

REPORT

FROM

THE SECRETARY OF WAR,

*In compliance with a resolution of Senate, transmitting reports from
the Superintendent of the Cumberland road, for 1829 and 1830.*

DECEMBER 31, 1830.—Read.

JANUARY 3, 1831.—Ordered to be printed.

DEPARTMENT OF WAR,

December 30, 1830.

SIR: In conformity with the resolution of the Senate of the 27th instant, I have the honor to transmit herewith a copy of the reports of the Superintendent of the Cumberland road west of Zanesville, in the State of Ohio, for the years 1829 and 1830.

I am, very respectfully, sir,

Your most obedient servant,

JOHN H. EATON.

To the PRESIDENT of the Senate.

*Annual Report on the Cumberland road in the State of Ohio, for the
year 1829.*

ROAD OFFICE, ZANESVILLE,

16th December, 1829.

SIR: In obedience to the regulations of the Engineer Department "requiring the Engineer superintending the construction of a fortification, or other public work, to furnish an annual report of the progress of the operations during, and their condition at the expiration of, the year ending on the 30th September," I, as Superintendent of the national road in Ohio, have the honor to report:

That, pursuant to my appointment to the office above mentioned, I proceeded to the discharge of the duties thereof. My duties being primarily, by virtue of my appointment, directed to the superintendence of the construction of the work west of the Muskingum river, and simultaneously in-

creased by the additional charge over the work east of said river, it becomes necessary to give a separate view of the operations under each appointment—taking, as first in order in the general progress, the operations on the east side of the river.

The first thing to which I gave my attention, was to ascertain the condition of the road between Zanesville and Wheeling, in reference to its state of repair, and the claims upon account of contracts for repairs, services of rakers, &c., and especially to that part of it which was under contracts for the graduation and the cover of the two first strata, forming six inches cover of metal, then remaining unfinished. It was found that contracts of this description, extending over nearly twenty-two miles of part of the road, being 52 miles and 104.44 poles from the town of Canton, and ending on the eastern bank of the Muskingum river. The progress they were then in was, the masonry finished according to contracts, though in some instances requiring additional culverts, and alterations in the length of others. The original cost of the work under their contracts amounted to the sum of \$82,819 26 $\frac{3}{4}$, and the payments made thereon by my predecessor amounted to the sum of \$44,996 96, leaving a balance to be paid, on their completion of the work agreeably to their contracts, and exclusive of contingencies, extras, &c., of \$37,822 30 $\frac{3}{4}$. But besides these, and in some instances as appendages to, and in connexion with, the above contracts, various verbal contracts existed, the character of which, with the exception of several claims for extra compensation, extra work, and damages, which were rendered explicit by documents furnished from the War Department, and the amount and justice of those claims could not be ascertained but by tedious and personal inquiry wherever information could be had. Much of the information referring to these claims was obtained from John S. Williams, who also furnished a statement containing a list of those which had been closed by him by settlement. The claims of this description, so far as they were then ascertained, and since developed, and brought together, amount to the sum of

\$15,036 88

To the above sum add the amount of work performed on the unfinished contracts for the construction and cover of six inches of metal up to the 1st May, remaining unpaid	-	-	9,799 00
Total amount for labor performed and services rendered under the superintendence of, and growing out of the contracts made by, my predecessor, and remaining unpaid, so far as ascertained at the time of my appointment	-	-	- 24,835 88

In addition to the above sum, claims of a similar description are known to exist, which will come in for settlement and pay, the amount of which may, perhaps, be \$4,600. These are principally for stone prepared, and additional filling, &c.

After thus having ascertained the condition of the road, the state to which the unfinished work had advanced, together with the state of the accounts connected therewith, and made settlements as far as practicable, the work remaining to be done was steadily urged forward to its completion. The operations on this part of the road since my appointment as superintendent, may be comprised under the following heads: First, the completion of the regular contracts for graduation and cover of six inches of metal above mentioned; second, the additional cover of three inches of metal, forming the third stratum on that part of the road over which the unfinished contracts

above mentioned extended; third, the removal of landslips, together with the repairs of side ditches, and other repairs necessary to the preservation of the road as far east as Canton; to which may, also, be added some additional embankments, masonry, drains, &c. on that part of the road under contracts as above mentioned.

As relates to the progress of this work, the last of the unfinished contracts were completed about the middle of September. The additional cover of three inches of metal, forming the third stratum, was put under contract on the 1st day of September, limiting the time of its completion to the 25th day of November. The work under these contracts is progressing in a very satisfactory manner, and bids fair, with a favorable season, to be completed by the time stipulated in the contracts. For these contracts see statement A, hereto annexed, as part of this report. The amount of landslips and other repairs are in a train preparatory to their speedy completion, and will, doubtless, all be effected in time for the approaching winter. To the above list of the contracts for the third stratum is added a contract for the heavy landslips at Boden's hill, in which considerable rock excavation occurs, and the formation of a new road for several rods found indispensable.

The cost of these operations up to the 30th September, including also all the contingent expenses, are as follows:

1. The completion of the unfinished contracts (as herein before shown) \$37,822 30 $\frac{3}{4}$

Deduct the estimate on the unfinished con-		
tracts up to the 1st day of May -	-	9,799 00

- | | | |
|---|---|-------------------------|
| The amount remaining to be done on the 1st day of May | | 28,023 30 $\frac{3}{4}$ |
| 2. The amount of work done under the contracts for the third stratum, up to the 30th September, say | - | 6,000 00 |
| 3. The expenses comprised under the general head of contingent repairs, &c., which are as follows: | | |

For masonry, which was in addition to that, and on that part of the line under contract for the graduation and six inches cover, &c.	-	951 06 $\frac{1}{4}$
Additional filling on same part of the road	-	89 80
Stone prepared	-	68 06
Rakers, laborers, and assistants, in part employed in the removal of landslips	-	1,760 51 $\frac{1}{2}$
Stationary and repairs of office furniture, and, also, its transportation	-	31 75
Printer's bills for publishing notices, &c.	-	12 50

2,913 68 $\frac{1}{2}$

Total amount of expenses accrued on this part of the line since the 1st day of May	-	36,936 99 $\frac{1}{2}$
To this sum add the amount remaining unpaid for work done under the superintendence of my predecessor, and the sums since claimed, and growing out of contracts existing at the time of my appointment	-	24,835 88

Total amount due for work done up to 30th September	-	<u>\$61,772 87$\frac{1}{2}$</u>
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The payments made on account of the above sum are as follows:

The amount in full for the completion of the original contracts	-	-	-	\$37,822 30½
Add extra amount paid Hugh McGinnis	-			55 00

37,877 30½

The sum of \$9,059 88, on vouchers presented by John S. Williams, of which amount the sum of \$1,475 was a payment of the original contracts, leaving, in payment of his account rendered for contingent expenses, \$2,197 84½, and the balance \$5,405 03½ in part payment of extra allowance on the Wills creek bridge, making together the sum of

7,602 88

On account of the various repairs, extra allowances, contingent expenses, &c.

4,255 34½

Total amount paid up to 30th September,	-	-	49,735 53½
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Which deduct from the above sum, leaves a balance remaining unpaid for all expenses incurred up to the 30th Sept. of

\$12,037 34½

From the foregoing exhibit, the following view of the state of the funds applicable to this part of the work presents itself.

The unexpended balance of the appropriation of 1828 is

\$102,571 44

From this sum deduct the amount paid up to the 30th September, which is

49,735 53½

Leaves, as the sum now remaining in the Treasury,	-	52,835 90½
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From this sum deduct the balance remaining unpaid,	-	12,037 34½
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Leaves unexpended after the payment of the whole amount due on the 30th September,

40,798 56½

From this sum deduct the amount required to complete the contracts for the 3d stratum, the original aggregate amount of those contracts (for which see exhibit hereto annexed) is

\$29,530 13

From this sum deduct the September estimate,

6,000 00

The sum required, including landslips at Boden's hill,	23,530 13
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The amount remaining after the completion of the above contracts,

17,268 43½

From the above sum deduct as follows:

The sum growing out of contracts of the former superintendent,

\$4,600

The probable sum required to effect the repairs of landslips, and other repairs necessary to put the road in a safe condition for the approaching winter,

2,400

7,000 00

The probable balance which will then remain will be (not deducting the expenditure of the Road Commissioner)

\$10,268 43½

This, it is thought, is not more than should be left applicable to repairs of this part of the road: an extent of road comprising upwards of 74 miles, with embankments newly formed, is not easily anticipated as to the extent of repairs it might require.

