Tip: Entourage can show you over 40 columns of information about each person in your Address Book. Unless you have either (a) a 70-inch monitor, or (b) some kind of weird detail obsession, you can probably get by with a subset of them. To specify which columns show up in the list view, select the ones you want from the View→Columns submenu.

Creating Contacts

Suppose you're already looking at your Address Book list. To open a new "Rolodex card" for somebody you know—a new *contact*, in Address Book lingo—click the New button or press ⌘-N. (If you're *not* already in Address Book view, choose File→New→Contact, or choose Contact from the New pop-up button.)

Entourage presents the Create Contact window (Figure 10-2). You can use this window to enter basic data about new contacts, such as names, addresses, email addresses, and phone numbers.

Three of the fields—email, one of the phone fields, and the address field—have pop-up menus next to them, which you can use to label the information you've recorded. For example, they let you specify which address (home or work), which

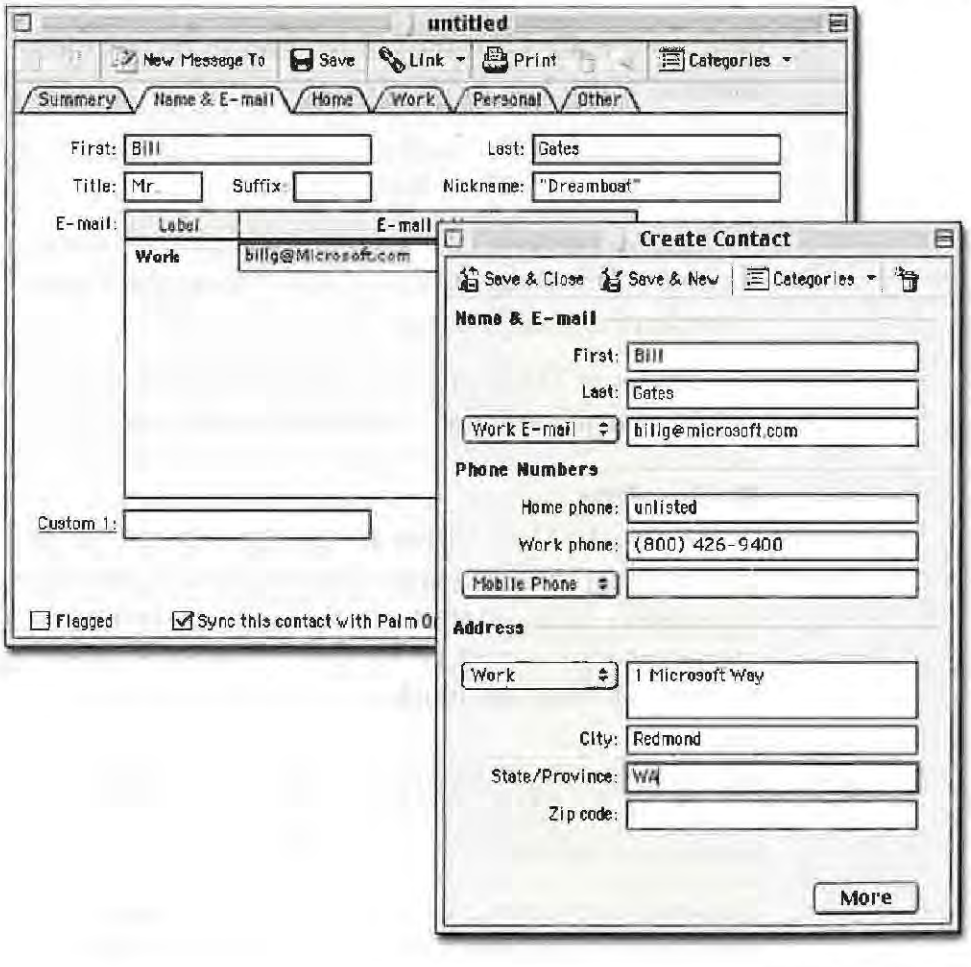


Figure 10-2: *The Create Contact window comes in two flavors–the short form (useful for casual contacts, shown at lower right) and the long form (useful for people you either know very well, or need to keep a complete dossier on, shown in back). Click the More button to expand the short form into the longer one; there's no return, however.*

email address (work, home, and other), or which phone number (mobile, fax, and so on) you've typed in.

You don't have to click in every field in the form; as in any dialog box, you can press Tab to move the cursor to the next field in the form (from the First Name to Last Name field, for example), or Shift-Tab to move to the *previous* field.

Tip: Don't bother with parentheses and hyphens in phone numbers; Entourage adds them for you. You'll find the controls for turning this feature on and off (and specifying the punctuation you prefer) by choosing Edit→Preferences→General→Address Book tab.

In an unusual, uncharacteristic Microsoftian feature lapse, Entourage doesn't automatically capitalize names; nor is there any way to duplicate information in a field from the previously created contact. If you know 30 people who work for Microsoft and you want to enter their contact information in Entourage, you'll have to type *Microsoft* 30 times.

Tip: Entourage is AppleScriptable. If you're familiar with the AppleScript programming language, you could create a simple script that handles such repetitive tasks automatically.

Once you've filled out the information in this window, you have several options (none of which have keystroke equivalents):

- **Click Save & Close.** Entourage stores your info, nods politely, and takes you back to the master Address Book screen.
- **Click Save & New.** Entourage adds the person's info to its database, then empties all of the fields in the dialog box, making them ready for you to enter the next person's contact specifics.
- **Click More.** This button expands the form into the long form (Figure 10-2), which has places for exhaustive information on your contacts.

The long form

If you click the More button at the bottom of the window, you've moved into *long-form* country. While the short form window is great when all you need in a contact is a person's name, address, email address, and phone number, the long form turns Entourage into a giant personal-information database, in which you can enter a contact's birthday, astrological sign, or even a photo.

Tip: You also open the expanded version of the Contact dialog box whenever you double-click an existing contact in your Address Book (or highlight a name and choose File→Open Contact).

The long form has its own toolbar. Most of its commands are familiar (Save, Print, Delete, and so on), but a few deserve special mention:

- **New Message To.** Creates a new email message addressed to the currently open contact.
- **Find Related.** With one click, this button makes Entourage round up all email messages that you've sent to or received from this person (and haven't yet deleted).
- **Categories.** Lets you choose a category for the currently open contact (see page 390).

This long-form window also sports seven tabs along the top that you can use to enter and view more information about the currently open contact:

- **Summary tab.** Shows all of the information that you've entered about the person. If you haven't entered any contact information yet, this window is blank.
- **Name & E-mail tab.** Lets you enter complete naming information about your contact, including a title, nickname, and suffix, if any. It also lets you enter a slew of email addresses.

  This window also offers *custom fields*—Custom 1 and Custom 2—where you can store other kinds of information about this contact's name and email addresses, such as what email address a person prefers to use while on vacation.

Tip: If you use one of this person's email addresses most of the time, select it and click the Make Default button to the right of the E-mail field. From now on, when you type that person's email address in a new message, Entourage will suggest that address alone as the primary address.

- **Home tab.** Shows the person's home address, Web page, and telephone numbers, along with two more custom fields—Custom 3 and Custom 4—where you can enter your own kinds of data (perhaps the person's garage color or favorite lawn fertilizer).

  If you turn on the Default Address checkbox in this window, this address becomes the *default* address for that contact, the one that Entourage goes to first when you don't have a choice of addresses—for example, you choose Contact→Map Address.
- **Work tab.** Shows the contact's work address, employer's Web page, and work telephone numbers. It also includes the contact's company, job title, and department. Once again, you get a couple of custom fields—Custom 5 and Custom 6—to handle any extra information.
- **Personal tab.** Lets you enter your contact's birthday. It's worth typing in a couple of friends' birthdays, if only to see the raw, seething power of Microsoft software at work: Entourage automatically calculates the astrological sign and age for your pal, saving you the math.

  There's also room here for recording a spouse's name, the names of any children, your contact's anniversary, and any interests that your contact may have.

Tip: The tiny calendar icon to the right of the Birthday and Anniversary fields is a pop-up menu. It offers commands that summon a pop-up calendar for easier date selection, inserting today's date, or adding the birthday or anniversary in question to your Entourage calendar so that you don't forget the gift.

GEM IN THE ROUGH

The Illustrated Rolodex

If you have a digital photo of somebody in your Address Book, you can drag the graphics file—in JPEG format, for example—right out of a Finder desktop window and into the well at the window's right edge.

When you click such an embedded image, Entourage opens the full-size image in its own window and adds that image to its database, thus embedding the graphic so that you can get rid of the source image, if necessary.

You can use any size picture, but keeping it small is wise from a disk-space and memory perspective; after all, does your address book really *need* an 8 x 10 image of your boss?

- **Other tab.** Lets you enter notes about your contact, and provides still more custom fields—Custom 7 and Custom 8, plus Custom Date 1 and Custom Date 2—to provide places for any data that Microsoft may have missed.

Tip: To change the name of a custom field, click it and type in a new field name in the window that results. Click OK or press Enter—but note that you're changing this field's label for *all* "cards" in your Address Book.

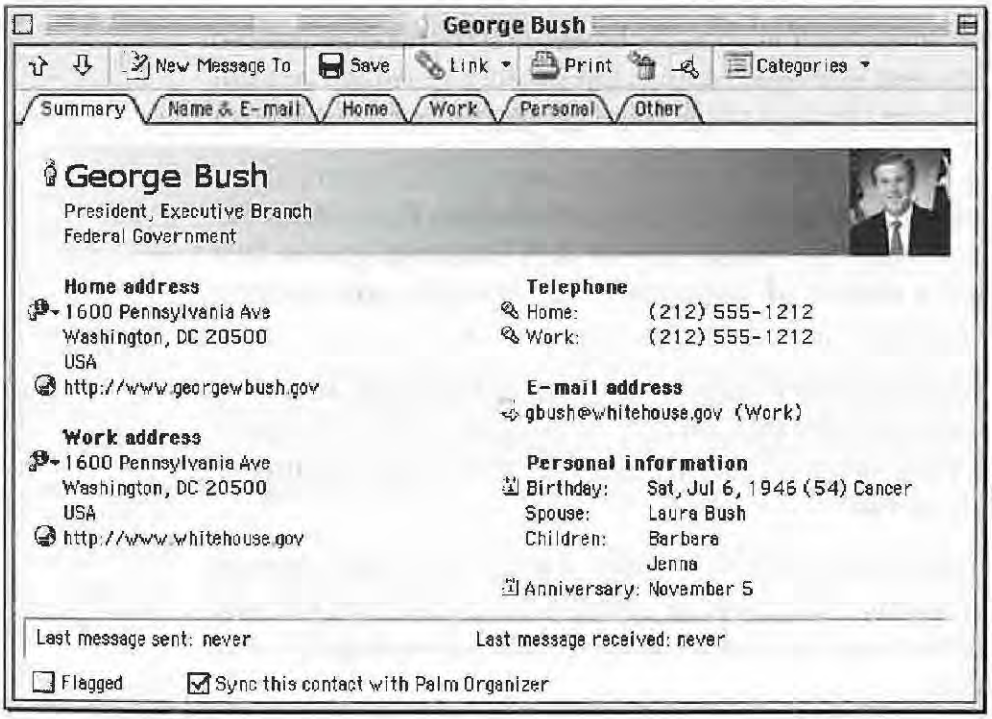


Figure 10-3: *Once you've gone through the trouble of entering complete information about your contact, you'll know more than you probably should. Click the Summary tab to gaze admiringly at the finished, full-length, massive data screen.*

Along the bottom of the window are two checkboxes:

- **Flagged.** Turning on this box is a lot like flagging an email message (see page 310)—it's simply a way of bringing some more attention to a contact, making it easier to sort it into a particular (flagged) group. You can flag contacts en masse, too, by selecting them in the list view and clicking the Flag button (or selecting Contact→Flag).
- **Sync this contact with Palm Organizer.** Chapter 11 offers details on synchronizing your Entourage Address Book with the address-book program on Palm-compatible handheld computers; a check in this box means that this person's info will be copied onto your Palm at HotSync time.

When you finish entering all of this information about your contact, you'll have quite an impressive dossier. Click Save (or press ⌘-S) to commit it to your hard drive. (If you close a contact or note that you've modified without saving the changes, Entourage asks if you want to save those changes; for best sanity preservation, turn on "Don't show this message again" before clicking Save.)

POWER USERS' CLINIC

Working with vCards

You've probably received plenty of email messages that come with strange little files attached whose names end in *.vcf*—but unless you pay very close attention to Internet standards, you may not know what they are.

They're vCards, which were invented as a way of exchanging business-card information via email, sweeping away all the drudgery of manual input forever. Although they sound like a good idea, vCards haven't really caught on, primarily because vCards are typically incomplete (most people don't enter all of the pertinent information) and poorly implemented. Entourage is one of the few Mac programs that can understand vCards at all.



In Entourage, vCards can save you and your correspondents the tedium of manual data entry.

To pull the information out of a vCard and into the Entourage address book, drag the .vcf attachment from the email that contains it onto your open Address Book, as shown here. The contact information nestles itself nicely among your other contacts. If the .vcf file is on your hard drive (and not attached to an email), drag it into your open Address Book window instead.

To *send* a complete set of contact information as a vCard—your own electronic business card, or somebody else's—drag a name from your open Address Book (or an entire *row* in a list view) anywhere onto a waiting email message. (Alternatively, highlight a name in your Address Book and then choose Contact→Forward as vCard.) Either way, your outgoing message now displays the .vcf file attached.

Your correspondent will be able to incorporate that Address Book "card" into her own Address Book, and will appreciate your time-saving gesture—if she's even heard of vCards, that is.

Tip: When you're processing email, you can add someone's email address to your Address Book without having to bother with all of the dialog-box shenanigans described in this section. Whenever you're looking at an open email message—or even a closed one that appears in a list of messages—Control-click it and choose Add to Address Book from the contextual menu (or choose Tools→Add to Address Book). Entourage instantly creates a new "card" for that person in the Address Book, featuring the email address and usually the person's name. Adding the other details is up to you.

To add information from a *directory service* search (see page 322), select the address in the search results window and click the Add to Address Book button.

Opening, editing, and deleting contacts

To edit a contact you've already entered into Entourage, double-click the appropriate row of the Address Book list, or click once and then choose File→Open Contact (⌘-O). Entourage presents the Summary window shown in Figure 10-3. Click the appropriate tab to edit the details on it, just as you did to begin with.

If a certain someone is no longer part of your life—or you wish it were so—click the Delete button in the toolbar, or choose File→Delete Contact (⌘-Delete). Entourage asks if you're sure you know what you're doing. Be sure, because there's no way to undo such a deletion.

Creating groups

As you might expect, *groups* are collections of contacts. They make it easy to send an email message to everyone in a group in one fell swoop—just address it to the group instead of entering a bunch of single email addresses.

Here are three fascinating tidbits about groups:

- You can enter an email address into a group without having to enter it first as an independent Address Book "card."

  This feature may come back to haunt you, however. You may one day start to address an email message by typing *McGi*, frustrated that Entourage refuses to complete *McGillicuddy*, even though you're certain you entered Bob McGillicuddy into the Address Book. What's probably happened is that you entered old Bob only into a group without first creating an independent address-book card for him. (People whose names exist only in a group aren't eligible for Entourage's AutoComplete feature.)

- Someone can be a member of more than one group.

- A group can be a part of another group.

To create a new group once you're viewing the Address Book, click the New Group toolbar button. (If you're *not* already in Notes view, choose File→New→Group, or choose Group from the New pop-up button.)

Now the Group window appears. Once you've typed in a name (*Design Dept., Newsletter List,* or *Pass Jokes On,* for example), creating a group is easy. You can add people's

names to the group by dragging them from your Address Book window onto the group window (Figure 10-4), or you can click the Add button on the toolbar, which adds a blank space in the group, ready for you to type in an email address.

If you'd rather type than drag, you can type an email address from your Address Book (which Entourage automatically completes for you), or you can enter a completely new email address as part of the group.

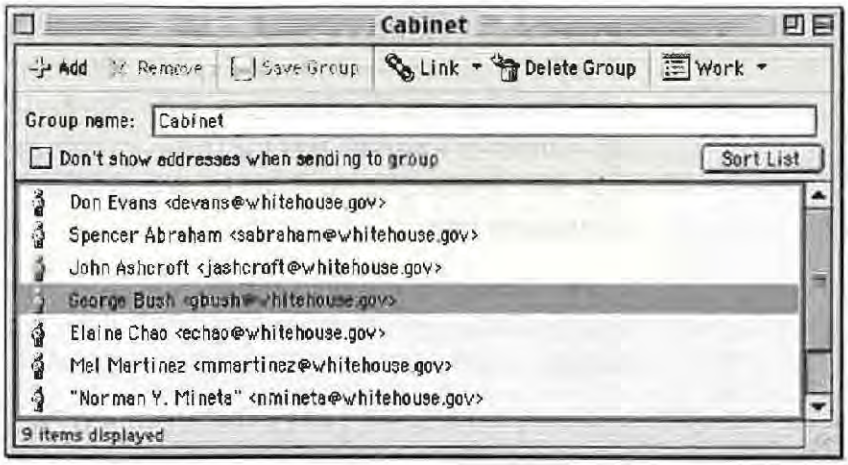


Figure 10-4:
By dragging addresses to a group window, you can quickly create a group. If you turn on "Don't show addresses when sending to a group" for privacy purposes, the individual email addresses don't show on the message. What each recipient in the group sees is the group's name and the email address of the first person listed in the group. The rest are sent as blind carbon copies (BCC), which, unfortunately, makes them vulnerable to certain spam filters.

Importing Contacts

Since Entourage is a new application, there's a good chance that, if you keep your addresses on the Mac at all, it's in another program, such as Now Contact, Palm Desktop, Claris Organizer, or even Netscape Communicator. "No problem," says the ever-confident Microsoft. Entourage can import contact information from these programs and several more. Furthermore, if your little black book is stored in a standard database like FileMaker, Excel, or some no-name off-brand address software, Entourage can grab contact information from:

- A *tab-* or *comma-delimited text file.* Most databases, and many address-book programs, can save their contents in these intermediary formats, precisely to make it easier for you to transfer your life from one such program to another. If you were to open up one of these files in a word processor, you'd see that each piece of information is separated by a press of the Tab key (Bob→Smith→23 Main Street→Chicago, and so on) or a comma, and that each "card's" information is separated by a press of the Return key.
- *An Mbox-formatted text file.* Certain email programs, such as Eudora (and other Unix mail programs), store mail in this format.

It's in Microsoft's best interest to make sure that Entourage can bring in as many formats as possible, because switching over to a new email or contact management program is not a trivial endeavor.

The Import Assistant

Fortunately, importing contacts from another program into Entourage *is* relatively trivial. Just choose File→Import to bring up the Import Assistant, which walks you through the process.

Note: The File→Import command is the first step in importing contacts, mail messages, *and* calendar events, so you may see some references to those other data types on the Import Assistant's screens.

In the first window, you're asked whether you want to import information from one of eight programs—Outlook Express, Qualcomm Eudora, Netscape Communicator, Claris Emailer, Now Contact, Now Up-To-Date, Claris Organizer, or Palm Desktop—or from a special text file (tab- or comma-delimited, or Mbox). (This process may feel familiar; it's the same Import Assistant you saw when setting up Entourage for the first time.)

If you choose to import information from one of the eight programs, Entourage asks you what information you would like to grab—such as contacts or calendar events—and then proceeds to inhale that information.

If, on the other hand, you choose to import contacts from a text file, Entourage asks you for the location of that text file, then puts up its Import Contacts window (see Figure 10-5).

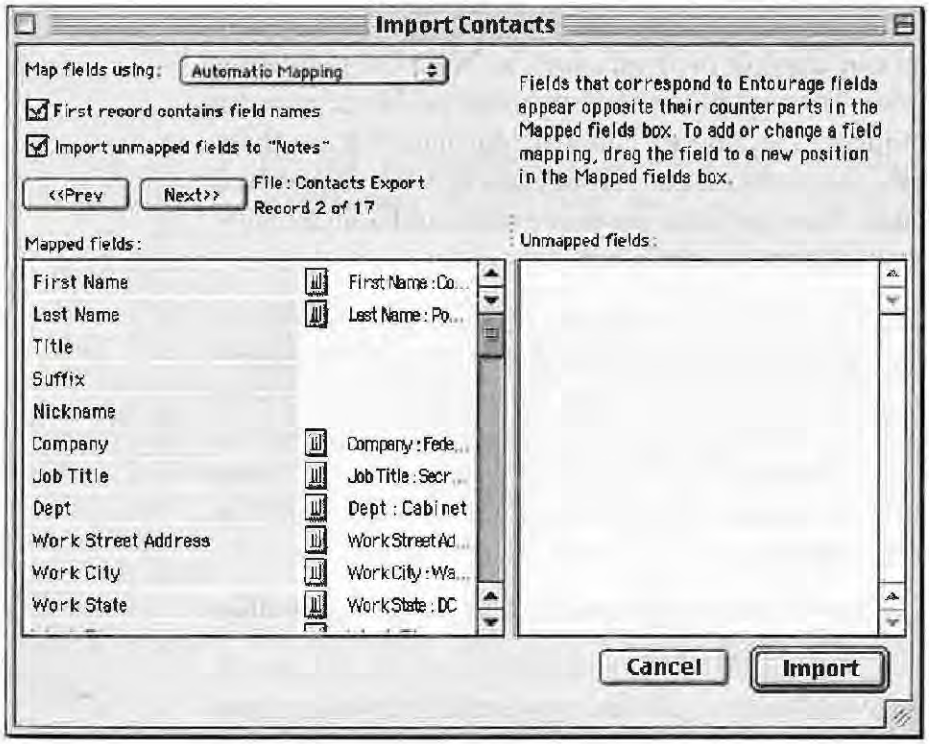


Figure 10-5: *In this window, Entourage asks you to match up the fields from the text file with the Entourage Address Book fields–that is, you get the chance to match up first names in the file with the First Name field in Entourage, the last name with the Last Name field in Entourage, and so on.*

To drag the fields in the list so that they line up with the proper tidbits of address info, drag them up or down, using the ribbed rectangular handle that appears on each line. If there are *unmapped* fields—fields from your older address-book software that Entourage isn't sure *what* to do with—you can drag them from the unmapped fields part of the window into the proper place on the left side of the window.

Once you've lined up all the fields correctly, click Import (or press Enter) to bring your social circle into its new software home.

Exporting Contacts

Exporting Entourage's contacts is a lot simpler than importing them, and that's because Entourage offers one option for export—the time-honored tab-delimited text file. When the day comes that you want to bring your little black book into some other database or address program, choose File→Export, choose a folder location for the file, and then click Save.

WORKAROUND WORKSHOP

Cross-platform Contact Imports

If you're moving an address book from a Windows-based program to Entourage, you won't encounter much trouble. Just export the contact list as a tab-delimited text file, which you can get to the Mac via network, email attachment, or disk. Then, in Entourage, choose File→Import and proceed exactly as described on these pages.

To take care of moving contacts from Entourage to a PC, export your contacts as a tab-delimited file, and then hand them off to your PC. Don't forget to append the suffix *.txt* to the end of your file's name—a requirement for Windows. When naming the file, use standard letters and numbers; Windows doesn't accept such wacky characters as the vertical bar (|) or the asterisk (*).

Using Contacts

Once your Address Book is brimming over with people, it's time to actually *do* something with all that data. Besides providing email addresses for Entourage mail, you can put all those names and numbers to work in the service of your Palm organizer or in Word, Excel, or PowerPoint. Here are a few of the ways you can reap the benefits of your address book:

Sending email to someone

Chapter 8 covers the various ways you can address a piece of outgoing email from within the email portion of Entourage. But you can also summon a pre-addressed piece of outgoing email from within the Address Book itself. For example:

- Click a name in the Address Book and choose Contact→New Message To.
- Control-click someone's name and then choose New Message To from the contextual menu that pops up.

Either way, Entourage whips open a new email message addressed to that lucky individual.

Flagging a contact

To plant a little red flag to the left of a contact, select the contact and choose Contact→Flag. Flagging someone's name can be useful in a number of different situations. For example:

- Flagged contacts bubble up to the top of a list when you sort it accordingly (clicking the Flag column in the Address Book list), which makes flags an excellent way to denote important contacts.
- When you print your contacts, you can print just the flagged ones.

To get rid of flags, select the corresponding rows of the Address Book and then choose Contact→Clear Flag.

Using contacts in Word

Suppose you're writing a letter to someone listed in your Address Book. As you start to type the person's name in Word, a yellow balloon appears, as shown in Figure 10-6, showing the contact's full name. If Word has guessed the correct name, press Return while the balloon is showing; Word obligingly completes the name.

If you *don't* intend to type a name—that is, if you've typed *will*, but Word's balloon proposes William Shakespeare (a name it found in your Address Book)—just continue typing without pressing Return. The box goes away.

As Figure 10-6 points out, you can Control-click an inserted person's name. The resulting contextual menu gives you several choices:

- **Open Contact.** Opens the contact into its own window, where you can get more information or even edit the contact info, without having to launch Entourage.

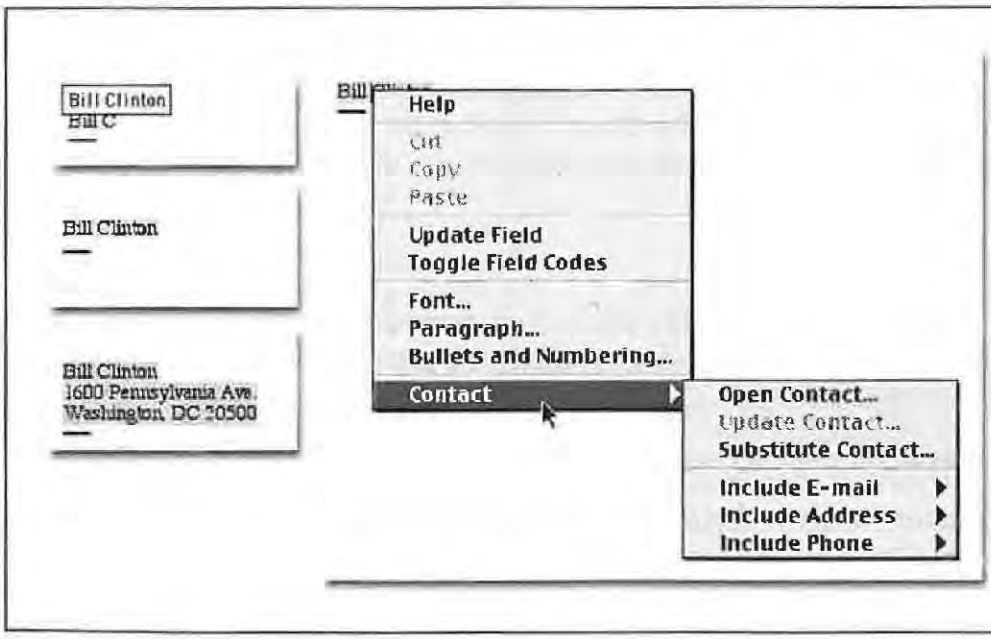


Figure 10-6: *Top left: In Word, you start typing a name.*

Middle left: You press Return to insert the full name from Entourage.

Right: Control-click the name for some useful commands.

Bottom left: The Include Address command inserts the person's address into your Word document. (The gray background doesn't print out.)

- **Update Contact.** This command consults the Address Book and updates the name or address (if it's been changed in Entourage since you created the Word file).
- **Substitute Contact.** Brings up your contact list, so that you can substitute a different person's information. (You might use this command when, for example, sending an existing letter out to a different person.)
- **Include E-mail, Include Address, Include Phone.** Pastes the contact's email address, postal address, or phone number into the document. This command is only available if, in fact, you've specified that information in Entourage.

Note: Office applications only draw contact information from the currently active Entourage *identity* (more on identities in Chapter 11).

Five Very Impressive Buttons

When you're viewing the expanded Address Book screen for somebody in your Address Book, Entourage offers five buttons that let you harness your data in clever ways. These five icons appear in the contact's Summary tab, among other places:

- The **information** icon to the left of every street address hides a menu that, when clicked, lets you consult the Internet for a map of, or driving directions to, the

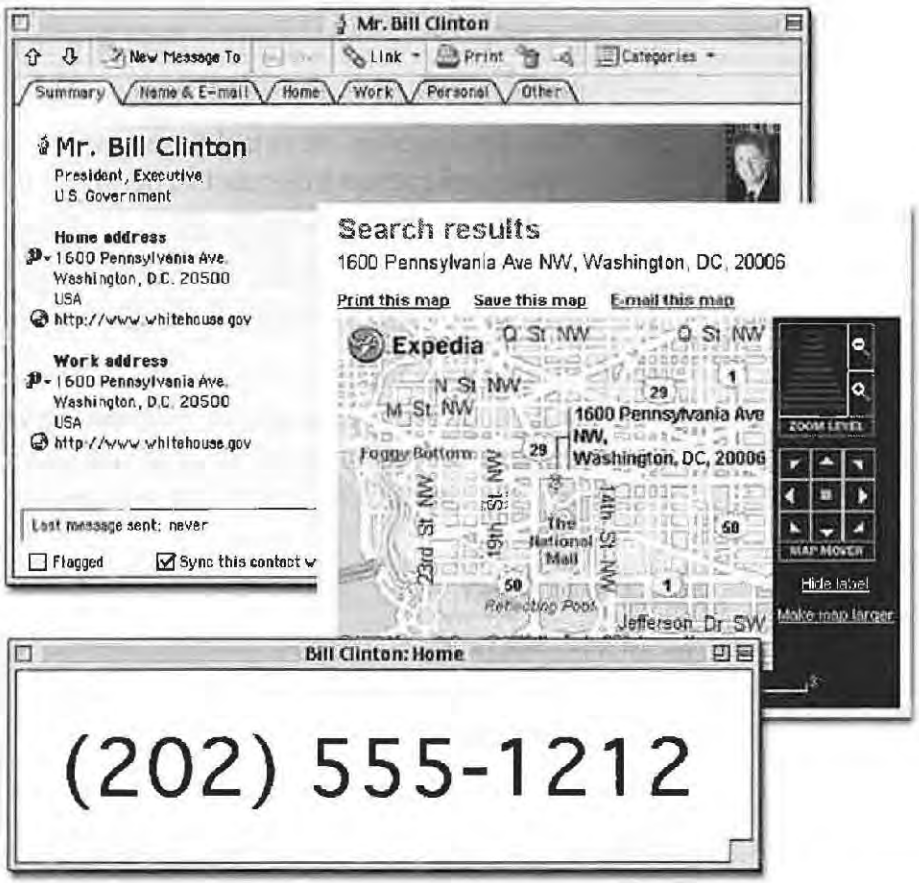


Figure 10-7: *The very tiny icons to the left of the info in a summary view can do some very cool things, from making a tiny phone number large to mapping a contact's street address using Microsoft's Expedia Web site.*

selected address (or, less glamorously, to copy the address to the Clipboard, ready for pasting into a letter you're writing in a word processor).

- The globe-like **Web page** icon appears next to any Web address you've entered onto somebody's "card." Click it to visit the associated Web page.
- When you want to call a phone number, click the small **magnifying glass** icon to the left of it. Doing so *doesn't* dial the phone for you. It does, however, magnify that number so that it's big enough to see from several feet away (Figure 10-7).
- The **message** icon sits next to the contact's email address. When you click it, Entourage creates a new email message addressed to that contact.
- The **calendar** icon appears to the left of the Birthday and Anniversary fields. Clicking it adds a recurring event on your Entourage calendar—handy insurance against missing important birthdays and or anniversaries.

Printing the Address Book

Thanks to some fine attention to detail by the Entourage programmers, you can print the Address Book in a variety of formats, putting just the details you want on paper.

Start by clicking the Address Book icon in the Folder list. Then choose File→Print, which brings up the Print window (Figure 10-8) with controls like these:

- **Print.** This pop-up menu lets you select what to print: All Contacts, Flagged Contacts, or Selected Contacts (that is, names you've highlighted by clicking, Shift-clicking, or ⌘-clicking, as described on page 304).
- **Style.** This pop-up menu lets you choose whether you want to print a full address book (with lots of contact information per page) or a simple phone-number list.
- **Layout.** The Layout button opens the Print Layout window, in which you can specify how contacts are sorted, whether first names or last names are printed first, whether cut lines and punch holes are printed, and so on.
- **Form.** If you use a Franklin or Day Runner paper planner, you can choose a template from this pop-up menu, corresponding to the most popular precut paper types that are available at office-supply stores. You can also use the "Add form" and "Edit form" buttons to create your own paper designs.

The Note Pad

The oft-ignored Notes section is a great place for storing random thoughts and odd things that you want to write down. You can attach a note to any other Entourage element, making them ideal for tasks like these:

- Typing in the driving directions to an event you've added to your calendar.
- Adding, to an email message, a record of a followup phone call you had with a given contact.

- Including phone-call details, physical descriptions, or Web-site passwords to somebody's card in your Address Book.

Notes, despite their plain appearance, are incredibly flexible and can be used anywhere text is needed.

Note: Palm users should note that Entourage Notes synchronize with the Palm's Memo Pad, and that can pose a problem: Any note longer than 4 K gets chopped off at the 4 K limit (about a page and a half), and Entourage Notes formatted in HTML lose most of their formatting. See Chapter 11 for more on the Palm and Entourage.

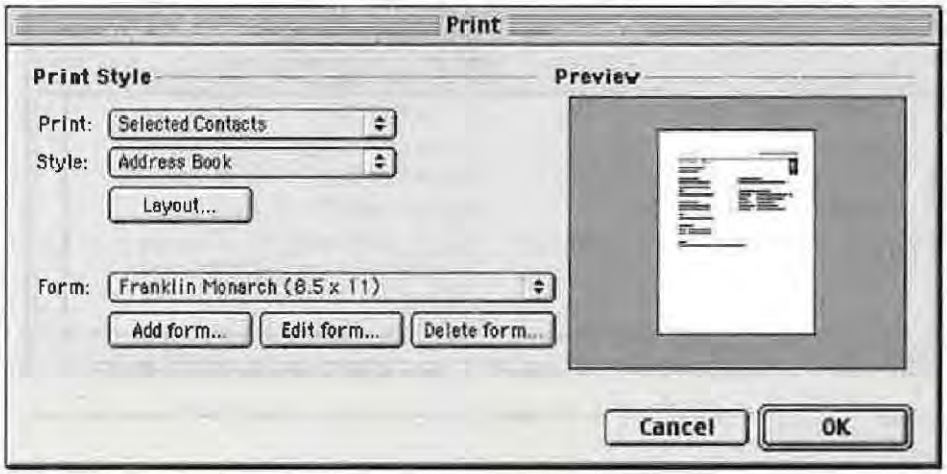


Figure 10-8: *Just as in the other Entourage modules, the Address Book has its own Print window, which pops up before the Mac's own standard Print window. In this one, you can control how Entourage prints its address book; you can even make it fit a Franklin or Day Runner paper planner.*

Notes Mode

To put Entourage into Notes mode, click the Notes icon in the Folder list, or choose Window→Notes (⌘-6). (The latter technique opens the Notes in their own independent window.) You get the Notes window, shown in Figure 10-9.

Creating Notes

To create a new note once you're viewing the Notes list, click the New button or press ⌘-N. (If you're *not* already in Notes view, choose File→New→Note, or choose Note from the New pop-up button.)

You get the untitled notes window shown in Figure 10-10. Type a title for the note, press Tab, and then type the body of the note into the lower, larger box (driving directions, an order number, or whatever).

As you go, don't miss the formatting toolbar that lets you add colors, fonts, and other visual spice to a note, just as you would to an email message (see page 323). These formatting controls use standard HTML (Web-standard) formatting technology, which means that you can paste a formatted note into an email message when the day comes where you'd find that necessary.

Once you've typed up your note (or pasted text into it), click Save, or choose File→Save, or press ⌘-S. Your note's title now shows up in the Notes list.

To delete a note, highlight its name in the list and then click the Delete button in the toolbar, choose Edit→Delete, or press ⌘-Delete.

Tip: By far one of the most useful features of Notes is attaching them to other Entourage elements (calendar appointments, for example). Don't miss the discussion of Links that begins on page 387.

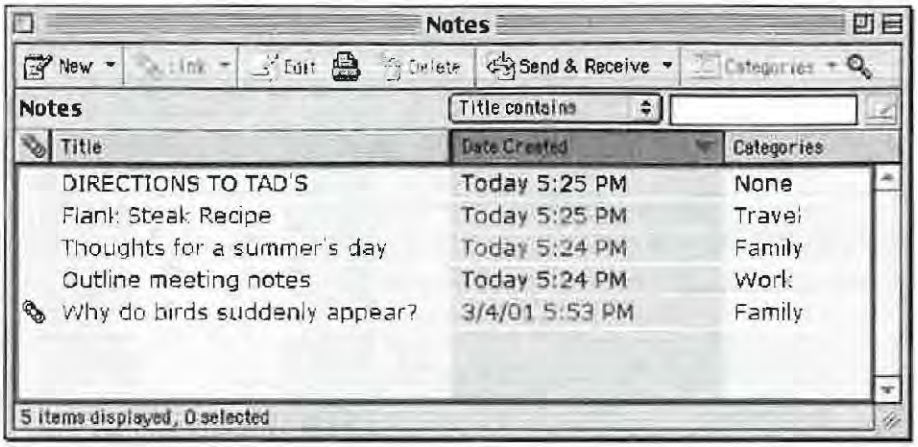


Figure 10-9: *The Notes window is just a list of notes. The box at the upper-right corner of the screen helps you filter your thousands of memos down to just a few. Oddly enough, Entourage doesn't show you what's* in *the note when you click its name in the list, as it does with email messages and Address Book entries.*

Printing Notes

To print a note, choose File→Print, or click the Print button in the Notes-window toolbar. Entourage puts up the Print window for Notes, in which you can choose to print all notes or just the selected ones. You can also specify how those notes are laid out (cut lines, page numbers, and so on). Finally, you can select whether the notes should be printed in a format that works with Franklin or Day Runner planners, or even add your own form to that list with a click of the "Add form" button.

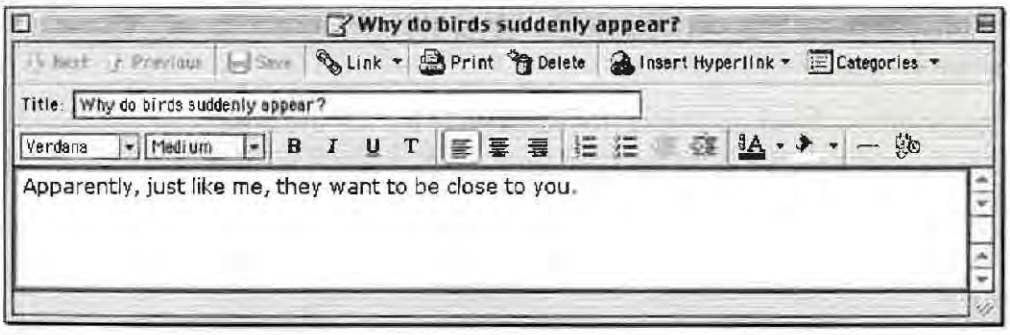


Figure 10-10: *Notes provide a resting place for all of those things that should be attached to other Entourage items, but for which there are no proper categories.*

CHAPTER
11

Advanced Entourage

Although the last three chapters have plumbed the depths of Entourage's primary modules, this vast program has even more power up its software sleeve. This chapter shows you a few more ways to harness the program's seething mass of muscle, including:

- **HotSyncing.** How to exchange information with a PalmPilot or Palm clone.
- **Searching.** How to find a particular scrap of information in the Entourage haystack of events, messages, and contacts.
- **Linking.** How to link bits of data to each other, forming a useful web of interrelated events.
- **Customizing.** How to play with the program's views and preferences, the better to tailor the program to your liking.

Using Entourage with a Palm Palmtop

For addicts of the PalmPilot or its descendants (such as the Palm clones from Handspring, Sony, and other companies), one of the most exciting aspects of Entourage is its ability to synchronize the information in its Categories, Address Book, Notes, Calendar, and Task modules with the Palm's built-in corresponding programs, so that you can carry the Mac-based details of your life around in your pocket. Every time you make a change to this information, either on the palmtop or on your Mac, the next HotSync (synchronization) session updates both machines so that they contain the identical information.

In fact, if you've decided to entrust your calendar, address book, and other databases to Entourage, you can safely retire Palm Desktop, the software that normally stores your PalmPilot's data on the Mac.

Note: Unfortunately, although most Palm and Palm clone models include a tiny email program called Palm Mail, Entourage can't synchronize your email messages with it. Unless you pursue the workaround below, you'll have to be content with sending your Entourage calendar, addresses, notes, and to-do lists to your palmtop.

The Hardware Setup

Before you get Entourage to talk to your Palm, you need to get your Palm talking to your Mac. This setup typically involves connecting your Palm cradle to your Mac's serial or USB port, and then installing Palm Desktop (which comes with every Mac, and is also a free download from the Palm Web site). Palm Desktop, based on the program formerly known as Claris Organizer, is a calendar/address book/to-do list/note pad, just like the Palm itself—but it runs on the Mac, and serves as the home

WORKAROUND WORKSHOP

Synchronizing Email

You would think that Entourage, with its supercharged email and Palm-speaking capabilities, would be a natural at exchanging your messages with the built-in Palm Mail program on most PalmPilot models; unfortunately, this isn't the case. Entourage has no email synchronization capabilities, and at this writing, there are no Palm *conduits* (software translators) that can communicate directly with Entourage's email module.

There *is* a workaround, however. It's not pretty, but it works: By combining the MultiMail Mac Conduit *(www.actualsoft.com/prod_macconduit_details.htm)* and a copy of Outlook Express, you *can* get your Entourage email messages into your Palm.

Here's how it works. Install Outlook Express, Microsoft's free email program. (It comes with every Mac, or you can download the latest version from *www.microsoft.com/mac*). Then buy and install the MultiMail Mac Conduit, a bit of software that lets you synchronize mail between your Palm's Mail program and Outlook Express, Eudora, or Claris Emailer.

Once both Outlook Express and MultiMail are installed, create an email account to act as a go-between—a Hotmail account (*www.hotmail.com*), for example, would work well for this purpose. Set up Outlook Express to treat your Hotmail account as the one it checks, and enter your Hotmail email address in your Entourage Address Book.

From now on, whenever you have a message that you want to get into your Palm, *redirect it* to your Hotmail address. (Just forwarding it doesn't work; you must redirect it, as described on page 308.) You may prefer to set up an Entourage *mail rule* to handle this task automatically, as described on page 315.

Then close Entourage, open Outlook Express, and receive the waiting mail messages. Now, when you synchronize your Palm, the MultiMail conduit grabs the appropriate mail from Outlook Express and brings it into the Palm Mail program.

Although this system gets email into your Palm, you're stuck maintaining two email programs. If it sounds like too much hassle, your only alternative is to wait for somebody to develop an Entourage conduit. You may want to lobby either Microsoft or Actual Software (the MultiMail company) for one.

base for your Palm-based data. Palm Desktop, in fact, is the program you're about to replace with Entourage.

The Palm Desktop installation also installs, on your Mac, several *conduits*—software modules that let each built-in Palm program (Date Book, Address Book, To Do, and Memo Pad) talk to corresponding Mac programs. Your Palm device's instructions walk you through the process of getting everything set up.

It's important that you get your PalmPilot working with the Palm Desktop *before* you install the Entourage conduits; otherwise, Entourage won't be able to speak to the palmtop. Once your Palm is able to *HotSync* (exchange data) with your Mac, you're ready to install the Entourage conduits.

