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## **John Bowlby and ethology : a study of cross-fertilization**

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### **Citation**

Horst, F. C. P. van der. (2009, February 5). *John Bowlby and ethology : a study of cross-fertilization*. Retrieved from <https://hdl.handle.net/1887/13467>

Version: Not Applicable (or Unknown)

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## **CHAPTER 6.**

## **DISCUSSION**



This thesis explored the roots of attachment theory and, more specifically, addressed the cross-fertilization of attachment theory and ethology. Our goal was to carefully investigate the influence of ethology on John Bowlby's thinking, as well as the reciprocal influence he had on ethological research. Until now, little attempt has been made to systematically research and extensively describe this episode in the history of attachment theory. In a description of the first half of John Bowlby's life, Van Dijken's (1998) emphasis was on the early stages of attachment theory and she did not analyze Bowlby's and Ainsworth's use of the new science of ethology in any detail. It is here that this research project started off. The project took a historical approach and used three different kinds of resources. First, Bowlby's publications and the ethological literature were thoroughly analyzed. A second way of retrieving important information was through oral histories. Finally, archival materials proved a very useful source of information. Of course, the information from these different sources was cross-validated in an iterative process.

Starting point for this thesis was the publication of Bowlby's (1951, 1952) monograph on maternal deprivation for the WHO and the different issues of separation that Bowlby reported in his study. In this respect, attention was drawn to observations made during wartime evacuations and in residential nurseries, to the discussion concerning visiting of children in hospital, and to results of clinical studies and hospitalization studies. Contrary to general belief, Bowlby was only one of many who were concerned about potentially harmful effects of temporary mother-child separations. Nevertheless, we concluded that the publication of his WHO monograph was an Archimedean point in the construction of attachment theory (Chapter 2).

At the time of publication of the WHO report, Bowlby was dissatisfied with psychoanalytic theory, because it could not account adequately for observed facts concerning the responses of young children to separation from their mothers and to deprivation of maternal care (Van Dijken, 1998; Van Dijken et al., 1998). So when Bowlby's attention was drawn to ethology in 1951, he quickly saw its potential as a new theoretical approach. Ainsworth later was to state that Bowlby's "discovery of ethology was the key that released the main structure of attachment theory all at once" and that "attachment theory began with a sudden flash of insight, sparked by ethology, that led to a scientific revolution, the understanding of personality development" (Southgate, Ainsworth & Southern, 1990, p. 13).

In this thesis, based on unique evidence from oral histories and little-known archival material, it was argued that Bowlby's interactions with key players in the field of ethology such as Huxley, Lorenz, Tinbergen, and especially British ethologist Robert Hinde were decisive in constructing a new framework to explain mother-child interactions in early life (Chapter 3). Almost as crucial was the work of American psychologist Harry Harlow, who provided Bowlby with evidence of studies on separation in rhesus monkeys, at a time when Bowlby was looking for empirical confirmation of his ideas. We used the hitherto undiscovered correspondence between Harlow and Bowlby in our analysis to illustrate the importance of the solid empirical foundation for Bowlby's theoretical construction (Chapter 4). Not only was Bowlby influenced by ethologists and animal psychologists, in his turn he also influenced the work of many in the field of animal behavior studies. Bowlby's influence

on Hinde and Harlow was discussed in Chapters 3 and 4 respectively, and the cross-fertilization of attachment theory and primate research in recent times was illustrated by an annotated and edited interview with Dr. Suomi (Chapter 5).

### **Limitations of the study**

The approach in this thesis has several potential limitations. First, an uncritical use of oral histories can lead to overreliance on a certain informant, while the human memory is generally very unreliable. We tackled this problem by cross-validating the information we gathered from eye-witnesses with archival materials, scientific publications, and other written sources. If any doubts arose as to the reliability of an informant because his or her account did not agree with contemporary documents, preference was given to the written sources.

