

Maternal confidence: Separation from young

Harry Harlow's classic experiments with rhesus monkeys clearly demonstrated the importance of mother-child interaction during the first weeks of life. His work at the Wisconsin Regional Primate Research Center pointed out that separating an infant from its mother can have lasting effects on both infant and mother. Isolated infants develop abnormal social and sexual behaviors. The mothers fail to display normal maternal behaviors when reunited with the infants. In the past, studies of human mother-infant separation have concentrated on the detrimental effects of separation on infant development. Now, a group at Stanford University is examining the effects of such separation on mothers.

In human societies, prolonged separation of mother and infant immediately after birth is a relatively rare occurrence. But in the case of premature births, it is usual hospital practice to isolate the infant from the mother until it measures up to certain health and weight standards. This may take up to 12 weeks. Marjorie J. Seashore, Aimee Dorr Leifer, Clifford R. Barnett and P. Herbert Leiderman used this situation to do a 21-month follow-up study of the effects of infant-mother separation. In the June *JOURNAL OF PERSONALITY AND SOCIAL PSYCHOLOGY* they report the results of the first month of their study. They focus on one aspect of separation: the psychological effects of separation on a mother's self-confidence in her ability to care for her infant.

Two groups of mothers took part in the study. In the separation group, 21 mothers were allowed to view their infants from a nursery window but had no other contact with them while they were in the intensive-care nursery. Another 22 mothers, the contact group, were allowed to enter the intensive-care nursery and handle, diaper and feed their infants. After the babies were moved to the discharge nursery, all the mothers were allowed to care for their babies. All mothers were tested, observed and questioned after they first saw their babies in the intensive-care nursery, after their first visit to the discharge nursery, one day before discharge and one month after discharge. At the first testing, before any mothers were allowed to contact their infants, the groups were nearly equal in self-confidence. Those who already had a child showed the most self-confidence. At the second testing, after all mothers had been allowed to care for their infants in the discharge nursery, the effects of separation were significant. Self-confidence was lower among all mothers of the separation group, but

especially among those who had just had their first child. For these mothers, self-confidence had decreased since the first testing. The effects on this group were still evident at the final testing. In feeding, diapering and bathing the infant they were least confident of their own ability. This was two or three months after the child's birth.

In the case of premature births, mothers lose self-confidence because they are denied the opportunity to learn and practice caretaking skills. Hospital procedures make the mothers feel even more inadequate by placing the child in someone else's care. And, finally, the premature birth itself may give the mother feelings of biological incompetence. Even though the mothers of both groups in the study received a great deal of psychological support during the separation period, the effects of separation were not completely overcome one month after discharge. The researchers suggest that in instances where psychological help and counseling are not available, the effects of separation might be even stronger and longer lasting. These effects, they conclude, should be examined. □

R & D funds drop as percentage of GNP

Total spending for research and development in the United States is expected in 1973 to continue to decline as a proportion of the gross national product, according to a new report this week from the National Science Foundation. The figures indicate that R&D will account for 2.4 percent of the GNP in 1973. This ratio is down from 2.5 percent in 1972 and a high of 3.0 percent in 1964.

Total R&D spending in 1973 is expected to reach \$30.1 billion. In actual dollars this is a 3 percent rise over the 1972 level of \$29.2 billion. But inflation negated that increase. In constant dollars, there is no change expected between 1972 and 1973.

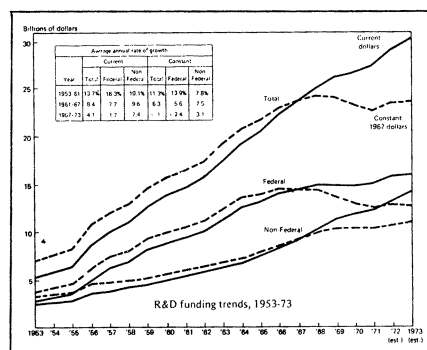
The figures provide a graphic indication of the toll inflation has taken of the research and development dollar. In current dollars, total R&D spending grew at an annual average rate of 4.1 percent from 1967 to 1973. But in constant dollars, R&D spending shrunk an average of 0.1 percent a year.

The figures include both Federal and private R&D spending. They show a continuation of a trend increasingly visible in recent years: a decline in Federal support of R&D (in constant dollars) and a rise in non-Federal support. If present trends continue, non-Federal support would equal Federal support within a few years, a situation that hasn't occurred since the beginning

Training starlings to stay away

Many people consider starlings among the ugliest and most obnoxious birds alive. What is worse, ever since they were brought to the United States from England, they have become horrid pests because they do not have their natural predators to keep them under control. Starlings decimate grain in cattle feedlots, costing cattlemen thousands of dollars. Starlings swoop down on city buildings by the thousands like some horror out of the movie "The Birds." And unlike sparrows, whose numbers now appear to be leveling off, starlings are still proliferating rapidly.

A few years ago, a man became legendary and wealthy by selling to cities a mysterious black box. The box made starlings leave. The box turned out to make sounds that mimic the distress calls of starlings. The problem with sound eradication, though, is that starlings eventually returned to the cities. People have also tried poisoning starlings with pesticides. Cattlemen in



NSF
U.S. R&D funding, 1953 to 1973.

of Eisenhower's first term.

Federal funds paid for 53 percent of the \$30.1 billion total R&D in 1973. Of the remainder, industry is expected to account for 41 percent, universities and colleges 4 percent and other non-profit institutions 2 percent.

The study points out that other countries, particularly Germany and Japan, are showing marked gains in research and development activities in recent years compared with the United States. Germany and Japan have registered sharp increases in their ratios of R&D to GNP. And from 1967 to 1971 while the United States was undergoing a 16 percent growth in total R&D expenditures (in constant dollars), Japan registered a gain of 150 percent and Germany a gain of 90 percent.

The figures are contained in an NSF report entitled *National Patterns of R&D Resources 1953-1973*. It is based on surveys conducted by NSF. □