

Pigs is pigs

by Geoffrey Hutson*

The recent debate about pig farming has focused attention on the work of Don Broom, a Cambridge professor of animal welfare. Broom has been quoted as saying that pigs have the cognitive ability of three-year-old children. In my opinion, this is hogwash. My three-year-old granddaughter, Emily, could run cognitive rings around any pig that I have known. And I have spent 15 years working very closely with “horizontal humans”. I reckon their intelligence has been vastly overrated.

Scientists haven't always found the pig to be the smartest of animals. The history of pig psychology is littered with some very famous examples of pig stupidity and scientific failure.

It is well known that the great Russian physiologist Ivan Pavlov used dogs in his pioneering experiments on the conditioned reflex. Pavlov trained dogs to salivate in response to the sound of a bell. He tried to produce the same response with pigs, but got nowhere. As soon as the pig was lifted onto a stand it squealed blue murder and all work in the laboratory was impossible. Pavlov fiddled around for a month before finally giving up. He concluded that the pig was “the most nervous of animals” and that “all pigs are hysterical”.

Another early scientific attempt to condition pigs was by the famous primatologist Robert Yerkes and his colleague C.A. Coburn at Harvard University in 1915. They used two Chester White pigs in a multiple choice experiment, where the pig had to choose to enter one of a number of doors for a food reward. Yerkes and Coburn tested for such concepts as sidedness, alternation, and middleness. The pigs had no trouble learning left from right in about 50 trials, but both pigs needed over 400 trials to solve the alternation problem. What's more, the pigs could not learn to solve this problem unless LR or RL were presented in pairs, with an intervening pause. And they failed completely to solve the problem of picking the middle door of three, five or seven doors in over 600 trials. Not exactly genius material.

An even more remarkable failure was reported in the 1950s by Keller and Marian Breland, who were students of the guru of behaviourism, the American psychologist, B.F. Skinner. The Brelands gave up promising research careers to train animals for shopping centre displays and television commercials. They conditioned an entire Noah's ark of animals - over 6,000 individual animals from 38 species, including such unlikely subjects as reindeer, cockatoos, raccoons and whales. One of these individuals was a pig, conditioned to pick up large, wooden, one dollar coins and deposit them in a large “piggy bank”. The Brelands found that the pig had no trouble learning this task, and would eagerly pick up one dollar, carry it to the bank, run back, get another, carry it, and so on, until all four coins were in the bank. It was then rewarded with food. But over a period of a few weeks, the process became slower and slower. The pig started to drop coins, or might drop a coin and root it along the floor, flip it up into the air, drop it again, and root it some more. In the end, it would take the pig 10 minutes to transport four coins a distance of two metres to the bank, and the pig was earning so few rewards that it was not getting enough to eat in a day! And this problem developed repeatedly in successive pigs. The Brelands were shocked by their own inability to predict and control the behaviour of the pig. They interpreted the problem behaviour as an example of the utter failure of conditioning theory and suggested that the conditioned behaviour had been displaced by instinctive foraging behaviour.

Another black mark for pigs comes from the work of Frank Wesley and F.D. Klopfer. They completely failed to condition pigs in a very thorough investigation of visual discrimination learning. Four sows were trained to respond to stimulus cards differing in form, colour, and size, and presented randomly in either left or right position. The pigs received 500 trials on each of 24 problems. However, their scores remained at the chance 50% level. In other words, they were guessing. In another experiment 18 young pigs received 210 discrimination trials, where they were required to choose between a black and white stimulus card. A response to the black card was rewarded with food. Only 3 out of 18 pigs learnt the visual discrimination of black from white.

All these studies suggest that the pig is not really that smart, if ease of conditioning is our yardstick for smartness. They suggest that we should carefully reassess the commonly held view that the IQ of the pig is greater than that of the cat or dog, or a three-year-old human, for that matter.

In my own laboratory I conditioned pigs to repeatedly lift a lever for a food reward. I gradually increased the number of lifts required until the pig stopped responding, using this point as a measure of their hunger. My world record holder was a sow who lifted the lever 3282 times in an hour before giving up. That is some persistence, some hunger.

So my conclusion, after 15 years of getting down and dirty with pigs, is that pigs are, well, hungry. Pigs is pigs.

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