WORKAROUND WORKSHOP

What Are Conduits?

Conduits are small programs that sit in the Palm→Conduits folder. Each translates a different kind of data between the Palm and your Mac; for example, your Palm came with one conduit apiece for the Date Book, Address Book, Memo Pad, and To Do programs, each designed to shuttle information into the Palm Desktop program.

But these aren't the only conduits on earth, as you're about to find out. Various software companies have introduced new kinds of conduits that let more kinds of Palm data talk to more Mac programs. (There are conduits for FileMaker Pro, Quicken, and Outlook Express, for example.)

When an installer puts a new conduit in the Conduits folder (as Entourage is about to do), the HotSync software will have a new way of moving information to and from your Mac and your Palm. Fortunately, Entourage is clever enough to move the *existing* conduits out of its own way, into a folder called Disabled Conduits, to avoid confusing your Mac. Otherwise, you might wind up with two side-by-side Address Book conduits, for example, one designed to send the Palm's data to Entourage, and the older one designed to send it to Palm Desktop.

Installing the Software

Once your Palm is working with your Mac, it's time to install the Entourage conduits—the little bits of software that link Entourage to the Palm's Categories, Address List, Date Book, To Do List, and Memo Pad. (The installation software isn't part of the standard Office 2001 installation, so it must be installed first.)

Running the installer

To install the Entourage conduits, put the Microsoft Office 2001 CD in your CD-ROM drive and open the Value Pack folder. Double-click the Value Pack Installer icon to launch the installer.

Once it's open, turn on the Handheld Synchronization checkbox in the list of options (see Figure 11-1). Click Continue. When Entourage informs you that it has to disable synchronization with Palm Desktop in order to enable synchronization with Entourage, click OK; having read the previous pages, you knew this. Once the installer has done its magic, click Quit.

A few things happen during this installation process. First, Entourage creates a folder called Disabled Conduits inside the Palm folder; it moves the original Address, Datebook, Memo, and ToDo conduits into that folder. Then it installs Entourage Conduit and Entourage Conduit Support into the Conduits folder. From now on, whenever you press the HotSync button on your palmtop's cradle or cable, Palm Desktop won't "hear" anything that goes on; Entourage is the new Mac home for your PalmPilot's data.

Tip: If you decide that Entourage isn't for you, you can always return to Palm Desktop. To do so, you'll have to uninstall the Entourage conduits. Do that by moving the Entourage Conduit and Entourage Conduit Support files out of the Palm→Conduits folder (into, say, the Disabled Conduits folder); then move the Address Conduit, Datebook Conduit, Memo Conduit, and ToDo Conduit files (now in the Disabled Conduits folder) *back* into the Palm→Conduits folder. Your PalmPilot will once again HotSync to the Palm Desktop software.

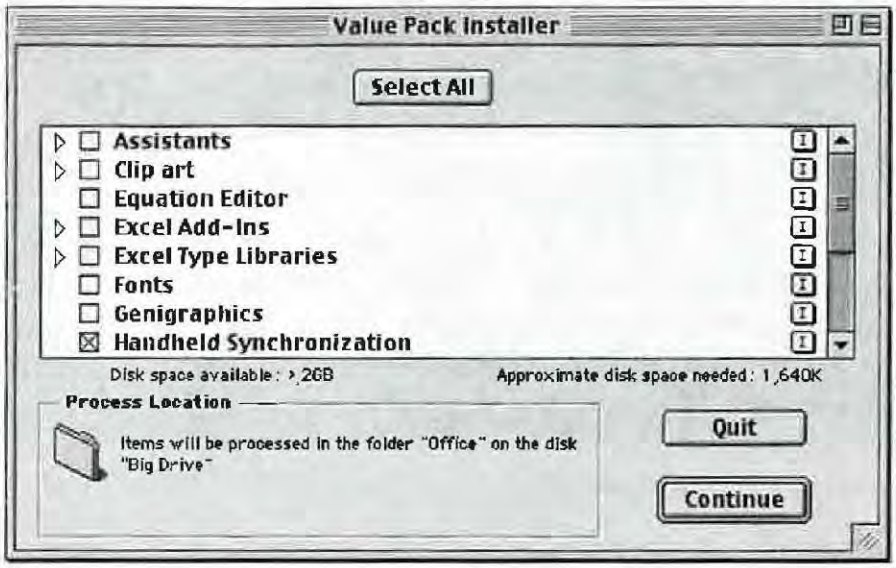


Figure 11-1:
The Handheld Synchronization checkbox is easy enough to miss in the long list of Value Pack items, but it's the only way that you'll get Entourage and your Palm talking to each other.

Conduit settings

Now that the Entourage conduits are in their proper places, it's time to set them up to perform as you want them to when you hit the HotSync button. To do this, open the Palm Instant Desktop menu (the small green icon in your menu bar; it's there only if you've correctly installed Palm Desktop) and choose HotSync→Conduit Settings. The Conduit Settings window appears.

Note: If you don't see the small green menu-bar icon, you're missing the Palm Instant Desktop extension. But you can get to the Conduit Settings window anyway: Double-click the HotSync Manager icon in the Palm folder on your hard drive; when that program opens, choose HotSync→Conduit Settings (⌘-H).

With the Conduit Settings window open, double-click the Entourage Conduit entry (see Figure 11-2). You'll be faced with the Entourage Conduit Settings window, in which you can edit the HotSync settings for the Address Book, Notes, Calendar, and Tasks, and you can decide how private records are handled.

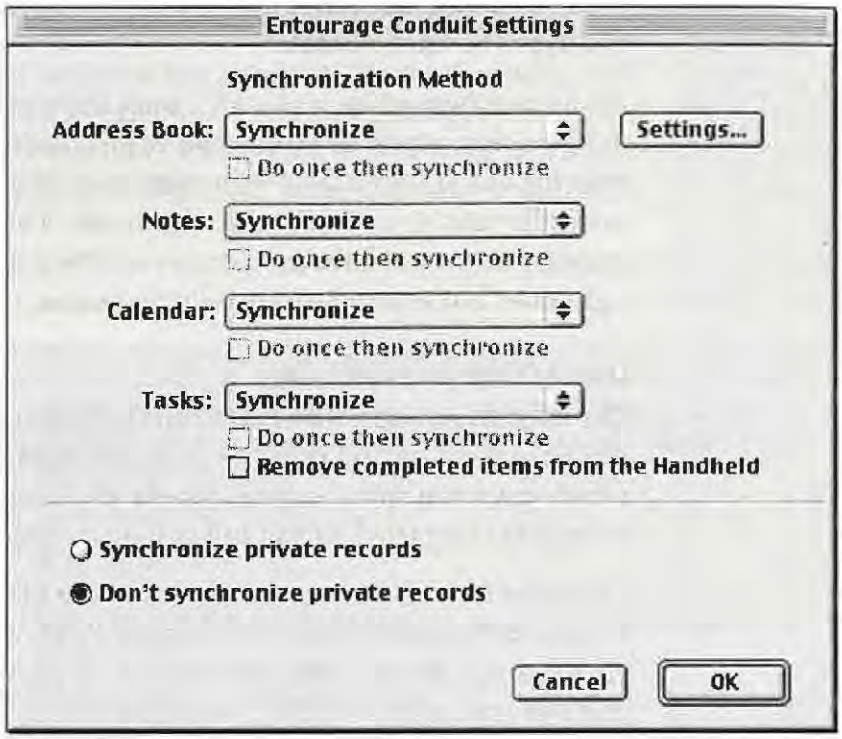


Figure 11-2: *These four pop-up menus (plus a few checkboxes) govern how Entourage and your Palm talk to each other. Although you'll want to check these settings before you synchronize your Palm, you'll want to leave the advanced Address Book settings alone until you've done one HotSync.*

The idea behind synchronization is to combine two different sets of data (such as the notes in Entourage and the notes on your Palm) so that they match. Most of the time, a HotSync does just this. But every now and then, you may want one of these other options:

- **Synchronize.** Entourage will compare its data with the Palm's data and merge the two together. Any new or edited items on either side of the cable show up in both places after a HotSync; your Mac and palmtop are now mutually up to date.
- **Entourage Overwrites Handheld.** You may occasionally prefer this option—such as when you've made a mess of the data on your palmtop, for example. When you HotSync, your Entourage data will wipe out, and replace, your Palm's data.
- **Handheld Overwrites Entourage.** On the other hand, suppose you want your Palm's data to replace what's on the Mac (after a hard drive crash or sale of your old Mac, for example). This choice is the opposite of "Entourage Overwrites Handheld"; it copies your Palm's data to Entourage, overwriting the data in Entourage in the process.

- **Do Nothing.** Now suppose you would rather not wait for your Entourage addresses and appointments to be transferred—because you want to update only (for example) your FileMaker data. In such cases, select this option; your Palm's data and Entourage's data won't intermingle at all.

These four choices appear in a pop-up menu next to the Address Book, Notes, Calendar, and Tasks section (Figure 11-2), letting you choose one of these synchronization types for each module.

Below each pop-up menu is a "Do once then synchronize" checkbox. If you turn on this box, then whatever setting you've just made in the pop-up menu will take effect only for *one HotSync cycle*—the next one. After that, the pop-up menu will automatically reset itself to Synchronize mode. That's a useful arrangement if, for example, you want to have the data in your Palm overwrite the data in your Entourage right now, but to synchronize fully thereafter.

Private records, done to-dos

The "Remove completed items from the handheld" checkbox tells your Palm to delete tasks from its To Do list once you've marked them as having been completed, which saves you space in your handheld's limited memory. (The items stay in *Entourage* as completed Tasks until you delete them.)

The two radio buttons at the bottom of the dialog box pertain to addresses, notes, to-dos, and appointments that, on your Palm, you've designated as *private*. (Preference settings on the Palm let you mask or completely hide records you've marked this way until a password is correctly entered.) Entourage offers no equivalent feature; if private records are moved into Entourage when you HotSync, they're no longer private. If the security of such records on your Mac is a concern, turn on

TROUBLESHOOTING MOMENT

The Conduit Settings Window Can't Find a Matching Identity

If, when you try to open the Entourage conduit settings dialog box, you get an error message that says a matching Entourage *identity* (page 382) can't be found, don't panic; most likely, your Entourage identity and your Palm Desktop identity don't match. They have to be exactly the same for synchronization to work properly—and for you to be able to open the settings dialog box at all.

To find out what your Palm identity is (that is, its name), tap the Applications button, then the HotSync icon. Your Palm's identity (name) appears in the upper-right corner of the screen.

To make your Entourage name match, quit all Office 2001 programs; then launch Entourage. Choose File→Switch Identity (⌘-Shift-Q); when the Switch Identity window comes up, select the identity that you want to use with your Palm (probably labeled Main Identity) and click the Rename button. Rename the identity to match the one you just looked up on your Palm; click the OK buttons to dismiss the windows.

Now, when you try to open your Entourage conduit settings, they just open, meaning that the two identities match.

If you're still running into trouble matching identities, make sure your Users folder (in the Palm folder) hasn't been renamed. Open the Palm→Users folder to make sure that folder still matches your user name.

"Don't synchronize private records"; they'll simply remain on your Palm, hidden as always.

Special Address Book settings

The Settings button (to the right of the Address Book pop-up menu) opens a second settings window; Figure 11-3 shows the details.

Warning: Microsoft suggests synchronizing your Palm at least once before changing the Address Book settings here. The reason: After you change the Address Book conduit settings, Entourage's address book will *overwrite and replace* the current copy of your Palm's Address Book. In other words, if Entourage hasn't already been brought up to date with your Palm's Address Book, you might lose data in your Palm's address list.

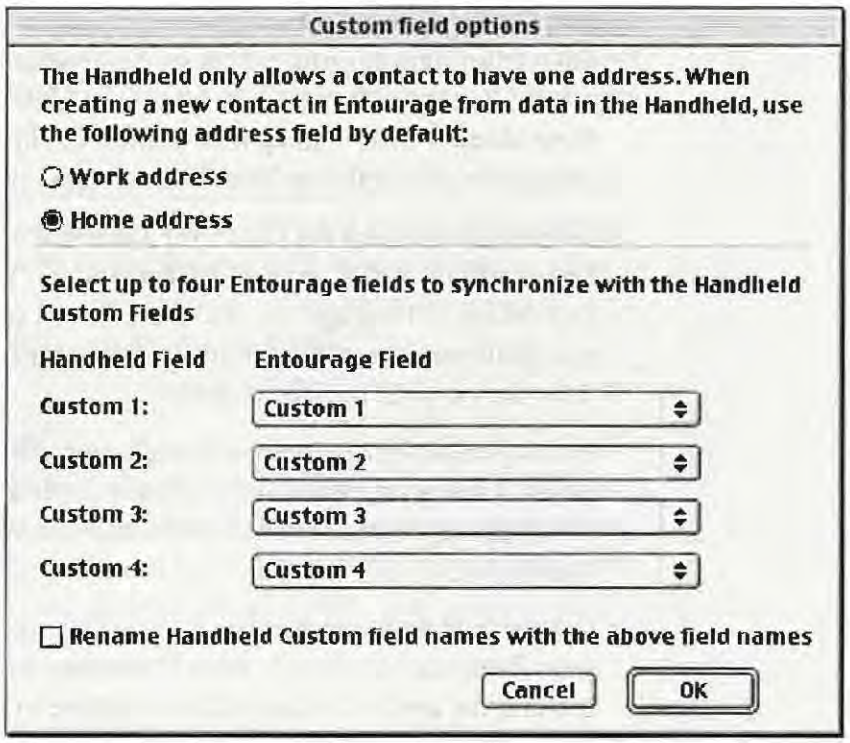


Figure 11-3: *Here, you can tell Entourage and your Palm how to match custom fields and exactly* which *address—work or home—to use when synchronizing. (The Palm offers room for only one address.) It also lets you specify which of the Custom fields in Entourage (see page 361) correspond to the four Custom fields in the Palm Address Book. You can also opt to have the Palm's custom Address Book fields renamed to match the selected Entourage field names.*

Doing the HotSync

After establishing your conduit settings, press the HotSync button on the front of your Palm cradle (or on your HotSync cable). It should connect to your Mac and start synchronizing its information with Entourage.

Unfortunately, the complexity doesn't end there. Although Entourage and Palm have similar groups of data, they don't correspond precisely—and that can cause problems.

How the data differ

Because Entourage data and Palm data differ slightly in some key areas, you might experience some oddities when you synchronize the two. Here's a look at the data that's shared between your Palm and Entourage, and how they differ.

- **Categories.** The category names you create on your Palm come across to Entourage, but the ones you create in Entourage don't move across to your Palm. If it's very important that the categories on your Palm and Entourage match, create and edit them on your Palm first, and *then* synchronize the two.

  Furthermore, although Entourage can handle an unlimited number of categories, your Palm can only handle fifteen for each program (Address Book, Memo Pad, and so on). Therefore, if you have 37 categories assigned in Entourage, all of which you're using in your Address Book, you're bound to lose a few categories when transferring your Palm.

  Another anomaly: An Entourage item can have more than one category at a time, but a Palm item cannot. When an item with multiple categories gets transferred, it loses its categories and gets put in the Unfiled category. Finally, the Palm Date Book doesn't offer a categories feature at all, so Entourage calendar events with categories attached may lose their category flags.

- **Address Book/Address List.** Your Palm offers four *custom fields* in your Address Book; you can label them *Birthday, Spouse Name, Latest hair color,* or whatever you desire. Entourage, on the other hand, can handle *ten* custom fields; when you HotSync, the information in Entourage custom fields 5 through 10 don't show up on your handheld device.

  Furthermore, Entourage can handle two addresses per person in your Address Book, whereas the Palm only offers a single address listing; so you'll need to tell the Entourage conduit *which* address to use when synchronizing with your Palm (see Figure 11-3).

- **Calendar/Date Book.** Entourage can store more data about a calendar event than your Palm can. As a result, such Entourage items as the event's location, invitees, travel time, and its category don't migrate to your Palm.

  And, although your Palm can handle recurring calendar events, be warned: If you change one event in a recurring series on the palmtop, your Palm turns it into a separate event that's no longer connected to the series. Each individual appointment still finds its way into Entourage, but Entourage no longer treats it as a single repeating event.

Tip: Because memory is precious, and Palm memory even more so, Entourage can automatically delete old events from its calendar—a change that will keep your Palm similarly cleansed and updated. Choose Edit→Preferences→General→Calendar tab; you'll see the "Delete non-recurring events older than ___ days" control at the bottom of the window.

- **Tasks/To Do List.** Priorities on your Palm's To Do list and Entourage's Tasks are different: Entourage offers priority labels called Highest to Lowest, but your Palm ranks priorities from one to five.

  Also, although you can set up alarms (reminders) for your Entourage task list, the Palm doesn't offer alarms for To Do items; don't expect alarms that you've associated with "Turn in IRS tax forms" on the Mac to make your Palm start beeping at the appropriate time.

  Finally, although you can set up Entourage To Do items to repeat at regular intervals, the Palm's To Do program doesn't offer this feature. When you sync your Palm with Entourage, only the *first occurrence* of a recurring task makes it to your Palm.

- **Notes/Memo Pad.** Each "page" of the Palm Memo Pad program can only contain 4K of text (about a page and a half of writing). Entourage notes, on the other hand, can be much longer. When you sync your Entourage data, therefore, any Entourage note larger than 4K gets chopped off when it makes it over to your Palm. (Furthermore, if you've used HTML formatting in your Entourage notes, the formatting disappears in the move to the Palm.)

Note: Be careful editing such memos on the handheld; when you perform your next HotSync operation, the truncated memo *replaces* the full-length one on Palm Desktop. That's because, during the synchronization process, Entourage sees the version on your Palm that's been edited *after* the item in Entourage, so it assumes that the truncated version is the latest, and thus the one to keep.

Troubleshooting Palm Problems

Even after all of these notes and precautions, the HotSync process is a fragile one. After all, it consists of getting two vastly different computers to exchange information without you having to do much at all, and that's almost wishful thinking in the world of high technology. Here are a few common problems that you might run into, and what to do about them.

Synchronization fails miserably

Fortunately, it's unlikely that the Entourage conduit itself has anything to do with your inability to synchronize. Unfortunately, HotSyncing in general has a reputation for flakiness on the Macintosh.

If your HotSync never gets started, or never finishes up, check to make sure that all of the cables are plugged in solidly. If that doesn't help, try giving the HotSync Manager more memory (see Figure 11-4).

Be sure that you're using the latest version of Palm Desktop (2.6.1, at this writing) and Mac OS 9.0.4 or later. If you're using a USB Palm cradle (or a USB adapter), unplug the connector and replug it *after* the Mac has finished starting up; doing so often forces the Mac to reload the Palm USB driver software. If you're still having trouble, contact your palmtop's tech-support number.

Some of my address-book entries are missing from my Palm

Before you put your friend's photos on a milk carton, open his "card" in the Entourage Address Book. Make sure that the "Sync this contact with Palm Organizer" checkbox is turned on. If it isn't, Entourage won't give that contact up to your Palm.

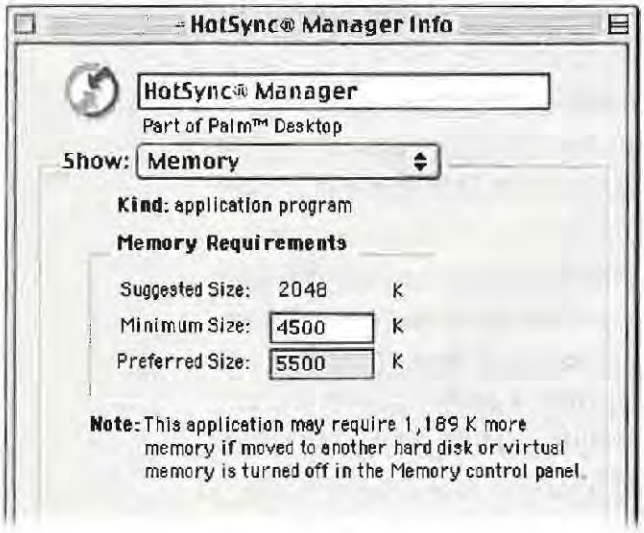


Figure 11-4:
Giving an application a little more memory is a common troubleshooting method for Mac OS programs. Highlight its icon (which is in the Palm folder on your hard drive); choose File→Get Info→Memory. Adjust the Minimum Size and Preferred Size boxes upward a bit to give the HotSync Manager more memory: 4500K and 5500K respectively should do it.

Now I seem to be missing

This problem can be a case of mismatched identity. Your Entourage identity and your Palm user name *must* match. Otherwise, the two can't agree on who is who, and general confusion results. See the box on page 378 for details on ensuring that your Palm name and Entourage name match.

Multiple Identities

Trying to master every last feature of Office 2001 could drive almost anyone to developing multiple identities.

When *Microsoft* refers to multiple identities, however, it's talking about a special feature of Entourage that lets several members of a family, school, or work circle use the same program on the same Mac—but maintain independent calendars, email accounts, mailing list info, rules, messages, preferences, signatures, to do lists, address books, and so on.

You'll find reference to these *identities* throughout the Office 2001 suite. For example, the currently selected Entourage identity is the source of names for the AutoText feature in Word described on page 87. (That's also why you can't edit or switch identities while Word, Excel, or PowerPoint are open; they depend on the currently active Entourage identity for some information.)

When you first set up Entourage, you get a single identity (although you can have multiple *accounts* within that identity). To create a new identity, proceed like this:

1. **Quit all Microsoft Office programs except Entourage. In Entourage, choose File→Switch Identity (⌘-shift-Q).**

   The Office Assistant, or a dialog box, asks you if you really want to switch identities.

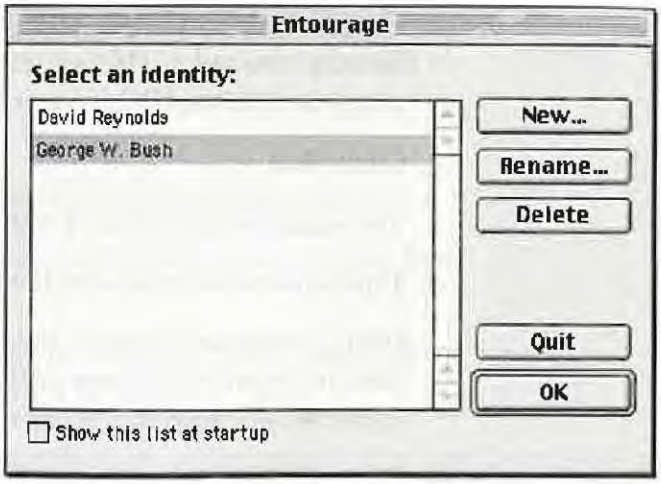


Figure 11-5:
Any identities that you create in Entourage show up in this window, and you can use the three buttons along the right-hand side to create, edit, or delete those identities.

UP TO SPEED

Identities vs. Multiple Users in Mac OS 9

Identities are for convenience, not security—that is, they're not guarded by passwords. Anyone sitting in front of your Mac can switch between your Entourage identities at will.

If you want to keep your identities protected by a password, use the Multiple Users feature of Mac OS 9 instead, which lets you "log in" to the entire Mac to find your own desktop pattern, menu items, Internet Explorer bookmarks—and Entourage identity.



If you've already set up Multiple Users on your Mac (by using the Multiple Users control panel), you don't have to do anything else to keep your data secure. Entourage stores its information in your Documents folder (in your main hard drive window), which Mac OS 9 lets only you see.

If, on the other hand, you've already set up a couple of identities in Entourage *before* turning on the more secure Multiple Users feature, more work is involved. Each identity that you've created is represented by its own folder in Documents→Microsoft User Data→Office 2001 Identities.

To straighten out your folder setup, turn on Multiple Users, and then create proper Multiple User accounts (for Chris and Robin, let's say). Now, move the Chris and Robin folders inside Documents→Microsoft User Data→Office 2001 Identities into the corresponding Chris and Robin private Documents folders (which are in the Users folder in your main hard drive window).

At last, each individual can log into Multiple Users to use Entourage; each will see only his own email, calendar, and so on.

2. Click Yes or Switch.

   The Identity Management window opens (Figure 11-5). In this window, you can create, rename, or delete a selected identity (or quit Entourage). (Be careful before you delete an identity; once done, you can't retrieve any of its information.) ip: If you turn on "Show this list at startup," Entourage will offer a tidy list of identities each time you start up the program, making it easy to specify which identity you want. (If you leave this box off, you can always switch identities using the File→Switch Identities command.)

3. Click New.

   The smallish New Identity window pops up.

4. Type a name for your new identity.

   Using the pop-up menus, you can also specify that you want the new identity to inherit the settings of one of the other identities—a useful feature if you want to create several accounts based on the customized settings of one account.

5. Click OK.

   You return to the main Entourage screen, with your new identity in place. If you chose "Entourage Defaults" in step 4 (that is, you didn't simply adapt the settings from another identity), the Entourage Setup Assistant appears to help you.

Finding Information

After a short time—shorter than you might think—you'll collect a lot of email messages, contacts, and other Entourage items. Trying to find a particular morsel of information just by browsing becomes impractical. ("I remember reading something about a good deal on Mac memory in some mailing-list posting just last week. Now where the heck did I file it?...")

You can *filter* messages, notes, tasks, and addresses easily enough (that is, hide all but a certain group) by typing into the little box above the message, task, notes, or address list; for example, you might configure the companion pop-up menus to say, for example, "Subject" and "Contains," and then type *humor* into the box. But when the needle still eludes you in your rummage through the Entourage haystack, you can use Entourage's slower, more powerful search.

The Find Window

To do a basic search, choose Edit→Find (⌘-F), which brings up the Find window (Figure 11-6) (or you can click the Find button in the upper-right corner of the main window). Although the basic Find window is small, it offers a wealth of search features. For example:

- In the Find box, type the word or phrase that you're searching for.
- Click "Current item" to search for the specified phrase within the currently selected item (such as a message or note).

- Use the pop-up menu to search for the phrase within just one of the many facets of Entourage: Messages (your email), Contacts (your addresses), Calendar Events, Tasks, or Notes. If you can't even remember which of these features contains the elusive message, you can choose All Items—but be prepared to rent a video during the time Entourage will take to search its entire multimegabyte database.
- If you turn on "Search subjects, titles, and names only," Entourage restricts its search to just those things. This *greatly* speeds up the search; instead of having to "read" every word of every message, address, and set of driving directions, for example, Entourage can just skim their titles.
- Click More Options to open the Advanced Find window, described next.

After specifying how and where you want to search, click Find or press Return. Entourage begins its quest.

Once the search is wrapped up, the results appear in a Search Results window. It looks very much like an email folder window, with a list view on the top and a preview pane below, plus a standard Entourage toolbar along the top of the window.

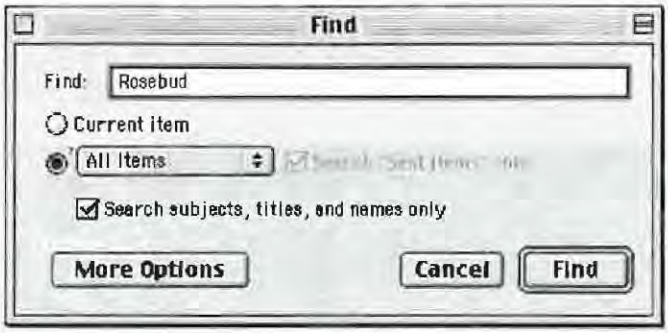


Figure 11-6:
The basic find function in Entourage is a simple window with a single text field and a couple of controls to help you narrow down your search a bit. Use this when you're searching for a single item that you're pretty sure is in a specific message or location.

Advanced Find

Suppose you want to search for a message containing the term "Rosebud" from your friend c_kane@xanadu.com—a message that came with an attached file. Performing such a pinpoint, multiple-criteria search would be impossible using the Find methods described so far.

The Advanced Find dialog box, on the other hand, lets you build complex searches like this one with just a few pop-up menus.

To use Advanced Find, choose Edit→Advanced Find (or click More Options in the Find window). As shown in Figure 11-7, the resulting mega-Find dialog box is divided into three sections:

- **Item Types.** Using the checkboxes in this section, you can select any combination of Messages, Contacts, Calendar Events, Tasks, or Notes to search; if you're willing to wait for a lengthy search, you can click All Items to check them all.

- **Location.** This section lets you confine the search to the email folder listed in the "Only in this folder:" pop-up menu—a great time saver. If you also turn on "Search subfolders," Entourage also searches through the folders *within* the selected folder, if any.

- **Criteria.** This is the heart of the Advanced Find function's power. In it, you specify exactly what you are—or are not—looking for. Using the pop-up menu, you can choose any of 24 different characteristics for the email message or other Entourage tidbit you're looking for—who it's from, whether or not there was an attachment, whether or not it's junk mail, its category or status, and so on.

  Once you've selected a criterion, you can use the second pop-up menu to tell Entourage what it is about that criterion that you're looking for—such as a subject that does not end with "izza." (Figure 11-7 shows an example.)

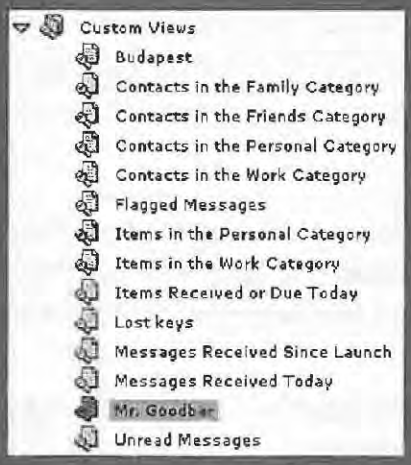
  As though these controls don't let you be specific enough, you can actually pile on additional criteria by clicking the Add Criterion button. Each time you do so, you get a new row in the dialog box. That's how you would build, for example, the kind of search shown in Figure 11-7. If you're into logic puzzles, you can also use the Match pop-up menu to indicate whether you want to see search results that match any of your criteria, all criteria, or *none* of the criteria.

POWER USERS' CLINIC

Custom Views

After you've performed a search, your search results appear in a Search Results window. If it's a search that you perform regularly, you may want to save the search results window as a Custom View, in effect saving the search itself. For example, you might set up a Custom View that rounds up only the messages that are less than a week old, from your boss, with a subject line pertaining to your current project.

To save a Custom View, perform a search and then choose File→Save As Custom View (or click the Save As Custom View button in the search results window toolbar). This brings up a window that looks like the Advanced Find window, except that it has room for you to name your search. Give it a name and click the OK button. Your search now appears with its own icon in the Custom Views portion of the Folder list, as shown here.



This folder is already populated with 11 saved Custom Views that contain canned searches–for contacts in certain categories, for messages received today, and so on. To perform one of the searches described by the custom view, just click its name; Entourage automatically shows the matching messages shown in the message list, and temporarily hides all others.

If you no longer want a custom view, click its name and then click the Delete button, or choose Edit→Delete Custom View (⌘→delete).

Note: Choose your pop-up menu settings *before* typing text into the text box. If you enter text in one of the Criteria fields and *then* select a different criterion in that field's pop-up menu, Entourage erases the text in the field.

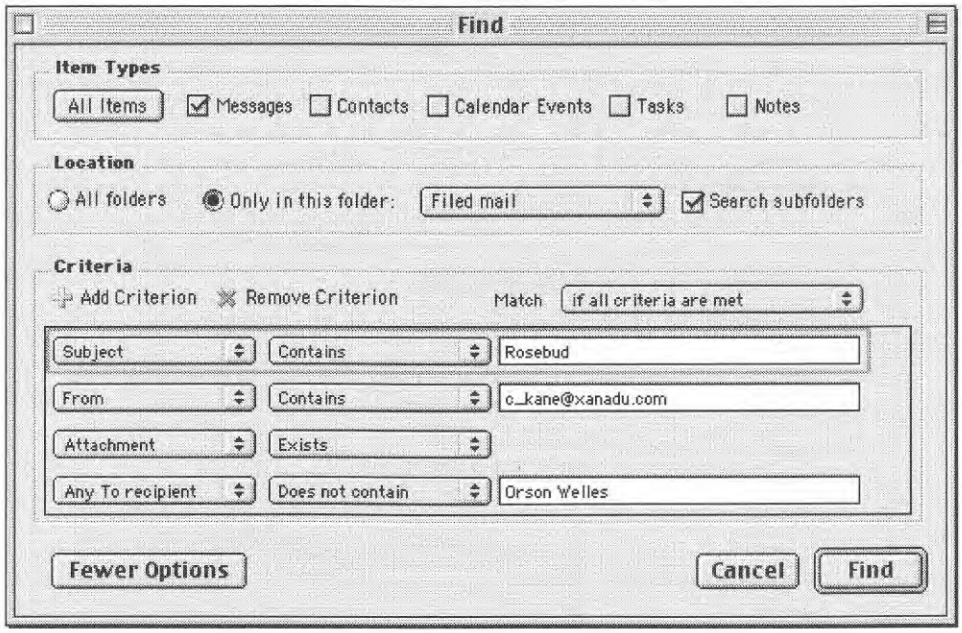


Figure 11-7: *If you happen to be looking for messages with the subject of Rosebud sent from c_kane@xanadu.com, but you only want the ones with attachments that* weren't *sent to that busybody Orson Welles, then Entourage's Find window can handle what you want.*

Find Related

Entourage has one other way of searching for items—the Find Related command. It lets you find all email messages to or from an individual person in one fell swoop—a handy technique when there are hundreds or thousands of messages in your message list, and you're trying to find the messages that constituted a particular correspondence.

To use this feature, open your address book. Click the name of a person listed, and then choose Edit→Find Related. Entourage searches for any messages sent to or received from that person. The results appear in a Search Results window, which you can save as a custom view, if you like.

Links

Entourage lets you weave your own web of connections between Entourage items, courtesy of the Link command. This feature lets you set up connections between the various kinds of data that Entourage stores—someone in your address book to a specific calendar event and to all of the messages sent to and from that person *regarding* that calendar event, for example.

Once you've set up such a link, you can use it to quickly open the event to which it's linked. When you've linked an item, a small link icon appears in the item's listing in Entourage's main window. To open a link, click the link icon and select the linked item that you want to open from the menu that pops up (see Figure 11-8).

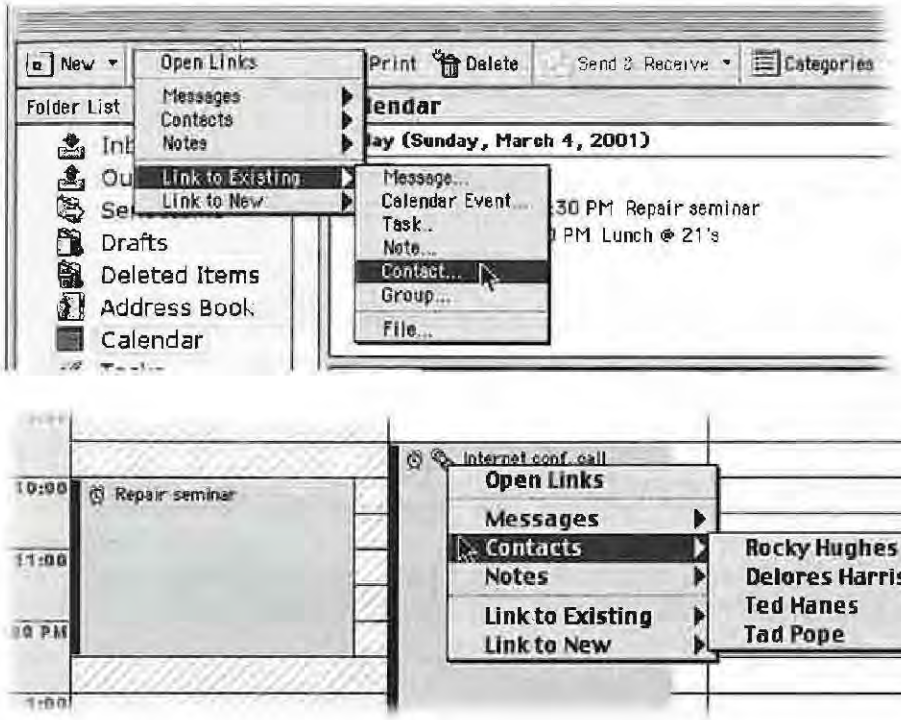


Figure 11-8:
Top: To create a link, choose from the Links pop-up button on the toolbar. Bottom: After you've created a link, you can use the chain-link icon like a menu. The submenus list the different categories of link items you may have set up. In this example, you can jump directly from this calendar appointment to any of the four people who'll be coming to the meeting.

You create a link like this:

1. **Highlight the item that you want to create a link for.**

   For example, click the name of an email message, click an item on your calendar, or highlight the name of one of your to-do items.

2. **To create a connection with a piece of information that's already in Entourage, choose from the Tools→Link to Existing submenu. When the Link Maker window opens, find the Entourage tidbit you want link to, and *drag its name* directly on top of the Link Maker window, as shown in Figure 11-9.**

   You may first have to click one of the other icons in the Folder list, such as the Calendar or Notes icon—whatever's necessary to reveal the appropriate list. (You can also Control-click any Entourage item's name to produce the Link to Existing submenu at your cursor tip.)

Tip: You can even drag *files from your hard drive* into the Link Maker window, directly off the desktop (if you can see it). In effect, Entourage is giving you the option to set up any calendar item, address book entry, or email message, for example, as a launching bay for the appropriate documents on your Mac.

If you want to link your original item to more than one other bit of information, that's fine; you can drag them, too, into the Link Maker window. Then, when you're ready, click the Create Links button. Entourage automatically creates the ties that bind.

Tip: If you change your mind in middle of creating a link, you can get rid of a blank you've created in the Link Maker by highlighting it and then clicking the Clear Items button in the lower-left corner.

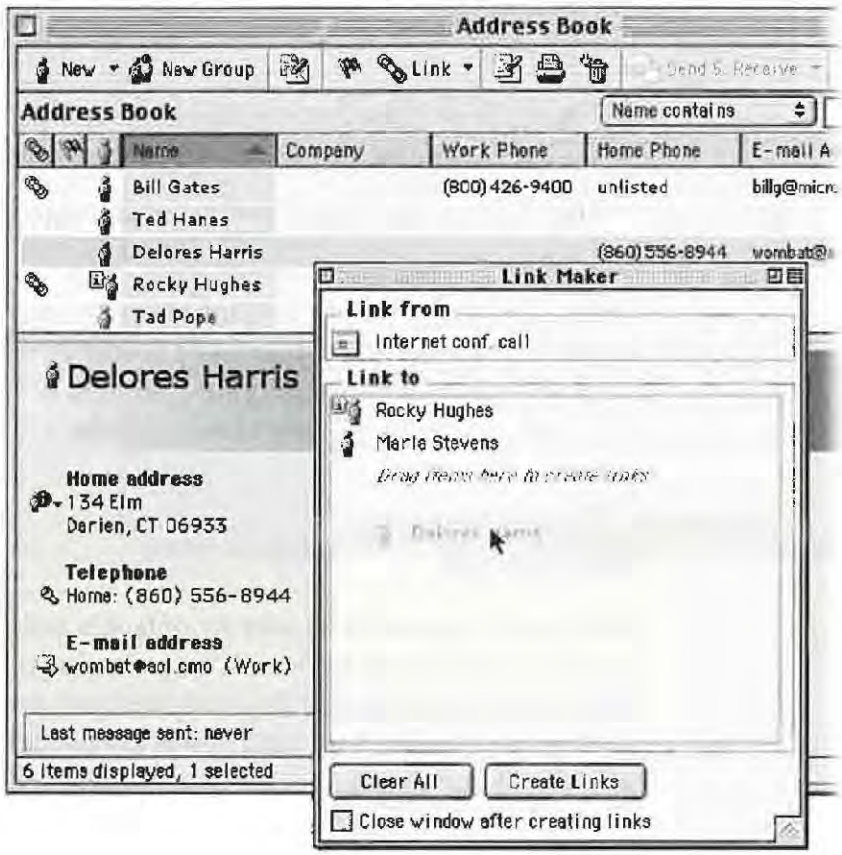


Figure 11-9: *The top of the window–the* Link from *section–displays the item that was selected when you began the procedure. The bottom portion of the window–the* Link to *section–is where you drag other items, such as messages, contacts, or notes, to create links.*

3. **If, instead, you want to link to an empty, brand-new Mail Message, News Message, Calendar Event, Task, Note, Contact, or Group, choose from the Tools→Link to New submenu.**

   (Here again, you can also Control-click any Entourage item's name to produce the Link to New submenu at your cursor tip.)

   Entourage creates the corresponding tidbit (email message, calendar event, or whatever) right away and lets you fill in the details on the fly. It forges the link when you save the new item. For example, if you link somebody's address-book card to a new mail message, Entourage creates a new mail message for you to address and fill out.

4. **Click the Create Links button in the Link Maker dialog box.**

   The dialog box disappears; your link is ready to use.

Using Links

Once you've created links to a particular Entourage information bit, a tiny chain-link icon appears next to its name. At this point, you can view a pop-up list of its links; by choosing one of them, you instantly open the Link item.

To view this pop-up list of links, use one of these techniques:

- Click the chain-link icon that appears next to its name (see Figure 11-8); use it as a menu.
- Highlight an item that displays the chain-link icon, and then use the Link pop-up button on the Entourage toolbar as a menu.
- Highlight an icon that shows the chain-link icon and then choose Tools→Open Links.

This last technique opens the Links window, which lets you go beyond simply opening link items—it lets you actually manage the links. Its toolbar buttons—Open, Remove Link, Link to Existing Item, or Link to New Item—let you open the item to which the link leads, remove a link, or create a link to a new or existing item, respectively.

Categories

Entourage comes with its own set of labels, called Categories, that you can apply to just about any Entourage item. Categories let you apply an organizational scheme to a group of items that may not have much in common. For example, you can define a category related to a trip that you're taking, or to a certain work project, and apply it to dissimilar Entourage information bits (calendar, email, and to-do items, for example). Each category has its own color, making it easy to identify these items a glance. Categories, in other words, are convenient, easy to use means of helping you sort and otherwise keep track of your Entourage information.

Setting Up Categories

Entourage comes with eight prefab categories—Family, Friends, Holiday, Junk, Personal, Recreation, Travel, and Work—but you can create new ones of your own.

To do so, choose Edit Categories from the Categories pop-up button on the toolbar, or choose File→Categories→Edit Categories. Either way, you now face the Edit Categories window (Figure 11-10). To create a new category, click New and type the name you want. Entourage assigns a color to your new category; if you'd prefer something more (or less) vibrant, choose any of the thirteen listed colors from the pop-up menu, or choose Other from that pop-up menu to mix your own color.

You can also delete a category—click its name and then click Delete.

Tip: The Categories window has one other nifty feature: the Find Items in Category button. Select a category for which you'd like to search for items, and then click this button. Entourage shows you a tidy listing all of the items in your Entourage world–messages, tasks, and so on–that have been assigned to that category.

