Министерство образования Республики Беларусь
Учреждение образования
«Белорусский государственный университет
информатики и радиоэлектроники»
Кафедра иностранных языков №2

ОЗНАКОМИТЕЛЬНОЕ ЧТЕНИЕ

Методическая разработка
по английскому языку для студентов 2-го курса ФКСиС и ФИТУ
дневной формы обучения

Authentic materials for developing complex reading skills

Минск 2004

УДК 802.0 (075.8)
ББК 81.432.1 я 73
М 54

Составители:
Н.И.Дубовец, И.И.Ершова, Л.С.Карпик, Н.Г.Касперович,
Ю.К.Лобач, Е.Д.Лысенок, Т.С.Матюшевская

М 54 **Ознакомительное** чтение: Метод. разработка по английскому языку для студ. 2-го курса ФКСиС и ФИТУ дневной формы обуч. / Сост. Н.И.Дубовец, И.И.Ершова, Л.С.Карпик и др. – Мн.: БГУИР, 2004.- 46 с.

Предназначена для развития навыков ознакомительного чтения научно-популярной литературы на английском языке у студентов 2-го курса ФКСиС и ФИТУ. Содержит аутентичные материалы. Цель разработки — способствовать развитию и закреплению навыков ознакомительного чтения по специальности.

Методическая разработка содержит комплекс упражнений, предназначенный для совершения навыков ознакомительного чтения.

УДК 802.0 (075.8)
ББК 81.432.1 я 73

Bank of activities (teacher's guide)

Pre-reading

1. Look at the words and expressions given (in relation to the text) and without reading the text predict what it could be about. Work in pairs, put your predictions down, and then compare your ideas with the rest of the group.
2. Read the title (and the first and/or the final passage(s)) of the text and say what it is about.
3. Before reading the text, discuss the following questions (questions are provided by the teacher).
4. Before reading the text, try to predict whether the following statements are true or false / answer the questions / finish the sentences given.
5. Read the sentence(s)/passage(s) given. Try to understand its (their) meaning without paying attention to unknown words.
6. Make the sentence(s)/passage(s) given shorter by leaving extra information out. Work in pairs. Then compare your answers with the rest of the group.
7. Combine two sentences/passages into one only leaving important facts and information.
8. There are some missing words in the sentence(s)/passage(s) given. Work in pairs to restore them or choose from the ones listed below.
9. Work out the meaning of the new words given from the context or according to their formal features (suffixes, etc.).
10. Divide the words given between several groups according to their meaning/structure/formal features.
11. Give your own definitions to the following words/terms. (Explain the following expressions).
12. Explain why this (these) particular grammar form(s) is (are) used in the sentence(s). Bring some more examples of its (their) usage.

While-reading

Read the text and …
1. Write down key words/sentences.
2. Choose key words/sentences from the given list.
3. Entitle each passage/part of the text.
4. Divide the text into meaningful parts and give titles to each of them.
5. Say which sentence from the list given goes with which passage.
6. Check True/False statements and find the passages that they are related to.
7. Finish the sentences according to the text.

Post-reading

1. Indicate author's main intention (persuade/inform/assess). Bring some sentences from the text to prove it.
2. Express your critical reaction on the following questions:
   - Whose interests does this text represent?
   - Which country, which social class or which institution does it represent (consider style, forms of addressing, spelling, etc.)?
   - Who would find the publication of the text interesting/desirable?
   - Is it applicable to your own situation?
3. Was this text interesting for you? If yes – why, if not – why not? Did anything surprise you? Do you disagree with any facts listed in it?
4. Choose from the sentences given the one that could be a title for the text.
5. Say whether the following statements are true or false.
6. Make a table or a plan, draw a scheme, a chart or a diagram to illustrate the most important facts from the text and present your ideas to the rest of the group.
7. Choose the key words/expressions/sentences from the text and using them as a plan try to retell it.
8. Make a plan of the text and retell it.
9. Write the summary of the text or one/several passages.
10. Make the project developing the ideas expressed in the text (individually or in small groups).

The development of different reading skills can be checked by taking into account two main parameters: on one hand, the correctness of student's work and, on the other, the time spent on the fulfilment of any particular task. Time limits for four main types of reading are illustrated in the following table:

	reading speed (words per minute)		
type of reading	*min*	*mid*	*max*
intensive	50-60	---	---
extensive	180-190	---	500-600
skimming	400-500	800-1200	2000-4000
scanning	500-700	1000-1500	---

Choosing Your Computer

Unlike any other purchase for the home, a personal computer will add an extra and often unexpected dimension to your life.

A personal computer is unlike any other home appliance in as much that its intelligence and versatility makes it useful in virtually every walk of life. Once installed you will soon wonder how you and your family ever survived without one.

