```r
primary.data <- read.csv("states.republican.csv")

sum(primary.data$delegates[primary.data$Proportional ==
    1])
```

```
## [1] 1418
```

```r
empty.vector <- vector(length = 34)
empty.vector.2 <- vector(length = 34)
empty.vector.3 <- vector(length = 34)
empty.vector.4 <- vector(length = 34)
empty.vector.5 <- vector(length = 34)
empty.vector.6 <- vector(length = 34)

territories <- primary.data$state[primary.data$Proportional ==
    1]

trump.take.all.vector <- vector(length = 22)
trump.take.all.vector.2 <- vector(length = 22)
cruz.take.all.vector <- vector(length = 22)
cruz.take.all.vector.2 <- vector(length = 22)
establishment.take.all.vector <- vector(length = 22)
establishment.take.all.vector.2 <- vector(length = 22)
trump.distribution <- rnorm(10000, mean = 0.3016667,
    sd = 0.04217568)
cruz.distrubtion <- rnorm(10000, mean = 0.3491667,
    sd = 0.1017536)
establishment.distrubtion <- rnorm(10000, mean = 0.31,
    sd = 0.1016232)
establishment.distrubtion.2 <- rnorm(10000, mean = 0.155,
    sd = 0.05081159)

winner.territories <- primary.data$delegates[primary.data$Proportional ==
    0]

trump.outcomes <- vector(length = 10000)
trump.outcomes.2 <- vector(length = 10000)
cruz.outcomes <- vector(length = 10000)
cruz.outcomes.2 <- vector(length = 10000)
