

Charles Darwin

THE EXPRESSION
OF THE
EMOTIONS IN
MAN AND ANIMALS

THIRD EDITION

With an Introduction, Afterword
and Commentaries by
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ESSAY ON THE HISTORY OF
THE ILLUSTRATIONS BY PHILLIP PRODDER

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AFTERWORD

Universality of Emotional Expression?
A Personal History of the Dispute

BY PAUL EKMAN

There is a story to be told. Not just the scientific story of how Darwin's views on expression were confirmed (or not) by research in the hundred years after his death. There is a story about how the clash of strong personalities, world politics, and the role of friendship and loyalty influenced the judgments of key figures in the scientific community. It is a drama that involves strong feelings and concealment, a drama not entirely over as I write, with the actors struggling over the ownership and interpretation of Charles Darwin's legacy about facial expressions of emotion.

Darwin's work on expression was published near the end of the nineteenth century, in 1872. The struggle about how to interpret *Expression* was fought in the twentieth century when many scientists were reacting against the 'Social Darwinists' who argued that there was no need to change society, to make working conditions better, or offer equal access to education. Let the fittest survive!* It was a time when eugenics, the selective breeding of a 'better' race seemed possible. When the Nazis came to power, a biological basis for the superiority of one group of humans, the 'Aryan race', became a powerful nation's policy, imposed by force on many conquered nations.

Controversy about Darwin is not new. His *Origin of Species*, published in 1859 (thirteen years before *Expression*) challenged

* The well-known phrase ('survival of the fittest') comes from Herbert Spencer, not Darwin, although Darwin did cite it and agreed with what it implies in terms of natural selection.

the creationist view of man, which resulted in fierce exchanges in the scientific community and in the press. Religious commitments and personality played an enormous role then. Darwin was careful not to speak out directly against those who attacked *Origin*. But he did not stop his colleagues from doing so for him.

I play that role now, speaking out against his opponents for Darwin's claims about the nature of emotional expression. I considered limiting myself to the scientific evidence, but if I had, readers might not understand what all the furor is about. The story involves more than Darwin's evidence, or evidence found since then. For readers to understand the controversy and make their own judgments, they need to know what is not in the scientific reports; they need to know the motives, history and social factors which influenced the principal antagonists. It was only a small group of actors. I was one of them, and I knew all the others, and am the only one still alive to tell this story. The key members of the cast were:

MARGARET MEAD, a famous anthropologist and the most outspoken cultural relativist of this century. In her early years Mead argued persuasively that social behavior was malleable, determined by culture. Darwin could not be correct about universals; expressions must be culture specific, to be consistent with her claims about the absolute power of culture. Later in life she brought in the role of biology, but (for reasons I explain later) still denied that expressions are universal. Although Mead never studied expressions, she is the central character, re-entering again and again, with her former husband Gregory Bateson, her protégé Ray Birdwhistell (the strongest voice against universal facial expressions), and her denunciation of an earlier book¹ I had edited supporting Darwin's views.

GREGORY BATESON, another world-famous anthropologist, who later became a major communication theorist. He was the first to use a camera to record non-verbal behavior when studying another culture, in his famous book² with Mead on Balinese character. Gregory tried to convince me that Darwin was wrong in thinking of facial expressions as signs of emotion. They were more usefully considered solely as communicative signals, he

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said, not signs of internal physiological changes. This view is still common among some of the ethologists who study the biological basis of social behavior in animals and man. I understand now that there is no contradiction between Gregory's view and the traditional view of emotional expression, but I only sensed it then and could not explain it to him. Despite our disagreement, it was typical of Gregory that he lent me the camera he had used in Bali and encouraged me to go to New Guinea to pursue my research on expression, being host to me in his home for a few days when I began that journey.

RAY BIRDWHISTELL, an anthropologist-linguist, initially thought Darwin was right, but when he examined people in different cultures he saw no universal expressions.³ Ray was a spectacular performer, able to mimic instantly and accurately the posture, expression and mannerisms of anyone. But he had little beyond his personal observations and skill as an observer to prove that emotional expressions were culture-specific.

SILVAN TOMKINS, a philosopher and a psychologist, in mid-life wrote⁴ a theory about emotion and the face, which incorporated Darwin's ideas that facial expressions of emotion are innate and universal. Silvan amazed people by his ability to interpret emotions and personality from facial expression, but he too had little scientific evidence for his theory.

I AM THE LAST ACTOR, entering this fray as an unknown scientist, half the age of each of these luminaries when I began my research on expression in 1965. I came to know each of them, fought with some, loved and admired others. I will try to tell the story fairly, but I am not an impartial observer. I am a protagonist. I believe the facts I report speak for themselves, but they did not convince all the other actors. I am convinced by the evidence; but evidence does not always overcome loyalties, rivalries or political commitments, and not all of us agree about what constitutes evidence. I try to present each protagonist in the most sympathetic light I can manage. As I describe in more detail later, when I began to study facial expression I did not have a strong commitment about whether or not they were universal. My goal was to settle the matter decisively. Margaret Mead later wrote that it was outrageous for me to have such a goal.

I begin with what Darwin said and the evidence he provided about facial expressions of emotion. Their universality is one of his central themes in *Expression*. It is the one idea in it for which he gathered data himself, asking those who had lived or traveled in foreign countries about the expressions they had observed. For the two other central themes – that expressions are not unique to humans, and the three principles which explain why particular expressions occur – he relied upon argument, example and the work of others.

Universality mattered to Darwin because it provided support for his theory of evolution. Universality would make more plausible his claim that emotional expressions are not unique to humans but are shared with other primates. Consider the reverse: what if our expressions were found to be constructed from what we learn from our parents, school or magazines, if a 'frown'* meant enjoyment in some part of the world and was never visible at all in some other culture? If we do not share these expressions, then how can they be the product of our evolutionary history, how can they be shared with other primates? Although evolutionary theory can survive a discontinuity between species – some argue that language is unique to humans – evidence for continuity on something as fundamental as emotion and expression certainly buttresses an evolutionary view.