Whatever your work, hobbies or interests, having access to a personal computer at home will enable you to be more productive, creative and will open up a whole new world of information, entertainment and communication. With the latest PC's you can do anything from looking up holidays and travel, finding the lowest price on a camera, sending e-mails to friends or colleagues to designing a new layout for your home.

On one level a computer in the home can be a personal assistant, helping you to take care of correspondence more efficiently and keeping track of household and personal finances more accurately.

On another it is an entertainment centre for showing DVD videos, playing and making music or tuning into the thousands of radio stations on the Internet. Or it can be a leading edge games machine on a par with the best games consoles. And yet it can switch quickly into a homework machine, a source of knowledge providing useful information on hundreds of subjects. CD's and online software can provide interactive atlases and encyclopaedias while there is even software for GCSE revision.

Your PC can effectively be anything you want it to be!

When it comes to choosing a PC for your home it pays to spend some time considering who will be using it, where you plan to locate it and how it will connect to the nearest phone socket. You will also be well advised to consider possible future applications for your PC to ensure that your choice today meets your requirements tomorrow. Remember that exciting new applications are being invented every day.

With the future in mind and with the speed of development within the PC environment, it is advisable to select the most powerful PC your budget will permit. This commitment today will protect your investment for longer.

So what are the main considerations when selecting your home PC?

These can be divided into Hardware (the physical computer and associated components), Software (the application programs which operate on the computer) and other additional considerations such as the ease of installation and use, service and after-sales support and last, but not least, value for money.

The major hardware elements are the Processor (sometimes called CPU), the Hard Drive, the Memory (often called RAM) and the graphics capability.

For the processor, the principle is the 'faster the better'. Intel, the market leader in processor technology, offers for budget priced machines, its Celeron chip which at 433 MHz and 500 MHz is excellent for entry level machines. For higher performance move up to an Intel Pentium III processor. These are available at various

speeds starting at 450 MHz and going all the way up to 733 MHz at the top end of the range.

For the average task, the Celeron will be adequate, but it is always worth having some power in reserve for those more demanding applications, (i.e. web and graphics), and for future uses. The best advice is to buy the highest specification you can afford as it is certain that any spare power today will be fully utilised in the near future.

Next, consider your Hard Drive. Hard drive capacity is constantly increasing with storage technology advances. At the same time, today's applications are more sophisticated and consequently take up more hard drive space. So buy at least a 4.3 GB (gigabyte or a thousand million bytes) drive, but as your budget permits, consider a 6.4 GB, 10 GB, 20 GB or even a 27 GB drive.

Another important factor is the system memory, otherwise known as RAM. The same basic principal applies – buy the largest memory capacity your budget will permit. You should ideally select at least 64 Mb or more, bear in mind though that anything above 128 Mb and you will see very little gain with most applications. It is worth bearing in mind that memory is easy to upgrade at a later date on most modern PC's.

Today's PC's from companies like Packard Bell are essentially 'plug-and-play' from the moment you take them out the box. They come with straightforward guides showing how the colour-coded cables connect and have software pre-loaded ready for use. A reputable manufacturer will provide an on-screen tutorial plus an easy-to-follow but comprehensive manual. Often this is an area where some manufacturers can seek to cut costs which can cause the user unnecessary inconvenience.

Also check on the software bundle offered with the machine. This is one of the most cost-effective ways of acquiring a good selection of software. Because large, reputable PC manufacturers are able to negotiate volume discounts of software from leading companies, it makes it possible for them to include incredible value packages within the cost of the PC. For example the software included with Packard Bell's Pulsar and Platinum ranges, if purchased separately, would cost in the region of £1000.

Finally check the after-sales support. What does your warranty actually include? The majority of companies offer a standard 1-year warranty, but do they come out to your home to fix the machine or do you have to send it back to them? Also, what happens after the first year? Can you extend your warranty so that you will always be able to get support for your machine? Some also offer telephone help lines for up to three years but check first whether they charge premium rates and whether phone support is available 23 hour a day and at weekends.

Networking Two PCs

Why should you network? How should you network? What should you network with?

Let's start with the obvious: do you really need a network? Think about it. If you've avoided the whole concept of networking so far, you might not need to connect two or more PCs together at all. A small business might benefit from linked computing and shared resources, but what's in it for the average home user? 'To network, or not to network?' That is the question.

At the very worst, you can avoid meddling with your machines entirely. If you don't regularly exchange files between two PCs (and not everybody does), you can still transport small amounts of data between them by floppy. Larger files will require a larger storage medium, such as ZIP or a CD-R/W disc. Ignorance and perhaps a little fear ensure that the OFDS system survives, despite its lack of flexibility, efficiency and scope. It also requires no installation, very little expenditure and the bare minimum of brain power.

