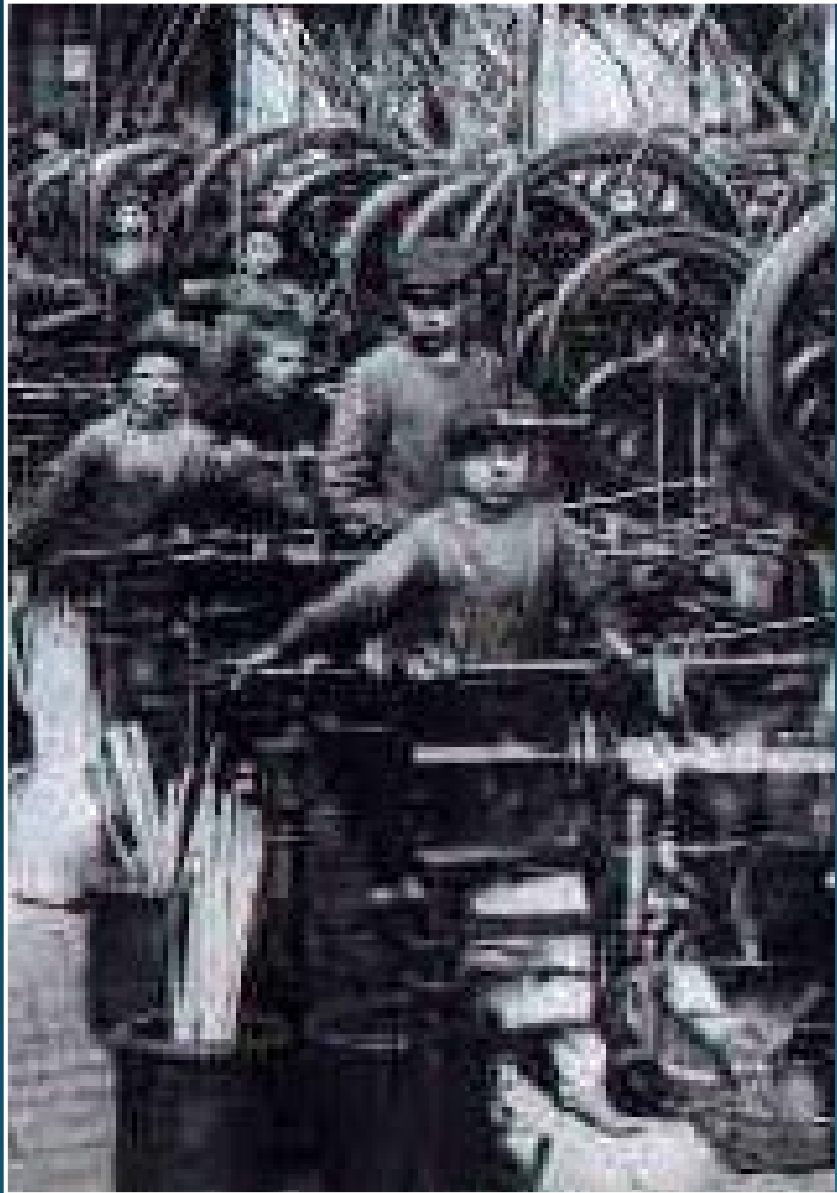


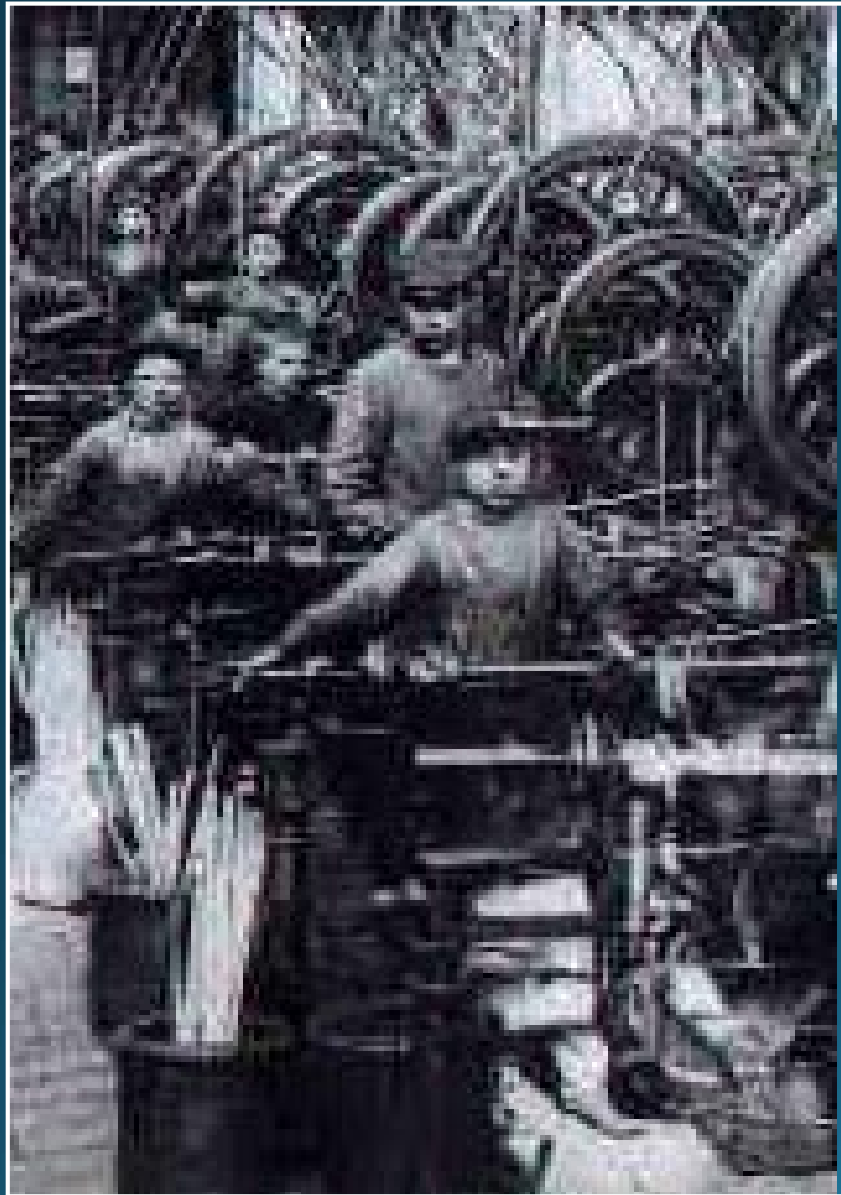
New themes in improving animal welfare

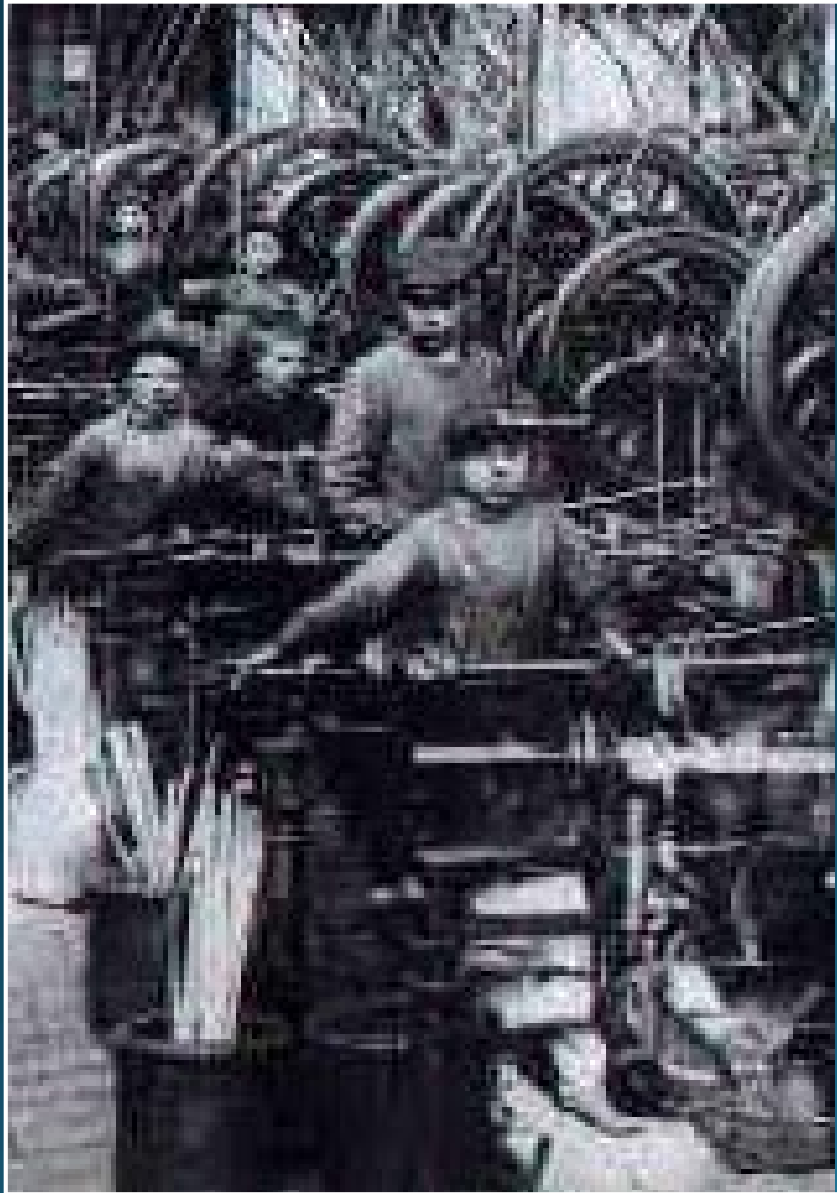
David Fraser
Animal Welfare Program
University of British Columbia

- Animal welfare bench-marking
- The “human dimension” of animal welfare
- Professionalism
- “One Welfare”
- Broadening animal welfare/animal ethics

Two models of change

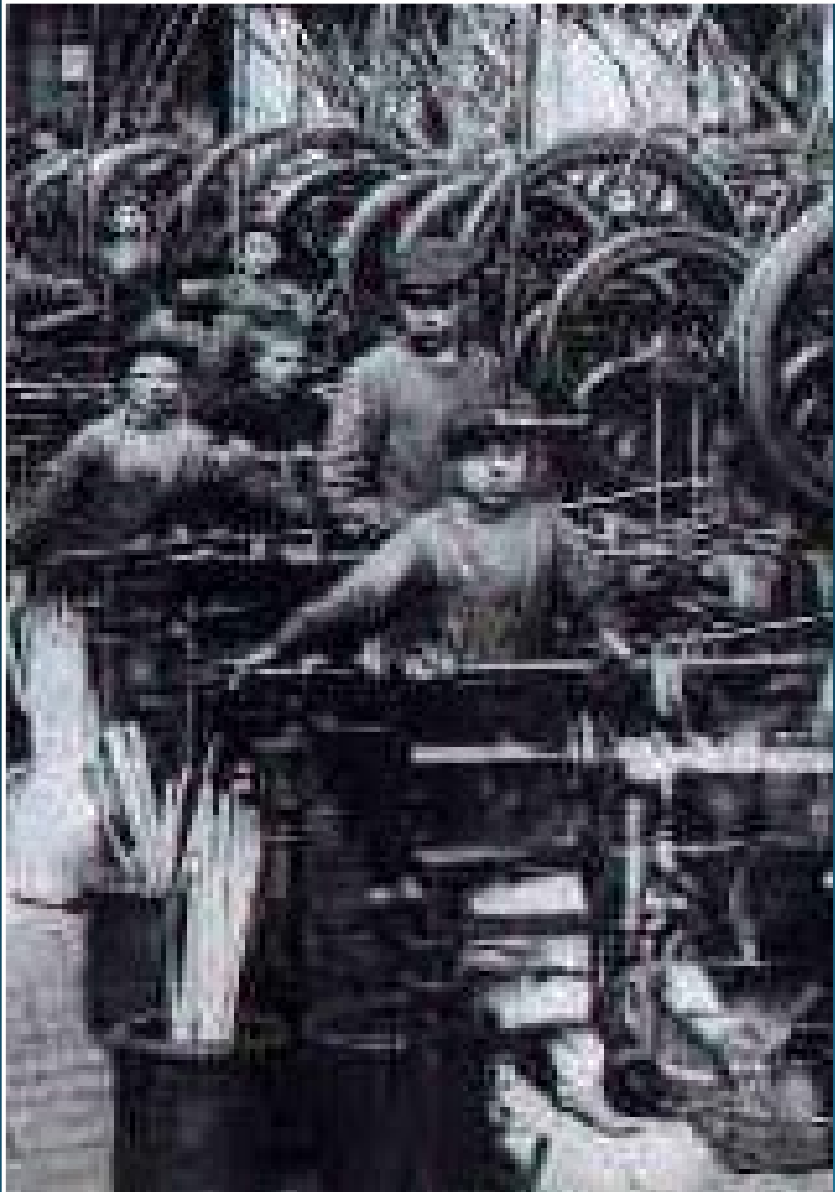






“Drowsy and exhausted, the poor creatures fall too often among the machinery, which is not in many instances sufficiently sheathed, when their muscles are lacerated, their bones broken, or their limbs torn off.”

“Factory Acts”





“Factory Acts”

1802 Ventilation & cleaning

1819 12-h day if <16 yrs

1844 Machinery fenced

1878 No children <10