establishment.outcomes <- vector(length = 10000)
establishment.outcomes.2 <- vector(length = 10000)

for (i in 1:10000) {
    for (s in territories) {
        empty.vector[s] <- sample(trump.distribution,
            1, replace = T) * primary.data$delegates[primary.data$state ==
            s]
    }

    for (h in 1:22) {
        trump.winner.vector <- sample(trump.distribution,
            22, replace = T)
```

```
        cruz.winner.vector <- sample(cruz.distrubtion,
            22, replace = T)
        establishment.winner.vector <- sample(establishment.distrubtion,
            22, replace = T)
        trump.take.all.vector[h] <- ifelse(((trump.winner.vector[h] >
            cruz.winner.vector[h]) & (trump.winner.vector[h] >
            establishment.winner.vector[h])), winner.territories[h],
            0)
    }
    trump.outcomes[i] <- sum(sum(empty.vector) + sum(trump.take.all.vector))
}


sum(ifelse(trump.outcomes > 1236, 1, 0))
```

```
## [1] 0
```

```
for (i in 1:10000) {
    for (s in territories) {
        empty.vector.2[s] <- sample(trump.distribution,
            1, replace = T) * primary.data$delegates[primary.data$state ==
            s]
    }

    for (h in 1:22) {
        trump.winner.vector1.2 <- sample(trump.distribution,
            22, replace = T)