But if you do have two or more PCs, it's a crime not to network them. Admittedly, DIY networking has a tendency to be complex and fussy; the ease of plug-and-play hardware installation is often clogged by incompatible workgroup names and mismatched DNS settings. Sometimes things just don't work. Even an experienced PC user can sometimes struggle to get one PC to recognise the existence of another ('for God's sake, the other machine is right there!'). But the advantages of linking multiple PCs together far outweigh the knotty difficulties of getting a shared system up-and-running in the first place. And once you have access to a network, you'll find it difficult to work without one.

The benefits

Easy and unrestricted file exchange is just the tip of the networking iceberg. Not only networked machines can share and swap documents. But it's the perfect system for digital music and video storage (one machine can act as an MP3 jukebox for another). Not to mention data back-up (where the second PC becomes a filing cabinet for the first), and to a lesser extent synchronised scheduling and contact lists. Consider too the benefits of joint peripheral access. Two connected PCs have the ability to share a single printer or scanner, so by making a printer a common resource on a network, it can be accessed quickly by either linked computer. Networking also opens up the prospect of multiplayer gaming. Some network starter packs even come with FPS favourites Quake III Arena or Unreal Tournament bundled free with the hardware.

By far the biggest attraction, however, is shared internet access - especially if you're hooked up to a broadband connection. Via a network, multiple PCs can share the same broadband link without dragging data speeds back to the dial-up age - and no need for each machine to have its own modem. For businesses, the benefits of file-swapping, shared printer and internet access are crucial and cost-effective. For the home user, a network link means greater convenience. Breathe life into that old

Pentium II machine that you replaced with a brand new P4, making use of it as a file-server or net terminal. And why not plug your USB peripherals into this second machine? The devices will still be accessible to your new PC over the network, and it will leave your new PC's USB ports free for further expansion.

Similarly, with a home network you can easily connect a laptop or PDA to your main PC. This can liberate you from the office desk, allowing you to surf from the sofa or graft in the garden, still connected to the peripherals and resources on your main PC.

Tête á Net

Just when you've come to rely on the Internet, it can get snatched away from you for no apparent reason. Matthew Holbrook tries to get his head round Windows connectivity.

The Internet is an important feature in the lives of most computer users. Whether we use it for email, browsing, shopping or banking, we soon miss it if we're denied access to the online world. It's important, therefore, to protect this environment.

Nothing can beat viruses, but these are not the only things that can render a PC totally or partially unusable. Windows 98 doesn't have to pick up a virus to lose its Internet connectivity. This seems to be an increasingly common occurrence. The main symptom is that it's impossible to display web pages or connect to other net services such as e-mail.

A neighbour contacted me; his notebook had suddenly developed this very problem. Although I've been able to sort out my own PCs, the problem fills me with dread because there seems to be more than one reason for it. I know that one of my PCs went wrong after I had removed Internet Connection Sharing (ICS).

I asked my neighbour whether there had been any changes made to his notebook recently. Indeed there had: an external storage device had been added. It sounded as though the networking part of Windows had been corrupted. I looked at the notebook, reinstalled dial-up networking and made numerous changes to other networking settings. After three hours the problem was still present and I was completely foxed.

I returned to the notebook a few days later and again tried to reset the various networking parameters. I still had no success so I began to vary the order of the things I was changing and the number of reboots. I had suggested to the owner that I might need to wipe the machine if all else failed. He agreed to this, but I don't like doing it unless there really is no other option. Then it occurred to me that perhaps something had happened to the Winsock file.

I checked Winsock on the notebook and compared it to the one running on my PC with the same operating system, Windows 98 SE. They were both the same size but the one on the notebook had a recent date, which was the day the external storage device had been installed. I really thought I was on to something. I renamed

this file and copied over the one from my PC. I then used the file compare (FC) command to see if there was any difference between the files. Sure enough, the files were completely different.

Expecting the problem to be solved I rebooted and logged on to the Internet. I was totally dismayed to find things exactly as they were before. However, the answer was not too far away. I suddenly realised that no internet traffic was showing down in the system area next to the time. And it wasn't just in this session - I couldn't recall any green flashing squares in any of the sessions. Something was preventing links to the Internet.

I hadn't noticed a firewall on this system and there was little need for one because it was used only for short Internet sessions for checking email. However, McAfee Firewall was present so I loaded it up to see what was going on. It informed me that two utilities were allowed to access the Internet; I guessed these were email and web. I clicked the 'enable all' button and proceeded to log on again. Web pages started to appear and email started to download.

After all, this had solved the problem. But the owner was at a loss to explain how McAfee Firewall could have caused the problem. He said Firewall was installed at the same time as McAfee's anti-virus software. My guess is that the setup routine for the external storage device had changed Windows' networking sufficiently for it to appear as a different utility. Whatever the answer, I'll certainly be checking for firewalls in the future.

Serif Internet Design Suite

Everything you need to create your first few websites, if little after that.

