GENERAL DANIEL ROBERDEAU AND THE LEAD MINE EXPEDITION, 1778-1779

BY DARWIN H. STAPLETON *

FROM the beginning of the Revolutionary War a good supply of munitions was one of the Americans' sorest needs. After all, the first battle was fought over a depot of war material at Concord. Lead to be made into bullets for the Continental armies was a particularly scarce item. Before the war no native supplies of lead were worked regularly, and the colonies had obtained smelted lead from Europe. With the interdiction of most trans-oceanic trade by the British Navy at the war's outset, that source became a trickle and other expedients had to be found.

Attesting to the situation is the Continental Congress' concern with the problem. One of the first evidences is a letter in its papers from Governor John Trumbull of Connecticut. He stated, on January 6, 1776, that the Middletown (Conn.) lead furnaces would soon be turning out "20 or 30 tons" of lead.1 By the late summer of 1777 the shortage of lead for the Continental forces was very apparent. On August 8 Congress resolved to take military action against Tories interfering with a lead mining operation in Maryland.2 Later that month Congress requested the Supreme Executive Council of Pennsylvania to order that all the leaden downspouts in Philadelphia be taken down for the army's use.3

A Congressional resolution of October 30, 1777, reveals the general attitude on the problem of lead:

The author is a graduate student and a Hagley Fellow at the University of Delaware.
1 Papers of the Continental Congress (microfilmed by the National Archives), item 66, 55.
3 Journals of the Continental Congress, vol. VIII, 677. That the spouts were actually taken down and used is attested by a letter of August 25, 1781 (in Papers of the Continental Congress, item 16, 58), stating that the spouts will be paid for.
Resolved. . . . That a letter be written by the Board of War to the government of the State of New York, representing, in the strongest terms, the great want of lead, the absolute necessity there is for providing seasonable resources of that article: that it be therefore earnestly recommended to the said government forthwith to take measures for having the lead mines in that State worked. . . .

So it is no surprise that when General John Armstrong recommended the exploitation of a known lead ore deposit in Sinking Spring Valley on the upper Juniata River in Pennsylvania, his idea was soon taken up. Armstrong, whose usual theater of operations was Western Pennsylvania, had addressed his thoughts to the President of the Council of the State.

York Town [Pa.]
23d Feb'y, 1778

Sir,

At present there appears to be a scarcity of the important article of Lead, and it's certain a Mr. Harman Husbands, now a member of Assembly for our State, has some knowledge of a Lead Mine situate in a certain Tract of Land not far from Franklintown, formerly surveyed for the use of the Proprietary Family. . . . I'm of opinion that a few faithful Laborers may be sufficient to make the experiment, and that the Lieut. of the County, or some other good Man, may be serviceable in introducing the business. . . .

What interest in the idea had been generated before the letter was sent or exactly what reception this letter had is unknown. But in two months time the letter was acted on by General Daniel Roberdeau.

Roberdeau was one of Pennsylvania's delegates to the Continental Congress, having been appointed on February 5, 1777, by the Provincial Assembly, and reappointed in December of that year. He was in York with the Congress at the time Armstrong's letter was written, since that was the winter of Philadelphia's occupation.

5 Pennsylvania Archives, Series I (Philadelphia, 1854), vol. 6, 293.
6 Roberdeau Buchanan, Genealogy of the Roberdeau Family (Washington, 1876), 72, 76; Minutes of the Provincial Council of Pennsylvania (Harrisburg, 1852), vol. XI, 385.
A special reason why General Roberdeau might have been concerned with the lead mining proposal is that in November, 1777, he had been appointed to a Congressional committee dealing with the problem of the scarcity of provisions for the Continental Army. Roberdeau’s pre-Revolution experience as a Philadelphia merchant had made him an obvious choice for that committee. He also served on the clothier general’s, Commissary, and treasury committees.