Proof of the universality of facial expressions was relevant to a second of Darwin's concerns: it would support his belief that human beings had descended from a common progenitor. Evidence for universal facial expressions would challenge the claims by racists and others of his time that Europeans had descended from more advanced progenitors than those of Africans.

Ironically, Darwin's insight that facial expressions of emotion are universal has stood the test of time, but his evidence has not. Recall please from my Introduction that Darwin's evidence was

* I have put the 'frown' in quotes because it is not clear exactly what it refers to. Is the frown in the forehead or the mouth? A number of words which refer to expression are vague in this way. This is one of the reasons we had to develop a new 'language' – The Facial Action Coding System¹ – to describe facial movements precisely.

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the replies he received to questions sent to British colonials asking them about expressions they observed in foreign lands.* There are three problems with this evidence. First, Darwin did not ask a sufficient number of people in each country for answers; for most countries he had just one informant, who could have been mistaken or biased. Second, he relied upon what these Englishmen living or traveling abroad told him; it would have been better if he had been able to ask the natives of each country instead (or asked his English correspondents to ask the natives).

Third, Darwin's wording suggested the answer he wanted. For example, he asked, 'Is astonishment expressed by the eyes and mouth being opened wide, and by the eyebrows being raised?' He should have asked, 'What emotion is being expressed when people you observe have their eyes and mouth open wide and their eyebrows raised?' Even better than describing the expressions would have been to send photographs of them to his informants in the various countries, who could have asked the natives what emotion the person in the photograph was feeling. Darwin did show photographs, but only to people in England. I assume he did not send photographs abroad because it would have been costly, and because he did not have adequate photographs depicting all the emotions he was studying.⁷

Most of those who challenged the universality of facial expressions of emotion in the century after Darwin (and there were many) were not bothered by the flaws in his evidence or by his evolutionary theory. Their attack was on the relevance of evolutionary theory to the personal, intimate, and complex emotions we feel. Such feelings are distinctly human, they argued; our environment – what we learn, our experience in the world – not our biology constructs our emotions and their expressions. And because experiences are different from one culture to another, so too must be emotions and their expression.

* Stephen Jay Gould reports that: 'Darwin shamelessly made requests upon friends, colleagues and acquaintances in all modes of life. He would ask for anything he needed, no matter how peculiar, and no matter how extensive the effort required. He always asked politely, and with profound apology in advance for requesting so much effort – but ask he did.'⁸

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Through the first half of this century, the behaviorists in psychology claimed that learning was responsible for all that we do and all that we are, including our attitudes and personalities. Individual differences could be wiped out if everyone had the same environment. There would be no differences between men and women if they were only brought up in the same way. Parents were held responsible by psychiatrists for the neuroses and psychoses of their children. If they had acted differently, their offspring would be healthy, creative and productive. In education, differences in cognitive skills were attributed solely to poor schooling and impoverished home environments, with no acknowledgment that there might be inborn differences in kinds of intelligence. In anthropology, the cultural relativists triumphantly produced accounts of exotic cultures where people lived, mated and raised their offspring in ways so different from ours. The first half of the twentieth century was a time of optimism about the perfectibility of man. There was no acknowledged limit to how much human nature could be reconstructed by changing the environment. Change the state, educate the parents, modify child-rearing practices and we would have a nation of renaissance men and women. Nothing was innate. Our genes played no role in any of the differences in talent, ability or personality. Everything about our social lives was thought to be created by experience, and experiences could be changed and improved. As Margaret Mead put it in her book *Sex and Temperament in Three Primitive Societies* (published in 1935), 'We are forced to conclude that human nature is almost unbelievably malleable, responding accurately and contrastingly to contrasting cultural conditions.'⁸ This one-sided view developed in part as a backlash against Social Darwinism, eugenics and the threat of Nazism. Looking back on her life in 1972, Mead explained how she and other anthropologists explicitly decided *not* to consider the biological aspects of behavior because of the political problems it would cause. This extract from her autobiography describes the time when she was developing her views about temperament:

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[W]e also recognized that there were dangers in such a formulation because of the very human tendency to associate particular traits with sex or age or race, physique or skin color, or with membership in one or another society, and then to make invidious comparisons based on such arbitrary associations. We knew how politically loaded discussions of inborn differences could become; we knew that the Russians had abandoned their experiment in rearing identical twins when it was found that, even reared under different circumstances, they displayed astonishing likenesses. By then [spring 1935] it seemed clear to us [Gregory Bateson and herself] that the further study of inborn differences would have to wait upon less troubled times.⁹

I sympathize with Mead's political concerns, but she had more than postponed the study of inborn differences. She had argued forcefully that biology played no role in human nature, '... that human nature is almost unbelievably malleable...' While I credit her foresight in anticipating the dangers ahead for anyone who studied the genetic basis of individual differences in behavior, she over-generalized. Biology plays a role not only in individual differences (her worry) but in producing common features shared among members of a species. Her concern that racists would misuse evidence of biologically based individual differences led her to attack any claim for the biological basis of social behavior, even when biology is responsible for what unites us as a species, as in the case of universal expressions of emotions.

For decades any scientist who emphasized the biological contributions to social behavior, who believed in an innate contribution to individual differences in personality, learning, or intelligence, was suspected of being racist. Finding individual differences is a far cry, however, from the racist assertion that one sub-group of mankind is biologically superior to other sub-groups. But this concern about the racist use of biologically based individual differences is irrelevant to Darwin's argument in *Expression*. He focused on the innate basis of similarities – universals – not differences. That his claims for universality challenged the racist theories of his time was forgotten in the zeal to yield no ground to racists. In that political climate the claim that facial expressions

are the product of culture was accepted without evidence, but no one looked for evidence. It was obvious, it fitted so well with the reigning dogma.