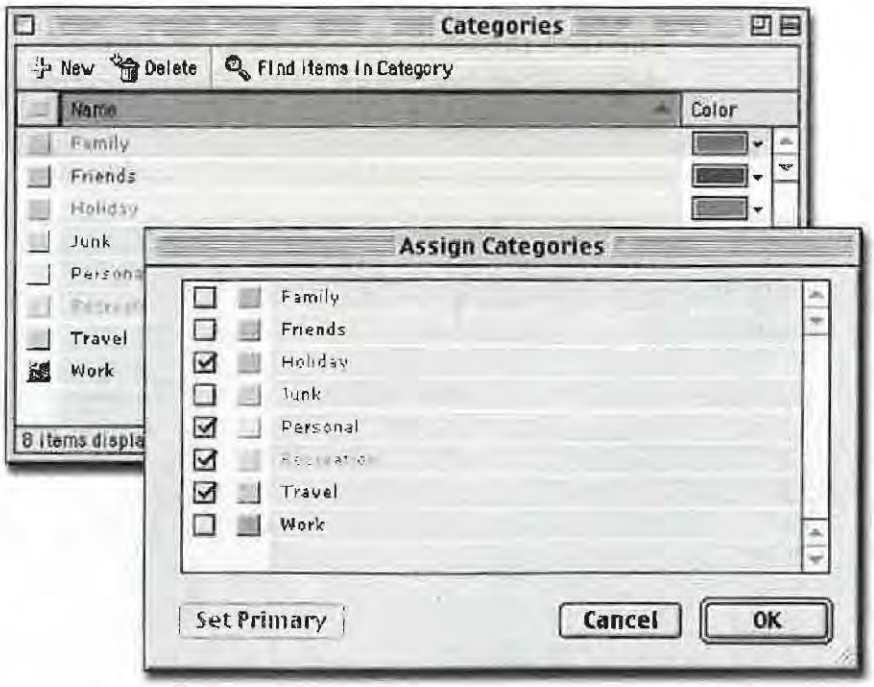


Figure 11-10: *Top: Entourage lets you create any number of your own categories, which you can then apply to Entourage items of any kind–including Folder list items. Bottom: To assign multiple categories to an item, open the Assign Categories window and then turn on the checkboxes next to the categories you want to assign. Once you've done so, click OK; Entourage assigns all checked categories to the selected items.*

Assigning a Category

To apply a category to an Entourage item—it can be an email message, calendar event, task, note, news message, contact, or even an item in the Folder list—highlight it. (You can highlight a lot of them at once, if that's what you want to do.) Use the Categories pop-up button in the toolbar to choose a category. (You can also choose a category from the Edit→Categories submenu.) Entourage assigns the category to the selected item for you, changing its color accordingly.

Tip: The "message list" for certain kinds of Entourage Information, including email messages, tasks, notes, and the Address Book, includes a column called Categories. One of the easiest ways to apply a category to an item is to click in this column, if it's showing; a pop-up menu of your categories appears.

You can even place an individual Entourage info bit into more than one category. To do so, click the Categories button (or press ⌘-comma) to bring up the Assign Categories window (Figure 11-10), in which you can assign as many categories as you want by checking the appropriate checkboxes. (You can also choose Edit→Categories→Assign Categories.)

Checking Your Spelling

In parts of Entourage where you have lots of text (such as notes and mail messages), you can ask Entourage to check your spelling for you. While Entourage can do this on the fly by marking suspect words with a red squiggly line, it also has a more traditional spell checker at its disposal.

To use Entourage's spell checker, open the note or message that you want to check and then choose Tools→Spelling (⌘-option-L). The procedure works much as it does in Word (see Figure 11-11), and in fact relies on the same spelling dictionaries described on page 79.

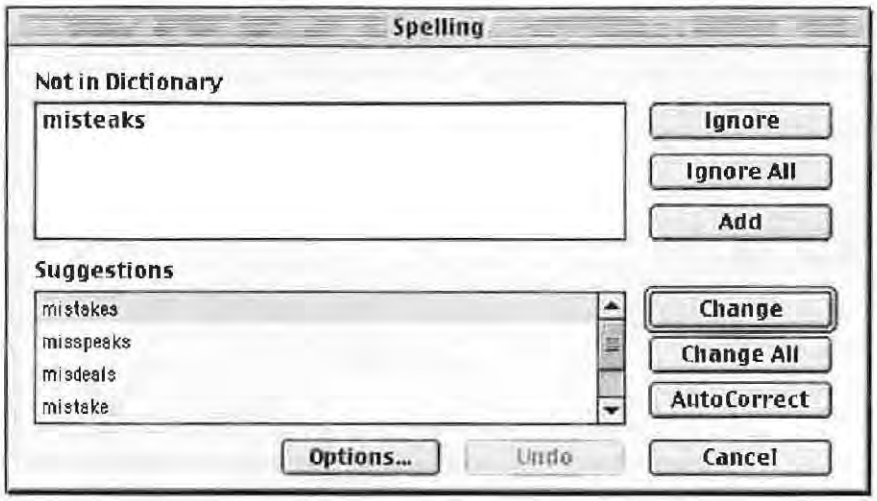


Figure 11-11: *Entourage's Spelling window flags questionable words; you click the buttons on the right to ignore, add, or correct those words. The Options button at the bottom is a direct link to the Spelling preferences, in which you can control all aspects of how spell checks are conducted.*

The Power of the Script Menu

If there were any more conspicuous badge that Microsoft has gotten Macintosh religion, it's its embrace of AppleScript, the Macintosh-only programming language that lets even advanced-beginner programmers automate the Office programs with custom features.

Like its sibling Outlook Express, Entourage has some impressive AppleScript capabilities (in fact, it's the only Office program that *doesn't* respond to Microsoft's own programming language, Visual Basic for Applications). It even has a Script menu that houses six AppleScripts. These scripts add useful features like:

- **Create Event from Message.** Highlight a message; when you choose this command, Entourage creates a new calendar event based on the message—you just have to fill in a few details. The event is automatically linked to the original message.
- **Insert Text File.** When you choose this command, Entourage shows the Choose a File dialog box, so that you can locate a text file to insert into the body of a message.

- **Save Selection.** Here's a great way to save some critical information that's been emailed to you, into its own text file on your desktop. Highlight some text, choose Script→Save Selection, and then provide a file name and location when Entourage asks for it.

The best thing about this menu, however, is that you can add your own compiled AppleScripts to it. (Of course, writing such scripts requires some familiarity with programming AppleScript.)

All you have to do is drop such scripts into the Documents→Microsoft User Data folder→Entourage Script Menu Items folder. (The scripts should be saved as compiled scripts, not as text or as double-clickable applications.)

POWER USERS' CLINIC

Adding a Command Key to Script Menu Items

If you want to add a keyboard equivalent to a script in the Entourage Script Menu Items, locate the file's icon in the Finder. (You'll find it in the Documents→Microsoft User Data folder→Entourage Script Menu Items folder.) Onto the end of its file name, just tack a backslash (\), the letter c, and then the Control-key that you'd like to use. For example, to add the command key equivalent Control-A to an archive email script, add the following text to the end of its file name: \cA. (You can't assign the ⌘ key for this purpose—only the Control key.)

The next time that you pull down the Script menu in Entourage, you'll see your key combo (represented by the ^ symbol, which designates the Control key, and the key that you chose) next to the script's name.

If you aren't an AppleScript programmer, you can still capitalize on this feature by downloading scripts that other people have written. For example:

- At *www.mattridley.com/software/applescript/applescript.html*, you'll find lots of information on using AppleScript with Entourage, along with several scripts available for download.
- You can also visit Allen Watson's iDisk at *http://homepage.mac.com/WebObjects/FileSharing.woa/wa/default?user=allenwatson&templatefn=FileSharing.html* for more Entourage AppleScripts for all Entourage modules.
- Paul Berkowitz has AppleScripts available for download at *http://homepage.mac.com/WebObjects/FileSharing.woa/wa/default?user=berkowit28&templatefn=FileSharing.html.*
- You can also find a hearty collection of Paul Berkowitz Entourage scripts at *www.applescriptcentral.com.*

Microsoft itself offers three useful add-on Entourage scripts, although they're standalone miniprograms rather than scripts you drop into Entourage's script folder. (You should probably put them into your menu for easy access.) The Web page

for these and other Office 2001 bonus software is *www.microsoft.com/mac/download/default.asp*. Here they are:

- **Copy Contact's Information** copies the name, address, phone number, and email address from an open address-book "card" to the Clipboard—you can choose which address information is copied.
- **Open Contact in Entourage** is a quick way to look up someone's Address Book entry even when Entourage isn't open.
- **Swap Work and Home Addresses** updates an open address-book card by reversing the home and work address information in their respective blanks.

3

Part Three: Excel

Chapter 12: Basic Excel

Chapter 13: Formatting and Charts

Chapter 14: Advanced Spreadsheeting

CHAPTER
12

Basic Excel

The best ad Microsoft ever ran for Excel went like this: "99% of spreadsheet users use Microsoft Excel. What are we doing wrong?" It was good because it was true; Excel is the biggest thing going when it comes to hard-core business programs.

But Microsoft still seems determined to keep finding ways to make it better, warming the hearts of accountants and statisticians the world over. Excel 2001, for example, looks and acts more like a Macintosh application than most of its predecessors. Unlike previous versions, whose windows took over your entire screen, the new Excel is a friendly application that lets the desktop peek through around the edges (see Figure 12-1), making it easy to switch between applications.

Spreadsheet Basics

Excel, of course, is a *spreadsheet*—an electronic ledger book filled with rows and columns; when you type numbers into the rectangular cells, the program can automatically perform enormous numbers of calculations on them. And although the spreadsheet's forte is working with numbers, you can use it for text, too. Because they're actually specialized databases you can also turn spreadsheets into schedules, calendars, wedding registries, address books, and other simple text databases. Excel 2001, for example, is particularly adept at using its ledger-book look for managing *lists*—of your CDs, stamp collections, and even your favorite Web sites, for example—no number crunching required.

Opening a Spreadsheet

A new Excel document, or workbook, is made up of several pages called *worksheets*. (More on the workbook/worksheet distinction in Chapter 14.) Each worksheet is composed of rectangles, known as *cells*, laid out in a grid (see Figure 12-1). The cell rows are numbered, and the cell columns are lettered for easy reference—it's a lot like the game Battleship. (In fact, with a lot of time and some sophisticated programming skills, you could even play Battleship using Excel.)

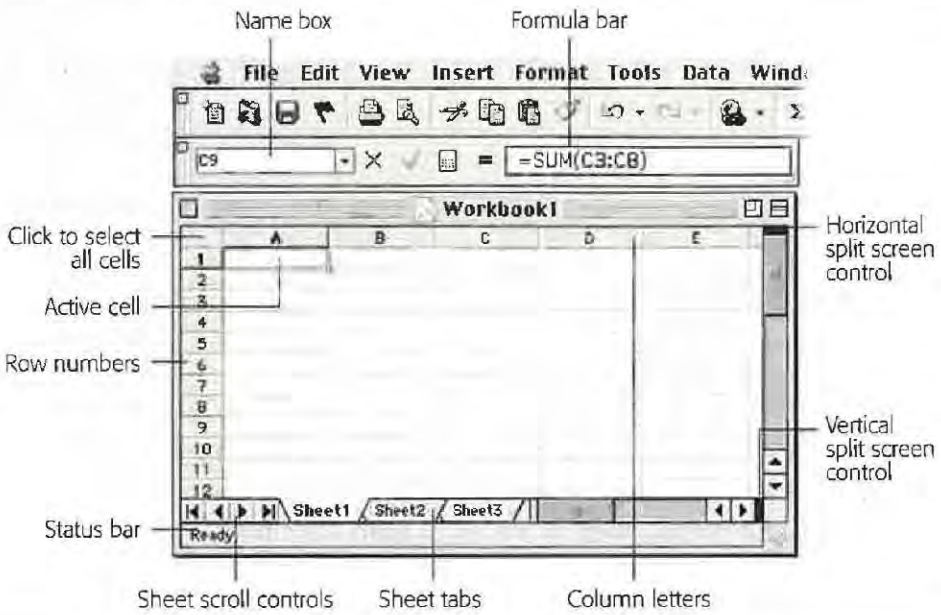


Figure 12-1: *The new Excel is a well-behaved Mac citizen. It leaves a little space around the edges instead of filling them with empty gray space or a fixed status bar. This makes switching between Mac applications (or getting to the desktop) much easier than in pervious versions. At the bottom of the main window is the status area, which gives you some information on what Excel is doing–whether it's ready to go or busy saving a document.*

You can create a plain-Jane Excel spreadsheet by selecting File→New (⌘-N), or you can use the Microsoft Office Project Gallery (File→Project Gallery, or ⌘-Shift-P). The Project Gallery lists preformatted spreadsheets, complete with formulas already inserted. If you happen to find a template that fits what you're trying to do, such as planning a budget, the Gallery can be a real time-saver. (See page 14 for more on the Project Gallery.)

Tip: You can also open an existing document by choosing from the list of recent files at the bottom of the File menu. If you'd rather Excel not keep track, you'll find the "Recently used files list" control by choosing Edit→Preferences→General tab.

Each spreadsheet is *huge*—256 columns wide (labeled A, B, C...AA, AB, AC... all the way to IV), and 65,536 rows tall (see Figure 12-2). Furthermore, an Excel document starts out with *three* sheets, or pages, all "stapled" together; you switch from one to another using the tabs at the bottom of the window. You can add up to 252 more sheets to a document, too, if you need them, by choosing Insert→Worksheet. (This command inserts a new worksheet *before* the currently active worksheet.)

In total, you can have up to 4.3 billion cells in a single Excel document; the only company that needs more space than *that* for its accounting is Microsoft.

Tip: You can rename a workbook sheet by double-clicking the sheet's name (it's on the tab on the bottom) and typing in a new one. Sheet names can be as long as 31 characters.

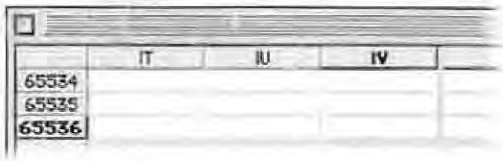


Figure 12-2:
You can't scroll all the way to cell IV65536 in a new spreadsheet; but as you fill in cells at the outer edges of what you can see, Excel automatically tacks on new chunks of empty rows and columns.

Each cell acts as a container for one of two things: data or a formula. *Data* can be text, a number, a date, or just about anything else you can type. A *formula*, on the other hand, does something with the data in *other* cells—such as adding together the numbers in them. More on formulas later in this chapter.

Excel refers to cells by their coordinates, such as B23 (column B, row 23). A new spreadsheet has cell A1 selected (surrounded by a colored border)—it's the *active* cell. When you start typing, whatever you type appears in both the active cell and the Formula bar (see Figure 12-1). When you finish typing, you can do any of these things to make the active cell's new contents stick:

- Press Return, Tab, Enter, or an arrow key
- Click another cell
- Click the Enter button in the Formula bar

Tip: You don't have to do your typing into the Formula bar, as in early versions of Excel. If you *double-click* a cell, you can type directly into it—a shortcut that's especially convenient when you need to change (or even apply text formatting to) only part of the text that's there. Once you're in a cell, the arrow keys only move the cursor within the text in the cell instead of highlighting neighboring cells.

If you keep landing in this "in-cell editing" mode accidentally, choose Edit→Preferences→Edit tab, turn off "Edit directly in cell," and click OK. Now you can edit cell contents only in the Formula bar at the top of the window.

Data Entry

Working in an Excel sheet is simple, at its heart: You enter data or a formula into a cell, move to the next cell, enter more data, and so on. Clearly, moving around a sheet quickly and efficiently becomes a valuable skill.

There are lots of ways to go to a specific cell. You can scroll through the sheet and click the cell, move from one cell to the next by using the arrow keys on your keyboard, enter the cell's address (the column letter followed by the row number) in the

Name Box (see Figure 12-1), or choose Edit→Go To, which brings up a window in which you can enter the address of the lucky cell.

But keystrokes are almost always the fastest route from cell to cell; fortunately, Excel is loaded with keyboard shortcuts that make it easy to plow through an entire sheet's worth of cells without having to touch the mouse. Here are the navigation keystrokes that make data input easier:

Keypress	What Happens
Arrow key	Highlights a different cell—the next one above, below, to the left, or to the right of the current one.
Shift-arrow key	Selects the current cell *and* the one above, below, to the right, or to the left.
Option-left arrow, -right arrow	Makes previous or next *sheet* in the workbook active.
Control-arrow key	Highlights the next nonempty cell in the direction indicated by the arrow key.
Return	Accepts the entry and moves the active cell down one row.
Shift + Return	Accepts the entry and moves the active cell up one row.
Tab	Accepts the entry and moves the active cell right one column.
Shift-Tab	Accepts the entry and moves the active cell left one column.
Control-Option-Return	Starts a new line within the same cell.
Control-Return	Fills each selected cell with the same entry. (First select the cell range, type the data that you want repeated in each cell, and then press Control-Return to fill all of the cells.)
Escape	Cancels an entry.
Control-D	Fills the active cell with the contents of the cell directly above it.
Control-R	Fills the active cell with the contents of the cell directly to the left of it.
Control-` (tilde key)	Fills the active cell with the *formula* in the cell directly above it.
Control- ; (semicolon)	Enters the current date.
Control-Shift- : (colon)	Enters the current time.

Tip: Return doesn't have to highlight the next cell down; it can highlight any of the four neighboring cells, or do nothing at all. You change its function in the Edit→Preferences→Edit tab.

A quick glance at that table should confirm the bad news to Excel veterans: Yes, Microsoft changed the Excel 98 keystrokes for some of the most important editing commands. Combinations that used to involve the ⌘ key, such as ⌘+D for Fill Down and ⌘+I for Insert Cells, now require the Control key instead. Alas, you can't reassign keystrokes in Excel as you can in Word. To add insult to injury, the Control-key combinations don't show up on the menu.

On the other hand, look at the change from Microsoft's point of view: Now the four Office applications offer consistent keystrokes for bold (⌘-B), italic (⌘-I), and so on. You don't have to use ⌘-B in Word and ⌘-Shift-B in Excel, as you did in previous versions.

UP TO SPEED

Window Tricks

Because spreadsheets can be wide, sprawling affairs, Excel is filled with window-manipulation tools that let you control how the program uses your precious screen real estate.

For example, when you need to see a few more rows and columns, choose View→Full Screen. Excel hides all of its toolbars, status bars, and other nonessential detritus. Your cells fill your monitor. Choose View→Full Screen again (or click Close Full Screen on the tiny, one-button toolbar) to bring back the bars.



Another example: As shown in Figure 12-1, Excel's scroll bars offer vertical and horizontal *split screen* controls, which let you scroll the top and bottom (or left and right) halves of the screen independently, as shown here. (Note the discontinuity in the lettering and numbering of rows and columns in this illustration; these panels have been independently scrolled.) To remove the split, just double-click the black split handle in the scroll bar (or choose Window→Unsplit Window).

You don't have to split the window if all you want to do is keep the row and column names in view while scrolling the rest of the document, however. Excel offers a much more streamlined means of locking the column and row labels: Just click in the cell just below and to the right of the row/column label intersection, then choose Window→Freeze Panes. Now using the horizontal or vertical scroll bars affects only the body of the spreadsheet; the row and column labels remain visible.

Kinds of Data

There are four kinds of data that you can enter into an Excel spreadsheet (not including formulas, which are described beginning on page 415): numbers, text, dates, or times. Most of the time, entering data is as straightforward as typing, but there are exceptions.

Numbers

- There are only 21 characters that Excel considers numbers—1 2 3 4 5 6 7 8 9 0 . , ( ) + - / $ % e and E. Anything else is treated as text, which is ineligible for performing most calculations. For example, if Excel sees *three point one four* in a cell, it "sees" a bunch of typed words with no numerical value; when it sees *3.14*, it sees a number.
- Depending on the formatting of the cell in which you're entering numbers, Excel might try to do some work for you. For example, if you've applied *currency formatting* to a cell (see page 446), Excel turns *3/2* into $1.50. But if you've formatted the same cell as a date, Excel turns *3/2* into a date—March 2 of the current year.
- If the number you've entered is longer than eleven digits (such as 12345678901112, Excel converts it to scientific notation (1.23457E+13).

Text

- Text can be any combination of characters—numbers, letters, or other symbols.
- If you want Excel to look at a number as if it were a string of text (rather than a number with which it can do all kinds of mathematical wizardry), format the cell as text *before* you enter the number into the cell.

Dates

- You can perform math on dates, just as though they were numbers. The trick is to type an equal sign (=) into the cell that will contain the answer; then enclose the dates in quotation marks, with a space between the date and the operator. For example, if you click a cell, type *="9/1/2000" - "3/2/1965"*, and then press Enter, Excel will fill the cell with 12967, the number of days between the two dates.

  It's worth noting that this math is made possible by the fact that, in fact, dates in Excel *are* numbers. Behind the scenes, Excel converts any date you type into a special date serial number, which is composed of a number to the left side of a decimal point (the number of days since January 1, 1904) and a number on the right (the fraction of a day).
- When entering dates, you can use either a slash or a hyphen to separate months, days, and years.

Times

- Excel also treats *times* as numbers—specifically, as the fractional part of a date serial number, which is a number representing the number of days since midnight on January 1, 1904.
- Excel bases times on the 24-hour clock, or military time. To enter a time using the 12-hour clock, follow the number with an *a* or a *p*. For example, to Excel, *9:34* always means 9:34 a.m., but *9:34 p* means 9:34 p.m. (*21:34* also means 9:34 p.m., but it appears in the spreadsheet the way you typed it—as 21:34.)

- As with dates, you can perform calculations on times by entering an equal sign and then enclosing the times in quotation marks with a space between the times and the operator. For example, ="*9:34*" - "*2:43*" gives you 0.285416667, the decimal fraction of a day between 2:43 a.m. and 9:34 a.m. (If you format the cell with time formatting, as described on page 446, you instead get 6:51, or six hours and 51 minutes' difference.)

Note: If you enter what looks like a date to Excel (say, *May 3, 1999*), and then later, in the process of revising your spreadsheet, enter a number containing a decimal (such as 23.25), Excel converts your decimal into a date and time (23.25 becomes 6:00 a.m. on January 24, 1904).

What's happened? When Excel interpreted the first entry as a date, it applied *date formatting* to the cell. When you go back and enter a decimal number, Excel interprets it as a date *serial number*, which the program happily converts to a date and time format. Reapplying number formatting doesn't get you out of the mess; for example, if you try to apply number formatting to *22-Sep*, you get 35694—a far cry from the original fraction 9/22.

To stop this annoying behavior, give your cells a format *before* you enter data in them—that way, Excel won't try to guess at what you mean. Or, to keep Excel from turning two numbers separated by a slash as a date—keeping it as a fraction instead—put a 0 in front of the fraction (enter *0 1/4*). Excel now understands that you intended to enter a fraction.

Tedium Savings 1: AutoComplete

Excel 2001 is teeming—or at the very least, sprinkled—with features designed to save you typing. The first, new in Excel 2001, is *AutoComplete*, which is described and illustrated in Figure 12-3.

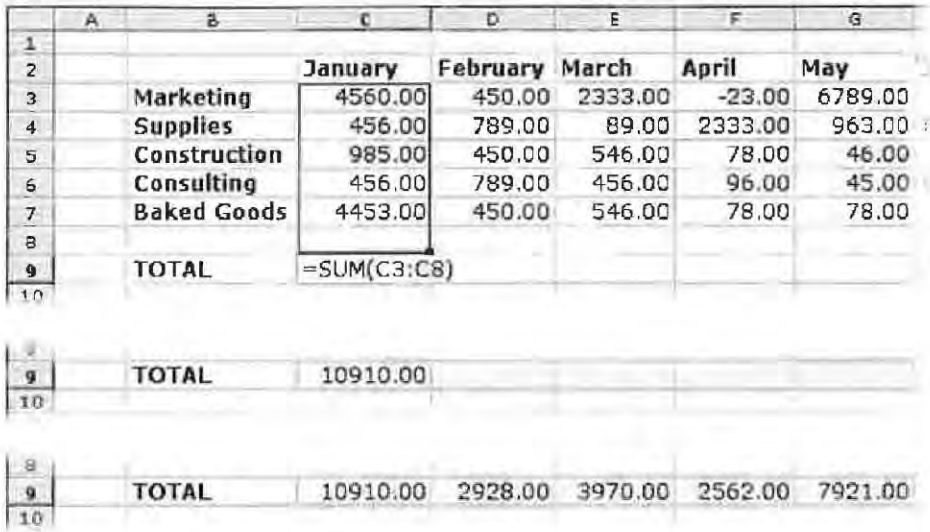


Figure 12-3:
Excel's AutoComplete function looks at the first few characters that you type in a given cell; if they match the contents of another cell in the same column, Excel offers a pop-up menu of those possibilities. To select one, press the down arrow until the entry you want is highlighted, and then press Enter. Alternatively, just click the entry in the list. Either way, Excel finishes the typing work for you.

Tedium Savings 2: The Fill Command

Excel's Fill command is another tool that can save you hours of tedious typing, thanks to its ingenious ability to fill up miles of cells with data automatically. The Edit→Fill submenu is especially useful when you're duplicating data or typing in items in a series (such as days of the week, months of the year, or even sequential apartment numbers). It has seven options: Down, Right, Up, Left, Across Worksheets, Series, and Justify.

Here's how they work (see Figure 12-4 for an example). In each case, suppose you've started the process by typing a number or formula into a cell, and then highlighted a block of cells that begins with that cell (see page 407 for guidance on highlighting cells):



	A	B	C	D	E	F	G
1							
2			January	February	March	April	May
3		Marketing	4560.00	450.00	2333.00	-23.00	6789.00
4		Supplies	456.00	789.00	89.00	2333.00	963.00
5		Construction	985.00	450.00	546.00	78.00	46.00
6		Consulting	456.00	789.00	456.00	96.00	45.00
7		Baked Goods	4453.00	450.00	546.00	78.00	78.00
8							
9		TOTAL	=SUM(C3:C8)				
10							

9	TOTAL	10910.00	
10			

9	TOTAL	10910.00	2928.00	3970.00	2562.00	7921.00
10						

Figure 12-4: *Excel can quickly fill a range of cells with numbers and text, but filling a range of cells with formulas is where the Fill function really shines. Suppose you've set up a formula in cell C9 (top), which adds the contents of column C. Select cells C9 through G9 (center) and then choose Edit→Fill→Right. Excel fills cells C9 through G9 with the same Sum formula (bottom), which totals the columns above them.*

- **Down, Up.** Fills the selected block of cells with whatever's in the top or bottom cell of the selected block. You might use this function when setting up a series of formulas in a column that add a row of cells.
- **Right, Left.** Fills the selected range of cells with whatever's in the leftmost or rightmost cell. For example, you'd use this feature when you need to put the same Total calculation at the bottom of 23 different columns. Figure 12-4 shows a common example.
- **Across Worksheets.** Fills the cells in other sheets in the same workbook with the contents of the selected cells. For example, suppose you want to set up worksheets that track inventory and pricing over different months in different locations, and you want to use a different worksheet for each location. You can fill in all of the general column and row headings (such as part numbers and months) across worksheets with this function.

  To make this work, start by selecting two or more sheets in a workbook by ⌘-Shift-clicking the sheet tabs at the bottom of the window. Then choose Edit→ .

Fill→Across Worksheet. A small window (see Figure 12-5) asks you what you want to copy across the selected worksheets. Click the radio button next to the choice you want, and then click OK.

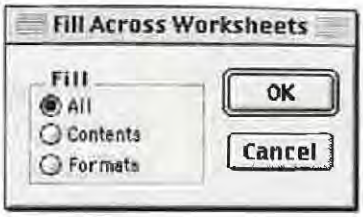


Figure 12-5:
*You can copy, into other worksheets: **All** (both the formulas and data), **Contents** (just the data in the worksheet), or **Formats** (just the formulas in the worksheet).*

- **Series.** Fills the selected cells with a *series* of increasing or decreasing values based on the contents of the topmost cell (if the selected cells are in a column) or the leftmost cell (if the cells are in a row).

  For example, suppose you're about to type in the daily statistics for the number of dot-com startups that went out of business during the first two weeks of 2001. Instead of having to type fourteen dates into a row of cells, you can let Excel do the gruntwork for you.

  Enter *1/1/2001* in a cell. Then highlight that cell and the next thirteen cells to its right. Now choose Edit→Fill→Series. The Series window appears, in which you specify how the fill takes place; you could make the cell labels go up by months or years, or every other day, or whatever; but in this case, the settings already reflect what you want. Click OK; Excel fills the cells with the date series 1/1/2001, 1/2/2001, 1/3/2001, and so on.

Tip: That example reflects the way Americans write dates, of course; if you're European, and you've used the Mac's Numbers control panel to specify that you like January 14, 2001 written *14/1/2001*, Excel automatically formats dates the way you like them. (Non-U.S. Excel fans may find other glitches in Excel 2001's handling of date calculations, however.)

The other options in this dialog box include Linear (adds the same amount to each successive cell's number), Growth (*multiplies* by the same number), and AutoFill (relies upon the lists described in the next section).

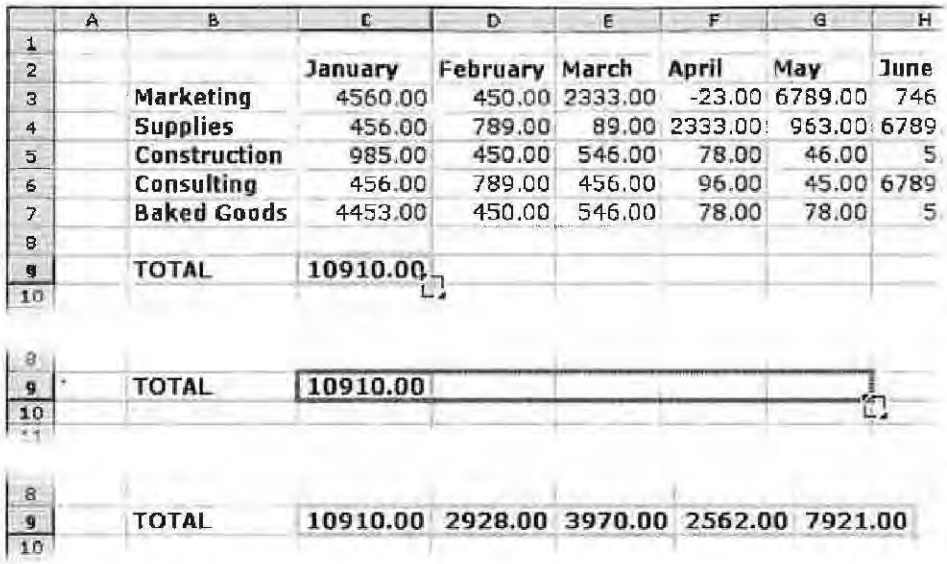
- **Justify.** Spreads the text in a single cell across several cells. You'd use this function to create a heading that spans the columns beneath it.

  If the cells are in a row, this command spreads the text in the leftmost cell across the selected row of cells. If the cells are in a column, it breaks up the text, so that one word goes into each cell.

Using the AutoFill handle

You don't have to use the Edit→Fill command to harness the power of Excel's AutoFill feature. As a time-saving gesture, Microsoft also offers you the fill handle (see Figure 12-6), a small square in the lower-right of a selection rectangle. It lets you fill adjacent squares with data that you've already entered, exactly like the Fill command—but without a trip to a menu and a dialog box.

To use it, select the cells that contain the data that you want to duplicate or extend, then drag the tiny fill handle across the cells where you want the data to be, as shown in Figures 12-6. Excel then fill the cells with the data in the selected cells, just as though you'd used the Fill command.



	A	B	C	D	E	F	G	H
1								
2			January	February	March	April	May	June
3		Marketing	4560.00	450.00	2333.00	-23.00	6789.00	746
4		Supplies	456.00	789.00	89.00	2333.00	963.00	6789
5		Construction	985.00	450.00	546.00	78.00	46.00	5
6		Consulting	456.00	789.00	456.00	96.00	45.00	6789
7		Baked Goods	4453.00	450.00	546.00	78.00	78.00	5
8								
9		TOTAL	10910.00					
10								

8								
9		TOTAL	10910.00					
10								

8								
9		TOTAL	10910.00	2928.00	3970.00	2562.00	7921.00	
10								

Figure 12-6: *The fill handle provides a smarter alternative to the Edit→Fill command. To use it, select the cell containing the formula or values you want to replicate (top). Drag the tiny fill handle at the lower right corner of the selection across the cells you want to fill (middle). Excel duplicates the formula intelligently so that it totals the columns appropriately (bottom).*

FREQUENTLY ASKED QUESTION

Invasion of the ######s

A few of my numbers have been replaced by ##### symbols. Do I have a virus?

A string of number signs in a cell means, "The cell isn't wide enough to show whatever text or number is supposed to be here. Widen the column—or use a smaller font—if you ever hope to see your numbers again."

As noted later in this chapter, the quickest way to fix the problem is to double-click the *divider line* between the gray column-letter headings—the one to the right of the column containing the ######s. Excel instantly makes the column wide enough to show all the numbers inside it.

That's not the only error notation you may see in a cell, by the way. Excel may also react to faulty formulas by showing, for example, *#DIV/0!* (you or your formula is attempting to divide a number by zero, which is a mathematical no-no); *#VALUE!* (you've used unavailable data in a formula, by referring, for example, to an empty cell); *#REF* (a bogus cell reference); and so on. For a complete table of these error codes, choose Help→Microsoft Excel Help, click Search, and search for *error values*.

Tip: Excel can perform some dramatic and complex fill operations for you if you highlight *more than one* cell before dragging the fill handle.

Suppose, for example, that you want to create a list of *every third* house on your street. Enter *201 Elm St.* in the first cell, then *204 Elm St.* in the next one down. Highlight them both. Then drag the fill handle at the lower-right corner of the second cell downward.

Excel cleverly fills the previously empty cells with *207 Elm St., 210 Elm St., 213 Elm St.*, and so on.

What's more, the fill handle offers a brilliant feature that the Edit→Fill command lacks: Excel's *AutoFill* feature. If you type *January* into a cell and then drag the fill handle across the next cells, Excel fills them with February, March, and so on; ditto for days of the week.

In fact, you can teach Excel about any other sequential lists you use regularly in your line of work (New York Office, Cleveland Office, San Diego, and so on). Just choose Edit→Preferences→Custom Lists tab; click Add and then type out the entries you'll want in the order you'll want them, each on its own line. Click OK; the AutoFill list is ready to use.

Selecting Cells (and Cell Ranges)

Selecting a single cell in Excel is easy; just click the cell to select it. Often, though, you'll want to select more than one cell—in readiness for copying and pasting, making a chart, applying bold, or using the Fill command, for example. Figure 12-7 shows you all you need to know for your selection needs.

- **Select a single cell.** To select a single cell, click it, or enter its address in the Name Box (which is shown in Figure 12-1).
- **Select a block of cells.** To select a rectangle of cells, just drag diagonally across them. You highlight all the cells within the boundaries of the imaginary rectangle you outline in this way.
- **Select a noncontiguous group of cells.** To select cells that aren't touching or in a block, ⌘-click (to add individual independent cells to the selection) or ⌘-drag across cells (to add a block of them to the selection). Repeat as many times as you like; Excel is perfectly happy to highlight random cells, or blocks of cells, in various corners of the spreadsheet simultaneously.
- **Select a row or column.** Click a gray row number or column letter.
- **Select several rows or columns.** To select more than one row or column, *drag through* the gray row numbers or column letters. (You can also click the first one, then Shift-click the last one. Excel highlights everything in between.)
- **Select noncontiguous rows or columns.** To select two or more rows or columns that aren't touching, ⌘-click, or ⌘-drag through, the corresponding gray row numbers. You can even combine these techniques, highlighting first rows, then columns, forming intersecting swaths of highlighting.

- **Select all cells.** Press ⌘-A to select every cell on the sheet—or just click the gray, unlabeled, far upper-left rectangle that represents the intersection of the row and column labels.

Tip: To select the *contents* of a cell, double-click the cell and then use the I-beam selection tool to select the text that you want.

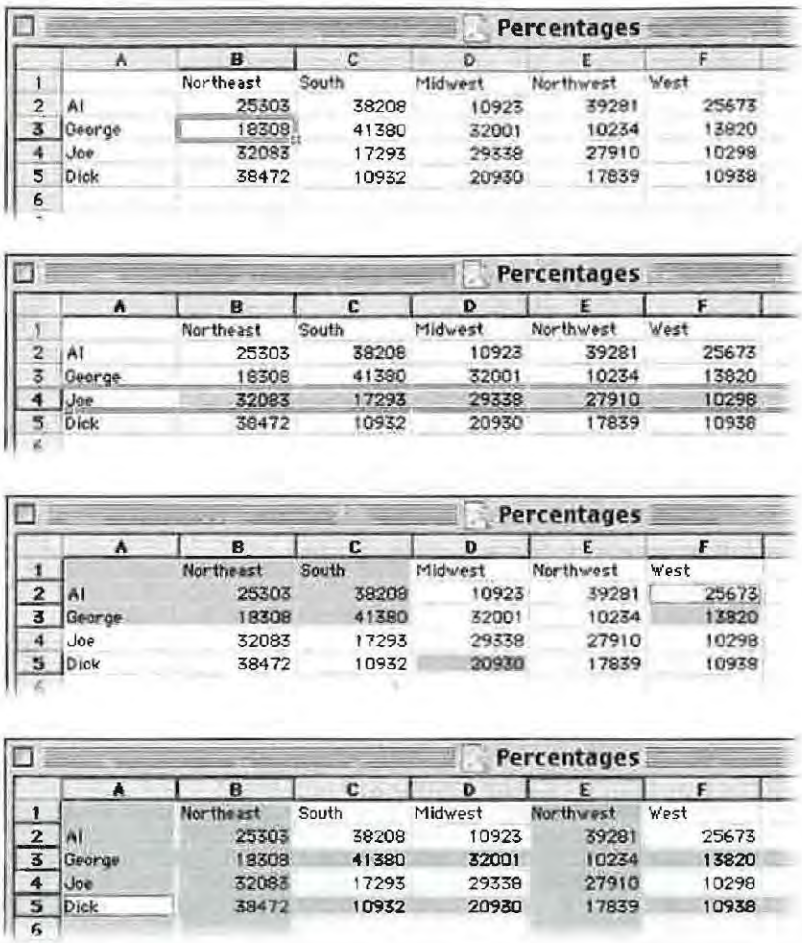


Figure 12-7:
You can highlight spreadsheet cells, rows, and columns in various combination.

Top: Click a cell (or arrow-key your way into it) to highlight just one cell.

Second from top: Click a row number (4, in this case) to highlight an entire row.

Third from top: By dragging, you can highlight a rectangular block of cells; by ⌘-clicking, you can add individual additional cells to the selection.

Bottom: If you ⌘-click row headings and column headings, you can highlight intersecting rows and columns.

Moving Things Around

Once you have selected some cells, you can move them around in various ways—a handy fact, since few people get every number in exactly the right place the first time.

Cutting, copying, and pasting

Just as in any other Mac application, you can use the Edit menu commands—Cut (⌘-X), Copy (⌘-C), and Paste (⌘-V)—to move cell contents around the spreadsheet, or to a different sheet or workbook altogether.

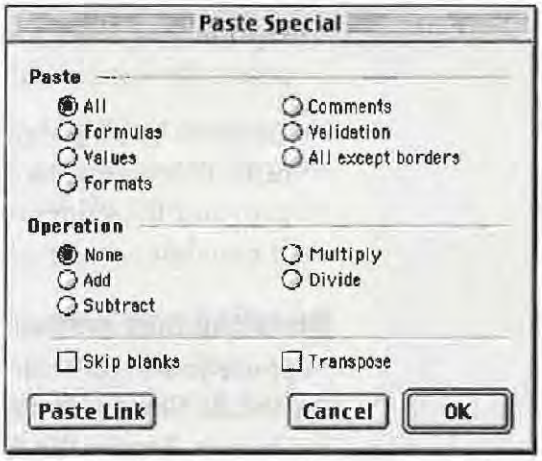
But unlike other Mac applications, Excel doesn't show you the effect of your Cut and Copy commands immediately. Instead, the selected cell or cells sprout a dotted shimmering border, but otherwise remain unaffected, even if you used the Cut command. It isn't until you select a destination cell or cells and select Edit→Paste that the cut or copy takes place (and the shimmering stops).

Paste Special

The Edit→Paste Special command summons a dialog box that interviews you about *how* and *what* to paste (Figure 12-8). For example, you may decide to paste the formulas contained in the copied material, so that they continue to do automatic math—or only the *values* (the results of the calculations).

Tip: This dialog box also contains the mighty Transpose checkbox, a tiny option that can save your bacon. It lets you swap rows-for-columns in the act of pasting, so that data you'd input in columns winds up in rows, and vice versa.

Figure 12-8:
The Paste Special command lets you paste formulas, comments, and formatting independently. The Operations options let you perform a mathematical operation as you paste, such as adding what you've copied to the contents of the cells you're pasting over.



POWER USERS' CLINIC

The Difference Between Cut and Copy

When you use the Cut command on *formulas*, you paste *relative* cell references; when you *copy* a formula, you pasted *absolute* references. Page 424 defines these concepts.

For example, if the formula in cell A1 was *=SUM(B1:B4)* when you copied it, the pasted formula in cell A10 changes to say *=SUM(B10:B15)*—the cell references have been offset nine cells down, to reflect the distance between the formula's original cell and its copy. Since you're placing a *copy* of the formula in a new place, the cells to which the formula refers should be offset by the same amount—which is handy for filling in a spreadsheet that has lots of similar formulas in different locations.

To avoid this shift in pasted formulas, you can make the cell references *absolute* by putting a $ sign in front of each cell address that you don't want to change, as described on page 424. In the above example, if you always want the SUM function to refer to cells B1 through B4, even after it's been copied and pasted, change the formula to read *=SUM($B$1:$B$4)*. Now *everything* will stay in place.

Drag-and-drop

Excel also lets you grab a selected range of cells, dragging the contents to a new location. To do this, select the cells you want to move, then point to the thick border on the edge of the selection; when you click the right spot, the cursor changes into a little hand that grabs the cells. You can now drag the selected cells to another spot on the spreadsheet. When you release the mouse button, Excel moves the data to the new location, exactly as though you'd used Cut and Paste.

There are a few keys that, if held down, modify how drag-and-dropping items in Excel works:

- **Option.** If you hold down the Option key, Excel *copies* the contents to the new location, leaving the originals in place.
- **Shift.** Normally, if you drag cells into a spreadsheet area that you've already filled in, Excel asks you if you're sure you want to wipe out the cell contents that were already there. If you Shift-drag cells, however, Excel creates enough new cells to make room for the dragged contents, shoving aside (or down) whatever cell contents were already there to make room.
- **Option and Shift.** Holding down both the Option *and* Shift keys as you drag, copies the data *and* inserts new cells for it.
- **Control.** Control-dragging yields a menu of eleven options when you drop the cells. This menu lets you choose whether you want to move the cells, copy them, copy just the values or formulas, create a link or hyperlink, or shift cells around. It even lets you cancel the drag.

Inserting and Removing Cells

Suppose you've just completed your spreadsheet cataloging the rainfall patterns of the Pacific Northwest, county by county, and then it hits you: You forgot Coos County in Oregon. Besides the question of how you could possibly forget Coos County, the larger question remains: What do you do about it in your spreadsheet? Delete the whole thing and start over?

Fortunately, Excel lets you insert new, blank cells, rows, or columns into existing sheets through the Insert menu. Here's how each works.

- **Cells.** The Insert→Cells command summons the Insert dialog box. It lets you insert new, blank cells into your spreadsheet, and lets you specify what happens to the cells that are already in place—whether they get shifted right or down. See Figure 12-9.

Tip: Longtime Excel fans should note that the keystroke for Insert Cells is now Control-I, not ⌘-I.

- **Rows.** If you choose Insert→Rows, Excel inserts a new, blank row above the active cell.

Tip: If you selected some cells before using the Insert→Cells command, Excel inserts the number of rows equal to the number of rows selected in the range. That's a handy way to control how many rows get added; to add six blank rows, highlight six rows, regardless of what's in them at the moment.