Having thus given a brief history of the operations, progress, and cost of the work east of the Muskingum river, I shall now proceed to notice the operations had on the west side of the river.

When this part of the road was about to be put under contract, agreeably to your order to receive proposals for the whole line between the west bank of the Muskingum river and Columbus, proposals were invited, by advertisements published in some of the most prominent newspapers in this and several of the neighboring States, for the whole line between these two points; and were accordingly received for the masonry, the graduation, and the cover of two strata of metal, of three inches each, to the 26th mile inclusive, and from thence to Columbus, for the masonry, graduation, and cover of 6 inches of gravel; and, as experience has frequently shown, especially in the western country, that regions supposed to be destitute of this hard metal, when the need of it became such as to induce a proper search by those who possessed the requisite experience, it was to be found in abundance, by way of an experiment, proposals were also received for a cover of two strata of stone on this latter part, viz: from the 26th mile to Columbus.

On the first day of July, contracts were accepted for the masonry, and the graduation and cover of 6 inches of metal, forming the two first strata of 3 inches each, from Zanesville to the 20th mile inclusive, and afterwards extended to the 27th mile. To this point it was supposed the appropriation would be sufficient to defray the expense of the graduation, masonry, and cover of 3 inches of metal; but in the event of its falling short, to complete the graduation and masonry alone, and withhold so much of the funds intended for cover of 3 inches of metal on the western end of the road. In order to guard against the consequences that might grow out of a contingency of this kind, the contracts were positively closed, on the part of the United States, only so far as related to the masonry and graduation; leaving it optional with the Department, either to prosecute the whole, or to suspend and discontinue, or even to rescind so much of any or all of the contracts as relates to the second stratum, and any part of the first, as they might see fit.

For a description of these contracts, the contractors' names, the character of the work to be done, the quantity of each kind, the prices at which taken, and the aggregate amount, see statements B and C, hereto annexed, to which reference is made as a part of this report.

By reference to statement B, it will be seen, that, from the estimates derived from the present stage of the progress of the work, the masonry required on that part of the line, including also wooden superstructures of bridges over the south fork of Licking and the Ohio canal, will amount to \$32,902 37½: and by reference to statement C, it will appear that the contracts for the graduation alone, exclusive of any extra allowance, will amount to \$39,327 20; for the graduation and cover of three inches of metal, \$73,501 10; and for the graduation and cover of six inches of metal, \$98,522 70. In reference to these sums, it is necessary to remark that they are exclusive of contingencies, and of course will be varied or increased by whatever sum may accrue under this head. The above sum for the masonry, &c., although it is made up with the utmost care from the work now in progress, is, nevertheless, rather an approximation than positive.

But if the Government should deem the present bridge erected by the State of Ohio across the canal of sufficient durability, then the above sum will be \$3,000 less. In the construction of masonry of this kind, where the quantity so much depends upon the character of the sites, the depth of alluvion or other materials for the foundations, and, in deep cutting or fillings, on the variableness of the earth which will occur, the different quantities of which remain unknown until actually tested by experiment, and where the operations of the weather will frequently point out the necessity of additional culverts, side walls, &c., as the grading approaches towards its completion, although the prices may be fixed, the quantity can be ascertained only when the work shall have been completed, and its stability subjected to a proper test. This sum, however, for the present, is deemed adequate, and it is thought will be sufficient to defray the whole expense. The sum required, agreeably to the contracts, for the graduation and cover of metal (being of a different character from that of the masonry as respects variableness, and liable to be changed by existing circumstances) might be relied on, were it not for the necessity of reducing the inclinations or grade from the angle of $4\frac{1}{2}$ to 4 degrees, and from that to 2 degrees where it is practicable. The increase of labor caused by this over the hilly section of road, will probably amount to the sum of \$7,000. This sum, added to the sum of \$39,327 20, the sum required agreeably to the contracts which were predicated on Mr. Knight's notes, will result in the sum of \$46,327 20, as the amount required for the graduation with the angle reduced to 4 degrees, &c. The sums required for the cover of metal of course will remain the same; and in order to exhibit these sums as separate items, by deducting the sum of \$39,327 20 from the sum of \$73,501 10 and the sum of \$98,522 70, will leave the sums of \$34,173 90 and \$59,195 50, for the cover of three inches and the cover of six inches of metal on this part of the road.

Taking the above sums for data, the deductions exhibited in the following statement may very readily be derived.

Description of the work embraced in the account.	For the whole distance of 27 miles.	Average cost of each mile.	Average cost of each pole.
1st. The cost of masonry, - -	\$ 32,902 37½	\$1,218 60.6	\$3 80.8
2d. Do. of graduation, (which add,)	46,327 20	1,715 82.2	5 36.2
3d. Aggregate cost of the masonry and graduation, - - -	79,229 57½	2,934 42.8	9 17
4th. The cost of three inches cover of metal, (which add,) - -	34,173 90	1,265 70	3 95.5
5th. Aggregate cost of masonry, graduation, and three inches of metal,	113,403 47½	4,200 12.8	13 12.5
6th. The cost of six inches cover of metal, which add to the 3d item above,	59,195 50	2,192 42	6 85.1
7th. Aggregate cost of masonry, graduation, and 6 inches cover of metal,	138,425 07½	5,126 85.4	14 02.1

The masonry comprised in the foregoing calculation and estimates consists of two bridges of 75 feet span, composed of stone abutments and wooden superstructures; and of bridges having stone arches, one of 40 feet, one of 30 feet, two of 25 feet, three of 20 feet, one of 15 feet, one of 12 feet, two of 10 feet, six of 8 feet, and five of 6 feet chord each, making together 24 in number, together with 60 culverts of different descriptions, five of which are double. Of the masonry, 7,365 perches are used in bridges over twelve feet chord, the average cost of which is \$2.75½ per perch; 3,839 perches in bridges of and under 12 feet chord, the average cost of which is \$1 81.6 per perch; and 4,425 perches in culverts, the average cost of which is \$1 27.6 per perch; amounting to 15,629 perches of masonry.

Of the above work then executed up to the 30th September, of masonry, 1,102 perches laid in bridges of different kinds, amounting to \$2,254 63; 1,013½ perches laid in culverts of different kinds, amounting to \$1,373 46½; besides which, there were 3,450 perches of stone quarried, of which there were 3,023 feet cut ready for laying, amounting, agreeably to estimate for stone quarried, delivered, and cut, to \$3,752 30. As to the grubbing, clearing, and grading, the grubbing and clearing is all completed, and the grading varying in its state of forwardness, most of it to what may be called rough grading: the amount of this description of work, agreeably to estimate, is \$8,487 00; or amounting together for work actually performed, exclusive of contingent expenses, to the sum of \$15,867 49½: in this amount is included the amount retained in the estimate as a guarantee for the completion of the contracts. Here it may be proper to remark that the latter description of work, viz: the grading, was considerably retarded from the following cause. A full moiety of the road passes through a fine section of country for farming, thickly settled and highly cultivated. To have thrown open the fields in the months of July and August, would have subjected the farmers to great inconvenience, and in some instances to the loss of their crops. This would probably have subjected the Government to considerable expense. In view of this, I thought proper on such parts not to hasten the operations too much, to give time for the removal of the crops, knowing the practicability of its being effected early the next spring.

