Monkey business

Let $z = f(x, y) = x^3 - 3xy^2$. We saw that $f$ has only one critical point, namely at $(0, 0)$, and that this critical point is degenerate. Indeed, the Hessian at $(0, 0)$ is the zero-matrix. This graph is called a monkey saddle because it offers a way for a monkey to ride a horse without crushing its tail. Where do the monkey’s legs and tail go?