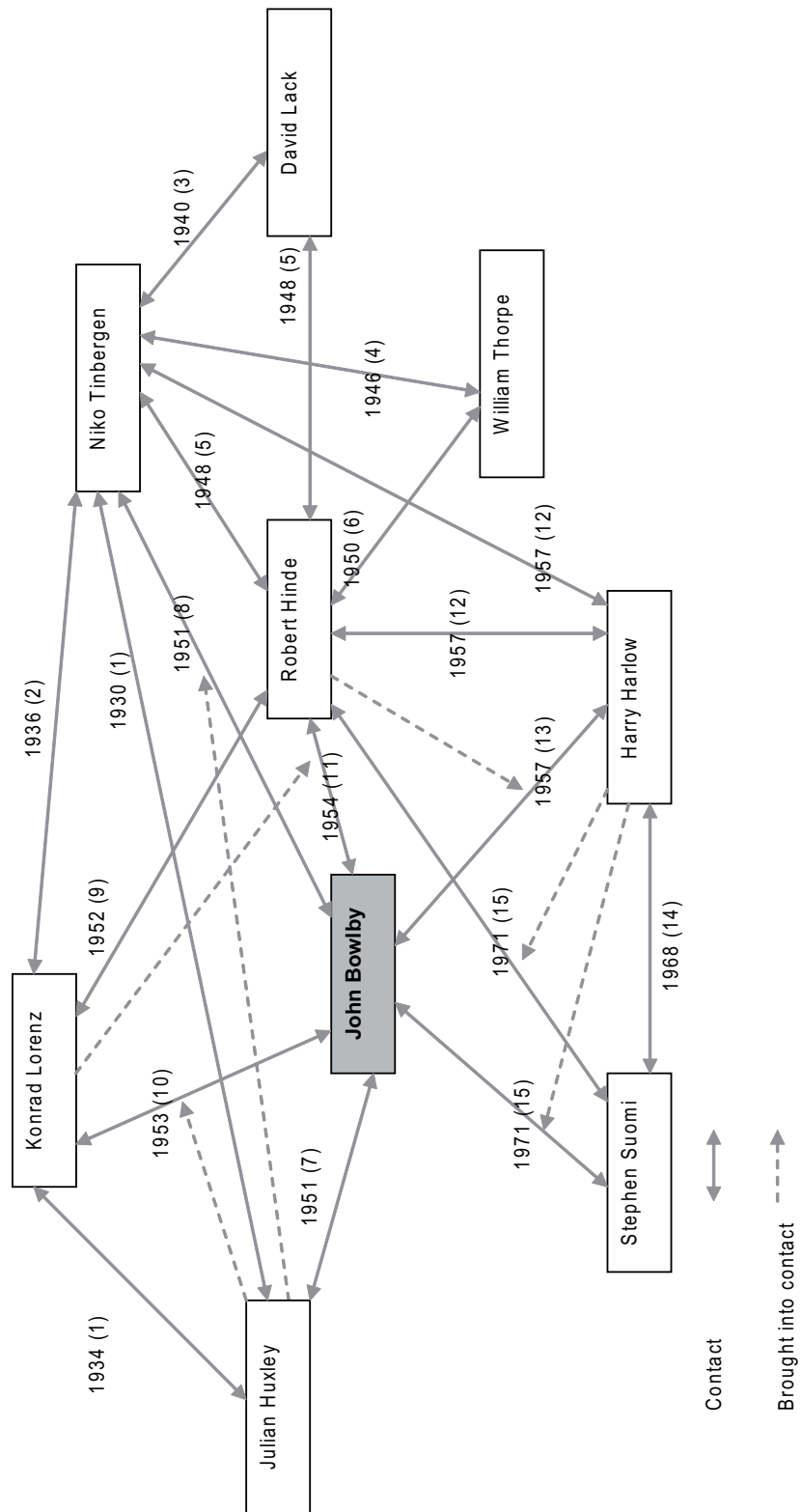
A second potential shortcoming of this study is that it combines intellectual history with biographical accounts. Critics might argue that such a combination is unsatisfactory and that one should either write a biography or a history of ideas. However, we consciously decided not to make a choice between either of these. Strictly speaking this thesis is not a biography, but it is part of a series of studies (Van Dijken & Van der Veer, 1997; Van Dijken, 1997, 1998; Van Dijken et al., 1998; Van der Horst et al., 2007; Suomi, Van der Horst & Van der Veer, 2008; Van der Horst, LeRoy & Van der Veer, 2008; Van der Horst & Van der Veer, 2008a, 2008b, in press), which together give the most complete biographical and scientific overview of Bowlby's life and work and the growth of attachment theory to date. In all, we believe it is a defensible mixture of an analysis of the history of the roots of attachment theory and the personal contacts and scientific debate between the persons closely involved.