1901 Dust and fumes

1901 7 m³ per person





Photo: Jace Supplies Ltd

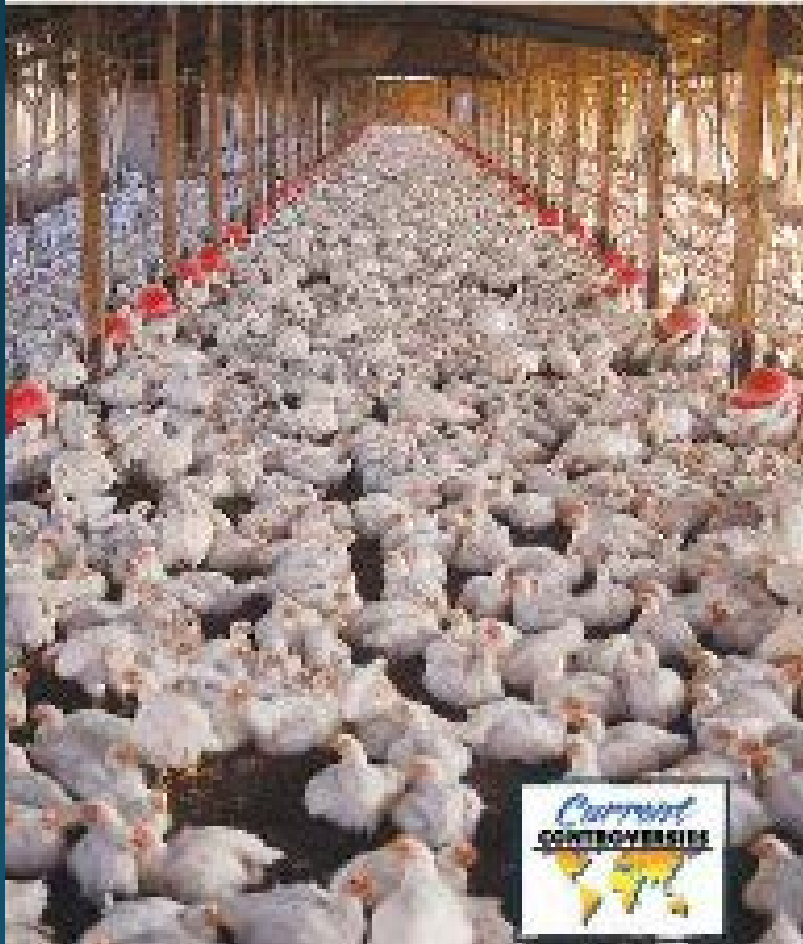


Photo: Naim Alel, Wikimedia

Intensification = Modernization

Intensification = Industrialization

FACTORY FARMING



RUTH HARRISON

Animal machines



foreword by

Rachel Carson

A “Factory Act for animals”

A “Factory Act for animals”

1988	UK hens: 450 cm ²
2003	EU hens: 550 cm ²
2012	EU hens: 750 cm ² , perch, nest, litter

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A “Factory Act for animals”

1988	UK hens: 450 cm ²
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2012	EU hens: 750 cm ² , perch, nest, litter
2010	EU broilers: ammonia <20 ppm
1988	Sweden: dairy cows not permanently indoors in summer

Is this approach working
to safeguard animal welfare?



