT THE WESTERN PORTAL, AND 500 FT. OF HEADING TAKEN OUT. THE WESTERN APPROACH CUT IS LONG AND HEAVY AND WILL REQUIRE YET, SEVERAL MONTHS FOR ITS COMPLETION. THE ROCK ON THESE SECTIONS IS FAVORABLE FOR EXCAVATION, BUT THE TUNNEL WILL NEED SUPPORT. THE CONTRACTOR HAS BEEN HINDERED BY A CONSIDERABLE AMOUNT OF WATER IN SHAFT No.2. SECTION No. 62 IS WELL ADVANCED TOWARD COMPLETION. THE EASTERN ABUTMENT AND THE RIVER PIER, ON PIER No.3, OF THE NEW RIVER BRIDGE, SECTION 121, WILL BE COMPLETED THIS SEASON. THE FOUNDATIONS OF PIER S NOS 1 AND 2 WILL BE LAID, AND ALSO IT IS HOPED, THE FOUNDATION OF THE WESTERN ABUTMENT.

"THE WORK ON THE KANAWHA DIVISION IS WELL ADVANCED. THE FOUNDATIONS OF ALL THE BRIDGES AND ARCH CULVERTS ARE SECURED, AND THE MASONRY WILL BE LAID TO ABOVE ORDINARY WATER BY NOV.1. ABOUT 40% OF THE GRADING AND 33% OF THE MASONRY ON THIS DIVISION ARE COMPLETED, AND PROBABLY 40% IN ADDITION, WILL BE COMPLETED BY

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"THE PROGRESS MADE BY THE CONTRACTORS HAS BEEN IN THE MAIN, SATISFACTORY. THERE WAS SOME DIFFICULTY, AT FIRST, IN PROCURING, AND MAINTAINING A SUFFICIENT FORCE. AT THE DATE OF THIS REPORT, THIS DIFFICULTY NO LONGER EXISTS; AND IF THE PRESENT FORCE IS MAINTAINED, THERE WILL BE NO SERIOUS DIFFICULTY IN HAVING THE CONTRACTS FOR WORK ALREADY LET, COMPLETED IN TIME.

" THE CONTRACTORS FOR THE EMBANKMENTS NEAR MILLBORO AND AT JERRY'S RUN HAVE MADE RAPID PROGRESS. IT IS CONFIDENTLY EXPECTED THAT THE HIGH TRESTLE AT THE LATTER POINT WILL BE COMPLETELY FILLED UP BY THE 1ST OF MAY NEXT (18710. AT THE LEWIS TUNNEL ABOUT 12,000 CU. YDS HAVE BEEN REMOVED FROM THE APPROACHES. SHAFT NO.1 HAS BEEN SUNK NEARLY TO THE GRADE OF THE TUNNEL AND THE WESTERN PORTAL SHAFT CLEANED OUT, AND THE WORK OF TUNNELING RESUMED. ANOTHER SHAFT WILL BE SUNK AT THE EASTERN PORTAL, AND WORK ON OLD SHAFT NO.3 RESUMED IMMEDIATELY. IT IS EXPECTED TO HAVE THIS TUNNEL DRIVEN ~~XXXXX~~ FROM SIX POINTS IN NOVEMBER. THE CONTRACTORS HAVE BEEN HINDERED BY THE LARGE AMOUNT OF WATER IN SHAFT NO.1. THE MATERIAL, AS FAR AS DEVELOPED, IS VERY HARD SANDSTONE WHICH WILL REQUIRE NO SUPPORT.

"SECTION NO.25, NEAR WHITE SULPHUR SPRINGS, IS WELL ADVANCED. THE WALLS OF THE LARGE ARCH CULVERTY OVER HART'S RUN ON SECTION NO.28 ARE COMPLETED. THE ARCH WILL PROBABLY BE COMPLETED THIS SEASON OR EARLY NEXT SPRING, READY FOR THE EMBANKMENT. THE PROGRESS OF SECTION #31 IS SATISFACTORY. THE FOUNDATIONS OF THE THREE PIERS OF THE FIRST GREENBRIER BRIDGE ON SECTION NO.32, HAVE BEEN SECURED, AND THE WESTERN ABUTMENT BUILT NEARLY TO THE BRIDGE SEAT. THE WORK IS IN SUCH A CONDITION THAT ANY UNFINISHED PORTIONS CAN BE RESUMED IN THE SPRING, WITHOUT SERIOUS INTERFERENCE FROM THE RIVER. VERY LITTLE

EXPECTATIONS, AND IN POINT OF COST AND ALIGNMENT ARE AS FAVORABLE AS I HAD EVER HOPED FOR. THE FINAL LOCATION WILL BE COMPLETED IN NOVEMBER, AND ANY MINOR CHANGES WHICH THE OFFICE WORK THIS WINTER MAY DETERMINE, WILL BE MADE BY THE RESIDENT ENGINEER, WHILE THE ROAD IS UNDER CONSTRUCTION. IN ADDITION TO THIS WORK SURVEYS HAVE BEEN MADE NEAR RICHMOND - - - -".

(ANNUAL REPORT, 1870. PAGES 28-31).

1870: CONSTRUCTION:

"IN MARCH LAST, THE FOLLOWING WORK WAS PUT UNDER CONTRACT AT GENERALLY FAVORABLE RATES: THE HEAVY EXCAVATION AND EMBANKMENT NEAR MILLBORO ON THE STANTON AND COVINGTON DIVISION, WHICH HAS BEEN SUSPENDED SINCE 1857, AND HAVE SINCE, BEEN AVOIDED BY A TEMPORARY TRACK WITH GRADES OF 307 FT. PER MILE. THE LEWIS TUNNEL AND THE EMBANKMENT OVER JERRY'S RUN ON THE ALLEGHANY DIVISION, WEST OF WHITE SULPHUR SPRINGS, ALSO AVOIDED BY A TEMPORARY TRACK. SECTION 25 AND THE MASONRY ON SECTION 28, OF THE ALLEGHANY DIVISION WEST OF WHITE SULPHUR SPRINGS, SECTION 31 - THE MASONRY OF FIRST GREENBRIER BRIDGE. SECTIONS 40, 42, AND 43, THE MASONRY OF THIRD GREENBRIER BRIDGE; AND SECTIONS 60, 61 AND 62, OF THE GREENBRIER DIVISION. THE MASONRY OF THE NEW RIVER BRIDGE. THE WHOLE OF THE KANAWHA DIVISION, AND ALL OF THE WESTERN DIVISION BETWEEN THE MOUTH OF SCARY AND GUYANDOTTE RIVER, INCLUDING THE MASONRY OF GUYANDOTTE BRIDGE. THE WORK ON THE KANAWHA AND WESTERN DIVISIONS IS TO BE COMPLETED BY MAY 1, 1871.

"THE REMAINDER OF WORK NOW UNDER CONTRACT IS TO BE READY FOR THE TRACK BY JUNE, 1872, AND COMPRISES ALL THAT IT WAS SUPPOSED WOULD REQUIRE OVER TWO YEARS TO COMPLETE.

SPAN, OR OVER; FOUR ARCHES OF FROM 30 TO 40 FT. SPAN, AND SEVERAL OF LESSOR SPANS.

"THE MAXIMUM GRADE IS 15 FT. PER MILE; THE MINIMUM RADIUS OF CURVATURE IS 1,010 FT. FROM THE ALLEGHANY TUNNEL TO THE END OF THIS DIVISION, THE LINE DESCENDS CONTINUOUSLY WITH THE STREAMS, WITH SOME UNIMPORTANT UNDULATIONS.

WESTERN DIVISION.

"THE GRADES ON THE WESTERN DIVISION UNULATE. THE LINE ASCENDS THE VALLEY OF SCARY CREEK WITH A GRADE OF 30 FT. PER MILE THENCE DESCENDS WITH SOME UNDULATIONS TO MUD RIVER, AND AGAIN UNDULATES TO THE MAXIMUM IN PASSING THE BENDS OF THE RIVER. AFTER REACHING THE VALLEY OF THE GUYANDOTTE THE GRADES BECOME LIGHTER. THE CUTS AND FILLS BETWEEN SCARY AND BARBOURSVILLE ARE HEAVY. THE BRIDGES OVER SCARY AND HURRICANE CREEKS, THE TWO OVER MUD RIVER AND THOSE OVER THE GUYANDOTTE AND THE SMALLER STREAMS WEST OF IT, ARE HIGH AND COSTLY. THE MAXIMUM GRADE IS 30 FT. PER MILE. THE MINIMUM RADIUS OF CURVATURE IS 1,000 FT.

SURVEYS OF PRESENT SEASON--FALL OF 1870.

"THE RESULTS OF THE SURVEYS OF LAST YEAR WERE VERY SATISFACTORY. THE QUANTITIES OF EXCAVATION AND MASONRY ESTIMATED BY MR. FISK, THE ENGINEER OF THE COVINGTON & OHIO RAILROAD, ON THE GREENBRIER AND NEW RIVER DIVISIONS, WERE REDUCED 40 AND 25 PER CENT, RESPECTIVELY, WITH AN ABSOLUTE IMPROVEMENT OF THE LINE IN DISTANCE AND CURVATURE, AND WITH GRADES EQUALLY SATISFACTORY, THE MAPS OF THE LINE WERE CAREFULLY EXAMINED DURING THE WINTER; AND IN SOME CASES FURTHER CHANGES WERE FOUND DESIRABLE. DURING THIS YEAR SOME PORTIONS OF THE GREENBRIER DIVISION HAVE BEEN MODIFIED; AND BOTH OF THE NEW RIVER DIVISIONS HAVE BEEN RE-SURVEYED. THE RESULTS HAVE EXCEEDED

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THE SLOPES OF THE RIVER HILLS ARE GENERALLY MODERATE, AND THERE ARE FEW IMPORTANT STREAMS TO BRIDGE. THE PREVAILING ROCK IS SANDSTONE. AT RICHMOND FALLS, A SHORT TUNNEL OF LESS THAN 300 FT. WILL PROBABLY BE MADE TO AVOID HEAVIER WORK IN THE VICINITY. AT STRETCHER'S NECK A TUNNEL OF 1,800 FT. WHICH WILL SAVE ABOUT FOUR MILES IN DISTANCE, WILL ALSO BE MADE. THE MAXIMUM GRADE ON THIS DIVISION IS 21 FT. THE MINIMUM RADIUS OF CURVATURE IS 1,146 FT.

SECOND NEW RIVER DIVISION.

"ON THE SECOND NEW RIVER DIVISION THE WORK BECOMES HEAVIER. THE CLIFFS APPROACH NEARER THE RIVER, THE SLOPES ARE STEEPER AND THE DIFFICULTIES INCREASE, GENERALLY, UNTIL WITHIN THREE MILES OF THE KANAWHA. THE PREVAILING ROCK IS SANDSTONE. A LARGE PROPORTION OF THE EXCAVATION WILL BE BOULDERS, SOME OF WHICH ARE OF ENORMOUS SIZE. THERE ARE FOUR BRIDGES ON THIS DIVISION OF 100 FT. APAN, OR OVER. THE BRIDGE OVER NEW RIVER AT MILLER'S FERRY BEING THE HEAVIEST ON THE LINE BETWEEN RICHMOND AND THE OHIO. THERE ARE NO TUNNELS CONTEMPLATED; THE MAXIMUM GRADE IS 21 FT. PER MILE. THE MINIMUM RADIUS OF CURVATURE EXCEPT AT TWO POINTS, IS 1,000 FT. THE EXCEPTIONS ARE AT THE EASTERN APPROACH OF THE NEW RIVER BRIDGE AND AT A POINT FIVE MILES WEST, WHERE A CURVE OF 716 FT. RADIUS MAY BE INTRODUCED TO PREVENT THE EMBANKMENT FROM RUNNING INTO THE RIVER. BOTH THESE CURVES ARE ON A LEVEL.

KANAWHA DIVISION.

"ON THE KANAWHA DIVISION, THE GRADING IS LIGHT, THE AVERAGE BEING LESS THAN ON EITHER OF THE OTHER DIVISIONS. THE LINE, HOWEVER, CROSSES MANY OF THE TRIBUTARIES OF THE KANAWHA, AND THE AMOUNT OF MASONRY IS LARGE. THERE ARE NO TUNNELS OR HEAVY CUTTINGS. THE ROCK IS SAND-STONE. THERE ARE EIGHT BRIDGES OF 50 FT.

100 FT. IN HEIGHT, ONE OF 140 FT. AND ONE STILL UNFINISHED OF 185 FT. THE LATTER, WHEN COMPLETED, WILL CONTAIN OVER 1,000, 000 CU. YDS. THERE ARE ALSO FIVE BRIDGES OF AN AGGREGATE LENGTH OF 800 FT. AND SEVERAL LARGE, ARCH CULVERTS. THE WORK REMAINING TO BE DONE ON THIS DIVISION EAST OF THE WHITE SULPHUR CONSISTS OF THE EMBANKMENT AT JERRY'S RUN, THE LEWIS TUNNEL, AND THE ARCHING OF ABOUT 2,000 FT. OF TUNNEL AND FIVE MILES OF GRADING WEST OF THE WHITE SULPHUR. THE MAXIMUM GRADE, ASCENDING WESTWARD IS 60 FT. PER MILE FOR ABOUT 10 MILES. DESCENDING, THE GRADE IS UNIFORMLY 30 FT. PER MILE, EXCEPT FOR 1,000 FT. AT WHITE SULPHUR STATION, WHERE IT IS 19 FT. PER MILE. THE MINIMUM RADIUS OF CURVATURE IS 1,000 FT.

THE GREENBRIER DIVISION.

"THE GREENBRIER DIVISION HAS A MORE FAVORABLE LOCATION, AND BUT FOR THE TUNNELS, WHICH ARE CONSTRUCTED ONLY TO SAVE DISTANCE, WOULD BE CONSIDERED LIGHT WORK. THERE ARE FOUR TUNNELS OF AN AGGREGATE LENGTH OF 6,850 FT. SAVING IN DISTANCE ABOUT 10 MILES. THE ROCK ENCOUNTERED IS FIRST, SANDSTONE, NEXT LIMESTONE, AND THEN SANDSTONE AND RED SHALE. THERE WILL BE THREE BRIDGES OVER THE GREENBRIER RIVER, TWO SMALLER ONES OVER WOLF CREEK AND HUNGARD'S CREEK, AND SEVERAL ARCH CULVERTS. OF THE TUNNELS, THE FIRST AND SECOND WILL BE IN LIMESTONE; THE REMAINING TWO IN RED SHALE. THE MAXIMUM GRADE ON THIS DIVISION IS 30 FT. PER MILE FOR TWO MILES ADJOINING THE ALLEGHANY DIVISION; ELSEWHERE, 21 FT. PER MILE. THE MINIMUM RADIUS OF CURVATURE IS 1,000 FT.

FIRST NEW RIVER DIVISION.

"THE FIRST NEW RIVER DIVISION HAS, GENERALLY, LIGHT WORK. THE SECTIONS AT RICHMOND FALLS AND AT STRETCHER'S NECK ARE EXCEPTIONS.

New River - 49

DESCRIPTION OF THE LINE WEST OF COVINGTON.

"THE LINE HAS BEEN DIVIDED BY THE NATURAL FEATURES OF THE COUNTRY INTO SIX DIVISIONS.

"THE ALLEGHANY DIVISION, EXTENDING FROM COVINGTON TO MONROE DRAFT ABOVE AND NEAR THE MOUTH OF HOWARD'S CREEK, EMBRACING ABOUT 30 SECTIONS AND 27-56/100 MILES.

"THE GREENBRIER DIVISION, EXTENDING FROM MONROE DRAFT TO, AND ALONG GREENBRIER RIVER TO NEW RIVER, EMBRACING 37 SECTIONS AND 37.94 MILES,

"THE FIRST NEW RIVER DIVISION, EXTENDING FROM THE GREAT BEND TO THE HEAD OF THE KANAWHA, EMBRACING 29 SECTIONS, AND WITH THE FIRST NEW RIVER DIVISION, MAKING 61.23 MILES.

"THE KANAWHA DIVISION, EXTENDING ALONG THE KANAWHA RIVER TO THE MOUTH OF SCARY CREEK, EMBRACING 51 SECTIONS AND 52.29 MILES, AND THE

"WESTERN DIVISION, EXTENDING FROM THE MOUTH OF SCARY TO THE WESTERN TERMINUS, 41 SECTION AND 43.36 MILES. TOTAL LENGTH OF ROAD WEST OF COVINGTON 222.43 MILES, OF WHICH 22 MILES ARE IN OPERATION, BUT IN PART BY MEANS OF A TEMPORARY TRACK TWO MILES IN LENGTH.

ALLEGHANY DIVISION.

"THE ALLEGHANY DIVISION, AS ITS NAME IMPORTS, INCLUDES THE PASSAGE OF THE ALLEGHANY MOUNTAIN, AND THE WORK IS FAR HEAVIER THAN ON ANY OTHER PORTION OF THE LINE. THE LARGER PART OF THE EXCAVATION IS IN SLATE ROCK; BUT SOME LIMESTONE AND SOME VERY HARD SANDSTONE IS ENCOUNTERED. ON THAT PART OF THIS DIVISION NOW IN OPERATION, THE EXCAVATIONS AND EMBANKMENTS ARE VERY HEAVY, AND THERE ARE SEVEN TUNNELS OF AN AGGREGATE LENGTH OF 11,000 FT. ONE OF THESE TUNNELS EAST OF THE WHITE SULPHUR SPRINGS OF 3,900 FT. IS NOW BEING CONSTRUCTED. THERE ARE SEVERAL EMBANKMENTS OF NEARLY

1870:

C. P. HUNTINGTON IS PRESIDENT; WMS. C. WICKHAM, VICE-PRESIDENT
AND GEN'L SUP'T. H. D. WHITCOMB, CHIEF ENGINEER.

REPORT OF CHIEF ENGINEER H. D. WHITCOMB, DATED OCT. 1, 1870.

