

$$v\left(\frac{1}{1} - \frac{1}{2}\right) = -\frac{1}{2} + \frac{1}{2} = 0$$

$$w\left(\frac{1}{1} - \frac{1}{2}\right) = \frac{1}{2} + \frac{1}{2} = 1$$

$$\frac{1}{1} + \frac{1}{1} = 2$$

54m + 0
 Monsieur Catalan,

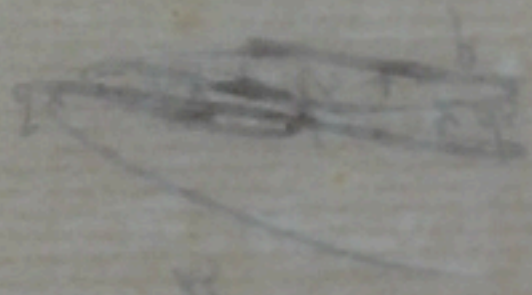
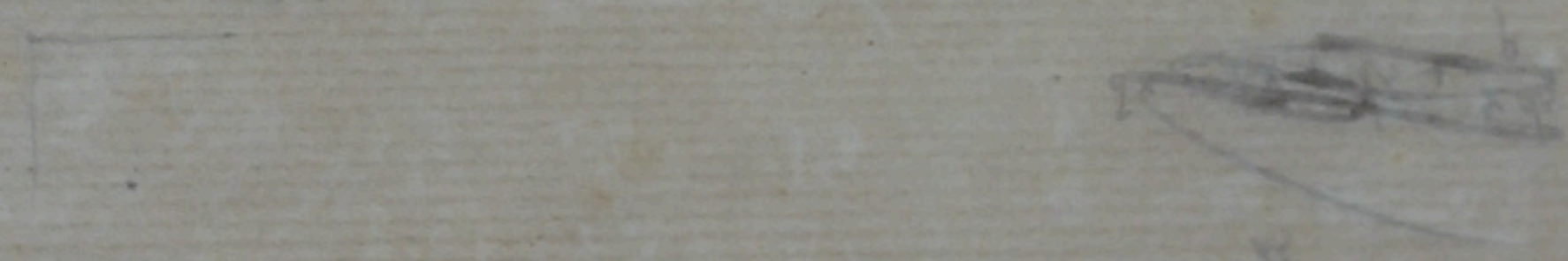
Nous venons bien en retard pour souhaiter, à vous et à Madame, toutes les prospérités désirables, à l'occasion de vos noces d'argent.

$$\left\{ \begin{aligned} \frac{1}{2} \left(\frac{1}{1} \right) - \frac{1}{2} \left(\frac{1}{1} \right) &= \frac{1}{2} \cdot \frac{1}{1} + \frac{1}{2} \cdot \frac{1}{1} \\ \frac{1}{2} \left(\frac{1}{1} \right) - \frac{1}{2} \left(\frac{1}{1} \right) &= \frac{1}{2} \cdot \frac{1}{1} + \frac{1}{2} \cdot \frac{1}{1} \end{aligned} \right. = \frac{1}{1} + \frac{1}{1}$$

$$\left| \begin{aligned} \frac{1}{2} \left(\frac{1}{1} \right) - \frac{1}{2} \left(\frac{1}{1} \right) - \frac{1}{2} \cdot \frac{1}{1} - \frac{1}{2} \cdot \frac{1}{1} &= 0 \\ \frac{1}{2} \left(\frac{1}{1} \right) + \frac{1}{2} \left(\frac{1}{1} \right) + \frac{1}{2} \cdot \frac{1}{1} - \frac{1}{2} \cdot \frac{1}{1} &= 0 \end{aligned} \right.$$

$$\frac{1}{2} - \frac{1}{2} + \frac{1}{2} \left(\frac{1}{1} \right) + \frac{1}{2} \left(\frac{1}{1} \right) = 0$$