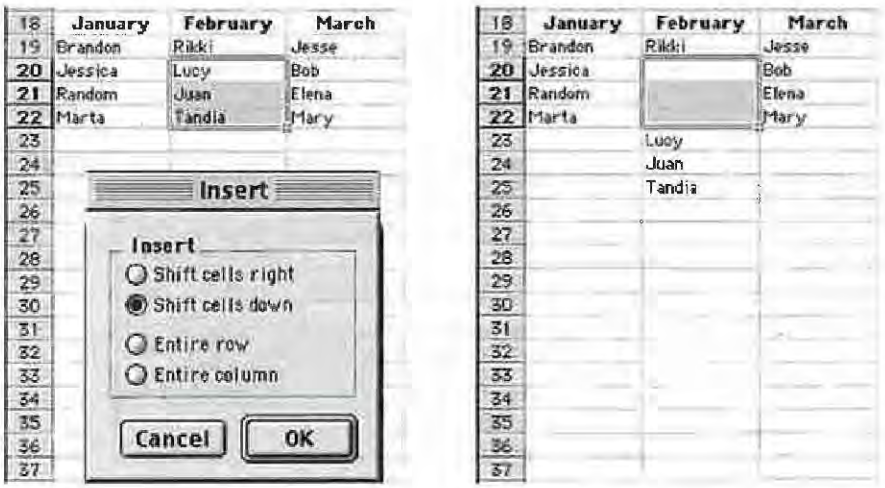


Figure 12-9: *When you select a series of cells and choose Insert→Cells, Excel asks you where you want to put the new cells (left). Be sure to note the two radio buttons at the bottom of the window, which let you insert* entire *rows or columns. Excel will then insert the same number of cells as you have selected in the* location *selected, and will move the previous residents of those cells in the direction that you specify (right).*

- **Columns.** If you choose Insert→Columns, Excel inserts a new blank column to the left of the active cell. If you've selected a range of cells, Excel inserts the number of columns equal to the number of columns selected in the range.

Find and Replace

Exactly as in Word, Excel offers both a Find function, which helps you locate a specific spot in a big workbook, and a Replace feature that's ideal for those moments when your company gets incorporated into a larger one, requiring its name to be changed in 34 places throughout a workbook. The routine goes like this:

1. **Highlight the cells you want to search.**

   This step is crucial; by limiting the search range, you ensure that your search-and-destroy operation won't run rampant through your spreadsheet, changing things you never suspect are being changed.

2. **Choose Edit→Find. In the resulting dialog box, specify what you want to search for, and in which direction (see Figure 12-10).**

   You can use a question mark (?) as a stand-in for a single character, or an asterisk (*) to represent more than one character; in other words, typing *P*ts* will find cells containing "Profits," Prophets," and "Parakeets."

   The "Find entire cells only" checkbox means that Excel will consider a cell a match for your search term only if its entire contents match; a cell that says "Annual profits" isn't considered a match for the search term "Profits."

3. If you intend to *replace* the cell contents (instead of just finding them), click Replace; type the replacement text into the "Replace with" box. Click Find Next (or press Return).

   Each time you click Find Next, Excel highlights the next cell it finds that matches your search phrase. If you click Replace, you replace the text with the "Replace with" text; if you click Replace All, of course, you replace *every* matching occurrence in the selected cells. Use caution.

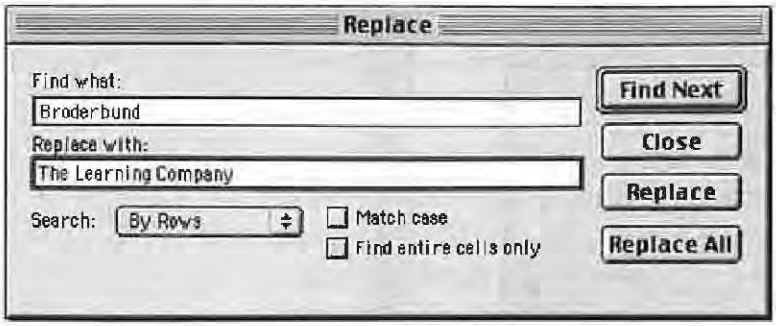


Figure 12-10:
Use the Search pop-up menu, you can specify whether Excel searches the highlighted cells from left to right of each row ("By Rows") or down each column ("By Columns").

Erasing Cells

"Erase," as any White House staff member can attest, is a relative term. In Excel, the Edit→Clear submenu lets you strip away various kinds of information without necessarily emptying the cell completely. For example:

- **Edit→Clear→All** truly empties the selected cells, restoring them to their new-spreadsheet, unformatted condition. (Control-B does the same thing.)
- **Edit→Clear→Formats** leaves the contents, but strips away formatting (including both text and number formatting).
- **Edit→Clear→Contents** empties the cell, but leaves the formatting in place. If you type new numbers into them, they take on whatever cell formatting you'd applied (bold, blue, Currency, and so on).
- **Edit→Clear→Comments** deletes only any electronic yellow sticky notes (see page 515).

None of these is the same as Edit→Delete, which actually chops cells out of your spreadsheet and makes others slide upward or leftward to fill the gap. (Excel asks you which way you want existing cells to slide.)

Tutorial 1: Entering Data

If you've never used a spreadsheet before, the concepts described in the previous pages may not seem to make sense until you've applied them all in practice. This tutorial, which continues in a second lesson on page 421, may help.

Suppose that you, former billionaire CEO of a dot-com startup, have just gone bankrupt. As the vulture-like office-equipment repossession guys begin to pack up your desks and chairs, you whip out Excel to see if you can figure out how it all went wrong.

1. **Create a new spreadsheet document by choosing File→New (⌘-N).**

   Excel fills your screen with the spreadsheet grid; the first cell, A1, is selected as the active cell.

2. **Begin by typing the title of your spreadsheet in cell A1.**

   Profit and Loss Statement: The Road to Ruin might be a good choice. As you type, the characters appear in the Entry bar.

3. **Press Return three times.**

   Excel inserts the contents of the Entry bar into cell A1 and moves the active cell frame down a couple of rows, highlighting cell A4.

4. **Type *January*.**

   You need to track expenses over time, so if you want to track the project by calendar year, begin by naming the first column January. You could now tab to the next cell, enter *February*, and work your way across the spreadsheet—but there's an easier way.

   As noted earlier, Excel can create a series of months automatically for you, saving you the effort of typing *February, March,* and so on—you just have to start it off with the first entry or two.

5. **Carefully click the tiny square at the lower-right corner of the highlighted cell; drag directly downward through 11 more cells.**

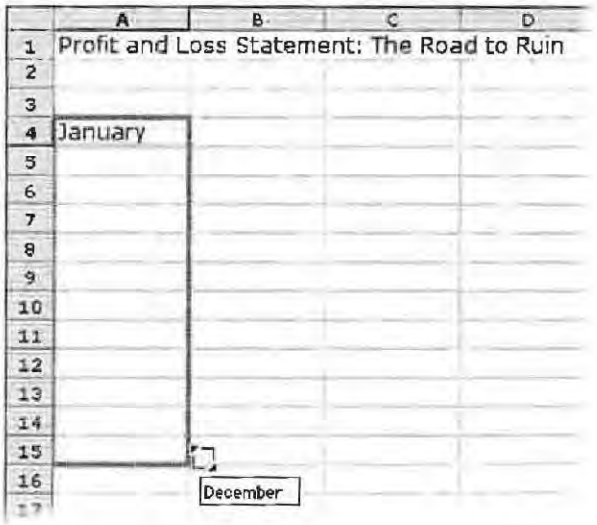


Figure 12-11:
Drag the lower-right corner handle of a cell to AutoFill a sequence of months, dates, or times. (In this example, if January is in row 4, December will end up in row 15.)

Pop-out yellow tooltips show what Excel is filling into the cells through which you're dragging. They let you know when you've gone too far; when the tooltip says *December*, stop.

Excel highlights the cells you dragged through. Figure 12-11 illustrates this step.

Now it's time to add the year headings across the top.

6. **Click cell B3 to select it. Type *1997*. Press Tab, type *1998*, then press Enter.**

   You'll use the same AutoFill mechanism to type in the next four years' names for you. But just dragging the tiny square AutoFill handle on the 1997 cell wouldn't work this time, because Excel wouldn't know whether you want to fill *every* cell with "1997," or to add successive years. So, you've given it the first *two* years as a hint.

7. **Drag through the *1997* and *1998* year cells. Carefully click the tiny square at the lower-right corner of the 1998 cell; drag directly to the right through three more cells.**

   Excel automatically fills in *1999, 2000,* and *2001,* using the data in the first two cells to establish the pattern.

   If you like, you can now highlight the year row, the month column, or both, and then press ⌘-B to make them boldface (see Figure 12-12); Chapter 13 offers much more detail on formatting your spreadsheets.

   Now that the basic framework of the spreadsheet is in place, you can begin typing in actual numbers.

	A	B	C	D	E	F
1	Profit and Loss Statement: The Road to Ruin					
2						
3		1997	1998	1999	2000	2001
4	January	250	575	2875	31625	-72737.5
5	February	350	805	4025	44275	-101832.5
6	March	228	524.4	2622	28842	-66336.6
7	April	654	1504.2	7521	82731	-190281.3
8	May	235	540.5	2702.5	29727.5	-68373.25
9	June	456	1048.8	5244	57684	-132673.2
10	July	854	1964.2	9821	108031	-248471.3
11	August	212	487.6	2438	26818	-61681.4
12	September	235	540.5	2702.5	29727.5	-68373.25
13	October	987	2270.1	11350.5	124855.5	-287167.7
14	November	556	1278.8	6394	70334	-161768.2
15	December	235	540.5	2702.5	29727.5	-68373.25
16						

Figure 12-12: *You can make the headings stand out from the data you'll soon put in the cells by changing the font style and alignment (see the next chapter). In this example, you've finished typing in the numbers, as described in steps 8 through 11.*

8. **Click Cell B4, January 1997. Enter a figure for your January income.**

   The Internet boom was just beginning in 1997, so you were living off credit cards at the time; $250 might be about right. Leave off the dollar sign—just type *250.*

9. **Press Return (or the down-arrow key).**

   Excel moves the active cell frame to the next row down.

10. **Type another number to represent your income for February; press Return. Repeat steps 9 and 10 until you get to the bottom of the 1997 column.**

    For this experiment, the exact numbers to type don't much matter, but Figure 12-12 shows one suggestion.

11. **Click in the January 1998 cell (C4); fill in the numbers for each month, pressing Return after each entry. Repeat with the other years.**

    Type extremely high numbers in the 1999 and 2000 columns (when venture capitalists poured money into your company), and equally huge negative numbers (preceded by a minus sign) for the 2001 column, as the recession hit.

You've successfully populated your spreadsheet with data; choose File→Save to preserve and name the document. You'll return to it later in this chapter—after you've read about what Excel can *do* with all of these numbers.

Formula Fundamentals

Without *formulas*, Excel would be just glorified graph paper. With them, Excel becomes a number-crunching powerhouse worthy of having its own agent. Excel formulas do everything from basic arithmetic to complex financial analysis. You can even use formulas to switch the capitalization of text, remove all nonprintable characters from a text string, and probably vacuum the living room.

Basic Calculations

A *formula* in a cell can perform calculations on other cells' contents. For example, if cell A1 contains the number of hours in a day, and cell A2 contains the number of days in a year, then you could type *=A1*A2* into cell B3 to find out how many hours there are in a year. (In spreadsheet lingo, you'd say that this formula *returns* the number 8670.)

After typing the formula and pressing Enter, you'd see only the mathematical answer in cell B3; the formula itself is hidden until you click the cell again. (In the extreme example of Figure 12-13, "Hello!" is generated by the Clean function, which processes text by deleting any nonprintable characters from before and after the word Hello and adding the exclamation point using an ASCII text code.)

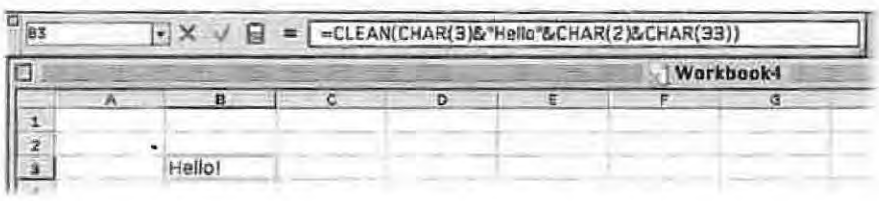


Figure 12-13: *A fairly complex formula may be hiding behind a simple cell display.*

Tip: Your formulas don't have to remain invisible until clicked. To reveal formulas on a given sheet, press Control-' (the key in the upper-left corner of most keyboards). This command toggles the spreadsheet cells so that they show formulas instead of results. (Excel widens your columns considerably, as necessary, to show your formulas.) To switch things back to the way they were, press Control-' again.

You can consider that keystroke a shortcut for the official way to bring formulas into view: choose Edit→Preferences→View tab; under Window Options, click Formulas; click OK. Repeat the procedure to restore the results-only view.

Creating Formulas

There are several ways to enter formulas into cells. There's the AutoSum method; the spooky-genius-who-has-them-memorized method (also known as *manual formula entry*); the *lookup* method; and the formula calculator method. Here's a look at each.

The AutoSum button

You don't need access to Microsoft's reams of focus-group studies to realize that the most commonly used spreadsheet function is *adding things up*. That's why Excel comes equipped with a toolbar button that does nothing but add up the numbers in the column directly above the active cell; Figure 12-14 shows the idea. (The tutorial that resumes on page 421 also shows why this Sum button is one of the most important buttons in Excel.)

The small downward-facing triangle to the right of the AutoSum button, new in Excel 2001, reveals a menu with a few other extremely common options, such as:

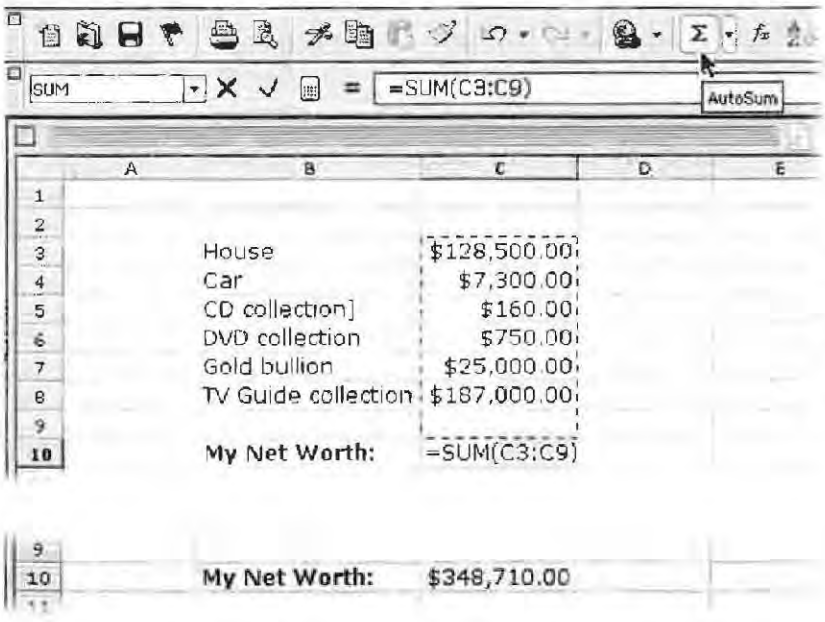


Figure 12-14:
Top: The powerful AutoSum button on the Standard toolbar (shown by the cursor) is the key to quickly pasting formulas in cells. A click of the button puts a SUM function in the selected cell, which assumes that you want to add up the cells above it. Note that it doesn't write out B1+B2+B3+B4+B5+B6; *it uses the shorthand notation* B1:B6.

Bottom: When you press Enter, you see only the result, not the formula.

- **AVERAGE.** Calculates the average (the arithmetic mean) of the numbers in the column above the active cell. For example, if you fill a cell with *=AVERAGE(2,4,4,5)* and press Enter, you'll get the answer 3.75.
- **COUNT.** Tells you *how many* cells in a selected cell range contain numbers; Count can also tell you how many times a specific number appears in a selected set of cells.
- **MAX and MIN.** Shows the highest or lowest value of any of the numbers referred to in the formula. If you enter *=MAX(34,23,95,34)*, you'll get 95.

A sixth pop-up menu command reads More Functions. When selected, More Functions brings up the Paste Function window, described shortly.

Tip: After you click the SUM button (or use one of its pop-up menu commands), Excel assumes that you intend to compute using the numbers in the cells just *above* or *to the left of* the highlighted cell; it indicates, with a shimmering dotted line, which cells it intends to include in its calculation.

But if it guesses wrong, simply grab your mouse and drag through the numbers you *do* want computed. Excel redraws its dotted line, and recomputes its formula.

Manual formula entry

You don't have to use the SUM button. To specify a simple formula that you know well, just select the cell and then click the cell field in the Formula bar, which is shown in Figure 12-1. (Or, if you prefer to edit inside the cell itself, just double-click it.) The cursor appears in the cell field, where you can start typing your formula.

UP TO SPEED

The Anatomy of a Formula

Like Web-page addresses, formulas have a regular form. If you understand that anatomy, you'll find working with formulas much easier.

The first element in a formula is the equals sign, which signals to Excel that what follows is a formula, not plain old data. The second element is the formula name, which tells Excel *which* formula to use; the SUM function, for example, adds the contents of other cells.

The third element is the left parenthesis, which tells Excel that what follows are the numbers to be added up or the text to be processed. When accountants talk about *arguments*, they're not just being cranky; the *argument* is the number that gets handed to the function for processing. In the formula *=SUM(2+2)*, the function is *SUM*, and the argument is 2+2. Arguments may be cell names, but they can also be numbers or even other formulas.

Arguments can be separated by several different *operators*, including a + sign for addition, a – sign for subtraction, an asterisk (*) for multiplication, a slash (/) for division, and so on. The formula *=(B3+B4*B5)*, for example, multiplies the values in cells B4 and B5, and then adds the value in B3 to the result (Excel always process multiplication before addition within an equation).

The final element of a formula is the right parenthesis, which tells Excel that the formula is finished.

Every formula starts with the = sign (see Figure 12-14). You can write your own formulas using standard mathematical operators (such as the + and – symbols). Specify cells you want included in the calculation either by clicking them or by typing their addresses.

Tip: Excel does its best to autocorrect mistakes that you make when manually entering formulas. For example, if you leave off the closing parenthesis (after using an open parenthesis), Excel adds it for you.

Looking up formulas

Whipping up the sum or average of some cells is only the beginning; Excel is also capable of performing the kinds of advanced number crunching that can calculate interest rates, find the cosine of an arc, and so on. There are probably two or three people, in fact, who have a number of these functions memorized.

Fortunately, you don't have to remember how to write each formula; save that brainpower for figuring out what to have for lunch. Instead, you can use Excel's Paste Function window to look up the exact formula that you need. To call up the Paste Function window, choose Insert→Function, or click the Paste Function button on the Standard toolbar.

Note: When the Paste Function window appears, the Office Assistant–if it's visible–offers to help with any function you select. (See page 621 for more on this little animated Help character.) You can safely ignore the Assistant; it hides and its offer goes away when you choose OK or Cancel.

In the Paste Function window, you'll see two panels: the left panel lists the function *categories* (nine of them, plus two special categories at the top of the list); the right panel lists the individual functions in that category (see Figure 12-15).

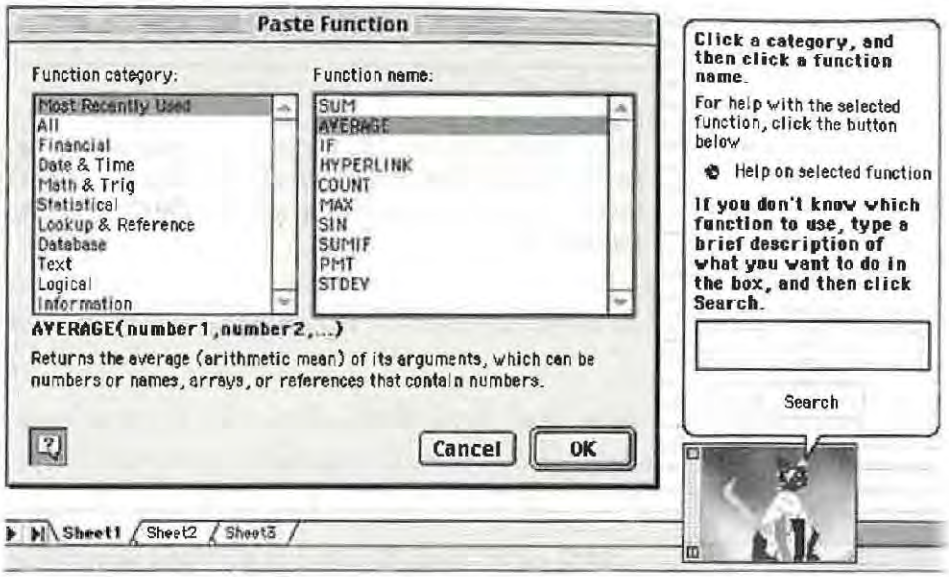
Using the Formula Calculator

Excel 2001 offers a new way of creating formulas—the Formula Calculator. It has a lot of the standard buttons that you might find on a pocket calculator, plus parentheses buttons, an IF button (to insert an IF statement) and a SUM button (to insert a SUM formula). As shown in Figure 12-16, the window also has three fields—a large one up top that displays the current formula (and that also lets you type your own formula, if you're so inclined) and two smaller ones below it, which show the answer to the formula and the cell where the formula is located.

The Formula Calculator offers several advantages over manual formula entry, especially if you're new to formulas. For example, its pop-out panel (see Figure 12-16) gives plain-English help in understanding the syntax of common formulas, and its convenient calculator buttons make it easy to toss in common keystrokes like x, *, +, and () into your formulas.

To use the Formula Calculator, click the Calculator button in the Formula bar (just to the right of the X and the checkmark). To create a formula, click the calculator's

buttons as you would on a real calculator. As you build your formula with the various calculator buttons, the formula shows up in the top window, and the result of the calculation shows up in the answer field.



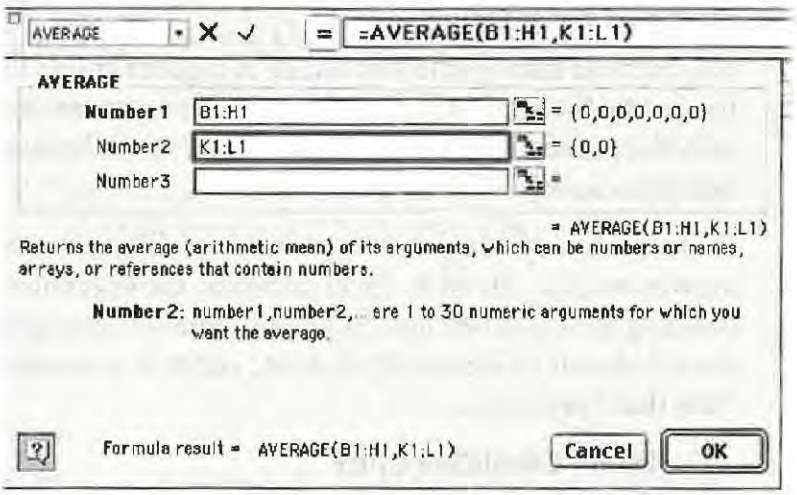


Figure 12-15: *Top: When you select a function in the right panel, a short description of that function appears in the space below the panels, which helps you pick just the right function from Excel's library of about 200. Once you have the right function (such as the Average function when you're building a grade book), click the OK button; Excel pastes the function into the selected cell.*

Bottom: Next, Excel pops up the formula pane, in which you can fine-tune your formula's parameters–the cells that the formula uses to do its calculations.

If you want to access other functions (besides the IF and SUM functions), click the More button. This brings up the Paste Function window (Figure 12-15), which gives you access to every one of Excel's functions.

Once you've built your formula, click the OK button to paste the function into the spreadsheet. (And don't let your friends who use Excel for Windows see this; they don't have this feature.)

Tip: If you need a little help with a balky formula that you've already entered (perhaps you haven't gotten its syntax just right), select the cell with the formula and then click the Edit Formula button in the Formula toolbar. This brings up the Formula Editor pane (a relative of the Formula Calculator), which shows the formula's possible arguments and lets you know how they should be used. It's like having a friendly Excel nerd in your Mac.

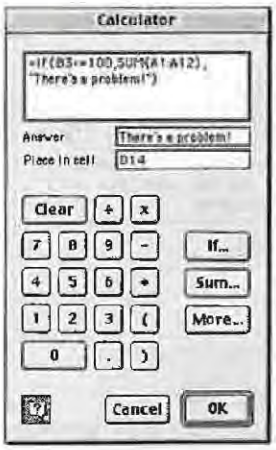


Figure 12-16:
The Formula Calculator lets you build a formula with just a few button clicks–in this case, an IF statement that presents an error message if a certain value isn't within an expected range. Once the formula is perfected, click the OK button to insert the function into the spreadsheet.

Order of Calculation

Anyone who managed to stay awake in Algebra knows that you get different answers to an equation depending on how its elements are ordered. So, it's important for *you*, the purveyor of fine Excel formulas, to understand the order in which Excel calculates its values.

If a formula is spitting out results that don't jibe with what you think ought to be the answer, consult this table. Excel calculates the operations at the top of the table first, working its way down until it hits bottom. For example, Excel computes cell references before it tackles multiplication, and it does multiplication before it works on a "less than" operation.

Excel's Calculation Order

Computed first

:	Reference operator (such as a series of cells)
,	Comma
	Single space
-	Negation (multiplying the number by -1)
%	Percent
^	Exponents
* and /	Multiplication, division
+ and -	Addition, subtraction
&	String concatenation
= < > <= >= <>	Comparison (equals, less than, and so on)

Computed last

For example, Excel's answer to =2+3*4 is not 20. It's 14, because Excel performs multiplication and division within the formula *before* doing addition and subtraction.

You can exercise some control over the processing order by using parentheses. Excel calculates expressions within ( ) symbols before bringing the parenthetical items together for calculation. For example, the formula *=(C12*(C3-C6))* subtracts the value in C6 from the value in C3 and multiplies the result by the value in C12. Without the parenthesis, the formula would read *=(C12*C3-C6)*, and Excel would multiply C12 by C3 and *then* subtract C6—a different formula entirely.

Tutorial 2: Yearly Totals

Suppose you've entered a few numbers into a spreadsheet, as described on page 412. Now it's time to put these numbers to work. Open the document shown in Figure 12-12, if you haven't already.

Now that it has some data to work with, Excel can do a little work. Start with one of the most common spreadsheet calculations: totaling a column of numbers. First create a row for totals.

1. **Click cell A17 (leaving a blank row beneath the month list). Type *Total*.**

   This row will contain totals for each year column.

2. **Click cell B17, in the Total row for 1997. Click the Sum button on the toolbar.**

   In the bottom cell of the selection, Excel automatically proposes a *formula* for totaling the column of numbers. (It's *=SUM(B3:B16)*, meaning "add up the cells between B3 and B16.") The shimmering rectangle shows that Excel is prepared to add up *all* the numbers in this column—including the year label *1997!* Clearly, that's not what you want; don't press Enter yet.

3. **Drag through the numbers you *do* want added: from cell B4 down to B15. Then press Enter.**

   Excel adds up the column.

   Now comes the real magic of spreadsheeting: If one of the numbers in the column *changes*, the total changes automatically. Try it:

4. **Click one of the numbers in column B, type a much bigger number, and then press Enter.**

   Excel instantly updates 1997's total to reflect the change.

Tip: The AutoSum feature doesn't have to add up numbers *above* the selected cell; it can also add up *rows* of cells. In fact, you can even click the Sum button and then drag through a *block* of cells; Excel adds up all those numbers.

You *could* continue selecting the Total cells for each year and using AutoSum to create your totals. Instead, you can use the Fill command described earlier in this

chapter to avoid a lot of repeated effort. You can tell Excel to create a calculation similar to the 1997 total for the rest of the columns in the spreadsheet.

5. **Starting with the cell containing the 1997 total (B17), drag to the right, all the way over to the 2001 column (F17).**

   You've highlighted the range of cells for column totals, as shown in Figure 12-17.

	A	B	C	D	E	F
1	Profit and Loss Statement: The Road to Ruin					
2						
3		1997	1998	1999	2000	2001
4	January	250	575	2875	31625	-72737.5
5	February	350	805	4025	44275	-101832.5
6	March	228	524.4	2622	28842	-66336.6
7	April	654	1504.2	7521	82731	-190281.3
8	May	5562	2365	11825	130075	-299172.5
9	June	456	1048.8	5244	57684	-132673.2
10	July	854	1964.2	9821	108031	-248471.3
11	August	212	487.6	2438	26818	-61681.4
12	September	235	540.5	2702.5	29727.5	-68373.25
13	October	987	2270.1	11350.5	124855.5	-287167.7
14	November	556	1278.8	6394	70334	-161768.2
15	December	235	540.5	2702.5	29727.5	-68373.25
16						
17	Total	10579				
18						

16						
17	Total	10579	13904.1	69520.5	764725.5	-1758869
18						

Figure 12-17: *Top: In order to quickly total all the columns of the spreadsheet, drag from the cell containing the total for the first column (B17) all the way over to the last cell in the row that you need a column total for. Bottom: When you choose Calculate→Fill Right, Excel creates a total for each of the selected columns.*

6. **Choose Edit→Fill→Right.**

   You could have bypassed steps 5 and 6 by simply dragging the lower-right corner handle of cell B17, using the AutoFill process described on page 404.

   Either way, Excel copies the contents of the first cell and pastes it into every other cell in the selection. In this example, the first cell contains a *formula,* not just a total you typed yourself. So instead of pasting the exact same formula, which would place the 1997 total into each column, Excel understands that you want to total each column, and enters the appropriate formula in each cell of your selection. The result is yearly totals calculated right across the page.

   Finally, to make the yearly totals in the tutorial example more meaningful—and see just how much in the hole you are—calculate an overall total for the year.

7. **Click cell E19 and type *Grand Total*. Press Tab twice.**

   Excel moves the active cell to G19.

To calculate a lifetime total for the spreadsheet, you need to tell Excel to add together all the yearly totals.

8. **Click the Sum button on the toolbar.**

   In this case, the cells to be added aren't lined up with the Grand Total cell, so the AutoSum button doesn't work quite right; it says only *=SUM()*, with nothing in the parentheses. You need to tell Excel what to put into those parentheses:

9. **Drag across the yearly totals (from B17 through F17).**

   As you drag across the cells, Excel inserts the cell range within the parentheses. In this example the function now reads, =SUM(B17:F17)—in other words, "add up the contents of the cells B17 through F17, and display the result."

10. **Press Enter.**

    Excel performs the calculation and displays the result in cell G18, the grand total for the life of your failed startup.

Named ranges

As you create formulas, you may find yourself referring over and over to the same cell or range of cells. For example, in the profit/loss spreadsheet, you may need to refer to the Grand Total in several other formulas. So that you don't have to repeatedly type the cell address or click to select the cell, Excel lets you give a cell, or range of cells, a *name*. After doing so, you can write a formula in the form of, for example, = *Grand Total – Taxes* (instead of *=G19 - F27*).

To create a named cell or range, simply select the cell or range, and in the Names box at the upper-left corner of the toolbar, type the name you want, then press Enter (see Figure 12-18).

Note: No spaces are allowed. No two cells or ranges can have the same name. Other requirements: the first character of a cell name must be a letter, names can't contain punctuation marks or operators (+, =, and so on), and they can't take the form of a cell reference (such as B5) or a function (such as SUM()).

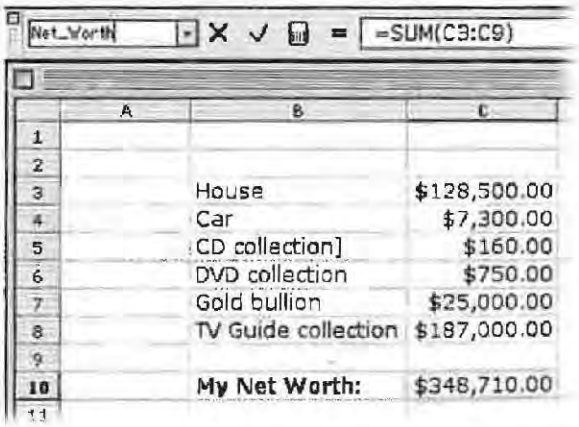


Figure 12-18:
To give a cell or cell range a name, select the cells, type the name in the Names field, then hit Return. Your named cell range will now show up in the Names pop-up menu; in the future, you can select that same range of cells by selecting the name from the pop-up menu.

From now on, the cell's or range's name appears in the Names pop-up menu. The next time you want to go to that cell or range or use it in a formula, you need only select it from this pop-up menu. Excel displays the name instead of the cell address whenever you create a formula that refers to a named cell.

If you need to change or remove a name, choose Insert→Names→Define to display the Edit Names dialog box. From there, you'll find it easy to delete, create, or apply cell names.

Tip: You can use named cells as a quick way to navigate a large spreadsheet. By naming cells at key points in the spreadsheet, you can select them from the Names pop-up menu and jump to the corresponding cells.

References: absolute and relative

When you create a formula by typing the addresses of cells or by clicking a cell, you've created a *cell reference*. Excel generally considers cell references in a *relative* way—it remembers those cell coordinates by position relative to the selected cell, not as, for example, "B12." For example, a relative reference thinks of another cell in the spreadsheet as "three rows above and two columns to the left of this cell" (see Figure 12-19).

Relative references make it possible for you to insert a new row or column into your spreadsheet without throwing off all the formulas you've already stored. They make the Fill Right command possible, too. They also make formulas portable: when you paste a formula that adds up the two cells above it into another spreadsheet location, the pasted cell adds up the two cells above *it* (in its new location).

	A	B	C	D	E
1		*Sales tax rate:*	*8.60%*		
2					
3					
4		**Item**	**Price**	**Sales Tax**	**Total**
5		Ivory pencil	12.95	=C5*$C$1	14.0637
6		Milk pad	32.5	2.795	35.295
7		China spectacles	166.52	14.32072	180.8407
8		Papier-maché dog	49.95	4.2957	54.2457
9					

1	*Sales tax rate:*	*0.086*		
2				
3				
4	**Item**	**Price**	**Sales Tax**	**Total**
5	Ivory pencil	12.95	=C5*$C$1	=SUM(C5:D5)
6	Milk pad	32.5	=C6*$C$1	=SUM(C6:D6)
7	China spectacles	166.52	=C7*$C$1	=SUM(C7:D7)
8	Papier-maché dog	49.95	=C8*$C$1	=SUM(C8:D8)
9				

Figure 12-19:
The numbers in column D calculate the sales tax for the items in column C. The sales tax rate is stored in cell C1. Therefore, the formula in column D multiplies the price (column C) by an absolute reference *to the sales-tax rate (expressed $C$1). When you copy this formula to other cells in column D, it always refers to the fixed cell C1.*

Bottom: If you press ⌘-' (that's the upper-left keyboard key), Excel displays the formulas right in the cells, making it easy to see how the absolute references remain the same and the relative references change.

The yearly totals in Figure 12-17 work this way. When you "filled right" the Total formula across to the other rows, Excel pasted *relative* cell references into all those cells that say, in effect, "display the total of the numbers in the cells *above this cell.*" That way, each column's subtotal applies to the figures in that column. (If Excel instead pasted Absolute references, then all the cells in the subtotal row would show the sum of the first year column.)

Absolute references, on the other hand, refer a specific cell, no matter where the formula appears in the spreadsheet. They can be useful when you need to refer to a particular cell in the spreadsheet—the one containing the sales tax rate, for example—for a formula that repeats over several columns. Figure 12-19 gives an example.

You designate an absolute cell reference by including a $ in front of the row and/or column reference. (For the first time in its life, the $ symbol has nothing to do with money in this context.) For example, $A$7 is an absolute reference for cell A7.

You can also create a *mixed reference* in order to lock the reference to *either* the row or column—for example, G$8, in which the column reference is relative and the row is absolute. You might use this unusual arrangement when, for example, your column A contains discount rates for the customers whose names appear in column B. In writing the formula for a customer's final price (in column D, for example), you'd use a *relative* reference to a row number (which is different for every customer), but an *absolute* reference to the column (which is always A).

Tip: Here's a handy shortcut that can save you some hand-eye coordination when you want to turn an absolute cell reference into a relative one, or vice versa: First, select the cell that contains the formula. In the Formula bar, highlight only the cell names you'd like to change. Then press ⌘-T. This keystroke makes the highlighted cell names cycle through different *stages* of absoluteness–for example, it changes the cell reference B4 first to $B$4, then to B$4, then to $B4, and so on.

Excel, the List Maker

After spending years loading up Excel with advanced number-crunchy features like pivot tables, database queries, and nested formulas, Microsoft in 1999 decided to step back and conduct some studies to see how its customers were enjoying their NASA-caliber spreadsheet program.

And what were 60 percent of Excel users doing with all this power?

Making lists.

That's right—most people use the software that drives countless businesses and statistical analyses for nothing more than building lists of phone numbers, CD collections, and so on.

That's why Microsoft, which never met a feature it didn't like, added to Excel 2001 the Macintosh-only List Manager, which makes building and manipulating lists easy (Figure 12-20). Excel does this by creating something called a *list object*, which is

nothing more than a simple database. It's made up of rows (which are the same as database *records*—that is, the individual "cards" of a database) and columns (which are like the *fields* in a database record—that is, the address, city, zip code, and other bits of information); these rows and fields are contained inside a list frame.

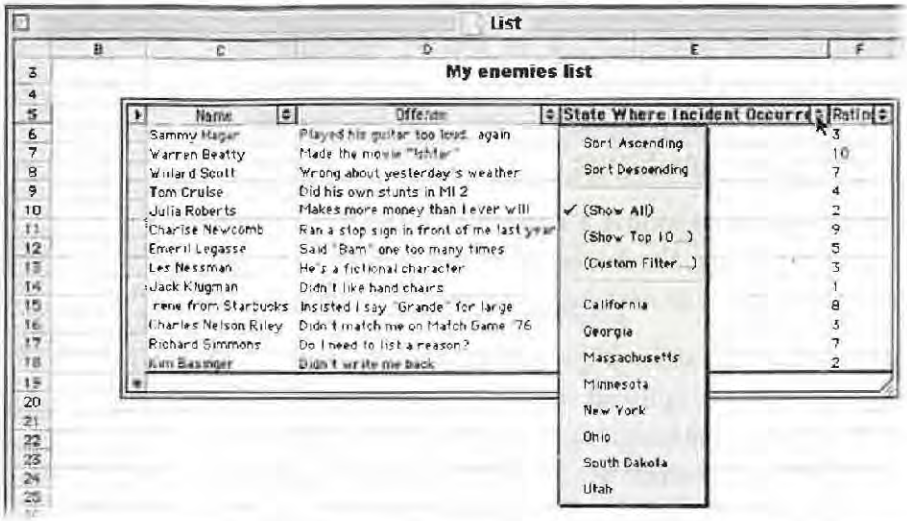


Figure 12-20: *List objects are among Excel's best new features. These self-contained minidatabases can fold and spindle a list in record time. At the top of each list are AutoFilters that let you sort your list and temporarily hide any unwanted data. Excel looks at the data in a list column to build these AutoFilters; if you don't like the ones it provides, you can always define your own.*

The List Manager offers a number of features that improve upon using regular spreadsheet cells to store your lists (and upon Excel *databases*, as they were called in previous versions):

- The list frame, a special border that appears when you click a list object, clearly outlines your data. You don't have to wonder which cells are meant to be part of the list.
- Excel keeps the column headings of a list very separate from the data beneath them; they won't disappear or get sorted into the rows of the table itself, as might have happened in previous versions of Excel.
- You always get an empty record row at the bottom of the list, making it easy to add a new record; just click in the row and type.
- Lists have pop-up menus that make it simple to sort their rows or even *filter* them (so that only certain rows remain visible).
- Unlike Excel databases of old, you can have more than one list per spreadsheet.

Tip: Like a mood ring, the *list frame* color can tell you something about what's going on with the list object. If the list object is inactive, the frame appears in blue. If the list is active, the frame appears as a window border. That mood ring border also acts as a handle that you can use to drag your entire list object around on your sheet.

The List Manager feature, in other words, is ideal for tasks like these:

- Build a list of all of the DVDs in your vast collection and sort them by genre, rating, number of stars in reviews, whether discs have director's commentaries—the possibilities are endless.
- Create a restaurant list for every city you visit, complete with names, categories, comments, and telephone numbers. When leaving for a trip to Detroit, you can filter that list so that it shows only the names of eateries in Detroit.
- Make an inventory list, with prices, part numbers, and warehouse location; you can later add a column to that list when you remember that you should have included something to indicate availability. Plus, you can format your list with alternating row colors that retain proper alternating colors when you add that new column.

Just try *any* of these tricks with a plain spreadsheet and you'll soon be sobbing in frustration.

Building Your List–The List Wizard

Excel's List Wizard walks you through building a list. Here's how to build a new list from scratch—in this example, an enemies list.

Tip: To build a list object out of an existing list, first select all of the cells that make up your existing list, and choose select Insert→List. The List Wizard then walks you through turning your ersatz list into the real deal.

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1. **In a new spreadsheet, click where you want the list to be.**

   You can always move it later.

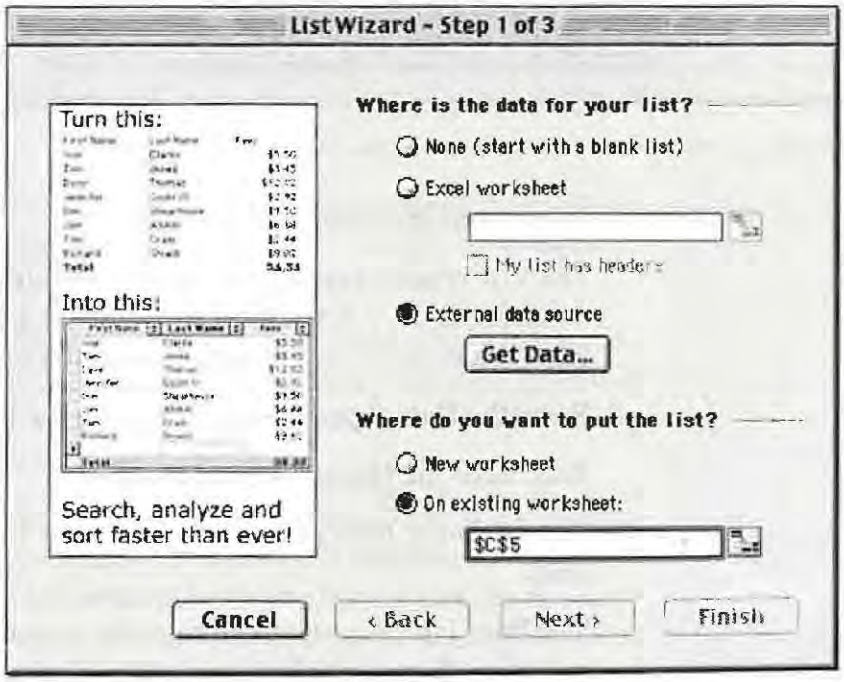


Figure 12-21: *The first step in the List Wizard has three options for data sources for your lists–none (meaning you'll enter the data as you go along), Excel worksheet (which lets you import a list from another file, perhaps an old list you made in a previous version of Excel), and External data source (which lets you access a database via Microsoft Query and ODBC–more on this later). As for where the list goes, you can specify a location in the currently open worksheet, or you can tell Excel to create a whole new sheet for your list to call home.*

2. **Choose Insert→List.**

   Excel presents the List Wizard window (see Figure 12-21). The first screen asks you for the location of the data for your list and where you want the list to appear. Leave the data location radio button set to None (in this tutorial, you'll be typing in the data *after* setting up the table), and leave the list location radio button set to On Existing Worksheet.