FINAL LOCATION OF THE LINE OF THE ROAD:

"AT THE DATE OF THE LAST ANNUAL REPORT THE LOCATION OF THE ALLEGHANY DIVISION HAD BEEN COMPLETED, AND ALTERNATE LINES HAD BEEN RUN ON A PART OF THE GREENBRIER AND NEW RIVER DIVISIONS, AND ON THE WHOLE OF THE KANAWHA DIVISION. THE WESTERN DIVISION, WITH THE EXCEPTION OF A FEW MILES NEXT TO THE TERMINUS, HAD BEEN DEFINITELY LOCATED. THE FINAL LOCATION OF THE WHOLE LINE HAS SINCE BEEN FIXED AS FOLLOWS: LEAVING THE PRESENT WESTERN ~~XXXXXXXX~~ TERMINUS AT THE WHITE SULPHUR SPRINGS, IT FOLLOWS THE LEFT SIDE OF THE VALLEY OF HOWARD'S CREEK TO GREENBRIER RIVER; IT THEN PASSES ALONG THE LEFT BANK OF THE GREENBRIER 1-1/2 MILES AND CROSSES TO THE RIGHT BANK FOR 8-1/3 MILES, AND RE-CROSSES TO THE LEFT BANK; IT THEN FOLLOWS THE LEFT SIDE FOR ABOUT 18 MILES AND AGAIN CROSSES TO THE RIGHT BANK, AND CONTINUES ON THE RIGHT SIDE TO THE JUNCTION WITH NEW RIVER; AND THENCE ALONG NEW RIVER TO MILLER'S FERRY, WHERE IT CROSSES TO THE LEFT, OR SOUTH BANK. FROM THIS POINT, IT CONTINUES ON THE THE SOUTH SIDE OF NEW RIVER AND THE KANAWHA TO THE MOUTH OF SCARY CREEK; IT THEN ASCENDS THE VALLEY OF SCARY CREEK AND PASSES THROUGH TEAY'S VALLEY TO THAT OF THE MUD RIVER, AND HAVING CROSSED THAT RIVER TWICE, IT ENTERS THE VALLEY OF THE GUYANDOTTE NEAR THE TOWN OF BARBOURSVILLE. IT THEN FOLLOWS THE NORTH SIDE OF THAT VALLEY TO THE TOWN OF GUYANDOTTE, WHERE IT CROSSES THE RIVER AND ENTERS THE VALLEY OF THE OHIO, AND FOLLOWS IT ON THE LEFT SIDE TO THE WESTERN TERMINUS, AT THE MOUTH OF THE BIG SANDY RIVER.

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WEST OF THE WHITE SULPHUR IS BEING COMPLETED, AND ESTIMATES OF ALL UNFINISHED WORK ARE IN PREPARATION.

"THE ALLEGHANY DIVISION EXTENDS FROM COVINGTON TO THE GREENBRIER RIVER, AND IS 29.6 MILES LONG.

"FINISHED PERMANENT TRACK EAST OF WHITE SULPHUR SPRINGS - - -	19 MILES
"UNFINISHED " " " " - - - -	3 "
" " " " WEST " 60 FT. PER MILE	"
"MAXIMUM GRADE " TRACK GOING WEST	60 FT. PER MILE
" " " " EAST	30 FT. " "

MINIMUM RADIUS OF CURVATURE OF PERMANENT TRACK - - 1,000 FT. PER MILE.

"THERE ARE IN USE, AS YET FOUR MILES OF WELL CONSTRUCTED TEMPORARY TRACK EAST OF THE WHITE SULPHUR SPRINGS.

RED HILL, TEMPORARY TRACK - - - - 1½ MILES LONG,
 MAXIMUM GRADE - - - - - 106 FT. PER MILE,
 MINIMUM RADIUS OF CURVATURE - - 477-1/2 FT.

THIS TRACK WILL BE DISPENSED WITH IN FIVE MONTHS.

JERRY'S RUN TEMPORARY TRACK - - - - 2-1/2 MILES LONG,
 MAXIMUM GRADE GOING WEST 290 FT. PER MILE,
 " " " EAST 195 " " "

MINIMUM RADIUS OF CURVATURE - - 477-1/2 FT.

THE TIMBER TRESTLE ACROSS JERRY'S RUN IS ADMIRABLY EXECUTED.

OF THE NINE TUNNELS, THAT UNDER THE MAIN ALLEGHANY IS 9/10 MILES LONG.

THERE ARE 5 DOUBLE TRACK TUNNELS EXCAVATED, AGGREGATING 1-3/8 "

ONE DOUBLE TRACK TUNNEL TO BE FINISHED MARCH, 1870 1/8 MILE.

ONE SINGLE TRACK TUNNEL, COMPLETED - - - - - 200 FT.

TWO " " TUNNELS UNFINISHED, AGGREGATING 4,500 FT.

GRAND TOTAL OF RUNNELS 2-4/10 MILES.

(SIGNED) A.L.RIVES.

--46-- (ANNUAL REPORT 1869, Ps 65-67).

FEET OF BRIDGING AND TRESTLING WAS LOCATED AND COMPLETED IN SIX WEEKS. THE COST OF THIS TUNNEL WILL GREATLY EXCEED CONJECTURAL ESTIMATES, OWING TO THE TEDIOUS AND EXPENSIVE CHARACTER OF ITS PROGRESS THROUGH THE LOOSE MASS OF EARTH AND ROCK WHICH HAD CRUSED IN THE ROTTEN TIMBERS OF THAT PORTION OF THE WORK EXCAVATED PREVIOUS TO THE WAR. INCH BY INCH HAD THIS MASS TO BE PENETRATED AND SUPPORTED BY HEAVY TIMBERS, TEMPORARILY PLACED, UNTIL A SMALL SPACE AT A TIME WAS SUFFICIENTLY SECURED TO ADMIT OF INSERTING SHORT VOUSSOIR-LIKE PIECES OF OAK, THUS GRADUALLY FORMING A SOLID ARCH. THE MASONRY ARCH WAS AFTER-WARD CONSTRUCTED UNDER-NEATH THE WOODEN ONE PREVIOUSLY CAREFULLY PACKED OVER.

"HAPPILY, THESE UNUSUAL DIFFICULTIES ARE NOW PASSED, AND THE EXDAVATION IS ALØGETHER IN SOLID ROCK, BUT OF SUCH EXCEEDING HARDNESS, HOWEVER, THAT THE PROGRESS OF THE WORK, ALTHOUGH MUCH MORE SATISFACTORY, IS STILL NECESSARILY, SLOW. THE HEADING WILL BE THROUGH THE 20TH OF NOVEMBER (1869), AND THE TUNNEL COMPLETED BY THE END OF FEBRUARY, (1870).

"IT GIVES ME GREAT PLEASURE TO CALL YOUR ATTENTION TO THE SERVICES OF MR. DENIS SHANAHAN, THE RESIDENT ENGINEER, TO WHOSE XX SKILL, EXPERIENCE, AND UNREMITTING ATTENTION TO DUTY IS MAINLY DUE THE SUCCESSFUL, AND SAFE EXECUTION OF THIS EXCEPTIONALLY DIFFICULT WORK.

"A FREIGHT DEPOT 100 X 30 FT. HAS BEEN ERECTED AT THE WHITE SULPHUR SPRINGS, AND AN ENGINE HOUSE HERE, AS WELL AS AT ALLEGHANY STATION WILL BE CONSTRUCTED DURING THE FALL. ARRANGEMENTS ARE MAKING TO COMPLETE THE ARCHING OF LAKE'S TUNNEL - - - -, AND TO ARCH 1,300 FT. OF ALLEGHANY TUNNEL.

"A CAREFUL AND REVISED LOCATION OF THE 7--5/10 MILES

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ABOVE MALDEN AND AT COALBURG; AND EVEN AT THESE PLACES IF CHANGES OF LOCATION SHOULD BE REQUIRED, IT WOULD NOT INVOLVE A VERY GREAT ADDITIONAL EXPENSE TO MAKE IT - - - - I HAVE LEFT THE ITEM OF LAND DAMAGES OUT OF THE ESTIMATES.

"I HAVE HEARD OF NO OBSTACLES THAT WOULD BE THROWN IN THE WAY OF A PROPER LOCATION, EITHER BY INDIVIDUALS OR BY CORPORATIONS - - -".

(SIGNED) W. A. KUPER,
PRINCIPAL ASSISTANT ENGINEER.

(ANNUAL REPORT, 1869. PAGES 35--64)

1869

ALLEGHANY DIVISION: COVINGTON TO GREENBRIER RIVER 29-6/10 MILES.

REPORT OF ENGINEER A. L. RIVES, DATED WHITE SULPHUR SPRINGS,
OCTOBER 1, 1869.

"I ASSUMED CHARGE OF THE ALLEGHANY DIVISION ON THE 4TH OF FEB. LAST, UNDER DEFINITE INSTRUCTIONS TO REACH THE WHITE SULPHUR SPRINGS BY THE 1ST OF JULY. THIS WAS MORE THAN ACCOMPLISHED BY THE COMPLETION OF THE LINE ON 23RD OF JUNE.

" - - - -THE BOTTOM OF THE EASTERN PORTION OF THE ALLEGHANY TUNNEL, ON CAREFUL RE-MEASUREMENT, PROVED TO BE SEVERAL FEET ABOVE GRADE, AND LED TO AN UNEXPECTED INCREASE OF THE ESTIMATES AT THAT POINT.

"ANOTHER SOURCE OF ADDITIONAL EXPENDITURE WAS THE NECESSITY TO PARTIALLY CONSTRUCT CERTAIN EMBANKMENTS OF BORROWED MATERIALS, THE WHOLE OF WHICH MIGHT HAVE BEEN OBTAINED FROM NEIGHBORING CUTS HAD TIME BEEN LESS PRESSING.

"THE RED HILL, OR MUD TUNNEL PROVED TO BE SO SLOW AND DIFFICULT AN UNDERTAKING AS TO NECESSITATE THE CONSTRUCTION OF A TEMPORARY TRACK A MILE AND A HALF LONG. THIS, INCLUDING ONE THOUSAND

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REQUIRED IN ANY CHANGE THAT THEY MIGHT MAKE, TO ADHERE TO THE OLD GRADES, OR NOT TO EXCEED A MAXIMUM OF, SAY THREE DEGREES IT WOULD BE CHEAPER TO BUY OUT THEIR FRANCHISE. ON THE SOUTH SIDE THE DIFFICULTIES ARE NOT SO GREAT, NOR ARE THERE ANY CHARTERED RIGHTS TO CONTEND WITH. INDEED, I KNOW OF BUT FEW PLACES WHERE THE LINE OF OUR ROAD CANNOT BE SO LOCATED AS TO GIVE AMPLE ROOM BETWEEN THEM. I BELIEVE THE ESTIMATE MADE FOR THAT PURPOSE ON THIS, THE SOUTH SIDE, IS QUITE SUFFICIENT TO MEET ANY CONTINGENCY THAT MAY ARISE.

"THE NEXT POINT TO WHICH I WISH TO DIRECT YOUR ATTENTION IS THAT OF BUILDINGS, OR MORE PROPERLY, DOMICILES, AND THE RIGHT TO PASS WITHIN CERTAIN DISTANCES OF THEM. ON THE NORTH SIDE, COMMENCING AT THE FIRST NARROWS ABOVE CHARLESTON AND CONTINUING UNTIL MALDEN IS PASSED, THERE ARE MANY BUILDINGS, ONE FURNACE, AND A FOUNDRY INVADED; AND IF WE ARE REQUIRED TO KEEP THE LINE AS FAR FROM THEM AS THE LEGAL MINIMUM OF APPROACH, IT WILL INVOLVE A HEAVY EXPENSE. THE SAME DIFFICULTY IS AGAIN MET WITH IN THE NARROWS OPPOSITE CLIFTON AND AT CANNELTON. IT CANNOT BE OBVIATED EXCEPT AT AN EXPENSE THAT WILL ADD VERY LARGELY TO THE DIFFERENCE IN THE COST OF THE NORTH AND SOUTH SIDE LINES, SO MUCH SO THAT I THINK THE QUESTION OF ROUTE WOULD BE SETTLED AT ONCE BY THAT, ALONE. AND, LASTLY, AT MONTGOMERY'S FERRY, THOUGH THERE IS BUT ONE HOUSE--MR. WILLIAM RIGGS, WITHIN THE LIMITS, THE EXPENSE WOULD PROBABLY EQUAL THE VALUE OF THE HOUSE AND LOT ATTACHED. AT OTHER POINTS, WHERE THE LOCATION PASSES WITHIN THE LIMITS OF SEVENTY FEET IT CAN BE CHANGED AT NOT MUCH ADDITIONAL COST. ON THE SOUTH SIDE THE LOCATION DOES NOT INTERFERE WITH BUILDINGS TO THE SAME EXTENT. THE ONLY POINTS OF NOTE ARE AT DONNALLY AND FRY'S (LOGAN) SALT FURNACES,

LY AS I CAN JUDGE FROM THE OLD NOTES OF THAT LINE NOW IN MY POSSESSION, BY ABOUT \$20,000.00. I FEEL SANGUINE, HOWEVER, THAT THIS DIFFERENCE WILL BE OVER-COME WHEN A CAREFUL LOCATION IS MADE, HEREAFTER.

"THE PARTY ENGAGED ON THE LOCATION FROM BOYER'S FERRY TO MILLER'S FERRY, HAD AT THE DATE OF THIS REPORT, PROGRESSED TO A POINT FOUR MILES BELOW THE FORMER, AND I AM PLEASED TO BE ABLE TO INFORM YOU THAT, 'SO FAR, THE LINE IS MORE FAVORABLE THAN THE FORMER.

"IN CONCLUSION, I CALL YOUR ATTENTION TO CERTAIN IMPORTANT FACTS IN CONNECTION WITH THE LOCATION OF THE LINES RUNNING ON THE NORTH AND SOUTH SIDES OF KANAWHA RIVER, AND WHICH, IF NOT PROPERLY OR SATISFACTORILY DISPOSED OF BEFORE THE QUESTION OF ROUTE IS DETERMINED, MAY LEAD TO INTERMINABLE DIFFICULTIES AND EXPENSES NOT CONTEMPLATED IN THE ESTIMATES OF THEIR COST NOW SUBMITTED. THE FIRST IS IN REGARD TO TURN-PIKES OCCUPIED WHOLLY OR IN PART, BY THE LINE OF OUR ROAD AND RENDERING NECESSARY THEIR CHANGE. ON THE NORTH SIDE, THE ESTIMATED COST OF CHANGING THE TURN-PIKE AND OTHER ROADS, IS BASED UPON THE ASSUMPTION THAT IN MANY PLACES IT WILL BE ALLOWED TO RUN THEM ALONG AIDE OF OUR ROAD, AND IN SUCH CLOSE PROXIMITY AND FOR LONG DISTANCES AS TO LEAVE NO SPACE, OR GROUND BETWEEN THEM BEYOND WHAT MAY BE NECESSARY FOR THEIR CONSTRUCTION NOW; OR WANTS TO ARISE IN THE FUTURE AS A DOUBLE TRACK FOR THE RAILROAD. IF OTHERWISE REQUIRED, AS IT MAY BE, UNDERED THE CHARTERED RIGHTS OF THE JAMES RIVER AND KANAWHA TURNPIKE COMPANY, THE ESTIMATE IS ENTIRELY INSUFFICIENT TO MEET IT. AND MOREOVER, IF THE COMPANY SHOULD BE

AGGREGATE NOW EXCEEDS THE FORMER BY ONLY \$55,630.89. THIS, HOWEVER, MIGHT BE VERY WELL CONSIDERED AS MORE THAN BALANCED BY THE DISTANCE, NEARLY A MILE, NOW SAVED:

TABLE.

WESTERN DIVISION. LOCATION OF 1855

44,309 LENGTH MILES	43.256 LENGTH IN MILES
COST \$1,572,390.41	COST \$1,573,339.59

KANAWHA DIVISION 52.192 LENGTH IN MILES	52.290 LENGTH IN MILES
COST \$1,337,121.00	COST \$1,391,802.71

INCREASE IN COST OVER LOCATION 1855, \$55,630.89.

"THE ESTIMATED COST OF WESTERN DIVISION BY LOCATION OF 1855 WAS \$2,083,671.00. DEDUCTING AMOUNT SUBSEQUENTLY EXPENDED IN ITS CONSTRUCTION, VIZ: \$511,280.59, AN AMOUNT CERTAINLY IN EXCESS, NOW, WHEN IT IS CONSIDERED THAT THE WORK HAS BEEN EXPOSED AND IN AN UNPROTECTED CONDITON FOR THE LAST 14 YEARS, IT LEAVES THE COST TO COMPLETE IT AS STATED IN THE TABLE ABOVE.

"TI HAVE ESTIMATED THE COST OF THE GRADUATION, MASONRY, SUPER-STRUCTURE, CATTLE GUARDS, AND FARM BRIDGES BY THE SCALE OF PRICES OF 1855, FOR THE PRESENT ESTIMATE OF THESE DIVISIONS, AND, INSTEAD OF BRIDGES, ARCH CULVERTS FOR SOME OF THE TRIBUTARIES OF THE KANAWHA RIVER, AS WAS HERETOFORE ALLUDED TO IN THE BODY OF THE REPORT; AND YET STILL TO SAY NOTHING OF THE ADVANTAGES LOST BY BEING FORCED TO OCCUPY WITH THE PRESENT LINE, BROKEN HILL SIDES, WHICH THE HIGH WATER OF 1845-- ELEVEN FEET LOWER THAN THAT WHICH OCCURRED SUBSEQUENTLY IN 1861; AND THE RESULT WOULD HAVE BEEN THAT INSTEAD OF THE SMALL EXCESS IN COST WHICH NOW APPEARS, IT WOULD HAVE SHOWN A SAVING OF \$225,000.00 IN COST AND IN LENGTH AS NOW MADE, OF NEARLY ONE MILE. ON THAT PART OF NEW RIVER FROM GAULEY TO MILLER'S FERRY, THE COST IS IN EXCESS, AS NEAR-

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APPROVED PLAN OF TRUSS, EXCEPT THAT FOR THE CROSSING OF THE KANAWHA AT THE HEAD OF JOHNSON SHOALS, WHICH WILL BE ENTIRELY OF IRON IF THE DRAW PLAN IS ADOPTED. IF NOT, AND A HIGH BRIDGE IS ADOPTED DISPENSING WITH THE DRAW IS PREFERRED, THE CENTRE SPAN (250 FT.) ONLY, WILL BE OF IRON; AND IF THE CROSSING BE AT CLIFTON, THE CENTRE SPAN, ONLY 280 FT. LONG, WILL BE OF IRON. THE BRICK MASONRY TO BE OF THE CLASS DENOMINATED 'ROCKRANGE WORK', AND ALL LAID IN CEMENT, OR LIME MORTAR. THE ARCH CULVERT MASONRY WILL BE SILILAR TO THE BRIDGE MASONRY AND SIMILARLY LAID. SQUARE DRAINS WILL BE LAID DRY.

