

**17. Probability-theoretic Investigations on Inheritance.**  
**IV<sub>7</sub>. Mother-Child Combinations<sup>1)</sup>**

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**6. Illustration by several blood types**

The general discussions developed in the preceding sections have mainly concerned genotypes. However, in cases where recessive genes may be existent, we have only to bring together the combination-probabilities with respect to the phenotypes; cf. (1.25). The probabilities on mother-child combinations for *ABO* blood type have been tabulated in §1. For a later purpose, we shall supplement here some corresponding results on mother-child or mother-children combinations for several human blood types; *MN*, *ABO*, *A<sub>1</sub>A<sub>2</sub>BO*, *Q* and *Qq<sub>±</sub>* types. The frequencies of genes *M*, *N*; *A*, *B*, *O*; *A<sub>1</sub>*, *A<sub>2</sub>*; *Q*, *q* and *q<sub>-</sub>*, *q<sub>+</sub>* are denoted, as usual, by *s*, *t*; *p*, *q*, *r*; *p<sub>1</sub>*, *p<sub>2</sub>*; *u*, *v* and *v<sub>1</sub>*, *v<sub>2</sub>* respectively<sup>2),3)</sup>.

Child	<i>M</i>	<i>N</i>	<i>MN</i>
Mother	<i>M</i>	0	<i>s</i> <sup>2</sup> <i>t</i>
<i>N</i>	0	<i>t</i> <sup>3</sup>	<i>st</i> <sup>2</sup>
<i>MN</i>	<i>s</i> <sup>2</sup> <i>t</i>	<i>st</i> <sup>2</sup>	<i>st</i>

Child	<i>Q</i>	<i>q</i>
Mother	<i>Q</i>	<i>uv</i> <sup>2</sup>
<i>q</i>	<i>uv</i> <sup>2</sup>	<i>v</i> <sup>3</sup>

1) Continued from IV<sub>6</sub>. Proc. Japan Acad. **27** (1951), 615-620.

2) Concerning the mode of inheritance of *Qq<sub>±</sub>* types, cf. VI. Proc. Japan Acad. **28** (1952), 54-58.

3) We shall write here merely  $\pi$  instead of  $\Pi$  in (1.24).