        cruz.winner.vector1.2 <- sample(cruz.distrubtion,
            22, replace = T)
        establishment.winner.vector1.2 <- sample(establishment.distrubtion.2,
            22, replace = T)
        establishment.winner.vector2.2 <- sample(establishment.distrubtion.2,
            22, replace = T)
        trump.take.all.vector.2[h] <- ifelse(((trump.winner.vector1.2[h] >
            cruz.winner.vector1.2[h]) & (trump.winner.vector1.2[h] >
            establishment.winner.vector2.2[h]) & (trump.winner.vector1.2[h] >
            establishment.winner.vector1.2[h])), winner.territories[h],
            0)
    }
    trump.outcomes.2[i] <- sum(sum(empty.vector.2) +
        sum(trump.take.all.vector.2))
}

sum(ifelse(trump.outcomes.2 > 1236, 1, 0))
```

```
## [1] 0
```

```
for (i in 1:10000) {
    for (s in territories) {
        empty.vector.3[s] <- sample(cruz.distrubtion,
            1, replace = T) * primary.data$delegates[primary.data$state ==
            s]
```

```
    }

    for (h in 1:22) {
        trump.winner.vector <- sample(trump.distribution,
            22, replace = T)
        cruz.winner.vector <- sample(cruz.distrubtion,
            22, replace = T)
        establishment.winner.vector <- sample(establishment.distrubtion,
            22, replace = T)