Photo: Lawrance Consulting and Trading



Photo: Fraser – Phil's Fresh Eggs

1. Animal welfare bench-marking



Photo: Lawrance Consulting and Trading



- Deaths
- Lameness
- Leg lesions
- Foot lesions

Broiler chickens

114 flocks	Deaths	1.4-14%	Dawkins et al. 2004
	Lame	0-90%	
	Leg lesions	0-80%	
	Foot lesions	0-88%	

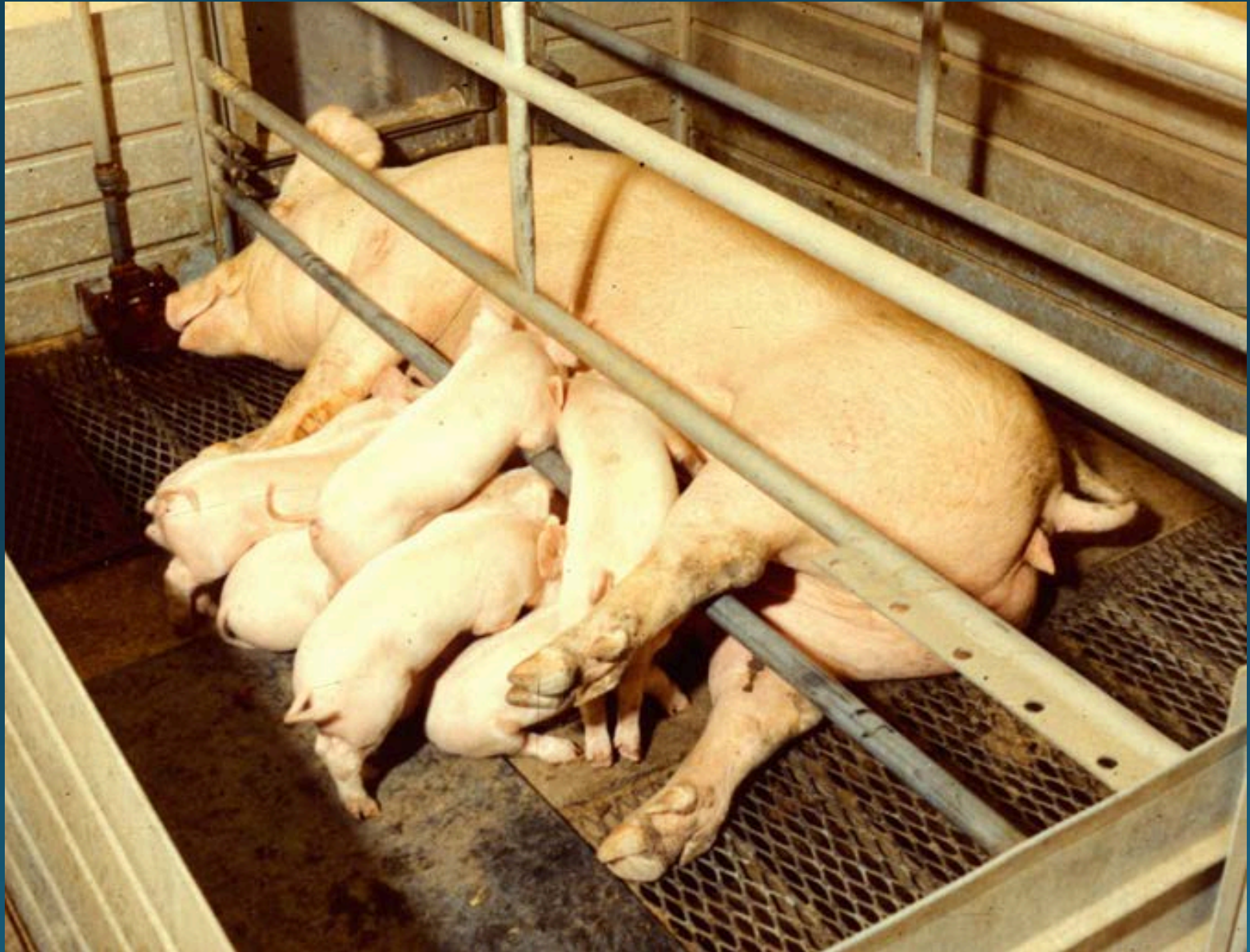
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Broiler chickens

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149 flocks	Moderate/severe foot lesions	0-72%	Haslam et al. 2007
176 flocks	Lame	0-84%	Knowles et al. 2008

Piglet deaths



Piglet deaths

39 farms	Piglet deaths	5-24%	Andersen et al. 2007

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39 farms	Piglet deaths	5-24%	Andersen et al. 2007
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Piglet deaths

39 farms	Piglet deaths	5-24%	Andersen et al. 2007
30 farms	Piglet deaths	10-32%	Friendship et al. 1986
83 organic farms	Piglet deaths	0-50%	Sundrum 2011



Photo: BC Ministry of Agriculture

Dairy cow lameness

121 farms	Lame	5-85%	von Keyserlingk et al. 2012

Dairy cow lameness

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50 farms	Lame & Severely lame	3-57%	Espejo et al. 2006

Dairy cow lameness

121 farms	Lame	5-85%	von Keyserlingk et al. 2012
50 farms	Lame & Severely lame	3-57%	Espejo et al. 2006
205 farms	Lame & severely lame	0-79%	Barker et al. 2010





Very different welfare outcomes occur in the same type of environment.