These potential limitations aside, there is ample evidence of the cross-fertilization of ideas that was presented in this thesis. Here, this evidence will be further integrated and discussed. First, we will take a closer look at the interpersonal relations leading to the reciprocal influence of attachment and ethology by once more presenting Bowlby's interaction with ethologists and animal psychologists as discussed in previous chapters. These interactions are now summarized in a sociogram (see Figure 7) or "sociometric chart plotting the structure of interpersonal relations in a group situation" (Merriam-Webster Online Dictionary).

### **Sociogram**

It is no coincidence that the interactions in this sociogram, leading to Bowlby's introduction to ethology, start with Julian Huxley, Niko Tinbergen, and Konrad Lorenz. Bowlby acknowledged them in his *Attachment and loss* and claimed he was "grateful to all three for continuing [his] education and for encouragement" (Bowlby, 1969/1982, p. xviii). Tinbergen and Lorenz, as the proponents of continental ethology in the 1930s, met with their British counterpart Huxley at separate ornithological conferences in Amsterdam in 1930 and Oxford in 1934, respectively (Burckhardt, 2005, p. 160; Kruuk, 2003, p. 80). Later, both Lorenz and Huxley would attend the WHO conferences in Geneva and London from 1953-1956, meetings Bowlby also participated in. In 1936, Lorenz visited Leiden and during a symposium on *Instinct* was first introduced to Tinbergen (Roëll, 2000, p. 111). As we have

Figure 7. Sociogram of John Bowlby's interactions with ethologists and animal psychologists



seen, their interactions would have great impact on the field of biology and they were awarded the *Nobel Prize in Physiology or Medicine* (together with Karl von Frisch). In the 1940s, it was mostly Tinbergen who interacted with leading researchers in British ethology, much more so than did Lorenz. For example, Tinbergen corresponded with David Lack from 1940 onwards and met him for the first time at a conference in Leiden in 1946 (Burckhardt, 2005, pp. 285-286). Tinbergen and William Thorpe had their first encounter when Tinbergen was traveling through Great-Britain with Lack in 1946, right after their first encounter in Leiden (Kruuk, 2003, p. 143). In 1950, although he was officially supervised by Lack, Robert Hinde started his PhD with Tinbergen after the latter had made the move to Oxford (Kruuk, 2003, p. 339; Tinbergen, 1991, p. 463). Eventually, Thorpe set up an ornithological field station in Cambridge and asked Hinde to supervise the enterprise. Meanwhile Hinde and Lorenz first met at a symposium in Buldern in 1952, where Hinde impressed Lorenz with a paper on the mobbing reaction of chaffinches to owls (Van der Horst et al., 2007). Thus, in the 1930s and 1940s, a network of European ethologists was created, which quickly resumed its activity after the war. It was in the early 1950s that Bowlby became acquainted with many of them.