The foregoing estimates and calculations are all made up without any allowance for contingent expenses; it will therefore be necessary to add to those the amount which has accrued under this head, comprising the salaries of officers, expenses of advertisements and sales, the services of engineers, surveyors, assistants, &c., with their attendant expenses. A considerable part of this item being for the services last named, it is considered proper that a statement should here be given of what was done. In order to a full understanding of this subject, it will be necessary to begin with the commencement of the operations. Agreeably to the intimations given in your letter of the 17th April, that "Mr. Shriver, who is now the commissioner for continuing the road to Missouri, would be instructed, if possible, to join me at Zanesville, for the purpose of pointing out the location of the road, and assisting me to make a re-examination, with the necessary despatch," he did arrive in Zanesville on the 12th of May, and gave to me such directions as he thought were necessary, and which were highly satisfactory to me, and beneficial to the operations on the road. Here it will be also proper to acknowledge the benefit I derived from Captain J. L. Smith of the corps of engineers, who, during his presence and attendance with me on the road from Zanesville to Cambridge, as road inspector, about the beginning

of June, imparted to me very valuable information and useful instructions. By Mr. Shriver I was directed to trace the line agreeably to Mr. Knight's location of 1825, in order to prepare the whole for contract. This was accordingly (with the assistance of a surveyor) commenced in the early part of June, at the west bank of the Muskingum river, and completed on the 12th, on the whole distance, 52 miles 268.88 poles, from Zanesville to Columbus. This, however, was but a preparatory step to after operations. My intention was immediately to have proceeded to the more important duty of reducing the grade to the degrees specified in your instructions, viz: from the angle of $4\frac{1}{2}$ degrees, wherever this was employed by the Commissioner, to 4 degrees, and from that to two degrees, in all cases where it should be found practicable, with due regard to economy. The importance and essential benefits of this direction, I feel assured, will be amply verified in the use of the road when completed, and will continue, as I believe, more and more to develop itself, as long as the road itself shall continue to remain as a monument of the wisdom and patriotism of its projectors. This, had there been any thing wanting in the order itself to command an immediate compliance, would have acted as an additional inducement to hasten its execution: a want of time, however, prevented its being carried into effect in time for the letting of the work. Contracts were therefore made on the 1st of July, predicated on the notes and estimates of Mr. Knight, (as already stated,) with the intention to make the alterations as directed before the grading should have so far advanced as to be affected by it. For this purpose, Samuel Carpenter, a skilful engineer, was employed, who has performed this service with great judgment and accuracy. The survey of the alteration suggested by Mr. Knight in his report, to procure a better point to cross the Ohio canal, and designated on the map of his survey as the dotted line, having been ordered, and then immediately required to be made, he was first directed to make this survey, together with the necessary estimates, copies of which, together with my report recommending the adoption of the alteration, were sent to, and approved by, the Department. This alteration embraces about seven miles of the road, diverging from the first quarter stake on the 21st mile to a point on the Ohio canal north of the original crossing, thence again intersecting the original location some distance beyond the 27th mile. (A subsequent order has been received by me from the Department, for a new survey from the Ohio canal to Columbus, which will embrace a part of the above survey, for the purpose of finding a shorter and cheaper route than Mr. Knight's location of 1825.) In this survey, respect was of course had to the order relative to the reduction of the grade, and its adoption: so much of the road as it embraced was therefore brought within the limits prescribed in the order. After this was accomplished, he immediately proceeded to the examination and the necessary alteration of the grade on the remainder of the line. In the progress of these operations, every part was subjected to a strict examination, and the whole line of the surface of the road (or grade) was traced out anew, as well that which the grade retained in conformity to the original notes, as that which, under the operations of the order for reducing the grade, required to be altered, and the stakes so placed as properly to define the grade: due regard was also had to such parts of the road as were laid down in a long continuous straight direction, to correct any deviations which might exist from a straight line. To comply with this duty properly, much careful investigation and time was necessary. While the abilities and skill displayed by Mr. Knight

in the location of this road are cheerfully acknowledged to be such as might almost defy its improvement by any alteration, with the use of the same grade he employed; yet, with the angle of inclination reduced, the necessity of a slight alteration in a few instances presented itself: these were accordingly made, but with great caution, and not without the closest investigation and comparison of every thing concerned in them. From the notes of these surveys, estimates of the increase or decrease of the cuttings and fillings are readily made, by which to settle and adjust the amount with contractors. The notes, estimates, and map will be furnished to the Department.

The amount which has accrued on account of these services, together with all other contingent expenses, up to the 30th of September, amounts to \$2,248 15. This sum added to the sum of \$15,867 49½, being the amount of work performed on the contracts, will amount to the sum of \$18,115 64½, for all the operations, including all contingencies, on this part of the line, up to the 30th September.

The payments made up to the 30th September are as follows: on account of the masonry, the sum of \$5,920 00; on account of the graduation, \$6,790; and on account of contingent expenses, the sum of \$2,248 15; amounting in the aggregate to the sum of \$14,958 15.

As a guide to any appropriation Congress may be pleased to make, in order to prosecute the work as far west as Columbus, (having made no estimates of the cost for its continuation beyond that point,) the following estimates are most respectfully submitted.

From the statement as before submitted, showing the aggregate amounts of the contracts on this part of the line, together with average costs, &c., it will appear that the sum of \$113,403 47½ will be required to complete the road now under contract to the 27th mile inclusive with a cover of 3 inches of metal, and the sum of \$138,425 07½ to complete it to the same point with a cover of 6 inches of metal; in both cases exclusive of contingent expenses, subject to the conditions heretofore made. Add to either of these sums the sum of \$3,500, which will probably be required for contingent expenses, including the amount which has now accrued for surveys, &c., as shown, supposing it will nearly be the same sum for both, it will appear that the sum of \$116,903 47½ will be required to complete the road to this point with a cover of 3 inches of metal, and the sum of \$141,925 07½ for its completion to the same extent with a cover of 6 inches of metal. Add to this last amount the sum of \$26,500, which, it is thought, will meet all the expenses incident to an additional cover of 3 inches of metal, forming the third stratum, and this gives the sum of \$168,425 07½ as the probable amount required to complete the road to this point with a cover of 9 inches of metal, including all contingent expenses. Take from this amount the sum of \$100,000, the appropriation now made, leaves the sum of \$68,425 07½, the additional appropriation required: again, deduct from the sum of \$141,925 07½ the sum of \$100,000, the present appropriation, leaves \$41,925 07½, required to complete the road to the same point with a cover of six inches of metal; and without any further appropriation, it can be completed, in part, with a cover of 3 inches of metal, and a part without. In the possible event, however, of this being the case, I should recommend, from experience derived in the course of the season, that no metal be laid on the road until 6 inches is prepared, as three inches of metal is not sufficient to sustain the same, and would result in almost total loss.

To complete the road from this point to Columbus, from the proposals handed in, the following estimates may (with considerable certainty) be relied on. Agreeably to the work which was proposed to be executed, the different kinds of work would cost as follows, viz:

For masonry, bridges, &c., including wooden superstructures,					
4 of which will be required	-	-	-	-	\$ 46,665 00
For grubbing, clearing, and grading	-	-	-	-	39,386 88
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To complete the masonry, bridges and graduation, without any cover	-	-	-	-	86,051 88
For cover of six inches of gravel	-	-	-	-	55,473 12
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To complete the road with a cover of six inches of gravel	-				<u>\$ 141,525 00</u>

These estimates are without any allowance for contingent or casual expenses, for which it would require, say \$5,000; of which sum assign \$3,000 to the masonry, bridging, and graduation, and \$2,000 to the cover of six inches of gravel: add these sums to the sums to which they respectively belong, as follows:

For the masonry, bridging, and graduation, without any cover of metal	-	-	-	\$ 86,051 88
Casual and contingent expenses	-	-	-	3,000 00
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Total sum	-	-	-	89,051 88
For the cover of six inches of gravel	-	-	-	55,473 12
Casual and contingent	-	-	-	2,000 00
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Total sum	-	-	-	57,473 12
For the construction and six inches cover of gravel	-	-	-	141,525 00
Casual and contingent expenses	-	-	-	5,000 00
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Total sum	-	-	-	<u>\$ 146,525 00</u>

From the preceding statements the following general results present themselves.

1st. That, without any further appropriation, the road may now be advanced towards its completion to the 27th mile; a part with the cover of the first stratum, and a part without any cover of metal.

2d. That, to complete the road to the same point with a cover of six inches of metal, forming the two first strata, will require an additional appropriation of \$41,925 07½.

3d. That, to continue its construction from thence (viz: the 27th mile) to Columbus, without any cover from this point, will require an appropriation of \$130,976 95½.