Intensification \neq Industrialization

2. The human dimension of animal welfare

The human dimension of animal welfare

- knowledge and dedication

= culture of care



Photo: The Economist



- biosecurity
- parasite control
- nutrition
- litter quality
- dust
- ammonia

Photo: The Economist

The human dimension of animal welfare

- knowledge and dedication
- consistency



Staff/flock: 1-5

M.S. Dawkins et al. (2004) *Nature* 427: 342-344

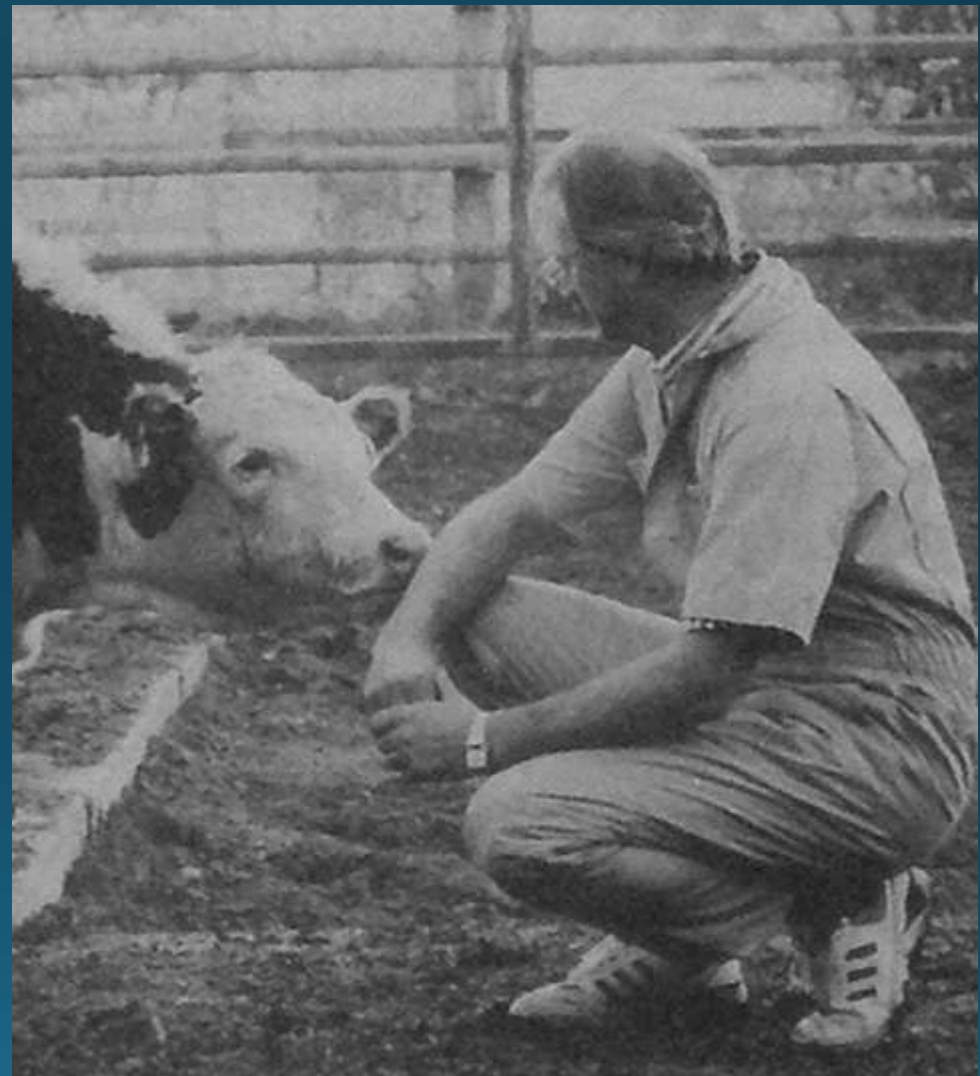
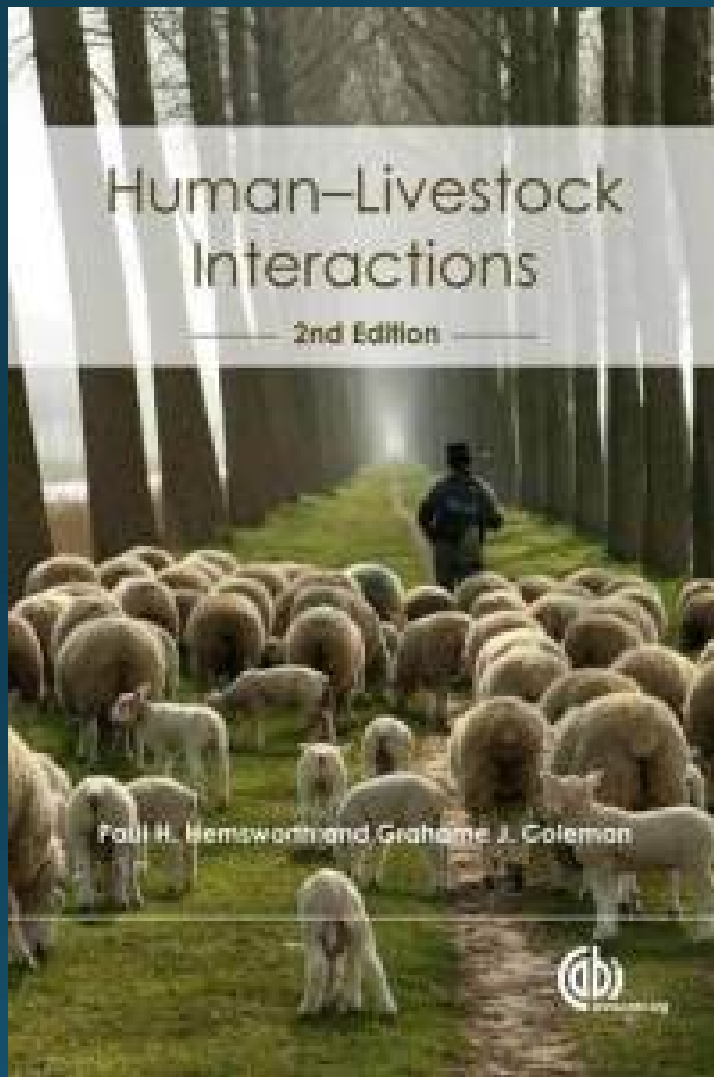


Staff/flock: 1-5
Visits/day: 2-5

M.S. Dawkins et al. (2004) *Nature* 427: 342-344

The human dimension of animal welfare

- knowledge and dedication
- consistency
- skillful handling
- of care

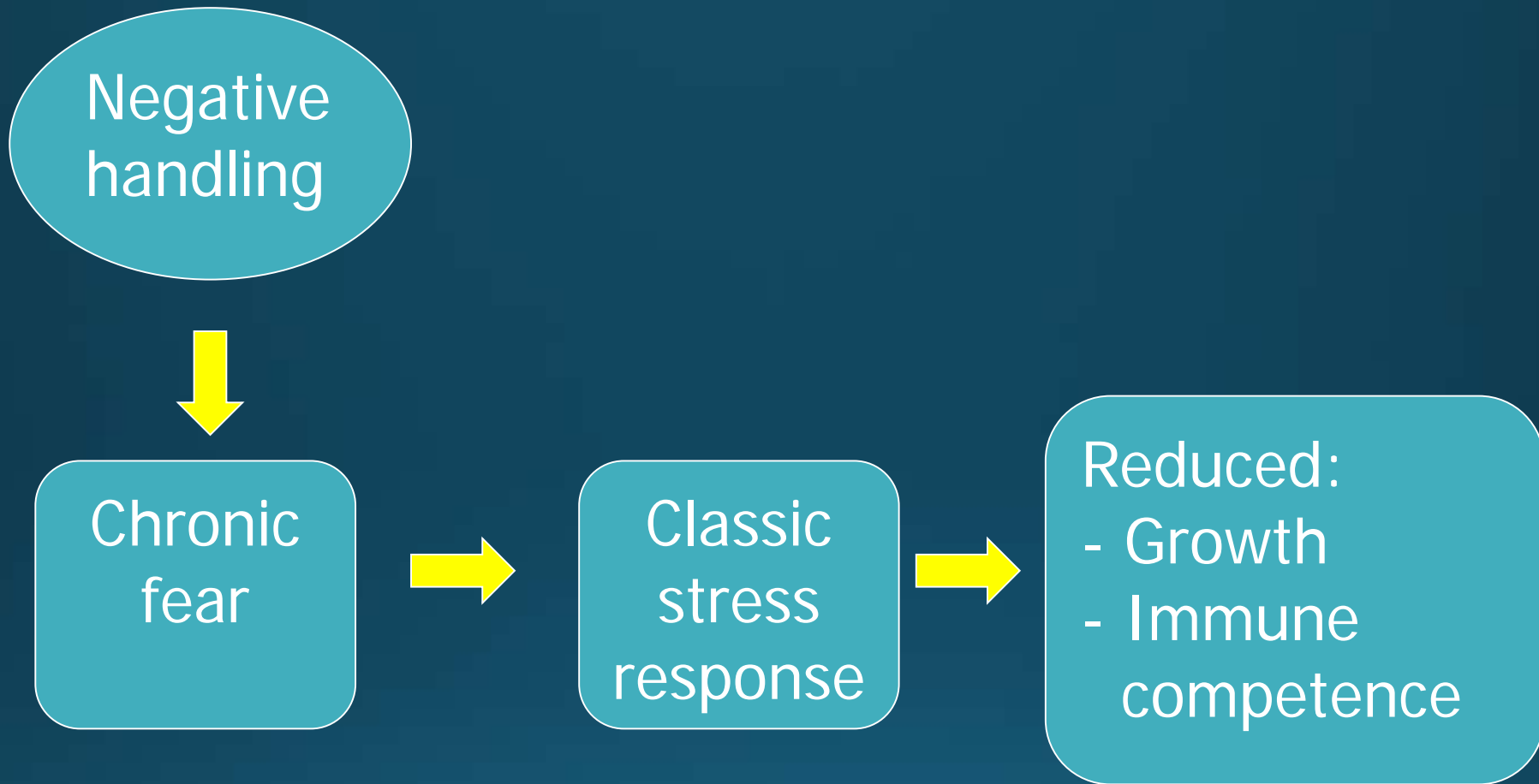


Paul Hemsworth

Negative handling of dairy cows: slaps, hits, pushes, tail-twists

Variable	Correlation	P
Avoidance of handler	+0.33	<0.01
Cortisol in milk	+0.34	<0.01
Yearly milk yield	-0.36	<0.01