After his attention was drawn to ethology, Bowlby's first interaction with this network of ethologists was during a vacation with his family-in-law in 1951, where he met with Huxley, who encouraged him to go into ethology in more depth and referred him to the work of Tinbergen. After reading his way into ethology, Bowlby suggested that Lorenz was invited to the first WHO conference on "the psychobiological development of the child" (Tanner & Inhelder, 1971) in Geneva in 1953. At this meeting, Lorenz spoke highly of Hinde's work and Bowlby became interested in meeting Hinde. The first encounter between Hinde and Bowlby was rather by chance, though, during a scientific meeting on ethology and psychiatry organized by the RMPA in London in 1954. The organizers had intended to invite Tinbergen and Lorenz, but they were both unavailable, so Hinde and Bowlby were asked to participate instead (Van der Horst et al., 2007).

A couple of years later, in 1957, Tinbergen, Hinde and Harry Harlow attended the same conference in Stanford, where European ethologists and American animal psychologists, on the invitation of Daniel Lehrman, attempted to bridge their differences. After returning to England, Hinde drew Bowlby's attention to the work of Harlow and Harlow and Bowlby corresponded from 1957 onwards and visited each others laboratories in subsequent years (Van der Horst et al., 2008). Steve Suomi was introduced to Harlow by his father after the latter ran into Harlow on an airplane and through Harlow Suomi was later introduced to both Bowlby and Hinde at a scientific meeting in New York (Suomi et al., 2008).

The sociogram presented here (see Figure 7) summarizes the interactions Bowlby had with many influential ethologists and animal psychologists from the 1930s to the 1970s. Many of these interactions have been discussed in previous chapters and have been carefully documented. We present this sociogram as part of the evidence of a cross-fertilization of ethological and attachment ideas.

### Applying ethology to attachment behavior: Tinbergen's four whys

Another way of assessing ethology's influence on John Bowlby and attachment theory is to look at it from a theoretical perspective, i.e. to investigate how Bowlby used certain ethological ideas or notions in attachment theory. There is vast evidence in *Attachment and loss* (Bowlby, 1969/1982, 1973, 1980a) that he was indeed heavily influenced by the ethological framework. For example, in Volume 1 Bowlby addressed each of Tinbergen's four whys of behavior: evolution, causation, function and ontogeny. By describing how Bowlby answered these ethological questions for attachment behavior, we will here demonstrate this influence.

Earlier we addressed the issue of the concept of the Environment of Evolutionary Adaptedness (Van der Horst et al., 2007; see Chapter 3), which Bowlby used to answer Tinbergen's question of the evolution of behavior. Bowlby (1969/1982, p. 47) leaves no doubt about the central role of this concept in attachment theory: "the concept EEA is vital to the argument of this book". According to Bowlby, the behavior that ensures a tight bond between mother and child evolved into instinctive behavior as a result of natural selection: children attach themselves to their caregivers because of the survival value in man's EEA. According to Bowlby:

*the only relevant criterion by which to consider the natural adaptedness of any particular part of present day man's behavioural equipment is the degree to which and the way in which it might contribute to population survival in man's primeval environment, ... [i.e.,] the one that man inhabited for two million years until changes of the past few thousand years led to the extraordinary variety of habitats he occupies today... It is against this picture of man's EEA that the environmentally stable behavioural equipment of man is considered. Much of this equipment... is so structured that it enables individuals of each sex and each age-group to take their place in the organised social group characteristic of the species. (Bowlby, 1969/1982, pp. 59/63-64; original italics)*

In their environment of adaptedness humans had to be equipped with instinctive behavioral systems to negate the dangers of predators or aggressive members of their own species. The bond between mother and child is the consequence of such an essential behavioral system. So attachment behavior is the behavior that promotes and maintains proximity to caregivers to ensure safety against such dangers. With this description of the EEA and the evolution of attachment as instinctive behavior, Bowlby answered one of Tinbergen's four whys.