"FOR THE PURPOSE OF EASY COMPARISON OF THE MERITS OF THESE COMPETING ROUTES, THE TABLE MARKED 'H' EXHIBITS IN CONDENSED FORM, THEIR RELATIVE COST. I REMARK IN CONNECTUON WITH IT THAT IN CONSEQUENCE OF THE GREATER LENGTH OF BRIDGING, AND MORE DIFFICULT NARROWS TO PASS ON THE KANAWHA, AND HEAVIER ROCK CUTTING THROUGH THE CLIFFS AND THE TUNNELING ON NEW RIVER ON THE NORTH SIDE OF LOCATION, THE DI FERENCE IN COST TO MAKE A DOUBLE TRACK WOULD BE IN A MUCH GREATER RATIO OF PER CENTAGE THAN IS NOW SHOWN BETWEEN IT AND THE SOUTH SIDE LODATION FOR A SINGLE TRACK ROAD.

"IT IS GRATIFYING TO ME AND WILL BE SO TO THE MANY WARM FRIENDS OF THIS GREAT ROAD, NOW TO BE ABLE TO SUBMIT AN ESTIMATE OF THE WESTERN AND KANAWHA DIVISIONS IN A FORM THAT SHOWS THAT NOTWITHSTANDING THE INCREASED SCALE OF PRICES FOR CALCULATION OF QUANTITIES, ASSUMED OVER THOSE OF 1855, AND THE NECESSITY, CAUSED BY THE HIGH WATER OF 1861, TO SEEK BROKEN HILL SIDES FOR A LOCATION, WHEN IN FORMER LOCATIONS, BOTTOMS WERE TAKEN, THE COST IN THE

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PER MILE.

"I DEEM IT PROPER TO STATE THAT NOT BEING PROVIDED WITH THE NECESSARY BOATS TO TRANSPORT CAMP, EQUIPMENT AND PROVISIONS, IT WAS NOT IN THE POWER OF HUMAN ENDURANCE TO MAKE MORE THAN AN APPROXIMATE LOCATION OF EITHER THE NORTH OR SOUTH SIDE LINES. WHERE A PERMANENT LOCATION WOULD BE WAS DETERMINE BY PLOTTING THE LINE RUN ON PAPER, (IT SHOWED BUT LITTLE MOVEMENT TO THE RIGHT OR LEFT NECESSARY)--ITS MOVEMENT WAS THEN APPLIED TO THE CROSS SECTION DRAWN FROM COPIOUS NOTES, TAKEN OF THE TRANSVERSE SLOPE OF THE GROUND AT PRESENT DESIRED. ON THE SOUTH SIDE, OLD ~~X~~ TRACES OF THE LINE OF LOCATION MADE BY MR. ELLISON IN 1855, WERE FOUND, AND OUR LINE MADE TO FOLLOW THEM PRETTY CLOSELY, THROUGH-OUT, AND WITH A RESULT IN CALCULATION IN QUANTITIES THAT DOES NOT VARY, MATERIALLY, FROM HIS.

"THE ESTIMATED COST OF THE SEVERAL DIVISIONS ARE FOR ~~XXX~~ A TRACK FIRST-CLASS ROAD. THE EXCAVATIONS ARE CALCULATED FOR AT 18 FT. WIDE AT BOTTOM, INCLUDING SIDE DITCHES, WITH SLOPES IN EARTH OF ONE TO ONE, AND IN ROCK OF A QUARTER TO ONE. THE EMBANKMENTS ARE 14 FT. WIDE ON TOP WITH SLOPES OF 1-1/2 TO 1. THE SUPER-STRUCTURE ESTIMATED FOR, AS LAID ON A BALLAST OF BROKEN STONE, TO BE 6 INCHES DEEP UNDER THE CROSS TIES (WHICH ARE TO BE LAID 2+ INCHES APART FROM CENTRE TO CENTRE) AND AN IRON RAIL WEIGHING 60 LBS. PER YARD.

"THE GRADE OF THE ROAD-BED ON THE KANAWHA DIVISION IS IN ALL INSTANCES ABOVE HIGH-WATER MARK OF 1861 AND 11 FT. HIGHER THAN THAT OF 1845, AT THAT TIME THE HIGHEST EVER KNOWN IN THE KANAWHA VALLEY.

"THE BRIDGES ARE TO BE BUILT OF WOOD, OF THE MOST

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HAWK'S NEST ALSO REQUIRES AN ARCH CULVERT OF 12 FT. SPAN. MILL CREEK, NEAR MILLER'S FERRY, A BRIDGE 70 FT. LONG, ITS BOTTOM CHORD 38 FT. ABOVE COMMON, LOW WATER.

"THE GRADE, AFTER CROSSING GAULEY, IS CONTINUOUS, AND ASCENDS AT THE RATE OF 18.49 FT. PER MILE. THE NUMBER OF DEGREES OF CURVATURE IS 38.26, OR AN AVERAGE OF 116.27 PER MILE. THE SHORTEST RADIUS OF CURVATURE IS 955 FT. FOR A LENGTH OF 2,145 FT. AND CANNOT BE REDUCED WITHOUT ADDING MATERIALLY, TO THE COST OF THE WORK. OF 1,000 FT. RADIUS, THERE IS A DISTANCE OF 6,309 FT. THE LENGTH OF THE LINE IS 7.57 MILES, AND ITS ESTIMATED COST \$653,043.58, OR AN AVERAGE OF \$86,267.31 PER MILE.

"ON THE SOUTH SIDE LOCATION I HAVE ESTIMATED FOR A BRIDGE OF 50 FT. SPAN OVER LAUREL CREEK. POSSIBLY IT MAY BE DISPENSED WITH AND A 20 FT. ARCH CULVERT SUBSTITUTED. THE CROSSING OF NEW RIVER AT MILLER'S FERRY WILL REQUIRE A BRIDGE 530 FT. LONG, IN FOUR SPANS. THE FOUNDATION FOR ITS MASONRY WILL BE ON SOLID ROCK AND AT A DEPTH OF 5 OR 6 FT. BELOW SUMMER LOW WATER. ITS BOTTOM CHORD WILL BE ELEVATED 47 FT. ABOVE LOW WATER, OR 14 FT. ABOVE HIGH WATER MARK OF 1861. ITS AXIS WILL BE AT AN ANGLE OF 56 DEGREES WITH THAT OF THE RIVER. THERE ARE NO ARCH CULVERTS REQUIRED.

"THE GRADE, WITH THE EXCEPTION OF ONE LEVEL OF 1,500 FT. AND 2,000 FT. AT 7.92 PER MILE, IS CONTINUOUS AND AT THE RATE OF 18-1/3 FT. PER MILE. THE NUMBER OF DEGREES OF CURVATURE IS 933.25, OR AN AVERAGE OF 117.94 PER MILE. THE SHORTEST RADIUS OF CURVATURE 955 FT. FOR A LENGTH OF 1,492 FT. USED TO TURN THE SPURS OF COTTON HILL MOUNTAIN, KNOWN AS THE 'POPE'S NOSE' AND ABOVE THE 'BLUE HOLE'. I THINK HOWEVER THAT ON A PERMANENT AND FINAL LOCATION THIS CAN BE INCREASED TO 1,000 FT. THE LENGTH OF THE CURVES OF 1,000 FT. IS 6,744 FT. LENGTH OF LINE 8.913 MILES, AND ITS ESTIMATED COST IS \$568,238.22, OR AN AVERAGE OF \$61,837.95

AND THERE ONLY FOR ABOUT 200 FT. IN A COVE OF A BROAD EDDY--'THE BLUE HOLE'. CLIFFS ARE ENCOUNTERED AT MANY POINTS THROUGHOUT THE DIVISION, GENERALLY, IN SIDE CUTTING, BUT SEVERAL TIMES IN HEAVY, THROUGH CUTS.

"THERE IS ALSO SOME HEAVY EMBANKMENT, PARTICULARLY AT A SHARP BEND OF THE RIVER OPPOSITE THE TROLL PLACE. THERE ARE, HOWEVER, BUT THREE MILES WHICH RISE GREATLY ABOVE THE AVERAGE COST OF THE ROAD.

"THE REASONS ABOVE STATED ARE PROVED TO BE SUBSTANTIALLY CORRECT BY THE RESULTS OF MY SURVEY AND ESTIMATES. IT IS POSSIBLE THAT BY ADOPTING A 30 FT. GRADE, COMMENCING AT GAULEY AND RUNNING UP FOR THREE MILES, A LINE COULD BE OBTAINED THAT WOULD BE SUSTAINED ON A BENCH, INSTEAD OF ON AND OFF THE CLIFF BELOW IT; BUT AS I DID NOT CONSIDER THIS GRADE ADVISABLE IT ~~WAS NOT TRIED~~ WAS NOT TRIED. NOTHING COULD BE SAVED BY STARTING WITH A GRADE POINT SUFFICIENTLY HIGH AT GAULEY TO REACH THIS SAME BENCH WITH A 20 FT. GRADE BECAUSE IT WOULD THROW THE LINE IN CLIFFS NEAR GAULEY WHICH WOULD BE AS EXPENSIVE TO CUT THROUGH AS THOSE AVOIDED ABOVE. I AM FIRMLY OF OPINION THAT BY NO CHANGE, WHATEVER, CAN THE COST OF THIS LINE BE REDUCED TO EQUAL THAT OF THE SOUTH SIDE.

"GAULEY RIVER WILL REQUIRE A BRIDGE 10 FT. LONG. ITS BOTTOM CHORD IS ELEVATED 28 FT. ABOVE LOW WATER MARK, AND 15 FT. ABOVE HIGH WATER MARK.

"THE TUNNEL, 600 FT. LONG, AT THE TROLL PLACE PASSES THROUGH SOLID, SANDSTONE ROCK, ITS STRATA HORIZONTAL, AND ESTIMATED FOR SINGLE TRACK WIDTH, AND NOT REQUIRING ARCHING. BIG CREEK, NEAR THE FOURTH MILE ABOVE GAULEY, WILL REQUIRE AN ARCH CULVERT OF 12 FT. SPAN; AND TURKEY CREEK, EMPTYING INTO NEW RIVER NEAR THE

PARALELL TO EACH OTHER, AND WITH THEIR GRADES OCCUPYING, THROUGH-
OUT THE SAME RELATIVE POSITION OF 10 FT. ABOVE HIGH WATER MARK,
THERE IS IN SO FAR AS GRADE AND CURVATURE CONCERNED, NO APPRECI-
ABLE DIFFERENCE BETWEEN THEM. THE DIFFERENCE THEN, BEING IN COST
OF CONSTRUCTION ALONE, I CANNOT FURNISH BETTER REASONS FOR PREFER-
RING THE SOUTH SIDE THAN THOSE GIVEN BY MR. ELLISON, WHO MADE THE
LOCATION OF THIS PART OF THE LINE IN HIS REPORT OF 1855 TO MR.
FISK, THE THEN CHIEF ENGINEER, AND THEY ARE AS FOLLOWS:

"THE SURVEYS PREVIOUSLY MADE HAVE CONTINUED DOWN THE
NORTH BANK OF THE RIVER AND CROSSED AT THE NARROW FALLS. I HAVE
PREFERRED CROSSING AT MILLER'S FERRY, JUST ABOVE THE HAWK'S NEST,
AND FOLLOWING THE SOUTH BANK TO THE JUNCTION WITH THE KANAWHA.
THE RESULTS OF THE SURVEY CONVINCED ME THAT THIS WAS UNQUESTIONA-
BLY THE PROPER LOCATION. THE RIVER UPON THE NORTH SIDE FOR A
GREAT PORTION OF THE DISTANCE IS BORDERED BY PERPENDICULAR CLIFFS
WHICH COME DOWN TO THE WATER; AND THE ROAD, FOR A CONSIDERABLE PART
OF THE WAY, WOULD CONSIST OF EMBANKMENT OR WALLING CONSTRUCTED
IN THE RIVER, WHILST THE IRREGULARITIES OF THE CLIFFS WOULD RE-
QUIRE FREQUENT, HEAVY CUTTING, TO PRESERVE THE ALIGNMENT WITHIN THE
LIMITS OF ALLOWABLE CURVATURE. OWING TO THE GREAT RISE OF THE RIV-
ER IN FRESHETS, AMOUNTING TO 30 FEET, OR MORE, THE GRADE MUST BE
HIGH, AND VERY HEAVY EMBANKMENT OR WALLING WOULD BE REQUIRED.

"A TUNNEL OF 600 FT. IN LENGTH WOULD ALSO BE REQUIRED TO
PASS A POINT NEAR WHAT IS KNOWN AS THE 'TROLL PLACE', OPPOSITE THE
'BLUE HOLE'. ON THE SOUTH SIDE, HOWEVER, THE CLIFFS ARE MOSTLY
MORE REMOTE FROM THE RIVER, AND THE BANK GENERALLY, AFFORDS GROUND
HIGH ENOUGH TO SUSTAIN THE LINE, WHICH IS IN FACT, LOCATED AT NEAR-
LY AS GREAT A DISTANCE FROM THE RIVER AS IN OTHER PARTS OF THE
ROUTE. AT ONE POINT, ONLY, DOES THE CENTRE LINE STRIKE THE WATER,

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50 TO 100 FT., AND THEY ARE SUCCEEDED BY ROCKY AND RUGGED SLOPES, RISING AT AN ANGLE OF FROM 40 TO 60 DEGREES UNTIL THE CREST OF THE GORGE IS ATTAINED, AT AN ELEVATION VARYING FROM 500 TO 1,200 FT. OR MORE, ABOVE THE WATERS BELOW. THE BED OF THE RIVER IS A MASS OF LOOSE ROCK, COLLECTED AT MANY PLACES ADROSS, SO AS TO DAM THE WATER INTO SHORT POOLS AND MAKE A PRECIPITOUS FALLS. AT OTHER PLACES, IT IS COVERED WITH HUGH ISOLATED ROCKS PROJECTING ABOVE THE WATER SURFACE. ITS FALL AVERAGING 19 FT. PER MILE, THE WATERS RUSH OVER, AND THROUGH THE ROCKS WITH TURBULENCE AND VIOLENCE; AND IN TIMES OF GREAT FRESHETS BECOMES A RESISTLESS TORRENT WHICH SWEEPS EVERYTHING BEFORE IT. THE PASSAGE OF NEW RIVER HERE MAY BE SAID TO BE THROUGH A CANYON, FOR I KNOW OF NO TERM WHICH CONVEYS A BETTER IDEA OF ITS CHARACTER. YET, WITHAL, IT IS NOT IMPASSABLE FOR A RAILROAD, FOR THE PECULIARLY FORTUNATE FORMATION OF A BENCH BETWEEN THE TWO RANGES OF CLIFFS, AFFORDS EITHER SUSTAINING GROUND, OR A RELIEF FROM THE TRANSVERSE GROUNDS SLOPE WHICH WOULD OTHERWISE INVOLVE HEAVY AND EXPENSIVE ROCK CUTTING, AND A LOCATION IS OBTAINED AT A COST PER MILE SCARCELY TO BE REALIZED BY THOSE WHO HAVE BUT THE OPPORTUNITY OF SEEING IT FROM THE VERGE OF ITS PRECIPITOUS SLOPES AND CLIFFS. THE FOOT OF MAN TTEADS THIS VALLEY BUT SELDOM: THE TOIL AND DANGER IS SUCH THAT BUT FEW ATTEMPT IT, CERTAINLY NOT TO GRATIFY IDLE CURIOSITY.

"HAVING GIVEN AS FOR THE KANAWHA VALLEY, A DESCRIPTION OF THIS, I NOW PROCEED TO STATE IN WHAT RESPECTS THE CHARACTERS OF THE LINES, THE ONE ON THE NORTH, AND THE OTHER ON THE SOUTH SIDE OF NEW RIVER, DIFFER.

"THE TWO LINES RUNNING, AS OF NECESSITY THEY MUST,

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BEYOND HUGH'S CREEK, AND CO-INCIDES WITH THAT LINE TO TO MILLER'S FERRY. IT WILL BE SEEN FROM THE MAP THAT A FAVORABLE CROSSING IS OBTAINED IN ALIGNMENT. THE BRIDGE WILL BE 700 FT. LONG AND SIMILAR IN PLAN TO THE DRAW BRIDGE PREPARED FOR THE CROSSING BELOW BIG SCARY, EXCEPT THAT I HAVE ESTIMATED FOR THE DRAW SPAN ONLY TO BE OF IRON. ITS ESTIMATED COST IS \$130,317.00. IT WOULD NOT BE PRACTICABLE TO DISPENSE WITH A DRAW AND ADOPT A HIGH BRIDGE, AS IT WOULD INVOLVE A VERY HEAVY EXPENSE IN EMBANKMENT AND BRIDGING AT HUGH'S CREEK. IN CONNECTION WITH THIS LINE I DEEM IT PROPER TO STATE THAT A SURVEY WAS MADE FOR A CROSSING AT BLAINE'S ISLAND, TWO MILES BELOW CHARLESTON, AND IT WAS FOUND TO REQUIRE AN AGGREGATE OF 1,200 FT. OF BRIDGING, SUFFICIENT IN MY OPINION, TO THROW IT OUT OF COMPARISON WITH THAT AT CLIFTON. A CROSSING A SHORT DISTANCE ABOVE CANNELTON WAS ALSO EXAMINED AND FOUND TO BE DEFECTIVE IN ALIGNMENT, AND ALSO EXPENSIVE.

PART OF NEW RIVER DIVISION

EXTENDING FROM THE MOUTH OF GAULEY RIVER TO MILLER'S FERRY.

"NEW RIVER, FROM MILLER'S FERRY DOWN TO ITS JUNCTION WITH THE GAULEY--THE TWO UNITING TO FORM THE KANAWHA--CUTS ITS CIRCUITOUS COURSE AT THE BASE OF THE GAULEY AND COTTON HILL MOUNTAINS, AND IS SO CONFINED BY THEM IN ITS PASSAGE, THAT IT HAS, PROPERLY SPEAKING, BUT LITTLE WIDTH OF VALLEY, EXCEPT THAT COVERED BY ITS WATERS, AN AVERAGE WIDTH OF ONLY 300 FT., UNTIL THE POINT KNOWN AS THE NARROWS IS REACHED, ONE MILE ABOVE THE MOUTH OF GAULEY. ITS BANKS ARE BORDERED, EXCEPT AT FEW INTERVALS BY CLIFFS, RISING THROUGH-OUT IMMEDIATELY, OR A SHORT DISTANCE FROM THE EDGE OF THE WATER, IN TWO RANGES, SEPARATED BY AN INTERVENING **BENCH** OF VARYING ~~XXXXXX~~ WIDTH. THEIR HEIGHT IS FROM

PASSAGE WOULD BE OBSTRUCTED BY THE BRIDGE, THE RISE IN THE RIVER WOULD HAVE TO BE 27 FT. ABOVE COMMON, LOW WATER MARK. HOW OFTEN THIS WOULD HAPPEN ANNUALLY, I AM UNPREPARED TO SAY--SHOULD IT HAPPEN SO OFTEN AS SERIOUSLY TO OBSTRUCT NAVIGATION, THEIR CHIMNEYS MIGHT BE FIXED FOR LOWERING AT SUCH TIMES--AN ARRANGEMENT NOT EXPENSIVE TO MAKE, TEDIOUS TO OPERATE, OR LIKELY TO CAUSE DELAY IN THEIR MOVEMENTS.

