Modeling a Bishop

In this lesson you will model a bishop for the chess set. For the most part, the bishop is modeled the same way as the pawn, based on a profile shape and a lathe modifier. The difference is the gap that shows on the bishop's head. You will use a Boolean object to achieve that result.

Features and techniques covered in this lesson:

- Using spline shapes to draw an outline of an object.
- Using the Lathe modifier to turn a 2D outline into a 3D model.
- Using Boolean to subtract geometry.

Skill Level: Beginner

Time to complete: 15 minutes

Set up the lesson:

1. The basic shape for the bishop is built exactly the same way as the pawn in the last lesson. Follow the procedures in the "Modeling a Pawn" exercise. Alternatively, on the Quick Access toolbar click the Open File button, navigate to the *\modeling\intro_to_modeling\bishop_outline_edited.max* file to work with a finished shape.

   This file contains the profile of the bishop and a reference background image. If you cannot see the reference image, do the following steps.

2. Make sure the Front viewport is selected and then press Alt+B to open the Viewport Background dialog.

3 On the dialog, click the Files button.

4 Locate the *ref-chess.jpg* image in the *\sceneassets\images* folder and double-click it.

5 Click OK to exit the Viewport Background dialog.

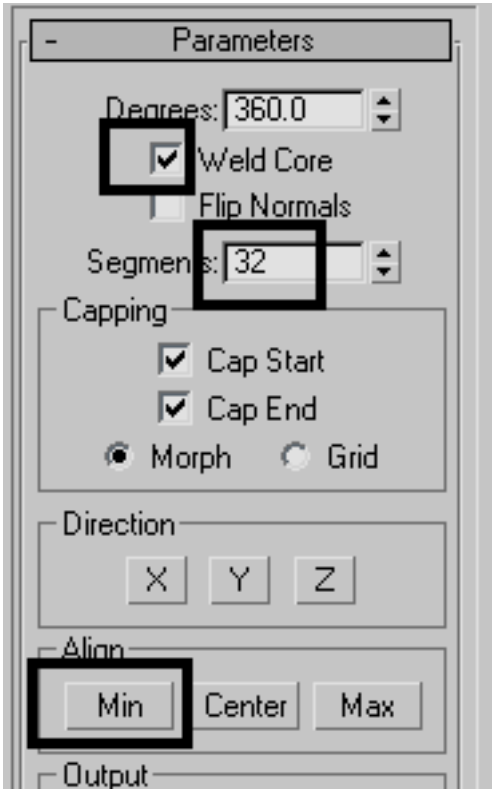
Lathing the Bishop

1  On the main toolbar, click the Select tool. Select the spline representing the bishop's profile in any viewport.

2  With the Spline selected, go to the Modify panel. From the Modifier list, choose Lathe.

3 On the Parameters rollout, click the Min button in the Align group.

4 Set Segments to **32** and turn on the Weld Core option.



Create and position the box:

To create the gap in the bishop's head, you'll create a simple box and then subtract from the bishop model.

1. Zoom the Front viewport in, near the bishop's head.
2. From the Create menu, choose Standard Primitives > Box.
3. In the Front viewport, click and drag to define the base of the box. Do not worry about specific dimensions; you will change those in a moment.
4. Once you have defined the base, move the mouse and then click to define the height.