It seems that these days, you aren't anybody if you don't have a webpage. Nevertheless, no matter what you want to create, your creative needs will inevitably fall into three categories – words, pictures and code. Serif Internet Design Suite caters for the latter parts of the online triumvirate with a wide range of programs to get you started.

The most important part of the package is WebPlus 7. While no competitor to the likes of Dreamweaver or Microsoft FrontPage, it is a perfectly competent editor. More experienced users may find it goes overboard in trying to hold your hand through any operation more complicated than typing your name, but for newcomers, far from being overbearing, its tutorial system makes it much easier to sit down and design your site. A wizard interface not only handles the layout of a typical page, but provides a separate panel in which to enter your personal information and have it automatically snapped into position. Equally straightforward is adding text frames (automatically filling according to your chosen settings), and ensuring consistency by viewing multiple pages simultaneously.

Photoculture

Serif has built many smaller features that you would normally have to load up a full image editor up to access into the web editor itself - such as transparency,

gradient fills and basic drawing tools (although basic is very much the word for them -elementary lines and arcs, WordArt style text and editable OuickShapes). WebPlus provides a much more professional DTP environment than many traditional WYSIWYG type web packages, and as such makes it much easier to write coherent sites. It does however stick rigidly to vanilla HTML - offering no support for database driven sites or other more modern web technologies. Entering text is now done live, all spell-checked on the fly just as it would be in a typical word processing package.

Continuing the drag-and-drop theme, WebPlus makes heavy use of a styles bar that is on hand at all times to alter your design settings. Holding colours, formatting options, clipart and 3D models (more on this later), it is an easy way of adding particular personal features to your page.

For more customised jobs, you need to turn to PhotoPlus 6. This is a program that has its fans - but not around here. It is capable of putting together most basic image types, with paint and airbrushes, layers, masking tools, bevels, red-eye removal and drop-shadows all easily accessible. It is also able to perform a number of webspecific functions, notably the creation of image maps, animated GIFs and image slicing. Perhaps more important is the export optimiser that attempts to trim your files down as much as possible, speeding up the loading of your page. Despite this, Serif's templates do favour extremely large full page backgrounds that will have professional web-designers wincing - and in general their examples are not the best teachers.

3D to go

The final part of the set is 3DPIus 2. This is an extremely basic 3D package, but one that can be turned to extremely good uses. Importing vector based objects, such as letters, you can bevel and extrude ordinarily flat, uninteresting text into solid objects, positioning, texturing, lighting and animating them as necessary to get immediate results without any work involved. This file can then be run via PhotoPlus into WebPlus and be added to your growing site. 3DPIus 2 is preconfigured with a range of scene types and sample animations - such as animated greetings cards - to give you a base to work from, although it is sorely stretched even when trying to give text a particular look.

If you already have a web design package however, look away from Internet Design Suite, as after this it is really only an image editor like Paint Shop Pro than you require, and the other packages on offer are no substitute for their standalone competitors. If not, it will serve you well for your first few sites, if little after that.

Who Needs Clusters?

In the drive to be well connected, more businesses are taking a dose look at clustering technology - which used to be viewed as too pricey for all but the most well-heeled enterprises - to keep their Servers humming and to boost system performance.

Among the options gaining traction are high-availability (HA) clusters designed to keep a server system online and responsive with minimal interruptions.

They typically use redundant nodes and applications running on multiple machines that monitor each other. In the event of a node failure, the secondary node reacts instantly and prevents a system crash.

Availability options

There are three basic types of HA clusters — quarate, resource-driven and heartbeat — and each represents a distinct approach to the clustering concept, according to James Bottomley, Software architect for clustering specialist SteelEye Technology.

A quarate system requires a cluster "voting session" among the components to insure that a particular number of nodes is present and operational (a quorum) before any action is taken.

A resource-driven cluster, in contrast, involves protection through ownership encoded in the system resources. "As soon as you own all of the resources, the cluster can operate," Bottomley said — adding that this is a more chaotic Option than quarate.

Heartbeat is the simplest model, typically a two-node configuration with one half of the cluster monitoring the other. "A founding principle of the cluster is that complexity is the enemy of high-availability," said Bottomley. While simplicity is a goal, he added, most businesses eventually move beyond this stage.

Open vs. closed

The basic strategy for HA clusters is to take existing hardware and raise it to the service level of a mainframe, with availability assurances. And while a number of companies offer proprietary HA technology, it has become a commodity drawing interest from the open-source community.

Such IT giants as HP, IBM , and Oracle offer their own HA products, along with several Software providers, notably SteelEye, Veritas and PolyServe. Open source providers include Red Hat and FailSafe, with IBM funding research into a heartbeat model for Linux.

HA cluster customers generally are those with enterprise-grade system experience who are familiar with commodity hardware and want scalability, as well as some who are new to the concept but have a specific operational need -- such as e-commerce vendors focused on customer Service or ISPs boosting their Web-services offerings.