3. **Click Next.**

   Now the List Wizard wants you to specify the columns for your list (Figure 12-22). If you've ever used FileMaker Pro or another database, you may recognize this window—it's very similar to the one used to create fields for a database file.

   The enemies list will include four columns: Name, Offense, State Where Incident Occurred, and Rating.



Figure 12-22:
The second step of the List Wizard looks like a database field definition window, and for good reason—that's what Excel lists are, at heart. In this window, you can create as many or as few columns as your list needs, and you can specify settings for each column.

4. **Type *Name* into the Column name field.**

   The List Wizard lets you classify each column as one of ten data types, such as numbers, text, or dates. It even lets you set a column to be *another* list or a calculated value, which lets you bring formulas into your lists.

5. **From the Data type pop-up menu, choose Text; click Add.**

   Excel adds the Name column to its list.

6. **Type *Offense,* then click Add; type *State Where Incident Occurred,* then click Add.**

   The Data Type pop-up menu remains set to the correct setting—*Text*—throughout this column-building procedure. The last column, however, will be a number.

7. Type *Rating*; change the Data Type pop-up menu to say Number. Click Add.

Once you've created a column, you can click its name and then click the Settings button to bring up the Column Settings window (Figure 12-23). Here, you can change the settings for the column (including its name and data type). You can also specify a *default* value for it—that is, each time you add a new row to your list, Excel will fill in a canned entry for this row automatically. If most of your CDs are jazz recordings, for example, your CD-database list might contain a Category column—and you could save yourself some typing by setting *Jazz* up to be the default value for each new recording you add to your list. (For the CDs in different categories, you could always type in something different.)

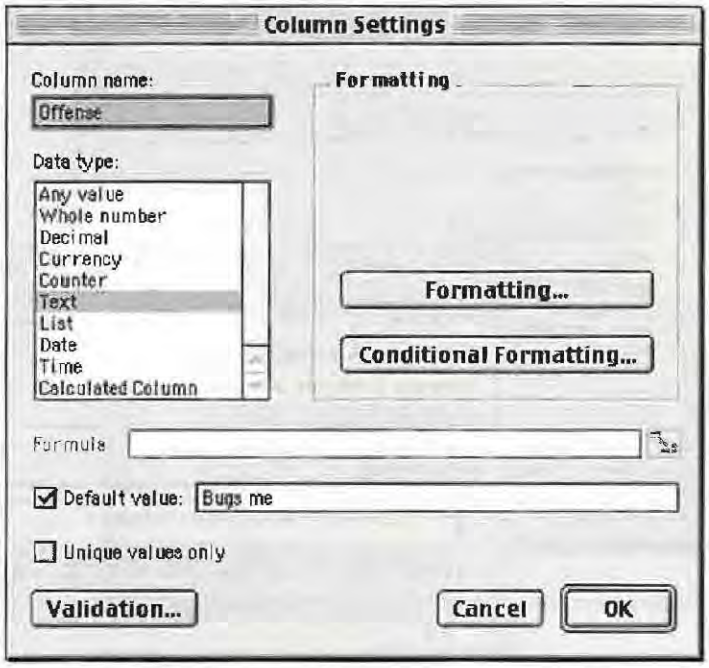


Figure 12-23:
The Column Settings window contains much of the power behind Excel's new lists. Here you can set the cell's data type, whether the data entered in a column has to be a specific kind of data, and how that data is formatted. The Conditional Formatting button is the key to some of the graphic power of lists, letting you specify changes in appearance depending on how the data in the column changes.

The Settings dialog box also offers a checkbox called "Unique values only." If you use this option, Excel requires that whatever you type into this list column is *unique* (not duplicated in the list)—for example, a serial number.

Suppose you turn this on for the Title field in a CD list, for example. When somebody tries to enter the name of a CD that has already been cataloged, Excel will beep, alert them that this column is supposed to contain unique values, and refuse to budge until the entry is changed.

The Settings dialog box lets you format a cell with two handy buttons. By clicking the Formatting button, you bring up Excel's Format Cells window, in which you can set up this column's type and formatting characteristics: number formatting; text alignment, rotation and indentation; font size, style, and color; cell borders; fill patterns and colors; and whether a cell is locked or hidden. (The first half of Chapter 13 contains much more on these possibilities.)

The Conditional Formatting button, on the other hand, brings up the Conditional Formatting window, in which you can set a series of rules to change the cell's formatting *automatically* depending on what's happening in the column; this feature can make positive numbers in your Profits column appear in green, and losses in red. (Much more on conditional formatting on page 439.)

Finally, the Settings box offers a Validation button. It summons a powerful window called Data Validation, where you can specify limits for the text or numbers typed into each cell in this column—and what happens if somebody disregards the limits. Figure 12-24 shows the procedure.

When you're finished with the Settings box—if, indeed, you opened it at all—click OK. You return to the wizard.

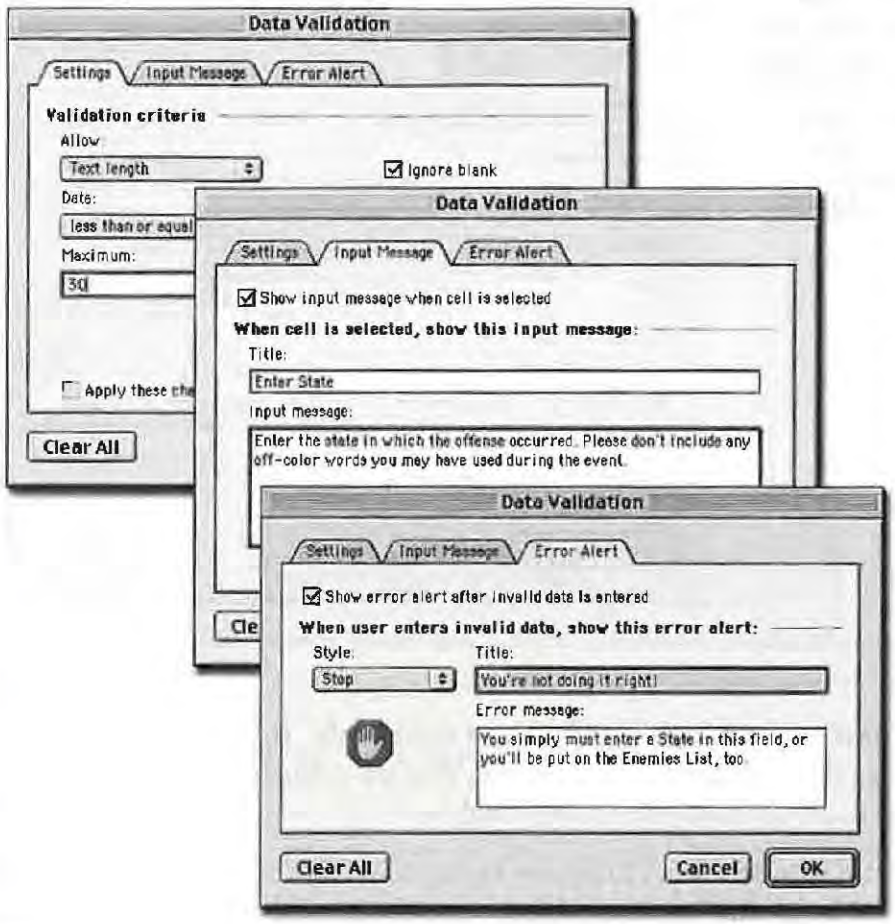


Figure 12-24:
The Data Validation window has three tabs.

Top: Settings lets you set up what kind of data should be entered in a given column, such as numbers only or text of a specific length.

Middle: Input Message lets you tell Excel what alert message to show when a cell in the column is selected. The text in the Title field appears as the alert's title, and the text in the "Input message" field appears as the message.

Bottom: Error Alert lets you specify what kind of angry error message to display if someone tries to enter data that doesn't fit your criteria. You also get to choose what icon is shown in the error alert–a stop sign, a caution sign, or a face speaking some text.

8. **Click the Next button to continue.**

Finally—Step 3 of 3 (at least according to the List Wizard). In this near-final step, you can name the list itself, choose to show the totals row, and control how the list's visuals—its special border, that is—appear.

Of particular interest here is the "Autoformat list after editing" checkbox; if you turn it on and then click AutoFormat, you're offered a list of sixteen preset formats (color and accent schemes) for the list, as shown in Figure 12-25.

If you turn on "Show totals row," Excel will automatically add a row at the bottom of your list that automatically keeps a running total (or count, or average) of the numbers above it; see the page 434 for details.

This tutorial list, however, doesn't require a total row, so leave the Show totals row box unchecked.



Figure 12-25:
Top: The final step in the List Wizard lets you set some general list options and apply automatic formatting via the AutoFormat button.

Bottom: Each of these prefab design templates saves you time, and some of them produce attractive results. That's fortunate, because once you've applied an AutoFormat, you'll find it impossible to apply any manual formatting of your own; you can't make a few cells bold, for example. The moment you select any other part of the spreadsheet, Excel throws away your changes.

9. Click Finish.

You return to your spreadsheet, where a newborn list appears.

You're done with the List Wizard, but not with the list; it needs some touching up. By widening the columns, you can make room for column headers that are extra long. And although Excel has thoughtfully provided a place for a new column, you may want to get rid of it by dragging its lower-right corner to the left, hiding the empty column. (If, by some chance, you need to add a column to your list, you can always type in a new column header there, or you can just click the New Column button in the List toolbar.)

Congratulations—you've just made an enemies list! To populate it with information, click the upper-left cell and type the first person's name. Press Tab after you fill in each cell, or Return whenever you want to jump down to the next row; the list frame grows automatically to accommodate your growing stack of rows.

As you go, you'll note that Excel tries to save you some time, in typical Office fashion, by sprouting pop-up lists when you Tab or click into a cell. Each list consists of entries you've added, in this cell, to earlier rows; Excel figures that many tables feature a certain amount of repetition. If one of these sprouted lists contains an entry you want to reuse, just click it (or press the down arrow until you highlight the desired entry and then press Enter); Excel fills in the cell you were editing, saving you some typing.

Note: Excel offers a list of entries you've used in the column *even* if you've turned on the "Unique values only" option for the column. It just goes to show you: Even smart software can be pretty simple-minded.

What to Do With a List

A list is a dynamic, living object that has more in common with a database than it does with a list. Here are some basic things that you can do with a list, just to get you on the road to your personal list-making Nirvana. For many of these tricks, you'll need the List toolbar. It generally appears when you click a list to make its frame appear; if you don't see it, choose View→Toolbars→List.

Add a row or column

To add a row to a list, select a cell or cells in the row *below* where you want the new row to appear, then click the Insert Row button on the list toolbar. To insert a column in a list, select a cell or cells *to the right* of where you want the new column to appear, then click the Insert Column button on the List toolbar. The new column appears to the left of the selected cell or cells. You can also get to either of these insert commands by choosing Insert→Row or Insert→Column from the List pop-up button in the List toolbar.

Note: Excel calls inserting a row in a list *inserting a record*, and it calls inserting a column in a list *inserting a field*.

Delete a row or column

To delete a row or column, select a cell or cells in the row or column you want to delete, and then choose Delete→Row or Delete→Column from the List pop-up button in the List toolbar.

When you delete a column or row in a list that you've formatted with an alternating colored-row scheme (it's one of the AutoFormats), Excel automatically reshades all of the rows and columns so that they're still alternating—something that you'd have to do by hand if you tried this in a spreadsheet without the list feature.

Rearrange a row or column

To move an entire row to a new location, select it by moving the cursor over the list border to the left, and then click to select the row (as shown in Figure 12-26). Now move the row by dragging it by one of its borders, as if it were a range of cells.

Moving an entire column works the same way: Select it by moving the cursor over the list border until it changes shape (Figure 12-26), and then click to select the column. You can now move the column by dragging one of its borders.

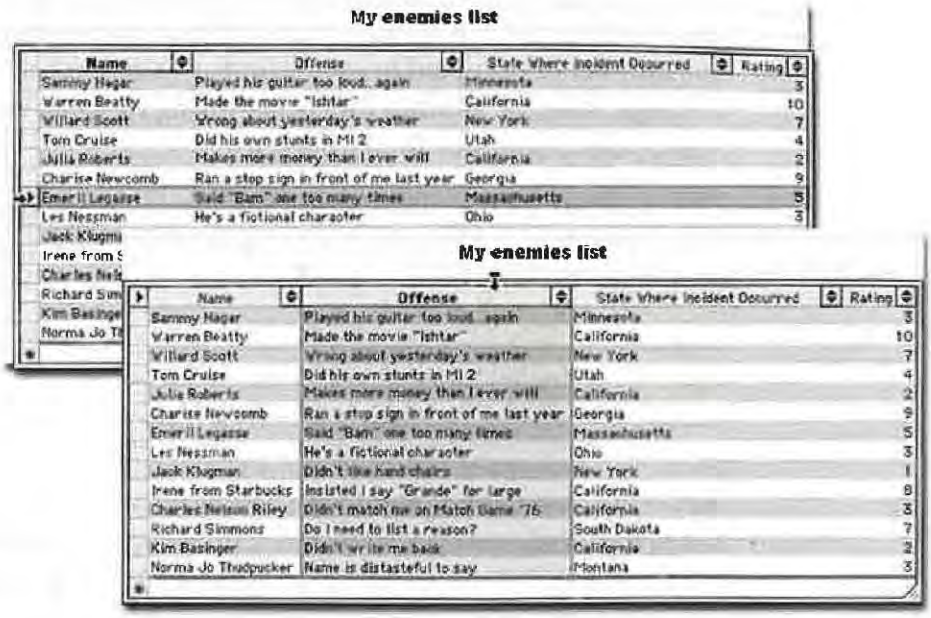


Figure 12-26:
Top: When you're selecting a row in a list, hold the cursor over the border to the left of the row until it turns into an arrow, and then *click to select the row.*

Bottom: Same goes for selecting a column. Hold the cursor over the border at the top of the column until it turns into an arrow with a line at the arrow's base, and then *click to select the column.*

Sort and filter the list

You can use the double-triangle button on the right side of each column heading to *sort* or *filter* the information in a list (Figure 12-20 shows such a menu).

Note: If the double-headed arrows in the top row don't appear when you click the list, you probably have Visuals turned off. Click the Visuals button on the List toolbar to make these and other controls reappear.

When you click that button, a three-part menu pops up. The top part lets you sort the list based on the entries in that column, in ascending or descending order. The middle part lets you filter the list, which means "Show only certain rows, temporarily hiding the others."

It has three options—Show All (which reveals all of the items in the list), Show Top 10 (which works with numerical items, showing the top 10 items or percent), and Custom Filter (which lets you build your own filter). The bottom part lists the unique entries in the column—if there are duplicate entries, Excel shows only one of each.

Tip: For more advanced sorting, select Sort from the List pop-up button in the List toolbar. This sort window lets you choose three criteria by which to sort your list, much as you might do with a database.

Use the Total Row

A great feature in Excel's List Manager is the Total Row feature—which you can use by checking the "Show totals row" checkbox in the List Wizard's Step 3 window. (You can also hide or show it by clicking the Total Row button in the List toolbar.)

The Total row appears at the bottom of the list. If the last column of your table is a number field, Total Row automatically adds up its contents; if not, Total Row counts the number of occupied rows in your list. (You can change this function—to Count, Average, Sum, or another function—using the pop-up arrow controls that appear when you click in the Total Row cell.)

But you're not limited to having the total placed beneath the rightmost column; using the double-headed buttons in each cell of the Total row, you can summon automatic totaling for any column.

Tip: If the double-headed arrows in the Total row don't appear when you click the list, you probably have Visuals turned off. Click the Visuals button on the List toolbar to make these and other controls reappear.

You don't have to be content with *adding up* or *counting* the column contents, either. Once the Total row is in place, you can choose from six different preset formulas—AVERAGE, COUNT, COUNT NUMS, MAX, MIN, and SUM—using the double-triangle button in the cell where you want the total to appear. If you choose the Other option instead, you get the formula window, where you can create your own, even more complex subtotal formulas. (You can even enter any formula you like using the Formula bar, which doesn't have to have *anything* to do with the items in the list.)

POWER USERS' CLINIC

Building a Custom List Filter

By selecting Custom Filter from the pop-up menu at the top of a list column heading, you open up the Custom AutoFilter window, where you can build your own filter. In it, you can set up some rules for what data is shown with some simple operations and logical statements.



You can show all data, for example, that's greater than a certain value or contains the word *blue*—if your list can handle it. The Custom AutoFilter understands *wildcard* characters, too; that is, you can insert a question mark (?) to mean "any typed character," or an asterisk (*) to represent any number of any characters. Despite having only two fields that you can define and only two logical operators (and, or), in combination, they let you build some complex filters indeed.

Delete the whole list

To delete the entire table, click the list to make its frame appear; then click the upper-left cell to select the entire list object. Now choose Edit→Clear→All.

The List Menu

The List pop-up button on the List toolbar gives you access to some of Excel's most powerful list-related features. Most of its buttons (List Wizard, Column settings, Total row, AutoFormat) reopen the dialog boxes you already encountered during your list construction.

But the lower-right button, labeled List, is a pop-up button, rife with useful commands. Some of them (Insert, Delete, Clear Contents) are self-explanatory. A few others could stand clarification:

- **Sort.** Opens the advanced Sort window, in which you can sort your list by up to three criteria (by Company, for example, and then alphabetically within each company group).
- **Filter.** AutoFilters are the canned filtering options that appear when you click the double-headed arrow atop any column (such as Ascending, Descending, Top 10, and so on). Using this Filter command, however, you can choose AutoFilter to turn *off* that set of double-headed arrows, thus removing your option to use those canned filters. (The other commands in this submenu apply to old-style Excel databases, not to List Manager lists.)
- **Form.** Calls up the Data Form window, which lets you enter new data into your lists in a database-like window.
- **Chart.** Turns your list into a chart, as described in Chapter 13.



Figure 12-27:
Whenever you create a list object, Excel invokes the List toolbar (if you don't see it, choose View→Toolbars→List). The arrow on the right edge opens a pop-up panel with right- and left-arrow buttons—a quick way to jump around in a list. When you deselect the list object, the list toolbar goes away.

- **PivotTable Report.** Opens the PivotTable Wizard to help you turn your list into a PivotTable (see Chapter 14).
- **Convert to Range.** Converts the list back into a block of ordinary cells.
- **Refresh Data.** Grabs fresh data from the list's external data source, if it has one (see page 493).

CHAPTER
13

Formatting and Charts

An Excel spreadsheet starts out as a wonderland of 9-point Geneva type, but it doesn't have to look so drab. Excel is willing to let you format each cell of the spreadsheet—even each letter or number *within* each cell—to show off your design genius.

For starters, Excel offers a broad selection of fonts, colors, and borders to make your sheets stand out. Excel can also import pictures and movies (either clip art provided by Microsoft or images of your own), and you can even use Excel's drawing tools to create your own works of art.

Excel is also expert, of course, at turning your dull numbers into lively charts and graphs—for many people, that's the whole point of having typed in all those numbers to begin with.

This chapter covers all of these visual aspects of Excel, including the payoff moment of printing out your beautifully formatted spreadsheets.

Formatting Worksheets

When it comes to spreadsheets, the term *formatting* covers a lot of ground. It refers to the size of the cell, how its borders look, what color fills it, how the contents of the cell are formatted (with or without dollar signs, for example)—anything that affects how the cell looks.

There are two ways to add formatting to your spreadsheet: by using Excel's automatic formatting capabilities, or by doing the work yourself. Odds are, you'll be using both methods to do your formatting work.

Automatic Formatting

If you're not interested in hand-formatting your spreadsheets—or you just don't have the time—Excel's AutoFormat tool is a quick way to apply some formatting to your sheets. It makes Excel study the layout and contents of your spreadsheet and apply colors, shading, font styles, and other formatting attributes to make the sheet look professional.

Note: The AutoFormat feature is designed for fairly boring layouts: column headings across the top, row labels at the left side, totals at the bottom, and so on. If your spreadsheet uses a more eccentric layout, autoformatting may make quirky design choices.

To use the AutoFormat feature, select the cells that you want to format, and then choose Format→AutoFormat. The AutoFormat window appears, complete with a list of sixteen different formats on the left. Click each one in turn, and you'll see (in the center of the dialog box) that each one is actually a template, a predesigned design scheme for a table-like makeover of the selected cells (see Figure 13-1).

On the right is a button labeled Options, which lets you control which of these formatting elements will be applied to the selected cells.

Once you've selected an AutoFormat option (and made any tweaks that you might like to which formats are applied), click OK. Excel goes to work on the selected cells. If you don't care for the results, you can always undo them with a quick ⌘-Z.

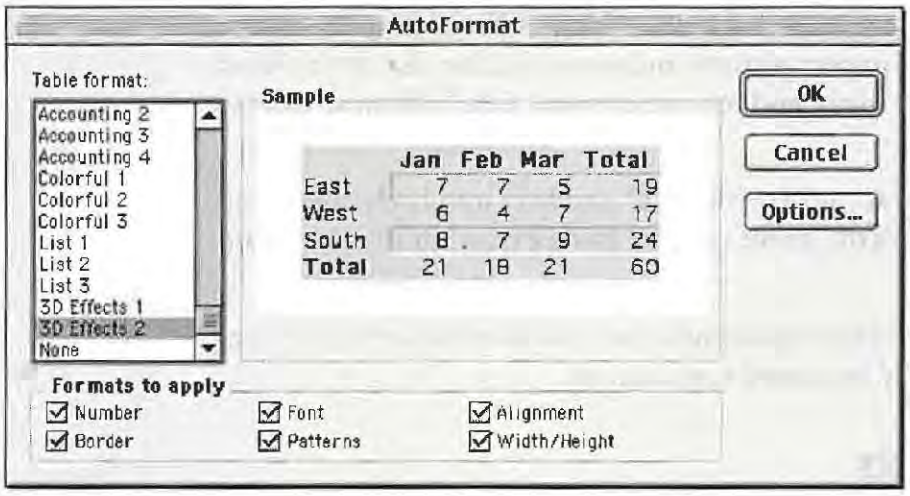


Figure 13-1:
The AutoFormat dialog box is your window into quickly making your Excel spreadsheets more readable—and more attractive. Each scheme may include font selections; shadings for the rows of the table; background patterns; adjustments to the height and widths of the cells; right, left, or center alignment; divider lines to segregate the bottom Total row; and so on.

The Format Painter

Another way to apply formatting to a group of cells quickly is the Format Painter. Suppose you've painstakingly applied formatting—colors, cell borders, fonts, text alignment, and the like—to a certain patch of cells. Using the Format Painter, you can copy the formatting to any other cells.

To get started, first select the cell or cells that you want to use as an example of good formatting. Then click the Format Painter button (the little paintbrush) on the Standard toolbar (see Figure 13-2).

Next, drag over the cells you'd like to match the first group. Excel applies the formatting—borders, shading, font settings, and the like—to the new cells. If the painted area is larger than the example selection, Excel repeats the pattern over the new cells.

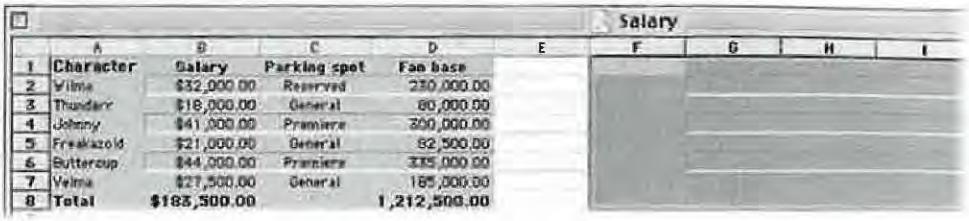


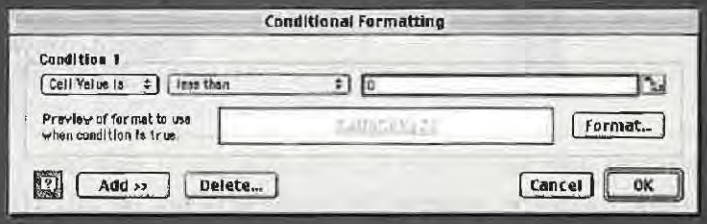
Figure 13-2: *The Format Painter takes everything but the text from the cells on the left, and applies it to the cells on the right.*

POWER USERS' CLINIC

Conditional Formatting

Cell formatting doesn't have to be a static thing. With Conditional Formatting, you can turn your cells into veritable chameleons, changing colors or typography on their own, based on their own contents.

By far the most common example is setting up Income numbers to turn bright red when they go negative, as is common in corporate financial statements. Another common example: Using this feature to highlight in bold the sales figures for the highest-earning salesperson listed in a column.



To use conditional formatting, select the cell or cells that you want to change on their own when the time comes, and then choose Format→ Conditional Formatting. This brings up the Conditional Formatting window, where you can set up the conditions that trigger the formatting changes.

For example, to set up a column of numbers so that they'll turn red if they are negative numbers, use the first pop-up menu to choose "Cell Value Is"; the second to choose "less than"; finally, type *0* into the third blank, as shown here. Then click Format to specify the typographical, border, and pattern changes you want to see if one of the highlighted cells' contents fall below zero. For example, choose red from the Color pop-up menu and Bold from the Font Style list. Click OK.

By clicking the Add button at this point, you could even add a second set of conditions and additional layers of formatting to your cells; for example, you might decide that you want your monthly income spreadsheet to show negative numbers in red only if they are really, really negative—if you lose more than, say, $5000 a month.

The dialog box shows a preview of how your cells will look if the conditions are met. If everything looks right, click OK. You return to the spreadsheet, where numbers that meet your conditions now show their special formatting.

Formatting Cells by Hand

If the AutoFormatting feature is a bit too canned for your purposes, you can always format the look of your spreadsheet manually.

When formatting cells manually, it's helpful to divide the task up into two concepts—formatting the cells themselves (borders and backgrounds), and formatting the *contents* of those cells (what you've typed).

Changing cell size

The factory setting for the size of a cell is 12 *points* high by 10 *characters* wide, which is a bit confusing; the units used to measure cell height are different than the ones used to measure cell width. A row can be from 0 to 409 points tall; a column can be from 1 to 255 characters wide. There are several ways to set a cell's height and width. Here's a rundown.

- **Dragging the borders.** Obviously, you can't enlarge a single cell without enlarging its entire row or column; Excel has this funny way of insisting that your cells line up with each other. Therefore, you can't resize a single cell independently—you can only enlarge its entire row or column.

  To adjust the width of a column, drag the divider line that separates its *column heading* from the one to its right, as shown in Figure 13-3; to change the height of a row, drag the divider line between its row and one below it. In either case, the trick is to drag *in the row numbers or column letters.*

Note: Excel adjusts row heights automatically if you enlarge the font or make your text wrap.

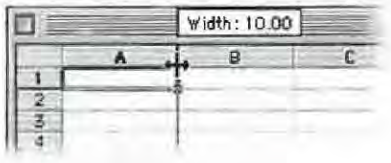




Figure 13-3: *A small yellow box pops up, identifying the size of the row or column as you drag. Dragging changes* all *selected columns or rows, if you highlighted more than one.*

- **Menu commands.** For more exact control over height and width adjustments, choose Format→Row→Height, or Format→Column→Width. Either command pops up a window where you can enter the row height or column width by typing numbers on your Mac's keyboard. (If you've really made a mess of things, you can always restore the highlighted columns to their original widths by choosing Format→Column→Standard Width.)

- **Autosizing.** For the tidiest possible spreadsheet, highlight some cells and then choose Format→Row→AutoFit, or Format→Column→AutoFit Selection. Excel readjusts the selected columns or rows so that they are exactly as wide and tall as necessary to contain their contents, but no larger. That is, each column expands or shrinks just enough to fit the longest entry in it.

Tip: You don't have to use the AutoFit command to perform this kind of tidy adjustment. You can also, at any time, make an individual row or column precisely as large as it needs to be by double-clicking the divider line between the gray row numbers or the gray column letters. (The column to the *left* of your double-click, or the row *above* your double-click, gets resized.) Using this method, you don't even have to highlight anything first.

POWER USERS' CLINIC

Hiding and Showing Rows and Columns

There are any number of reasons why you may want to hide or show certain columns or rows in your spreadsheet. Maybe the numbers in a particular column are used in calculations elsewhere in the spreadsheet, but you don't need them taking up screen space. Maybe you want to preserve several previous years' worth of data, but don't want to have to keep scrolling through them. Or maybe the IRS is coming for a visit.

In any case, it's easy enough to hide certain rows or columns. Start by highlighting the rows or columns in question. (Remember: To highlight an entire row, click its gray row number; to highlight several consecutive rows, drag vertically through the row numbers; to highlight nonadjacent rows, ⌘-click their row numbers. To highlight certain columns, use the gray column letters at the top of the spreadsheet in the same way.)

Next, choose Format→Row→Hide, or Format→Column→Hide. That's all there is to it: the column or row disappears completely, leaving a gap in the numbering or letter sequence at the left or top edge of the spreadsheet.

Making them reappear is a bit trickier, because you can't exactly highlight an invisible row or column. To perform this minor miracle, select cells on *either side* of the hidden row or column, and then choose Format→Row→Unhide, or Format→Column→Unhide.

Alternatively, you can also type the address of a hidden cell (such as B5) in the Name box on the Worksheet toolbar to select a hidden cell, and then choose Format→Row→Unhide, or Format→Column→Unhide.

Cell borders and colors 1: The Format Cells Window

The light gray lines that form the graph-paper grid of an Excel spreadsheet are an optical illusion. They exist only to help you understand where one column or row begins and the next ends, but they don't print out.

If you'd like to add solid, printable borders to certain rows, columns, or cells, Excel offers three different methods: the old, slightly stale Format Cells window; the new, whiz-bang Borders and Shading section of the Formatting Palette; and the very similar Borders and Shading *toolbar*. All techniques let you control how lines are added to the cell's borders, but only the Formatting Palette and the toolbar let you change borders and shading without opening a dialog box to make the changes.

To add cell borders to cells using the time-honored Format Cells command, highlight some cells and then choose Format→Cells (or press ⌘-1). The Format Cells window appears; click the Borders tab to show the border controls. In this window, you'll see three sections: Presets, Border, and Line.

- In the **Border** section, you can specify which walls of the cells will sprout borders. To do so, you can either click the "missing walls" in the preview area, or you can click the various buttons surrounding it (see Figure 13-4).
- In the **Line** section, you can specify how the borders look—that is, how thick the line is, what style it is (single, dashed, or double), and what color is.
- The **Presets** section offers buttons that represent the most common cell-border configurations: None (which removes all borders), Outline (which places a border around the entire highlighted block of cells), or Inside (which puts borders between the cells inside the selection).

Once you have the borders looking the way you'd like, click OK.

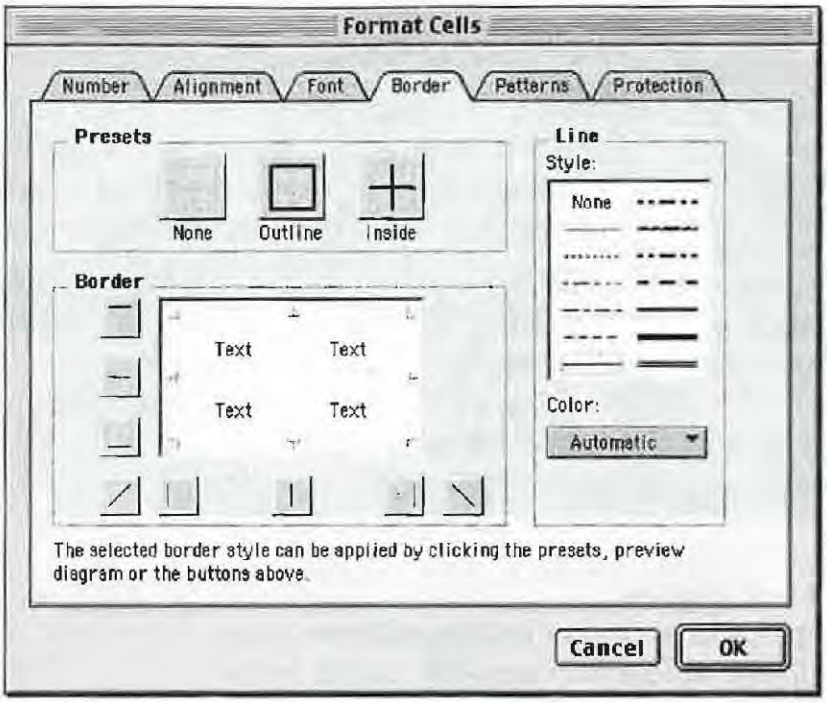


Figure 13-4: *By clicking in the preview area inside the Border section, you can place borders where you want them. First, select the style of line on the right side, and* then *click in the preview area to place the line—if you do it the other way around, you'll get the line style that was selected for the* last *line drawn. If clicking isn't your thing, use the eight buttons around the left and bottom edges of the preview area to draw your horizontal, vertical, and diagonal borders.*

Cell borders and colors 2: The Formatting Palette

To use the new Formatting Palette to draw borders, select the cells you want to work with, and then open the Borders and Shading portion of the palette (Figure 13-5).

Tip: If you don't see the Formatting Palette, choose its name from the View menu. And if you don't see the Borders and Shading controls once the palette is open, click the Borders and Shading triangle to bring them into view.

In this section of the palette, you'll see six controls: Type, Style, Color, Fill pattern, Fill color, and Draw. Here's what each does.

- **Type.** The icon itself indicates the kind of border you've already applied to the selected cells; if you haven't applied any border, it's a faint, dotted-line square button. In any case, click it to open a pop-out palette of eighteen different border styles, covering every conceivable border need. The first twelve borders are standard fare, mostly outlines and single lines. The last six show more variety; some put borders on two sides of a cell, or include thicker borders on one side. (If you point to one of these border styles without clicking, a yellow pop-up tooltip gives a plain-English description of its function.)

  This pop-up palette should be your first stop; some of the other palettes described here aren't even available until you've first selected a border type.

- **Style.** This pop-up menu lets you choose from fourteen line styles, including dotted lines and thick lines.

- **Color.** This button lets you choose from one of 40 preset line colors. You can also leave the line color set to Automatic (which usually means black). You can't mix your own line color.

- **Fill pattern.** Instead of changing the style of *line* that surrounds the selected cells, this one offers patterns with which to fill the selected cells' *backgrounds.* (The bottom half of this menu specifies the color that Excel will use to draw the black areas of the displayed patterns. You'll probably find that most of the patterns make your cell contents illegible unless you also select a very light color for the fill.)

  "Automatic," by the way, means "no pattern."

- **Fill color.** By clicking this button, you reveal options for 40 preset fill colors for your cell backgrounds. Here again, use this option with caution; unless you also change the text color to something bright, you should use only very light colors for filling the cell backgrounds. This button also gives you the option of having no fill color (that is, white), or clicking More Colors to summon the Apple Color Picker dialog box, which offers an almost infinite color selection.

- **Draw.** Clicking the Draw button brings up the Border Drawing toolbar, a mosquito of a toolbar with five buttons—Draw Border, Erase Border, Merge Cells, Line Style, and Line Color. (Point to each without clicking to see its pop-up yellow label appear.)

  The first pop-up button on this palette (Draw Border) offers a choice of two modes: Draw Border and Draw Border Grid. The Draw Border tool lets you create a border that encloses an otherwise unaffected block of cells just by dragging diagonally in your spreadsheet; the border takes on the line characteristics you've specified using the other tools in the toolbar. The Draw Border Grid tool works similarly, except that it doesn't draw one master rectangle; instead, it adds borders to every cell *within* the rectangle that you create by dragging diagonally, "painting" all four walls of every cell inside.

To erase borders from the spreadsheet, click the Erase Borders button and then drag across the unwanted borders (or those you just painted in by mistake). (The final button here, Merge Cells, is described on page 450.)

Tip: You can tear off the Type, Fill pattern, and Fill color palettes so that they form their own floating windows, which makes for easy access if you need to get to their functions frequently. To do so, click, for example, the Font Color square, then click inside the resulting color palette and drag far away from the Formatting Palette, so that the color palette "tears off" and becomes a Palette unto itself.

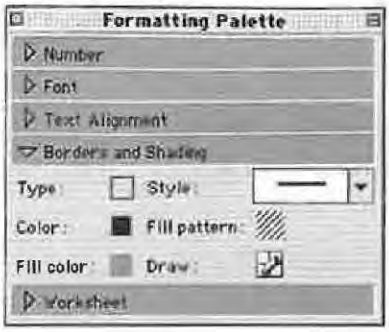


Figure 13-5:
The Formatting Palette is one of the best things to come to Excel in a long time—and the Borders and Shading section makes adding borders to your spreadsheet painless. To use it, simply click a button next to the six text labels in the palette, select an option, and go from there. Don't be fooled by the "grayed out" appearance of the buttons. In most Mac programs, the dimmed look indicates that a button isn't available for some reason, but in Excel it can mean that no formatting of that button's type has been applied—the buttons do work if you click them.

POWER USERS' CLINIC

Protecting the Spreadsheet Cells

Excel's Format Cells window is a real workhorse when it comes to applying a bunch of formatting changes to a sheet. The first five of its tabs—Number, Alignment, Font, Border, and Patterns—let you exercise pinpoint-accurate control over how your spreadsheet—both cells and text—look and feel, as described in this chapter.

The last tab—Protection—is the exception to the formatting rule. The Protection tab has only two options, presented as checkboxes: Locked and Hidden. These two options let you protect selected cells from changes or hide formulas from view, respectively.

But be warned: neither option takes effect unless you also protect the sheet through the Protection function, nestled in the Tools window—a feature covered on page 477.

Changing How Text Looks

Borders and fills aren't the only things that you can change to make your sheets look their best—Excel gives you a great deal of control over how your text looks, as well. The text controls in Excel are divided into three major categories: cell formatting, font control, and text alignment.

Adding cell formats

Cell formats in Excel add symbols, such as dollar signs, decimal points, or zeros, to whatever raw characters you've typed—usually numbers, but certain kinds of text are eligible, too. For example, if you apply the Currency formatting to a cell contain-

ing *35.4*, it shows up in the spreadsheet as $35.40; if you apply Percentage formatting, it becomes 3540.00%.

What may strike you as odd, especially at first, is that this kind of formatting doesn't actually change the contents of a cell. If you click the above-mentioned cell that says $35.40, the trappings of currency disappear instantly, leaving behind only the *35.4* that you originally entered. (The exception: dates and times; date and time formatting can indeed change the actual contents of these cells, as described on page 402.) All cell formatting does is put the niceties in numbers to make them easier to read.

To apply a cell format to a cell or cells, select the cells on which you want to work your magic, and then select the formatting that you want to apply. You can do so in any of three ways:

Add or remove decimal places

If you want to add or remove decimal places, turning *34* and *125* into *34.00* and *125.00*, for example, click the tiny Decimal buttons in the Formatting Palette, as shown in Figure 13-6. Each click on the left-hand icon moves the decimal point one place to the left, adding zeros as necessary; each click on the right-hand icon removes a decimal place, moving the decimal point to the right.

Use the Formatting Palette or Format→Cells command

Excel comes prepared to format the contents of your cells using eleven broad categories of canned formatting. There are several ways to get at them:

- The Format pop-up menu in the Formatting Palette (better known as "the easy way.")
- The Formatting dialog box that appears when you choose Format→Cells (or Control-click some cells and choose Format Cells from the contextual menu).
- The old Formatting toolbar (choose View→Formatting). The new Formatting Palette is light-years more flexible; you can safely ignore the Formatting toolbar unless you, a die-hard Excel 98 fan, have a raging antipathy toward change.

Each method offers the same broad categories of formatting, but options in the Formatting Palette offer fewer options for tailoring the formatting—they apply the most popular choice (for example, dollar signs when you choose the currency for-

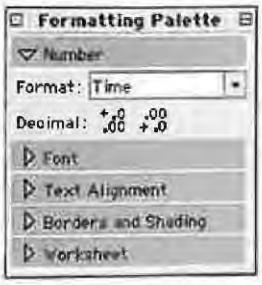


Figure 13-6:
The Formatting Palette gives you quick access to all of Excel's cell formatting options via the Format pop-up menu. It also lets you increase or decrease the number of decimal places shown by clicking the Increase Decimal or Decrease Decimal buttons on the palette (just beneath the Time label shown here).

matting) without asking for your opinion. The Format Cells dialog box, on the other hand, offers more control over each format, along with a little preview of the result.

The following descriptions identify what additional controls are available in the Format Cells dialog box:

- **General.** This option means "no formatting." Whatever you type into cells formatted this way remains exactly as you typed it. (See Figure 13-7.)
- **Number.** Formats the contents as a generic number, automatically adding commas, two decimal places, and formatting for negative numbers (such as adding a negative sign, changing the type color to red, or adding parentheses).

  Format Cells dialog box extras: You have the option to specify exactly how you want negative numbers to appear, how many decimal places you want to see, and whether or not a comma should appear in the thousands place.
- **Currency.** A specific kind of number format, the Currency format adds dollar signs, a decimal point, and two decimal places to the selected cells.

  Format Cells dialog box extras: You can specify how many decimal places you want to see. You also get a Currency Simple pop-up menu that offers a list of hundreds of international currency symbols, including the euro.

Tip: The Currency setting in the Formatting Palette applies dollar formatting only if that's the currency you've selected in the Numbers control panel of the Macintosh. Hundreds of other currency symbols are available there; you can use the Numbers control panel to designate whichever one you want to be what Excel uses when you apply the Currency option in the Formatting Palette.

- **Accounting.** A specific kind of *currency* format, the Accounting format aligns the decimal points in a column for easy reading, and automatically encloses negative numbers in parentheses.

  Format Cells dialog box extras: You can opt to use a currency symbol, which this format aligns at the left edge of each cell. You can also indicate how many decimal places you'd like to see.
- **Date.** Internally, Excel converts the number in the cell to a date and time *serial number* (see page 402) and then converts it to a human-readable date format, such as 11/2.

  Format Cells dialog box extras: You can specify what date format you want applied, such as 11/2/01, November-02, or 14-Nov-2001.
- **Time.** Once again, converts the number to a special serial number and then formats it as to a human-readable time format, such as 1:32.

  Format Cells dialog box extras: Again, presents a long list of time-formatting options, some of which include both the time and date.

- **Percentage.** Multiplies the number in the cell by 100 (converting it from a decimal to a percent) and then adds the percent symbol to the end; the number 1.2, for example, becomes 120%.

  Format Cells dialog box extras: You can indicate how many decimal places you want to see.

- **Fraction.** Converts the decimal portion of a number into a fraction. (People who still aren't used to seeing the Dow stock-market statistics represented in decimal form will especially appreciate this one.)

  Format Cells dialog box extras: You can choose from one of nine fraction types, some of which round the decimal to the nearest half, quarter, or tenth.

- **Scientific.** Converts the number in the cell to scientific formation, such as 3.54E+04 (which means 3.54 times 10 to the fourth power, or 35,400).

  Format Cells dialog box extras: You can specify the number of decimal places.

- **Text.** Treats the entry in the cell as text, even when the entry is a number. The contents are displayed exactly as you entered them. The most immediate change you'll discover is that the contents of your cells are left-justified, rather than right-aligned as usual. (No special options are available in the Format Cells dialog box.)