The most influential spokesman for this view was the anthropologist Birdwhistell, a protégé of Mead's. Birdwhistell wrote about *kinesics*, a term he coined to describe his approach to body movement, facial expression and posture: 'When I first became interested in studying body motion I was confident that it would be possible to isolate a series of expressions, postures and movements that were denotative of primary emotional states. As research proceeded . . . it became clear that this search for universals was culture bound . . . there are probably no universal symbols of emotional states.'¹⁰

Birdwhistell convinced a generation or more of social scientists.* In a 1955 edition of *Expression* (now out of print) prepared by Margaret Mead, she included pictures from a conference on kinesics, showing Birdwhistell, herself and others who were drawn to this approach. In her introduction to this edition, Mead did not say anything of Darwin's proposal that expressions are universal, nor did she mention the word 'emotion'. Instead she praised Birdwhistell's new science of kinesics, and recommended substituting the term 'communication' for Darwin's term 'expression'. I wonder how Darwin would have felt had he known that his book was introduced by a cultural relativist who had included in his book pictures of those most opposed to his theory of emotional expressions.

I entered this argument in the late 1950s. As a freshly trained clinical psychologist, my therapeutic orientation was psychoanalytic, but as a researcher I had been trained as a behaviorist, a radical Skinnerian. Skinner¹⁴ said that psychology should examine only observable behavior; there were to be no theories or infer-

* Nearly as influential was the anthropologist Weston La Barre¹¹ who provided many examples of how expressions differed from one culture to another. The distinguished social psychologist Otto Klineberg¹² also argued that expressions were culture-specific, although he did acknowledge there might be a few universals. Elsewhere¹³ I have explained and rebutted their views.

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ences about what might be going on inside the head. He would deal only with what could be directly observed about how we learned and what we learned.

I was dissatisfied with the evidence for the effectiveness of psychoanalytic therapy, which rested on what the patient and a therapist said. I wanted to examine not words but real behavior (from a Skinnerian viewpoint) – body movements and facial expressions. Examining the non-verbal behaviors of patient and therapist might reveal evidence of clinical improvement not shown in their words, and perhaps would suggest ways to improve therapeutic techniques. After a few years studying hand and leg movements¹⁵ I approached the face. I had not read *Expression*, but had heard about it and thought Darwin was probably wrong. As a Skinnerian, I thought it unlikely that expressions would be universal, and I was sure that inheritance could *not* play a role in emotional behavior. But it didn't really matter what I thought; as a Skinnerian, it was better not to have any forethought about what you were going to study. I would just get the facts. I was excited that I might be able to settle a 100-year-old dispute, about such a fundamental issue. An agnostic about universality, I was a zealot about using quantitative methods to measure observable behavior.

Before starting my research on the face, I visited Birdwhistell. I expected to find file cabinets full of data, notebooks crammed with detailed observations, or racks of film documenting his position. Birdwhistell was surprised at my request to see his documentation, for what he had seen and observed was all in his head. We did not get along. He could not understand what I thought I might be able to prove by re-opening the question of whether facial expressions are universal, when he had found the answer was 'no'. He could not comprehend why I was dissatisfied with his conclusions with no documentation or data others could inspect or attempt to repeat.

I also talked about my plans with Gregory Bateson, for we had become friendly a few years earlier when we were both working at the Palo Alto Veterans Administration Hospital. Gregory was charming, inspiring, and often mystifying. I could not always

follow what he was saying, but I enjoyed his warmth, his challenging ideas and his generosity. While he had been interested in my study of how gestures relate to the flow of conversation, he was not sympathetic to my new plan to study emotional expression. Like Margaret Mead, he did not think facial expressions were universal. I told him I didn't think they were either, but I wanted to settle the argument about universality one way or the other. Gregory, like Margaret, objected to the word expression. I was being misled by Darwin. Use of the word expression directed attention away from the role of facial movements as communicative signals. It was a mistake to consider expressions as tied to internal sensations and physiological activity; they were tied to the back-and-forth flow of conversation.

As I explain in my Introduction, Darwin had not given much attention to how expressions communicate information to others. There is no question in my mind that providing information to others is important, not only in understanding the function of expressions in our daily life but in understanding how expressions have been shaped and preserved through evolution. Recognizing that does not mean, however, that we have to throw out the idea that these are expressions of *emotion*. When I talked to Bateson thirty years ago I could not explain why that was so; now I know. Here is what I would say to him if he were alive today. This is part of my own theory of emotion and expression; it goes beyond what Darwin wrote about, in a Darwinian framework:

I think we can resolve our disagreement because we are both right, each emphasizing different sides of the same coin. Emotions are not like thoughts, which need no external sign; most emotions have expressions which communicate to others. They inform us that something important is happening inside the person who shows the emotion. Those internal changes are preparing the person to deal quickly with an important event, most often some interpersonal encounter, in a way that has been adaptive in the past. The past refers to our past as individuals, and what has been adaptive in the history of our species.

We should not focus just on the signal and ignore the emotion. When we see an angry expression on someone's face, we know

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that person is likely to attack. The internal changes in that person's physiology are preparing them to attack, their thinking is changing in a way which makes attacking seem to be a more useful response than if the person were not angry. (Of course the person may not attack, and perhaps that may also be detectable from his or her expression.) One of the most distinctive features of an emotion is that it is typically not hidden: we hear and see signs of it in the expression. An emotional expression tells others something about how the person showing the expression is going to behave. That is usually useful information to the one who gets the information and the one who shows the expression.