Pressure on software vendors?

Since most clusters are complex, said Bottomley, well-tested, proven Systems are preferred. Open-source followers can be expected to install closed-source clusters, he added, since owning the source code does not eliminate the need for a specialist who understands a particular system. At this point, Bottomley said, purchasing is a better choice than building a cluster to ensure reliability.

Giga analyst Stacey Quandt offers a different take, pointing out that Oracle's cluster file system can be added to Linux for high-availability capability. Red Hat has added this capability to the Linux kernel as well, she said.

"The pressure is on Software vendors with the maturation of the Linux kernel," she told NewsFactor. "They don't have a sustainable market, with more functionality continually being added to Linux." For those using the heartbeat model,

Quandt said, there is little need for proprietary software.

Existing open-source Software may not be able to handle the traffic on clusters, though, suggests Forrester Research analyst Galen Schreck. And, like Bottomley, he cites the number of high-profile companies developing high-availability technology that offer stiff competition.

Clusters as commodity

A new trend in cluster technology is to get the hardware to do go beyond troubleshooting and share the Server workload. "You achieve a more graceful failure with high-availability clusters," Schreck told NewsFactor. While clustering Software is expensive, he added, the idea of sharing resources and putting ideal hardware to work is attractive.

Still, he agrees that System complexity is an issue, with cluster operation a specialized discipline. "It could be used to protect mission-critical applications," Schreck noted, "but the cluster has to be compatible with those applications and the application vendor."

Clustering is becoming more prevalent and more affordable, he pointed out, making it easier for businesses to replicate their storage applications over longer distances.

Said Bottomley, "It is still difficult for some people to get their minds around the principles of clustering — which is making sure all components of the system are protected by availability Software — but it is no longer a high priced add-on technology, because it has become a commodity.

Google Faces Formidable Foes

Industry giants Yahoo, Microsoft gear up to take on popular Internet search site.

In just five years, Google has blossomed from a nerdy college experiment to a mainstream sensation so ubiquitous that its goofy name is now synonymous with looking things up. Millions of people turn to the Internet search engine every hour, trusting Google to speed through its index of three billion Web pages to find just about anything imaginable.

In a less than a second, Google routinely finds lost friends, merchandise, pop trivia, academic research, news, pornography and even references to God, to whom Google has been sacrilegiously compared. "It's hard to imagine a day when I'm not using Google for something," said Todd Goldman, a 37-year-old marketing executive in Silicon Valley. "I can almost always find what I'm looking for on the first or second page of results. It's almost like black magic."

Google's amazing powers inspire awe and dread — reverence for the search engine's apparent omniscience, and fear about its Big Brother potential. "It's way too powerful," said Daniel Brandt, a fierce Google critic who started a Web site to air his misgivings. "It's scary because if Google drops you, you could be out of business in no time."

Google's influence is perhaps best measured by the 200 million search requests it processes each day, up from 40 million just three years ago. The steady

growing has turned Google into one of the Internet's biggest success stories and made the still small Company of 1,000 employees a target for some formidable foes.

Both Yahoo Inc. and Microsoft Corp. are searching for ways to steal Google's thunder in a showdown that could reshape the way people find their way around the Internet. "Google has a lot of smart people who have built a great search engine, but there are a lot of other smart people out there looking for ways to make search engines even better," said Tara Calishain, author of Google Hacks, a book about Google's hidden treasures. Yahoo has committed nearly $2 billion US to its Google attack. Microsoft is devoting an unspecified portion of its $49-billion war chest to building a better search engine.

The privately-held Google isn't saying how it intends to protect its franchise. Company executives declined to be interviewed, preferring to focus on the Google mantra of "delivering the best search experience on the Internet." The push to topple Google is being driven by new marketing approaches that have turned search engines into profit machines.

Advertisers spend big for prominent listings in specially marked search results — $2 billion this year, with robust growth forecast for the rest of this decade. For now, at least, no one is better positioned to reap the rewards than Google. Danny Sullivan, editor of *Search Engine Watch,* an industry newsletter said he believes Microsoft might try to buy Google instead of playing catch-up. Neither Microsoft nor Google has expressed any public interest in a marriage. With one of the world's most recognized brands, Google would likely demand a hefty price. Google's revenue this year is expected to range between $700 million to $1 billion US.

"Googling" information has become so popular that *Google.com* attracts some of the heaviest traffic on the Web. Only *Microsoft's MSN.com*, *AOL* and *Yahoo* have more visitors in the United States.

Just One Word - Plastics

Counting the number of plastic items around you is an exercise only a plastics industry executive could love. The material is ubiquitous.