"THIS PLAN OF BRIDGE WOULD RENDER NECESSARY A GRADE OF 30 FT. PER MILE ON EACH SIDE, AND DESCENDING FROM IT BOTH WAYS, ON THE NORTH FOR 4,700 FT. AND ON THE SOUTH FT, TO CONNECT WITH THE GRADE LINE OF THE WESTERN DIVISION. THE EMBANKMENT TO SUSTAIN THAT ON THE NORTH SIDE WOULD BE 26 FT. HIGH, AND AT THE SOUTH ABUTMENT 33 FT. HIGH. THE MATERIAL FOR THE NORTH SIDE WOULD BE VERY DIFFICULT TO OBTAIN, AND COULD ONLY BE GOT BY DESTROYING A LARGE AREA OF VERY VALUABLE, LOW GROUND. IT WOULD BE THE BETTER PLAN TO USE TRESTLEWORK ON PART OF THIS AT FIRST, AND FILL IN AFTERWARDS WITH A GRAVEL TRAIN, ON THE SOUTH SIDE MATERIAL CAN BE OBTAINED FROM THE ADJACENT HILLS. IN CONSEQUENCE OF THIS, ALONE, (FOR THE HIGH BRIDGE COSTS LESS BY \$34,928.00 THAN THE OTHER) THE COST OF THE HIGH BRIDGE LINE WILL EXCEED THAT OF THE LOW BRIDGE BY THE SUM OF \$26,765.80. THIS, HOWEVER, WOULD NOT DETER ME FROM RECOMMENDING ITS ADOPTION, THE EXTRA COST, IN MY OPINION, BEING INSIGNIFICANT IN COMPARISON WITH THE ADVANTAGES TO BE DERIVED.

ALTERNATIVE ROUTE: CROSSING THE RIVER AT CLIFTON.

"THE LOCATION OF THIS IS IDENTICAL WITH THAT PART OF THE SOUTH SIDE LINE FROM BIG SCARY CREEK TO CLIFTON, THENCE, CROSSING THE RIVER IT UNITES WITH THE NORTH SIDE LINE AT A POINT 800 FT.

H. L. SHEPHERD, THE POLITE AND ACCOMPLISHED SUPERINTENDENT OF THE EDGEFIELD AND KENTUCKY AND EVANSVILLE, HENDERSON, AND NASHVILLE RAILROAD, THAT ONE MAN COULD OPERATE IT. HE ALSO INFORMED ME THAT THE DELAY TO A TRAIN BY THE OPENING OF THE DRAW WAS FROM 15 TO 20 MINUTES. IT IS, IN MY OPINION, AN ADMIRABLY PLANNED ~~XXX~~ BRIDGE, AND REFLECTS GREAT CREDIT UPON THE PATENTEE, ALBERT FINK, ESQ. I WAS ABLE TO DISCOVER, NOTWITHSTANDING THE UNUSUAL LENGTH OF THE SPANS, BUT SLIGHT REFLECTION OR VIBRATING MOTION CAUSED BY THE PASSAGE OF A TRAIN OVER IT AT A SPEED, AS I THOUGHT, OF FROM 5 TO 6 MILES AN HOUR.

"TO MEET THE OBJECTIONABLE FEATURES OF A DRAW BRIDGE ON A RAILROAD, WHICH IN A FEW YEARS AFTER IT IS OPENED FOR TRAFFIC, WILL HAVE TRAINS PASSING OVER IT EVERY HALF HOUR. I HAVE ALSO MADE AN ESTIMATE FOR A BRIDGE SUFFICIENTLY HIGH, AS I HOPE, TO OBVIATE THE NECESSITY FOR A DRAW, SHOULD THE NORTH SIDE BE DETERMINED ON FOR THE LOCATION OF THE ROAD. THIS BRIDGE WILL HAVE THE SPAN COVERING THE MAIN CHANNEL OF THE RIVER 250 FT. LONG AND BUILT OF IRON. ITS BOTTOM CHORD, ON WHICH THE RAILROAD TRACK WILL REST, WILL BE 77 FT. ABOVE COMMON (SUMMER) LOW WATER MARK, OR 27 FT. ABOVE HIGH WATER OF 1861. THE OTHER TIE SPANS WILL BE 130 FT. EACH, OF WOOD AND ON THE "HOWE TRUSS" PLAN. FOR THE PURPOSE OF SAVING MASONRY AND REDUCING THE ELEVATION, THE RAILS WILL BE LAID ON THE TOP CHORD OF THE FIVE SPANS ABOVE MENTIONED. ITS TOTAL LENGTH WILL BE 935 FT.

"THE HEIGHT, FROM THE SURFACE OF THE WATER TO THE TOPS OF THE CHIMNEYS OF STEAM-BOATS NOW NAVIGATING THE KANAWHA RIVER DOES NOT, SO FAR AS I CAN ASCERTAIN, EXCEED 50 FT., THE "ANNIE LAURIE" EXCEPTED; HERS ARE 62 FT. CONSEQUENTLY, BEFORE THEIR

TOTAL LENGTH OF LINE EXCLUDING THAT COVERED BY THE WESTERN DIVISION, IS 52,666 MILES.

"THE TOTAL NUMBER OF DEGREES OF CURVATURE IS 1,658.27, OR AN AVERAGE OF 31.48 PER MILE. LENGTH OF STRAIGHT LINE#1.19 MILES, AND OF CURVE 21.476 MILES. THE SHORTEST RADIUS OF CURVATURE IS 1,000 FT., OF WHICH 950 FT. OCCURS IN MAKING THE APPROACH TO GAULEY RIVER BRIDGE. THERE ARE 2,300 FT. OF CURVES OF 1,432 FT. RADIUS, AND MORE THAN ONE-HALF OF THE ENTIRE CURVATURE IS OF RADIUS OF FROM 11,460 FT. TO 3,820 FT.

"THE LENGTH OF BRIDGE SUPER-STRUCTURE CAN BE REDUCED FROM AN AGGREGATE LENGTH OF 2,865 FT. TO 2,655 FT. FOR REASONS SIMILAR TO THOSE STATED IN REGARD TO BRIDGES ON THE SOUTH SIDE LOCATION.

"THE GRADES ADOPTED, AS ON THE SOUTH SIDE LOCATION, UN-
DULATE, BUT TO RATHER A GREATER ACCLIVITY IN BOTH DIRECTIONS.

"THE PLAN OF BRIDGE PROPOSED AND ESTIMATED ON, FOR CROSSING THE KANAWHA RIVER AT THE HEAD OF JOHNSON SHOAL IS SIMILAR TO THAT ~~XXX~~ BUILT ACROSS THE CUMBERLAND RIVER AT NASHVILLE ON THE LINE OF THE L. & N. RAILROAD, AND DIFFERS FROM IT ONLY IN SO FAR AS LENGTH IS CONCERNED. I MADE A PERSONAL INSPECTION OF THIS BRIDGE AUGUST, LAST. IT IS BUILT ENTIRELY OF IRON, ON THE FINK TRIANGULAR TRUSS PLAN, AND CONSISTS OF TWO SPANS OF 210 FT. EACH, AND TWO DRAW SPANS OF 140 FT. EACH, UNITED AS A WHOLE, BUT SUPPORTED IN THE MIDDLE BY A CIRCULAR PIER OF 29 FT. DIAMETER, WITH AN IRON TURNABLE INTERVENING FOR IT TO REVOLVE ON. AT RIGHT ANGLES TO THE CENTRE PIER, AND ON EACH SIDE OF IT, IS PLACED A PIER FOR ITS SUPPORT WHEN OPEN. THE BRIDGE IS MADE TO REVOLVE ON THE TURNABLE BY MEANS OF WHEELS AND PINIONS SIMPLY ARRANGED, AND WITH LONG LEVERS IS EASILY OPERATED BY TWO MEN. INDEED, I WAS INFORMED BY MR.

AND AT BOOMER'S BRANCH, AN ARCH CULVERT 12 FT. SPAN.

"THE LINE THENCE RUNNING THROUGH NARROWS FOR 4,800 FT. STRIKES THROUGH BOTTOM LANDS TO THE COMMENCEMENT OF THE NARROWS ABOVE JOHN HUDDLESTON'S HOUSE, AT THE 48 MILE STAKE, ITS COURSE THROUGH-OUT BEING VERY DIRECT. THROUGH THE NARROWS THE LINE OCCUPIES THE BED OF THE TURN-PIKE.

"FROM THE 48 MILE STAKE, THE LINE MAY BE SAID, WITH THE EXCEPTION OF A 1,000 FT. AT MARTIN'S, TO RUN ALTOGETHER THROUGH NARROWS AND IN THE BED OF THE TURNPIKE TO THE GREAT FORKS OF KANAWHA, A DISTANCE OF NEARLY 3 MILES; AND ITS DIRECTION, AS WILL BE SEEN FROM THE MAP, WINDING. THE MOUNTAIN SLOPES ALONG THESE NARROWS, AS AT CANNELTON, ARE VERY STEEP AND RICKY, BUT MORE BROKEN BY CLIFFS WHICH, IN ONE INSTANCE--BETWEEN MONTGOMERY'S FERRY AND THE FALLS--HAS LEFT BUT ROOM ENOUGH FOR THE TURN-PIKE TO PASS. INDEED,, ITS BED IS FORMED IN A GREAT MEASURE BY VERTICAL WALLING. BESIDES THE LINE BEING GREATLY EMBARRASSED BY THE TURNPIKE, IT RUNS WITHIN 50 FT. OF RIGG'S HOUSE AT THE FERRY, AND THERE IS NO ROOM, NOR GROUND FOR MUCH CHANGE WITHOUT RUNNING INTO THE CLIFF.

"THE LINE, EMERGING FROM THE NARROWS AT THE FALLS, CURVES GENTLY TO THE RIGHT, ALMOST ALL THE WAY TO WITHIN 1,000 FT. OF GAULEY RIVER; AND IN DOING SO, FOLLOWS GENERALLY THE FOOT OF THE MOUNTAIN SLOPES. IT OCCUPIES THE LINE OF THE TURNPIKE FOR ABOUT 1,000 FT. BELOW, AND ABOVE MR. MARR'S HOUSE. THE LATTER BUILDING IS NOT VERY VALUABLE, AND FAIR TERMS MAY BE MADE FOR ITS REMOVAL BY THE COMPANY; OR SHOULD THAT NOT BE PRACTICABLE, THE LOCATION CAN BE CHANGED WITH NO GREATLY INCREASED COST.

"THE LINE, TO REACH GAULEY RIVER, HAS A $5\frac{3}{4}$ DEGREE CURVE, TERMINATING 150 FT. BELOW THE SITE OF THE GAULEY BRIDGE. THE

BOTTOM LANDS, AND LEAVES MR. DUNN'S HOUSE 125 FT. RIGHT.

"THE LINE NOW AGAIN ENTERS THE NARROWS WHICH COMMENCE $1\frac{1}{4}$ MILES BELOW AND EXTEND A $\frac{1}{4}$ MILE ABOVE CANNELTON. THE LINE THROUGH THESE NARROWS RUNS NEARLY ALL THE WAY IN THE BED, OR LINE OF THE TURNPIKE, RENDERED UNAVOIDABLE BY THE FACT THAT THE HILL, OR RATHER, MOUNTAIN SLOPES RISE VERY STEEP AND ABRUPT FROM THE WATER'S EDGE, IN MANY PLACES AT AN ANGLE OF 45 DEGREES, AND AT OTHERS CLIFFS NOT FAR OFF--AS AT CANNELTON, WHERE THERE IS NOW BUT SUFFICIENT ROOM BETWEEN THE CLIFF AND THE RIVER TO SUSTAIN THE ~~ROAD~~ ROAD AND TURNPIKE, WITHOUT RUNNING INTO ONE, OR THE OTHER, EVEN IF THEIR RUNNING IN SUCH CLOSE PROXIMITY BE NOT OBJECTIONABLE, OR OBJECTED TO. NOT ONLY IS AN ENTIRE CHANGE OF THE LOCATION OF THE TURNPIKE IN THIS DISTANCE NECESSARY, BUT ALSO A REMOVAL OF ALL THE WORKS ERECTED BY THE UNION COAL & OIL CO. FOR THE MANUFACTURING OF CANNEL COAL, OIL, AND THE GREATER NUMBER OF THEIR BUILDINGS ERECTED FOR DWELLING HOUSES. THE GRADE OF THEIR INCLINED PLANE WILL NOT REQUIRE MUCH ADDITIONAL ELEVATION TO ALLOW OUR TRAINS TO PASS UNDER IT. STAON'S RUN IS CROSSED A LITTLE BELOW CANNELTON, AND WILL REQUIRE A BRIDGE OF 60 FT. SPAN.

"AFTER PASSING CANNELTON, THE LINE BEARS TO THE RIGHT, CROSSES SMITHER'S CREEK, AND STRIKES THE FOOT OF THE HILL IN FRONT OF REUBEN CAPELLER'S HOUSE, WHENCE IT RUNS ALMOST DIRECT, AND ON THE FLOOR OF THE HILL TO M. LEVI'S HOUSE. THENCE, CURVING LEFT FOR A $\frac{1}{2}$ MILE IT ENTERS THE NARROWS OPPOSITE WHEELER'S ISLAND, AND CONTINUING THEREON FOR HALF A MILE ON TANGENT, IT THEN DEFLECTS FIVE DEGREES RIGHT BY A ONE DEGREE CURVE, AND RUNS THENCE WITH BUT LITTLE CURVATURE THROUGH BOTTOM LANDS TO THE COMMENCEMENT OF THE NARROWS OPPOSITE LOUP CREEK SHOALS, AT THE 46 MILE STAKE. IN THIS DISTANCE 1,000 FT. OF TURNPIKE WILL HAVE TO BE CHANGED AT SMITHER'S CREEK AND CAPELLER'S HOUSE; 800 FT. IN THE NARROWS AND AT HIBBARD'S ABOUT 300 FT. AT SMITHER'S CREEK A BRIDGE 110 FT. LONG WILL BE REQUIRED

"AND, AS AT THE FURNACES BELOW MALDEN, DIFFICULTIES OF A SIMILAR CHARACTER OCCUR, AND AS THEY SHALL AGAIN PRESENT THEMSELVES IN THE LINE OF LOCATION BEFORE IT REACHES THE MOUTH OF GAULEY RIVER, I SHALL RESERVE THIS WHOLE SUBJECT FOR FURTHER COMMENT UNDER A SEPARATE HEAD.

"FROM ALEXANDER'S, THE LINE SWEEPS TO THE RIGHT BY A COMPOUND CURVE OF LARGE RADII, RUNNING BELOW THE ROAD ALL THE WAY, EXCEPT FOR A SHORT DISTANCE AT A.S. TRIMBLE'S HOUSE, UNTIL IT REACHES A POINT 40 FT. BELOW CLARK WYATT'S HOUSE--A DISTANCE OF NEARLY A MILE. IT THEN RUNS TANGENT A SHORT DISTANCE, THEN CURVES LEFT TO MITCHELL'S HOUSE, 150 FT. LEFT OF LINE. LEAVING THIS, IT RUNS TANGENT FOR A $\frac{1}{4}$ MILE AND AGAIN CURVES LEFT, TO A POINT 20 FT. BELOW ROBT. WHITE'S, AT THE - - - MILE STAKE. IN THIS DISTANCE, HUGHES CREEK IS TO BE CROSSED, REQUIRING A BRIDGE OF 90 FT., AND 600 FT. OF TURNPIKE, TO BE CHANGED AT TRIMBLE'S HOUSE. THE LOCATION, EXCEPT AT THE CROSSING OF HUGH'S CREEK, IS ON GENTLY SLOPING GROUND. SHOULD OBJECTION BE MADE TO RUNNING SO CLOSE TO WYATT'S HOUSE, THE LINE CAN BE CHANGED AT A MODERATE EXPENSE. THE LAST IS BUT A LOG HUT, AND COULD PROBABLY BE BOUGHT OR ARRANGEMENTS MADE TO MOVE IT AT THE COMPANY'S EXPENSE.

"THE LINE NOW ENTERS THE NARROWS OPPOSITE LOWER CREEK, CURVES STILL LEFT 1,600 FT., THENCE TANGENT 2,000 FT., THENCE AFTER CURVING LEFT 500 FT. IT RUNS ON A LONG TANGENT, TERMINATING ABOUT 500 FT. BEYOND MR. JOHN T. DUNN'S HOUSE--THE 40 MILE STAKE. THE NARROWS PASSED IN THIS DISTANCE ARE 3,800 FT. LONG; AND THE HILLS, AT POINTS, RUN UP IMMEDIATELY FROM THE WATER'S EDGE. THEIR SLOPES, HOWEVER, ARE NOT VERY STEEP. THE TURNPIKE FOR THIS DISTANCE WILL HAVE TO BE CHANGED. AFTER PASSING THE NARROWS, IT RUNS THROUGH

QUIRE TO BE CHANGED, BUT NO STREAMS ARE CROSSED REQUIRING MORE THAN SQUARE DRAINS.

"THE LINE NOW MAKES A DEFLECTION 90 DEGREES TO THE RIGHT, BY A COMPOUND CURVE OF 1, 2, AND 3 DEGREES, AND TOTAL LENGTH OF ONE MILE, AFTER WHICH IT RUNS TANGENT 5,780 FT., TO NEAR THE 35 MILE STAKE. THE FIRST $\frac{3}{4}$ OF A MILE OF THIS DISTANCE IS ALONG NARROWS, THE HILLS RUNNING UP CLOSE FROM THE WATER'S EDGE, THE LINE IS SUSTAINED ON THE BENCH FORMED BY THE TURNPIKE ROAD, AND WHICH, FOR THAT DISTANCE, MUST BE CHANGED; AFTER WHICH THE LINE RUNS THROUGH BOTTOM LANDS BELONGING TO THE TOMPKINS FARM AT KELLY'S CREEK. THIS STREAM IS CROSSED BY A BRIDGE OF 110 FEET SPAN.