Here the argument may get harder. Not all signals are the same; emotional expressions are special, and we should not lose sight of that. They are special because they are involuntary, not intentional. Unlike the 'A-OK' or 'good luck' hand gestures, emotional expressions occur without choice. Most of those who study communication, like you Gregory, and some ethologists, have not wanted to consider intent. I believe it is crucial. The communicative value of a signal differs if it is intended or unintended. Emotional expressions have such an impact; we trust them precisely because they are unintended. We don't make an emotional expression to send a deliberate message, although a message is received. Of course there are occasions when we use expressions deliberately for social purposes, to show agreement or disagreement, or even to lie about how we feel. My research has shown that the signal doesn't look exactly the same in these deliberate, social uses of facial expressions. We may also try to conceal our emotions, but what I have called *leakage* occurs.¹⁶ Our emotional expressions have been shaped and preserved by evolution because they are informative, but that does not mean that we deliberately make emotional expressions to signal information to others.¹⁷

Bateson arranged for me to meet Margaret Mead. I clearly remember that meeting, the appearance of her office, and her unfriendly, gruff manner. She had little patience for the quest I was about to begin. She knew I had been to see Birdwhistell and that I had disagreed with Birdwhistell's view that the question of universality was settled. I did not anticipate how angrily she would

react later when my findings challenged Birdwhistell's claims.

I could not share with Bateson, Mead or Birdwhistell my worries that their theoretical commitments might have biased what they noticed and how they interpreted it. I may well have seemed presumptuous, for each was more than thirty years my senior and quite famous, while I was unknown. They believed in the value of the lone anthropologist and his or her fieldwork, trusting in his or her own intuitions and judgments.* The idea of using multiple observers, of gathering quantitative data, of building in safeguards against the influence of the scientist's commitments, which are standard in experimental psychology, were foreign to them. Admittedly, such safeguards are easier to achieve in the laboratory than in field research.

The last expert I met was Silvan Tomkins,²¹ who had just published a complex theory of personality and emotion, in which facial expression played a central role. Silvan believed that emotions were innate and their expressions universal. Although he did not emphasize Darwin, I later found when I studied Darwin that Tomkins's ideas about expression were consistent with what Darwin had written, although he had developed his own complex theory of emotion. Tomkins dazzled me with his ability to 'read' facial expressions, seeing things which I missed. But so had Birdwhistell - also an extraordinarily keen observer. The two totally disagreed about whether facial expressions are universal.

Unlike Mead and Birdwhistell, Tomkins was eager to have me put his ideas to the test. He was keen that I should do the cross-cultural research, which he was certain would prove him

* The American anthropologist Marvin Harris¹⁸ criticized Mead's methods and result in Samoa, citing other findings which suggest that Mead's claims were exaggerated. Harris points out that Mead '... was twenty-three years old when she left for Samoa and that she had to form her impressions of personality differences through the muffling effect of an imperfectly learned second language...' Harris criticized Mead for not recognizing sufficient individual variability in the traits she said characterized a culture. The Australian anthropologist Derek Freeman¹⁹ has interviewed many of Mead's Samoan informants; he reported that they deliberately misled Mead, telling her outrageous stories because it was clear that she wanted to hear such accounts. There are now a number of analyses of the Mead-Freeman controversy.²⁰

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right, and willing to take the risk that it might show him to be wrong. He gave me his own photographs of facial expression which I used in my initial studies (Fig. 1), and helped me plan how I would do my first experiment.

This experiment – and most of the other studies that I and other scientists have conducted – incorporated different elements of what Darwin had done. Like Darwin, I showed to people photographs of facial expressions (the ones Tomkins provided) and asked them what emotion they recognized. Darwin did this, but only in England. As Darwin did, I obtained data from different countries. Instead of relying upon what travelers or outsiders observed, I asked the people of each country to judge the photographs. Unlike Darwin, I did not tell people the answers I expected. Instead I gave them a list of emotion words, and it was up to them to choose which word they thought described the emotion shown by each facial expression.

In the first study, in 1966, I showed the pictures to people in Chile, Argentina, Brazil, the USA and Japan. There was no way I could influence the way people in each of these countries would judge each expression. If the relativists were right, the person in Fig. 1A, for example, might be judged as feeling angry by people in one culture, happy by those in another, and sad by a third group. Perhaps the expression might mean nothing to people in yet another culture. I found just the opposite, and the evidence was overwhelming.

Within a few years I had studied other countries, as did the American psychologist Carroll Izard,²² whom Tomkins had also advised. Different photographs of expressions were shown to people in twenty-one countries: Africa,* Argentina, Brazil, Chile, China, England, Estonia, Ethiopia, France, Germany, Greece, Indonesia, Italy, Japan, Kirghizistan, Malaysia, Scotland, Sweden, Switzerland, Turkey, and the USA.²³ This includes two studies I led,²⁴ and separate independent studies by five other investigators or groups of investigators.²⁵ With individuals in 21 countries

* This included subjects from more than one country in Africa, and is the only group who were not tested in their own languages but in English.

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Fig. 1c is of Frois-Wittman, who wrote on facial expression in the 1930s; the rest are from those made by Tomkins. These and other similar expressions were shown one at a time for .10-15 seconds. Each observer had to choose from the list: anger, fear, sadness, disgust, surprise, happiness - the word which best fitted the picture.

The results across cultures were that A was judged to be showing happiness, B disgust, C surprise, D sadness, E anger and F fear.

seeing photographs representing fear, anger, sadness, disgust, happiness, and surprise expressions, there were many opportunities for people in these different places to disagree about the emotions they saw. Instead, there was an extraordinary amount of agreement about which emotion was shown in which photographs across each of the countries. In *every* case, the majority

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in each country agreed about the pictures that showed happiness, those that showed sadness, and those that showed disgust. For expressions of surprise there was agreement by the majority in 20 out of the 21 countries, for fear in 19 out of 21, and for anger in 18 out of 21. In the six cases where the *majority* did not choose the same emotion as was chosen in every other country, the *most frequent* response (although not the majority) was the same as that given by the majority in the other countries. In my own studies, in which we exercised a great deal more care than other investigators in selecting photographs which clearly depict each emotion, *all* the expressions were judged as showing the same emotion by the majority in *every* country we studied. I also found agreement across cultures in which expressions showing a particular emotion were judged as most and least intense.²⁶

Contrary evidence, against Darwin's claim of universality, would have been to find that the expressions the majority of people in one country judged as showing – let us say anger – were judged as showing another emotion – say fear – by the majority in a different culture. This never happened.