4th. That, with a cover of 6 inches of gravel from the last mentioned point to Columbus, completing it from Zanesville to Columbus with a cover of six inches, part stone and part gravel, it will require an appropriation of \$188,450 07½.

5th. That, to complete it from Zanesville to the end of the 27th mile with a cover of nine inches of metal, it will require an appropriation of \$68,425 07½.

6th. That then to continue its construction to Columbus without any cover from this point, it will require an appropriation of \$157,476 95½.

7th. And that, to complete it with a cover of nine inches of stone to the 27th mile inclusive, and from thence to Columbus with a cover of six inches of gravel, will require, in addition to the appropriation now made, the further sum of \$214,950 07½.

These estimates are predicated on the supposition that the gravel may be had, in which case no reasonable doubt can be entertained of their sufficiency to meet the expenditure, if the same be applied with skill and judgment, and a due regard to economy.

If, in the wisdom of Congress, a further appropriation should be determined on at their next session, the propriety and policy of which is strongly marked out to my mind by the state to which the work has progressed. I would respectfully suggest the appropriation of a sum adequate to the prosecution of the work now in progress, so far, at least, as to render it safe and permanent; together, also, with the construction of the road, without any cover of metal, from the point to which the present contracts extend to Columbus. For this purpose, agreeably to the estimates above exhibited, the sum of \$157,476 95½ would probably be sufficient. The appropriation of this sum at an early period in the next session would render the execution of this work practicable by the close of the next year. By the opening of the road through this section of country, a discovery of its resources as to the materials for the cover of the road would occur, which might not only result in the development of an abundance of this article, but would greatly facilitate its transportation, and consequently tend to cheapness in the work. In addition to this, the face of the country and the nature of the soil are such as to suggest the propriety of the road remaining uncovered one winter, in order that it may have a suitable compactness for the reception of the metal. During this time, of course, it should be subjected to the travel.

Taking this part of the road into view, in connexion with that part of which it is a continuation, commencing at the Ohio river, or, according to the numbers on the monument, (making out the miles,) at Wheeling, reserving it for the future to its extension beyond Columbus, we shall then have the following view of its cost.

The sums appropriated for this part of the road east of the			
Muskingum river in 1825-'6-'7 and 8, amount to	-	\$ 595,000	00
Add to this the appropriation in 1829 west of the Muskingum river	-	100,000	00
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Total sum appropriated	-	695,000	00
Add to this the sum required to complete the road to Columbus agreeably to the foregoing estimates	-	214,950	07½
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Total cost of the road from Canton (Bridgeport) to Columbus		\$ 909,950	07½

The distance comprised in this part of the road, taken into view as one important section of the grand work of which it is but a continuation, is 126½ miles, from the Ohio river at Canton to Columbus, the seat of Government in the State of Ohio. Contemplating this line of road for this distance, whether it is estimated with reference to its locality, permanence, or the incalculable degree of convenience and the facility it affords, as an avenue of

communication from the eastern and middle sections of the Union, through a country otherwise of difficult and almost insurmountable passage during part of the year, and intersecting the great Ohio canal, there are few efforts of national enterprise by which it is excelled; and when compared with the amount it has and will cost to complete it, the wisdom and munificence of the Government could not well direct the appropriation of a sum of similar magnitude from which a greater degree of good could result to an industrious and enterprising people. The whole distance of road from Washington city to Columbus is 397 $\frac{1}{4}$ miles.

In compliance with that part of the regulations requiring an account of the resources of the contractors engaged on the work, I will state, of all who are engaged on the line, amounting to 62 in number, it is believed there are few who will not carry their contracts into effect. Their resources are variable, and some of them are men of great respectability and wealth; and it gives me pleasure to have it in my power to state, that, of so large a number, a more respectable, orderly, sober, and industrious set of men, it is believed, were never brought together on any similar work. With reference to the resources of the country, they are abundant and cheap.

The wide extent and diversified character of the work confided to my charge, extending now from Canton to the Ohio canal, a part of which is confined to repairs, a distance of 100 miles, has hitherto required the most unwearied attention, and considerable assistance; and I do cheerfully state that I have been much benefitted by the skill and vigilance of Mr. David Scott, my assistant superintendent, who has discharged the duties of his station with ability and fidelity; and also that Samuel Carpenter, in addition to the faithful discharge of the duties of engineer, has rendered many important services.

In conclusion, I beg leave to tender you my most sincere thanks for the kindness of your communication, and the great support I received from the promptness with which you have directed our operations, and the regard with which mine have been received; which, also, I beg leave through you to tender to the Hon. Secretary of War, for the deep interest he has manifested in the prosecution of this great national work.

Respectfully submitted,

JAMES HAMPSON,

Superintendent N. R. Ohio.

General CHARLES GRATIOT,

Chief Engineer, Washington city.

A.

Statement of Contracts for the 3d stratum of metal, between Canton and Zanesville, Ohio, containing the number of section, names of contractors, price per pole, length of section, total amount of section, and John Murray's bond for slips.

No. of Section.	NAMES.	Price per pole.	Length of section.	Total amount of section.	Remarks.
			Poles.		
50	John Bollen, (part 50 sec)	4 45	27	120 15	{ On each side Wills cr. br.
54	Hugh Murphy & P. Slevin	3 75	320	1,200 00	
55	Samuel Glasford	4 00	320	1,280 00	
56	Christopher Creighton	3 49 $\frac{1}{2}$	320	1,118 40	
57	James Sharp	4 50	320	1,440 00	
58	John Smith	3 75	320	1,200 00	
59	John Hanna	3 90	320	1,248 00	
60	Bernard Dougherty	3 75	320	1,200 00	
61	Thomas Ivory	3 75	320	1,200 00	
62	Peter Early	3 62 $\frac{1}{2}$	320	1,160 00	
63	Thomas Maxfield	3 75	320	1,200 00	
64	Arthur Taggart	3 90	320	1,248 00	
65	Thomas Moore	3 90	320	1,248 00	
66	Cornelius Bropley	5 00	320	1,600 00	
67	William Rabe	5 00	320	1,600 00	
68	Do 240 rods e. end	5 50	240	1,320 00	
68	A. Baker, 80 rods w. end	5 00	80	400 00	
69	Robert Fulton	3 62	320	1,158 40	
70	James Monaghan	3 79	320	1,212 80	
71	S. Patterson & W. Ray	5 00	320	1,600 00	
72	Thomas Monaghan	5 00	320	1,600 00	
73	William Monaghan	3 98	320	1,273 60	{ Fraction be- tween the 75 mile & the ca- nal on e. side Muskingum.
74	Charles Roberts	5 25	320	1,680 00	
75	Patrick Monaghan	5 25	97 $\frac{3}{10}$	511 14	
Total amount,				28,818 49	
John Murray's bond for removing landslips on Boden's Hill,				711 64	
				29,530 13	

STATEMENT of the Contracts for the Masonry on the first 27 miles, commencing on the west bank of Muskingum, of the National Road between Zanesville and Columbus, Ohio, showing the names of contractors, No. of contract, number of perches, price per perch over 12 feet chord, price per perch of bridges of and under 12 feet chord, price per perch for culverts, total amount, &c. agreeably to my estimate.