"THE LINE FROM NEAR THE 35 MILE STAKE MAKES A TOTAL DEFLECTION OF 53 DEGREES TO THE LEFT BY A COMPOUND CURVE OF THREE AND TWO DEGREES, AFTER WHICH IT RUNS A SHORT DISTANCE ON TANGENT, TO MAKE A FURTHER DEFLECTION LEFT OF 23 DEGREES BY A 2 DEGREE CURVE; AND ~~XXX~~ THENCE A TANGENT $\frac{3}{4}$ OF A MILE TO THE 36- $\frac{1}{2}$ MILE STAKE. HALF A MILE BACK OF THIS POINT, IT ENTERS THE NARROWS OPPOSITE PAINT CREEK SHOAL; AND ON THE OTHER PORTIONS OF THIS DISTANCE THE LINE RUNS AT THE FOOT OF THE HILLS BELOW THE TURN-PIKE. THERE ARE NO STREAMS CROSSED REQUIRING EITHER ARCH CULVERTS OR BRIDGES, AND THAT PORTION OF THE NARROWS IS EASILY SUSTAINED ON THE HILL SIDE.

"FROM THE 36- $\frac{1}{2}$ MILE STAKE THE LINE CONTINUES IN THE NARROWS TO ALEXANDER'S HOUSE AT THE 37- $\frac{1}{3}$ MILE STAKE, AND OPPOSITE CLIFTON ON THE SOUTH BANK OF KANAWHA RIVER. THROUGHOUT THIS DISTANCE, THE HILLS SPRING UP FROM THE WATER'S EDGE WITH ABRUPT AND ROCKY SLOPES. THE LINE AS NOW LOCATED, PASSES IN 30 FEET OF PETER'S, MRS. WHITE'S, HAMILTON'S, AND JOB HUDDLESTON'S DWELLINGS, AND COVERS THE GROUND NEARLY ALL THE WAY NOW OCCUPIED BY THE TURNPIKE.

IS DIRECT TO WITHIN A MILE OF THE TEN-MILE HOUSE, WHERE IT TURNS LEFT 51 DEGREES BY A ONE DEGREE CURVE.

"THE EMBANKMENT, AND CUT EAST OF IT AT CAMPBELL'S CREEK, ARE BOTH HEAVY, AND THE CHARACTER OF THE GRADING BECOMES MORE COSTLY THAN THAT BELOW. THE CAMPBELL'S CREEK COAL CO'S TRACK WILL HAVE TO BE PASSED AT A GRADE, AND THAT OF GEN'L L. RUFFNER, UNDER GRADE. GEORGE'S CREEK IS CROSSED BY AN ARCH CULVERT OF 12 FT. SPAN, AND THE BURNING SPRING BRANCH BY A TEN FOOT OPEN DRAIN. IN PASSING THROUGH MALDEN SOME OF THE BUILDINGS ATTACHED TO DADDOW'S FOUNDRY WILL HAVE TO BE REMOVED, AND THERE ARE SEVERAL OTHER BUILDINGS THAT ARE WITHIN 70 FEET OF THE CENTRE LINE. A CHANGE OF 1/2 MILE OF TURN-PIKE WILL ALSO BE NECESSARY.

"FROM THE TEN MILE HOUSE THE LINE FOLLOWS CLOSE TO THE FOOT OF THE HILL UNTIL IT REACHES R.F. REYNOLD'S, AT THE 26 MILE STAKE. LEAVING REYNOLD'S HOUSE ABOUT 70 FEET TO THE RIGHT, IT MAKES A SLIGHT CURVE TO THE LEFT, AND THEN RUNS NEARLY ALL THE WAY ON A TANGENT AND THROUGH BOTTOM LANDS TO A POINT 500 FT. BEYOND COL. WM. DICKINSON'S HOUSE, WHICH IT LEAVES 90 FT. TO THE LEFT, AT THE 29-1/2 MILE STAKE. IN THIS DISTANCE SIMON'S CREEK IS CROSSED BY AN ARCH CULVERT 12 FT. SPAN, ANOTHER STREAM NAME UNKNOWN, WITH A 6 FT. ARCH CULVERT, MITCHER'S CREEK BY A 60 FT. BRIDGE, AND CALVIN'S BRANCH BY AN OPEN DRAIN OF 10 FT. SPAN. FOR ONE-HALF MILE UP FROM THE TEN MILE HOUSE, THE TURNPIKE WILL REQUIRE TO BE CHANGED.

"FROM THE 29-1/2 MILE STAKE, THE LINE MAKES A TOTAL DEFLECTION LEFT OF 66 DEGREES IN 1-1/2 AND 2 DEGREE CURVES, TO A.B. AULT'S HOUSE 50 FT. RIGHT IT RUNS ON A TANGENT 5,700 FT. OF WHICH 3,000 FT. IS STILL IN THE NARROWS. CURVING THENCE 14 DEGREES LEFT IT AGAIN RUNS TANGENT 7,300 FT., TERMINATING AT THE 32-3/4 MILE STAKE. THROUGH THE NARROWS 3,900 FT. OF THE TURNPIKE WILL RE-

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BROOKS, CHITTENDEN AND SNOWHILL SALT FURNACES AND THEIR RESPECTIVE COAL ROADS, AND LASTLY, BY THE NUMEROUS CABINS ERECTED AS DWELLINGS FOR THEIR LABORERS; AND THIS TO SUCH AN EXTENT THERE IS BUT LITTLE GROUND LEFT FOR THE LINE OF OUR ROAD. INDEED, THE LINE AS NOW LOCATED, WILL REQUIRE A COMPLETE CHANGE OF THE JAMES RIVER AND KANAWHA TURNPIKE, THE REMOVAL OF MANY CABINS AND SOME OF THE WORKS ATTACHED TO THE FURNACES, PARTICULARLY AT SNOWHILL FURNACE, WHERE A CLIFF JUTTING OUT FROM THE HILL FORCES THE LINE OF OUR ROAD, THEIR COAL ROAD, AND THE TURN-PIKE, CLOSE ON TO THEIR WORKS, SO MUCH SO THAT IT WILL BE A DIFFICULT MATTER TO ARRANGE FOR ALL, EXCEPT AT A HEAVY EXPENSE. THE BROOKS FURNACE COAL ROAD CAN BE PASSED UNDER GRADE, THE OTHER TWO AT GRADE, WHICH WILL BE OBJECTIONABLE AND TO BE AVOIDED, IF POSSIBLE. THE GRADING ON THIS PART OF THE LINE IS NOT NOW EXPENSIVE OR DIFFICULT, BUT WHETHER IT WILL REMAIN SO DEPENDS ON THE PROPERTY OWNERS GRANTING TO THE COMPANY SPECIAL PRIVILEGES IN LOCATING, NOT PROVIDED FOR BY LAW. WILSON'S, BLACK HAWK, AND BROOK'S BRANCHES, PASSED IN THIS DISTANCE, EACH REQUIRE ARCH CULVERTS OF 6 FT. SPAN. CAMPBELL'S CREEK IS CROSSED BY A BRIDGE OF 90 FT. SPAN.

"THE LINE, AFTER PASSING CAMPBELL'S CREEK, CROSSES 3.100 FT. IN ADVANCE, THE CAMPBELL'S CREEK COAL COMPANY'S RAILROAD, WHICH IS LAID WITH A LIGHT "T" RAIL, AND ON WHICH A LOCOMOTIVE IS USED. AT 2.200 FT. FURTHER, THE LINE CROSSES THE RAILROAD LEADING TO GENERAL LEWIS RUFFNER'S FURNACE AND AT THE 21--2/10 MILE STAKE, GEORGE'S CREEK, 100 FT. ABOVE THE PRESENT CROSSING OF THE TURN-PIKE. THENCE ON THE HILL SIDES IT PASSED BACK OF MALDEN, BUT STILL WITHIN ITS CORPORATE LIMITS, AND FOLLOWS OUT THE FOOT OF THE HILLS TO THE TEN-MILE HOUSE, OUR 24-77 MILE STAKE. IN THIS DISTANCE THE LINE

"BY INSPECTING THE SKELETON MAPS HEREWITH SUBMITTED, IT WILL BE MORE PLAINLY OBSERVED THAT THIS PART OF THE CURVE MAKES A WIDE ~~AND~~ DETOUR TO THE LEFT, AND HAS AT MR. SLACK'S HOUSE, A SHARP CURVE. THE OTHER LINES WERE RUN THROUGH CHARLESTON--THE FIRST, AS WILL BE SEEN FROM THE MAP, NEARLY A TANGENT FROM TWO-MILE CREEK TO THE 17-3/4 MILE STAKE HERETOFORE MENTIONED, AND CROSSING ELK RIVER IMMEDIATELY BELOW THE SUSPENSION BRIDGE. THE SECOND, CROSSING 700 FT. HIGHER THAN THE FIRST, AND NOT QUITE SO DIRECT. BUT IT WAS FOUND THAT THE HIGH WATER OF 1861 REQUIRED SUCH AN ELEVATION OF THE GRADE LINE AS TO GIVE, ON THE FIRST, AN EMBANKMENT VARYING THROUGH-OUT, FROM 5 TO 20 FT. HIGH, AND THROUGH THE CORPORATE LIMITS OF CHARLESTON, FROM 10 TO 15 FT. NECESSITATING THE CONSTRUCTION OF EXPENSIVE STREET CROSSINGS AND DESTROYING A GREAT MANY TOWN LOTS. BESIDES, THE LINE COULD NOT BE RUN AS TO AVOID THE REMOVAL OF SOME BUILDINGS, AND COMING TOO CLOSE TO OTHERS. THE SECOND LINE DID NOT INTERFERE WITH BUILDINGS TO THE SAME EXTENT AS THE FIRST; NOR WAS ITS EMBANKMENT, ON THE WHOLE, AS HEAVY, YET IT WAS SUFFICIENTLY SO TO MAKE IT A VERY EXPENSIVE LINE. IN ADDITION TO THIS, I DID NOT BELIEVE THAT THE CONSENT OF THE TOWN AUTHORITIES COULD BE OBTAINED FOR THE ADOPTION OF EITHER LINE, AND WAS COMPELLED THEREFORE TO ADOPT THE BACK LINE, AT A SACRIFICE OF 1,600 FT. IN DISTANCE, THOUGH AT A SAVING OF ACTUAL COST OF CONSTRUCTION.

"LEAVING THE 17-3/4 MILE STAKE AND ONE-QUARTER OF A MILE IN ADVANCE, THE LINE ENTERS THE NARROWS COMMENCING BELOW THE OLD BLACK HAWK FURNACE, AND EXTENDING UP UNTIL CAMPBELL'S CREEK IS CROSSED, A DISTANCE OF TWO MILES. ALTHOUGH IN THESE NARROWS THE HILLS DO NOT APPROACH THE RIVER, ^{SO NEAR TO THE} AS IN THOSE FURTHER UP THE VALLEY, YET WHAT LITTLE THERE IS OF BENCH AND BOTTOM LAND, IS OCCUPIED FIRST BY THE JAMES RIVER AND KANAWHA TURNPIKE, THEN BY THE

THIS DISTANCE DOWNING'S AND TACKETT'S CREEKS, AND WASHINGTON AND AARON'S BRANCHES ARE CROSSED--TACKETT'S ~~BRANCH~~ CREEK BY A BRIDGE OF 50 FT. SPAN IN THE CLEAR, AND THE OTHERS BY ARCH CULVERTS OF 8 FT. SPAN.

"THE ROUTE THEN CONTINUES TO CURVE TO THE LEFT, ON A RADIUS OF 5,300 FT. FOR A DISTANCE OF 1 MILE TO ASSUME A TANGENT $3/4$ OF A MILE LONG, AND EXTENDING TO WITHIN 250 FT. OF TYLER CREEK, AND FOLLOWING GENERALLY, IN THE WHOLE DISTANCE, CLOSE TO THE FOOT OF THE HILLS. CROSSING TYLER CREEK ON A CURVE OF 1 DEGREE RIGHT, TO A POINT 1,100 FT. BEYOND, AND THENCE ON A TANGENT 1,900 FT., THE LINE TAKES A SWEEPING CURVE OF 10,000 FT. RADIUS FOR NEAR TWO MILES TO THE CROSSING OF TWO-MILE CREEK, NEAR THE 13 MILE STAKE, FOLLOWING GENERALLY, AS BEFORE, CLOSE TO THE FOOT OF THE HILLS. TYLER CREEK IS CROSSED BY A BRIDGE OF 90 FT. AND TWO-MILE CREEK BY ONE OF 1100 FT. SPAN; WOODWARD'S BRANCH BY AN ARCH CULVERT OF 6 FT. SPAN. THE LINE THEN RUNS ON A TANGENT 6,000 FT LONG, THEN DEFLECTS 10 DEGREES TO THE LEFT BY A 1 DEGREE CURVE; THENCE ON A TANGENT 3,200 FT. LONG, TO THE COMMENCEMENT OF A $3-1/4$ DEGREE CURVE; ~~XXXXXXXXXXXXXXXXXXXX~~ ~~XXXXXXXXXXXX~~ RIGHT 1,650 FT. LONG, WHICH TERMINATES NEAR THE WEST BANK OF ELK RIVER, NEAR THE $15-1/3$ MILE STAKE. THE LINE CROSSES ELK RIVER, AT AN ANGLE OF 13 DEGREES, AND ABOUT HALF A MILE ABOVE THE SUSPENSION BRIDGE. IT ENTERS THE CORPORATE LIMITS OF THE TOWN OF CHARLESTON WITH A TANGENT, WHICH CONTINUES 700 FT. BEYOND. THEN BY A 4 DEGREE CURVE, THE LINE TURNS $47-1/4$ DEGREES TO THE LEFT, PASSING IN DOING SO, 70 FT. RIGHT, AND IN FRONT OF THE HOUSE OF MR. JOHN SLACK, SR. THENCE ON A TANGENT 1,120 FT. TO NEAR HENRY WEHRLE'S HOUSE; THENCE CURVING TO THE RIGHT BY $1-1/2$ DEGREES CURVE FOR 1,900 FT. TO THE $17-3/4$ MILE STAKE. THE BRIDGE ACROSS ELK RIVER WILL BE 525 FT. LONG.

MILE, AND ALL ABOVE THE HIGH WATER MARK OF 1861. I REMARK, HOWEVER, THAT SHOULD OBJECTIONS BE MADE, THE GRADES CAN BE CHANGED EITHER TO A LEVEL, OR DESCENDING ALL THE WAY, AT NO VERY LARGE ADDITIONAL COST, THOUGH I CAN SEE NO PECULIAR ADVANTAGE TO BE DERIVED FROM IT, OR THAT UNDULATIONS ON SUCH MODERATE ~~XXXX~~ GRADES WOULD ADD ANYTHING TO THE EXPENSE OF WORKING; AND, IN MAINTAINING THE ROAD-BED, UNDULATIONS WOULD BE PREFERABLE, AS BETTER DRAINAGE WOULD BE AFFORDED.

"THE NUMBER OF DEGREES OF CURVATURE IS 1,658 04/100, OR AN AVERAGE OF 31.40 DEGREES TO THE MILE. THE LENGTH OF THE STRAIGHT LINE IS 33.305 MILEW, AND OF CURVES 16.985. TOTAL LENGTH OF DIVISION, PROPER 50.29 MILES. THE SHORTEST RADIUS OF CURVATURE IS 1,432 FT., AND THAT FOR ONLY 855 FT. IN LENGTH. TWO-THIRDS OF THE CURVED LINES IS ON RADII OF FROM 11,460 FT. TO 3,820 FT.

NORTH SIDE LOCATION, KANAWHA DIVISION.

"COMMENCING AT STATION 16 59/100 OF THE WESTERN DIVISION, THENCE BY A CURVE OF 4 DEGREES TO THE LEFT FOR 600 FT. THENCE ON A TANGENT 740 FT. IN ADVANCE, THE LINE STRIKES THE WEST BANK OF THE KANAWHA RIVER, CROSSING IT NEARLY AT RIGHT ANGLES TO ITS COURSE, AT THE HEAD OF JOHNSON SHOAL, AND ABOUT 400 FT. BELOW THE MOUTH OF BIG SCARY CREEK, AND TO A POINT 300 FT. BEYOND THE NORTH BANK. THE CROSSING KANAWHA RIVER REQUIRES A BRIDGE 880 FT. LONG, HAVING TWO DRAW SPANS OF 140 FT. EACH, AND ITS BOTTOM CORD ELEVATED 55 FT. ABOVE SUMMER LOW WATER MARK. THE LINE THENCE MAKES A DEFLECTION OF 61 DEGREES TO THE RIGHT BY A CURVE OF FOUR DEGREES, TO ASSUME A TANGENT RUNNING THROUGH THE BOTTOMS, TO STRIKE THE FOOT OF THE HILLS TO THE 4 MILE STAKE. THENCE, WITH THE EXCEPTION OF 1,000 FT. OF A 1 DEGREE CURVE ON A TANGENT THROUGH BOTTOM LAND AGAIN, TO THE 9TH MILE STAKE, A QUARTER OF A MILE BEYOND AARON'S BRANCH. IN

BY EXAMINING THE PROFILE, HEREWITH SUBMITTED, IT WILL BE OBSERVED THAT THE GENERAL CHARACTER OF THE GRADING IS EXTREMELY FAVORABLE, AND THAT AT THE DIFFERENT NARROWS, WHERE DIFFICULT AND EXPENSIVE WORK MIGHT NATURALLY BE EXPECTED, IT IS VERY LIGHT. THE HEAVIEST WORK ENCOUNTERED IS AT THE CROSSING OF THE GORGES MADE BY THE DIFFERENT, TRIBUTARY STREAMS HERETOFORE ALLUDED TO, AND THE ELEVATION THAT HAS TO BE GIVEN TO THE GRADE LINE TO KEEP ABOVE THE HIGH-WATER MARK OF 1861, WHICH IS ELEVEN FEET HIGHER THAN THAT OF 1845, AND RENDERING NECESSARY LONG AND HIGH EMBANKMENTS, AND EXPENSIVE BRIDGING AND MASONRY. THE LAST TWO ITEMS, ON COMPARING THEM WITH FORMER ESTIMATES, SHOW A WIDE DIFFERENCE IN COST, AND A GREATER LENGTH OF BRIDGE SUPER-STRUCTURE, ESPECIALLY UNNECESSARY; BUT I THINK I ERR ON THE SIDE OF SAFETY WHEN I ESTIMATE FOR BRIDGING FOR SUCH STREAMS AS TWO-AND-THREE QUARTER-MILE CREEK, UPTON'S CREEK, DAVIS, CREEK, RUSH CREEK, LENN'S CREEK, UPPER CREEK, AND ARMSTRONG'S CREEK, INSTEAD OF ARCH CULVERTS OF FROM 8 TO 10 FT. SPAN, WHOLLY INADEQUATE IN MY OPINION, TO PASS AND REPASS THE WATER THAT WOULD FLOW AND FORM LARGE PONDS IN THE VALLEYS AND BOTTOMS ABOVE OUR CROSSINGS IN TIMES OF HIGH FRESHETS IN THE KANAWHA RIVER, OCCURRING ALMOST ANNUALLY. THE LENGTH OF THE BRIDGE SUPER-STRUCTURE CAN BE REDUCED FROM THE AGGREGATE LENGTH OF 1935 FT. TO 1765 FT., OPENINGS FOR THE PASSAGE OF SOME OF THE STREAMS HAVING BEEN MADE LARGER THAN WERE ABSOLUTELY NECESSARY, TO SAVE TIME IN OPENING THE ROAD FOR TRAFFIC; AND THE QUESTION NOT BEING ONE OF COST, I WOULD ADVISE IT TO BEING DONE.

