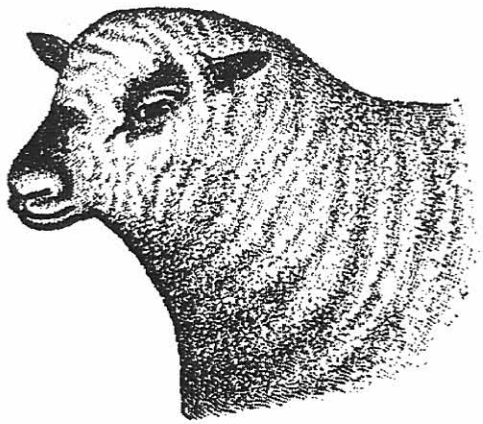
Well Hello Dolly

By: Stephen P. Kasper

The cloning of "Dolly" a Finn Dorset ewe in Edinburgh Scotland has caused quite a stir in the private and scientific sectors. Although the new Biotech industry promises to change life and living in a positive manner, it also brings with it a measure of apprehension. The existence of a living-breathing mammal that was duplicated from the cell of another has introduced an avalanche of potential complications. One not so small concern involving our science is whether or not the fingerprints of a cloned individual would be identical in detail.

In an attempt to clarify the possibility of this scenario ever occurring and to be able to rebut any future debate concerning the validity of fingerprints as a means of positive identification, I contacted the office of Dr. Ian Wilmut of the Roslin Institute in Edinburg, where the cloning took place. My initial inquiry was to find out if it would be possible to muzzle printing as a basis for identification of animals and its correlation to humans, (Ref. Ridgeology – Animal Muzzle Prints and Human Fingerprints; John R. VanDerolk, Journal of Forensic Identification 41 (4) 1991 pg. 274.) we could have taken these results and made this determination.

Unfortunately the donor animal was no longer available to perform this test. Dr Wilmut did offer this comment, "We have groups of animals which are genetically identical which have been derived from cells taken from embryo and fetal tissue. We have groups of two, three and four genetically identical animals. It would be possible to ask whether within these groups the nose print is identical. My own guess is that if the fingerprints of genetically identical human beings (twins) are not the same that we will find that the nose prints are also different in our cloned animals.



The question of the similarity of fingerprints in cloned individuals will not be addressed unequivocally until a donor – clone comparison is eventually achieved. However discussions I have had with some other biologists who have expertise in this area has resulted in a more in depth understanding of the cloning process. The fact is that no matter how the fertilization of an egg (or cell) is accomplished the development of that embryo into an adult will follow the same course as if were fertilized naturally. An identical twin is in fact a clone; a single fertilized egg divides and two individuals develop from that point. Having come from the same egg it would be logical to assume that the two persons would be identical in every way. In fact this does not occur and many differences develop as they grow; for example, intelligence, artistic ability, interests (etc.) Based on the premise that fingerprints are formed through the process of random selection, it would follow that the fingerprints of cloned individuals would not be identical as with identical twins.

We as a forensic specialist live in an era where law enforcement will be continually challenged by new technology. We must be prepared to meet this challenge with our own technology. We must be prepared to meet this challenge with our own technologies and a commitment to continuing education programs. ■

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