Bowlby's (ibid., pp. 85-103) description of the causation of instinctive behavior, or the activation and termination of it, followed ideas proposed by Hinde and Tinbergen and is based on animal research. As causes for instinctive behavior, Bowlby named hormone levels, organization and autonomous action of the nervous system (CNS), and environmental stimuli. Bowlby (ibid., pp. 124-140) clearly distinguished causation, the immediate causes of a system's activation, from the function of a behavioral system: "The function of a [biological] system is that consequence of the system's activity which led to its



having been evolved, and which leads to its continuing to remain in the equipment of the species” (ibid., p. 127). Finally, Bowlby (ibid., pp. 145-174) addressed the issue of the ontogeny of instinctive behavior, which “usually take[s] at first a primitive form and proceed[s] thence to undergo an elaborate process of development” (ibid., p. 145). Bowlby (ibid., pp. 199-204) largely based his description of the ontogeny of attachment behavior in human infants on Ainsworth’s (1963, 1967) Uganda reports. Her observations in Africa were a confirmation of Bowlby’s theoretical ideas and of the results of Harlow’s observations of and experiments with monkeys. We may thus conclude that Bowlby satisfied Tinbergen’s four criteria for the satisfactory explanation of a biological phenomenon: he provided an account of the evolution, causation, function, and ontogeny of attachment behavior.

### **The role of observation and experiment**

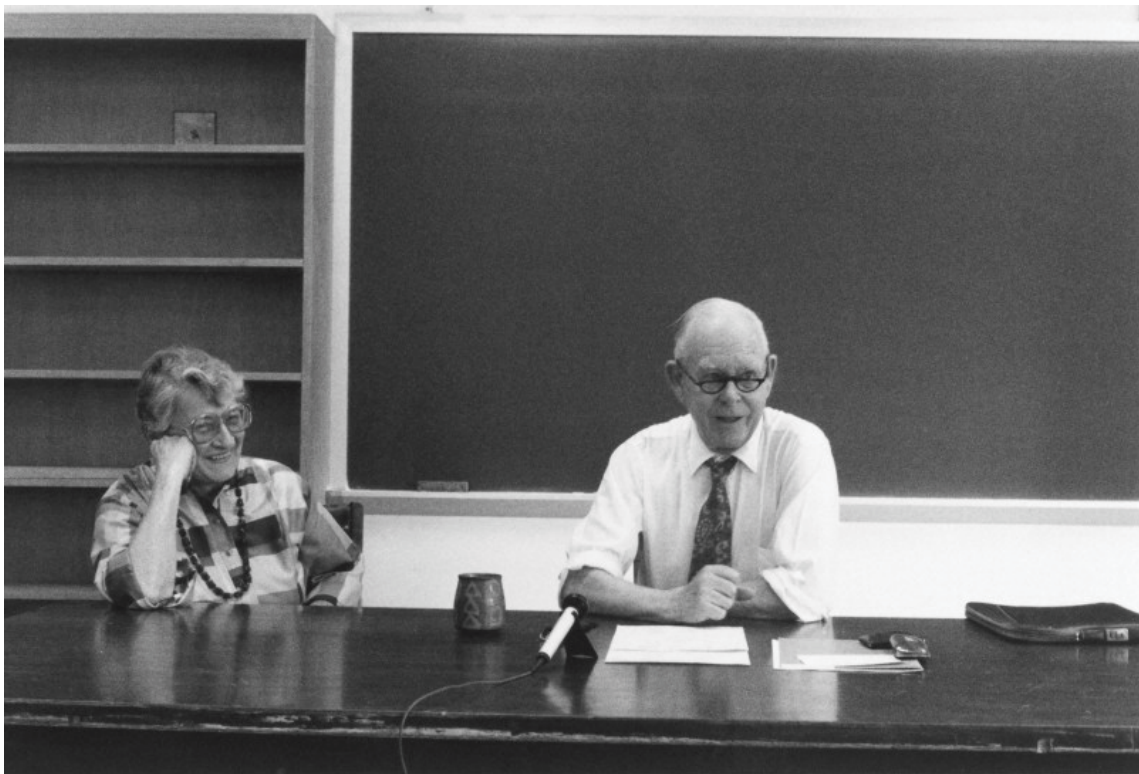
Ethological studies were and still are characterized by the emphasis on observation of (animal) behavior in a natural environment (cf. Tinbergen, 1963). Bowlby valued this emphasis on observation of real life events, but early in his career encountered much resistance from psychoanalysts in the *British Psychoanalytical Society*, particularly the Kleinian school of thinking within psychoanalysis (Van Dijken, 1998). Bowlby not only criticized their neglect of observation, but their lack of what he called scientific training as well: “Unfortunately some of the leading people in psychoanalysis have had no scientific training. Neither Melanie Klein nor Anna Freud knew the first thing about scientific method. They were totally ignorant” (Bowlby et al., 1986, p. 45). Obviously, Bowlby valued observation and experiment in his research from early on in his career.