"THE GRADES ADOPTED SLIGHTLY UNDULATE ON SOME PORTIONS OF THE LINE TO 15 FT. PER MILE, OF WHICH, HOWEVER, THERE IS ONLY 5,800 FT.; THE GENERAL UNDULATIONS BEING ON GRADES OF FROM 5 TO 10 FT. PER

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HILLS RECEDING, ADMITS OF THE LINE FOLLOWING THE FOOT OF THE HILLS FOR A FURTHER DISTANCE OF THREE-QUARTERS OF A MILE, TO STRIKE THE NARROWS OCCURRING AT MT. CARBON, WHICH EXTEND FOR A DISTANCE OF 2,000 FT. THE LINE, IN PASSING THEM, BEING SUSTAINED AS AT SIMILAR POINTS BELOW. FROM THENCE TO LOUP CREEK, THE LINE, GENERALLY, OCCUPIES THE FOOT OF THE HILL.

"LOUP CREEK IS CROSSED BY A BRIDGE OF 60 FT. SPAN; THENCE THE LINE KEEPS CLOSE TO THE FOOT OF THE HILLS TO A POINT 1-1/2 MILES IN ADVANCE, AND THE COMMENCEMENT OF THE PALISADES OR LONG SHOAL NARROWS. THE LONG SHOAL NARROWS EXTENDS UP THE RIVER A DISTANCE OF TWO MILES; BUT, OWING TO THE FACT OF THERE BEING A NARROW STRIP OF FLAT LAND BETWEEN THE CLIFF AND THE RIVER, THROUGH-OUT, THE LINE IS MORE EASILY SUSTAINED THERE THAN IN THE NARROWS BELOW. AT THE HEAD OF THESE, THE HILLS AGAIN RECEDING, THE LINE IS TRACED ALONG THE FOOT OF THE HILLS TO THE CROSSING OF THE FALLS BRANCH OPPOSITE MONTGOMERY'S FERRY. THENCE, RISING GRADUALLY ON THE HILL SLOPES, 2,600 FT. IN ADVANCE, IT STRIKES VAN BIBBER'S ROCK, A CLIFF IMMEDIATELY AT THE GREAT FALLS OF THE K NAWHA, PASSING THIS ROCK BY A CUT OF 22 FT AVERAGE DEPTH AND 1,000 FT. LONG, TO COME OUT AT THE HEAD OF THE FALLS. THENCE, CROSSING ON THE SLOPES OF COTTON HILL MOUNTAIN, TO TERMINATE ON THE SAME, AT A POINT OPPOSITE THE MOUTH OF GAULEY, ON THE DIVISION LINE AS HERETOFORE ESTABLISHED, AND 52--29/100 MILES FROM THE MOUTH OF BIG SCARY CREEK.

THE 34 MILE STAKE. IN THIS DISTANCE SLAUGHTER'S CREEK IS CROSSED BY A BRIDGE OF 70 FT. SPAN, AND CABIN CREEK BY A BRIDGE OF 110 FT. SPAN. IT PASSES COALBURG THROUGH ITS MAIN STREET AND CROSSES THE TRACK OF THE INCLINED PLANE AT THAT PLACE, WITH ITS GRADE LINE NOT SUFFICIENTLY ELEVATED TO PASS THEIR CARS UNDER OUR TRACK. THIS, HOWEVER, AS WELL AS THE REMOVAL OF A FEW CABINS WHICH ARE ON, OR TOO NEAR TO THE MAIN LINE OF THE ROAD, WILL NOT BE OBJECTED TO BY THE PROPRIETOR OF THE WORKS. THE PLANE CAN BE LOWERED WITHOUT IMPAIRING ITS EFFICIENCY, AND THE CABINS CAN BE MOVED WITHOUT PULLING THEM DOWN, AT SMALL COST.

"FOLLOWING, FOR 5,000 FT. THE STEEP SLOPES OF THE NARROWS ABOVE COALBURG, THE LINE KEEPS CLOSE TO AND ON TO THE FOOT OF THE HILL, TO STRIKE THE CROSSING OF PAINT CREEK BY A BRIDGE OF 135 FT. SPAN, A LITTLE BELOW THE PRESENT CROSSING OF THE TURNPIKE. THENCE THE LINE CONTINUES ON AND CLOSE TO THE FOOT OF THE HILLS, PASSING THROUGH CLIFTON TO THE NARROWS IMMEDIATELY ABOVE, VIZ. AT THE 37--7/10 MILE STAKE. THE NARROWS ABOVE CLIFTON ARE A LITTLE OVER ONE MILE LONG, AND THE LINE IS SUSTAINED, PRINCIPALLY, ON THE BENCH MADE BY THE TURN-PIKE ROAD. PASSING THESE, THE HILLS RECEDE, SO THAT THE LINE FOLLOWS THE FOOT OF THE HILLS TO THE NARROWS OCCURRING A SHORT DISTANCE BEYOND THE CROSSING OF UPPER CREEK, WHICH STREAM IS CROSSED BY A BRIDGE OF 60 FT. SPAN. THE NARROWS ABOVE UPPER CREEK CONTINUE FOR A DISTANCE OF 3,500 FT. AND THE LINE IS SUSTAINED ALONG THEM, AS AT THOSE IMMEDIATELY BELOW. THE HILLS AGAIN RECEDING, THE LINE OCCUPIES THEIR FOOT FOR A DISTANCE OF 9,500 FT. TO THE NARROWS ABOVE CANNELTON, AT THE 42--4/10 MILE STAKE. THE NARROWS AT CANNELTON ARE PASSED, AS ARE THE OTHERS BELOW. THEY ARE 2-1/2 MILES LONG AND EXTEND UP TO ARMSTRONG'S CREEK WHICH IS PASSED BY A BRIDGE OF 11 FT. SPAN. THENCE AGAIN, THE

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HILLS CROSSING THE UPTON'S CREEK BY A SINGLE APAN BRIDGE OF 50 FT. TO MRS. THOMAS' HOUSE AT THE 9-1/2 MILE STAKE. LEAVING HER HOUSE TO THE RIGHT A SHORT DISTANCE, IT RUNS PRINCIPALLY THROUGH BOTTOM LANDS, CROSSING DAVIS' CREEK ABOUT 500 FT. BELOW THE PRESENT TURNPIKE BRIDGE BY A BRIDGE OF 100 FT. SPAN, AND ON TO BAILNE'S HOUSE, AT THE 13 MILE STAKE. LEAVING BLAINE'S HOUSE TO THE LEFT, IT THEN FOLLOWS CLOSELY THE FOOT OF THE HILL TO THE NARROWS, OCCURRING ONE MILE BELOW CHARLESTON. THE TERM "NARROWS" IS HERE INTENDED TO INDICATE THOSE PLACES IN THE KANAWHA VALLEY WHERE THE HILL, OR MOUNTAIN SLOPES UP FROM CLIFFS OR BLUFFS RISING FROM THE WATER'S EDGE.

"FOLLOWING THE STEEP SLOPE OF THESE NARROWS, WHICH ARE HERE 2,000 FT. LONG, THE LINE STRIKES ACROSS THE LOWER FERRY BRANCH AND THE NARROW STRIP OF BOTTOM BEYOND TO THE 15-6/10 MILE STAKE OPPOSITE CHARLESTON, AGAIN KEEPING THE FOOT OF THE HILLS TO ALLEN'S HOUSE AT THE 17-3/4 MILE STAKE. THENCE, LEAVING THE FOOT OF THE HILL A LITTLE TO THE RIGHT, THE LINE PASSES THROUGH BOTTOMS UNTIL IT REACHES THE MALDEN FERRY ROAD, AND OPPOSITE MALDEN AT THE 20 MILE STAKE. FROM THAT POINT TO FIELD'S CREEK, AT THE 27--86/100 MILE STAKE, THE LINE FOLLOWS CLOSELY, AND IS PARTLY ON THE FOOT OF THE HILLS, PASSING FIRST THROUGH THE PROPERTY OF THE LOGAN SALT WORKS, AND REQUIRING THE REMOVAL OF SOME OF THEIR BUILDINGS, THE CISTERN ATTACHED TO THE WORKS, AND THE CHANGING OF THEIR COAL ROAD TRACK. IT NEXT CROSSES RUSH CREEK BY A BRIDGE OF 60 FT. SPAN, THEN THROUGH BROWNSTOWN AND CARBONVALE, ~~XXXXXXXXXXXX~~ AND CROSSES LEN'S CREEK BY A BRIDGE OF 90 FT. SPAN. FIELD'S CREEK IS CROSSED BY A BRIDGE OF 60 FT. SPAN.

"FROM FIELD'S CREEK, THE LOCATION MAY BE SAID TO OCCUPY CLOSELY THE FOOT OF THE HILLS TO THE NARROWS ABOVE COALBURG, AT

ACROSS TO ENCOUNTER A LIKE IMPEDIMENT ON THE OTHER SHORE--THE BOTTOM LANDS ALTERNATING, FIRST ON ONE SIDE, AND THEN ON THE OTHER.

"THE TOPOGRAPHICAL FEATURES OF THE KANAWHA VALLEY RENDER IT APPARENT THAT A RAILROAD LINE, ONCE ENTERING, MUST FOLLOW ITS COURSE THROUGH-OUT, AND THAT WITH THE GRADES TO WHICH WE ARE BY LAW LIMITED, ANY ATTEMPT TO SHORTEN DISTANCE BY CUTTING OFF SOME OF THE MEANDERINGS OF THE RIVER, CANNOT BE THOUGHT OF. LINES HAVE BEEN SUGGESTED TO ME WITH THIS VIEW BY PERSONS WHO FEEL CONFIDENT THAT SUCH COULD BE FOUND, BUT MY OWN OBSERVATIONS LEAD ME TO A DIFFERENT CONCLUSION; SO MUCH SO THAT I HAVE NOT DEEMED ANY OF THEM WORTHY OF INSTRUMENTAL TEST.

"THE PROMINENT FEATURES OF BOTH LINES--ONE RUNNING ON THE NORTH, AND THE OTHER ON THE SOUTH BANK OF KANAWHA RIVER--BEING EMBRACED IN, OR COVERED BY THE ABOVE DESCRIPTION OF THE KANAWHA VALLEY, I SHALL NOW PROCEED TO DESCRIBE EACH IN THEIR MINOR, BUT NOT LESS IMPORTANT, DETAILS.

THE SOUTH SIDE LOCATION, (KANAWHA DIVISION).

"COMMENCES IMMEDIATELY ON THE EAST BANK OF BIG SCARY CREEK, WHENCE IT FOLLOWS THE FOOT OF THE HILLS FOR A SHORT DISTANCE, TO STRIKE AND RUN ACROSS THE BOTTOM LANDS TO CROSS COAL RIVER 1,300 FT. ABOVE ITS MOUTH, BY A BRIDGE 350 FT. LONG, COMPOSED OF TWO SIDE SPANS EACH 100 FT. LONG, AND A MIDDLE SPAN OF 150 FT. THENCE, PASSING TO THE RIGHT OF D.J. LEWIS' HOUSE IT RUNS ON A TANGENT FOUR MILES LONG, ACROSS THE BOTTOMS, TO STRIKE THE HILL SIDE AGAIN ABOUT 1/4 OF A MILE BELOW THE POINT COMMONLY KNOWN AS HUNTER'S STRETCH. IN THIS DISTRICT TWO--AND THREE-QUARTER-MILE CREEK IS CROSSED BY A SINGLE SPAN BRIDGE OF 100 FT. THENCE THE LINE FOLLOWS THE FOOT OF THE HILLS, CROSSING UPTON'S CREEK BY A SINGLE SPAN BRIDGE OF 100 FT. THENCE THE LINE FOLLOWS THE FOOT OF THE

51 FT, AND THE VALLEY, PROPER OF LITTLE HURRICANE REACHED BY A SIMILAR GRADE, AND THE LINE CARRIED DOWN TO ITS ENTRANCE INTO THE KANAWHA RIVER, 1-1/2 MILES BELOW WINFIELD, THE COUNTY SEAT OF PUTNAME COUNTY. WITH THE EXCEPTION OF THE SUMMIT CUT, THE WORK WILL BE FAVORABLE. IT WILL SAVE ABOUT FIVE MILES IN A DISTANCE OVER A BRANCH LINE FOLLOWING DOWN THE KANAWHA RIVER TO THE OHIO RIVER; AND AS SUCH A BRANCH MAY, AT SOME FUTURE DAY, BE CONSIDERED THE ABOVE INFORMATION MAY PROVE OF SOME IMPORTANCE.

KANAWHA DIVISION.

"THE VALLEY OF THE KANAWHA RIVER, THROUGHOUT ITS WHOLE EXTENT, PRESENTS A PLAIN OF GENTLE ACCLIVITY, RISING AT AN AVERAGE OF 1.8 FT. PER MILE, VARYING IN WIDTH FROM 3/4 TO 1/2 A MILE AND LESS AT SOME POINTS, ELEVATED FROM 30 TO 50 FT. ABOVE LOW WATER MARK, ITS SOIL ALLUVIAL AND HIGHLY PRODUCTIVE. ON EITHER SIDE IT IS BOUNDED, AT FIRST BY HILLS RANGING FROM 500 TO 600 FT. HIGH, BUT AS WE APPROACH ITS HEAD, BY MOUNTAINS WHOSE OUTLINE IS BROKEN BY THE INDENTATION OF CLEFTS MADE BY NUMEROUS TRIBUTARIES; AND WHICH, CUTTING WIDE AND DEEP GORGES THROUGH THE ALLUVIAL SOIL OF THE VALLEY, SEEK AN OUT-LET IN THE KANAWHA RIVER. THEIR SLOPES ARE ABRUPT AND MORE FREQUENTLY LINED WITH RANGES OF CLIFFS AND BLUFFS WHICH, IN MANY INSTANCES, RISE FROM NEAR THE WATER'S EDGE, BUT AT SUFFICIENT DISTANCE FROM IT TO LEAVE NARROW BRANCHES TO SUSTAIN, WITH VERTICAL WALLING, A ROAD-WAY. THESE HILL AND MOUNTAIN SLOPES, ALTHOUGH BARREN FOR AGRICULTURAL PURPOSES, ARE THE DOORWAYS TO THE INEXHAUSTIBLE BEDS OF CANNEL, SPLINT, AND BITUMINOUS COAL, WHICH BUT AWAIT THE CONSTRUCTION OF OUR ROAD FOR THEIR DEVELOPMENT, AND TO ASTONISH THE WORLD WITH THEIR MAGINTUDE. THS RIVER MEANDERS THROUGH THIS BEAUTIFUL VALLEY, DISCHARGING THE FORCE OF ITS CURRENT AGAINST THESE BLUFFS OR CLIFFS, AGAIN TO BE DIVERTED

FOR TWO MILES UP, THE WORK IS LIGHT, BEING PRINCIPALLY DONE; AND IF THE OLD LOCATION, FOLLOWING UP INDIAN FORK, IS ADHERED TO FOR ONE AND A HALF MILES FURTHER, THEN AGAIN, HEAVY WORK WILL BE MET WITH, AND WILL CONTINUE TO NEAR THE SUMMIT BEYOND.

"ON THE NEW LINE HERE PROPOSED, IT IS TOLERABLY HEAVY FOR 2-1/2 MILES OF THE DISTANCE TO THE COMMON POINT. FROM THIS SUMMIT TO BIG HURRICANE, THE 3-3/4 MILE STAKE, SOME GRADING HAS BEEN DONE AND GULVERT MASONRY BUILT; BUT THERE ARE SOME LONG CUTS STILL TO BE TAKEN OUT.

"FOR HURRICANE BRIDGE MASONRY, NEARLY ALL THE STONE REQUIRED HAS BEEN QUARRIED AND DELIVERED.

"LEAVING BIG HURRICANE, A DEEP CUT, PARTIALLY EXCAVATED, IMMEDIATELY OCCURS, AND IS FOLLOWED BY AN EMBANKMENT 40 FT. HIGH ACROSS MILL CREEK, WHERE I HAVE MADE A CHANGE IN THE LINE, THE LARGER PORTION OF THE ~~XXXX~~ GRADING IS DONE--FROM THENCE TILL THE POPLAR FORK SUMMIT IS REACHED, VERY LITTLE. THE SUMMIT OUT HERE HAS A LARGE QUANTITY OF MATERIAL EXCAVATED. THENCE TO THE BIG SCARY CREEK SUMMIT, CONSIDERABLE WORK HAS BEEN DONE, AS WELL AS IN THE SUMMIT CUT, ITSELF. FROM THAT POINT TO THE TERMINATION, AT THE MOUTH OF BIG SCARY, A LARGE PROPORTION OF THE HEAVY GRADING HAS BEEN DONE, AND NEARLY ALL THE NECESSARY MASONRY BUILT.

"AS THIS IS PROBABLY THE MOST APPROPRIATE PLACE, I DEEM IT PROPER TO STATE THAT I HAD AN EXPERIMENTAL SURVEY MADE FOR A LINE LEAVING THE LOCATION OF THE DIVISION ABOUT 1-1/3 MILES FROM THE MOUTH OF BIG SCARY, THENCE RUNNING UP THE ROCKSTEP BRANCH TO CROSS THE DIVIDE BETWEEN THAT STREAM AND LITTLE HURRICANE CREEK, AND DOWN TO THE POOR HOUSE, LOCATED ON THAT STREAM, AND DISTANT 3-1/2 MILE FROM THE BEGINNING. IT HAS DEVELOPED THE FACT THAT BY A GRADE OF 30 FT. TO THE MILE, THIS SUMMIT CAN BE CROSSED WITH A CUT OF

THE EQUIVALENT CAPITAL NECESSARY TO MAINTAIN AND WORK 3,071 FT. OF ROAD-WAY. I THEREFORE RECOMMEND THE ADOPTION OF THE NEW LINE.