- **Special.** Formats the numbers in your selected cells as postal Zip codes. If there are fewer than five digits in the number, Excel adds enough zeros to the beginning of the number. If there's a decimal involved, Excel rounds to the nearest whole number. And if there are more than five digits, Excel leaves the additional numbers alone.

  Format Cells dialog box extras: In addition to Zip code format, you can choose from several other canned number patterns: Zip + 4, Phone Number, and Social

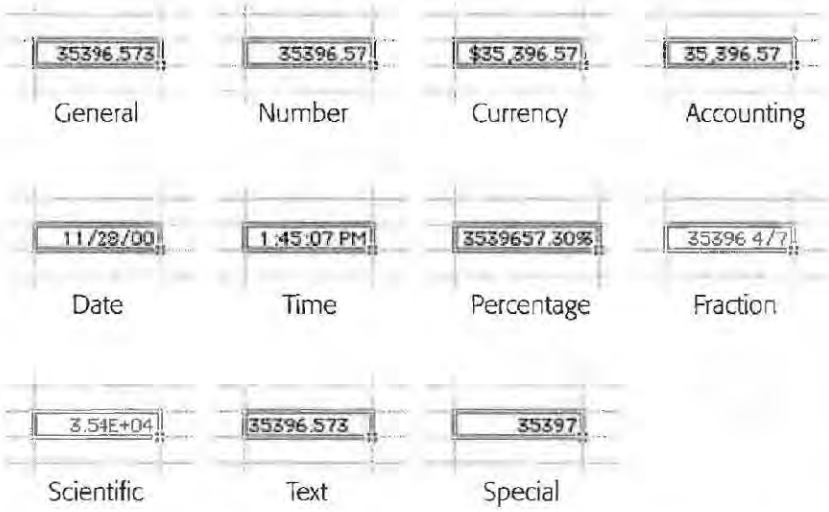


Figure 13-7: *Here's how the eleven different number formats make the number 35396.573 look. Some of the differences are subtle, but important–the contents of Text formatted cells are left-justified, for example, and the Number format lets you specify how many decimal places you want to see. Date and Time formats treat any number you specify as date and time serial numbers–more a convenience for Excel than for you.*

Security Number. In each case, Excel automatically adds parentheses or hyphens as necessary.

- **Custom.** Brings up the Format Cells window, where you can create your own cell formatting, either starting with one of 39 preset values or writing one from scratch using a small set of codes. For example, you can write custom formatting to display every number as a fraction of 1000—something not available in the Fraction formatting.

Changing fonts

Excel lets you control the fonts used in its sheets via the Font portion of the Formatting Palette. As always on the Macintosh, the instructions are (1) highlight what you want to format, and then (2) apply the formatting, in this case using the Formatting Palette.

Of course, you can highlight the cell or cells you want to format using any of the techniques described on page 407. But when it comes to character formatting, you have additional options; Excel actually lets you apply different fonts and font styles *within* a single cell. The trick is to double-click the cell and then use the I-beam cursor—carefully—to select just the characters in the cell that you want to work with. Then, any changes you make in the Formatting Palette affect only the selected characters.

Once you've highlighted the cells or text you want to change, open the Fonts section of the Formatting Palette (Figure 13-8), if necessary, to reveal its four main controls:

- The **font** pop-up menu lets you apply any installed font on your Mac to the highlighted cell or cells. Opening this menu gives you a what-you-see-is-what-you-get font menu, showing each font name in its respective typeface.

Tip: If your Mac has a lot of fonts installed, you may find it faster to specify the font you want by typing its name in the Font field rather than using the pop-up menu. (Unfortunately, you must type the entire font name before pressing Return; you can't type simply *pal* to indicate Palatino, as you can in Word.)

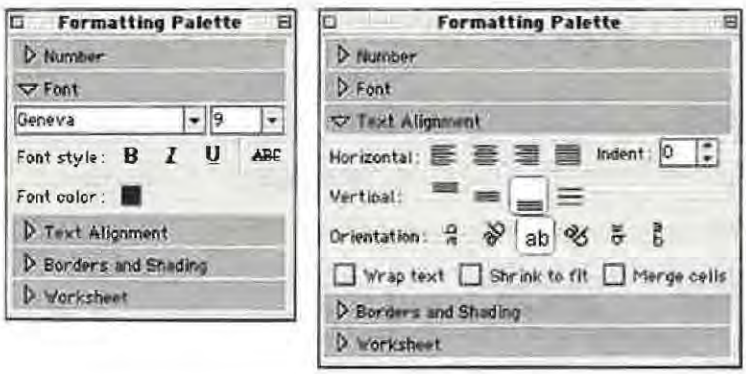


Figure 13-8:
Left: By tweaking the controls in the Font section of the Formatting Palette, you can quickly create your own custom text look.

Right: The seven controls in the Text Alignment section of the Formatting Palette let you exercise precise control over how text fills a cell, and they can even be used to join cells together.

- The **font size** pop-up menu lets you choose from nine commonly used font sizes (9 point, 18 point, and so on); if the size you want isn't listed, you can type a number into the field to the left of the pop-up menu triangle and then press Enter or Return. (Excel accommodates only whole- and half-number point sizes; if you type in any other fractional font size, such as 12.2, Excel rounds it to the nearest half-point.)
- The **font style** item lets you apply bold, italic, underline, or strikethrough styles (or any combination) by clicking the buttons in the style area.

Tip: You can apply or remove these font styles to highlighted cells without even visiting the Formatting Palette: just press ⌘-B for bold, ⌘-I for italic, ⌘-U for underlined, or ⌘-Shift-hyphen for strikethrough. In fact, you can even use keyboard shortcuts to apply shadow and outline styles, which don't even appear in the Formatting Palette (probably because they look terrible): ⌘-Shift-W for shadowed text, and ⌘-Shift-D for outline text.

- Finally, the **font color** control lets you choose from one of 40 different text colors for the selected text, cell, or cells.

Aligning text

Ordinarily, Excel automatically slides *numbers* to the right end of their cells, and *text* to the left ends of cells. That is, it right-justifies numbers, and left-justifies text. (The number formatting described on page 446 may override these settings.)

But the Formatting Palette gives you far more control over how the text in a cell is placed. In the Text Alignment section of the palette (Figure 13-8, right), you'll find seven controls, enough to make a hardcore typographer happy:

- **Horizontal** affects the left-to-right positioning of the text within its cell. Click one of the four buttons to specify left alignment, centered text, right alignment, or full justification. You probably won't see any difference between the full justification and left alignment settings unless there's more than one line of text within the cell. (And speaking of full justification, note that it wraps text within the cell, if necessary, even if you haven't turned on text wrapping.)
- **Indent** lets you control how far text should be indented within its cell. Each time you click the up arrow button, Excel slides the text one typographical point to the right; you can also click in the Indent field and type a number, followed by Enter or Return.

  It's especially important to use this control when you're tempted to indent by typing spaces or pressing the Tab key. Those techniques result in misaligned cell contents, or worse.
- **Vertical** controls let you align text with the top, middle, or bottom of a cell. If the cell contains more than one line of text, you can even specify full vertical *justification*, which means that the lines of text will be spread out vertically enough to fill the entire cell.

- **Orientation** buttons let you rotate the text within their cells—you can make text run "up the wall" (rotated 90 degrees), slant at a 45-degree angle, or form a column of right-side-up letters that flow downward. You might want to use this feature to label a vertical stack of cells, for example.
- **Wrap text.** This checkbox affects text that's too wide to fit in its cell. If you turn it on, the text will wrap onto multiple lines to fit inside the cell. (In that case, the cell grows taller to make room.) When the checkbox is turned off, the text simply gets chopped off at the right cell border (if there's something in the next cell to the right), or it overflows into the next cell to the right (if the next cell is empty).
- **Shrink to fit.** When selected, the Shrink to fit checkbox option shrinks the text in the selected cells to fit inside that cell, no matter how narrow it is. If you've never seen one-point type before, this may be your opportunity.
- **Merge cells.** As described next, the Merge cells checkbox causes two or more selected cells to be merged into one large cell.

Merging cells

Every now and then, a single cell isn't wide enough to hold all of the text that you want to put inside it—the title of a spreadsheet, for example, or some other heading. The title may span several columns, but you don't want to have to widen a column just to accommodate the title inside it.

The answer to this is to *merge cells* into a single übercell. This function removes the borders between cells, allowing whatever you put in the cell to luxuriate in the new space. You can merge cells across rows, across columns, or both.

To merge two or more cells, select the cells you want to merge (Figure 13-9), make sure the Text Alignment portion of the Formatting Palette is open, and then click the Merge Cells checkbox shown back in Figure 13-8.

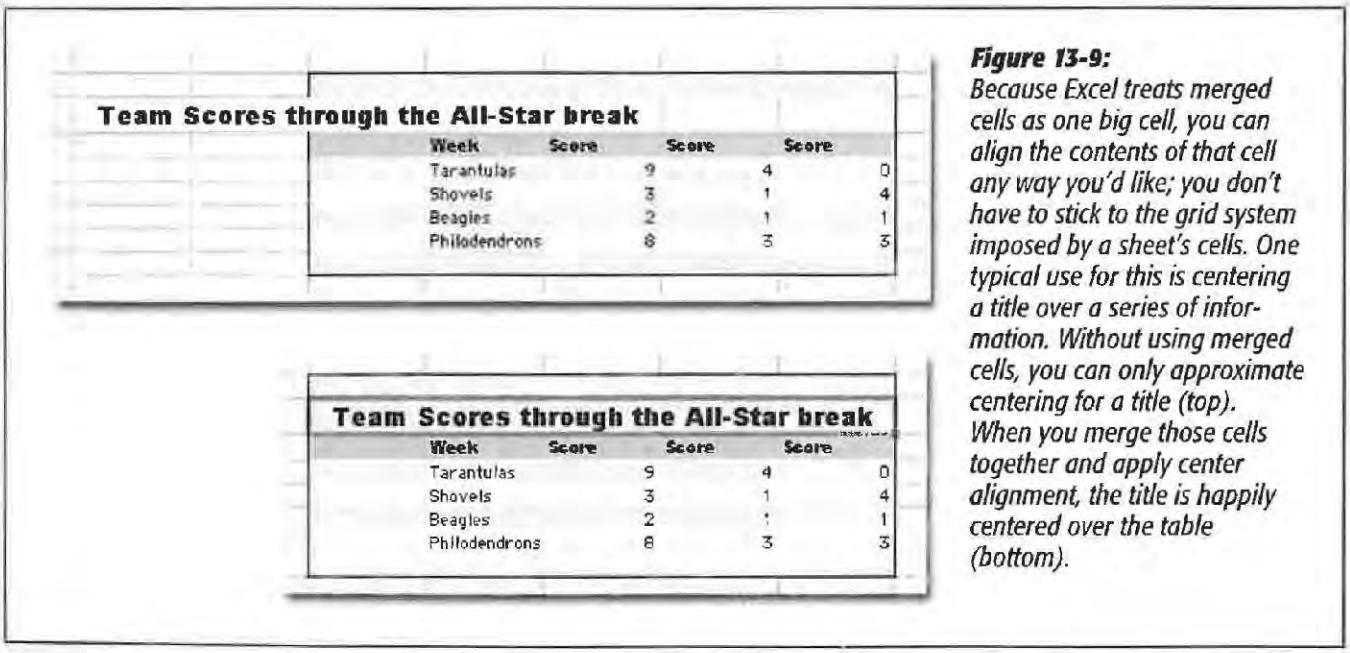


Figure 13-9: *Because Excel treats merged cells as one big cell, you can align the contents of that cell any way you'd like; you don't have to stick to the grid system imposed by a sheet's cells. One typical use for this is centering a title over a series of information. Without using merged cells, you can only approximate centering for a title (top). When you merge those cells together and apply center alignment, the title is happily centered over the table (bottom).*

Warning: Merging two or more cells that contain data discards *all* of the data except whatever's in the upper-left cell.

To unmerge merged cells, select the cells and uncheck the Merge Cells checkbox; the missing cell walls return. Note, however, that although the combined space returns to its original status as independent cells, whatever data was discarded during the merge process doesn't return.

You can also merge and unmerge cells by using the Format Cells window. To do this, select the cells to merge, then choose Format→Cells (or Control-click the cells and choose Format Cells from the contextual menu). In the Format Cells window, click the Alignment tab, and then check (or uncheck) the Merge cells item in the Text control section.

POWER USERS' CLINIC

Making Your Own Styles

If you find yourself formatting spreadsheet cells in the same ways over and over again, you'll save yourself a lot of time and tedium by defining a particular set of formatting attributes as a *style*.

Exactly as in Word (see page 129), a style is a canned set of formatting characteristics, which you can apply to a selection with just a couple of clicks, saving you time and ensuring consistency. Excel comes with eight preset styles to handle simple formatting like currency and hyperlinks, but there's room for more.



To create your own style the quick way, apply any of the formatting characteristics described in this chapter to a selected cell or block of cells. Now choose Format→Style, which calls up the Style window. You'll see that Excel has already recorded the formatting exhibited by the selected cells: the number format, the text alignment, the font, the border, the cell pattern, and the cell's protection. Type in the name for your style in the Style name field up top (where it starts out saying Normal), and then click the Add button on the right.

You can click Modify at this point to summon the Format Cells dialog box, in order to change any of the settings; in fact, if you failed to highlight some already formatted cells before choosing Format→Style, this is how you would define the characteristics for your style from scratch.

To apply a style to some selected cells in the spreadsheet, choose Format→Style. In the Style window that comes up, select the style you want to apply in the pop-up menu, and then click OK. You'll see your canned formatting applied to the selected cells.

Excel doesn't offer nearly as many ways to apply them as Word does; style sheets simply aren't as critical in spreadsheet formatting as they are in word processing. You can't, for example, associate a particular keystroke with a certain style.

Still, there is a Style pop-up menu, which is easier to use than burrowing into the Format→Style dialog box. You must add it to one of your toolbars manually, however, using the Tools→Customize command as described on page 573.

Adding Pictures and Movies

Although you probably won't want to use Excel as a substitute for Photoshop (and if you do, you need licensed help), you *can* add graphics and even movies to your sheets and charts. Plus, if you're artistically inclined (or unwilling to heed the warnings of your high school art teacher), you can use Excel's drawing tools to create your own art.

When you use Excel for your own internal purposes—analyzing your family expenditures, listing your CDs, and so on—the value of all this graphics power may not be immediately apparent. But in the business world, you may appreciate the ability to add clip art, fancy legends, or cell coloring (for handouts at meetings, for example); you can even add short videos explaining how to use certain features of your spreadsheet.

Adding pictures

To summon the Picture toolbar, use the Insert→Picture submenu, which has six options. Here's a summary:

- **Clip Art.** This command brings up the Microsoft Clip Gallery, a browser view on hundreds of clippings in over 40 categories. You can also search for specific images using the built-in search feature.
- **From File.** Using this option, you can import into your sheet any graphic file format that QuickTime understands, including EPS, GIF, JPEG, PICT, TIFF, or Photoshop.
- **AutoShapes.** Choose this command to summon the AutoShapes toolbar, from which you can choose from six palettes of automatically generated shapes: arrows, boxes, stars and banners, and so on.
- **Organization Chart.** When you choose this menu item, Excel launches the MS Organization Chart application, which lets you create a corporate-style organizational chart with ease. (This kind of chart, which resembles a top-down flowchart, is generally used to indicate the hierarchy of employees in an organization. But it's also a great way to organize a Web site.)
- **WordArt.** Using the WordArt menu command, you can apply some wild effects to type, including 3-D effects, gradients, shadows, or any combination.
- **From Scanner or Camera.** Excel can use Photoshop or TWAIN drivers to bring in images directly from a scanner or camera. Choosing this option brings up a small window with a pop-up menu of printers and cameras whose software you've installed on your Mac.

Each of these graphics types is described more completely in Chapter 18.

Tip: You can add QuickTime movies to an Excel spreadsheet, too, using the Insert→Movie command.

Charts

To paraphrase the old saying, a graph is worth a thousand numbers. Fortunately, Excel can easily turn a spreadsheet full of data into a beautiful, colorful graphic, revealing patterns and trends in the data that might be difficult or impossible to see otherwise.

The keys to making a good chart are to design your spreadsheet from the beginning for charthood, and then to choose the right chart type for the data (see Figure 13-10).

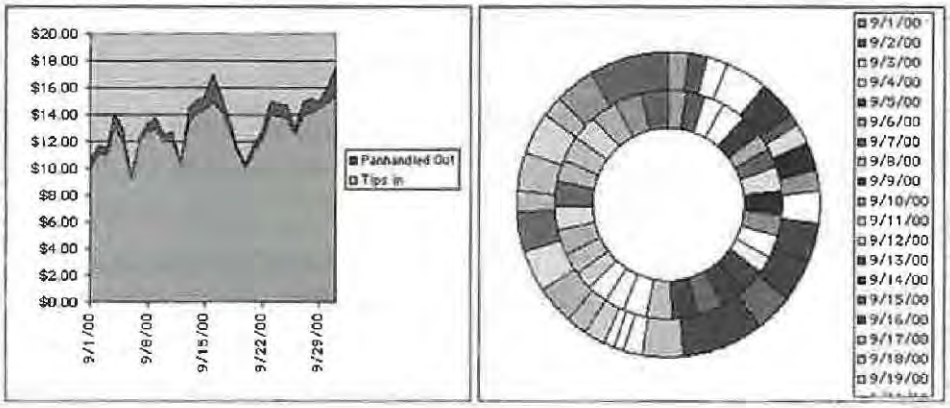


Figure 13-10: *Note the importance of choosing the right chart to match your data. Both charts use the same set of data, but the doughnut chart on the right shows only a rainbow of colors that doesn't communicate any useful information.*

Making a chart in Excel is easy, especially if you take advantage of the program's Chart Wizard, a four-screen "interview" that walks you through creating a chart from the data you select.

Step 1: Select the Data

The first step is to select the data that you want to chartify; you can select the cells worth including, just as you'd select cells for any other purpose (see page 407).

Although it sounds simple, knowing which cells to select in order to produce a certain charted result can be a difficult task—almost as difficult as designing the sheet to be charted in the first place. Think about what you want to emphasize when you're charting, and then design your spreadsheet to meet that need.

Here are a few tips for designing and selecting spreadsheet cells for charting:

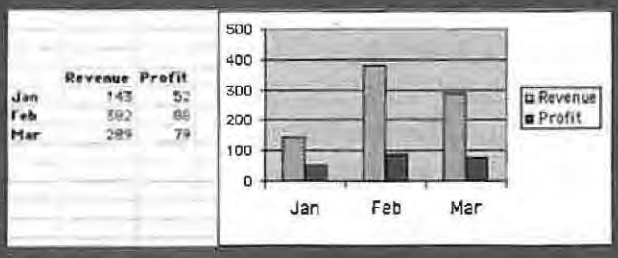
- When you're dragging through your cells, include the labels you've given to your rows and columns. These labels will be incorporated into the chart.
- Don't select Total cells unless you want to see them as part of your chart.
- Give each part of that vital data its own column or row. For example, if you want to chart regional sales revenue over time, create a row for each region, and a column for each unit of time (month or quarter, for example).

- It's usually easier to put the *data series* (see the sidebar box below) into columns rather than rows; we tend to see a list of data as a column. Furthermore, the numbers are closer together.
- Keep your data to a minimum. If you're charting more than twelve bars in a bar chart, consider merging some of that data to get fewer bars. For example, you might consolidate a year's worth of monthly sales data into quarterly data, which shows four bars instead of twelve.
- Keep the number of data series to a minimum. If you're charting more than one set of data (such as gross revenues, expenses, and profits), avoid trying to fit six different data series on the same chart. Use no more than three to avoid hysterical spreadsheet confusion. (In fact, if you're creating a pie chart, you can't have more than *one* data series.)
- Keep related numbers next to each other. For example, if you're creating an XY chart, you'll want to create two columns of data, one with the X data and one with the Y data.
- You can create a chart from the data in nonadjacent cells. To select the cells, hold down the ⌘ key while clicking or dragging through the cells to highlight them, as described on page 407. When you finally choose Format→Insert Chart (or click the Chart Wizard button in the Standard toolbar), Excel knows exactly what to do with the disjointed selection.

UP TO SPEED

Understanding Data Series

If you hope to master Excel charts, you'll have to master the concept of a *data series*. Put simply, a data series is a group of numbers (or data points), such as quarterly revenues—one row or column of numbers. Excel turns each data series into its own bar, column, or pie wedge of your chart and assigns a different color to each.



Many charts plot more than one data series, such as a chart that plots quarterly revenues versus quarterly profits. When working with data series in Excel charts, those data series come from the same row or column; in the resulting chart, Excel gives each series a unique color.

For example, suppose you have a chart with two data series—that is, the numbers begin life as two spreadsheet columns, as shown here. When you create the chart, each month's revenue might show up as a blue bar, and each month's expenses as a green bar. All of the like-colored bars came from the same data series.

One more tip: When you make a chart from a selection of cells, whichever you have fewer of—rows or columns—becomes the data series. You can always switch this arrangement, swapping the horizontal and vertical axes of your chart, once the chart is born.

Step 2: Choose a Chart Style

When you choose Insert→Chart, the first screen of the Chart Wizard appears (see Figure 13-11). Your first challenge is to choose the kind of chart that's appropriate for the data at hand; you wouldn't want to use a pie or doughnut chart to show, say, a company's stock price over time (unless perhaps it's a bakery).

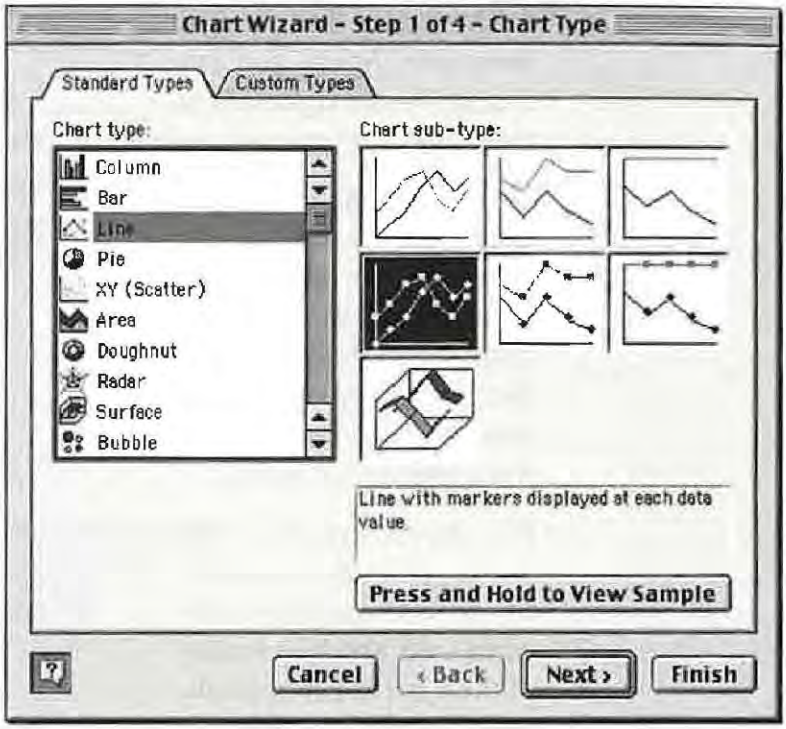
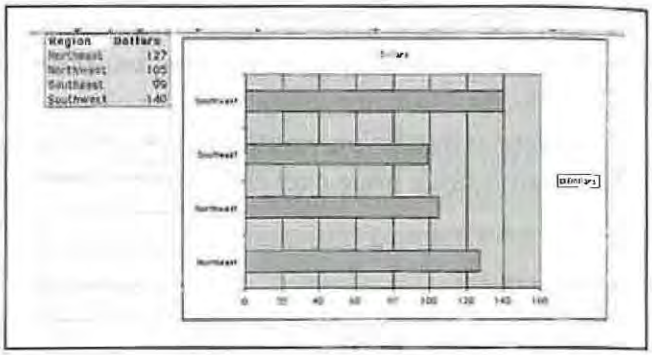


Figure 13-11: *When you click the "Press and Hold to View Sample" button without releasing the mouse button, Excel shows you a miniature version of the actual graph you're about to create, using your own data. It's important to use this button to make sure that the chart type you've chosen is the right one for what you're doing. In most cases, you can tell right away if the graph Excel is about to produce looks anything like the one you had in mind.*

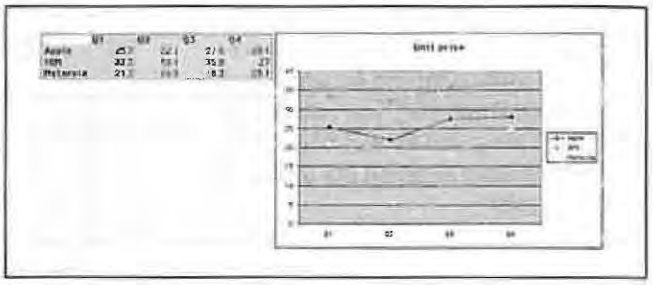
Here are your options, each of which may offer several variations. Examine the illustrations that accompany the following descriptions; each picture reveals which cells were highlighted to produce the charted results shown.

- **Column** charts are ideal for illustrating the data that changes over time—each column might represent, for example, sales for a particular month. As you'll see in the dialog box when you click Column, Excel offers seven variations of this chart type. Some are two-dimensional, some are three-dimensional, some are stacked, and so on. (Stacked-column charts let you see totals for subcategories each month—that is, the different colors in each column might show the sales for a particular region; three-dimensional charts can show even more information—sales over time plotted against sales region, for example.)

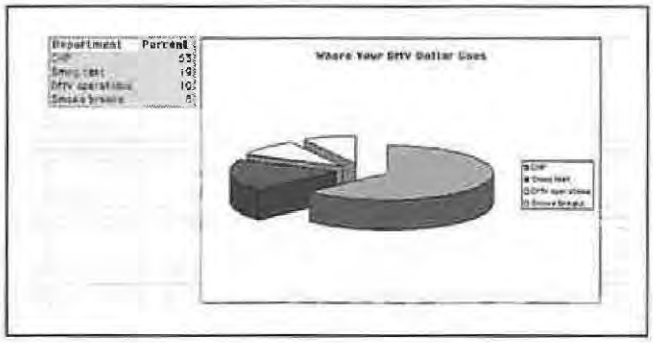
- **Bar** charts, which resemble column charts rotated 90 degrees clockwise, are equally good for showing comparisons among individual items—but bar charts generally aren't used to show data that changes over time. Again, you can choose (in the right side of the dialog box) stacked or three-dimensional bar chart variations.



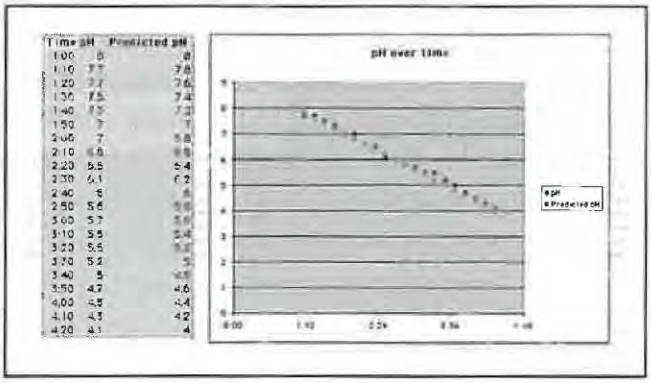
- **Line** charts help to show trends over time or among categories. The Line subtype has seven variations; some show the individual points that have been plotted, some show only the line between these points, and so on.



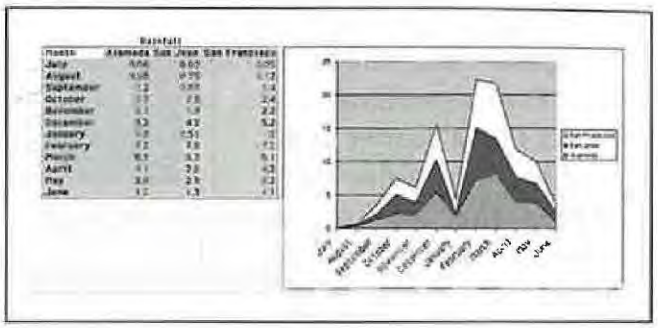
- **Pie** charts are great for showing how parts contribute to a whole, especially when there aren't very many of these parts. For example, a pie chart is extremely useful in showing how each dollar of your taxes is spent on various government programs, or how much of your diet is composed of, say, pie. The Pie subtype has six variations, including "exploded" views and three-dimensional ones.



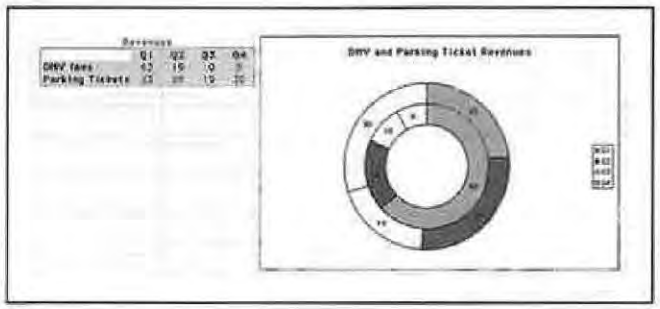
- **XY (Scatter)** charts are common in the scientific community; they plot clusters of data points, revealing relationships among points from more than one set of data.



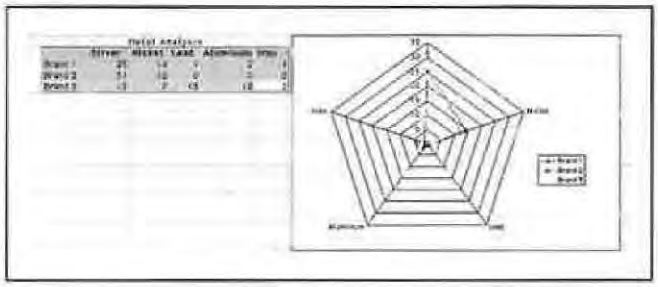
- Area charts are useful for showing both trends over time or categories *and* how parts contribute to a whole.



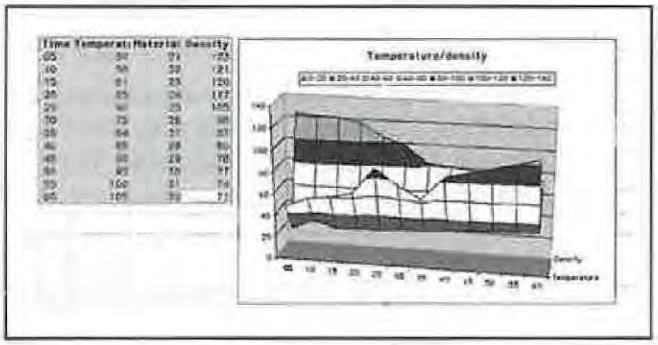
- **Doughnut** charts are like pie charts, in that they show the relationships of parts to the whole; the difference is that the different rings of the doughnut can represent different data sets (data from different years, for example).



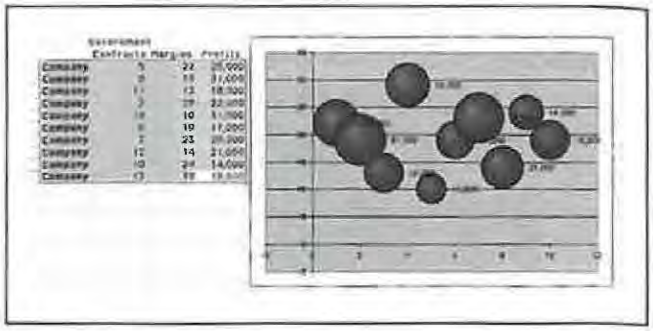
- **Radar** charts exist for very scientific and technical problems. A radar chart features an axis rotated around the center, polar-coordinates style, in order to connect the values of the same data series.



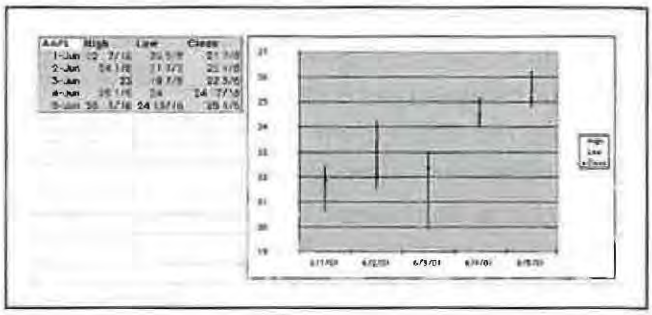
- You might think of a **Surface** chart as a complicated version of the Line chart. It's helpful when you need to spot the ideal combination of different sets of data—the precise spot where time, temperature, and flexibility are at their ideal relationships, for example. Thanks to colors and shading, it's easy to see areas within the same ranges of values.



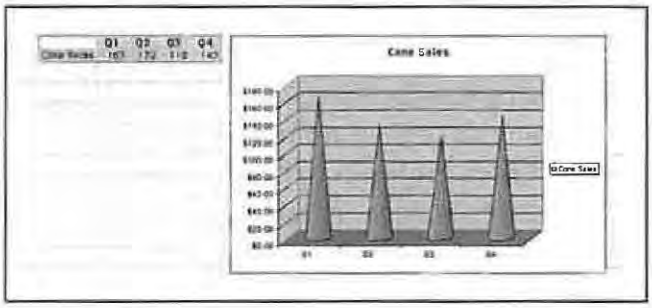
- A **Bubble** chart is used to compare three values; the first two values form what looks like a scatter chart, and the third value determines the size of the "bubble" that marks each point.



- **Stock** charts are used primarily for showing the highs and lows of a stock price on each trading day, but it's also useful to indicate other daily ranges (temperature or rainfall, for example).



- **Cone, Cylinder, and Pyramid** charts are simply variations on basic column and bar charts; the difference is that you get a long, skinny cone, and narrow cylinder, or a triangular spike (pyramid) instead of a rectangular block to represent each column or bar.



Note: If none of these chart types is exactly what you're looking for, Excel isn't finished with you yet. By clicking the Custom Types tab, you can choose from another twenty chart types, or even define your own chart types. This tab is described in the next section.

After you've selected the chart type you want, click the Next button to continue.

Step 3: Set up Your Rows or Columns

On the next Chart Wizard screen, you specify exactly which cells of your spreadsheet you want to graph. If you were wise, of course, you began this entire exercise by highlighting the appropriate cells in the spreadsheet.

But if you forgot, or you're some kind of iconoclast, you can do it now. One way is to edit the contents of the "Data range" field, where the spreadsheet, starting cell, and ending cell are represented with absolute cell references (see page 424).

The easier way to do it is to click the tiny spreadsheet icon to the right of the "Data range" field. This icon, wherever it appears in Excel, always means, "Collapse this dialog box and get it out of my way, so that I can see my spreadsheet and make a selection." (Figure 13-12 shows the procedure.)

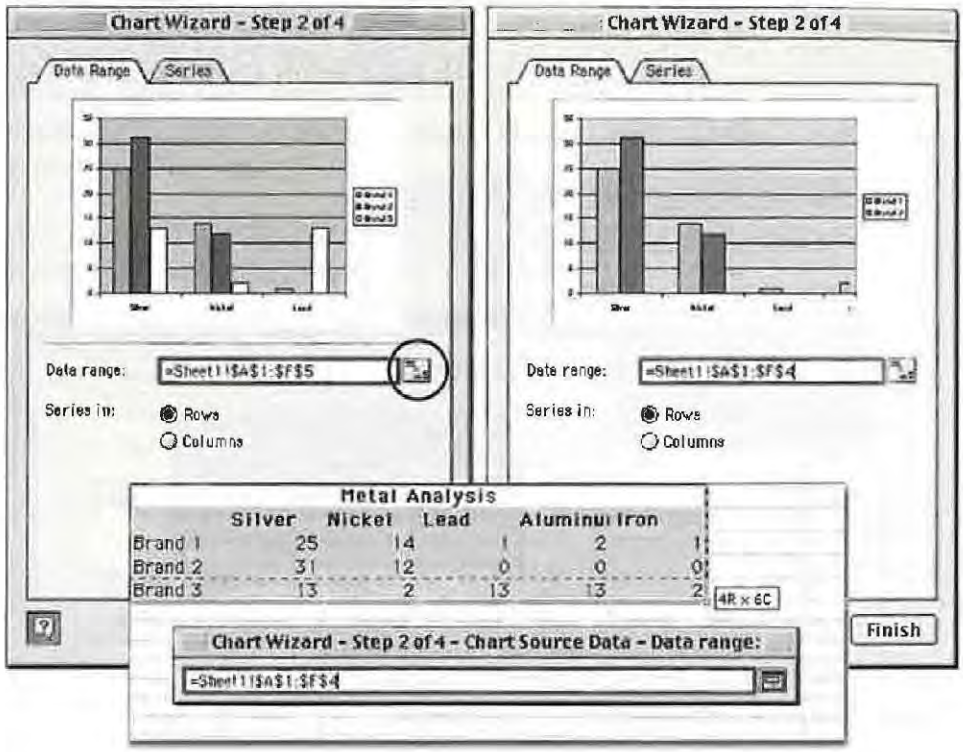


Figure 13-12: *Left: This unnamed, peculiar little icon (circled) is worth getting to know; it pops up in dozens of Excel 2001 dialog boxes.*

Middle: When you click it, Excel collapses the dialog box to get it out of your way, permitting access to your spreadsheet. There you can select a range by dragging.

Right: When you release the mouse, you return to the dialog box, which uncollapses and shows you, in Excel's particular numeric notation, the range you specified.

This is also your opportunity to swap the horizontal and vertical axes of your chart, if necessary. (The preview on the first Chart Wizard screen should have provided an early warning that you might have your X and Y axes mixed up.)

If that preview looked all wrong, you can swap the horizontal and vertical dimensions of your chart by clicking the Rows or Columns radio buttons, whichever contains the data series.

Step 4: Add More Series

The other tab here is the Series tab, which you can use to tweak the data series included in your chart (see Figure 13-13). If things look good, click Next to continue.

Step 5: Design the Chart

When it comes to customizing your chart, this Chart Wizard screen ("Step 3 of 4") is the big one (Figure 13-14). Its six tabs let you change the look of every conceivable chart element, including the chart and axes titles, how gridlines are displayed, where the legend is placed, how data is labeled, and whether the spreadsheet cells used to make the chart are displayed. For example:

- **Titles.** The Titles tab lets you enter names for your chart's title, its axes, and second X and Y axes (if you have them). These names appear as parts of the chart.
- **Axes.** The Axes tab lets you specify whether the X axis is a *category* axis (whether it displays the label you've given each group of data series), or whether it's a time scale, showing change over time.
- **Data Table.** The Data Table tab lets you choose whether your chart shows the actual data (in a little table below the chart) that was used to build your chart.

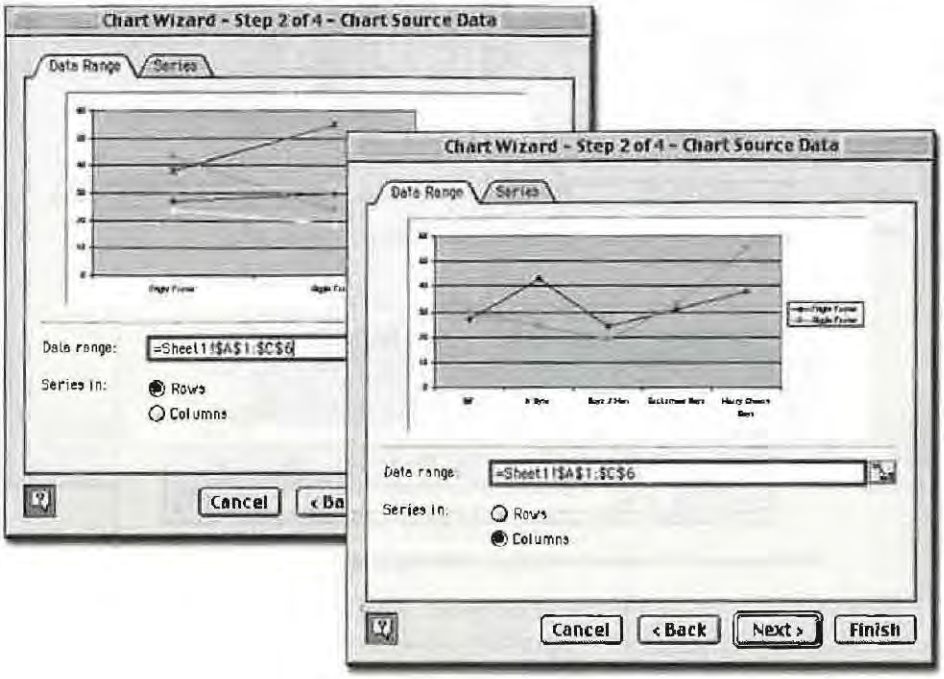


Figure 13-13:
The chart on the left shows rows *as the data series; the chart on the right shows the* columns *as the data series. Which one looks right? If you're trying to compare two sets of data, then the one on the right is the way to go. (You can also take this opportunity to add or remove cells from a given data series, or add an entirely* new *data series, if you find, for example, that you left out your quarterly profits data series when selecting cells.)*

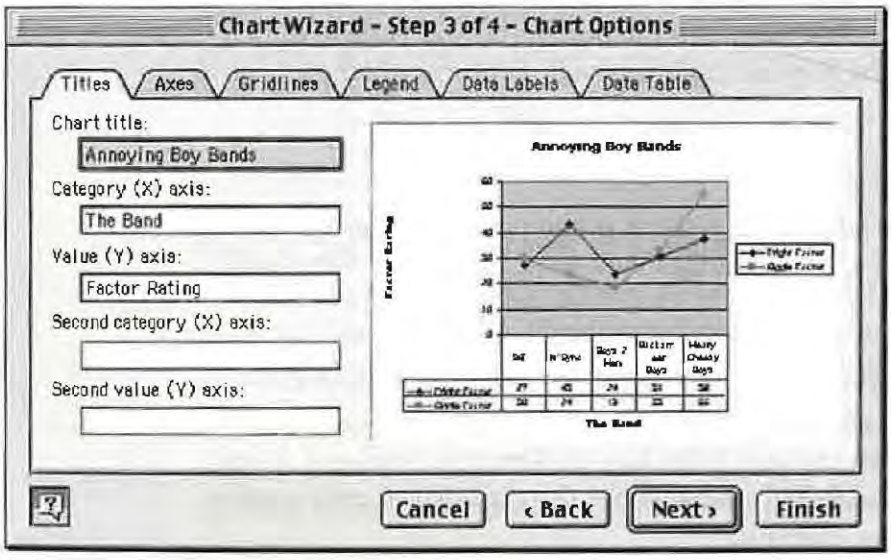


Figure 13-14:
This big tabbed window holds a lot of the customization controls that you can apply to your chart. Each tab area controls a different aspect of the chart's look. During all of this, the Office Assistant offers to help, unless you muzzle it by clicking the Help (?) icon in the lower-left corner.

Check the preview on the right side of the window to see how your chart is shaping up. Once you've made settings to your heart's content, click the Next button to continue.

Step 6: Tell Excel Where to Put It

The final Chart Wizard screen asks where you want the chart to wind up:

- **As new sheet:** Your chart will occupy a new worksheet, called a chart sheet, in the current workbook document. This is the option to use when what you really wanted all along was a chart, and plugging in the numbers into a spreadsheet was just a scratchpad for the benefit of the chart.
- **As object in:** You will create an embedded chart—a chart floating as a graphic object right in your spreadsheet. (Use the pop-up menu to identify which spreadsheet page you want to contain the chart.) Use an embedded chart when you want your flashy graphics next to their data source.

Either way, charts remain linked to the data from which they were created, so if you change the data in those cells, the chart updates itself appropriately.