Names of Contractors.	No. of contract.	Section of road embraced.	Perches of bridges of a chord over 12 feet.	Perches of bridges of a chord of and under 12 feet.	Perches of Gothic arches, culverts, and walls.	Price of bridge work over 12 feet chord, per perch.	Price of bridge work of a chord of and under 12 feet, per perch.	Price of Gothic arches, culverts, and walls, per perch.	Total number of perches in each section.	Total cost of each contract.	Cost of each section of bridge work over 12 feet chord.	Cost of each section of bridge work of and under 12 feet chord.	Cost of each section of Gothic arches, culverts, and walls.
James Kieman -	1	1st & 2d mile	1,780	200	367	\$2 00	\$2 00	\$1 37½	2,347	\$4,464 62½	\$3,560 00	\$400 00	\$504 62½
William Rabe -	2	3, 4, 5, 6,	300	874	926	1 87½	1 75	1 06½	2,100	3,075 87½	562 50	1,529 50	983 87½
Christo. Niswanger -	3	7th mile	900	200	287	1 87½	1 44	1 10	1,387	2,291 20	1,687 50	288 00	315 70
Daniel Taft -	4	8, 9, 10, 11,	900	-	894	2 40	-	1 25	1,794	3,277 50	2,160 00	-	1,117 50
James Kinkead -	5	12, 13,	700	375	243	2 75	1 75	1 25	1,318	2,875 00	1,915 00	656 25	303 75
Do. -	6	14, 15,	1,285	170	340	2 25	1 50	1 12½	1,795	3,528 75	2,891 25	255 00	382 50
Joseph Sharp -	7	16, 17, 18, 19	-	920	507	-	1 79	1 12½	1,427	2,217 17½	-	1,646 80	570 37½
Cornelius Bropley -	8	20, 21, 22, 23	-	1,100	465	-	2 00	1 25	1,565	2,781 25	-	2,200 00	581 25
John S. Parkinson -	9	24, 25, 26, 27	1,000	-	396	3 00	-	2 25	1,396	3,891 00	-	-	-
Wood superstructure south fork Licking bridge, 75 feet span, at \$20 per foot,										1,500 00	7,500 00	-	891 00
Do. do. over canal, 75 feet span, at \$20 per foot,										1,500 00			
Abutments to do.			500	-	-	3 00	-	-	500	1,500 00			
			7,365	3,839	4,425	-	-	-	15,629	32,902 37½	20,276 25	6,975 55	5,650 57½

C.

STATEMENT showing the No. of bond, the contractors' names, the length of section, price per pole for graduation, price per pole for graduation and three inches of stone, total cost of graduation, total cost of graduation and three inches stone, on the National Road between Zanesville and Columbus, Ohio.

No. of bond.	Names of contractors.	Length of section.	Price per pole for graduation.	Price per pole for graduation and 3 inches of stone.	Total cost of graduation.	Total cost for graduation and for three inches of stone.
		Poles.				
1	George Jackson -	320	\$4 50	\$8 50	\$1,440	\$2,720
2	John Porter -	320	6	10	1,920	3,200
3	John Carr -	320	2 95	6 95	944	2,244
4	Edward Downey -	320	2 75	6 37½	880	2,040
5	James McDermitt	320	3	6	960	1,920
6	John McCartney -	320	2 75	6 75	880	2,160
7	Thomas Martin -	320	6 50	11	2,080	3,520
8	Alex. Dolman -	320	4	8	1,200	2,560
9	John McGarey -	320	3 59	7 08	1,148 80	2,265 60
10	Samuel Green -	320	3 50	7	1,120	2,240
11	J. McKowne & Co.	339 ³⁰ / ₁₀₀	3	7 50	1,019 40	2,548 50
12	Peter Early -	284 ²⁰ / ₁₀₀	5	9	1,421	2,557 80
13	Charles McKinney	356	6 50	10 50	2,314	3,738
14	Henry Devlin -	300	8	11	2,400	3,300
15	Wm. Monaghan -	320	4 50	8 50	1,440	2,720
16	Thomas Moore -	320	4 50	8 50	1,440	2,720
17	William Orr -	320	4 75	7 87½	1,520	2,520
18	Thos. Monaghan -	320	4	7 50	1,280	2,400
19	Arthur Taggart -	320	5 50	9 50	1,760	3,040
20	Peter Cornyn -	320	5 25	9	1,680	2,880
21	Robert McAlister -	320	4 25	7 50	1,360	2,400
22	Thomas Ivory -	320	4	8 50	1,280	2,720
23	Patrick McCristal -	320	4 50	9 25	1,440	2,960
24	Artemus Baker -	320	4 50	9 50	1,440	3,040
25	Jno. S. Parkinson	320	5 75	9 50	1,840	2,960
26	Thomas Ewing -	320	4	9 71	1,280	3,107 20
27	Cornelius Bropley	320	5 50	9 50	1,760	3,040
Total amount,					\$39,327 20	\$73,501 10

Annual Report on the Cumberland Road in the State of Ohio, for the year 1830.

ROAD OFFICE, Zanesville, Nov. 27, 1830.

SIR: Conformably to the regulations of the Engineer Department, requiring officers superintending the construction of public works to report annually the progress of their operations during, and their condition at the expiration of, each year ending 30th September; also a memoir containing a narrative of the progress of the operations from the commencement, and a statement of the contracts entered into within the year, I have the honor to report:

That, under the several acts of Congress of the United States, authorizing the location and the construction of the continuation of the Cumberland road through the States of Ohio, Indiana, Illinois, and to the seat of Government of Missouri, the whole line from Zanesville to Columbus was surveyed, marked, and prepared for contracts on Mr. Knight's location, in June, 1829, under my superintendency. Agreeably to notice, proposals were received for this whole distance, and contracts were entered into in July for the construction of bridges, culverts, &c., for the graduation, and for a cover of three inches of metal, forming the first stratum, on 26 miles only—judging from Mr. Knight's estimates, that the sum appropriated in 1829 would be amply sufficient to complete that distance. The part contracted for commences 9½ poles west from the west end of the bridge across the Muskingum river, on the line of the road, and extends to a point 55 poles west of the Erie and Ohio canal. The distance was divided into 9 sections of masonry, equalising the value of the work to be done on the various sections as near as practicable, and for the graduation and a cover of 3 inches of metal, into 26 sections of one mile each. The contracts were made early in August, and the operations commenced in the latter part of the same month. Much progress had been made in procuring materials for the masonry: upwards of 2,000 perches of stone were laid in bridges and culverts; the clearing and grubbing were nearly all completed, the graduation considerably advanced, and much stone deposited for the cover on many of the contracts, a portion of which was reduced to its proper size, (not exceeding 4 ounces,) agreeably to McAdam's system of road making. This was the condition of the work on the 30th September last, which, together with a statement of the operations that had been directed at the same time east of the Muskingum river, was exhibited in my last annual report.

Instructions having been received from the Department, early in that month, to employ some competent person to survey and examine a route north of Mr. Knight's location, commencing at the Erie and Ohio canal, and terminating at Columbus, I accordingly employed Samuel Carpenter as engineer for that purpose, who made the survey and estimates; after which, the surveyor and myself made an examination of both lines, with a view of ascertaining their comparative advantages and expense. My report, accompanied with that of the engineer, and a plat, notes, and estimates, were transmitted to the Department in February last. The incessant rains, which commenced early in October, and continued through the winter, retarded the whole work, so that little could be effected until last spring, although the work was continued in all its parts. As soon as the weather would permit, an increased force was applied, which continues to this time. Having received instructions in June last to apply 3 additional inches of metal this

season, forming the 2d stratum on this division of the road, the required notice was given that proposals for contracts would be received from the 24th to the 31st day of August at Zanesville for that purpose. Proposals were accordingly received for the respective sections on the whole line, but contracts for 21 miles only were made. Table D will show the contractors' names, and the particulars of the contracts. The 5 western sections were not contracted for, but were left to be disposed of in future.

The former contracts for applying the first layer of three inches of metal on the same five sections, have been suspended; consequently, the first twenty-one miles only are under contract for the cover of metal, which it is intended to apply this season, should the bed of the road be sufficiently dry when the metal is prepared. The present advanced state of the work in the preparation of metal justifies the belief that but few of the contractors will have any to prepare after the 15th of November; and that it will all be in readiness, and a considerable part of it put on, by the last of that month. The graduation of this division is all completed, except the sloping of the banks, and the final adjustment of the surface for the reception of the stone—an adjustment which is necessary after the travel has been discontinued. The travel has been admitted and continued through most of the summer, to produce that compactness requisite in the body of the road, previous to the application of the metal. It is intended to apply the six inches as one stratum, instead of two strata of three inches each, and to make more than the ordinary use of the heavy iron roller, that the metal may be more speedily consolidated than it could have been by the ordinary process of travel. Should early rains fall, and the ground become very wet, the application of that part of the cover, if any, which may remain to be put on, will, of necessity, have to be deferred until next spring.

With regard to the state of the masonry on this division, all is finished from the first to the twenty-fifth mile; and the unfinished portion, it is confidently expected, will be completed by the last of November.