When Birdwhistell learned what I had found, he came up with an ingenious way to discount our findings of universality. He argued that people had learned their 'universal' expressions from watching John Wayne or Charlie Chaplin on television, not from our common evolutionary heritage. Admittedly, all the people who saw the photographs of expression could have learned these expressions from one another or from a common source. If I were to study people who were visually isolated, his argument went, people who had seen no magazines, cinema or television, I would find that they did not agree with the judgments of expressions obtained from people who had all learned to interpret expression in the same way.

To deal with this challenge I went to Papua New Guinea in 1967 to study the South Fore culture. These people were visually isolated; most had seen few outsiders or none at all. They were still using stone implements, and very few had seen a photograph, magazine, film or television. Since they had no written language,

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Fig. 2. In presenting this to a person, all three photographs were shown. Only one of the stories would be read and the individual asked to select the photograph to fit the story.

Fear - She is sitting in her house all alone and there is no one else in the village; and there is no knife, ax or bow and arrow in the house. A wild pig is standing in the door of the house and the woman is looking at the pig and is very afraid of it. The pig has been standing in the doorway for a few minutes and the person is looking at it very afraid and the pig won't move away from the door and she is afraid the pig will bite her.

Happy - Her friends have come and she is happy.

Anger - She is angry and is about to fight.

I could not do what I and others had done in the 21 literate cultures: give them a list of emotion words and ask them to choose the one to fit the expression. Instead, a translator read them the list of emotion words each time they saw a photograph. Even then it was not easy for them to keep the list in mind. And it became tedious to read the list again and again. I needed a procedure by which the people could make their judgments without having to speak.

The procedure I adopted had been used many years earlier for studying young children who could not read.²⁷ My translator read out a brief story, and asked the person to point to the picture that fitted the story. Fig. 2 shows a set of photographs I used with a few of the stories read to the people in the New Guinea

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Highlands. I took every precaution to prevent the translator or me from influencing the choices made: the translator did not know what emotion I expected to be chosen, and I did not look at the person choosing until each choice had been made. Usually the pictures were held so that I could not see them, and I would have to bend over to learn afterward which picture had been selected.

These stone-age people, who could not have learned expressions from the media, chose the same expressions for each emotion as had the people in the 21 literate cultures.²⁸ The only exception was that they failed to differentiate between the fear and surprise faces, although both were distinguished from anger, happy, sad and disgust expressions.

In another study I asked some of them to show me what their face would look like if they were the person in one of the stories. I videotaped or photographed them as they enacted the emotions, and then showed these videotapes to Americans. Fig. 3 shows some frames of their poses. If expressions are universal, Americans who have never seen any people from the New Guinea culture should have no trouble judging the emotion they are showing. That is just what happened except, once again, fear and surprise were not distinguishable from each other.²⁹

In addition to these experiments I did more informal studies, in which I arranged for something to happen and filmed how people reacted. For example, I tape-recorded two men while they played jew's harp and talked to each other. Then when I had my motion-picture camera running, I played back the audio tape, filming how they acted when they heard their voices coming out of the audio machine. They showed extreme happiness mixed with surprise, just as would be the reaction to an enjoyable novel occurrence anywhere. On another occasion, I waited by the side of a road for people to meet who had not seen one another for some time. Again I saw expressions of happiness. I inadvertently made a woman angry by looking directly at her in public. No one should have difficulty determining which woman in Fig. 4 is angry. I also inadvertently frightened a child. I wasn't fast enough to catch the fear, but Fig. 5 shows the distress which quickly

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Fig. 3. The instructions were to show how your face would look if you were the person in the story.

A = your friend has come and you are happy.

B = your child has died.

C = you are angry and about to fight.

D = you see a dead pig that has been lying there a long time.

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followed. It is the same facial configuration for distress as is found anywhere else in the world.*

I also examined in slow motion nearly 100,000 feet of motion-picture film which had been taken by Carleton Gaedjusek and Richard Sörenson³¹ of the South Fore people and of another different, isolated culture (the Agape) in Papua New Guinea. Most of these films had been made in the years previous to my visit. It took me and my colleague Wallace Friesen nearly six months to view these films. *We did not see any expression that was unfamiliar to us - there were no new expressions.* Whenever the scenes were sufficiently complete for us to check whether our interpretation of an expression was correct, our judgments, it seemed, were accurate; we had no trouble understanding the expressions of these people. Our New Guinea studies were published in a series of papers from 1969 to 1972, and have been considered crucial evidence for universality by many social scientists who commented on them. Despite the care we took to prevent any personal preconceptions from influencing the findings we obtained, I cannot prove that we succeeded. Cultural relativists were later to seize on that possibility in an attempt to discredit our findings. The only answer to such doubters is to have someone who totally disagrees with you and intends to prove you wrong, repeat your research, and find exactly what you found. And that is just what happened.

In 1969, soon after the first report of our findings was published I met Karl Heider, an anthropologist who had been working in a very remote area of West New Guinea (what is now called Irian Jaya, and is part of Indonesia), studying a group called the Dani. Heider was in the United States preparing for another trip to

* Eibl-Eibesfeldt did many similar studies in remote and preliterate cultures,³⁰ finding many examples of what he interpreted as universals. A human ethologist, he did not do any quantitative research or conduct experiments, but his large collection of films on expression and gesture are valuable. Like most ethologists, he avoided using the term emotion, focusing on describing the signals. In my earlier monologue with Gregory Bateson, I explained this view and gave my answer to it.

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Fig. 4.



Fig. 5.

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the Dani. He was certain I was wrong, for the Dani do not have words for most of the emotions I was claiming had a universal expression. Heider had read our first study, in which we had asked the New Guineans to look at a picture and choose the one word, from a list of emotion terms we read to them, that fitted what the person's face was showing. The emotion words had been translated into their own language.