Hemsworth et al. 2000. J. Anim. Sci. 78: 2821-2831



Based on Hemsworth and Coleman, 2011

The human dimension of animal welfare

- knowledge and dedication
- consistency
- skillful handling
- positive attitude toward animals



Positive terms:

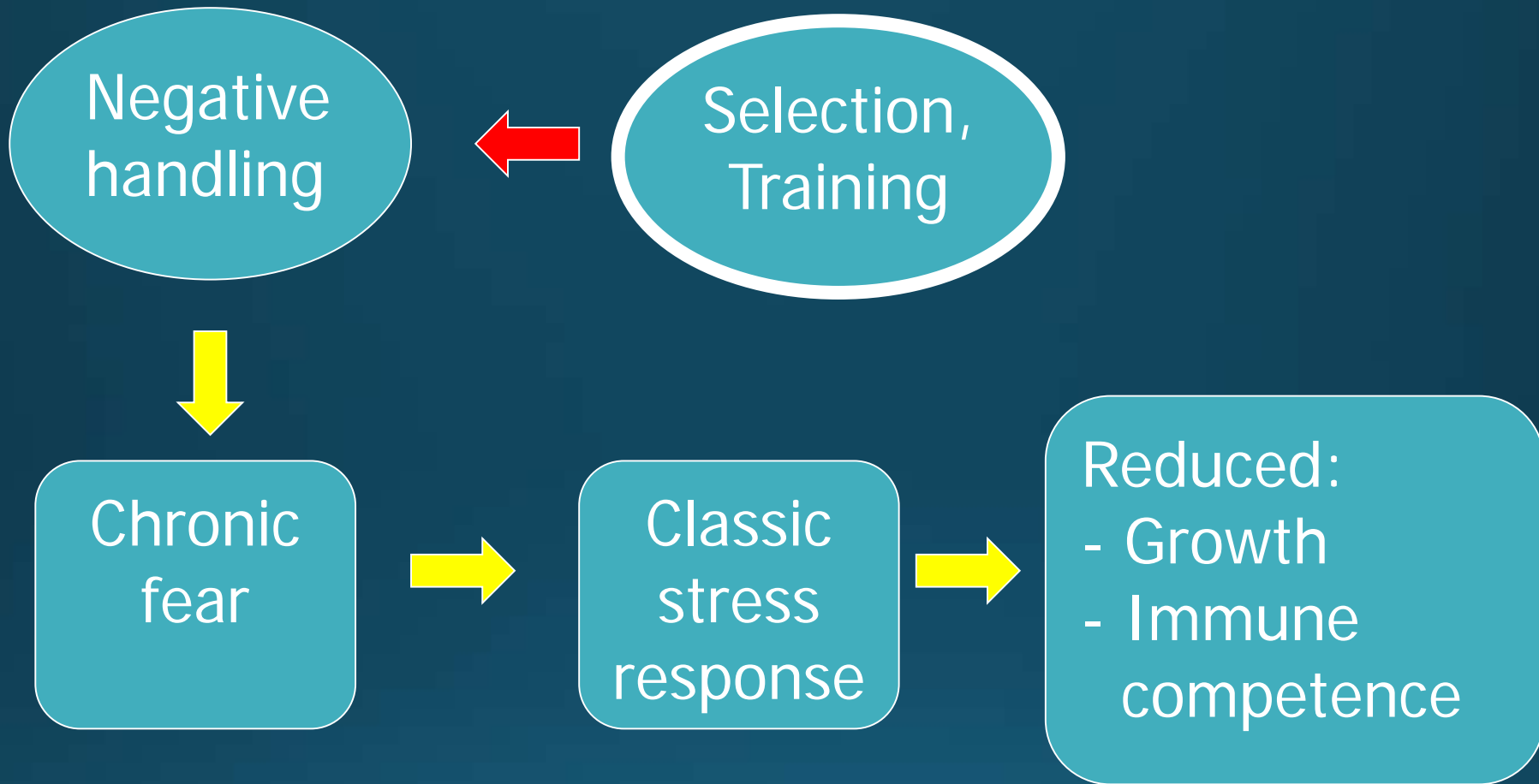
- stimulating
- entertaining
- intelligent

Positive terms:

- stimulating
- entertaining
- intelligent

Negative terms:

- noisy
- smelly
- ugly



Based on Hemsworth and Coleman, 2011

The human dimension of animal welfare

- knowledge and dedication
- consistency
- skillful handling
- positive attitude toward animals
- recognizing that animals are individuals
- = culture of care
-

“On farms where cows were called by name, milk yield was 258 liters higher than on farms where this was not the case ($p < 0.001$)”

C Bertenshaw and P Rowlinson, 2009

The human dimension of animal welfare

- knowledge and dedication
- consistency
- skillful handling
- positive attitude toward animals
- treating animals as individuals
- animals+environment+people = culture of care

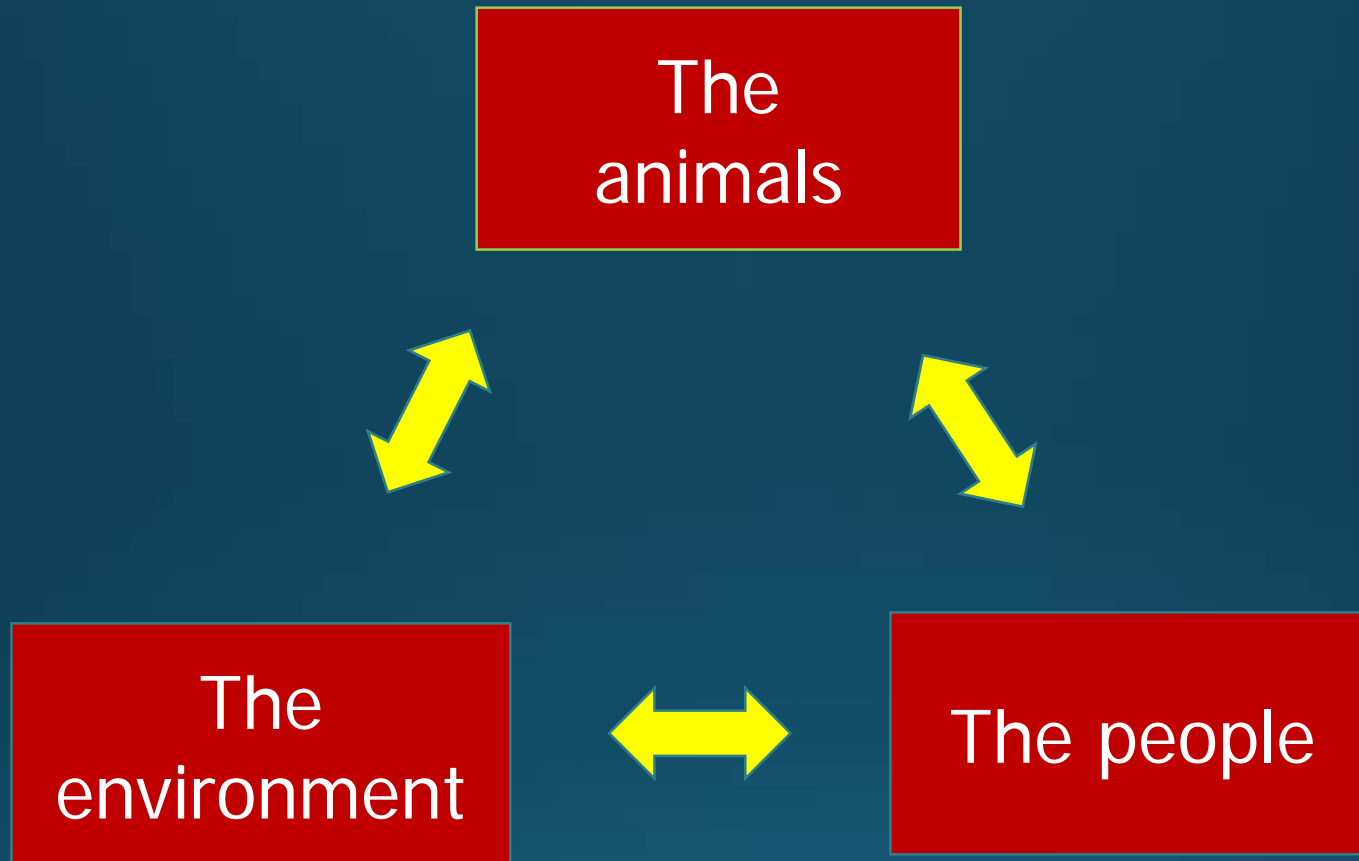


Burton et al. (2012) Building 'cowshed cultures'....
Journal of Rural Studies 28: 174-187

“... the key importance of designing ... systems and structures that promote positive interactions between animals and humans...”