Bowlby did have the scientific and experimental background others within the psychoanalytic movement lacked: as a medical student at Cambridge he read experimental psychology and thus had a grounding in statistics and experimental design. Also, Bowlby was in the Research and Training Centre of the Officer’s Selection Board during World War II, which he described as a practically oriented centre where he worked with three academic psychologists. “In the army I received what was really a post graduate training in psychology” (Bowlby in Senn, 1977, p. 9). So, although Bowlby was a clinician at heart, he did know about experimental procedures and when he went to the Tavistock Clinic after the war in 1946, his brief was to provide three strands – not only a clinical service and a training program, but a research program as well (Bowlby et al., 1986, p. 40). The fact that Bowlby preferred to do observations in natural situations, also becomes clear from his cooperation with James Robertson, resulting in *A two-year-old goes to hospital* (Robertson, 1952) and *Going to hospital with mother* (Robertson, 1958c).

Regarding the valuable role of observation and experiment, many experts of attachment theory underline the importance of Mary Ainsworth’s contributions to attachment theory. Many stress the fact that attachment was not a one-man job by Bowlby (e.g., Van der Horst et al., 2007; Stevenson-Hinde, personal communication, September 10, 2007; Steele, personal communication, October 12, 2007; Waters, personal communication, October 15, 2007; Bretherton, personal communication, October 19, 2007). But these experts also value Ainsworth’s theoretical contributions. For example, this is what her student Everett Waters said about her contributions:

I don't think that one should under-estimate Mary Ainsworth's theoretical contributions to [attachment theory]... She was thinking of herself as the empirical apologist for Bowlby's theory when in fact she was making important contributions to the way security was conceptualized... [Bowlby] certainly wouldn't have called it a one-man job... Bowlby needed Ainsworth. (Everett Waters, personal communication, October 15, 2007)

This thesis only briefly discussed Ainsworth's contribution to attachment theory (see Chapter 3). Her empirical as well as her theoretical contributions were of great importance to attachment theory as it evolved. Assessing Ainsworth's influence on Bowlby and attachment is outside the scope of this thesis, but is definitely the next step in further unraveling the roots of attachment theory.



*Figure 8. Mary Ainsworth and John Bowlby in Charlottesville in 1986. Picture courtesy of the Wellcome Library, London (AMWL: PP/BOW/L.19, nr. 23).*

### **Bowlby's scientific descent: Freudian or Darwinian?**

Finally, we will here address the issue of Bowlby's scientific descent. Experts of attachment theory differ in opinion whether attachment theory is a psychoanalytic (e.g., Fonagy, 1999; Slade, 1999) or an evolutionary theory (e.g., Belsky, 1999; Simpson, 1999). Bowlby himself stated that his "own position, regarding Freud's work, is that the phenomenons to which [Freud] called attention are immensely important; but the theories which he came up with are

