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Part II

1. Hemophilia gene is located on chromosome X.
2. With this mutation is a female carrier which usually affects males because they only have one X chromosome. Alix has only one chromosome affected.
3. The products of male genes is where the one X chromosome is affected.
4. Xh Y is for males with hemophilia and XHXh is the genotype for a female carrier.

Part III

1. Alix’s information is used because mitochondrial DNA is only inherited by ones mother because of this the maternal linage can be traced.
2. Prince Philip is currently the husband of Queen Elizabeth. Both Prince Philip and Alix are descendants of Queen Victoria which means they share the same mitochondrial DNA. Therefor his mitochondrial DNA can determine Alix’s daughters.
3. There are two people missing from the mass grave Alexei and one of his sisters Maria or Anastasia.
4. The mitochondrial DNA is the same due to a common ancestor, Louise of Hesse Castle, which means that it doesn’t matter whether its male or female.
5. Nicholas had more than one type of organellar genome, this is called heteroplasmy.
6. The term is called heteroplasmy. Treatments for hemophilia are medications that promote clotting.