        cruz.take.all.vector[h] <- ifelse(((trump.winner.vector[h] <
            cruz.winner.vector[h]) & (cruz.winner.vector[h] >
            establishment.winner.vector[h])), winner.territories[h],
            0)
    }
    cruz.outcomes[i] <- sum(sum(empty.vector.3) + sum(cruz.take.all.vector))
}

sum(ifelse(cruz.outcomes > 1236, 1, 0))
```

```
## [1] 171
```

```
for (i in 1:10000) {
    for (s in territories) {
        empty.vector.4[s] <- sample(cruz.distrubtion,
            1, replace = T) * primary.data$delegates[primary.data$state ==
            s]
    }

    for (h in 1:22) {
        trump.winner.vector1.2 <- sample(trump.distribution,
            22, replace = T)
        cruz.winner.vector1.2 <- sample(cruz.distrubtion,
            22, replace = T)
        establishment.winner.vector1.2 <- sample(establishment.distrubtion.2,
            22, replace = T)
        establishment.winner.vector2.2 <- sample(establishment.distrubtion.2,
            22, replace = T)
        cruz.take.all.vector.2[h] <- ifelse(((trump.winner.vector1.2[h] <
            cruz.winner.vector1.2[h]) & (cruz.winner.vector1.2[h] >
            establishment.winner.vector2.2[h]) & (cruz.winner.vector1.2[h] >
            establishment.winner.vector1.2[h])), winner.territories[h],
            0)
    }