I told Heider that we had abandoned the emotion word method, because it was hard for the subjects to keep in mind all the choices from the list. I described the new procedure we had developed in which a translator told a story and the New Guinean picked the expression which fitted the story. We had not yet published those findings, but I told Heider that they were very strong. Before he left for his next trip, I showed him how to use this method, and gave him the materials so he could try it out among the Dani, and see if he could prove me wrong. If unwitting influence was a factor in our work, it would work in the opposite direction for Heider, and his collaborator, psychologist Eleanor Rosch. Instead they found nearly the same results as we did.³² The one exception was that the Dani did not differentiate between anger and disgust expressions, although they did distinguish these from all the other emotions. Heider had predicted this finding, as he had observed that the Dani avoid expression of anger and often mask it with disgust.

We did one more study, and it is as important as the New Guinea work because it helps to explain why others had thought there were no universals.³³ We studied the spontaneous facial expressions shown by Japanese and American college students. We selected Japan as the comparison culture because of the popular notion of 'Oriental inscrutability'. We hoped to show that this was due to what we termed *display rules* about masking negative emotions in the presence of an authority. Students in Tokyo and in California watched a neutral travelogue and stress-inducing films (i.e., surgery, accidents, etc.) while a hidden camera recorded their facial expressions. We did two different studies: in the first, the videotapes were shown to people in the US and Japan who were asked to guess whether the people they saw had been

watching the stressful or neutral film. In the second study we measured the videotaped facial expressions shown by the Japanese and American students when they had been watching the stressful and travelogue films.

Our first study of spontaneous facial expressions strongly supported universals. It didn't matter whether a Japanese or an American was judging someone from their own culture or not; they made virtually the same judgments. If the Japanese observers were correct in deciding whether a Japanese student was watching a stressful or non-stressful film, so were the Americans. And so it was when Americans were judged by Americans and Japanese. We repeated this study a second time, with a new set of students in Japan and in California, who watched the stressful and non-stressful films, and a new group of observers in Japan and in California who were asked to judge the spontaneous facial expressions. The results were the same - neither the culture of the observer nor the culture of the facial expresser mattered in the accurate judgment of whether facial expressions were reactions to the stressful or the neutral film.

As strong as this evidence is, a critic could argue that it does not prove that the same facial expressions occurred in the two cultures. Remember the observers were not asked what emotion they saw, but only when that expression was shown - during the stressful or neutral film. Suppose the Americans and Japanese had shown entirely different expressions when watching the surgical film: let us say the Americans showed sadness and the Japanese showed disgust. Our results would have been found as long as both Japanese and American observers decided that the Americans' sadness occurred during the stressful not the neutral film, and the Japanese disgust similarly occurred during the stressful film. To rule this out - to show that the *same* facial expressions were shown - a different type of study had to be done in which the facial expressions themselves were measured.

We videotaped a third group of American and Japanese subjects, when they sat alone watching the stress-inducing and neutral films. But this time we added a second condition in which a scientist dressed in a white coat entered the room and sat with

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the subject while he or she watched a stressful film. We expected that display rules for managing facial expressions in the presence of an authority figure would be operative, more so in the Japanese subjects than in the Americans. The videotapes were measured by people who did not know which film was being seen when the facial expressions occurred. A very high correlation was found between the particular facial movements shown by the American and Japanese students *when they were alone*. Virtually the same repertoire of facial movements occurred at the same points during the film. But when there was another person present the Japanese and Americans, as predicted, showed entirely different facial expressions. The Japanese showed more smiling than the Americans to mask their negative emotional expressions. No wonder that foreigners, travelers and anthropologists who visited or lived among the Japanese thought their expressions different from Americans. They would have seen the result of the display rules masking and modifying the underlying universal expressions of emotion.

I brought all these studies of facial expression together in a book, entitled *Darwin and Facial Expression*, to celebrate 100 years since the publication of *Expression*.³⁴ In addition to my chapter on expression, I had asked other authors to write chapters reviewing the evidence on non-human primates, on infants and children, and a historical chapter on Darwin's influence in psychology. Two years later Margaret Mead wrote a scathing five-page review:

The narrowness and discipline-centric nature of the book is a continuing example of the appalling state of the human sciences, when members of each discipline treat their specialized approach as the only approach. . . . Ekman's single-minded research goal - to resolve with absolute certainty (an attitude which we usually do not associate with science, which proceeds by a succession of discarded paradigms) that the expression of some, if not all, of the emotions of which the human face is capable, is innate and universal - is outlined in full detail.³⁵

It isn't obvious why Mead was so offended by the evidence I had marshaled in support of Darwin's early evidence of universals.

THE EXPRESSION OF THE EMOTIONS

Although she was the best-known cultural relativist from the 1920s through most of the 1940s, at that time she had privately acknowledged the role of biology. With Nazism on the rise she had decided that '... the study of inborn differences would have to wait upon less troubled times' (see note 9). After the war she recognized the role of biology publicly, at least regarding the differences in the roles of men and women. 'It is important to take into consideration the possibility that the biological bases of aggression in the two sexes - in human beings as in other mammals - may differ significantly.'³⁶

Perhaps Mead thought I was claiming that emotions operate like instincts, uninfluenced by social experience. That was not my position; finding universals in expressions does not mean that expressions are not socially influenced. Our findings on how socially learned display rules produced a cultural difference in the public behavior of Japanese and Americans should have made that clear. But the terminology I adopted to account for the finding of universals may have been confusing. I had used Silvan Tomkins's concept of an 'affect program' to describe the innate basis of universal expressions, although I had emphasized that facial expressions '... are embedded in a context; they may be elicited by different stimuli, be operated upon by different display rules, be blended with other affects, and be followed by different behavioral consequences. We do not mean to belittle these factors; in actuality we want to focus attention on these factors as the major sources of cultural differences in affect displays.'³⁷

Despite this attempt to emphasize the role of culture, my use of the term 'program' may have seemed to imply that everything about emotion and expression was fixed. A few years after I wrote the passage I have just quoted the noted American zoologist Ernst Mayr clarified this matter by distinguishing between an 'open program' and a 'closed program'.³⁸ In a closed program nothing can be inserted by experience, while an open genetic program '... allows for additional input during the lifespan of its owner'. Mayr pointed out that in creatures which have a long period of parental care, when there is time for learning, there will be a selective advantage in an open rather than a closed genetic

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program. It is important to remember that '... an open program is by no means a *tabula rasa*; certain types of information are more easily incorporated than others.'