On this division there are constructed twenty-three stone arched bridges of various chords, viz: one of forty feet, one of thirty feet, two of twenty-five feet, three of twenty feet, one of fifteen feet, one of twelve feet, two of ten feet, nine of eight, and three of six feet. There are three Gothic, and one hundred and twenty common square culverts. Also, one wooden arched bridge, ninety-five feet chord, now constructing on the ninth section over Licking creek, which, it is expected, will be ready for the admission of the travel over it by the 1st of January next. The estimate of the masonry contained in the abutments of the last mentioned bridge is included in the estimate of unfinished masonry, which follows.

There is laid in these bridges, - - -	14,288½ perches.
each containing 24.75 cubic feet. It is estimated that to finish the masonry on the ninth section, (or the twenty-fifth and twenty-sixth miles,) it will require - - -	1,589

Which, added together, will make - - - 15,877½ perches.

The aggregate cost per perch is \$2 26.76 \$36,002 94

There are laid in culverts, 4,789½ perches, the average cost of which, per perch, is \$1 23.6 cents.

5,921,38½

In sustaining walls, 1,164½ perches; average cost
per perch is \$1 81 - - - - \$2,106 90

Total number of perches in the above, 21,831½.

The average cost per perch of the whole is \$2 01.69.

Total cost,	-	-	-	\$44,031 23
Add the cost of a wooden superstructure now constructing, as above mentioned	-	-	-	3,565 00
And the expense of cast iron devell pins for connecting the coping in the bridges,	-	-	-	94 00

Making the total expense for bridges and culverts on this division of the road,	-	-	-	47,690 23
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Being \$5 73.8 cents per pole, and \$1,834 23.9 per mile.

The graduation of twenty-six miles cost \$37,567 20

The estimated cost of the cuttings and fillings in reducing the grade below the original notes (and thus completing the expense of the grade,) is 7,000 00

Making	-	-	-	44,567 20
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Average cost per pole, \$5 35.66; per mile, \$1,714 12.3.

The cost of three inches of metal, forming first stratum on twenty-one miles, - - - \$25,384 70

Cost of three inches, forming the second stratum on twenty-one miles, - - - - 31,840 00

Total cost of two strata united in one,	-	-	-	\$57,224 70
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Being, per rod, \$8 50.87; per mile, \$2,724 98.5.

Add the estimated cost of a cover of six inches on the remaining five miles, - - - \$19,200

The cost of twenty-seven mile-stones, - - - 156

Contingencies on the above division, including the location, payment for damages done properly, and all expenses incidental to the work, - 9,000

28,356 00

Aggregate,	-	-	-	\$177,838 13
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Average, per pole, \$21 37.47; per mile, \$6,839 92.8.

By reference to the foregoing statements, it will appear that the cost of bridges and culverts of all kinds, now done or under contract, will be \$47,690 23

Grading* twenty-six miles agreeably to the first contracts, - - - - 37,567 20

Cover of six inches of metal over twenty-one miles, - - - - 57,224 70

Estimated portion of contingencies, - - - 8,000 00

\$150,482 13

The following items, contained in the statements above referred to, will enter into the estimates of funds for the service of 1831.

Estimated expense of a cover of six inches of metal, in the five western miles, - - - \$19,200 00

Estimated expense for extra cutting and filling to effect the reduction of the grade, -	\$7,000 00
Supposed proportion of contingent expenses, -	1,000 00
Twenty-seven mile-stones, -	156 00
	<hr/> 27,356 00

Presenting the same aggregate as above, - - \$177,838 13

Instructions were received in May last to place under contract the graduation and bridging of so much of the line of the road as extends from the centre of High street, in the town of Columbus, to the end of the second section, (as originally located by Mr. Knight,) embracing a distance of fourteen miles; leaving a distance of 27 miles 81.76 poles, from a point fifty-five rods west of the Erie and Ohio canal (being the west end of the division now under contract) to the last named point, on which no contracts have been made, except for the clearing and draining of the first mile. Accordingly, I had the relay or location of that distance effected in July, on the former location, and all was prepared for contract. The line was divided into five convenient sections for the masonry, and for two wooden arched bridges over Little and Big Darby creeks; and into fourteen sections of one mile each, (except the first, from which seventy-four rods were deducted,) for the graduation. The country immediately west of Columbus, through which the line passes, being for the most part flat, and liable to inundations in wet seasons, indicated the necessity of raising the road beyond the reach of the water. Advice was received from the Department to raise the body of the road. Arrangements have accordingly been made for forming it from one to two feet higher than was indicated by the original survey. In addition to this, extensive ditches were laid out to carry off the water. It is confidently believed, that, when all this shall have been effected, the road will be kept dry, and meet the views of the Department.

Notice had been given in July that proposals would be received between the 20th and 24th of that month, in Columbus, for the above work, in separate contracts. Agreeably to invitation, proposals were received, and contracts entered into, early in August. The masonry was given out from the first to the eighth mile, (inclusive,) and also on the eleventh, twelfth, and thirteenth miles. The masonry on the ninth, tenth, and fourteenth miles is not under contract. Table C will show the conditions of the contracts for the masonry, and also a contract for a wooden arched bridge over Big Darby creek. Contracts were entered into for the graduation of thirteen miles and two hundred and forty-six rods, commencing seventy-four rods from the centre of High street, in Columbus, at a point on the west bank of the Scioto river, and extending to a point fifty-eight rods west of Little Darby creek. On the three first sections of this division, passing over the flat bottoms of the Scioto, the contracts for grading embraced a cover of seven and an half inches of gravel—the excavations producing an abundance of that material. The table marked B will show the conditions of these contracts. The contractors commenced their labors in August. Considerable preparation has been made in procuring materials for the masonry, and for the wooden bridge. The masonry will not (in all probability) be finished before May next. The grubbing and clearing are principally completed on the respective contracts, and the graduation is considerably advanced on all the sections, so as to justify the belief that the most of it will be accomplished by the 1st of January.

The following will present a view of the contracts made, and estimates

of the probable expense attendant upon the bridging and culverts of every kind on this division.

The masonry on 246 poles of the first mile, and from the 2d to the 8th inclusive, and on the 11th, 12th, and 13th, it is estimated, will be 3,970 perches of stone, of 25 cubic feet each. Average, per perch, \$3 85.64.

Aggregate,	-	-	-	-	\$15,310 00
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Estimated number of perches that will be required to finish the 9th, 10th, and 14th miles, 3,140; estimate average, per perch, \$4 46.37.

Aggregate,	-	-	-	-	14,015 00
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To which add cost of wooden arched bridge over Big Darby, now under contract,

-	4,960 00
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Estimated cost of wooden arched bridge over Little Darby,

-	3,500 00
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Fourteen mile-stones,	-	-	-	-	84 00
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All of which added together will complete the bridges and culverts of all kinds, including the two wooden arched bridges upon this division of the road, at an expense of \$8 59.48 per rod, and \$2,750 35.86 per mile.

Aggregate,	-	-	-	-	\$37,869 00
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The graduation of 13 miles 246 poles, now under contract, per pole, \$4 54.8; per mile, \$1,455 42.9.

Aggregate,	-	-	-	-	20,039 45
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Estimated contingencies on all the above work, embracing location, superintending, and other incidental expenses attending a work of this kind,

-	2,000 00
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	\$59,908 45
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Total average per pole, \$13 59.7; per mile, \$4,351 04.49.