Quite possibly, organic electronics could make ICs as hard to avoid as plastic, because the devices can be constructed on, and to some degree are made of, plastic. These use semiconducting and sometimes conducting materials that are made of molecules containing carbon, mostly in combination with hydrogen and oxygen. Slower than silicon, but more flexible and potentially much cheaper, organic electronics has already produced circuits with hundreds of transistors printed on plastic, experimental sensors and memories, and displays that bend like paper.

Conventional displays, such as LCDs, are made on glass, which is heavy and fragile. They also rely on manufacturing processes from the microchip industry, and so, the larger they get, the harder they are to make. Given an organic technology capable of creating large displays on lightweight flexible plastic Substrates, the uses off flat panel displays could be, revolutionized. Researchers try to create displays printed onto rolls of plastic, which could be unfurled, processed, and cut up into devices of any size.

To reach this goal, firms are forming collaborations and alliances that bring together expertise in chemistry and manufacturing techniques. Products, such as displays for car Stereos and cellphones, have been available for a few years, and the first high-volume OLED display shipments began this year.

A second distinction, besides the type of device, is that organic semiconductors come in two flavors. They are either small molecules, or long chains of molecules — plastic-like polymers — each having different manufacturing requirements. Researchers, working in either direction face similar problems, among them device lifetime and manufacturability.

Sometimes more than one company is needed to do the fundamental research. It's rare to find all the needed expertise in one company, but Bell laboratories is one of those rarities.

The lab has produced a number of breakthroughs in organic electronics and demonstrated a display that looks like paper and is so flexible it can be bent without breaking. An array of organic transistors printed on plastic keeps such display working even when bent.

The visible part of the display is a matrix of spheres embedded in a flexible plastic substrate, each sphere encapsulating granules that are sensitive to electric fields. Under the influence of an electric field, the granules move from the bottom of the sphere to the top , making the paper appear white in that spot.

Toshiba Portégé 2000

All the power of a modern laptop, but crushed, compacted and brushed with silver.

Lightweight, silver and beautifully stylish, the latest incarnation of Toshiba's Portégé series offers all the performance of a desktop PC with almost effortless portability. You'd think that by shoehorning this sort of power into such a slim space, there would be two sides to the Portégé coin - great portability, but at the expense of technical features. But this ultra-light Pentium III notebook not only delivers functionality that compares favourably with other, bulkier laptops, it also outdoes them with wireless networking and an SD slot.

The Portégé 2000 has an intense desirability that few portables can hope to match. Not only is it small and slim (289 x 229 x 14.9mm, to be exact), but weighing barely 1.2 kg it's about the third of the weight of a typical one-box laptop. This seductiveness almost glosses over the fact that the Portégé 2000 isn't blessed with a muscle processor. Beneath the brushed silver/black trim, the system dances to the measured beat of a 750MHz PIII-M drum. Hardly a cutting edge component. But with 256MB of onboard RAM (upgradeable to 512MB) and a wafer thin 20GB hard disk working with it, 750MHz is more than fast enough for anyone on the go.

Considering the size of the Portégé 2000, you'd expect it to lack some of the standard laptop features. Obviously the simple fact that the machine is 14.9mm thick means that there's no room for an internal FDD or DVD-ROM unit. The latter (8x) is

supplied as a plug-in extra, connecting easily to the Portégé 2000 via the single type II PCMCIA slot on the right-hand side of the casing (where you'll also find the IR window). On the left-hand side, meanwhile, there's room for little else bar the SD memory card slot.

A plastic flap at the rear of the Portégé 2000 hides the all-important ports and slots. There's no serial or parallel port here, nor is there an S-Video socket. What you will find is the jacks for the built-in 10/100 Ethernet and 56K modem, plus two USB ports and a monitor out connection. It's just enough to get by and if it isn't, a port replicator is available from Toshiba for £199 (ex VAT). Most notably the Portégé features wireless communications technology as standard.

The Portégé 2000 represents an ultra-light extension of the office that is as good as it looks. While the Portégé is not the fastest laptop on the block, it is good enough for your basic office apps and DVD playback. Ultra-light machines are traditionally underperformers and this one will struggle if you try to play 3D games on it.

But the Portégé shines as far as battery life is concerned. The 2000 series comes with two Li-lon Polymer cells - an internal battery provides just over two hours 35 minutes of usage, while a second battery (shipped with the Portégé as standard) boosts this by a further three hours 40 minutes. This second battery connects to the bottom of the Portégé at the back, fattening its slim figure and pleasantly tilting the system. The internal power can be eked out even further with strict 'powersave after one minute' battery management. Sleek, lightweight, beautifully designed and with a fantastic battery life, if you must spend £2,000 on a laptop this year, why not make it this one?

Scientific Satellites

There are various kinds of scientific satellites. Among these are scientific research, land and sea observation, weather and navigation satellites. All of these are of significant importance throughout the United States and the rest of the world.