Daniel Roberdeau was born to a French Huguenot family on St. Christopher Island, British West Indies, in 1727. He went to England for an education, but on his father’s death he moved to Philadelphia and began a trade in West Indian goods. His success as a merchant is demonstrated by the receipt-book balances for 1755-1767. They total £79,597 over that period, averaging £6,123 per year.

Roberdeau did not hesitate to jeopardize his business by supporting non-importation in the various pre-Revolutionary agitations. In fact, he was very popular with the people of the city, and was “almost invariably the choice” as chairman at Philadelphia meetings on the subject.

When the Revolution came, he was in its midst. On June 30, 1775, the General Assembly appointed him to the Pennsylvania Committee of Safety, and two weeks later at a Committee meeting he was made a member of a sub-committee to inspect ordnance and other stores. He also joined the Pennsylvania Associators, a voluntary militia organized for the defense of the province. He was first elected a colonel of the Philadelphia City Second Battalion, but on July 4, 1776, at a convention of 53 delegates from all of the Associators’ battalions, he was elected the Brigadier General in command. In the next year he led the Associators in the New Jersey campaigns.

Roberdeau’s wealth was not substantially impaired by the onset of the war. In 1776 he invested £100 in part ownership...
of two privateers, and made a return of £ 400 when their prizes were sold.\textsuperscript{14} While he was at York serving in Congress he rented the largest house available, and entertained many guests, including John Adams.\textsuperscript{15} He was, therefore, in a position to explore possibilities for investment during the War.

As mentioned before, it is unknown how General Roberdeau became acquainted with Armstrong's proposal for lead mining in Sinking Spring Valley. But, in March, 1778, Daniel Roberdeau and others unnamed petitioned the General Assembly for title to lands around the mine.\textsuperscript{16} Presumably the argument was made that the Penn heirs (whom Armstrong noted as owners) had forfeited title to the land because of their Loyalist attitude. However, the Assembly would not decide the case, and agreed only to "indemnify Daniel Roberdeau and company from any loss they have sustained or may sustain in opening the said mine and smelting the ore, if they shall immediately proceed upon said work and diligently and faithfully prosecute the same."\textsuperscript{17} Unfortunately, the others involved in the venture were not specified, and other sources fail to mention them. It appears that Roberdeau became the sole supporter of the lead works.

With the assurance of the State’s backing, and an official leave of absence from the Continental Congress,\textsuperscript{18} Roberdeau left York in mid-April for a journey to the lead mine. His first stop was Carlisle, the munitions depot of the western part of the province. From there, he wrote a long letter to President Wharton of the Pennsylvania Council explaining his plans for operating the lead mine.

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\textbf{Carlisle, April 17, 1778}
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The confidence the honorable representatives of our State have placed in me by a resolve, together with the pressing and indispensible necessity of a speedy supply of lead for the public service, induced me to ask leave of absence of Congress to proceed with workmen to put their business into proper train, and have reached this

\begin{footnotesize}
\begin{enumerate}
\item Buchanan, \textit{Genealogy of the Roberdeau Family}, 63-64.
\item Robert Fortenbaugh, \textit{The Nine Capitals of the United States} (York, 1945), 38.
\item Buchanan, \textit{Genealogy of the Roberdeau Family}, 82.
\item Eugene R. Craine, \textit{The Story of Fort Roberdeau: 1777 to 1783} (Altoona, 1941), 10; Buchanan, \textit{Genealogy of the Roberdeau Family}, 82.
\item \textit{Journals of the Continental Congress}, vol. X, 1778.
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place on that errand; and having collected men and materials, and sent them forward this day, propose to follow them tomorrow. My views have been greatly enlarged since I left York on the importance of the undertaking and the hazard in prosecuting it, for the public works here are not furnished with an ounce of lead but what is in fixed ammunition; on the other hand, the prevailing opinion of the people, as I advance into the country, of Indian depredation shortly to commence, might not only deter the workmen I stand in need of, but affright the back settlers from their habitations, and leave the country exposed and naked....