It appears by the above statements, that the cost of bridges and culverts now under contract is, upon this division,

-	20,270 00
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Graduation,	-	-	-	-	20,039 45
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Probable amount of contingencies,	-	-	-	-	1,500 00
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	41,809 45
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Bridging not under contract, included in this estimate for the service of 1831,

-	17,515 00
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Mile-stones,	-	-	-	-	84 00
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Estimated portion of contingencies,	-	-	-	-	500 00
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	18,099 00
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	\$59,908 45
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Agreeably to directions from the Department dated the 17th April, 1829, to take charge of the completion of the unfinished portion of the road east of Zanesville, I have the honor further to report :

That the eastern part of said road, extending from Canton, on the western bank of the Ohio river, to a point in the 52d mile, being previously finished with a cover of nine inches of metal, bridging, &c. &c., except the bridge over Wills creek, and a section of 27 poles, (embracing said bridge in its

extent,) contracts for finishing the bridge, for the masonry, grading, and putting a cover of 6 inches of metal on the unfinished portion, extending from the 52d mile to the east bank of the Muskingum river, a distance of 20 miles 312.92 poles, were entered into by my predecessor in the year 1827. The contracts for the masonry were complied with, except the parapet walls of the above bridge; the grubbing and clearing were finished, the graduation in progress, and the labor on each section about one half performed, and a large proportion of the materials for the cover deposited on the sides of the road, much of it being reduced to a size not exceeding four ounces. The operations were continued under my direction, and the contracts were closed by the 30th of September of the same year. Having previously received directions to add the 3d stratum or cover of three additional inches of metal on the unfinished part of the line above alluded to, in compliance therewith, I caused the required notice to be given, that I would receive proposals for that purpose between the 20th and 31st days of August; which were accordingly received, and contracts entered into for 20 miles 312.92 poles, to be completed by the 25th of November ensuing. In consequence, however, of the unusual fall of rain, commencing early in October, and continuing through the season, there was only about two thirds of the labor performed at the time stipulated. Although the contractors had not strictly complied with their engagements, yet, as they had made due exertions for their fulfilment, it was considered best to permit them to continue their labors through the winter, whenever the weather would permit, and finish in the spring. By the middle of April the contracts were completed, and the road was at that time finished with a cover of nine inches of metal, according to McAdam's system, from the Ohio to the Muskingum river, a distance of 73 miles 97.36 poles.

During the winter previous to my superintendency, many landslips had taken place on that part of the road which had been previously finished, (about 52 miles,) whereby the ditches and drains had become much obstructed, the water thrown on to the metalled part of the road, which was receiving great injury, and the side roads had become much damaged by the operation of the weather. The sliding in of earth is incident to all newly constructed roads, when deep excavations are made, whatever care may be taken in sloping the bank to the proper angle. This is occasioned by the different degrees of adhesiveness which various kinds of earth possess. I much desired to remove those landslips, and to perform any other labor necessary to keep the road in great order, until it became perfectly smooth and firm. This service was commenced in September, and performed with the continuance of operations on the other divisions of the road. Those portions, the value of which could be ascertained, were given out under specific contracts; but the greater part of the work required to carry into effect the object in view was of such an uncertain character, that it was thought best to execute it by employing men by the day. Considerable stone to supply the defective parts had been prepared and deposited on the road side, and much more was prepared under my direction, which seemed necessary to complete the system of repairs. A large portion of the stone was applied in places where it was most needed; the side roads were repaired where they required it, the ditches and drains put in order, and both greatly improved. There is a quantity of broken stone remaining on various sections of the road, to be applied, so far as it will go, to the worn parts, if provision should be made for that purpose.

After that part of the road which was finished under my superintendence

was received from the contractors as complete, the side roads, ditches, and drains were kept in order on the whole line, and including the part last finished: the metal thrown out by the travel was kept raked from the edges, to preserve that elevation of the centre, which would be otherwise reduced by the travel of the mail stages, heavy wagons, &c. and much pains taken to preserve that general smoothness of the surface desirable to prevent water from standing on the road, which, if permitted, would inevitably destroy it.

This process was kept up until the 16th June last, at which time I received information that the funds applicable to this end of the road were exhausted, with instructions to dispense with the rakers and others employed in the service; which was done accordingly. Since that time no labour has been performed east of the Muskingum river. The public interest, in my opinion, however, would have been much advanced by continuing (had it been practicable) a few hands through the season, as it requires considerable time for the metal to become perfectly consolidated after it is applied, which had not taken place. The ditches and drains are also continually getting out of order, which, if not attended to, will ultimately produce serious injury, unless the greatest descents are paved with stone, which is not the case on any part of the road. A small sum of money expended in labor continually applied would be preferable to large amounts expended at distant periods, when the injuries have become so extensive as to require large expenditures for their repair.

The following statement will exhibit the amount of that part of the funds applicable to the construction of this part of the road when I took charge of it, which has been drawn by me, and applied in payments for the various parts of the forgoing operations.

The unexpended balance of the appropriation drawn from			
5th August, 1829, to 26th June, 1830, and expended under the direction of the Department,	-	-	\$90,067 46
Amount drawn and accounted for to the 30th			
Sept. 1829,	-	\$46,236 91	
Portion paid on the 3d stratum of metal,	-	27,970	
Allowance made at the Department to sundry individuals for extra on former contracts, and paid by me,	-	6,646 52	
To fulfil former contracts for preparation of metal for repairs, removing landslips, and repairing road,	-	9,214 03	
			\$90,067 46

In addition to which, some accounts were paid at the Treasury by arrangements with the Department.

On a settlement of all claims growing out of the operations, consisting of damages done property, materials furnished, and labor performed, it is estimated that there remains to be covered by an appropriation, - - - \$2,701 24

On a close inspection of the work, it is found that certain parts of the masonry required repairs, some small landslips have occurred, and the funds having been exhausted before the road had become sufficiently compact, it has sustained injury, and consequently requires some repairs. All this, it is estimated, would require, for the present - - - 14,740 00

Which, with the above sum, would require an appropriation of \$17,441 24

RECAPITULATION.

The following will exhibit the amount of contracts, and their progress, on the 1st and 3d divisions, and one mile on the 2d, agreeably to the foregoing statements:

Bridging and culverts on 1st division, 26 miles west of Muskingum (part unfinished)	-	\$47,690	23
Graduation of 1st division of 26 miles	-	37,567	20
Two contracts for 3 inches each, making 6 inches cover of metal for 21 miles on 1st division,	-	57,224	70
Amount paid for grubbing, clearing, and draining one mile on 2d division,	-	350	
			142,832 13
Masonry on 3d division west of Columbus,	-	15,310	00
Estimate of difference in depth of foundations,	-	457	98
Wooden superstructure over Big Darby,	-	4,960	
Graduation of 13 miles 246 poles,	-	20,039	45
			40,767 43
Contingencies which have occurred on all the work west of Muskingum river,	-		7,883 02½
			191,482 58½
Remaining for contingencies, which will close the appropriation,	-		8,517 41½
			<u>\$200,000 00</u>
Moneys accounted for to the 30th Sept. 1830,	\$117,830	24	
Contracts unfinished, &c.	-	73,652	34½
Remaining of the appropriation, subject to any contingencies,	-	8,517	41½
			<u>\$200,000 00</u>
The appropriation of 3d March, 1829, applicable to the construction of the road west of the Muskingum, as above, was	-	\$100,000	00
Appropriation of 31st May, 1830,	-	100,000	00
			200,000 00
Accounted for,	-	117,830	23½
On hand,	-	398	33½
Undrawn from the Treasury,	-	81,771	43
			<u>\$200,000 00</u>
Amount of money that has been applicable to the construction of the continuation of the Cumberland road in Ohio, during my superintendency:			
Balance of the appropriation east of the Muskingum, which has been drawn by me,	-	\$90,067	46
Appropriations of 1829 and 1830 for road west of Muskingum,	-	200,000	00
			290,067 46
There has been paid east of the Muskingum,	-	90,067	46
Paid west of Muskingum, to Sept. 30th, 1830,	117,830	23½	
Remaining applicable,	-	82,169	76½
			<u>\$290,067 46</u>

I have not in my possession the precise cost of the eastern division of the road from the commencement of the work.

It has been seen in the foregoing statements, that the sum re-			
quired on the road east of Zanesville is estimated at	-	\$17,441	24
The 1st division west of Zanesville,	-	-	27,356 00
The 3d division west,	-	-	18,099 00
On the 2d division, not contained in any forego-			
ing statement, it is estimated there will be re-			
quired for bridging,	-	\$62,500	00
For grading, &c.	-	40,514	00
			<hr/> 103,014 00
			<hr/> <u>\$165,910 24</u>

I have thought it my duty to present the above different parts of the work to the view of the Department, that appropriations to such extent as may be thought proper may be recommended to Congress.