very dated and inadequate” (Bowlby et al., 1986, p. 45). What Bowlby was trying to do was to get psychoanalysts on a more empirical track, to ask them not to neglect real-life experiences, and to gather evidence for their views: “If they come up with some interesting and hard data... I shall be interested, but not until then” (Warme, Bowlby, Crowcroft & Rae-Grant, 1980). Bowlby’s “main concern right back from the thirties ha[d] been to get psychoanalysis onto a decent scientific basis” (Dinnage, 1979, p. 325). Bowlby specifically stated that he “didn’t happen to go along with the particular theory that Freud had advanced – not because [Freud] was convinced of it, but because [Freud] couldn’t think of anything better” (Bowlby et al., 1986, p. 42). So, Bowlby concluded that “as long as you define psychoanalysis in terms of traditional theories, i.e. Freud’s theories and not the phenomena he was trying to explain, (a) my ideas are not psychoanalysis; and (b) no new ideas can ever be psychoanalysis – by definition” (ibid., p. 57). “If psychoanalysis is to attain full status as one of the behavioural sciences,” Bowlby (1969/1982, p. 9) added, “it must add to its traditional method the tried methods of the natural sciences.”

This methodological discussion on what ‘real science’ is, of course, is not unique. In the Netherlands a similar debate in psychology raged during the 1940s and 1950s. In her description of this episode in the history of Dutch psychology, Dehue (1995) “convincingly demonstrates the broad applicability of her Dutch perspective” (Nicholson, 2000, p. 212). In the UK, Bowlby was involved in the debate between adherents of an intuitive, hypothetical approach with emphasis on the unconscious and psychoanalytic interpretation versus advocates of an empirical-analytical approach with emphasis on real-life experiences and observable data. We have made clear that Bowlby chose the latter approach and wanted psychoanalysts to make the move to a more scientific, empirically based approach to psychology and the study of personality development.

However, it is not totally fair to say that Bowlby refuted all of psychoanalysis. On several occasions Bowlby testified that he never discarded psychoanalytic theory, but that he only wanted to “rewrite psychoanalysis in the light of ethological concepts” (Dinnage, 1979, p. 325). Maybe this was because he thought that “the phenomena of psychoanalysis are far too important to be left to the psychoanalytic *movement*” (Bowlby et al., 1986, p. 57; original italics). To this day, some experts of attachment theory emphasize “the psychoanalytic core of attachment theory: that part of attachment theory that sees emotion regulation as central to healthy development” (Steele, personal communication, October 12, 2007). Others, however, state that “it was John Bowlby’s great merit to include the evolutionary basis of attachment into his framework of thinking” (Keller, 2008).

The most striking observation in this respect is one of Bowlby’s own. As early as 1958, in one of the many letters Bowlby wrote to his wife Ursula over the years, Bowlby compared himself to both Freud and Darwin:

It pleases me to believe I have some of Darwin’s characteristics, tho[ugh] by no means all! He was a tremendously good observer [and] of course a full-time research worker all his life. I’m not that good an observer [and] very far from full-time. However I believe I have some of his capacity to live with a problem over many years, mulling over the data until the theory begins to take shape [and] also

keeping the theory close to the data. None of this vicious speculation! But broad bold theory when it comes. Two other characteristics I'm pleased to share with him – very systematic note making [and] drafting at top speed with plenty of revisions later. So however good a scientist I may or may not be, I think I'm the same sort of scientist as Darwin – [and] not the least like Freud. (Bowlby in a letter to Ursula, May 19, 1958; AMWL, PP/BOW/B.1/20) (original underlining)

With these perceptive comments Bowlby not only expressed his great admiration for Darwin – an admiration that becomes clear from his biography of Darwin as well (Bowlby, 1990) – but Bowlby also stated that scientifically speaking he placed himself in the tradition of Darwin. Careful observation, note making, and theory formation on the basis of hard data was to be preferred over facile armchair speculation. It was Bowlby's passion to understand and help children that suffered from a lack of love and understanding, a passion that originated in his own childhood (Van Dijken, 1998). He was a skilled and amiable clinician who saw countless children in the Tavistock Clinic and the London Childhood Guidance Centre and was committed to help them by all possible means. But it was his ultimate belief that these children would be helped best not by speculating about their internal conflicts and drives, but by observing and explaining their behavior in their real-life circumstances in the spirit of ethology.