Burton et al. (2012) Building ‘cowshed cultures’....
Journal of Rural Studies 28: 174-187



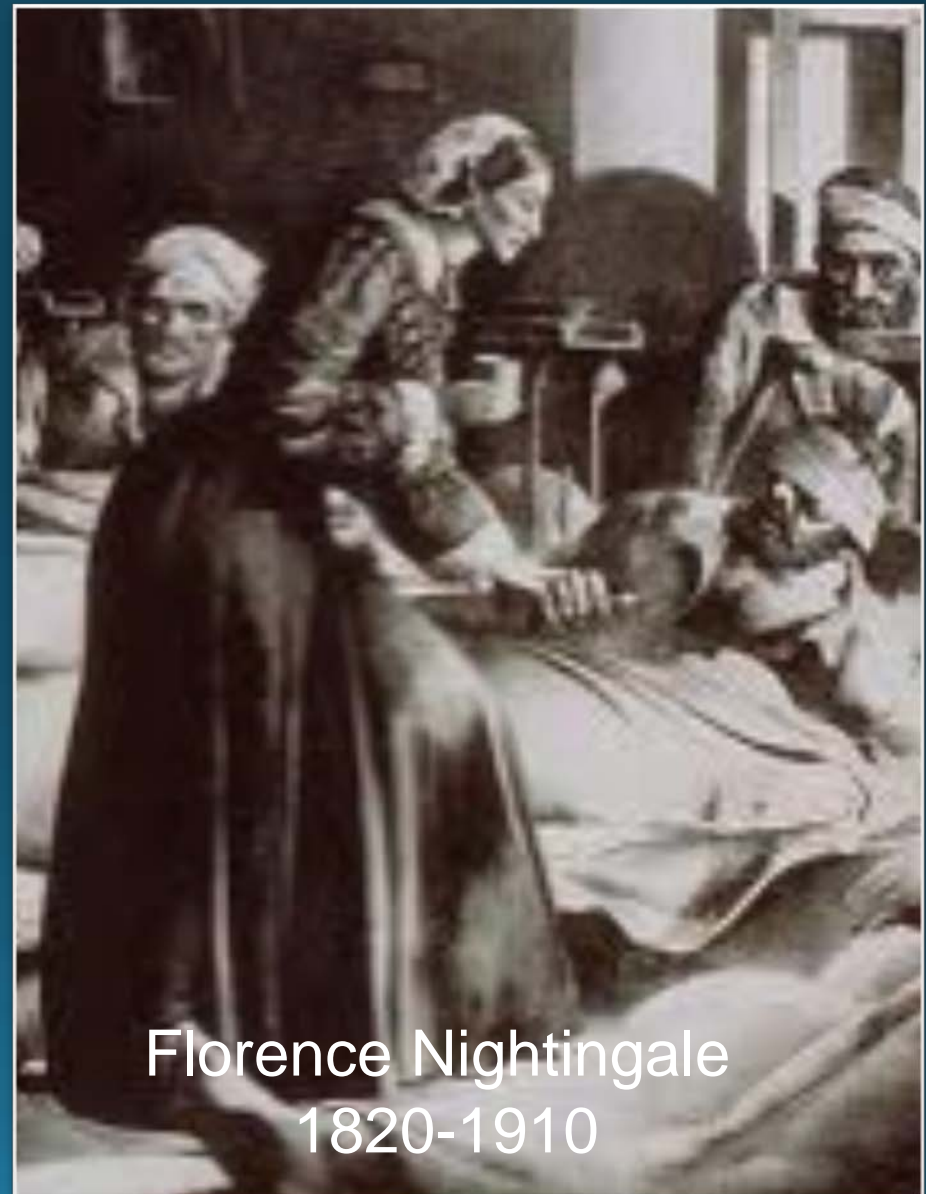
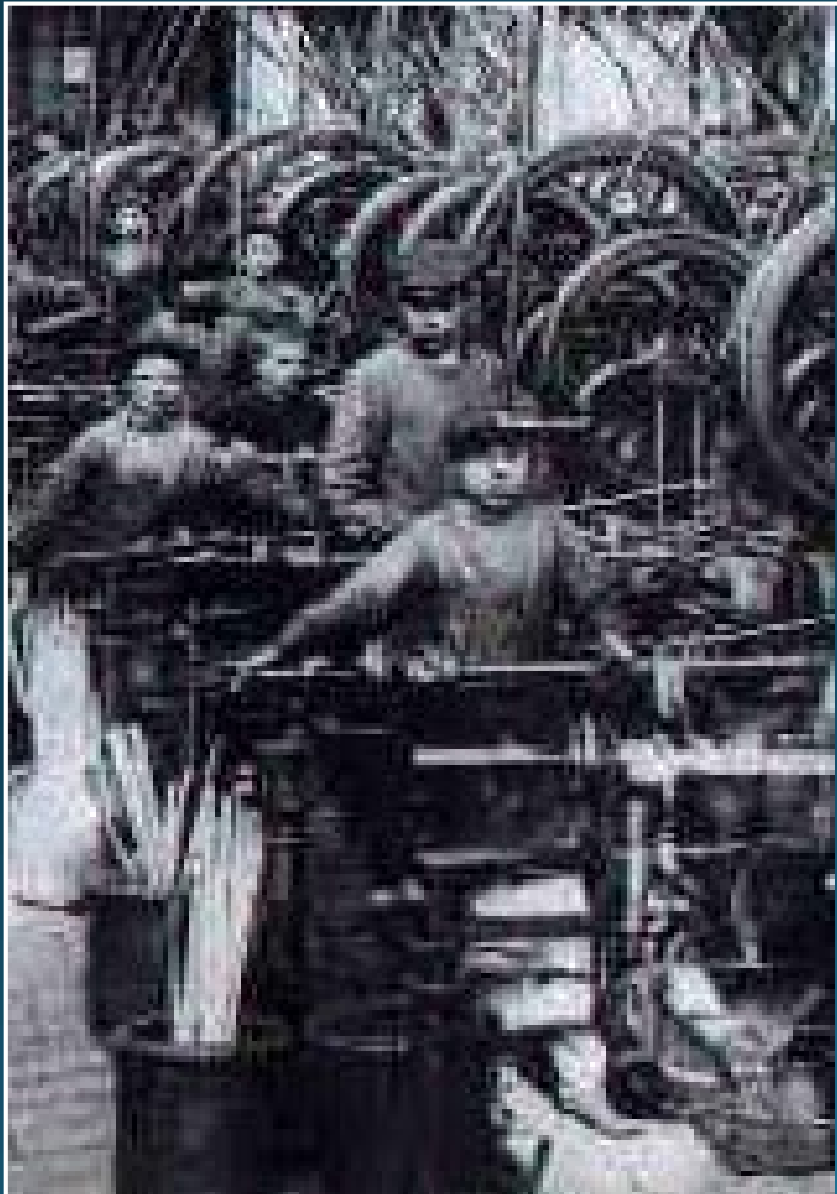
The human dimension of animal welfare