    cruz.outcomes.2[i] <- sum(sum(empty.vector.4) +
        sum(cruz.take.all.vector.2))
}

sum(ifelse(cruz.outcomes.2 > 1236, 1, 0))
```

```
## [1] 1445
```

```
for (i in 1:10000) {
    for (s in territories) {
        empty.vector.5[s] <- sample(establishment.distrubtion,
            1, replace = T) * primary.data$delegates[primary.data$state ==
            s]
    }

    for (h in 1:22) {
        trump.winner.vector <- sample(trump.distribution,
            22, replace = T)
        cruz.winner.vector <- sample(cruz.distrubtion,
            22, replace = T)
        establishment.winner.vector <- sample(establishment.distrubtion,
            22, replace = T)
        establishment.take.all.vector[h] <- ifelse(((trump.winner.vector[h] <
            establishment.winner.vector[h]) & (cruz.winner.vector[h] <
            establishment.winner.vector[h])), winner.territories[h],
            0)
    }
    establishment.outcomes[i] <- sum(sum(empty.vector.5) +
        sum(establishment.take.all.vector))
}

sum(ifelse(establishment.outcomes > 1236, 1, 0))
```

```
## [1] 0
```

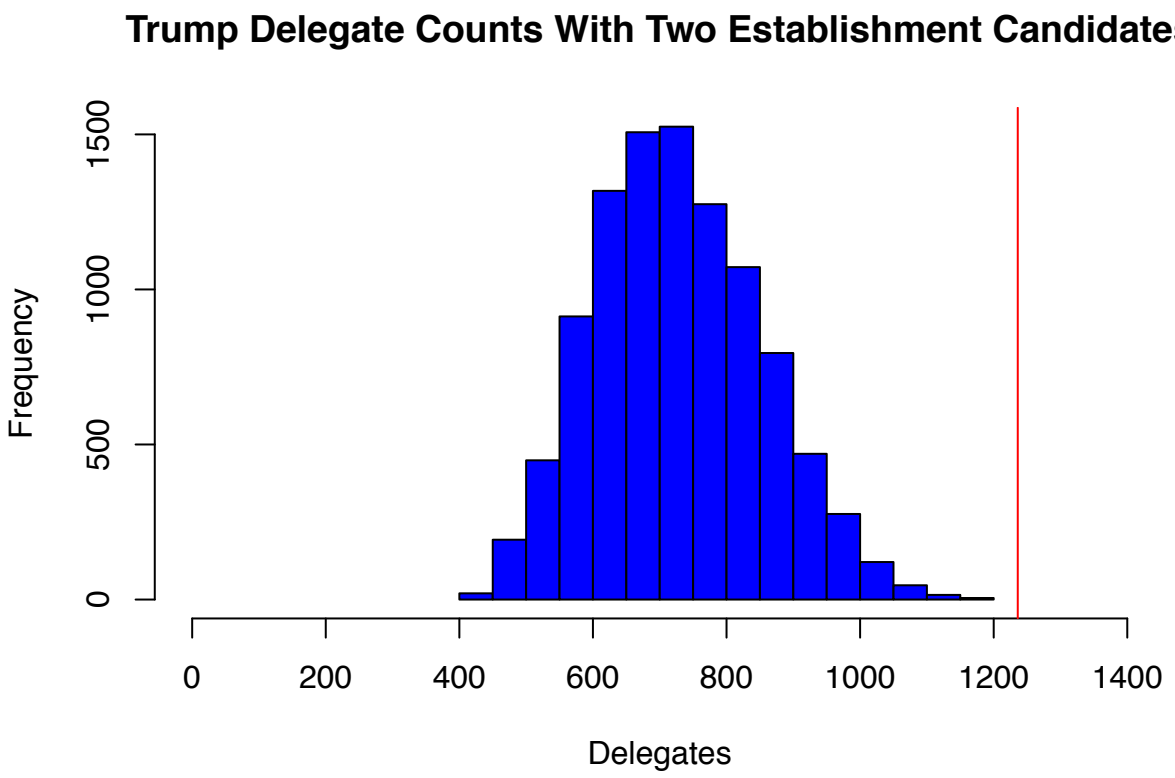
```
for (i in 1:10000) {
    for (s in territories) {
        empty.vector.6[s] <- sample(establishment.distrubtion.2,
            1, replace = T) * primary.data$delegates[primary.data$state ==
