

(1) Eighteen of the 41 (7 males and 11 females), 44 percent of the total number of monkeys, succeeded in finding a solution to the problem; and in successive tests they began to work out the solution accurately and skillfully.

(2) Of these eighteen, those within the age range from 2 to 3 years comprised 36%; from 4 to 5, 63%; from 6 to 7, 100%; from 8 to 11, 29%; and above 12, 0%. The success percentage rose as the age advanced. All the monkeys ranging from 6 to 7 years succeeded, but the percentage dropped sharply in the case of monkeys more than 8 years old. None of the adult monkeys 12 years old and older succeeded in the first test. This correlation between achievement and age holds equally true with regard to the "newly-acquired behaviors" such as sweet-potato washing, the placer-mining selection method, and swimming. As monkeys grow old they are apt to become conservative and less adaptable. The age factor, therefore, played a conclusive part in determining whether a given monkey was able to solve the sand-digging test.

(3) An additional 172 tests were given to the 23 monkeys that failed to show a positive response in the first test (7.5 tests per head on an average). The age correlation of those were successful was as follows: monkeys from 2 to 3, 73%; from 4 to 5, 100%; from 8 to 11, 86%; 12 or more, 63%. The average percentage was 83%, although they underwent comparatively few test trainings. The rate conspicuously increased. It is worthy of notice that the adult monkeys, above all, made wonderful responses.

(4) In the "newly-acquired behaviors" female monkeys were somewhat more precocious as compared with their male counterparts. The same tendency was apparent in this test, but it may be presumed that there was little if any difference between the sexes.

(5) We could perceive unmistakably a positive correlation between the "newly-acquired behaviors" acquired by the Koshima Island monkeys and the results of our re-check tests.

## On the Gagyusan Troop of Japanese Monkeys after the First Separation

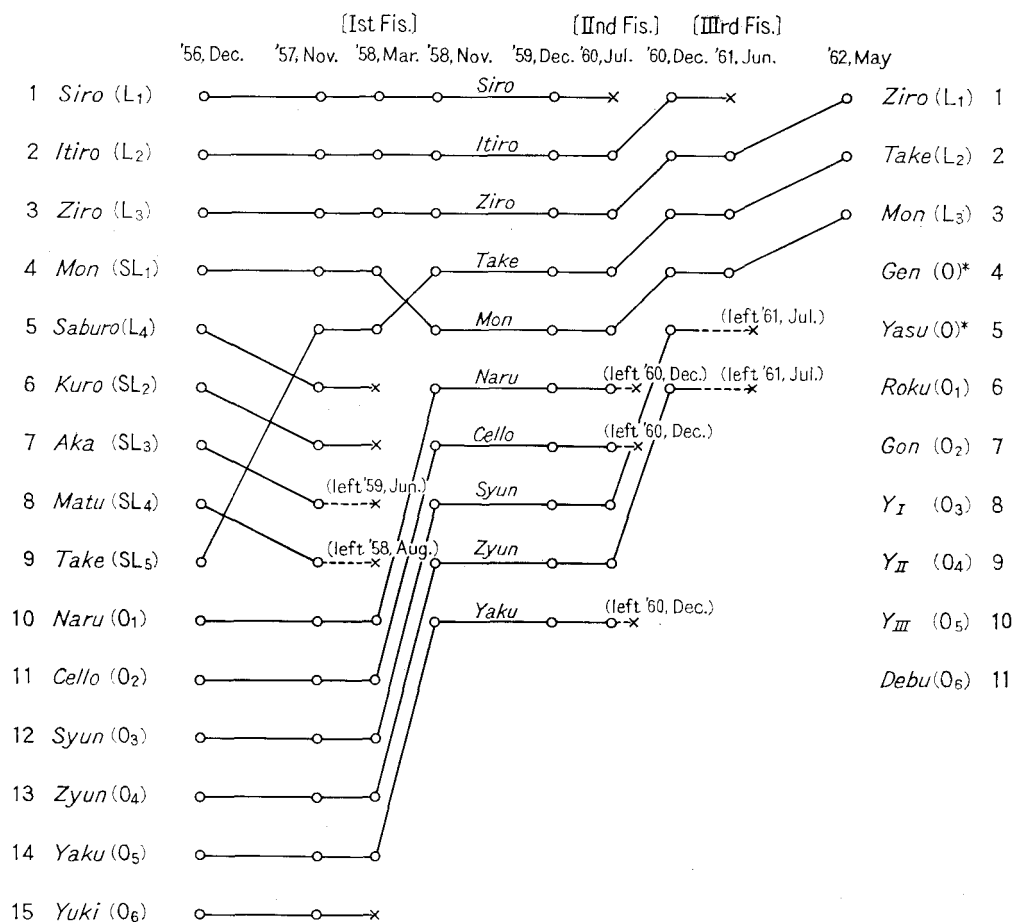
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The Gagyusan troop was supplied with food in March 1955, and it divided into two troops, the main troop of about 120 monkeys and the branch troop of about 40 monkeys, when the first separation took place in March 1958, three years after the feeding. I reported on this first separation in PRIMATES Vol. 2, No. 2.