Mead may have thought I was proposing a closed program, whereas it is clearly an open program. Social experience influences attitudes about emotions, creates display and feeling rules, develops and tunes the particular occasions which will most rapidly call forth an emotion. The expressions of our emotions, the particular configurations of muscular movements, however, appear to be fixed, enabling understanding across generations, across cultures, and within cultures between strangers as well as intimates. I believe that much of the initial emotion-specific physiological activity in the first few milliseconds of an emotional experience is also not penetrable by social experience, but that takes us beyond the scope of Darwin's book. Mead made it clear that she was offended by my attack on her colleague Birdwhistell. Citing my report that Birdwhistell had no evidence for his claims other than his personal observations, Mead wrote, 'This is the type of canard which disgraces scientific controversy... By repeating the clichéd criticism that Birdwhistell has become a "captive of his own linguistic model" Ekman is guilty of the most gross misrepresentation, a misrepresentation which has been popularized among psychologists who are more interested in validity and reliability than in what they are actually studying.'⁹

I was and am concerned with the validity and reliability of evidence, but that is essential, not an interference, to knowing what one is studying. Our disagreement, at least in part, is due to the different rules of evidence in academic psychology on the one hand, and parts of anthropology and the clinical areas of psychology on the other hand. Birdwhistell had not published, nor had he any material, qualitative or quantitative, to substantiate his claims. They were his personal judgments, illustrated by examples. That was sufficient for Mead, and perhaps for some anthropologists, clinical psychologists and psychiatrists, but not for experimental psychologists. My admittedly single-minded purpose was to gather evidence independent of my own observations, evidence which others could examine, using methods which

others could repeat, so that a person like Heider could try to prove me wrong.

Although she criticized me severely in her review, Mead never came right out and said there are no universals in facial expressions. Her dilemma was how to acknowledge universals in facial expressions and not disavow Ray Birdwhistell's conclusion that there were no universals. She came up with a far-fetched idea.

These findings, dramatic and significant as they are, must be placed beside Birdwhistell's analysis of culturally patterned expressive movement . . . there is no need to reject the presence of possible innate and evolutionarily and potentially neurologically explicable facial expressions, in order to recognize that in all the individuals Birdwhistell has studied in such detail he did not find them. . . . The fact that those who have studied facial expressions in many cultures [she is referring to Birdwhistell] find patterning from birth, and possibly before birth, does not necessarily conflict with the possibility that human beings may share a core of innate behaviors which are usually highly modified but which are available for simulation [she is referring to *my work*].⁴⁰

What Mead proposed makes no sense. She allowed for universal, innate expressions; but they are never manifest in actual life. These innate expressions are, she said, culturally patterned from birth or before (presumably in the uterus), and that is why Birdwhistell never saw them. I found that people in different cultures agree about the emotion shown in posed expressions because, according to Mead, they base their judgments upon their knowledge of the innate universal expressions never seen in social life.

There are two problems with Mead's formulation. First, why would people know how to interpret and adopt posed facial expressions if they never saw them in real life. She said it was innate, but she wisely never attempted to explain how it would have been adaptive to have this knowledge. What benefit would result from knowing about poses which are never shown in real encounters? Second, my evidence was not limited to posed expressions. In my study of Japanese and American students, we had measured spontaneous facial expressions, and found univer-

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sals when the subjects were alone. I had reported that study in detail in the book Mead reviewed; she ignored it. For the next fifteen years, despite Mead, the findings on universality were generally accepted in psychology. (Perhaps her review had little impact because it was published in a small circulation journal, catering to specialists in communication, not one of the major journals in either psychology or anthropology.) Emotion became a subject of renewed interest, and a Darwinian perspective seemed increasingly viable to a growing number of behavioral scientists.

In the last five years, however, the argument against Darwin's *Expression* has been renewed. The American psychologist Alan Fridlund attacked Darwin for not emphasizing that expressions were selected because of their communicative value.⁴¹ This is an overstatement, for Darwin did recognize the importance of communication, explaining its role in the origin of some expressions in animals. His principle of antithesis – some expressions have the form they do because their appearance is the opposite of other expressions – implies communication. In my Introduction I explained why Darwin did not emphasize natural selection in explaining the origin of expressions. Fridlund has echoed the position of Bateson and some ethologists who claim that it is not useful to think of expressions in terms of *emotion*, but only as communicative signals; in my monologue with Bateson (pp. 372–3) I have explained why this is a false dichotomy. Fridlund also raises technical questions which I have answered elsewhere.⁴²

A quite different attack on the evidence for universals that I and others have published has focused on the words used to describe emotion. The Australian linguist Anna Wierzbicka said we have been misled by relying on Western words for emotions.⁴³ These words, she claimed, do not exist in many non-Western cultures. But the evidence for universals does not rely simply on studies in which people use words to label the emotion shown in a photograph. Neither we nor Heider and Rosch used emotion words in our studies in New Guinea, and our Japanese–American study found evidence of universals by measuring the spontaneous facial movements, with no use of emotion words. The Canadian psychologist James Russell imagined we would not have found

universals if we had let the people in each country choose their own word to describe each emotion, rather than giving them lists of emotion words from which they had to choose the word which best fit each expression.⁴⁴ But Izard (*The Face of Emotion*) did just what Russell claimed was required and found evidence of universality. Besides, as I have pointed out, the evidence for universals does not rest solely on studies in which words are linked to faces.