"PROCEEDING FROM THE SUMMIT BETWEEN INDIAN FORK AND BIG HURRICANE CREEKS, THE LOCATION THENCE TO THE SUMMIT BETWEEN MILL AND POPLAR FORK CREEKS IS VERY DIRECT IN ITS ALIGNMENT; AND NO CHANGE HAS BEEN MADE, EXCEPT WHERE IT RUNS UP THE VALLEY OF MILL CREEK, REQUIRING AN EMBANKMENT 4,200 FT. LONG, WITH AN AVERAGE HEIGHT OF 15 FT. WHICH I HAVE CHANGED BY A SLIGHT MOVEMENT TO THE RIGHT, AND THEREBY SAVED 40,000 CU. YDS, EQUIVALENT TO \$10,000.00, BUT LOST 17 FT. IN DISTANCE, AND ----DEGREES IN CURVATURE; STILL I CONSIDER THIS THE PREFERABLE LINE.

"FROM THIS LAST SUMMIT TO THE BIG SCARY CREEK SUMMIT, NO CHANGES HAVE BEEN MADE, AS THE ALIGNMENT IS GOOD, AND THE WORK TO BE DONE, LIGHT. THE GRADES, HOWEVER, I HAVE MODIFIED SOMEWHAT. FROM THE SCARY SUMMIT TO THE MOUTH OF SCARY CREEK, THE BEGINNING OF THE KANAWHA DIVISION, I HAVE MADE NO CHANGES, EXCEPT TO RE-ARRANGE THE GRADES, WHICH WILL SAVE A LITTLE IN THE COST OF GRADUATION.

"THE CHARACTER OF THE WORK REMAINING TO BE DONE (THERE HAS ALREADY BEEN EXPENDED BY THE STATE OF VIRGINIA PRIOR TO 1861, \$511,342.00 ON THIS DIVISION IS, FROM BIG SCARY TO BARBOURSVILLE, 18 MILES, VERY LIGHT, THE BRIDGES CONSTITUTING THE HEAVIEST ITEM OF COST. FROM THENCE TO HANDLEY'S, 21-2/3 MILES, IT INCREASES, BUT CANNOT BE CALLED HEAVY; BUT FROM HANDLEY'S TO THE SECOND CROSSING OF MUD RIVER AT THE 25--6/10 MILES, IT IS VERY MUCH SO, CONSISTING OF LONG, DEEP CUTS AND HIGH EMBANKMENTS, WHICH IN SOME CASES IT WOULD BE ADVISABLE TO TRESTLE, TO SAVE EXPENSE; BUT MORE PARTICULARLY, TO SAVE TIME IN OPENING THE ROAD FOR TRAFFIC. FROM MUD RIVER,

TO. PART OF THIS IS UNDER CONTRACT TO KEYSER, COMER AND VANDIVER, CONTRACTORS FOR SECTION No. 18, AND IS PROGRESSING FAVORABLY. MAKING A SLIGHT CHANGE, SO AS TO THROW THE LINE FURTHER FROM MRS. LUSHER'S HOUSE, TO THE LIMIT OF SEVENTY FEET, AS REQUIRED BY LAW, NO CHANGE IS MADE 'TILL WE REACH A POINT HALF A MILE BELOW HANDLEY'S HOUSE, AT WHICH POINT COL. TALCOTT'S THIRD CHANGE BEGINS. BY THIS CHANGE, NOTWITHSTANDING THE WORK DONE, HE EFFECTED A SAVING OF \$15,000.00; AND WHICH HAS, BY A SLIGHT MOVEMENT OF THE LINE BY ME, BEEN INCREASED TO \$19,858.00, THOUGH THE CURVATURE IS INCREASED 53 DEGREES, AND THE LENGTH OF THE LINE 135 FEET.

"FROM HANDLEY'S TO THE SECOND CROSSING OF MUD RIVER, AND TO A POINT TWO MILES BEYOND, ON ACCOUNT OF THE LARGE AMOUNT OF GRADING AND MASONRY DONE, I CANNOT SEE THAT ANY CHANGE NOW WOULD BE ADVISABLE, EXCEPT IN A SLIGHT MODIFICATION OF THE GRADES. HAD NO WORK BEEN DONE, , I THINK THE LINE MIGHT, POSSIBLY, HAVE BEEN IMPROVED AS TO COST. FROM THE POINT BEYOND THE SECOND CROSSING OF MUD RIVER, THE LINE BEARS OFF TO THE RIGHT, ASCENDING INDIAN FORK CREEK BY A WIDE DETOUR, TO THE SUMMIT WITH BIG HURRICANE CREEK, INVOLVING A CONSIDERABLE LOSS IN DISTANCE; AND, AS WILL APPEAR HEREAFTER, IN COST ALSO.

"MAKING A THOROUGH EXAMINATION OF THE TOPOGRAPHICAL FEATURES OF THE GROUND BETWEEN HANDLEY'S AND INDIAN FORK CREEK, I BECAME SATISFIED THAT A BETTER, IF NOT A CHEAPER LINE, COULD BE OBTAINED. CONSEQUENTLY, TWO EXPERIMENTAL LINES WERE RUN, AND THE BEST HAVING BEEN SELECTED AND A LOCATION MADE UPON IT, IT WAS FOUND THAT IN A DISTANCE OF FIVE MILES THE LINE WOULD BE SHORTENED 3,971 FT., 57 DEGREES OF CURVATURE SAVED, AND NOTWITHSTANDING THE LARGE AMOUNT OF WORK DONE ON GRADUATIONS AND MASONRY ON THE OLD LINE, \$10,000.00 OF ACTUAL COST WILL BE SAVED. THIS LEAVES OUT OF THE CALCULATION

THEREFROM TO LAND OWNERS. AND FURTHER DEFERRING THE QUESTION WILL NOT RESULT IN THE COMPANY'S BEING OBLIGED TO ADOPT A MORE EXPENSIVE LINE FROM BIG SANDY TO CEREDO, AS THERE ARE VARIOUS LINES DIFFERING BUT LITTLE IN COST.

"PASSING THE POINT OF CONNECTION, AS ABOVE STATED, AND A SHORT DISTANCE IN ADVANCE, I HAVE MADE A FURTHER CHANGE, SO AS TO RUN WITH A SINGLE TANGENT, DIRECT TO NEAR THE CROSSING OF FOUR POLE CREEK, THEREBY EFFECTING A SAVING OF 48 FEET IN DISTANCE, OF 6 DEGREES IN CURVATURE, AND OF \$4,787.00 IN COST.

"LEAVING FOUR POLE, WHERE WORK DONE PREVIOUS TO THE SUSPENSION IN 1855 IS FIRST MET WITH, VIZ: THE EASTERN ABUTMENT OF THE BRIDGE, THENCE TO THE SECOND CHANGE MADE BY COL. TALCOTT, I DO NOT DEEM IT ADVISABLE, OR NECESSARY TO MAKE ANY CHANGE IN THE LOCATION AT ANY POINT. THE GREATER PORTION OF THE GRADUATION, WHICH IS VERY LIGHT, , AND THE MASONRY OF GUYANDOT BRIDGE IS COMPLETED. THE SECOND CHANGE, ALTHOUGH CHEAPER THAN THE OLD LINE, AND SAVING AN UNDULATION TO THE MAXIMUM IN THE GRADE, THREW OUT A LARGE AMOUNT OF GRADING AS WELL AS MASONRY ALREADY DONE, AND WOULD HAVE INVOLVED INCREASED LAND DAMAGES, AS WELL AS CONSIDERABLE EXPENSE TO CHANGE THE TURNPIKE. TO AVOID THIS AS MUCH AS POSSIBLE, I HAD A LOCATION MADE SO AS NOT TO LEAVE THE OLD LINE SO SOON, BUT HALF A MILE IN ADVANCE; THENCE KEEPING ON THE RIGHT AS BEFORE, TO UNITE AT THE SAME POINT, NEAR THE FIRST CROSSING OF MUD RIVER. THIS SAVES ALL THE MASONRY DONE, INTERFERES BUT AT ONE OR TWO POINTS, FOR SHORT DISTANCES, WITH THE TURNPIKE, THE GRADE OBTAINED IS NEARLY LEVEL THROUGH-OUT, IT GIVES A BETTER PROFILE AND SAVES \$7,410.00 IN COST.

"FROM THE FIRST CROSSING OF MUD RIVER, FOR A DISTANCE OF 1--1/4 MILES, OR TO NEAR MRS. LUSHER'S, THE ORIGINAL LINE IS ADHERED

FISK--THE OTHER TO CROSS THE KANAWHA RIVER AT, OR NEAR THE HEAD OF JOHNSON'S SHOAL, A SHORT DISTANCE BELOW THE MOUTH OF BIG SCARY CREEK, AND TO FOLLOW THE NORTH SIDE OF KANAWHA AND NEW RIVERS, TO CONNECT WITH THE SOUTH LINE AT MILLER'S FERRY, OR TO FOLLOW UP THE SOUTH SIDE OF KANAWHA RIVER AND CROSS IT AT OR NEAR CHARLESTON, OR STILL HIGHER UP AT CANNELLTON (MONTGOMERY), AND THENCE ON THE NORTH SIDE TO MILLER'S FERRY, AND THENCE ON THE NORTH SIDE OF NEW RIVER TO BOWYER'S FERRY.

"REPORTING ON EACH AS THEY OCCUR IN THE ORDER ABOVE STATED, I COMMENCE WITH

THE WESTERN DIVISION.

"THIS DIVISION WAS, UNTIL A SHORT TIME AGO, UNDER THE SUPERVISION OF COL. TALCOTT, AS ~~ENGINEER~~ DIVISION ENGINEER. HE HAD NEARLY COMPLETED RE-TRACING THE LINE, AND MADE CHANGES--FIRST, FROM BIG SANDY, CHANGING THE TERMINUS; THEN RUNNING NEARLY IN DIRECT TANGENT TO CEREDO, THENCE BEARING TO THE RIGHT BY MODERATE CURVATURES AND CROSSING TWELVE POLE, TO CONNECT WITH THE FORMER LOCATION AT A POINT 2,000 FEET IN ADVANCE.

"SECOND--COMMENCING AT A POINT ON THE LINE THREE MILES BELOW BARBOTRSVILLE, AND RUNNING A SHORT DISTANCE ON THE RIGHT OF IT, TO UNITE AGAIN NEAR THE FIRST CROSSING OF MUD RIVER.

"THIRD--AT HANDLEY'S 1-1/2 MILES BEYOND BARBOURSVILLE, WHERE A SLIGHT MOVEMENT TO THE RIGHT IS AGAIN MADE, FOR A DISTANCE OF 3,000 FEET.

"ON MAKING AN EXAMINATION OF THE LINE, THROUGH-OUT, AS IT THUS STOOD, I APPROVED OF THE FIRST CHANGE; REMARKING, HOWEVER, THAT THE POINT OF THE TERMINUS OUGHT NOT TO BE FIXED AT PRESENT, BUT ONLY AFTER THE SETTLEMENT OF QUESTIONS IN REGARD TO OUR CONNECTIONS WITH KENTUCKY, OR OTHER ROADS, AS WELL AS TO ENABLE THE COMPANY TO PARTICIPATE IN A PART, AT LEAST, OF THE BENEFITS WHICH WILL FLOW

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NOVEMBER AND THE LOCATION CAN THEN BE DEFINITELY FIXED, AND THE WORK BE PUT UNDER CONTRACT IMMEDIATELY AFTERWARDS.

"THE SUPER-STRUCTURE OF THE BRIDGES ON THE XTENSION WAS BUILT UNDER THE SUPER-VISION OF MAJOR E. T. D. MYERS (LATER, PRES. OF THE R.F. & P.) INSTEAD OF BEING LET TO CONTRACT. THE RESULT HAS BEEN A SAVING IN COST, AND THE ASSURANCE OF GOOD WORKMANSHIP. THESE BRIDGES ARE UNUSUALLY STRONG FOR THE SPANS, AND ARE IN EVERY WAY CREDITABLE TO THE CONSTRUCTING ENGINEER."
(SIGNED H. D. WHITCOMB, CHF. ENGINEER AND GEN'L SUPT)(A.R.1869).
(Pps. 28-34).

1869:

REPORT OF PRINCIPAL ASSISTANT ENGINEER W.A KUPER ON SURVEYS AND CONSTRUCTION FROM BIG SANDY RIVER TO ROGER'S FERRY ON NEW RIVER, 116 MILES.

(DATED) ENGINEER'S OFFICE C & O R.R.

KANAWHA FALLS, OCT. L, 1869.

"I HAVE THE HONOR TO LAY BEFORE YOU A DETAILED STATEMENT - - ON THE WESTERN, KANAWHA, AND BIG SANDY RIVER DIVISIONS - - - EXTENDING FROM THE WESTERN TERMINUS ON BIG SANDY RIVER, NEAR ITS ENTRANCE INTO THE OHIO, TO ROGER'S FERRY, ON NEW RIVER, A DISTANCE OF 116 MILES.

"YOUR INSTRUCTIONS WERE TO RET-TRACE THE LOCATION ON THE WESTERN DIVISION, AS MADE AND ADOPTED BY CHAS. B. FISK, ESQ., CHIEF ENGINEER OF THE COVINGTON AND OHIO R.R. WITH AUTHORITY TO MAKE ANY CHANGES I MIGHT DEEM ADVISABLE, AND TO MAKE A SURVEY AND LOCATION OF TWO LINES ON THE KANAWHA RIVER, AND PART OF NEW RIVER DIVISIONS--ONE RUNNING UP THE SOUTH BANK OF KANAWHA RIVER AND NEW RIVER TO THE CROSSING OF THE LATTER AT MILLER'S FERRY, THE LOCATION ADOPTED BY MR.

THE QUANTITIES OF MASONRY REQUIRED ARE LARGELY REDUCED. THE TUNNEL-
LING IS INCREASED, BUT BY NO MEANS IN PROPORTION TO THE SAVING
IN OTHER ITEMS. THE MAXIMUM GRADE AND MINIMUM RADIUS OF CURVATURE
ADOPTED ON THIS DIVISION BY MR. FISK HAVE BEEN RETAINED, ALTHOUGH
A CONSIDERABLE SAVING WOULD BE EFFECTED AT TWO POINTS BY ADOPTING
THE GRADE OF THE ALLEGHANY DIVISION, OR 30 FOOT PER MILE. THE TWO
LINES COMPARE IN CORVES AND GRADES AS FOLLOWS:

ONE LINE - - - 187,340 FT. - STRAIGHT -- (7,695 CURVED-AVER. RA. 2,025 FT.
NEW LINE ---185,600 FT. - (7,379 FT. " (2,221 CURVED-AVER. RAD. 2,248"

GRADES:	LEVEL	0 TO 5 FT.	5 TO 10 FT.	10 TO 15 FT	15 TO 21 FT.
OLD LINE	91,969 FT.	7,600	3,531	30,378	33,862
NEW LINE	49,500 "	18,300	48,100	12,700	57,000 "

"THE RESULTS OF THE REVISED LOCATION LEAVES NO REASONABLE
DOUBT IN MY MIND THAT ESTIMATING FOR THE SAME CHARACTER OF CON-
STRUCTION AS THAT CONTEMPLATED BY MR. FISK, THIS DIVISION CAN BE
FINISHED FOR AN AMOUNT IN PRESENT CURRENCY NOT EXCEEDING THAT ES-
TIMATED BY HIM AT GOLD VALUES.

"IN JUSTICE TO THE MEMORY OF THE LATE CHARLES B. FISK, THE
ABLE AND ACCOMPLISHED ENGINEER OF THE COVINGTON AND OHIO RAILROAD,
UNDER WHOSE DIRECTION THE FORMER LOCATION WAS MADE, I CALL ATTEN-
TION TO HIS REPORT OF 1855 TO THE BOARD OF PUBLIC WORKS, IN
WHICH HE ANTICIPATES IMPROVEMENTS IN THIS LINE; AND PARTICULARLY, FROM
THE GREAT BEND TUNNEL, WESTWARD.

"C. M. BOLTON WAS PLACED IN CHARGE OF THE PARTY LOCATING
THE NEW RIVER DIVISION AS FAR AS BOWYER'S FERRY. HE COMMENCED WORK IN
JULY AND WILL FINISH IN NOVEMBER (1869). THE PROFILES OF THE LINE
TO THIS DATE ARE MUCH MORE FAVORABLE THAN THE CORRESPONDING PORTIONS
OF THE FORMER LINE.

"THE SURVEYS FOR THE WHOLE LINE WILL BE COMPLETED IN

MENTIONED HAVE BEEN REDUCED TO 37, 58 AND 45 FEET, RESPECTIVELY, AND THE TUNNEL INCREASED IN LENGTH ABOUT 1,100 FEET. THE COST OF THIS ADDITIONAL LENGTH OF TUNNEL WOULD NOT MORE THAN MAKE ONE OF THE HIGHER CROSSINGS MENTIONED, UNDER ANY PROBABLY CONTINGENCY. THE ONLY DOUBT IS WHETHER THIS TUNNEL SHOULD NOT BE PLACED STILL LOWER AND THE STEPS NECESSARY TO DETERMINE THIS ARE BEING TAKEN. THE LONGER TUNNEL CAN BE CONSTRUCTED IN ABOUT THE SAME TIME AS THE OTHER, AS ADDITIONAL SHAFTS OF PROPER DEPTH ARE PRACTICABLE.

"THE RESULTS OF THE SURVEYS ON THIS DIVISION ARE A SAVING IN DISTANCE OF 1,740 FEET, WHICH SAVING CAN BE INCREASED TO ONE MILE, AT COMPARATIVELY MODERATE INCREASED EXPENSE, AND A SAVING IN ESTIMATED QUANTITIES OF EXCAVATION AND EMBANKMENT OF NEARLY ONE-HALF.

"IN CONNECTION WITH THE LINE ON THE RIGHT BANK, A LINE WAS RUN TO AVOID THE SECOND AND THIRD CROSSINGS OF THE RIVER. IT WAS FOUND TO BE LESS EXPENSIVE, BUT TO HAVE MORE CURVATURE AND 3,000 FEET OF INCREASED DISTANCE.

"A LINE WAS ALSO RUN, LEAVING THE RIVER ABOUT TWO MILES EAST OF GRAHAM'S FERRY, AND CROSSING THE RIDGE DIVIDING THE RIVER FROM JUNGARD'S CREEK, THENCE FOLLOWED THE CREEK TO ITS MOUTH NEAR THE EASTERN PORTAL OF THE MAIN TUNNEL. THIS LINE WOULD SAVE ONE AND ONE-QUARTER MILES IN DISTANCE, BUT A TUNNEL THROUGH THE RIDGE MENTIONED ABOUT 2,500 FEET IN LENGTH, WOULD BE NECESSARY. THE INCREASED COST OF THE LINE DOES NOT WARRANT ITS ADOPTION.