- knowledge and dedication
- consistency
- skillful handling
- positive attitude toward animals
- treating animals as individuals
- animals+environment+people = culture of care
- attending to human well-being

The human dimension of animal welfare

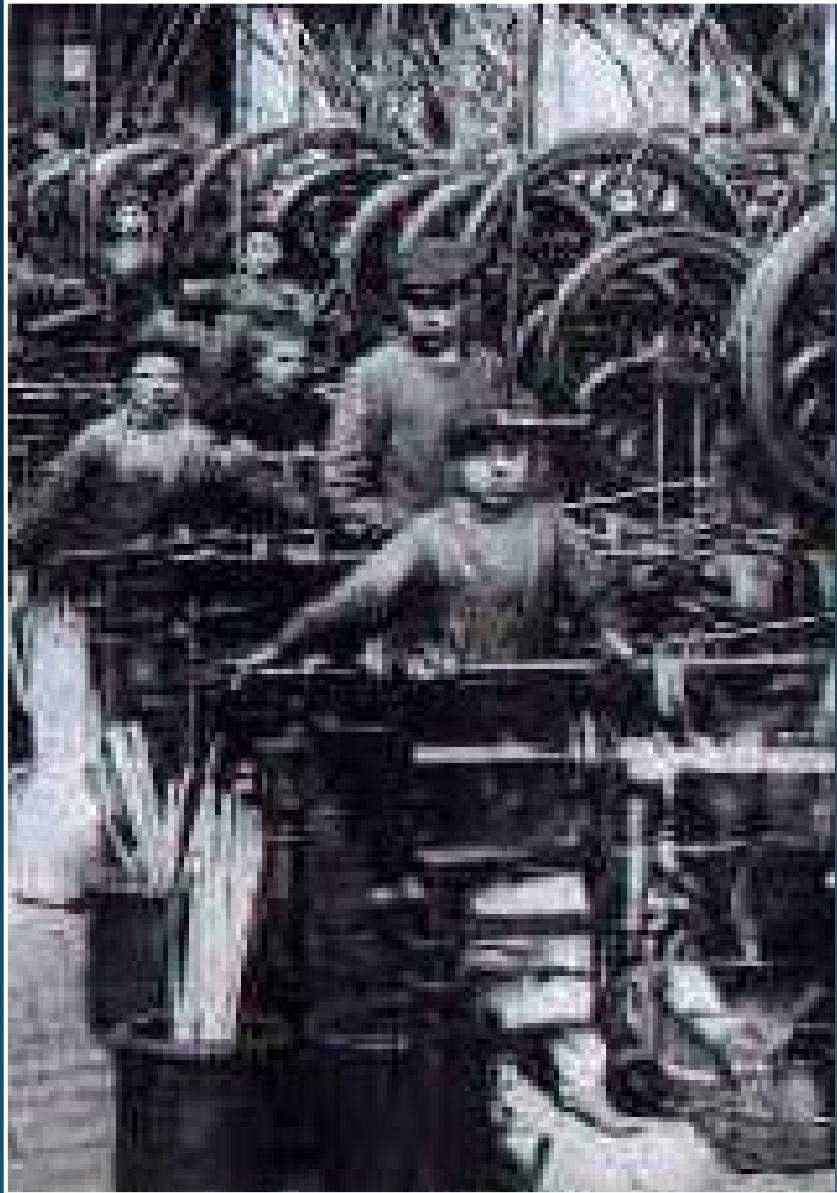
- knowledge and dedication
- consistency
- skillful handling
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3. Professionalism

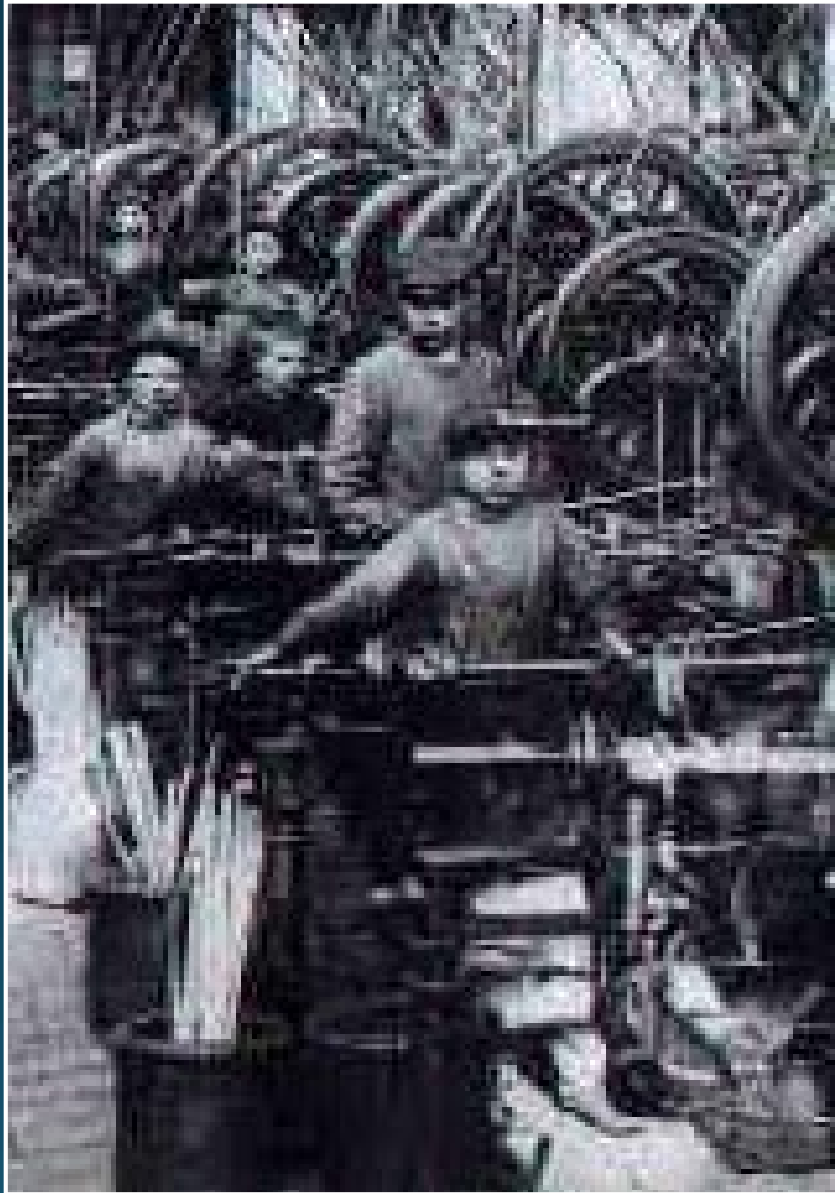


Florence Nightingale
1820-1910

Regulated industry



Regulated industry



Profession



Profession

- Service
- Competence
- Self-regulation



Profession

- Service



Profession

- Service
- Competence



Profession

- Service
- Competence
- Self-regulation



An emerging self-regulatory system:

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- National codes developed by producers and others, based on science, expertise and public consultation

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- Producer-led inspection programs

An emerging self-regulatory system:

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- Producer-led inspection programs
- Producer-led correction activities

Profession

- Service
- Competence
- Self-regulation



4. “One Welfare”

ONE HEALTH

From **A**IDS to **Z**ika



Richard Riegelman and Brenda Kirkwood

One Welfare: Neglect



Animal Cruelty Service Project

Farm animal neglect in Denmark

“... that animal neglect is embedded in a complex network of other problems in agriculture”

“severe financial difficulties, divorce and psychiatric problems”

Andrade and Anneberg (2014). J. Agr.
Environ. Ethic. 27:103–126.

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Farm animal neglect in Ireland

Catherine Devitt et al. 2015. *Sociologia Ruralis* 55: 400-416.

Farm animal neglect in Ireland

Cases	Reasons
5	age- and health-related difficulties

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Farm animal neglect in Ireland

Cases	Reasons
5	age- and health-related difficulties
4	depression or other problems of mental health

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Farm animal neglect in Ireland

Cases	Reasons
5	age- and health-related difficulties
4	depression or other problems of mental health
4	the farmer did not attach high priority to animal welfare

Catherine Devitt et al. 2015. *Sociologia Ruralis* 55: 400-416.