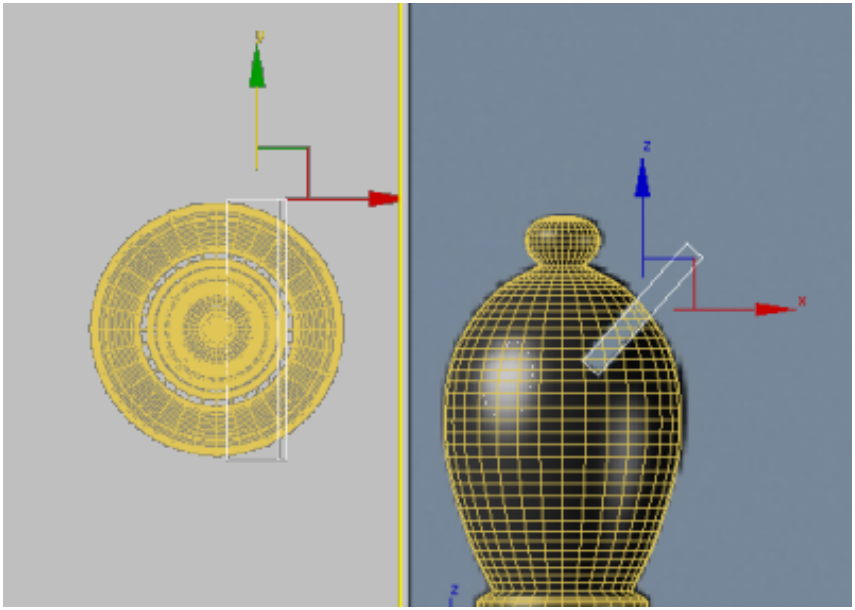
5  Go to the Modify panel and set the dimensions of the box as follows:

- Length=**15.0**
- Width=**2.0**
- Height=**50.0**

6  On the main toolbar, click the Select And Rotate button. Rotate the box in the Front viewport so that it is aligned with the gap on the bishop's head (in the reference image).

7  Use Select And Move to position the box on top of the gap.

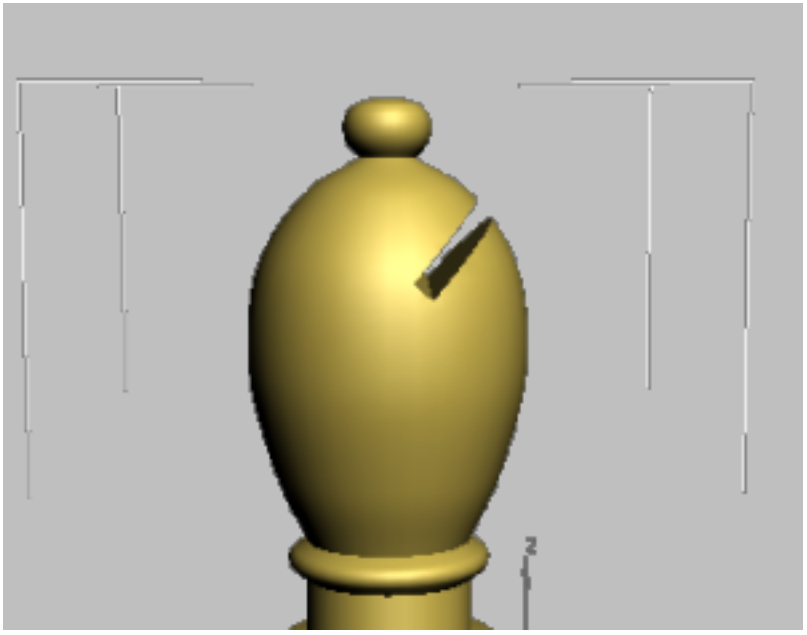
8 In the Top view, move the box on the Y axis (green axis) until you can see it on both sides of the bishop.



Create the slice with a Boolean operation:

1. Select the bishop in any viewport.
2. On the Create menu, choose Compound > Boolean. The bishop is now a Boolean object and the command panel automatically switches to the Create panel, showing you the parameters of the newly converted object.
3. On the Pick Boolean rollout, click Pick Operand B and then click the box in any viewport.

   When you perform a Boolean operation, the first object selected (in this case the bishop) is recognized as Operand A and the second object selected (in this case the box) as Operand B. You can then choose the type of operation to perform, whether it's union, intersection, or subtraction, and, in the latter case, which operand to subtract from which.



Summary

In this lesson, you learned to remove geometry by cutting a hole in an object using Boolean operations.