Despite these criticisms, I believe most scientists consider the universality of facial expressions of emotion to be well established. The American anthropologist Donald Brown used the evidence on facial expressions as one of six cases which form the cornerstone for understanding human universals.⁴⁵ While robust, the evidence is limited to just a handful of emotions: anger, disgust, sadness, enjoyment, and fear/surprise. I agree with Darwin in believing that fear and surprise do have separate distinct expressions, but the evidence for it comes only from literate cultures. In the preliterate cultures fear and surprise were not differentiated although each was distinguished from the other emotions. I do not know why I was unable to obtain evidence for that in New Guinea.

We have also found evidence that contempt, the emotion when you feel morally superior to another, has a universal expression,⁴⁶ but this is also from literate cultures, as the research was done in the 1980s when I no longer could find any visually isolated preliterate cultures to study. One of my former students, Dacher Keltner, has evidence that there is a universal expression for embarrassment, but he has not yet studied sufficient literate cultures.⁴⁷ The group of emotions for which there is some evidence of universality includes most, but not all, of the emotions Darwin studied: surprise, sadness, anger, enjoyment, contempt, disgust, shame, and fear.* Darwin also asked his informants whether there

* Darwin did not use the words surprise, sadness, anger, enjoyment or contempt in the questions he sent to his English informants, but it is clear that he considered the words he did use either to be synonymous or to vary only in intensity from the words I have listed.

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are expressions for guilt, slyness, and jealousy, although he told them he did not know how to describe those expressions. I have not studied the expression of those emotions, nor have others. I think that guilt and shame expressions do not differ from each other, and that they differ from sadness only in the attempt to hide the face. Jealousy seems to have no distinctive expression, perhaps because it is an emotion where the person feels a number of other emotions: angry with the one whose attention is lost or with the rival; sadness at the loss; fear in anticipation of further loss; or disgust at himself or herself for feeling jealous. Envy, a term often confused with jealousy, also does not have a unique expression.⁴⁸

Darwin also included questions about obstinacy, which no one has since studied, and about puzzlement, which most scientists today consider a form of thinking, not an emotion. Darwin recognized that most symbolic gestures are learned and therefore differ from one culture to another, but he did ask his informants about three symbolic gestures: the head nod and head shake as signs of affirmation and negation; and the shrug as a sign of being unable to do something. His informants reported that the head nod and shake for affirmation and negation are not universal, although the negation head shake is widespread.⁴⁹ He believed on the basis of his evidence that the shrug is universal, but I did not find it among the people I studied in New Guinea. But these are minor quibbles. Darwin's central point is well established: a number of emotions have a universal expression. This would have pleased Darwin, for he acknowledged that not *every* emotion has an expression, let alone a universal one. But to find evidence of universals for six to eight emotions is consistent with an evolutionary view.

To have shown that there are universals in facial expressions of emotion does not mean that expressions are universal in every regard. Our evidence, and that of others, shows only that when people are experiencing certain strong emotions, and are not making any attempt to mask their expressions (display rules), the expression will be the same regardless of age, race, culture, sex, or education. That is a powerful finding.

There are a number of ways in which cultures do differ in their emotional expressions. I have already mentioned one – the display rules which specify who can show which emotion to whom and when. Cultures differ also in some of the specific events which are likely to call forth an emotion. For example, some of the foods which people in one culture find a delicacy, people in another culture find revolting, but differences are also found within a culture. Although the specific event varies – the type of food, the general theme – ingesting something repulsive as a cause for disgust, or ingesting something attractive as a cause of enjoyment – is universal. I think this is a good model for all the emotions. The event which makes me angry may be different from what makes a Samoan angry, or my wife angry, but the theme will be the same. Anger can be brought forth by something that is provocative, insulting, or frustrating, to name just a few of the anger themes, although what you find provocative, insulting or frustrating may not be the same across or within cultures.

I will mention only one more way in which cultures differ in emotional expression, because to go further would take us too far from Darwin. I expect that languages differ in the words they have for emotions, not only in terms of the numbers of words for each emotion, but the extent to which a word gives subtle nuances or combines emotions or tells us what caused the emotion. The Germans have the evocative word *Schadenfreude*, for that distinctive pleasure when you learn of a misfortune which has befallen an enemy. English-speakers have no single word for that feeling, although we do feel the emotion. Not having a word for an emotional state may well influence emotional experience. Without being able to name feelings, it may be harder to distinguish them, think about them, and so on.

An extreme example of how lack of emotion words can change emotional experience was reported by the American psychiatrist and anthropologist Robert Levy.⁵⁰ He said that the Tahitians had no word or concept for sadness in their culture. They acted in a sad way – loss of appetite, inactivity and sad expressions – when rejected by a lover, but not only could they not name the feeling

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but they did not relate their experience to the rejection. They explained their feelings as due to sickness.*

If true, this is a dramatic example of how cultural differences influence emotional experience. Even though the expressions are universal (present when the emotion of sadness is felt), culture determines whether the person even knows that the feelings are related to the event. Less dramatically perhaps, the other differences between cultures and within any culture which I have outlined – in the words for emotions, in what is learned about an event which calls forth an emotion, in display rules, in attitudes about emotions – all these shape our emotional experience. Our evolution gives us these universal expressions, which tell others some important information about us, but *exactly* what an expression tells us is not the same in every culture.

Universals in facial expressions of emotion can serve as a model for understanding other aspects of our social behavior. In part our social behavior is constructed by experience, in part it is constructed as a result of our evolution as a species. What has been adaptive to us in our lives is malleable, and may vary from one family setting to another, among different social classes and ethnic groups within a culture and across cultures. What has been adaptive to our species, to our history on this planet, may not always be adaptive to our current life circumstance. How much we are influenced by individual experience and how much by our evolutionary history varies, depending upon what aspect of our behavior we are considering. It is never a question only of nature or only of nurture. We are biosocial creatures, our minds are embodied, reflecting our lives and the lives of our ancestors. Darwin led the way not only in the biological sciences but in the social sciences as well.

San Francisco,
September, 1996

* This is such an important example, it is a shame that no one else has tried to verify it in Tahiti, or observe something similar elsewhere.