One Welfare: Hoarding



Photo: www.animalsheltering.org



Gary Patronek & HARC (2001). – The problem of animal hoarding. *Municipal Lawyer*, 42(3), 6 –19.



- accumulate many animals that overwhelm their ability to provide care

Gary Patronek & HARC (2001). – The problem of animal hoarding. *Municipal Lawyer*, 42(3), 6 –19.



- accumulate many animals that overwhelm their ability to provide care
- fail to acknowledge the deteriorating condition

Gary Patronek & HARC (2001). – The problem of animal hoarding. *Municipal Lawyer*, 42(3), 6 –19.



- accumulate many animals that overwhelm their ability to provide care
- fail to acknowledge the deteriorating condition
- fail to recognize the harm to their own health and well-being

Gary Patronek & HARC (2001). – The problem of animal hoarding. *Municipal Lawyer*, 42(3), 6 –19.

Co-morbidity of Hoarding Disorder

Major depression	57%
Social phobia	29%
Generalized Anxiety Disorder	28%
Obsessive-Compulsive Disorder	17%

A. Pertusa et al. (2010). Clin. Psychol.
Rev. 30: 371–386.

One Welfare: Disaster Relief





Photo: World Vets

One Welfare

1. research to understand the many links between human and animal welfare
2. coordination of animal protection services with human social services

5. Broadening animal welfare/animal ethics

1700-1800s: Acts of cruelty



William Hogarth, *Second Stage of Cruelty* (detail), c. 1750

1900s: Institutionalized use



2000s: Indirect and unintended harms





Courtesy: Fatal Light Awareness Program



Daniel Klem 2009 *Proceedings Fourth International Partners in Flight Conference* (USDA, Forest Service Technical Report): 244–251



"Windows and other reflective and transparent surfaces likely kill a billion birds each year in the United States and billions worldwide."

Daniel Klem 2009 *Proceedings Fourth International Partners in Flight Conference* (USDA, Forest Service Technical Report): 244–251

Technology	Vertebrates injured or killed/year
Windows	several billion

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Roads/vehicles	~1 billion

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Uncontrolled cats	tens of billions

Technology	Vertebrates injured or killed/year
Windows	several billion
Roads/vehicles	~1 billion
Uncontrolled cats	tens of billions
Crop production (plowing, harvesting)	tens of billions

Direct, unintended harms

- windows
- vehicles
- cats
- cropping operations
- ghost fishing
- pesticide drift
- communication towers
- oil spills

Indirect harms caused by disturbing
the processes of nature

Pollution



Photo: Michigan Sea Grant



R Diaz & R Rosenberg 2008 Spreading dead zones and consequences for marine ecosystems. *Science* 321: 926-929



“Dead zones have now been reported from more than 400 systems, affecting a total area of more than 245,000 square kilometers ... [and causing]... mass mortality”

R Diaz & R Rosenberg 2008 Spreading dead zones and consequences for marine ecosystems. *Science* 321: 926-929

Climate change



Photo: Kerstin Langenberger Photography



CD Thomas et al. 2004. Extinction risk from climate change. *Nature* 427: 145-148



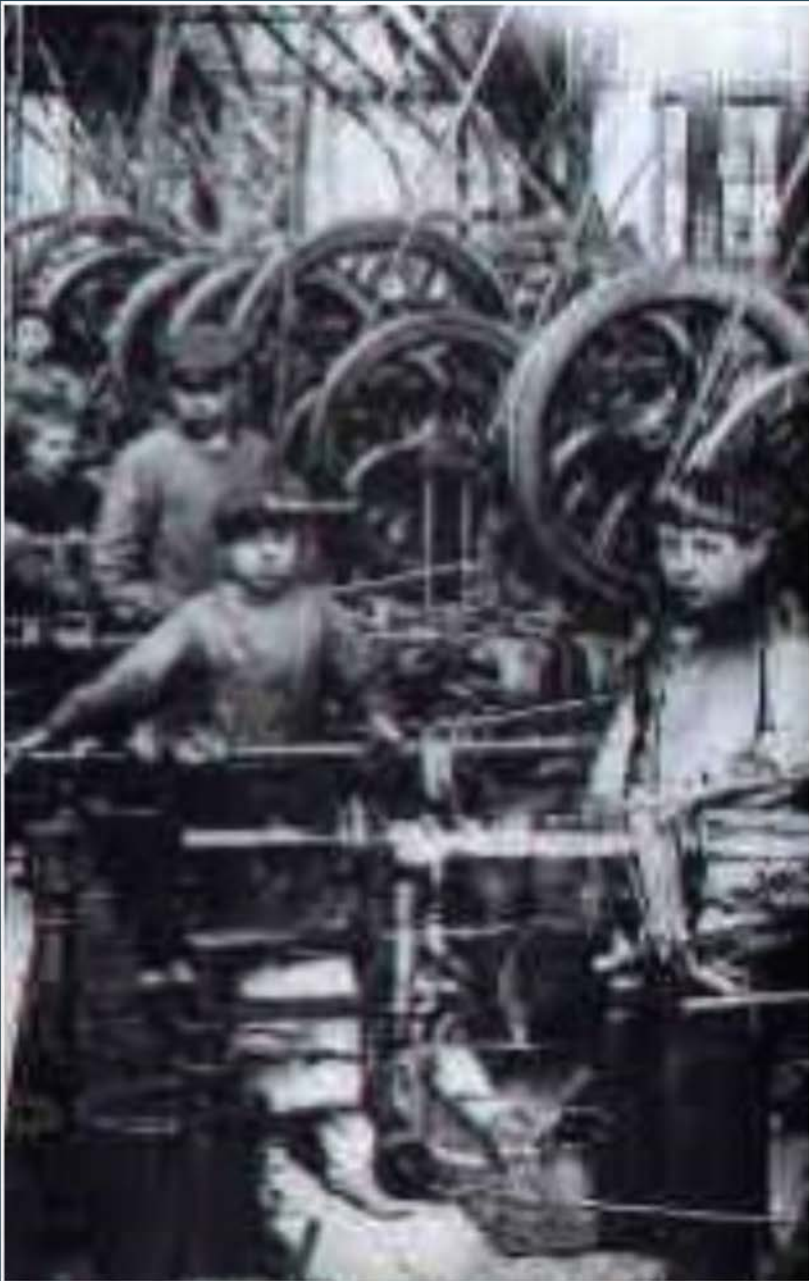
... we predict, on the basis of mid-range climate-warming scenarios for 2050, that 15–37% of species in our sample of regions and taxa will be 'committed to extinction'...

CD Thomas et al. 2004. Extinction risk from climate change. *Nature* 427: 145-148

The same human activities driving the current extinction crisis are also causing suffering, fear, physical injury, psychological trauma, and disease in wild animals.

Paul Paquet & Chris Darimont, 2010
Animal Welfare 19: 177-190

Conclusions



1. Animal welfare reforms have been modeled on worker welfare legislation that regulated the physical environment and exposure time in factories.



But bench-marking studies show that the same type of environment can produce very different welfare outcomes.



2. The Human Dimension:

- knowledge, dedication
- consistency
- skilful handling
- positive attitude
- animals as individuals
- a culture of animal care
- human well-being



3. Shifting to a professional model, focused on human competence, dedication and performance is a much-needed step in improving animal welfare.



4. We need to understand the many connections between human and animal welfare and coordinate relevant services.



5. We need to broaden the scope of animal welfare science and ethics to include the indirect and unintended harms to animals caused by human technology

New connections among people:

- producers collectively creating and adhering to professional standards
- cooperation between human health and animal protection services
- conservationists and animal protectionists confronting their shared challenges

Further information:

- Fraser, D. 2014. Could animal production become a profession? *Livestock Science* 169: 155–162.
- Fraser, D. 2015. Turning science into policy: the case of farm animal welfare in Canada. *Animal Frontiers* 5 (3): 23-27.
- Fraser, D. 2019. Why we need a new ethic for animals. *Journal of Applied Animal Ethics Research* 1: 6-20.