He continued on to say that he had decided to build a "stockade" close to the mine, not only to protect the workers, but also to prevent evacuation of the neighborhood by offering protection to the settlers.

General Roberdeau's expedition consisted of a company of militia (about forty men) and a lieutenant and ten privates in Continental service, besides an unknown number of workmen. The force moved up the Juniata Valley and arrived at Standing Stone (modern Huntingdon) within six days. At that spot there was a great confusion because a group of settlers of Tory sentiment were terrorizing the area. Roberdeau's letter to Lt. John Carothers at Carlisle discussed the situation.

Standing Stone,
April 23, 1778

... The insurgents from this neighborhood I am informed are about thirty. One of them (Hess) has been taken, and confession extorted, from which it appears that this banditti expected to be joined by 300 men from the other side of the Allegheny; reports more vague mention 100 whites and savages....

I intend to move forward as soon as the arms, ammunition and other things come forward, to afford an escort to Sinking Spring Valley, where I shall be glad to meet as great a number of militia as you will station there, to enable me to erect a stockade, to secure the works so necessary to the public service and give confidence to the frontier inhabitants, by affording an Assylum [sic]...

79 *Pennsylvania Archives, Series 1*, vol. 6, 422-423.
80 Ibid., 424.
81 Ibid., 433, 437.
for their women & children . . . for without immediate aid the frontiers will be evacuated, for all that I have been able to say has been of no avail with the fugitives I have met on the roads—a most distressing sight, of men, women and children, flying through fear of a cruel enemy. . . .

There is little doubt that the situation on the frontier was as desperate as the General maintained, but it certainly gave him an excellent excuse for requesting that the state station men at a fort which could protect his lead mine.

A third letter written by General Roberdeau while on the expedition was dated from Sinking Spring Valley itself on April 27, 1778, and addressed to President Wharton. Roberdeau again referred to the distressed condition of the local inhabitants, but suggested that the evacuation had stopped since his arrival. He reported that the erection of the stockade (called "Fort Roberdeau") was proceeding slowly, because he had "at most" seven of the original forty militiamen with him.

How soon Roberdeau left the valley and returned to York is not clear, although his original intention, stated in the letter of April 17, was to return to Congress in three weeks, meaning that he would have been back on May 8. However, the first indication of his return is a letter dated "Lancaster, May 23, 1778," listing his recent expenses in service of Congress.

The stockade which was at least begun during General Roberdeau's stay at the lead mines was depicted in an engraving published in the *Columbian Magazine*, in the issue of December, 1788. The fort was four-cornered, and had loopholes at breast height for rifles. It was a curious structure, because, as the engraving shows, its rampart was made of logs laid horizontally, rather than the usual frontier-fort pattern of being set vertically in a row. An archeologist conducting an excavation of the stockade site in 1939 concluded that the limestone outcropping is so

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22 Ibid., 436-437.
24 *Pennsylvania Archives*, Series 1, vol. 6, 422-423.
close to the surface at the northern end of Sinking Valley that it would have been virtually impossible to put timbers into the ground.\textsuperscript{27} The number of men garrisoning the fort appears to have been thirty to forty in the years 1778-1779, although in the summer of 1780, when the lead mines were not operated, there were only sixteen men on duty.\textsuperscript{28}

The lead mines were beginning to be worked by the time of General Roberdeau's departure for York. The major problem at the outset was the lack of experienced miners and smelters. Before the General's trip to the mines he had written to the adjutant-general of the Continental Army asking to be supplied with "smelters and miners from deserters of the British army."\textsuperscript{29} In his letter from Sinking Spring Valley late in April he complained that he was "very deficient in workmen." At that time he had a Mr. Glen directing the making and burning of bricks, presumably for the furnace which the General expected him to build soon.

The need for workmen caused Roberdeau to write to George Washington, asking in particular for the services of Sergeant Edward Harris (probably because he had special skills), but also asking generally for any soldier with knowledge of lead smelting.\textsuperscript{30} The Commander-in-Chief replied:

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Headquarters, June 15, 1778 \\
Sir: I was favored with your letter of the fourth Inst. The number of applications for manufacturers and artificers of different kinds could they all be complied with, would be a considerable loss to the army.