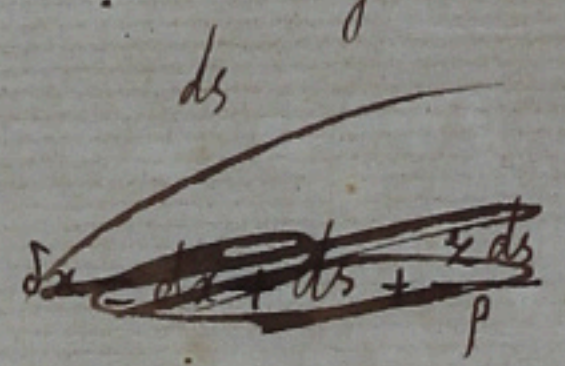
solange de (Catalan)



$$\left\{ \begin{aligned} 2x &= yz + \left[\frac{1}{2} \left(\frac{1}{1} \right) + \frac{1}{2} \left(\frac{1}{1} \right) \right] + \left[\frac{1}{2} \left(\frac{1}{1} \right) + \frac{1}{2} \left(\frac{1}{1} \right) \right] \\ 2y &= yz + \left[\frac{1}{2} \left(\frac{1}{1} \right) - \frac{1}{2} \left(\frac{1}{1} \right) \right] + \left[\frac{1}{2} \left(\frac{1}{1} \right) + \frac{1}{2} \left(\frac{1}{1} \right) \right] + \frac{1}{2} yz \\ 2z &= yz + \left[\frac{1}{2} \left(\frac{1}{1} \right) - \frac{1}{2} \left(\frac{1}{1} \right) \right] + \left[\frac{1}{2} \left(\frac{1}{1} \right) + \frac{1}{2} \left(\frac{1}{1} \right) \right] + \frac{1}{2} yz \end{aligned} \right.$$

$$\begin{cases} \delta x = dx + \left[\frac{df}{g dv} du - \frac{dg}{f du} dv \right] y + \left[\frac{f du}{\rho_1} + \frac{g dv}{z} \right] z + f du \\ \delta y = dy + \left[\frac{df}{g dv} du - \frac{dg}{f du} dv \right] x + \left[\frac{f du}{z} + \frac{g dv}{\rho_2} \right] z + g dv \\ \delta z = dz + \left[\frac{f du}{\rho_1} + \frac{g dv}{z} \right] x + \left[\frac{f du}{z} + \frac{g dv}{\rho_2} \right] y \end{cases}$$

$$f=1 \quad du=ds \\ g=0 \quad dv=0$$



~~X'~~
X'
Équations de Codazzi

$$\left(\frac{fg}{\rho_1 \rho_2} - \frac{fg}{z^2} + \frac{d}{dv} \left(\frac{df}{g dv} \right) + \frac{d}{du} \left(\frac{dg}{f du} \right) \right) = 0$$

$$\begin{cases} \frac{d}{dv} \left(\frac{f}{\rho_1} \right) - g \frac{d}{du} \left(\frac{1}{z} \right) - \frac{2}{z} \frac{dg}{du} - \frac{df}{g dv} \cdot \frac{1}{\rho_2} = 0 \\ \frac{d}{du} \left(\frac{g}{\rho_2} \right) - f \frac{d}{dv} \left(\frac{1}{z} \right) - \frac{2}{z} \frac{df}{dv} - \frac{dg}{du} \cdot \frac{1}{\rho_1} = 0 \end{cases}$$

$$\begin{cases} \frac{d}{dv} \left(\frac{f}{\rho_1} \right) - g \frac{d}{du} \left(\frac{1}{z} \right) = \frac{2}{z} \frac{dg}{du} + \frac{1}{\rho_2} \frac{df}{dv} \\ \frac{d}{du} \left(\frac{g}{\rho_2} \right) - f \frac{d}{dv} \left(\frac{1}{z} \right) = \frac{2}{z} \frac{df}{dv} + \frac{1}{\rho_1} \frac{dg}{du} \end{cases} \quad \begin{cases} M = \frac{\frac{du}{g \rho_1} + \frac{2 dv}{f z}}{\Delta} \\ N = - \frac{\frac{2 du}{g z} + \frac{dv}{f \rho_2}}{\Delta} \end{cases}$$

$$\begin{cases} \frac{2}{z} M + \frac{2N}{z} = \frac{du}{g} \\ \frac{2M}{z} + \frac{N}{\rho_1} = - \frac{dv}{f} \end{cases} \quad \Delta = \frac{1}{\rho_1 \rho_2} - \frac{4}{z^2}$$

$$\left(\frac{df}{g dv} du - \frac{dg}{f du} dv \right) \Delta = P du + Q dv$$

$$\begin{aligned} M \left(\frac{1}{\rho_1 \rho_2} - \frac{4}{z^2} \right) &= \frac{du}{g \rho_1} + \frac{2 dv}{f z} \\ N \left(\frac{1}{\rho_1 \rho_2} - \frac{4}{z^2} \right) &= - \frac{2 du}{g z} - \frac{dv}{f \rho_2} \end{aligned}$$