After making your selection, click the Finish button to make Excel place your chart.

Step 7: Tweak the Chart to Perfection

As is so often the case, the Wizard is only the beginning. Once the chart has appeared on the screen, hundreds of flexible formatting options are available to you.

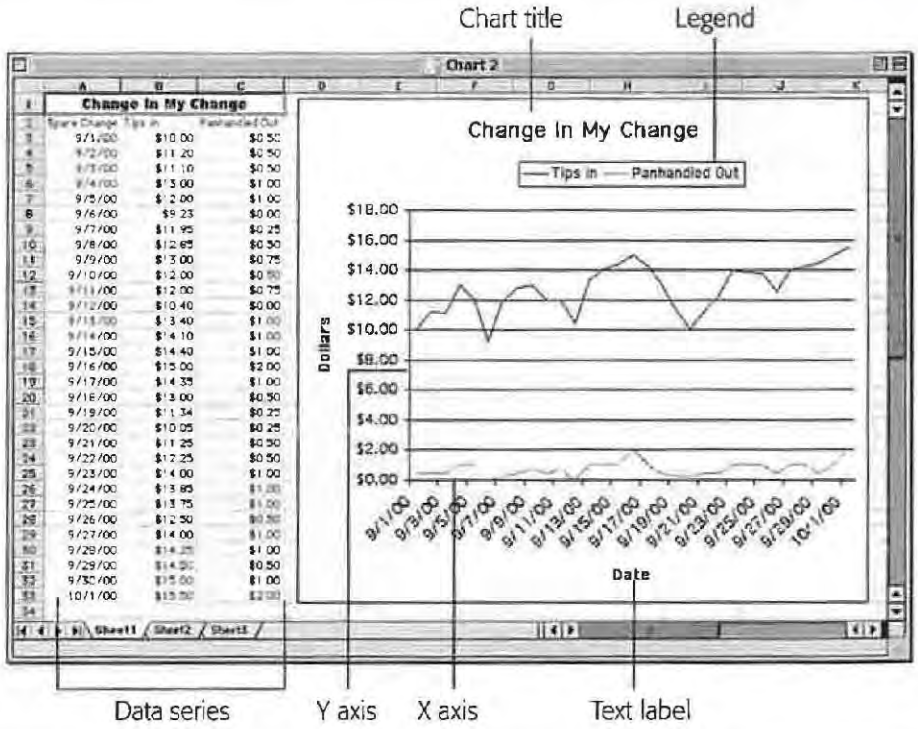


Figure 13-15: *Here's how a typical line chart breaks down into its parts. The X axis represents the date in column A, and the Y axis represents the value of the numbers in column B and C in dollars—in other words, columns B and C are the data series. The text headers at the top of columns B and C are used to make the legend.*

Before you begin to redesign the various pieces of your chart, however, it may be worthwhile taking a moment to learn their anatomical names (see Figure 13-15):

- **Legend.** The *legend* is the key that tells you what the chart's elements stand for—its lines, pie slices, or dots. It's just like the legend on a map.
- **Axes.** An *axis* is the "ruler," either horizontal or vertical, against which Excel charts your data. The horizontal line that forms the floor of the chart is called the X axis; the vertical one that forms the "left wall" is the Y axis.
- **Axis labels.** This term may refer either to the tick mark labels ("January, February, March...") or to the overall label of the horizontal or vertical scale of your chart ("Income, in millions" or "Months since inception," for example).

To modify your chart, you can start with the most urgent matters:

- **Move the chart** by dragging it around on a sheet.
- **Delete some element of the chart** (such as the legend) by clicking it and then pressing the Delete key.

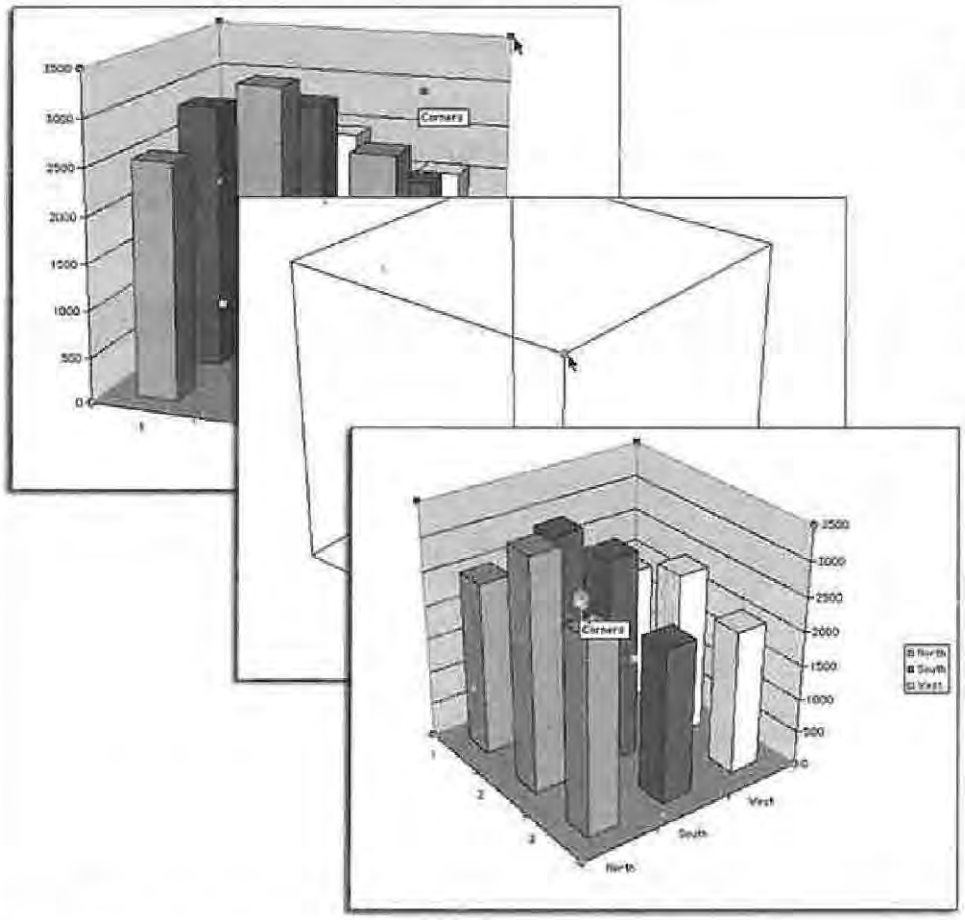


Figure 13-16:
Top: Rotating a 3D chart is one of the flashiest Excel features; more practically, it lets you put your chart in the best possible light. To rotate a chart, drag the corner handle (a tiny black square that shows up at the corners of a selected chart).

Middle: The chart rotates as a wireframe cube.

Bottom: When you release the mouse button, the chart appears, once again fleshed out, in its newly rotated position.

- **Resize the chart** by dragging any of the black square handles at its corners and edges. (If you don't see them, the chart is no longer selected. Click any blank white area inside the chart to select it.)
- **Reposition individual elements *in* the chart** (the text labels or legend, for example) by dragging them.
- **Convert a chart sheet into an embedded chart (or vice versa)** by selecting the chart and then choosing Chart→Location and making the appropriate choice in the resulting window.
- **Rotate a 3D chart** by clicking inside the actual graph to produce its corner handles, then dragging one of those corner handles vertically or horizontally. As shown in Figure 13-16, you see a wireframe representation of the chart while you're dragging. When you release the mouse, the chart redraws itself at the new angle that you specified.

Many different specialized Format dialog boxes await your investigation, too; just double-click the pertinent piece of the chart. For example:

- **Change the border or interior color** of the chart by double-clicking within the body of the chart; the specialized Format dialog box that appears is shown in Figure 13-17.

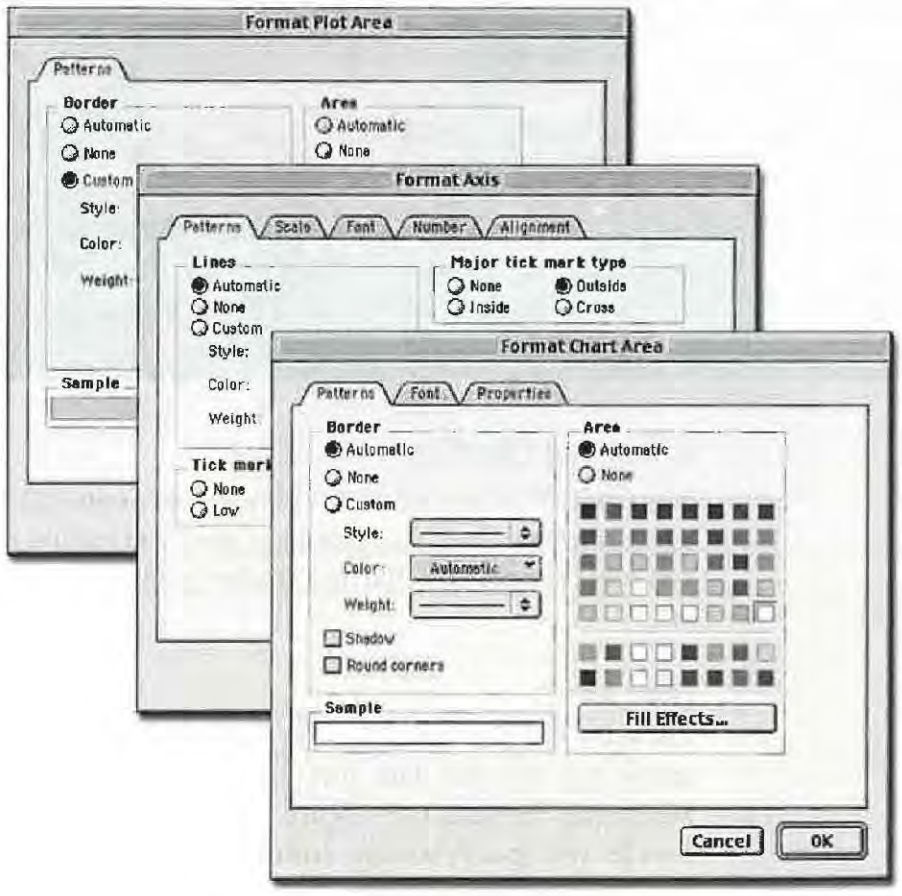


Figure 13-17: *By double-clicking the individual elements in a chart, you open a dialog box that lets you change every conceivable aspect of them. Shown here: The dialog boxes that appear when you double-click a chart bar, axis, and background.*

- **Change the font, color, or position of the legend** by double-clicking it.
- **Change the scale, tick marks, label font, or label rotation of the axes** by double-clicking precisely on their edges.
- **Change the border, color, line thickness, fill effect, bar separation, and data label options of an individual bar or column** by double-clicking it.

You'll also notice that when a chart is selected, the Formatting Palette offers specialized formatting controls that it borrows from the Chart Wizard; using its pop-up menus, you can change the chart type, gridline appearance, legend placement, and so on. And if you still haven't found your preferred method of formatting a finished chart, you can use the Chart toolbar (View→Toolbars→Chart); it offers a pop-up menu that lists the various chart components that you can edit by double-clicking (such as Corners, Floor, Legend, and Series Axis).

Tip: You can transfer a chart into another program by selecting the chart, selecting Edit→Copy (⌘-C) or Edit→Cut (⌘-X) and then pasting it into any program that can accept pasted graphics.

POWER USERS' CLINIC

The One-Step Chart

If you want an insta-chart without having to futz around with the Chart Wizard, there's an incredibly easy way to do it. Just select the data you want in the chart and then press F11. Provided you've turned off the Mac's F-key interception feature (page 60), Excel instantly gives you a standard chart, in its own document window, made from that data.

There's also a Default Chart toolbar button that creates, with a single click, a chart embedded in your spreadsheet; this button isn't, however, on the standard toolbar. You'll have to add it to one of your toolbars by following the instructions on page 573.

Because Excel uses a *default* chart type to create this insta-chart, it's helpful to know how to change that default. To do so, first select a chart, choose Chart→Chart Type, and then, in the window that pops up, select the chart type you want. Click the Set as Default Chart button. When Excel asks you if you really want to do this, click Yes. Then click OK to finish up.

Advanced Charting

The Chart Wizard suffices for almost every conceivable kind of standard graph. But every now and then, you may have special graphing requirements; fortunately, Excel can meet almost any charting challenge that you put before it—if you know how to ask.

Error bars

On some charts—such as those that graph stocks and opinion polls—it's helpful to graph not only the data, but also the range of movement or margin of error that surrounds the data (see Figure 13-18). And that's where *error bars* come in. Error bars let you specify a range around each data point that shows up in the graph, such as a poll's margin of error.

To add error bars to a chart, first select the data series (usually a line or bar in the chart) to which you want to add error bars. Choose Format→Selected Data Series (or double-click the selected line or bar) to bring up the Format Data Series window. To add error bars along the Y axis—the usual arrangement—click the Y Error Bars tab; in the top section of the dialog box, specify what kind of error bar you want; in the bottom, indicate the amount of error you want shown. Click the OK button to add the error bars to your data series. If you later want to remove your error bar, open the Format Data Series window and set the Display portion of the window to None.

Note: You can add error bars to 3-D area charts, bar charts, bubble charts, column charts, line charts, and scatter charts. For scatter charts, in fact, you can even add X-axis error bars. (You'll see this additional option in the Format Data Series window.)

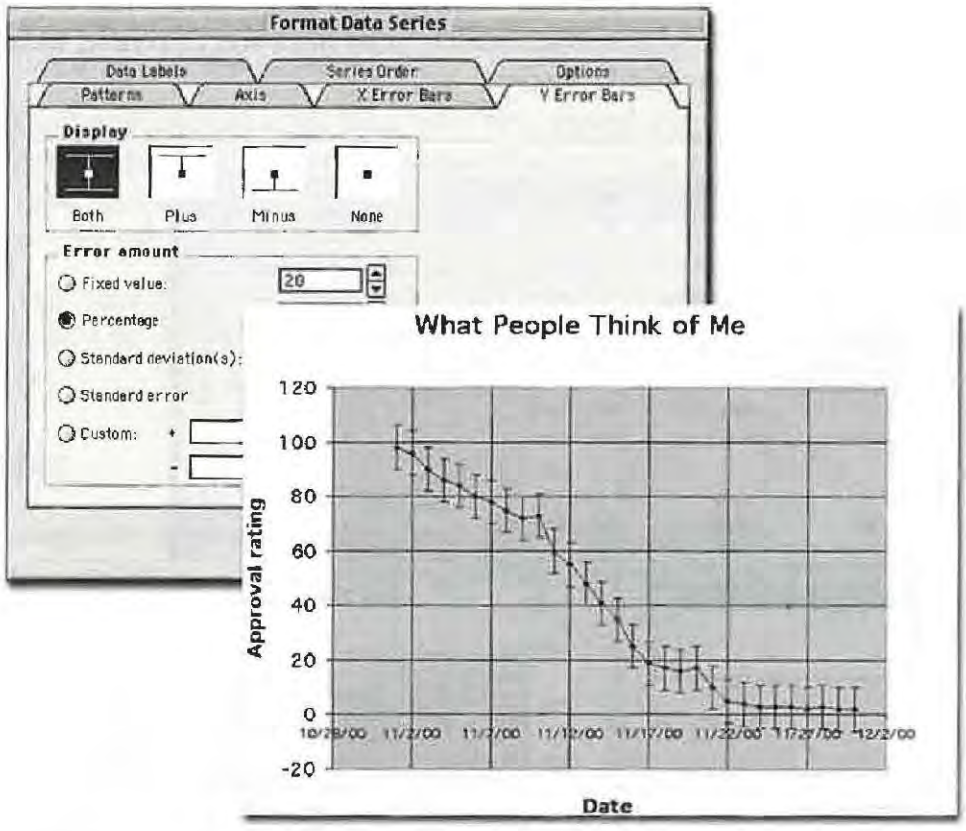


Figure 13-18: *Error bars are easy enough to add to a data series once the Format Data Series window (upper left) is open. In the "Error amount" area, you can select one of several options–including standard deviation or a range of cells that define the error amount. After you've set your error range and clicked OK, the range bars show up on the graph (lower right).*

Trend lines

Graphs excel at revealing *trends*—how data is changing over time, how it probably changed over time before data was tracked, and how it's likely to change in the future. To help with such predictions, Excel can add *trend lines* to its charts (Figure 13-19). Trend lines use a mathematical model to help accentuate patterns in current data and to help predict future patterns.

Note: You can use trend lines only in unstacked 2-D area charts, bar charts, bubble charts, column charts, line charts, scatter charts, and stock charts.

To add a trend line to your chart, click to select one of the data series in the chart—typically a line or a bar—and then choose Chart→Add Trendline, which opens the Add Trendline window.

This window features two tabs: Type and Options. The Type tab lets you choose one of these trend-line types:

- **Linear.** This kind of trend line works well with a graph that looks like a line, as you might have guessed. If your data is going up or down at a steady rate, a linear trend line is your best bet. Linear trend lines resemble a simple straight line.
- **Logarithmic.** If the rate of change in your data increases or decreases rapidly and then levels out, a *logarithmic* trend line is probably your best choice. Logarithmic trend lines tend to have a relatively sharp curve at one end and then gradually level out. Logarithmic trend lines are, of course, based on logarithms, a mathematical function.

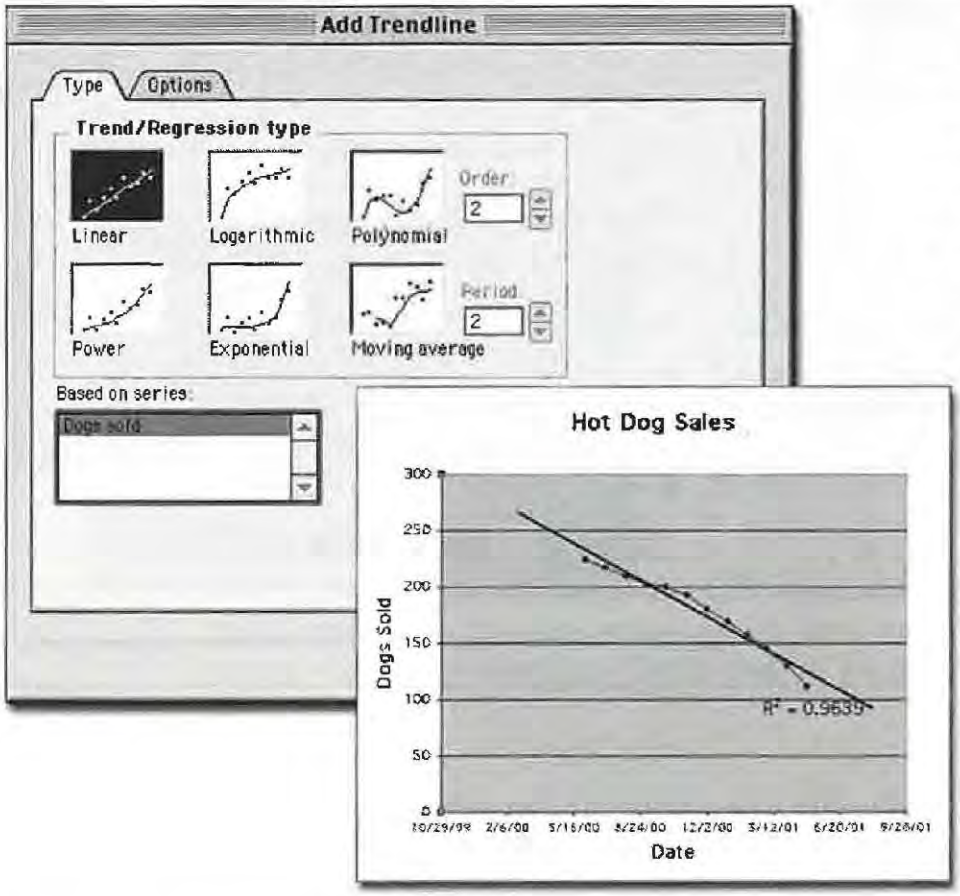


Figure 13-19: *The Add Trendline window (left) gives you six different trend lines from which to choose, and if the trend line allows for it, you can also set the trend line's parameters. Once you've applied a trend line, it appears on top of your existing chart (right), and can be set to predict how the data has changed in the past and how it might change in the future. If you set your trend line to display the R-squared value (under the Options tab), Excel displays this value for you below the line. In this case, you have an R-squared value of 0.9639, which is very close to 1—a good fit.*

- **Polynomial.** A *polynomial* trend line comes in handy when graphed data features hills and valleys, perhaps representing data that rises or falls in a somewhat rhythmic manner. Polynomial trend lines can also have a single curve that looks like a camel's hump (or an upside-down camel's hump, depending on your data. Polynomial trend lines are based on polynomial expressions, familiar to those who've spent some time in a high-school algebra class.
- **Power.** If the graphed data changes at a steady rate, such as with an acceleration curve, a *power* trend line is the way to go. Power trend lines tend to curve smoothly upward.
- **Exponential.** If, on the other hand, the graphed data changes at an ever-increasing or decreasing rate, then you'd be better off with an *exponential* trend line, which also looks like a smoothly curving line.
- **Moving Average.** A *moving average* trend line attempts to smooth out fluctuations in data, which helps show trends that might otherwise be hidden. Moving averages, as the name suggests, can come in all kinds of shapes, and they help to spot cycles in what might otherwise look like random data.

The Options tab, on the other hand, lets you name your trend line, extend it beyond the data set to forecast trends, and even display the *R-squared* value on the chart. (The R-squared value is a way of calculating how accurately the trend line fits the data; you statisticians know who you are.)

Incidentally, to remember that trend lines are just models. As any weatherman, stockbroker, or computer-company CEO can tell you, trend lines don't necessarily predict *anything* with accuracy.

Printing Worksheets

Now that you've gone through the trouble of making your sheets look their best with killer formatting and awe-inspiring charts, the next logical step is printing them out.

Print Preview

Excel's print preview function saves you frustration, time, and old-growth forest that would otherwise be harvested for the sake of your botched spreadsheet printouts.

To use print preview, choose File→Print Preview, which puts Excel into Print Preview mode (Figure 13-20). In this specialized view of the currently selected sheet, you get to see how your data will look when divided up onto several sheets of paper. You can use the buttons along the top of the window to tweak how your sheet prints. Here's a quick look at how those buttons work.

- **Next, Prev.** If your spreadsheet is too big for a single sheet of paper, the buttons show you the next page, or previous page, of the preview.

- **Zoom.** The zoom button lets you magnify or reduce your preview, giving you a closer look at the cell contents that may be chopped off at the edge of the page.
- **Print.** This button opens up the Print dialog box, where you can set your print options and send your sheet to the printer.
- **Setup.** This button opens the Page Setup dialog box, as described on page 469.
- **Margins.** Click this button to hide or show dotted lines and little black handles, representing the margins of your page. You can drag them to adjust the sizes of your margins; for example, if your spreadsheet is only slightly too big to fit on a page, shrinking the margins might make just enough room to accommodate the whole thing.
- **Page Break Preview.** Microsoft is justifiably proud of this exclusive feature. When you click this button, you enter Page Break Preview mode, where thick blue dotted lines indicate how Excel plans to chop up your spreadsheet onto multiple pages (Figure 13-20). (If your spreadsheet doesn't require multiple pages, the Page Break Preview button is dimmed and unavailable.)

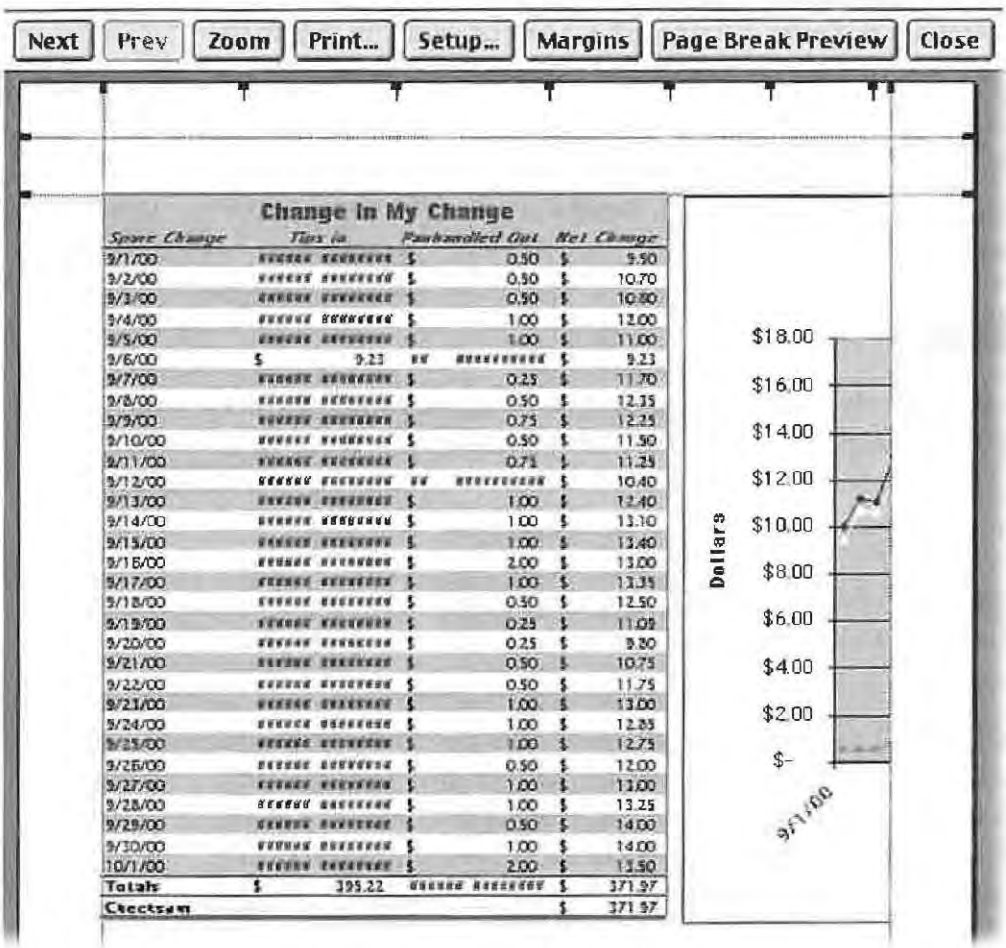


Figure 13-20: *A disaster waiting to print. This printout will be chopped off in mid-chart. Fortunately, by choosing File→Print Preview before actually printing the spreadsheet, you get a chance to see how it's going to spill over onto two sheets—and you get the chance to do something about it by using the Print Preview controls.*

Tip: You can also check out your page-break preview without entering Print Preview mode first. Just choose View→Page Break Preview at any time.

Suppose you've resigned yourself to the fact that your spreadsheet is too big for a single sheet—but Excel is cutting it off at a really bad place, such as just before the December sales-figure column. The beauty of Page Break Preview is that you can drag the blue dotted lines up, down, left, or right to redefine where the page breaks fall. (If you can't do it, check to see if Max the help character has interrupted with a helpful message that requires dismissing with a click on the OK button.)

After each drag, Excel automatically shrinks or enlarges the contents of the affected pages to accommodate your page-break preferences. (All things in moderation, however; using this feature, it's possible to force Excel to shrink the numbers in your cells to the size of atoms.)

To exit Page Break Preview mode, choose View→Normal.

- **Close.** This button closes the Print Preview window and returns you to your regularly scheduled spreadsheet.
- **Help (?) icon.** The question-mark button opens Excel's help window to the topic of Print Preview.

Tip: If you want to print just a certain portion of your spreadsheet, select the cells that you want to print and then choose File→Print Area→Set Print Area. This tells Excel to print only the selected cells. To clear a custom print area, select File→Print Area→Clear Print Area.

Page Setup

Excel's Page Setup window is far more comprehensive than the Page Setup window that appears when you choose File→Page Setup in, for example, SimpleText. In it, you can control how pages are oriented, how spreadsheets fit on a page, the print quality, margins, how headers and footers are printed, and the order in which pages are printed.

Page tab

In the Page portion of the Page Setup window, you can change the orientation of each page (Portrait or Landscape), reduce or enlarge the printout by a certain percent, or—using the "Fit to" control—force the spreadsheet to fit on a certain number of printed pages (see Figure 13-21). (Using this control, of course, affects the size of the type in your printout.) If you don't want the pages of your spreadsheet numbered 1, 2, and so on, you can type a different number into the "First page number" field; that's how you force Excel to number the pages beginning with, say, 5 on the first printed sheet.

An Options button on the right of the window brings up the more familiar printer Page Setup dialog box for your printer, in which you can set more of your printer's options (such as the paper size to use when printing).

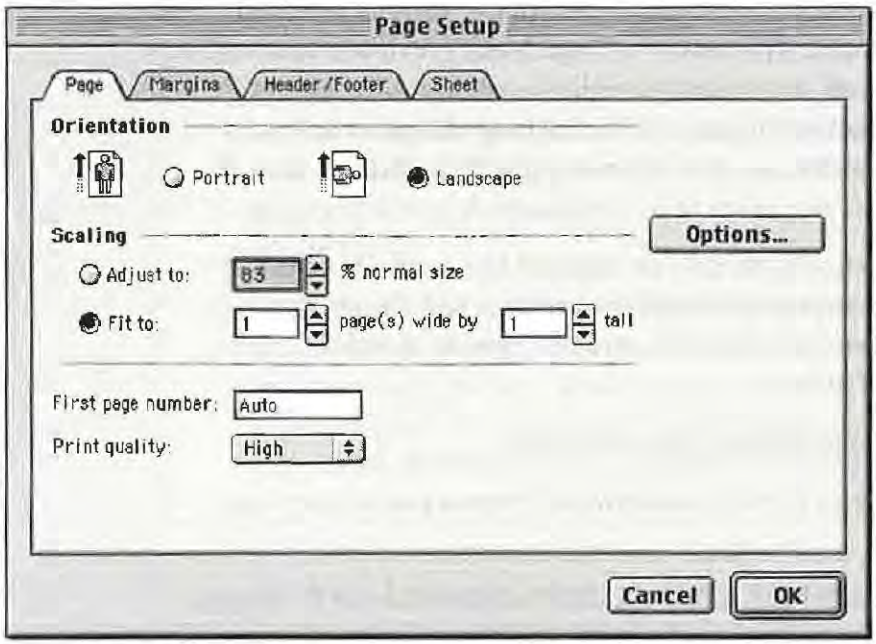


Figure 13-21:
The Page portion of the Page Setup window is where to start if you want a spreadsheet to print on one page. A click in the "Fit to" radio button (in the Scaling area) automatically adjusts your spreadsheet's print size to fit on a sheet of paper. If you want it to fit on more than one sheet, you can adjust the numbers in the "Fit to" area.

Margins tab

The Margins tab (Figure 13-22) lets you specify the page margins for your printout (and for the header and footer areas, described next). You can also tell Excel to center the printout on the page horizontally, vertically, or both. The Options button, once again, summons the standard Page Setup dialog box for your printer.

Header/Footer tab

When you have something that you want to print on the top or bottom of every page (such as a title, copyright notice, or date), it's time to make a visit to the Header/Footer tab (Figure 13-22).

Here, you can use the Header or Footer pop-up menu to choose from a selection of prepared headers and footers: "Page 1 of 7," "Confidential," and so on.

If the header or footer message you want isn't there, you can always click the Custom Header or Custom Footer buttons, which brings up a customization dialog box. In it you can enter your own header or footer text, or click one of the seven icons that produce placeholder codes for the current page number, the total number of pages, the current date, the current time, the file name, and the tab name.

You can combine these codes with text that you type yourself. For example, into "Center section" box, you could type, *CD Collection Status as of*, and then click the fourth icon. Excel inserts the code *&{Date};* whenever you print this document,

you'll find, across the top of every page, "CD Collection Status as of 11/5/01," or whatever the current date is.

This customization window also lets you specify the font used in the header or footer.

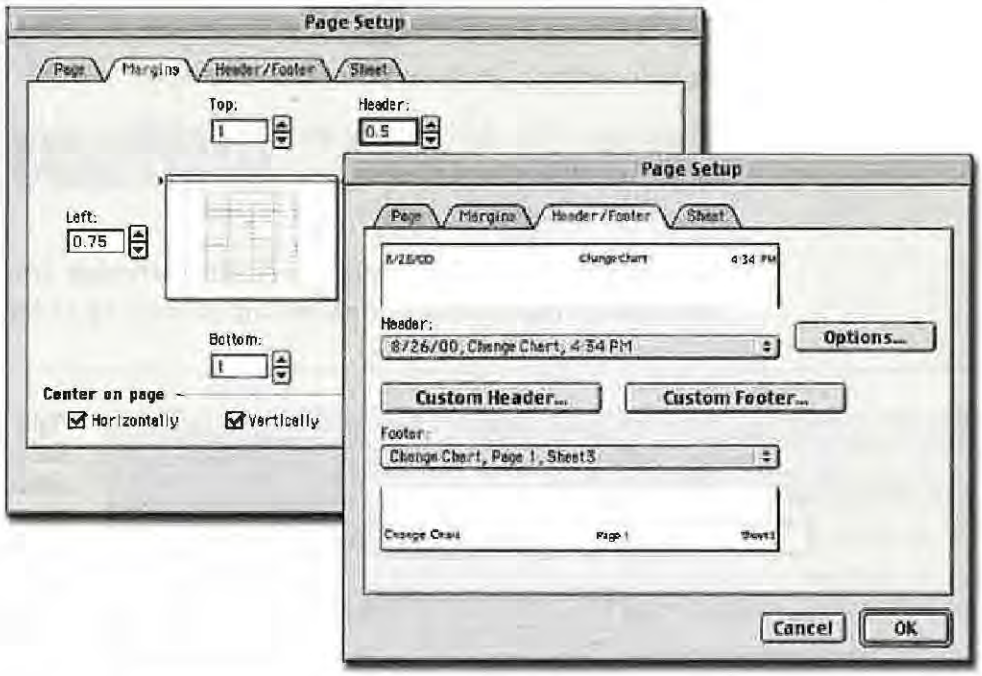


Figure 13-22: *Left: The Margins tab lets you set how much top and bottom space is left over for headers and footers–useful if you have particularly large headers and footers. The checkboxes at the bottom let you set how–and whether–your printouts are centered on the page.*

Right: The Header/Footer tab is where you can set text to be printed on the top or bottom–or both–of every page.

Sheet tab

The last section of the Page Setup dialog box, called Sheet (Figure 13-23), gives you yet another way to specify which portions of the sheet are to be printed. You can type starting and ending Excel coordinates into the "Print area" box, separated by a colon, or click the spreadsheet icon (see page 459) to return to the spreadsheet, or you can highlight the cells you want printed.

You'll also find in this dialog box:

- **Rows to repeat at top, Columns to repeat at left.** If you have carefully typed the months of the year across the top of your spreadsheet, or product numbers down the left side, you'll have a real mess on your hands if the spreadsheet spills over onto two or more pages. Anyone trying to read the spreadsheet will have to refer all the way back to Page 1 just to see the labels for each row or column.

  Excel neatly avoids this problem by offering to *reprint* the column or row labels at the top or left side of *each* printed page. To indicate which row or column contains these labels, click the spreadsheet icon just to the right of each field; see page 459 for a description of this icon tool.

- **Grid lines, Row and column headings.** It's too bad that the answer to one of the world's most frequently asked spreadsheet questions—"How do I get the grid lines to print?"—is buried in this fourth tab of a buried dialog box.

In any case, this dialog box should make all clear. Excel never prints grid lines or the gray row and column headings unless you turn on their corresponding checkboxes here.

- **Draft quality, Black and white.** Use these two checkboxes when you're in a real hurry. Draft quality speeds up printing by omitting graphics and some formatting; "Black and white" means that your printer won't bother with time-consuming color, even if color appears in spreadsheet.
- **Comments.** Use this pop-up menu to specify where *comments* (see page 515) appear on the printout—on its last page, or right where you put them in the spreadsheet itself.
- **Page order.** Use these controls to control whether Excel prints a multiple-page spreadsheet row by row (of pages), or column by column.

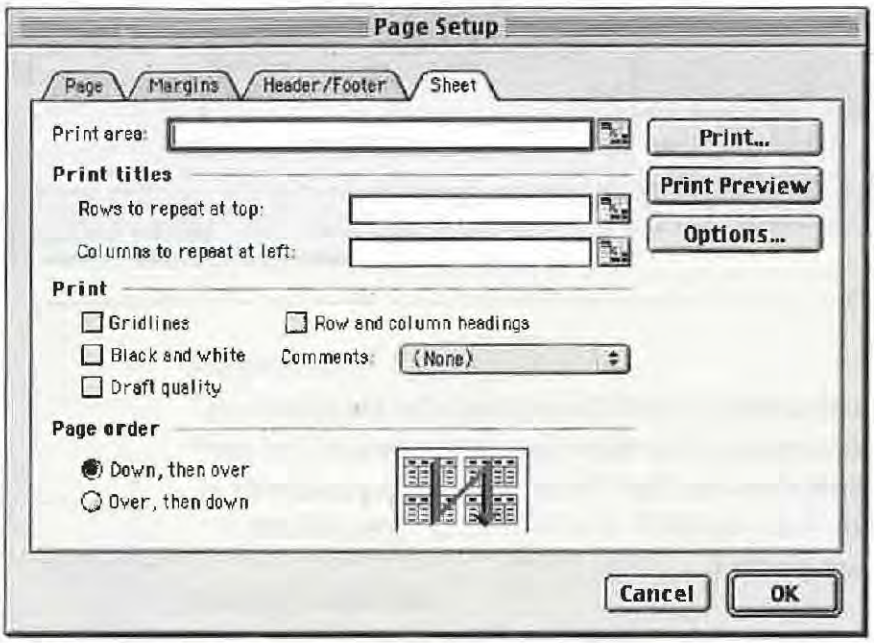


Figure 13-23:
The Sheet portion of the Page Setup window lets you set a print area (if you haven't already done so). You can also specify that certain rows repeat at the top of each page and/or columns repeat on the left of each page. It gives you five print-quality options, and it lets you set whether Excel prints multiple-page spreadsheets from top to bottom, or from left side to right side.

CHAPTER
14

Advanced Spreadsheeting

If you've mastered enough of Excel to be able to input numbers, perform calculations, create charts and graphs, and log your CD collection using Excel's List Manager, then congratulations—you already have far more spreadsheet ability than most people.

If, on the other hand, you are the kind of person who uses Excel more than a word processor, whose business depends on the flow of numbers, projections, and calculations, there's still more to learn. This chapter covers the eerie realms of power Excel, where several people can work on the same spreadsheet simultaneously over the network, files can connect to databases or even the Web for their information, and Excel can be told how to do things by itself.

Workbooks and Worksheets

A *workbook* is an individual Excel file that you save on your hard drive. Each workbook is made up of multiple *worksheets*, which let you organize your data in lots of complex and interesting ways. You can think of a workbook as a bound ledger with multiple paper worksheets. Although most of the work you do is probably in an individual sheet, it's often useful to store several spreadsheets in a single workbook document—for the convenience, for example, of linking multiple Excel worksheets together.

Working with Multiple Worksheets

Although it doesn't offer quite the heart-pounding excitement of, say, the List Manager, managing the worksheets in a workbook is an important part of mastering Excel. Here's what you should know to get the most out of your sheets:

Tip: Several of the techniques described here involve selecting more than one worksheet. To do so, ⌘-click the tabs of the individual sheets you want—or click the first in a consecutive series, then Shift-click the last.

- **Adding sheets.** Each Excel workbook starts out with three sheets, which bear the inspired names Sheet1, Sheet2, and Sheet3. (You can set the number of sheets in a new workbook in Excel's preferences.)

  To add a new sheet to your workbook, choose Insert→Worksheet, or Control-click one of the tabs at the bottom of the worksheet and choose Insert from the contextual menu. A new sheet appears *to the left* of the currently selected sheet, and it's named Sheet4 (or Sheet5, Sheet6 and so on).

Tip: If you want to insert more than one sheet in one swift move, select the same number of sheet tabs that you want to insert and *then* choose Insert→Worksheet. For example, to insert two new sheets, select Sheet1 and Sheet2 by Shift-clicking both tabs, and then choose Insert→Worksheet. Excel then inserts Sheet4 and Sheet5 (yes, to the *left* of Sheet1).

- **Deleting sheets.** To delete a sheet, click the doomed sheet's tab (or select several tabs) at the bottom of the window, and then choose Edit→Delete Sheet. (Alternatively, Control-click the sheet tab and choose Delete from the contextual menu.)

Warning: You can't bring back a deleted sheet; the Undo command (Edit→Undo or ⌘-Z) doesn't work in this context.

- **Hiding and showing sheets.** Instead of deleting a worksheet forever, you may sometimes find it helpful to simply hide one (or several), keeping your peripheral vision free of distractions while you focus on the remaining ones. To hide a sheet or sheets, select the corresponding worksheet tabs at the bottom of the window; then choose Format→Sheet→Hide. To show (or *unhide*, as Excel calls it) sheets that have been hidden, choose Format→Sheet→Unhide, which brings up a list of sheets to show. Choose the sheet that you want to reappear, and click OK.

Note: You can only unhide one sheet at a time.

- **Renaming sheets.** The easiest way to rename a sheet is to double-click its tab to highlight its name, and then type the new text (up to 31 characters long). Alternatively, you can select the tab of the sheet you want to rename and then choose Format→Sheet→Rename; you can also Control-click the sheet tab and choose Rename from the contextual menu.
- **Moving and copying sheets.** To move a sheet (so that, for example, Sheet1 now comes after Sheet3), just drag its tab horizontally; a tiny black triangle indicates where the sheet will wind up, relative to the others, when you release the mouse.

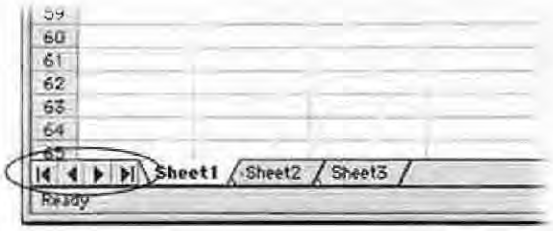
Using the same technique, you can even drag a worksheet into a different Excel document.

Tip: If you press Option while you drag, you get a copy of the worksheet. (The exception is when you drag a sheet's tab into a different workbook; in that case, Excel copies the sheet regardless of whether the Option key is held down or not.)

As usual, there are other ways to perform this task. For example, you can also select a sheet's tab and then choose Edit→Move or Copy Sheet, or Control-click the sheet tab and choose Move or Copy from the contextual menu. In either case, the Move or Copy window pops up. In it, you can specify which open workbook the sheet should be moved to, whether the sheet is copied or moved, and where you want to move the sheet to appear relative to the others.

- **Scrolling through sheet tabs.** If you have more sheet tabs than Excel can display in the bottom portion of the window, you can use the four tab scrolling controls to scoot between the various sheets (see Figure 14-1).

Figure 14-1:
From left to right, the four sheet-corner arrows do the following: scroll the tabs to the leftmost tab; scroll the tabs to the left by one tab; scroll the tabs to the right by one tab; and scroll the tabs all the way to the right.



- **Showing more or fewer sheet tabs.** The area reserved for Sheet tabs must share the bottom half-inch of window space with the horizontal scroll bar. Fortunately, you can change how much of the window's lower frame is devoted to showing sheet tabs by dragging the small, gray, vertical bar that's just to the left of the bottom scroll bar. Drag it to the left to expand the scroll bar area (and hide worksheet tabs if necessary); drag it to the right to reveal more tabs.

Sharing a Workbook

With a little preparation, several Excel users on the same network can work on a single worksheet at the same time.