But as the establishing the smelting of lead is of very great importance, I have directed Serjeant Harris to repair to you at York Town; and this day have given general orders for an inquiry to discover if two others, who understand this business can be found in camp.

If there are any such, I shall have them sent to you. With great respect, I am etc. . . . \textsuperscript{31}
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\textsuperscript{27} Craine, \textit{Story of Fort Roberdeau}, 26. \\
\textsuperscript{28} \textit{Pennsylvania Archives}, Series I, vol. 7, 418-419, 624, 742-743; Series 5, 95. \\
\textsuperscript{29} \textit{Pennsylvania Archives}, Series I, vol. 6, 424. \\
\textsuperscript{30} Calendar of the Correspondence of George Washington (Washington, 1916), vol. I, 640. \\
There is no record of how the problem of workmen was finally solved, or of what was the final character of the crew. However, the 1788 article in *The Columbian Magazine* which accompanied the engraving of the stockade said that "the miners were all old conntrymen." Perhaps General Roberdeau's request for British deserters was filled; at any rate, some experienced workers seem to have been employed, because the scale of the effort was large.

The search for a profitable vein of the ore was carried on in the vicinity of the fort by the sinking of several shafts. The first was excavated twenty feet down, and then about twenty or thirty yards horizontally, but the porous limestone through which the miners were tunnelling leaked badly and caused them to abandon the effort. After several more tries, a shaft sunk about a mile from the fort proved to tap a sufficient amount of lead ore. In searching for the ore and mining it with a shaft-mining operation, the miners were following what Robert Clough, in *The Lead Smelting Mills of the Yorkshire Dales*, calls a typical English method of the eighteenth century. That lends support to the idea that the workmen were British deserters.

After the lead ore was mined it was probably broken into small pieces and washed so that the ore (galena) could be removed from the other matter. Through that simple method it could be dressed to a purity of 80 percent lead. The ore was then smelted in a furnace. The archeologist's report of 1939 recorded finding a foundation next to the fort which was seven feet, four inches by fifteen feet, eleven inches. That was probably the location of the furnace where the smelting was done. The engraving in *The Columbian Magazine* shows a mill race and a waterwheel near the fort, structures which would have been necessary for working the bellows of the furnace. After the ore had been properly refined, the lead was probably run into sand moulds of pigs small enough to be transported by horse or mule.

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32 *The Columbian Magazine*, December 1788, 489.
33 Ibid., 490.
35 Ibid., 27-29; also see Henry R. Schoolcraft, *A View of the Lead Mines of Missouri* (New York, 1819), 90-93, for a later, but somewhat more primitive method of working lead.
Then it was taken to Water Street or Standing Stone for shipment down the Juniata, where, in his letter of April 17, Roberdeau said that he had landings.

The mining and smelting were carried on for a year and a half, until the late summer or early fall of 1779. In a letter to President Joseph Reed on November 10, 1779, General Roberdeau said that the operation was "entirely stoped [sic]." Viewed from nearly two centuries later, the reasons for the termination appear varied.

In the first place, subsequent geological study has shown that the lead ore veins which were worked were very lean. In 1782, General Roberdeau stated that

... I have before me positive evidence on oath, that every thing was in proper train, with sufficient Ore ready Stamped at the mouth of the Furnace to have cleared every expense in a few days, when the affrighted Artificers fled dismayed.

Yet, the General only claimed to have delivered a half-ton of lead by late 1779, certainly a scanty amount for such a large operation. One might have reasonably expected a production of at least ten times that over a year's time.

At the same time, his investment in the mining seems to have been substantial, since he confessed just after returning from the expedition to Sinking Spring Valley that

... my late engagement in the Lead works has proved a moth to my circulating Cash and oblige [sic] me to make free with a friend in borrowing. ...

