CLAIMS:

1. A method for converting carbon into a carbon oxide, comprising: contacting carbon with steam in presence of a carnegieite-like material of formula $(Na_2O)_xNa_2[Al_2Si_2O_8]$, wherein $0<x\leq1$.

2. The method of claim 1, wherein the contacting occurs at a temperature in a range from about 400 °C to about 1000 °C.

3. The method of claim 1, wherein the contacting occurs at a temperature in a range from about 450 °C to about 950 °C.

4. The method of claim 1, wherein the contacting occurs at a temperature in a range from about 500 °C to about 950 °C.

5. The method of claim 1, wherein the contacting occurs at a temperature in a range from about 750 °C to about 950 °C.

6. The method of claim 1, wherein the carnegieite-like material is of formula $Na_4Al_2Si_2O_9$.

7. The method of claim 1, wherein the carnegieite-like material is a mixture of materials of formula $(Na_2O)_xNa_2[Al_2Si_2O_8]$.

8. The method of claim 1, wherein the carbon oxide comprises carbon dioxide.

9. The method of claim 8, wherein the carbon oxide comprises carbon monoxide.

10. A method for hydrocarbon-cracking, comprising: contacting at least one hydrocarbon with steam in an apparatus having a contact surface accessible to the at least one hydrocarbon, the contact surface comprising a carnegieite-like material of formula $(Na_2O)_xNa_2[Al_2Si_2O_8]$, wherein $0<x\leq1$.

11. The method of claim 10, wherein the carnegieite-like material is of formula $Na_4Al_2Si_2O_9$.

12. The method of claim 10, wherein the contacting occurs at a temperature in a range from about 500 °C to about 870 °C and wherein the at least one hydrocarbon comprises at least one of ethane, propane, butane, heptane, liquid petroleum gas, naphtha, and gas oil.

13. The method of claim 10, wherein the contacting occurs at a temperature in a range from about 800 °C to about 860 °C and wherein the at least one hydrocarbon comprises at least one of ethane, propane, butane, heptane, liquid petroleum gas, naphtha, and gas oil.

14. The method of claim 10, wherein the carnegieite-like material is a mixture of materials of formula $(Na_2O)_xNa_2[Al_2Si_2O_8]$.

15. An apparatus for hydrocarbon-cracking having a contact surface accessible to at least one hydrocarbon, the contact surface comprising a carnegieite-like material of formula $(Na_2O)_xNa_2[Al_2Si_2O_8]$, wherein $0<x\leq1$.

16. The apparatus of claim 15, wherein the carnegieite-like material is of formula $Na_4Al_2Si_2O_9$.

17. The apparatus of claim 15, wherein the carnegieite-like material is coated to the contact surface.

18. The apparatus of claim 15, comprising at least one of a furnace tube, a tube fitting, a reaction vessel, and a radiant tube.

19. The apparatus of claim 15, wherein the contact surface comprises a coating of carnegieite-like $Na_4Al_2Si_2O_9$.

20. The apparatus of claim 15, wherein the carnegieite-like material is a mixture of materials of formula $(Na_2O)_xNa_2[Al_2Si_2O_8]$.

CLAIMS

1. A method for converting carbon into a carbon oxide, comprising:

contacting carbon with steam in presence of a carnegieite-like material of formula $(Na_2O)_xNa_2[Al_2Si_2O_8]$, wherein $0<x\leqq1$.

2. The method of claim 1, wherein the contacting occurs at a temperature in a range from 400° C to 1000° C.

3. The method of claim 1, wherein the contacting occurs at a temperature in a range from 450° C to 950° C.

4. The method of claim 1, wherein the contacting occurs at a temperature in a range from 500° C to 950° C.

5. The method of claim 1, wherein the contacting occurs at a temperature in a range from 750° C to 950° C.

6. The method of claim 1, wherein the carnegieite-like material is of formula $Na_4Al_2Si_2O_9$.

7. The method of claim 1, wherein the carnegieite-like material is a mixture of materials of formula $(Na_2O)_xNa_2[Al_2Si_2O_8]$.

8. The method of claim 1, wherein the carbon oxide comprises carbon dioxide.

9. The method of claim 8, wherein the carbon oxide comprises carbon monoxide.