            s]
    }

    for (h in 1:22) {
        trump.winner.vector1.2 <- sample(trump.distribution,
            22, replace = T)
        cruz.winner.vector1.2 <- sample(cruz.distrubtion,
            22, replace = T)
        establishment.winner.vector1.2 <- sample(establishment.distrubtion.2,
            22, replace = T)
        establishment.winner.vector2.2 <- sample(establishment.distrubtion.2,
            22, replace = T)
        establishment.take.all.vector.2[h] <- ifelse(((trump.winner.vector1.2[h] <
            establishment.winner.vector2.2[h]) & (cruz.winner.vector1.2[h] <
            establishment.winner.vector2.2[h]) & (establishment.winner.vector2.2[h] >
            establishment.winner.vector1.2[h])), winner.territories[h],
            0)
    }
    establishment.outcomes.2[i] <- sum(sum(empty.vector.6) +
        sum(establishment.take.all.vector.2))
}
```

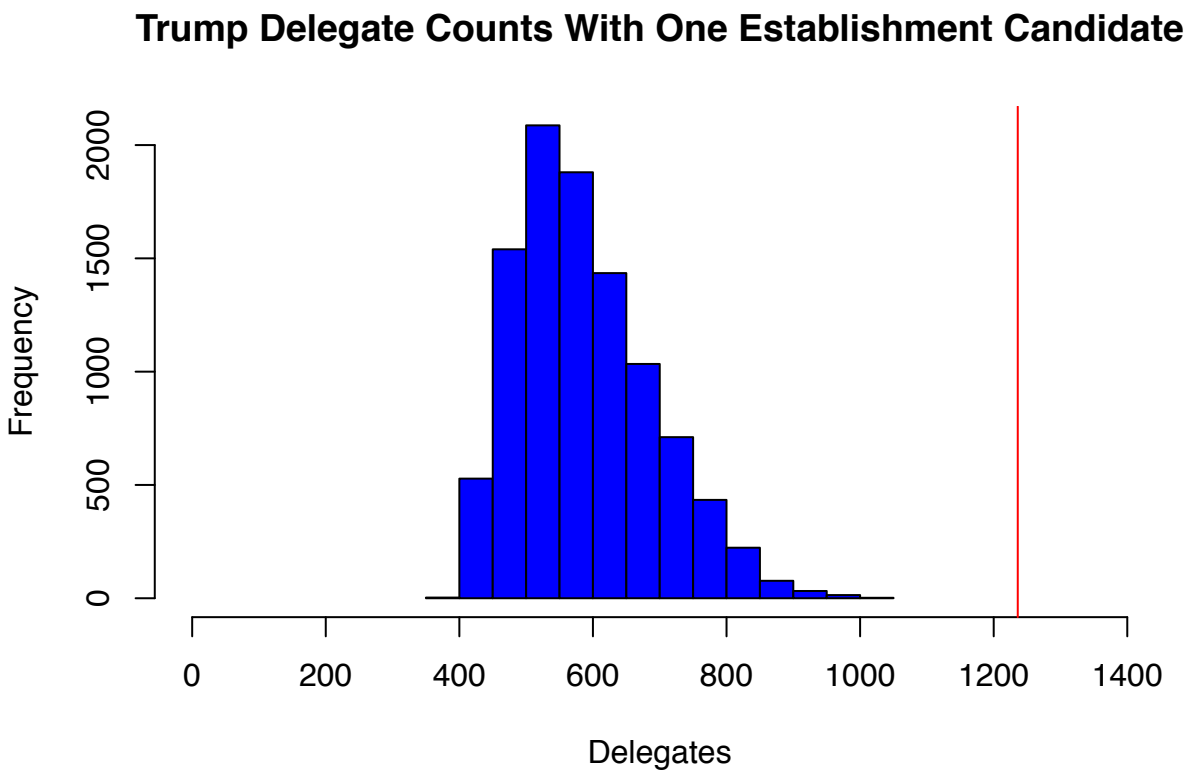
```r
sum(ifelse(establishment.outcomes.2 > 1236, 1, 0))
```

```
## [1] 0
```

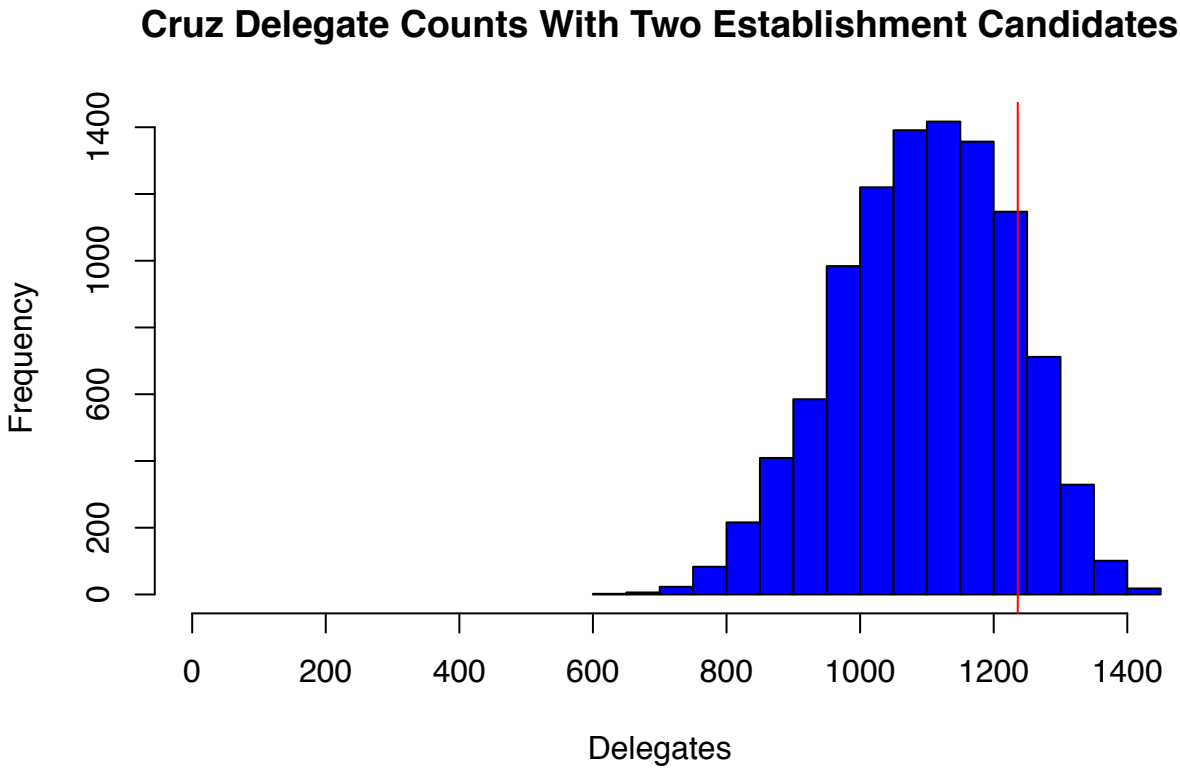
```r
hist(trump.outcomes.2, xlim = c(0, 1400), col = "blue",
    xlab = "Delegates", main = "Trump Delegate Counts With Two Establishment Candidates")
abline(v = 1236, col = "red")
```



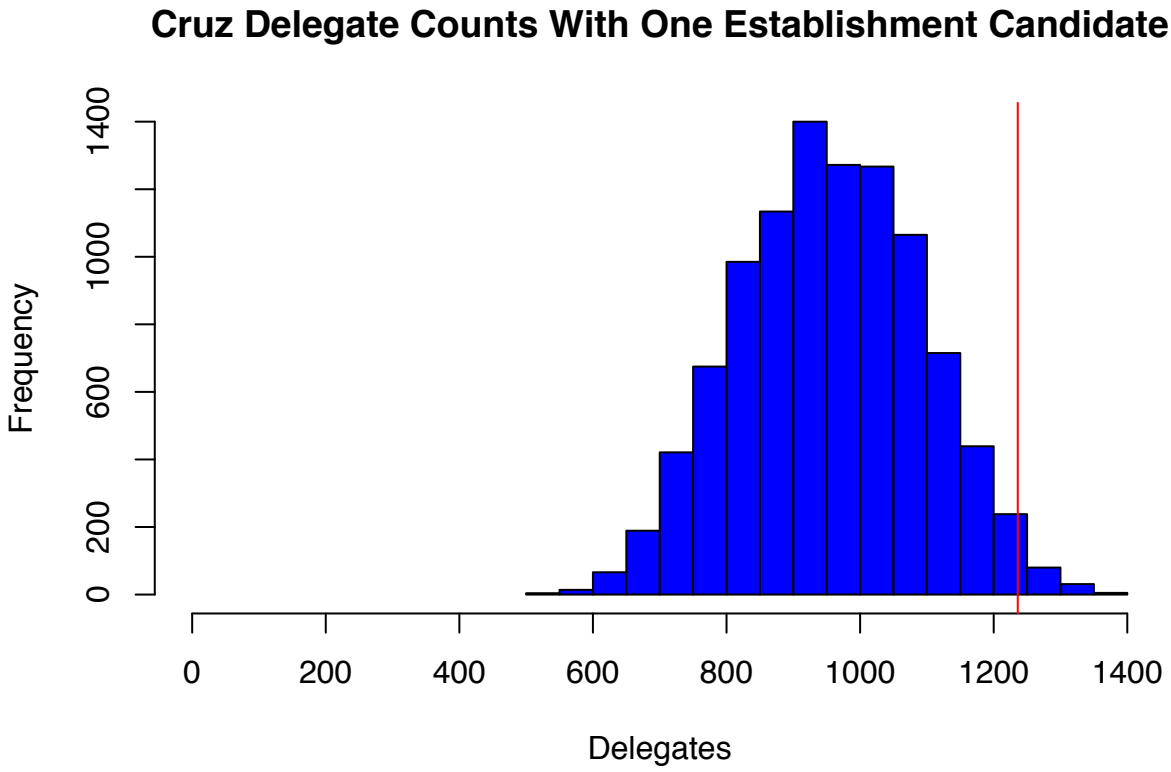