Should the whole of the above estimated sum be appropriated, a judicious application of it will leave the eastern division of the road in good order for the time. That division extends from the Ohio river opposite Wheeling, to the Muskingum river at Zanesville. It will leave the 1st division west of the Muskingum, extending from Zanesville to a point a few poles west of the Erie and Ohio canal, with all its bridging complete, and a cover of 6 inches of metal, which will answer the present purpose for travelling, but an additional three inches of metal, it is conceived, will ultimately be required. The 2d division west, extending from the point last named into the town of Columbus, being 27 miles 81.76 poles, will have its bridges and culverts constructed, and the graduation finished; and the 3d division, extending 14 miles west from a point in Columbus, will have its bridging, culverts, and graduation complete. (I would here observe, that the bridges already under contract on this division embrace all the most difficult places; and when they are finished, the travelling will but seldom be obstructed.) All the above will form a line of road in Ohio of upwards of 140 miles in extent, equal to any other road of the same extent in the United States.

Should contracts for the work on which the above estimates are predicated be entered into as early as April next, the whole work can be far advanced in the next season, and those parts completed which are now under contract. An early sale of contracts would prevent experienced contractors and valuable hands from leaving this work, to seek other employment for the summer.

The country through which the road passes, for about 21 miles west of the Muskingum river, is extremely rough and hilly. Deep excavations and heavy embankments have been required to effect the present reduced grade of ascents and descents. Many beds of sand stone have been cut through. The stone thus procured, however, has furnished excellent materials for the embankments and a bed for the metal, which will contribute greatly to the stability of the whole structure when finished. All the metal prepared for the cover of the road consists of hard stone.

The masonry erected has been more expensive than was expected, as the looseness of the soil made it necessary to lay the foundations deeper than had been anticipated. The materials used have been the best that could be

procured within a reasonable distance; and the strictest attention has been paid to have the work strongly built, and so constructed as to ensure its durability.

West of the first 21 miles abovementioned, there are some low places, but the soil is generally favorable for the formation of the road, and sufficiently undulating to be easily drained. On the most part of the 2d division between the canal and Columbus, it is supposed that sufficient gravel will be found in the excavations, or near the line, to make the road fit for immediate travelling without incurring any other expense than the grading; but the gravel thus procured will probably not obviate the necessity of ultimately putting on a cover of metal also. This, however, can be better ascertained after the excavations are made, and the principle tested. Where very low ground is passed over, the soil of course is less favorable; but even there much can be effected by proper care in selecting the best materials from the adjacent excavations, and applying them to the surface of the fillings. Stone for the cover may be found on this division of the road, though less convenient than on other parts of the line. The bridging on this division is a heavy item, there being a number of considerable streams; 5 bridges will be required of from 50 to 180 feet chord, and many of smaller size.

On the 3d division west of Columbus, abundance of good limestone can be easily procured, when it shall be thought proper to apply a cover to that part of the road.

The contractors are generally worthy and enterprising men, and, with very few exceptions, have either completed their work, or are likely to do so, with credit to themselves. The contracts have been taken on terms advantageous to the Government, and in a few instances probably below their real value.

The portion of the road already finished has fully proved the excellency of the McAdam system. A very great amount of travelling has been performed on it, with comparatively but little injury. It will, however, eventually become greatly injured, unless suitable provisions should be made to keep it in repair. How this can be best effected, it will be for the wisdom of Congress to devise. There is perhaps no road that could be kept in good repair at less expense. Great facility has already been afforded for the safe and speedy transportation of the mail, for commercial intercourse, and for travelling generally. Emigration is rendered comparatively easy, and has greatly increased. The same distance can now be accomplished, with greatly increased weight, by the same power, in much less than half the time that was required on the former road through the same country—not to speak of the injury to horses, carriages, &c., which is now greatly obviated.

The proximity of the Erie and Ohio canal to the finished part of the road has contributed to some of its beneficial results; and when the latter shall have been completed to the intersecting point, the advantages will be greatly increased.

It must have been perceived that the work in which I have been engaged has been widely extended, and so various and complex in its nature as to render the duties very arduous indeed. Your attention in advising and directing the course of its operations has afforded me great relief, and is duly appreciated. Much useful information in relation to the work has

been received from Captain Richard Delafield, of the corps of engineers, who visited and inspected this work in August last.

All of which is respectfully submitted.

JAMES HAMPSON,

*Superintendent of the continuation of the
Cumberland Road in Ohio.*

General CHARLES GRATIOT,

Chief Engineer, Washington City.

TABLE B.

SHOWING the numbers of the sections, contractors' names for grading, length of each section, cost per rod, and cost per mile.

No. of section.	NAMES OF CONTRACTORS.			Length of each section.	Cost of graduation per rod on each section.	Total cost of the graduation on each mile or section.
				Rods.	Dolls. Cts.	Dolls. Cts.
1	Anthony Button	-	-	246	4 37½	1,076 25
2	Henry Wells	-	-	320	4 31	1,379 20
3	Horace Wolcott	-	-	320	5 83	1,865 60
4	Evans Broderick	-	-	320	3 75	1,200 00
5	Gayland, Adams, & Co.	-	-	320	3 62½	1,160 00
6	John Smyth	-	-	320	3 75	1,200 00
7	Bernard Gallagher	-	-	320	3 75	1,200 00
8	Bernard Docharty	-	-	320	3 75	1,200 00
9	David Shaw	-	-	320	4 62½	1,478 40
10	Nathan Spencer	-	-	320	5 50	1,760 00
11	Boardman & Frazee	-	-	320	3 87½	1,240 00
12	Shannon & Watkins	-	-	320	3 50	1,120 00
13	Patrick Sherlock	-	-	320	7 50	2,400 00
14	Jesse Ullery	-	-	320	5 50	1,760 00
						20,039 45

TABLE C.

SHOWING the numbers of the sections, the names of the contractors for constructing the bridges and culverts, the number of miles in each section, price per perch, estimated number of perches in each section, and probable cost of each.

No. of section.	NAMES OF CONTRACTORS.	Embracing	Price per perch of 25 cubic feet.	Probable number of perch in each sec- tion.	Total probable cost of each section of ma- sonry.
		Miles.	Dolls. Cts.	Perch.	Dollars. Cents.
1	C. Niswanger, - - -	1, 2, 3, & 4th	4 00	1.840	7,360 00
2	David C. Ruffner, - - -	5, 6, 7, & 8th	4 00	550	2,200 00
3	Joseph Sharp, - - -	11, 12, & 13th	4 00	1.200	4,800 00
"	Do.	" "	2 50	380	950 00
4	Sylvanus Baldwin, 13th mile, wooden superstructure over Big Darby creek, 160 feet, at \$31 per foot, - - -				4,900 00
	Aggregate, - - -				20,270 00

TABLE D.

SHOWING the number and length of the contracts for putting the 2d stratum of 3 inches of metal on 21 miles of the 1st division of the national road west of Zanesville, with the contractors' names, cost per rod, and cost per mile.

No. of section.	NAMES OF CONTRACTORS.	Number of rods in each section.	Cost per rod of 2d stratum of 3 inches.	Total cost of each section per mile.
		Rods.	Dolls. Cts.	Dollars. Cents.
1	George Jackson, - -	320	5 00	1,600 00
2	George W. Jackson, -	320	5 00	1,600 00
3	John Carr, - -	320	4 50	1,440 00
4	Ed. Downey & P. Sherlock,	320	4 00	1,280 00
5	William Monaghan, -	320	4 50	1,440 00
6	Patrick Sherlock, - -	320	6 00	1,920 00
7	Thomas Martin, - -	320	4 75	1,520 00
8	A. & S. Dolman, - -	320	4 25	1,360 00
9	Vincen Standerford, -	320	4 00	1,280 00
10	Green & Richey, - -	320	3 75	1,200 00
11	John M'Cune & Co. -	320	4 00	1,280 00
12	Peter Early, - -	320	4 00	1,280 00
13	Charles M'Kinney, -	320	4 50	1,440 00
14	Henry Devlin, - -	320	4 50	1,440 00
15	William Monaghan, -	320	4 00	1,280 00
16	Thomas Moor, - -	320	4 00	1,280 00
17	William Orr, - -	320	4 00	1,280 00
18	Irving & M'Geary, -	320	6 00	1,920 00
19	Arthur Taggart, - -	320	6 00	1,920 00
20	Peter Cornyn, - -	320	7 00	2,240 00
21	Arthur Taggart, - -	320	5 50	1,760 00
Aggregate, - - -				31,760 00