On June 23, 1778, Congress ordered the Board of War to estimate the General's expenses in erecting the stockade, and determine whether they should be defrayed. And on November 10, 1779, Roberdeau petitioned the Supreme Council of Pennsylvania for payment on "ten hundred pounds of lead delivered...

Franklin Platt, The Geology of Blair County (Harrisburg, 1881), 252.
Daniel Roberdeau, April 19, 1782, to Jasper Yeats, Ferdinand J. Dreer Collection, Historical Society of Pennsylvania.
Pennsylvania Archives, Series I, vol. 8, 5.
Ibid., vol. 6, 584.
some Months ago." He estimated the cost of the lead in current
prices at $6 a pound, or $6,000 overall. The Council refused
to pay unless he presented an authorized receipt, and added
that they had no knowledge at all of such a delivery.

It is not recorded that, in either case, General Roberdeau was
paid. Under the circumstances of low productivity and non-
payment for goods and services, it is unlikely that he wanted,
if, indeed he was able, to continue financing the operation.

A second basic reason for the abandoning of the mines was
the continued precarious state of the frontier. Indian depredation
in western Pennsylvania occurred frequently, and although Fort
Roberdeau seems to have been an island of relative stability, it
was constantly threatened. On October 10, 1778, Congress con-
sidered, but tabled, a Board of War report that Pennsylvania
be requested to call out 100 militiamen for the protection of the
Sinking Spring Valley lead mines. A month later Congress con-
sidered a report that many of the militiamen who had been in
service in the area had left before or on the expiration of their
tour of duty. It resolved to enlist three Continental companies
in the area under a bounty of a suit of clothes for each man.
Yet the military situation evidently deteriorated.

On February 16 and April 6, 1779, General Roberdeau wrote to
the Pennsylvania Assembly respecting the "defenceless situation
on our Frontiers," especially in the neighborhood of the lead
works. His opinion was supported by a letter of General James
Potter to President Reed on May 19, 1779, attesting that a

... small company of 30 men [at Fort Roberdeau] has
encurredged [sic] the people of standing stoan [sic]
Valley to stand as yet, altho' it is too few men for that
place ... and if not assisted [they] will be obliged
to leve [sic] ... .

Late in 1779, when the mines were no longer being operated,
General Roberdeau blamed the stoppage on the lack of military

43 Pennsylvania Archives, Series 1, vol. 8, 5.
44 Minutes of the Provincial Council of Pennsylvania, vol. XII, 162-163.
45 Journals of the Continental Congress, vol. XII, 998.
46 Ibid., vol. XII, 1103-1104.
47 Pennsylvania Archives, Series 1, vol. 7, 194, 299.
48 Ibid., vol. 7, 419.
support by Congress.\textsuperscript{49} Three years later he explained that "the Workmen were driven from the persuit [sic], by an alarm occasioned by the Incursions of the Savages, which had the same effect on the Inhabitants of the vicinage who abandoned their all on the occasion."\textsuperscript{50} Certainly the Indian danger near the lead mines precluded serious and constant work, and was a major cause of the collapse of the effort.

A final reason for closing the mine was that a treaty of alliance was signed with France in 1778, meaning that large supplies of munitions were soon on the way to the American forces. It was then unnecessary to take the trouble to support and defend a frontier lead works.

Thus a rather daring scheme for establishing a war industry in the wilderness failed. It was imaginative in scope and successfully begun, and would not have been attempted except under wartime scarcity. Yet, under those special conditions, an immigrant American had financed and directed construction of one of the earliest lead works in Pennsylvania and the new nation.

\textsuperscript{49} Ibid., vol. 8, 5-6.
\textsuperscript{50} Daniel Roberdeau, April 19, 1782, to Jasper Yeats, Ferdinand J. Dreer Collection, Historical Society of Pennsylvania. Note also the explanation in The Columbian Magazine article that the workers quit because of the Indian war, and because they were "unused to this mode of life." (The Columbian Magazine, December 1788, 489.)