hw06: Cyclic Association and Separate Compilation

Focus

- Cyclic Association
- Operator overloading
- Separate compilation
- Namespace

Problem:

We are revisiting the world of hw03, adding one new feature: not only can warriors be fired, they can also runaway!!! Of course, when a warrior runs away, he has to inform his noble. Which means he has to know who has hired him and be able to communicate with him. Which means, obviously, that he will need a pointer to his noble. Good thing we learned about forward class declarations!

You will also:

- Use separate compilation for all methods, giving each class its own header and implementation files.
- Place the code in the WarriorCraft namespace.
- Implement an output operator for Nobles. (If you haven't covered output operators when this assignment is posted, don't worry you soon will. Meanwhile you can certainly know enough to get started and could use, temporarily, use a display method.)

Test Code and Output

Below is a test program and its output. The only change in the test program from the one in hw04 is that cheetah runs away, rather than getting fired. (Yes, a noble should still be able to fire a warrior.) The output should also only be different in the one line of output corresoponding to cheetal running away.

```
#include "Noble.h"
#include "Warrior.h"
#include <iostream>
#include <vector>
#include <string>
```

```
using namespace std;
using namespace WarriorCraft;

int main() {
    Noble art("King Arthur");
    Noble lance("Lancelot du Lac");
    Noble jim("Jim");
    Noble linus("Linus Torvalds");
    Noble billie("Bill Gates");

    Warrior cheetah("Tarzan", 10);
    Warrior wizard("Merlin", 15);
    Warrior theGovernator("Conan", 12);
    Warrior nimoy("Spock", 15);
    Warrior lawless("Xena", 20);
    Warrior mrGreen("Hulk", 8);
    Warrior dylan("Hercules", 3);

    jim.hire(nimoy);
    lance.hire(theGovernator);
    art.hire(wizard);
    lance.hire(dylan);
    linus.hire(lawless);
    billie.hire(mrGreen);
    art.hire(cheetah);

    cout << jim << endl;
    cout << lance << endl;
     cout << art << endl;
    cout << linus << endl;
    cout << billie << endl;

    cheetah.runaway();
    cout << art << endl;

    art.battle(lance);
    jim.battle(lance);
    linus.battle(billie);
    billie.battle(lance);
}
Jim has an army of 1
        Spock: 15
Lancelot du Lac has an army of 2
```

```
        Conan: 12
        Hercules: 3
King Arthur has an army of 2
        Merlin: 15
        Tarzan: 10
Linus Torvalds has an army of 1
        Xena: 20
Bill Gates has an army of 1
        Hulk: 8
Tarzan flees in terror, abandoning his lord, King Arthur
King Arthur has an army of 1
        Merlin: 15
King Arthur battles Lancelot du Lac
Mutual Annihalation: King Arthur and Lancelot du Lac die at
each other's hands
Jim battles Lancelot du Lac
He's dead, Jim
Linus Torvalds battles Bill Gates
Linus Torvalds defeats Bill Gates
Bill Gates battles Lancelot du Lac
Oh, NO!  They're both dead!  Yuck!
```

Turn in

Five files: Noble.h, Noble.cpp, Warrior.h, and Warrior.cpp and also (for the grader's convenience) the above test program as hw06.cpp. No don't zip them, NYU Classes handles multiple-file submissions just fine.