"A RAPID SURVEY WAS MADE OF A PROPOSED CUT-OFF FROM THE MOUTH OF GRIFFITH'S CREEK CROSSING KEENEY'S KNOB TO THE NEW RIVER. THE LINE IS 18 MILES SHORTER THAN THE LOCATION. A GRADE OF 100 FEET PER MILE AND A TUNNEL SIX MILES LONG ARE AMONG THE DIFFICULTIES TO BE ENCOUNTERED ON THIS CUT-OFF.

"THE MOST DIFFICULT PORTION OF THE FORMER LINE WAS FROM THE MOUTH OF HUNGARD'S CREEK THROUGH THE GREAT BEND TUNNEL TO THE END OF THE DIVISION A DISTANCE OF ABOUT SEVEN MILES. AS THE TUNNEL, WHICH WAS TO BE ONE MILE IN LENGTH, SAVED SO MUCH DISTANCE, NO ATTEMPT WAS MADE TO AVOID IT AND FOLLOW THE RIVER. THE GRADE HAD BEEN FIXED HIGH ABOVE THE RIVER WITH A VIEW TO REDUCE THE LENGTH OF THE TUNNEL. THIS MADE THE WORK IN CONNECTION WITH IT VERY HEAVY. THE CROSSING OF HUNGARD'S CREEK WAS 70 FEET ABOVE WATER; POWLEY'S CREEK, 120 FEET; BIG CREEK, 110 FEET, AND OTHER STREAMS OF MINOR CHARACTER, AT HIGH ELEVATIONS.

"IT WAS EVIDENT THAT THE EXPENSE OF EITHER EMBANKMENTS OR BRIDGES AT THESE POINTS SHOULD REPRESENT MANY YARDS OF TUNNEL. IT WAS DETERMINED TO TRY A LOWER GRADE LINE. THE CROSSINGS ABOVE

HAS BEEN CONTINUED TO THE FIRST ~~XXXX~~ CROSSING OF THE GREENBRIER, AND THE HEIGHT OF THAT CROSSING THEREBY REDUCED FROM 68 TO LESS THAN 40 FEET ABOVE LOW WATER. THE SAVING IN EXPENSE BY THIS CHANGE WILL BE VERY CONSIDERABLE, AND THE DONTINUATION OF THE 30 FEET GRADE AT THIS POINT CAN SCARCELY BE CONSIDERED A SERIOUS OBJECTION. THE SESTIMATES OF THIS PART OF THE LINE ARE NOT FULLY COMPLETED.

"THE LINE ON THE GREENBRIER DIVISION AS FAR AS THE GREAT BEND TUNNEL, WAS PLACED IN CHARGE OF GEO. MCKENDREE FOR REVISION; AND FROM THE GREAT BEND TUNNEL TO THE MOUTH OF THE RIVER, IN CHARGE OF C.R.HOWARD. IN JULY MR. MCKENDREE WAS DISABLED BY A SEVERE FALL, AND PEYTON.RANDOLPH ACCEPTED THE CHARGE OF THE DIVISION, AND HAS COMPLETED THE LOCATION.

"THE LINE FOLLOWS THE OLD LOCATION, WITH SOME MODIFICATIONS IN DETAIŞ, AS FAR AS STEPHEN'S FERRY, NOW KNOWN AS MANN'S FERRY. AFTER CROSSING THE RIVER 1-1/2 MILES BELOW THE MOUTH OF HOWARD'S CREEK, IT FOLLOWS THE RIGHT BANK FOR 8--1/3RD MILES, PASSING ACROSS THE BEND OPPOSITE THE MOUTH OF SECOND CREEK BY A TUNNEL 1,600 FEET IN LENGTH, ON WHICH SOME WORK HAS BEEN DONE. IT THEN CROSSES TO THE LEFT, AND CONTINUES ABOUT TWO MILES TO THE FORMER THIRD CROSSING OF THE RIVER, PASSING THROUGH A SECOND TUNNEL 1,000 FEET IN LENGTH IN ITS WAY. FROM THIS POINT TWO LINES HAVE BEEN RUN; ONE, FOLLOWING NEARLY THE OLD LINE, PASSES AGAIN TO THE RIGHT BANK AND CONTINUES ON IT TO THE ~~XXXXXX~~ ~~XXXX~~ MOUTH OF THE RIVER, CROSSING THE GREAT BEND OF THE GREENBRIER BY A TUNNEL WHICH SAVES 7--3/4 MILES IN DISTANCE.

"THE OTHER LINE CONTINUES ON THE LEFT BANK 16 MILES FURTHER, AND CROSSES THE RIVER NEAR GRAHAM'S FERRY, TWO MILES EAST OF THE MAIN TUNNEL, AND JOINS THE LINE ON THE RIGHT BANK.

"WITH ALL THESE DIFFICULTIES, THE ROAD WAS OPENED AT THE TIME EXPECTED, AND GREAT CREDIT IS DUE TO THE ENGINEER-IN-CHARGE OF THE WORK FOR THE ENERGY HE DISPLAYED; AND TO THE CONTRACTORS FOR THE SPIRIT WITH WHICH THEY RESPONDED TO HIS APPEALS. FOR DETAILS OF THIS WORK, AND OF THE DIVISION UNDER HIS CHARGE, I REFER YOU TO THE APPENDED REPORT OF A. L. RIVES.

"OWING TO THE RESIGNATION OF T. M. R. TALCOTT, WHO WAS IN CHARGE OF THE WESTERN DIVISION, AND THE NECESSITY OF PROSECUTING WITH VIGOR THE SURVEYS FOR THE FINAL LOCATION OF THE LINE AT A POINT WHERE I COULD NOT GIVE PERSONAL SUPERVISION, THE PRINCIPAL ASSISTANT ENGINEER, W. A. KUPER, WAS TRANSFERRED FROM THE EASTERN TO THE WESTERN PART OF THE LINE, AND PUT IN CHARGE OF THAT PORTION EXTENDING FROM BOWYER'S FERRY ON NEW RIVER, TO THE WESTERN TERMINUS. THE RESULTS OF THIS WORK ARE VERY SATISFACTORY AND IMPORTANT, AS WILL APPEAR FROM HIS REPORT. IT IS APPARENT FROM THIS REPORT AND THE ESTIMATES SUBMITTED BY ME, THAT THE COST OF THAT PART OF THE ROAD EXTENDING FROM MARTIN'S FERRY TO THE WESTERN TERMINUS FOR GRADUATION AND MASONRY, WILL NOT EXCEED, IN PRESENT CURRENCY THE ESTIMATE OF MR. FISK FOR THE SAME WORK ON A GOLD BASIS.

"THE LOCATION OF THE REMAINING PORTION OF THE ALLEGHANY DIVISION HAS BEEN COMPLETED. THIS DIVISION FORMERLY ENDED AT MONROE DRAFT, ABOUT FIVE MILES WEST OF THE WHITE SULPHUR. IT HAS BEEN EXTENDED SO AS TO INCLUDE THE FIRST CROSSING OF THE GREENBRIER RIVER. THE LINE FOLLOWS VERY NEARLY THE FORMER LOCATION TO MONROE DRAFT, NO CONSIDERABLE CHANGE BEING PRACTICABLE. AT THIS POINT THE MAXIMUM GRADE, DESCENDING WESTWARD FROM THE ALLEGHANY SUMMIT, FORMERLY TERMINATED, AND WAS SUCCEEDED BY A DESCENDING GRADE OF ABOUT 20 FEET PER MILE. THIS MAXIMUM GRADE, ABOUT 30 FEET PER MILE,

IMMEDIATE CHARGE OF THE ALLEGHANY, GREENBRIER AND NEW RIVER DIVISIONS. COL. T. M. R. TALCOTT HAS BEEN PLACED IN CHARGE OF THE SURVEYS ON THE WESTERN DIVISION." (SIGNED H. D. WHITCOMB, CHIEF ENGINEER AND GEN'L SUP'T.) (1ST A. R. PPS. 56-58).

NEW PRESIDENT ELECTED: AT THIS MEETING PRESIDENT E. FONTAINE WAS SUCCEEDED BY GENERAL WMS. C. WICKHAM, WHO SERVED UNTIL THE FOLLOWING YEAR, WHEN THE HUNTINGTON INTERESTS FINANCED THE ROAD, AND MR. HUNTINGTON BECAME PRESIDENT.

1869:

ROAD OPENED TO WHITE SULPHUR SPRINGS JULY 1, 1869. (A.R. 1869, P. 29).

"AT THE CLOSE OF THE LAST YEAR (1868), THE UNFINISHED GRADUATION BETWEEN COVINGTON AND THE WHITE SULPHUR SPRINGS, WORK FORMERLY CARRIED ON BY THE STATE OF VIRGINIA AND SUSPENDED IN 1861, HAD BEEN LET TO CONTRACT, WITH THE EXCEPTION OF THE LEWIS TUNNEL AND THE EMBANKMENT OVER JERRY'S RUN. THE HOPE WAS EXPRESSED AT THAT TIME THAT THE ROAD WOULD BE OPENED TO THE WHITE SULPHUR BY THE ENSUING 1ST OF JULY. THE WORK PROVED TO BE HEAVIER THAN HAD BEEN ANTICIPATED (FOR NO INSTRUMENTAL EXAMINATION OF ITS CONDITION HAD BEEN MADE) AND WAS FURTHER INCREASED BY SLIDES IN THE HEAVY CUTS, WHICH OCCUR SO FREQUENTLY ON THAT PART OF THE LINE. THE CUT ON SECTION NO. 2, WHICH WAS REFERRED TO IN THE REPORT OF LAST YEAR, ALTHOUGH IT HAD BEEN EXCAVATED TO WITHIN THIRTY OR FORTY FEET OF GRADE, WAS TUNNELED, BOTH TO SAVE TIME AND PREVENT THREATENING SLIDES. EVEN WITH THIS PRECAUTION, MORE THAN 12,000 CUBIC YARDS CAME IN IN ONE MASS JUST AS THE TRACK-LAYING HAD COMMENCED, CARRYING WITH IT SOME PORTION OF THE TUNNEL ALREADY EXCAVATED. THE RED HILL TUNNEL, ANOTHER POINT REFERRED TO IN LAST YEAR'S REPORT, WAS AVOIDED BY A TEMPORARY TRACK.

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MAY BE EXPECTED IN HEAVY EXCAVATIONS AFTER THE ROAD IS OPENED, AND WHICH MAY BE CHEAPLY REMOVED BY TRAINS - - - - - THE TUNNEL AT THE GREAT BAND OF THE GREENBRIER, WHICH WILL BE, WHEN COMPLETED, OVER ONE MILE IN LENGTH, CAN BE AVOIDED IN THIS WAY BY A TEMPORARY GRADE OF PERHAPS LESS THAN 200 FEET PER ~~XXXXXXXX~~ MILE, AND AT VERY LOW COST.

"THE UNFINISHED WORK BETWEEN COVINGTON AND THE WHITE SULPHUR SPRINGS WAS PUT UNDER CONTRACT IMMEDIATELY AFTER THE ORGANIZATION OF THE COMPANY (AUGUST 29, 1868), AND SOME PROGRESS HAS ALREADY BEEN MADE. IT IS EXPECTED THAT THE ROAD WILL BE OPENED TO WHITE SULPHUR BY JULY, 1869. TO ACCOMPLISH THIS IT WAS NECESSARY TO, ADOPT A TEMPORARY TRACK OVER JERRY'S RUN AND THE LEWIS TUNNEL; BUT THIS TRACK WILL BE MADE WITH GENTLER GRADES AND CURVATURE THAN THAT WHICH HAS BEEN OPERATED WITH SO MUCH SUCCESS FOR THE PAST ELEVEN YEARS NEAR MILLBORO. THERE ARE TWO POINTS WHERE SOME DELAY HAS BEEN FEARED; ONE AT A HEAVY ROCK CUT TWO MILES FROM COVINGTON; THE OTHER AT THE RED HILL TUNNEL, ABOUT TWO MILES FURTHER WEST; BUT IT IS CONFIDENTLY HOPED THAT BOTH THESE OBSTACLES WILL BE REMOVED IN TIME.

"SURVEYS ARE BEING MADE TO GET THE ROAD READY FOR CONTRACT FOR ABOUT FIVE MILES WEST OF THE WHITE SULPHUR, AND ALSO BETWEEN THE KANAWHA AND BIG SANDY RIVERS. THESE PORTIONS OF THE ROAD WILL BE READY IN DECEMBER.

"THE REMAINDER OF THE LINE CAN BE LOCATED AND PUT UNDER CONTRACT DURING THE NEXT SPRING AND SUMMER; AND CAN, IN MY JUDGMENT, BE COMPLETED WITHIN TWO YEARS AFTERWARD.

"THE WORK WHICH WAS DONE BY THE STATE IS OF VERY SUPERIOR CHARACTER, AND IS IN GOOD CONDITION.

"MR. W. A. KUPER, PRINCIPAL ASSISTANT ENGINEER, IS IN

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ELEVEN CONSECUTIVE MILES. THE REMAIBING PART IS LEVEL 57 MILES;
UNDER FIVE FEET PER MILE, 30 MILES; BETWEEN FIVE AND TENN FEET
7 MILES; BETWEEN TEN AND FIFTEEN FEET, 14 MILES; AND BETWEEN
FIFTEEN AND TWENTY FEET, 44 MILES.

"ON THE REMAINING PORTION OF THE LINE--THAT BETWEEN THE
MOUTH OF SCARY CREEK AND THE BIG SANDY RIVER--44 MILES, 10-7/10
MILES ARE LEVEL; 21 MILES, NEARLY, ARE FROM 20 TO 29-1/2 FEET PER
MILE; AND THE REMAINDER UNDER 2 FEET PER MILE.

"THE AMOUNT EXPENDED IN THE CONSTRUCTION OF THIS ROAD, PRE-
VIOUS TO THE ORGANIZATION OF THE CHESAPEAKE AND OHIO COMPANY, IS
REPORTED BY MR. FISK TO BE AS FOLLOWS:

"ON THE EASTERN DIVISION - - - - - \$2,502,251.00
COVINGTON TO ROGER'S FERRY (KANAWHA FALLS)

"ON THE WESTERN DIVISION - - - - - \$11,341.98
(KANAWHA FALLS TO BIG SANDY).

"FOR ENGINEERING AND OTHER EXPENSES - - - - - 199,610.76
#3,213,194.74

"THE ENGINEER'S ESTIAMTE FOR THE WHOLE LINE, GRADED FOR A
SINGLE TRACK AND WITH A SINGLE TRACK SUPER-STRUCTURE, BUT WITH THE
MASONRY AND TUNNELS OF DOUBLE TRACK DIMENSIONS, WAS \$11,112,636,
LEAVING ABOUT 8,000,000.00 STILL TO BE EXPENDED ON CONSTRUCTION ---

"THIS ESTIMATE, IN MY JUDGMENT, MAY BE RELIED UPON AS BEING IN
EXCESS OF THE AMOUNT WHICH WILL BE ACTUALLY ~~XXXXXXXX~~ NEEDED - - - -

IT IS BELIEVED NONE OF THE TUNNELS WEST OF THE WHITE SULPHUR
SRPINGS WILL REQUIRE ARCHING FOR MANY YEARS; AND THEREFORE, THEY
CAN BE EXCAVATED FOR ~~SINGLE~~ TRACK. THERE ARE MANY ~~XXXXXX~~POINTS
WHERE WE CAN SUBSTITUTE TRESTLES FOR PERMANENT EMBANKMENTS WHICH
WOULD OTHERWISE HAVE TO BE MADE OF BORROWED MATERIAL, AND WHICH WILL
FURNISH CONVENIENT PLACES IN WHICH TO DEPOSIT THE SLIDES WHICH

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- CHESAPEAKE AND OHIO RAILROAD: 1868--1878.-

ENGINEERING AND CONSTRUCTION: WESTWARD.

1868. REPORT OF CHIEF ENGINEER (AND GENERAL SUPERINTENDENT)
H.D. WHITCOMB ON PROPOSED ROUTE FROM COVINGTON, VA. TO
BIG SANDY RIVER:

CHIEF ENGINEER H.D. WHITCOMB SUBMITTED THE FOLLOWING REPORT
TO THE FIRST ANNUAL MEETING OF THE STOCKHOLDERS OF THE CHESAPEAKE
AND OHIO RAILROAD, HELD IN NOVEMBER, 1868:

"THE TIME WHICH HAS ELAPSED SINCE THE ORGANIZATION OF THE
COMPANY HAS BEEN SO BRIEF THAT I CANNOT, FROM PERSONAL OBSERVATION
MAKE A DETAILED REPORT ON THE PROPOSED EXTENSION TO THE OHIO RIVER.
THE REPORTS OF THE CHIEF ENGINEER OF THE COVINGTON AND OHIO RAILROAD
THE LATE CHARLES B. FISK, ESQ. MADE TO THE BOARD OF PUBLIC WORKS
OF VIRGINIA, FURNISH AMPLE INFORMATION ON THE CHARACTER OF THE COST
OF THE WORK, AND THE INFORMATION NOW OFFERED IS DERIVED FOR THE
MOST PART, FROM THOSE REPORTS.

"THE LENGTH OF THE PROPOSED EXTENSION IS 223-6/10 MILES; OF
THIS 129-3/10 MILES ARE STRAIGHT; 31 PER CENT IS ON CURVES OF FROM
11,460 TO 1,910 FEET RADIUS; 3 PER CENT OF CURVES BETWEEN 1,432
FEET AND 1,100 FEET RADIUS, AND ONLY ABOUT ONE PER CENT ON THE MIN-
IMUM RADIUS OF 1,000 FEET. THE GRADES ARE EVEN MORE FAVORABLE--

"FROM COVINGTON WESTWARD TO THE SUMMIT, NEAR THE ALLEGHANY
TUNNEL, ABOUT 16 MILES, THE LINE IS EITHER LEVEL, OR ASCENDING, THE
MAXIMUM GRADE BEING AT THE RATE OF 60 FEET PER MILE FOR NEARLY TEN
MILES. FROM THE SUMMIT, WHICH IS 2,164 FEET ABOVE TIDE-WATER, TO
THE MOUTH OF SCARY CREEK ON THE KANAWHA RIVER, A DISTANCE OF 163
MILES, THE LINE IS EITHER LEVEL OR DESCENDING. THE MAXIMUM GRADE
IS AT THE RATE OF 29-1/2 FEET PER MILE; AND IN THIS DISTANCE OCCURS
ONLY ONCE, AND THAT IMMEDIATELY WEST OF THE SUMMIT, FOR NEARLY