```r
hist(trump.outcomes, xlim = c(0, 1400), col = "blue",
    xlab = "Delegates", main = "Trump Delegate Counts With One Establishment Candidate")
abline(v = 1236, col = "red")
```



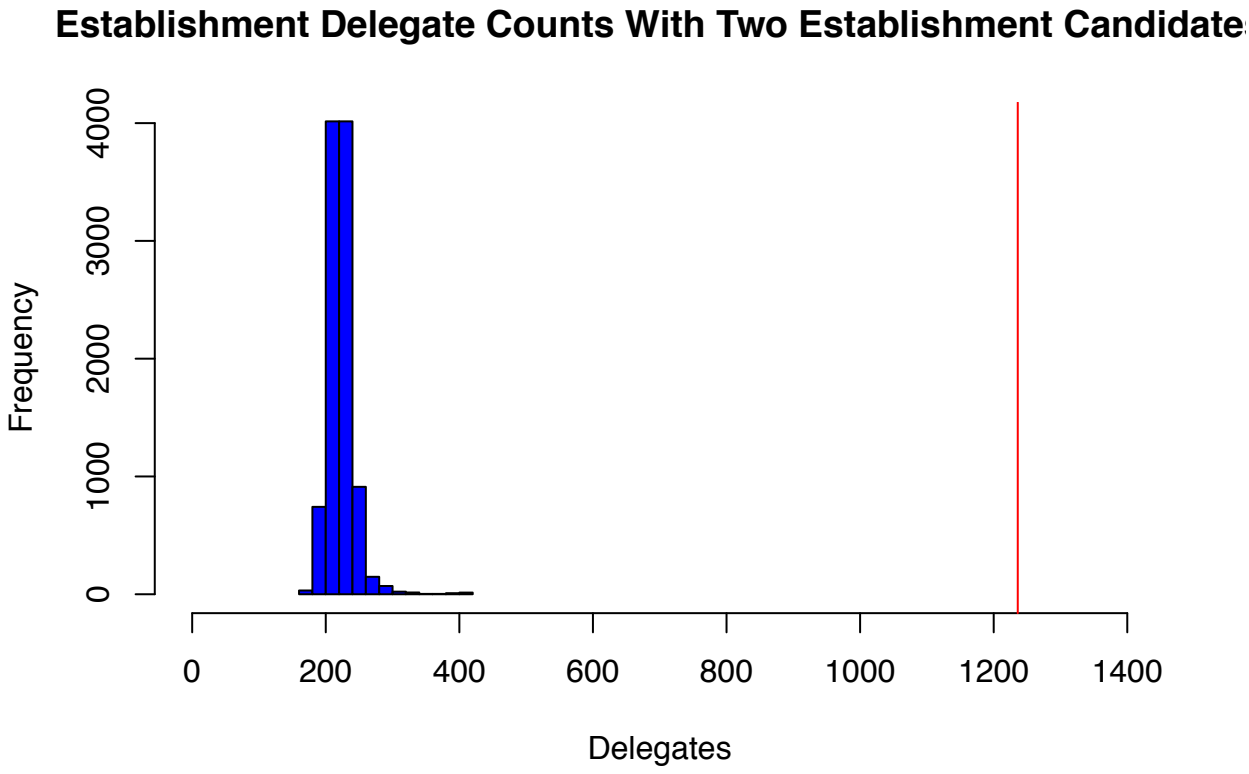

```
hist(cruz.outcomes.2, xlim = c(0, 1400), col = "blue",
    xlab = "Delegates", main = "Cruz Delegate Counts With Two Establishment Candidates")
abline(v = 1236, col = "red")
```



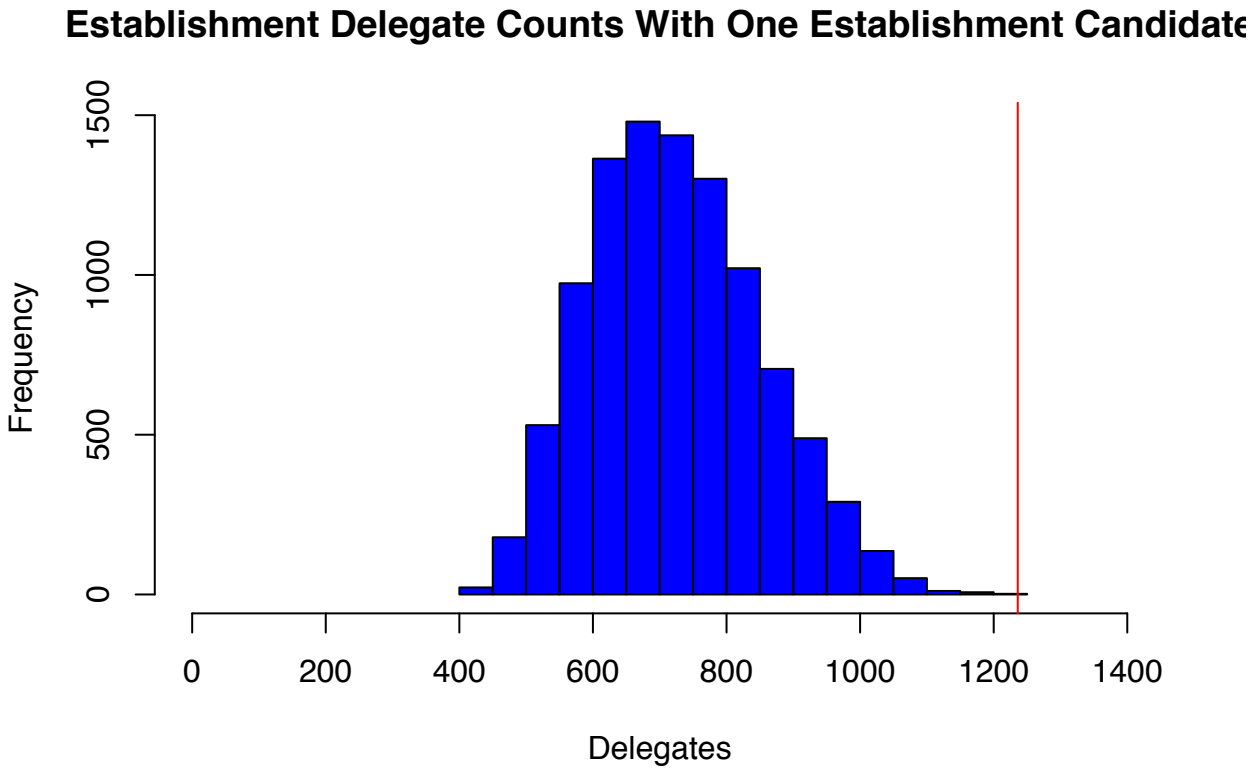
```r
hist(cruz.outcomes, xlim = c(0, 1400), col = "blue",
    xlab = "Delegates", main = "Cruz Delegate Counts With One Establishment Candidate")
abline(v = 1236, col = "red")
```




```r
hist(establishment.outcomes.2, xlim = c(0, 1400), col = "blue",
    xlab = "Delegates", main = "Establishment Delegate Counts With Two Establishment Candidates")
abline(v = 1236, col = "red")
```




```
hist(establishment.outcomes, xlim = c(0, 1400), col = "blue",
    xlab = "Delegates", main = "Establishment Delegate Counts With One Establishment Candidate")
abline(v = 1236, col = "red")
```



```r
max((trump.outcomes.2))
```

```
## [1] 1173.271
```

```r
max((trump.outcomes))
```

```
## [1] 1020.139
```

```r
max(establishment.outcomes.2)
```

```
## [1] 418.4642
```

```r
max(establishment.outcomes)
```

```
## [1] 1208.634
```