To share a workbook, choose Tools→Share Workbook, which brings up the Share Workbook dialog box. On the Editing tab, turn on "Allow changes by more than one user at the same time." Click the Advanced tab (Figure 14-2) to set options:

- **Track changes.** This section lets you set a time limit on what changes are tracked (see "Tracking Changes" on page 479). If you don't care what was changed 61 days ago, you can limit the tracked changes to 60 days. You can also tell Excel not to keep a change log at all.

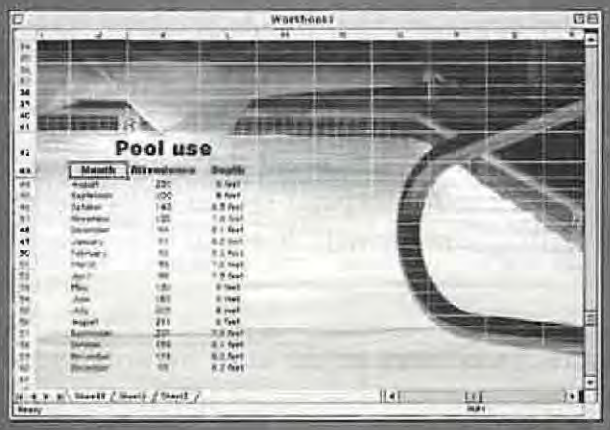
- **Update changes.** Here, you specify when the shared workbook gets updated to reflect changes that others have made. You can set it to show you the changes that have been made every time the file is saved; or you can command it to update at a time interval that you specify. You can also set the workbook to reflect the changes that you *and* your colleagues have made, or just the changes that others have made.
- **Conflicting changes between users.** This section governs whose changes "win" when two or more people make changes to the same section of the workbook. You can set it so that you're asked to referee (which can be a *lot* of work), or so that the most recent changes saved are the ones that win (which can be risky); clearly, neither option is perfect.
- **Include in personal view.** These two checkboxes—Print settings and Filter settings—let you save changes that are independent of your workbook when it comes to printing and filtering the shared worksheet.

When you click OK, Excel prompts you to save the workbook, if you haven't already. Save it on a networked disk where others can see it. Now, anyone who opens the workbook from across the network opens it as a shared book.

POWER USERS' CLINIC

Adding Background Pictures to Sheets

Every now and then, it's easy to feel sorry for Microsoft programmers; after umpteen revisions, what possible features are left to be added to Excel? They must rack their brains, lying awake at night, trying to figure out what else they can come up with.



Surely, the ability to add a graphics file as a background image behind your cell grid is an idea that sprang from just such a late-night idea session.

Start by choosing Format→Sheet→Background. An Open dialog box pops up, in which you can choose the graphics file (JPEG, GIF, Photoshop, and so on) that you want to use as a background. Once you've selected it and clicked Open, the image loads as the spreadsheet's background. If the image isn't large enough to fill the entire worksheet, Excel automatically *tiles* it, placing copy after copy side-by-side until every centimeter of the window is filled.

Clearly, if this feature is ever successful in improving a worksheet, it's when the background image is extremely light in color and low in contrast; most other images succeed only in rendering your numbers and text illegible.

If, after adding an image to a sheet, you decide that it makes things much, much worse, choose Format→Sheet→Delete Background. Your normal white Excel sheet background returns.

Shared workbooks have some limitations. Here are some things that you *can't* do with a shared workbook:

- Assign, change, or delete a password protecting a worksheet.
- Create, edit, view, or assign *macros* (see page 517).
- Change dialog boxes or menus (page 578).
- Insert charts, hyperlinks, objects, or pictures.
- Make or change PivotTables, or make or refresh data tables (see page 496).
- Merge, insert, or delete blocks of cells, or delete worksheets.
- Use automatic subtotals or drawing tools.
- Use or create conditional formats or data validation.
- View or edit *scenarios* (page 501).



Figure 14-2:
The Share Workbook window shows you exactly who else is using a shared workbook. If you worry that one of your fellow network citizens is about to make ill-advised changes, click her name and then click the Remove User button. Your comrade is unceremoniously ejected from the spreadsheet party. You should also note that there's little security in shared workbooks. As you can see, the same user is logged in and able to make changes from two different Macs at the same time.

Protecting the spreadsheet

Fortunately, you don't need to give everyone in your company unfettered access to your carefully designed spreadsheet; you can limit what each person is allowed to do. You can protect your spreadsheet in several ways, as described here; your colleagues can't turn off these protections without choosing Tools→Unprotect Sheet—and *that* requires a password (if you've set one up).

- **Protect a workbook from changes.** Choose Tools→Protection→Protect Workbook, which brings up the Protect Workbook dialog box. By turning on Struc-

ture and/or Windows, you can protect the workbook's *structure* (which keeps its sheets from being deleted, changed, hidden, or renamed) and its windows (which keeps the workbook's windows from being moved, resized, or hidden)—all of which is especially important in a spreadsheet you've carefully set up for on-screen reviewing. You can also assign a password to the workbook so that if a user wants to turn *off* its protection, he must know the password.

- **Protect a sheet from changes.** Choose Tools→Protection→Protect Sheet to bring up the Protect Sheet window. Turn on the Contents checkbox to protect all *locked* cells in a worksheet (described next) as well as items in a chart. Turn on Objects to prevent changes to graphic objects on a worksheet. Finally, turn on the Scenarios checkbox to keep any *scenario* definitions (page 501) from being changed.

  The bottom of the window lets you assign a password to the worksheet; this password will be required from anyone who attempts to turn off the protections you've set up.

- **Protect individual cells from changes.** If you want to protect individual cells in your worksheet from changes, format them as *locked cells*, and then protect the sheet's contents as described above.

  The funny thing is, Excel formats *all* cells (in a shared sheet) as locked; locking only certain cells, therefore, requires some effort. There are a *lot* of cells in a worksheet; to pinpoint just the ones you want to lock, it's best to begin from a blank slate of unlocked cells.

  In other words, begin by highlighting all of the cells in the worksheet by pressing ⌘-A (or choosing Edit→Select All). Then choose Format→Cells. In the resulting dialog box, click the Protection tab, turn off the Locked checkbox, and then click OK.

  Now, select the cells that you *want* to lock, choose Format→Cells, and then click the Protection tab in the Format Cells window. Click OK, and then protect the sheet's contents by selecting Tools→Protection→Protect Sheet, checking the Contents checkbox, and closing the window. Now, your colleagues can't make changes to the locked cells without first unprotecting the sheet.

- **Require a password to open a workbook.** Open the workbook you want to protect and choose File→Save As (or, if you've never saved this workbook before, choose File→Save). In the Save dialog box, click Options. The resulting window (Figure 14-3) lets you can enter one password to allow opening the file, and another to allow modifying the file.

Warning: Remember these passwords. If you forget them, there's no way to recover them; it's possible to lock yourself out of your own workbook.

- **Hide rows, columns, or sheets.** Once you've hidden some rows, columns, or sheets (page 441), you can prevent people from making them reappear by choosing Tools→Protection→Protect Workbook. Turn on Structure and then click OK.

- **Allow selection of only certain parts of a worksheet.** If you're a programmer with serious knowledge of macros and the Visual Basic language, you can use the EnableSelection property to keep specific cells from being selected by other people. Although you can play with changing this property from NoRestriction to UnlockedCells in the Visual Basic Editor (which keeps you from selecting cells that are locked), to actually *implement* this change into a worksheet requires writing code in Visual Basic.



Figure 14-3:
By entering a password in the top text box, you prevent others from opening your workbook without the password. If you specify only the second password, people can open the file, but can't make changes without the password.

- **Protecting a Shared Workbook.** To protect a shared workbook, choose Tools→Protection→Protect Shared Workbook, which brings up the Protect Shared Workbook window. This window presents you with two protection choices. If you turn on "Sharing with track changes" and enter a password, you prevent others from turning off change tracking, which is a way of looking at who makes changes to your workbook and what changes were made. Turning on this checkbox *also* shares the workbook, as detailed above.

Tracking Changes

When people make changes to your spreadsheet over the network, you aren't necessarily condemned to a life of frustration and chaos, as numbers that you originally input are changed beyond recognition. Exactly as in Word, Excel offers a *revision tracking* feature that lets you see exactly which of your co-workers made what changes to your spreadsheet—and on a case-by-case basis, approve or eliminate them. (The changes, not the co-workers.)

To see who has been tiptoeing through your workbook, choose Tools→Track Changes→Highlight Changes, which brings up the Highlight Changes window. In it, you can choose how changes are highlighted—by time or by person making the changes. You can also limit the revision tracking to a specific area on the worksheet, as shown in Figure 14-4.

As life goes on with this spreadsheet on your network, changes made by your co-workers show up as a triangular flag at the upper-left corner of a cell or block of cells (Figure 14-4, middle).

Once you've looked over the changes, you may decide that the original figures were superior to those in the changed version. At this point, Excel offers you the opportu-

nity to analyze each change; if you think the change was an improvement, you can accept it, making it part of the spreadsheet from now on—or you can reject the change, restoring the cell contents to whatever was there before your network comrades got ambitious.

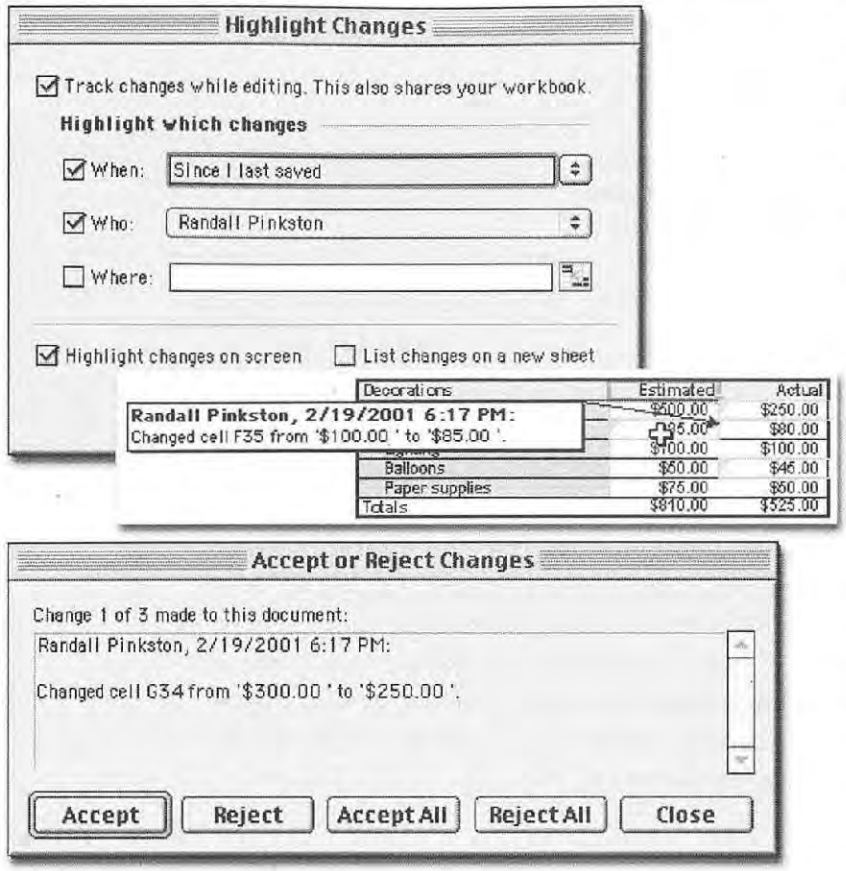


Figure 14-4:
Top: Using this dialog box, you turn on the revision-tracking feature and specify whose changes are recorded. By turning on Where, clicking the tiny spreadsheet icon next to the box, and dragging in your worksheet, you can also limit the tracking feature to a specific area of the worksheet.

Middle: The shaded triangle in the upper-left corner of a cell tells you that somebody changed its contents. A tooltip balloon lets you know exactly what the change was.

Bottom: Using this dialog box, you can walk through all the changes in a spreadsheet one at a time, giving each changed cell your approval or restoring it to its original value.

To perform this accept/reject routine, choose Tools→Track Changes→Accept or Reject Changes. In the Select Changes to Accept or Reject window, you can set up the reviewing process by specifying which changes you want to review (according to when they were made, who made them, and where they are located in the worksheet). When you click OK, the reviewing process begins (Figure 14-4, bottom).

Merging Workbooks

In many work situations, you may find it useful to distribute copies of a workbook to several people for their perusal, and then incorporate the changes they make into a single workbook.

Performing this feat, however, requires some preparation. Create a shared workbook (see the previous section), and then turn on *change history*. You'll find this option by choosing Tools→Share Workbook and then clicking the Advanced tab (Figure 14-5). The number that you specify in the "Keep change history for" box

determines how old changes can be before they start sliding off into irrelevance. The theory behind this feature is that you'll stop caring about changes that are older than the date that you set in the Track Changes area. (Tracking changes forever can bloat a file's size, too.)

Once you've prepared your workbook, distribute it via email or network. Ask your colleagues to make comments and changes and then return their copies of the spreadsheet to you (within the time limit you specified as described in the previous paragraph). Collect all of the copies into one place. (You may need to rename the workbooks to avoid replacing one with another—they can't occupy the same folder if they have the same names.)

Now open a copy of the shared workbook; choose Tools→Merge Workbooks, which brings up an Open dialog box. Choose the file you want to merge into the open workbook, and then click the OK button. You have to repeat this process for every workbook you want to merge.

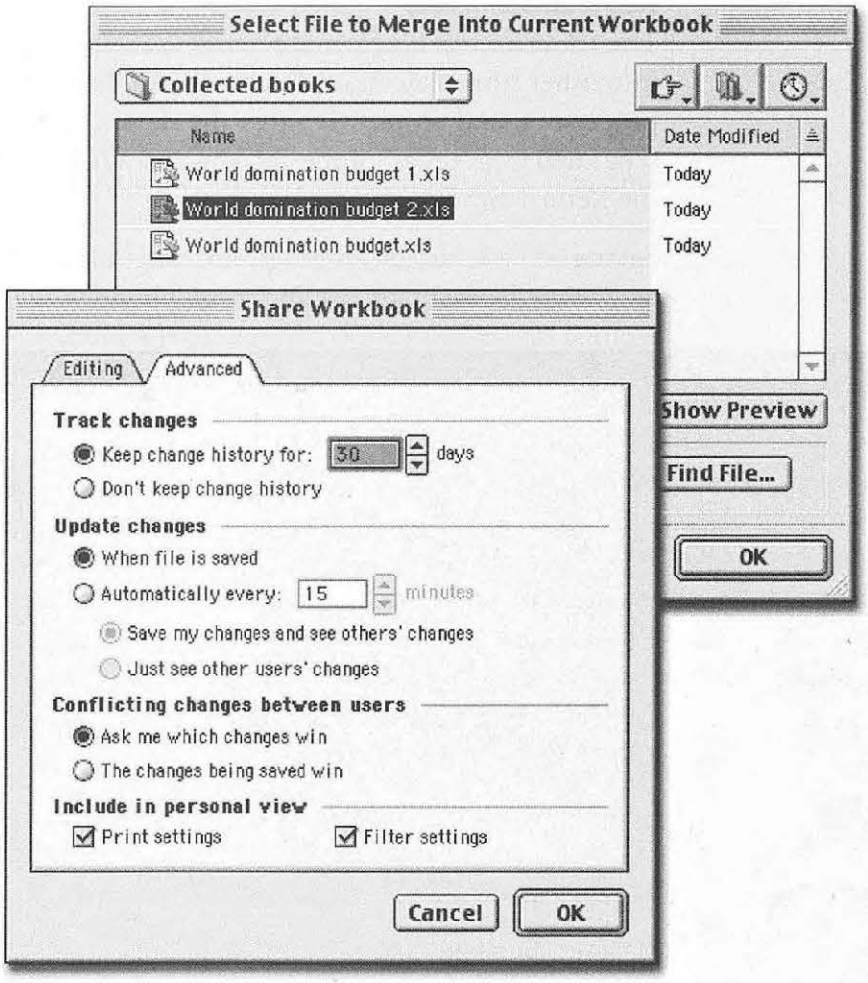


Figure 14-5:
Front: To prep your workbook for later merging, turn on the "Keep change history" option in the Share Workbook window. You must also complete your merge within the time limit that you set in the Track changes area.

Back: Once you're ready to bring everything together, choose Tools→Merge Workbooks and select the first worksheet that you want to merge into the currently open worksheet.

Exporting Files

Every now and then, it can be useful to send your Excel data to a different program—a database program, for example, or AppleWorks (if you're collaborating with somebody who doesn't have Office). Fortunately, Microsoft engineers have built in 29 different file formats for your Excel conversion pleasure.

To save your Excel file in another file format, choose File→Save As; then select the file format you want from the Format pop-up menu. Here are a few of the most useful options in that pop-up menu.

Tip: If you're going to be swapping files with someone who has an earlier version of Excel, save your workbooks in one of the earlier Excel file formats listed in the Format pop-up menu; you'll find formats that go all the way back to Excel 2.2. Be warned, however, that certain kinds of information may not survive the transition; for example, such recently added elements as in-cell font changes, graphics-file backgrounds, and Lists didn't exist in earlier Excel versions.

Text (Tab delimited)

The *tab-delimited* file format provides an often-used way of getting your Excel sheets into other spreadsheets or databases (AppleWorks, FileMaker, non-Microsoft word processors, and so on). It saves the data as a text file, in which cell contents are separated by a "press" of the Tab key, and a new row of data is denoted by a "press" of the Return key.

Saving a file as a tab-delimited text file only saves the currently active worksheet, and it doesn't keep formatting or graphics.

POWER USERS' CLINIC

Unbinding Windows Binder Documents

To the relief of many, the document formats for Word, Excel, and PowerPoint are identical on the Mac and on Windows; you don't have any conversion to do when sending a document from one kind of computer to the other. That's not to say, however, that Office itself is identical on both platforms; Office for Windows, for example, doesn't come with Entourage—and Office for the Mac doesn't let you make *Binders*.

Binders are specialized holder files that can contain a mix of Excel workbooks, Word files, and PowerPoint documents. Windows users can pass them from PC to PC, edit the documents, and pass them on again.

While those documents are in a Binder, you can't work with them on the Macintosh. Fortunately, Microsoft has provided a solution: the Unbind utility. (Unbind is part of the optional Value Pack that comes with Office, so you have to install it on your Mac before you can use it; see page 619.)

Once you've installed Unbind, you can bust open a Binder file by double-clicking Unbind's icon and then locating and opening the Binder file in the Open dialog box that pops up. Unbind splits apart the Binder file and saves each distinct Excel, PowerPoint, and Word file in the same folder. (Unfortunately, there's no way to rebind a binder file on the Mac.)

Template

The Template file format is a special kind of Excel file that works like a stationery document: When you open a template, Excel automatically creates and opens a *copy* of the template, complete with all of the formatting, formulas, and data that were in the original template. If you use the same kind of document over and over, templates are a great way to save yourself some time. (You can read more about templates, in the context of Microsoft Word, beginning on page 188.)

To save an Excel workbook as a template, choose File→Save As and then select Template in the pop-up menu in the Save window; Excel proposes storing your new template in the Microsoft Office 2001→Templates→My Templates folder on your hard drive.

Tip: Any templates you create in this way appear in the My Templates portion of the Project Gallery (see page 14).

Web page

Where would a modern software program be without the ability to turn its files into Web pages?

Sure enough, Excel can save workbooks as Web pages, complete with charts, and with all sheets intact. In the process, Excel generates the necessary HTML files and converts your graphics into Web-friendly file formats (such as GIF). All you have to do is upload the saved files to a Web server to make them available to the entire Internet (see page 580). Once you've posted them on the Internet, others can look through your worksheets with nothing but a Web browser, which makes this feature great for posting your numbers for others to review for comment. That's the only thing they can do, in fact; the cells in your worksheet aren't editable.

Tip: Technically, Excel converts your documents into Web pages using the more modern XML language, which permits greater formatting flexibility than standard HTML. As a result, Web-browser versions that predate the invention of XML may not show exactly what you intended.

To save a workbook as a Web page, choose File→Save As, and then choose Format→Web Page. At this point, the bottom of the Save window offers some powerful options that control the Web-page creation process:

- **Workbook, Sheet, Selection.** Using these buttons, specify how much of your workbook is saved as a Web page: the whole workbook, the currently active sheet, or just the selected cells. (If you choose Workbook, all of the sheets in your workbook will be saved as linked HTML files—there'll be a series of links along the bottom that look just your sheet tabs in Excel.)
- **Automate.** This button brings up the Automate window, which lets you turn on a remarkable and powerful feature: every time you save changes to your Excel document, or according to a complex schedule that you specify, Excel can save

changes to the Web-based version automatically. Of course, you'll still be responsible for posting the HTML and graphics files to your Web server.

To set up a schedule, click the Set Schedule button, which brings up the Recurring Schedule window, in which you can set the Web version to be updated daily, weekly, monthly, or yearly. You can also specify the day of the week for an update, as well as a start and end date for automatic updating.

- **Web Options.** The Web Options window lets you give your saved Web pages appropriate titles and keywords. (The title appears in the title bar of your visitors' browser windows; search engines like Yahoo and Google sometimes reference these keywords.)

  You can also turn on *PNG* (Portable Network Graphics) *graphics,* which makes smaller graphics that download more quickly. Unfortunately, not all Web browsers can display this relatively new graphics format, so leave this option unchecked unless you're *sure* that all of the Web browsers used to view your Web-based spreadsheet are PNG-savvy. (Only the latest versions of the popular browsers are.)

  Finally, you can use the controls here to specify the *target monitor size;* that is, what's the smallest monitor size your visitors will be using? Your answer to this question is important; it determines how wide Excel's finished Web pages will be. If you spew out Web pages of broad dimensions, your visitors will have to do a lot of scrolling; if you set the dimensions too small, Excel will do its best to cram the graphics and text into the smaller area. If necessary, Excel can spread out a spreadsheet's contents to maintain the same layout as the original, even if you've asked it to keep pages small.

Tip: You can test the workbook-saved-as-Web-page by dropping the HTML file on your Web browser's icon.

Spreadsheet properties

Excel gives you the chance to attach additional information to your files through something called *properties*. To call up the Properties window for a worksheet, select File→Properties. In the resulting window, you'll see five tabbed subject areas with all kinds of information about your file.

- **General.** This subject area tells you the document type, its location, size, when it was created and last modified, and whether it's read-only or hidden.
- **Summary.** Lets you enter a title, subject, author, manager, company, category, some keywords, comments, and a hyperlink base for your document.
- **Statistics.** This tab shows when a document was created, modified, and last printed, as well as who last saved it. It also shows a revision number and the total editing time that the document has gone through.
- **Contents.** Here, you'll see the workbook's contents—mostly, the worksheets embedded in it.

- **Custom.** Finally, this tabbed area lets you enter any number of other properties to your workbook by giving the property a name, a type, and a value. You can enter just about anything here.

Filling out these fields isn't just good typing exercise; the information you specify here pays off handsomely when you later want to search your hard drive for a particular Excel document. When you choose File→Open and then click Find File, you get the Office 2001 Find dialog box described on page 17; by clicking the Advanced tab, you can search your machine for all Excel documents with certain keywords or created by a certain author, even if you can't remember the exact name or location of the file.

Advanced Formula Magic

Chapter 12 covers the fundamentals of formulas—manually entering them, the new Formula Calculator, and so on. The following section dives deeper into the heart of Excel's power—its formulas.

Note: There's a difference between formulas and *functions*. A *formula* is a calculation that uses an arithmetic operator (such as *=A1+A2+A3+A4+A5*), while a *function* is a canned formula that saves you the work of creating a formula yourself (such as *=SUM(A1:A5)*).

There's no difference in how you *use* them, however, so this chapter uses the terms interchangeably.

Nested Formulas

A *nested* formula is a formula that's used as an argument to another formula. For example, in the formula *=ABS(SUM(A1:A3))*, the formula *SUM(A1:A3)* is nested within an absolute-value formula. When interpreting this formula, Excel first adds the contents of cells A1 through A3, and then it finds the absolute value of that result; that's the number you'll see in the cell.

Nested formulas keep you from having to use other cells as placeholders, and they're essential for writing compact formulas. In some cases (such as with the IF function), nested functions let you add real complexity to your Excel spreadsheets by having Excel make decisions based on formula results.

The Formula Palette

New in Excel, the Formula Palette is a quick way of building powerful mathematical models in your spreadsheets. When activated, the Formula Palette shows every imaginable aspect of a formula: the value of the cells used in it, a description of what the formula does, a description of the arguments used in the formula, and the result of the formula.

To use the Formula Palette, click the Edit Formula button (which looks like a bold = sign) in the Formula bar. When the Formula Palette pops up (Figure 14-6), it shows one of two things:

- If the currently active cell doesn't contain a formula, the Formula Palette turns into a Spartan window with an empty formula result. As you enter a formula in the Formula bar, the Formula Palette watches what you're typing and, in an effort to lend a hand, calls up the appropriate formula as soon as it recognizes one—usually when you hit the left parenthesis.
- If the cell contains a formula, the Formula Palette already contains the formula when it comes up.

Once the Formula Palette is showing, you can use it to construct your formula without typing it blindly. It gives you a text box for each formula parameter; when you type the parameter in the text box, it gets inserted into the formula in the proper place. You can also click the little cell-selection icon for easy cell dragging, as described on page 459.

As you fill out the formula in the Formula Palette, the formula's result appears in the bottom of the palette. When you're done creating the formula in the Formula Palette, click OK to paste it into the cell.

While the Formula Palette might seem like overkill when it comes to simple formulas (such as a SUM), it's a big help when you're dealing with a more complex formula. It outlines the parameters that the formula is expecting and gives you places to plug in those parameters.

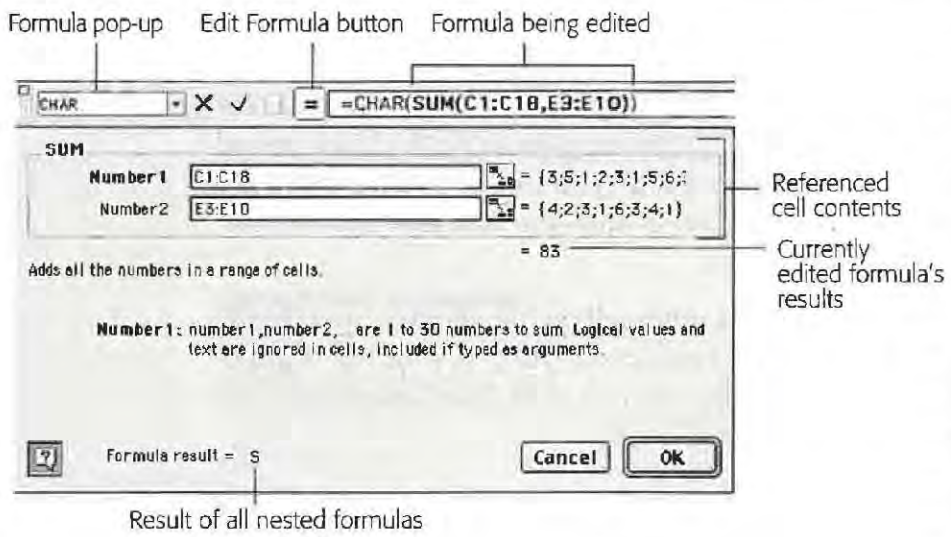


Figure 14-6: *Excel's Formula Palette presents an amazing amount of information about a formula at a glance. It's especially helpful for times when you know something about the formula that you're entering, but you need a little help with the details. The Formula Palette shows not only the result of the formula currently being edited, but also the final result that all the formulas (including nested formulas) in the cell produce.*

Circular References

If you create a formula that, directly or indirectly, refers to the cell *containing* the formula, beware of the *circular reference*. This is the spreadsheet version of a Mexican standoff: The formula in each cell depends on the other, so neither formula can make the first move.

For example, suppose you type, into cell A1, the formula *=SUM(A1:A6)*. This formula asks Excel to add cells A1 through A6 and put the result in cell A1—but since A1 is included in the range of cells for Excel to add, things quickly get confusing. To make matters worse, a few specialized formulas actually *require* that you use formulas with circular references. Now, imagine how difficult it can be to disentangle a circular reference that's *inside* a nested formula that *refers* to formulas in other cells—it's enough to make your teeth hurt. Fortunately, Excel can help.

For example, when you enter a formula containing a circular reference, Excel immediately interrupts your work with a dialog box that explains what's happening.

To leave the formula as is, click Cancel. To get some help, click OK, which brings up the Circular Reference toolbar and overlays skinny arrows on the cells of your spreadsheet (see Figure 14-7).

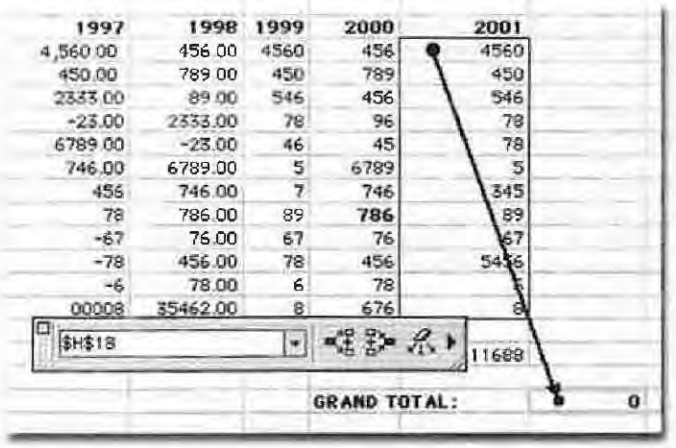


Figure 14-7:
Double-click one of these skinny arrows to jump to the next cell that's involved in the circular reference, or click the buttons on the toolbar. With these tools, Excel shows you the various cells involved in the circular reference; eventually, you should be able to figure out which cell is referring to itself (and correct the problem, if necessary).

Iterations

On the other hand, certain functions (mostly scientific and engineering) *need* circular references to work properly. For example, if you're doing a bit of goal seeking (page 500), you can use circular references to plug numbers into a formula until the formula is equal to a set value.

In these cases, Excel must calculate formulas with circular references repeatedly, because it uses the results of a first set of calculations as the basis for a second calculation; each such cycle is known as an *iteration*. For example, suppose you want to figure out what value, when plugged into a formula, will give you a result of 125. If your first guess of 10 gives you a result of 137 when plugged into the formula, a circular reference can use that result to *adjust* your guess (say, reducing it to 9.5), then making a second pass at evaluating the formula. This second pass is a second iteration. If 9.5 doesn't do the trick, Excel can make a third iteration to get even closer, and so on until it reaches a level of accuracy that's close enough.

To turn iteration on (and set some of its parameters), choose Edit→Preferences; click the Calculation tab. Turn on Iteration, and change the number of iterations

and a maximum change value, if you like. By default, Excel stops after 100 iterations, or when the difference between iterations is smaller than 0.001. If you make the maximum number of iterations larger or the maximum change between iterations smaller, Excel gets more accurate results, but it also needs more time to calculate those results.

Connecting to Other Workbooks

Formulas don't have to be confined to data in their own "home" worksheet; they can be linked to cells in other worksheets in the same workbook, or even to cells in other Excel documents. That's a handy feature when, for example, you want to run an analysis on a budget worksheet with your own set of Excel tools, but you don't want to reenter the data in your workbook or alter the original workbook.

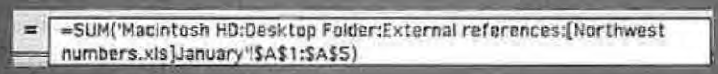
To link a formula to another sheet in the same workbook, start typing your formula as you normally would. When you get to the part of the formula where you want to

TROUBLESHOOTING MOMENT

Keeping Track of References

The problem with referring to other workbooks in formulas is that things change–and cause confusion. Suppose, for example, that one Excel workbook, Document A, contains a formula reference to a cell in Document B. But if somebody renames Document B, renames the disk it's on, or moves the file to a different folder, Excel can't find Document B. The link to the external workbook is broken.

When you try to update those references, Excel will tell you that it can't find the sheet that contains the data it needs, and it'll put up an Open dialog box, asking you to locate the missing data. Now all you have to do is navigate to Document B, even if it has a new name or it's on a new hard drive, and click OK. Excel fixes the reference so that everything works normally.



For the curious (or masochistic), there's a manual way to fix such a broken link, too. Click the cell with the external reference; the formula–complete with the external reference–appears in the Formula bar. Inside the formula, you see a series of names with colons and brackets, as shown in the illustration here.

You can think of this *path notation* as a street map to the location of the external file on your hard drive. The first phrase after the left parenthesis and single quote is the name of the hard drive (*Macintosh HD,* in this illustration). Then come a series of folder names separated by colons; in this illustration, the file is on the *Desktop,* in a folder called *External references.* Finally, inside brackets, you'll find the file's name (*Northwest numbers.xls,* in this example).

The phrase to the right of the right bracket identifies one worksheet name inside the file *(January);* finally, there's another single quote and an exclamation point, which marks the end of the external reference. After this long bit of business is, at last, the name of the cell (expressed as absolute cell references with $ signs, as described on page 424) used in the formula.

If your external cell reference is broken, you can repair it, armed with this information. If you renamed the hard drive, correct the problem by changing the first name in the list to match the new hard drive name. If you've changed the folder location of Document B, you can correct the situation here by typing the proper folder path. If you've renamed Document B itself, you can enter the new file name in the space between the brackets.

refer to the cells in another worksheet, click the sheet's tab to bring it to the front; then select the cells that you want to appear in the formula, just as you normally would when building a formula. When you press Enter after clicking or dragging through cells, Excel instantly takes you back to the sheet where you were building the formula. In the cell, you'll find a special notation that indicates a reference to a cell on another sheet. If a formula on Sheet3 takes the sum of I1 through I6 on Sheet1, therefore, the formula looks like this: *=SUM(Sheet1!I1:I6)*.

To link a formula in Document A to cells in another workbook (Document B), the process is almost identical. Start typing the formula in Document A. Then, when it's time to specify the cells to be used in the formula, open Document B. Select the cells you want to use by clicking or dragging; when you press Enter, they appear in the formula. Excel returns you to the original document, where you'll see the Document B cells written out in a *path notation* (see the sidebar box on the facing page).

Once you've set up such a cell reference, each time you open Document A, Excel asks you if you want to update the data. If you say yes, Excel looks into Document B (even if it's not open) and grabs whatever data it needs. If somebody has changed Document B since the last time Document A was opened, Excel recalculates the worksheet based on the new numbers.

Tip: If you want Document A updated automatically whenever you open it (and don't want to be interrupted with Excel's request to do so), choose Edit→Preferences, click the Edit tab, and then *turn off* "Ask to update automatic links." Excel now automatically updates the link with the data from the last-saved version of Document B.

Auditing

Every now and then, you'll find a formula whose cell references are amiss. If the formula references another formula, tracing down the source of your problems can be a real pain. Excel's Auditing tools can help you get to the root of formula errors by showing you, using brightly colored *tracer arrows*, the cells that a given formula references and what formulas reference a given cell. It draws an arrow or arrows between cells to show you how they all relate to each other.

The key to all of this is the Tools→Auditing menu item, which has five submenu choices:

- **Trace Precedents** draws arrows from the currently selected cell to any cells that provide values for its formula.
- **Trace Dependents** draws arrows from the currently selected cell, showing which *other* formulas refer to it.
- **Trace Error** draws an arrow from an active cell containing a "broken" formula to the cell or cells that cause the error.
- **Remove All Arrows** hides all the auditing arrows.

- **Show Auditing Toolbar** hides or shows the Auditing Toolbar. This toolbar's buttons turn on and off the kinds of arrows described in the previous paragraphs, all in an effort to help you trace how formulas and cells relate with each other.

Working with Databases

Excel has a lot in common with database programs. Both kinds of software keep track of a list of *records* (like cards in a card catalog—or rows of a spreadsheet), and they let you browse through those records and even perform some calculations on them. No wonder Excel is so adept at incorporating database files into its spreadsheets; Excel 2001 can get at data in FileMaker Pro databases, ODBC databases (a standard in corporate computer systems), and even Web pages.

Fetching FileMaker Pro Data

Excel can import data from FileMaker Pro databases directly into its worksheets—no muss, no fuss, no messy translation workarounds. Here's how to go about it.

Note: Excel can only work with FileMaker databases if you actually *have* FileMaker on your Mac.

Step 1: Import the database

You can import a FileMaker Pro database using one of these three methods:

- In the Finder, drag the icon of your FileMaker file onto the Excel icon in the Microsoft Office 2001 folder (or anywhere else the Excel icon appears, such as an alias you've made on your desktop).

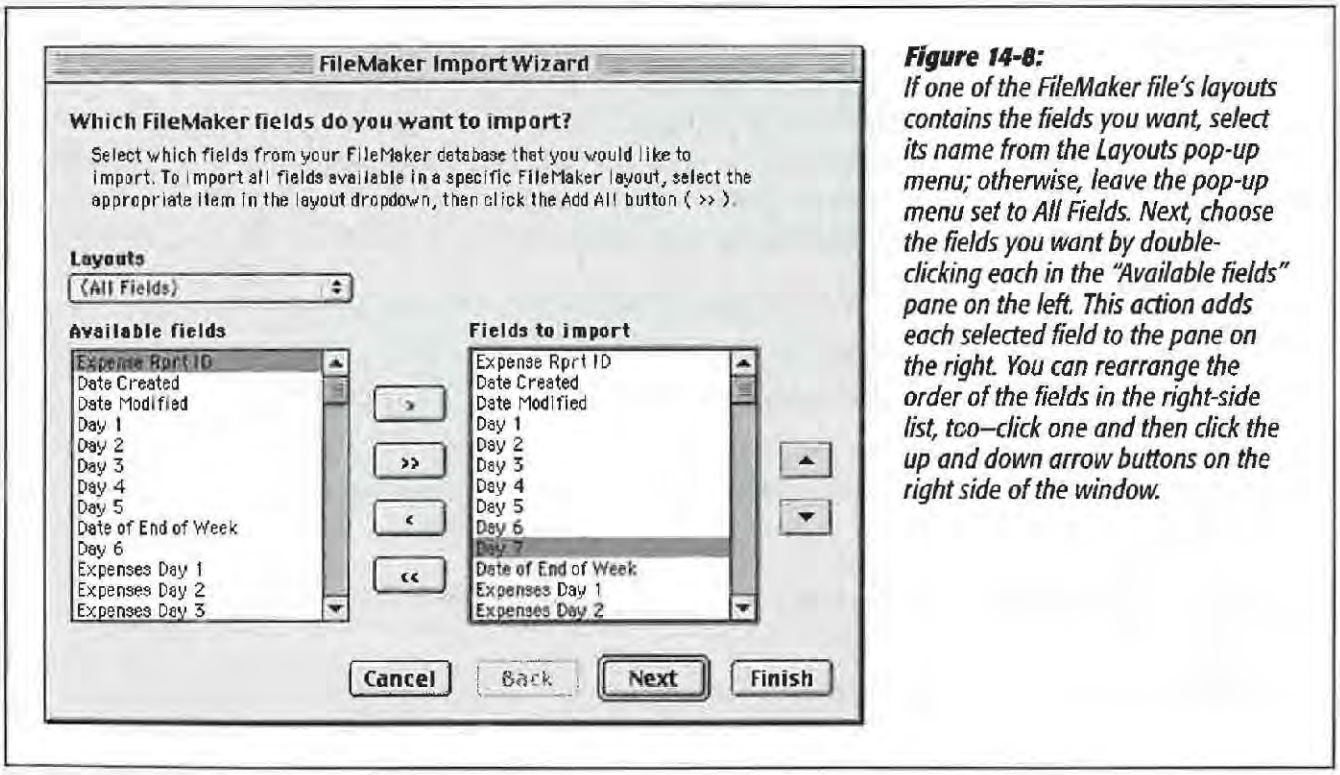


Figure 14-8:
If one of the FileMaker file's layouts contains the fields you want, select its name from the Layouts pop-up menu; otherwise, leave the pop-up menu set to All Fields. Next, choose the fields you want by double-clicking each in the "Available fields" pane on the left. This action adds each selected field to the pane on the right. You can rearrange the order of the fields in the right-side list, too—click one and then click the up and down arrow buttons on the right side of the window.

When the importing process is over, you'll wind up with a new Excel document that contains the FileMaker data, displayed as a list (see page 425).

- In Excel, choose File→Open, then navigate to, and double-click, the FileMaker file's icon in the Open dialog box. Again, this method will ultimately lead to a new workbook filled with FileMaker data in a list.
- In Excel, choose Data→Get External Data→Import from FileMaker Pro. Use this method if your aim is to embed the FileMaker data into the currently open workbook.

In any case, an amazing thing happens. Excel now triggers FileMaker Pro to launch automatically, opening the specified database.

Then the FileMaker Import Wizard window appears. On the first screen, you specify which of the FileMaker file's fields you want to import (Name, Address, Phone, or whatever). You can also specify the database's fields and layout you want, as shown in Figure 14-8.

Click Next to continue.

Step 2: Choose only the data you want

The next screen in the FileMaker Import Wizard offers to *filter* (screen out) the records that you import into your Excel workbook. The wizard lets you specify three criteria to help eliminate unwanted data from the import process. (If you want *all* the data, skip this step by clicking Next.)

If you do want to filter the data, see Figure 14-9.

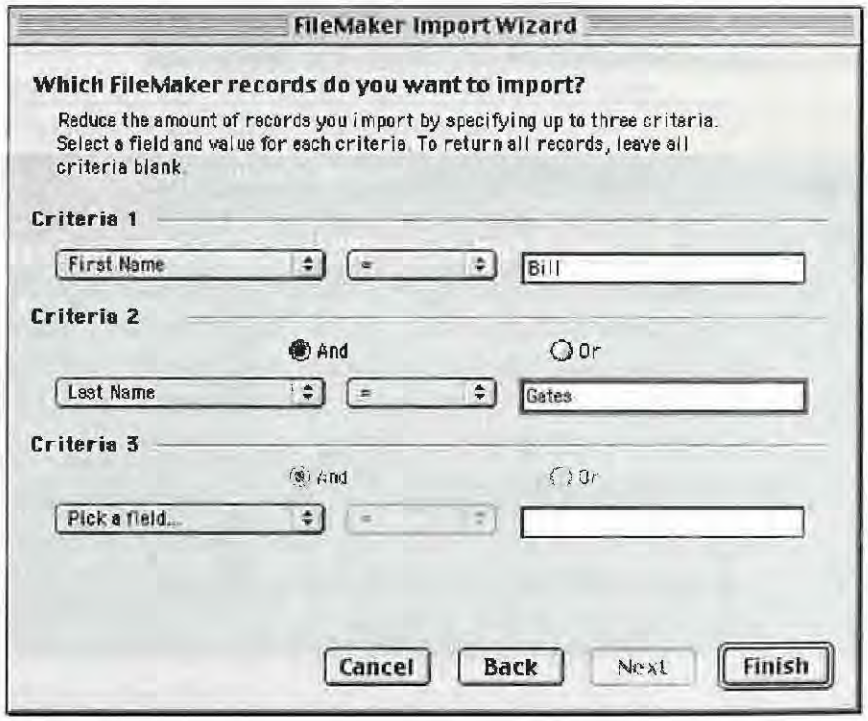


Figure 14-9: *Suppose you want to import only the names from your FileMaker address-book list whose first name is Bill. You'd set the Criteria 1 pop-up menu to First Name, set the middle pop-up menu to* contains, *and type* Bill *into the final field. After filling in Criteria 1, you can set up additional criteria in the Criteria 2 and Criteria 3 areas.*