Research Satellites

Certain satellites are important for scientific research. These satellites gather data for scientific analysis. This includes observations of the atmosphere of our planet, the stars, the sun and other parts of space. Earth orbiting satellites can observe celestial objects without the interference from the Earth's atmosphere. These satellites are able to record data without the interference of gases, lights, and magnetic fields produced on Earth. Scientific satellites are not restricted to Earth orbits, they also orbit the sun, moon, and other planets.

Observation Satellites

Observation satellites help to observe many features of the Earth's surface. Scientists use Earth observation satellites to locate mineral deposits, to determine the location and size of freshwater supplies and to detect the spread of disease in crops and forests. The U.S. satellites of the LANDSAT and SEASAT series find such data. The LANDSAT satellites have been used for making estimates of global wheat

production, for forest and range land inventories, for mineral and oil exploration and geological mapping, and for environmental monitoring and impact assessments. SEASAT has detected ocean currents, tides, and storm surges. It's instrumentation included a radar that measured altitude to an accuracy of 10cm and wave heights from l to 20m. The earliest of these types of satellites were used for cartography, or the surveying and mapping of the Earth's surface.

Weather Satellites

Weather satellites are one of the most important instrument used to predict the weather. The photos of these satellites locate weather features — storm systems, fronts, upper-level wind direction and speeds—that are characterized by certain cloud formations. Island and coastal weather stations use this data to find and track major storms. Satellite data can provide information about ocean, desert, and polar areas where conventional weather reports are unavailable or limited. Meteorologists, weather forecasters have received enormous benefits from satellites. As early as 1960, NASA launched TRIOS l (the word stands for Television and Infrared Observation Satellite). One of the first benefits to come from this system was the classification of clouds according to brightness, formation, colour, height, shape, and size. This helped meteorologists greatly in prediction of hurricane and tornadoes with earlier and greater accuracy.

Navigation Satellites

Navigation satellites allow the operators of land vehicles, ships, and aircrafts to determine their locations within 100 feet anywhere on the earth. These vehicles all have on board a computerized receiver which can pick up radio signals from satellites miles in space. This enables the computers to pinpoint the location of the vehicle. By knowing the position of several satellites from their signals, it is possible to determine the exact location of a ship on the earth. A modern system that uses laser-beam signals can determine positions within less than one inch.

Conclusion

Scientific satellites are necessity of our life today. They show us what other planets look like, where to find minerals and water, and they locate forest fires, ocean currents and storms. Satellites are used for surveying land and predicting weather. Without satellites jet air travel would be a dangerous sport, and ships at sea would not be able to navigate so easily.

How Satellites Benefit Society

Satellites are used almost everyday by everyone. Even though you can't see it, there will probably be one travelling above you today. Satellites are used for many things such as communication, oceanography, astronomy, surveillance, and a variety of other things as well. They help many scientists get a perceptive view at all kinds of objects anywhere in the world.

Communications

Communication satellites work non-stop 24 hours a day to keep the entire world linked together. Until recently NASA had been the only ones launching

satellites, but now many private companies are benefiting from what a satellite can do. Once a satellite becomes geosynchronous, rotates with the Earth orbit, a satellite is ready to work. It then beams messages to a ground station, the ground station receives these messages by using a device called a transponder which interrupts the message and then distributes it. By doing this satellite stations can then transport telephone service, data, or television transmissions to almost anywhere. These communication satellites are used for things like an overseas phone call or beaming 150 channels into your living room. New advancements look to focus on packing more information into frequencies, because virtually all frequency transmitters are being used. And this would allow more and more companies to transport all types of data.

Oceanography

Another use for satellites is in the field of oceanography. In 1798, the first three oceanography satellites went out (Tirus, Nimbus 7, Seasat) and although they didn't do much they led the way to huge discoveries (Robinson 34). Now marine scientists and marine biologist are able to detect almost everything that goes on in the ocean. They use satellites to detect the oceans affect on environment, analyze wave patterns, monitor marine surface life, analyze ocean tendencies and currents, and get a complete synoptic view of the ocean. These things help them tell you what the water will be like, and help them find out about ocean life.

Astronomy

Astronomy satellites are mostly new technology. These satellites are mounted on Earth orbiting satellites or on deep space probes, and therefore can give us an unobstructed view without the Earth's atmosphere interfering. These satellites carry detectors to record electromagnetic radiation at wavelengths shorter than visible light (McGraw-Hill 41). Many different satellite astronomy techniques are used, one of the more prevalent ones is ultraviolet. Evolving in the 1940’s, when Lyman Spitzer pointed out that the Earth’s atmosphere is opaque to ultraviolet light. Out of developed solar ultraviolet with a deeper space base it uses low and high spectral lines to determine radiation on an object throughout the solar atmosphere. X-ray satellites are all used, they look at x-ray emission from the sun and stars.

