

(To Benjamin Vaughan)

Phil^a July 31. 1786

Dear Friend,

I recollect that when I had the great Pleasure of seeing you at Southampton, now a 12 month since, we had some Conversation on the bad Effects of Lead taken inwardly; and that at your Request I promis'd to send you in writing a particular Account of several Facts I then mention'd to you, of which you thought some good Use might be made. I now sit down to fulfil that Promise.--

The first Thing I remember of this kind, was a general Discourse in Boston when I was a Boy, of a Complaint from North Carolina against New England Rum, that it poison'd their People, giving them the Dry Bellyach, with a Loss of the Use of their Limbs. The Distilleries being examin'd on the Occasion, it was found that several of them used leaden Still-heads and Worms, and the Physicians were of Opinion that the Mischief was occasion'd by that Use of Lead. The Legislature of the Massachusetts thereupon pass'd an Act prohibiting under severe Penalties the Use of such Still-heads & Worms thereafter. Inclos'd I send you a Copy of the Act, taken from my printed Law book.

In 1724, being in London, I went to work in the Printing-House of Mr Palmer, Bartholomew Close as a Compositor. I there found a Practice I had never seen before, of drying a Case of Types, (which are wet in Distribution) by placing it sloping before the Fire. I found this had the additional Advantage, when the Types were not only dry'd but heated, of being comfortable to the Hands working over them in cold weather. I therefore sometimes heated my Case when the Types did not want drying. But an old Workman observing it, advis'd me not to do so, telling me I might lose the Use of my Hands by it, as two of our Companions had nearly done, one of whom that us'd to earn his Guinea a Week could not then make more than ten Shillings and the other, who had the Dangles, but Seven & sixpence. This, with a kind of obscure Pain that I had sometimes felt as it were in the Bones of my Hand when working over the Types made very hot, induc'd me to omit the Practice. But talking afterwards with Mr James, a Letter-founder in the same Close, and asking him if his People, who work'd over the little Furnaces of melted Metal, were not subject to that Disorder; he made light of any Danger from the Effluvia, but ascrib'd it to Particles of the Metal swallow'd with their Food by slovenly Workmen, who went to their Meals after handling the Metal, without well-washing their Fingers, so that some of the metalline Particles were taken off by their Bread and eaten with it. This appear'd to have some Reason in it. But the Pain I had experienc'd made me still afraid of those Effluvia.

Being in Derbyshire at some of the Furnaces for Smelting of Lead Ore, I was told that the Smoke of those Furnaces was pernicious to the neighboring Grass and other Vegetables. But I do not recollect to have heard any thing of the Effect of such Vegetables eaten by Animals. It may be well to make the Enquiry.--

In America I have often observ'd that on the Roofs of our shingled Houses where Moss is apt to grow in northern Exposures, if there be any thing on the Roof painted with white Lead, such as Balusters, or Frames of Dormant Windows, &c. there is

constantly a streak on the Shingles from such Paint down to the Eaves, on which no Moss will grow, but the Wood remains constantly clean & free from it.--We seldom drink Rain Water that falls on our Houses; and if we did, perhaps the small Quantity of Lead descending from such Paint, might not be sufficient to produce any sensible ill Effect on our Bodies. But I have been told of a Case in Europe, I forgot the Place, where a whole Family was afflicted with what we call the Dry-Bellyach, or Colica Pictonum, by drinking Rain Water. It was at a Country Seat, which being situated too high to have the Advantage of a Well, was supply'd with Water from a Tank which receiv'd the Water from the leaded Roofs. This had been drank several Years without Mischief; but some young Trees planted near the House, growing up above the Roof, and shedding their Leaves upon it, it was suppos'd that an Acid in those Leaves had corroded the Lead they cover'd, and furnish'd the Water of that Year with its baneful Particles & Qualities.

When I was in Paris with Sir John Pringle in 1767, he visited La Charite, a Hospital particularly famous for the Cure of that Malady, and brought from thence a Pamphlet, containing a List of the Names of Persons, specifying their Professions or Trades, who had been cured there. I had the Curiosity to examine that List, and found that all the Patients were of Trades that some way or other use or work in Lead; such as Plumbers, Glasiers, Painters, &c. excepting only two kinds, Stonecutters and Soldiers. These I could not reconcile to my Notion that Lead was the Cause of that Disorder. But on my mentioning this Difficulty to a Physician of that Hospital, he inform'd me that the Stonecutters are continually using melted Lead to fix the Ends of Iron Balustrades in Stone; and that the Soldiers had been employ'd by Painters as Labourers in Grinding of Colours.

This, my dear Friend, is all I can at present recollect on the Subject. You will see by it, that the Opinion of this mischievous Effect from Lead, is at least above Sixty Years old; and you will observe with Concern how long a useful Truth may be known, and exist, before it is generally receiv'd and practis'd on.

I am, ever,

Yours most affectionately

B. Franklin

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(Benjamin Vaughan was a youthful admirer and close friend of Franklin, who was 80 years old when he wrote to Vaughan. The letter press copy of Franklin's communication is in the Library of Congress, the holograph not having survived. The letter is reproduced here with the original capitalization and spelling.)