The second separation of the Gagyusan troop took place in July, 1960,

two years and four months after that, and the third separation took place in June, 1961, about one year after the second separation.

At the first separation, five adult males from the leader male class, the subleader male class, and the ordinary male class left the troop, but four among those five monkeys, except an ordinary male named *Yuki*, were those whose rank order had declined through the rise in rank of a sub-leader male named *Take*. (See Fig. 1)



**Fig. 1.** Rank changes among adult males

——x : This left the main troop and joined the branch troop.

-----x : This left as a solitary male.

\* *Gen* and *Yasu* appeared as solitary males in March 1958 and in July 1960. Now, they behave as subleader males but subordinate to other ordinary males.

L<sub>1</sub> means the first leader male; SL<sub>2</sub>, the second subleader male; O<sub>3</sub>, the third ordinary male and others in the same way.

By this fact, I concluded that *Take's* rapid rise in rank created an instability in the relationship among adult males, which finally led to the separation of the troop.

After the first separation, the control attack in order to control and pacify a disturbance or quarrel, or the manner by which a monkey of high rank lifted up his tail to a subordinate one and showed his dominancy, was practised in various ways; the troop was in a tense situation. But the tense atmosphere relaxed and the troop went back to the former one in July 1959. The rank relationship between *Take* and *Mon*, subleader males, reversed. (See Fig. 1)

At the second separation *Siro*, the first leader male, left the troop. The monkeys leaving the troop at the second separation were ten or twenty in number, and it seemed to occur on a small scale. But since then, ordinary males left the troop one after another as solitary males, until all of the ordinary males had left by July 1961, so the troop came to lack this age class.

At the third separation *Itiro*, the first leader male at that time, and about 20 monkeys left the troop. But three weeks after that, three adult females, two young females, two or three young males, several juveniles and babies (the total might be about 15 monkeys) came back to the main troop and settled in the peripheral part. These peripheral females had never been seen in the Gagyusan troop. Table 1 shows the changes of social composition between 1956 and 1962.

**Table 1.** Changes of social composition between 1956 and 1962, according to age and class.

	Dec. '56	Dec. '57	Mar. '58	May '62
Leader male	4	4	3	3
Subleader male	5	5	2	2
Ordinary male	6	6	5	6
Female	45	45	33	45
Juvenile	50	75	55	75
Baby	25	26	21	28
Total	135	161	119	159

I had supposed that the vacant statuses occurring through the monkeys leaving the troop, would be filled by subordinate ones. But, as a matter of fact, all of the ordinary males which might raise their statuses to subleader class, had left the troop, and it occurred two times that the first leader left.