Surveillance

Lastly, an interesting satellite use is in the field of surveillance or spy satellites. There are four kinds of major satellites (White 100). The most commonly used one is reconnaissance use of cameras to take pictures of a particular place from up above. They also have radar and infrared detectors so they can detect things in the dark or things that are covered by something or camouflage. Most of Russian reconnaissance are known as COSMOS, the U.S. first one was called Big Bird. Ocean Surveillance satellites are used to search for ships or submarines. They can spot nuclear vessels. And new advancements may allow them to scan the depths of the ocean. Early warning satellites are primarily used by the armed forces. They basically protect countries from sneak attacks, and can be used to detect if other countries are building or storing nuclear warheads. "Elint" is the basic spy satellite, it picks up radio transmissions, and maps location of defense bases. It is the most important military satellite because it does not let another country put together an

attack without another country knowing.

Conclusion

As you can see satellites are an integral part of everyday life. They have thousands of uses and perform them without most ever being seen. Just think now how many satellite dishes you have seen on top of a house and that's just one aspect. Satellites are becoming more and more advanced every year and will lead the way through the whole 21st century.

China Development Centre Opens

Oracle has opened the first-ever enterprise software centre in Asia to serve as a development facility specifically designed to meet the needs of the growing Chinese market.

Strategically situated in southern China in Shenzhen, near the commercial centre of Hong Kong, the Oracle China Development Centre will initially employ 100 people whose focus will be on developing internet- and mobile-based applications specifically adapted to Chinese products and technologies. This will enable rapid adoption of e-business applications to reduce cost and eliminate complexity while meeting China's unique needs and ensuring compliance with Chinese customs and regulations.

"Oracle is very clearly delineating its 100 per cent commitment to China and the success of its Chinese partners and customers," says Derek Williams, executive vice-president, Oracle Asia Pacific. "The Oracle China Development Centre will develop internet-based products and services specifically for our Chinese customers, which will allow them to quickly deploy cutting-edge technology and at the same time lower their operational costs by leveraging Oracle's online services."

With China's entry into the World Trade Organization, many industries, such as finance and manufacturing, are poised for enormous growth. "This is a watershed moment in China's - and the world's - history," explains Kevin Walsh, Oracle vice president of internet technology and the centre's acting manager. The centre will focus on five key areas of development, including product development, laboratories, a product knowledge centre, a customer centre, and development services.

"In product development," Walsh explains, "we'll concentrate on enhancing Oracle's China-specific services and expanding the Chinese's ability to implement large, complex national projects. The laboratories will gear toward accelerating technology adoption rates for solutions jointly developed with our partners. While the product knowledge centre and the customer centre will key in on knowledge transfer and enhancing our customer service offerings, development services will ensure rapid porting, certification, testing, localization, and language translation of Oracle's products."

Make Mine Mobile

The mobile phone market far outweighs that of PCs in China, with more than 156 million phones currently in use throughout the country. To that end, the

Oracle China Development Centre will focus on the creation of mobile applications and infrastructure, especially as they intersect with the Web. ”For a growing number of new users in China, mobile devices are the preferred method to access the Internet,” explains Walsh. Oracle has already begun work on a mobile commerce infrastructure and plans to establish a validation laboratory for 3G (third-generation wireless application).

A special team at the Oracle China Development Centre will focus on the scalability needs of the telecom network infrastructure in China, and Oracle will work closely with network equipment manufacturers and national operators, assisting them in employing advanced features of Oracle9i Database such as Real Application Clusters, Oracle9iAS, and Oracle9iAS Wireless to support the standard Simplified Chinese character set in what experts predict will eventually be the largest mobile network in the world.

Oracle has four offices in China, which are located in Beijing, Shanghai, Chengdu, and Guangzhou and provide sales, support, and consulting services. The new development centre is the third of its kind outside the United States, but unlike the other two facilities (in India and Ireland), which focus on developing Oracle’s core products, the Shenzhen facility will focus on development of products and services exclusively for the Chinese market.

The First Digital Hospital

A digital hospital, bringing together the latest developments in medical and information technology, will soon rise on a vacant lot on the Birmingham, Alabama campus of HealthSouth (www.healthsouth.com). “This will be the hospital model for the world,” predicts Richard M. Scrushy, chairman and CEO of HealthSouth. “By creating the first automated hospital, HealthSouth and Oracle are taking an idea that many have talked about and making it a reality. We will demonstrate how technology can lower health-care costs, greatly reduce human errors, and provide patients with the best medical care available.”

The hospital will feature patient beds with display screens connected to the internet, electronic medical records storage, digital imaging instead of traditional X-ray film, and a wireless network that will permit health-care professionals to use lightweight portable computers to access and update medical records.

HealthSouth expects to spend $100 million to $125 million constructing and equipping the half-million-square-foot, 219-bed hospital. In addition to digital technology, the hospital’s physical plant will reflect modern medical practice. For example, the most-used radiology services will be located near elevators. The hospital itself will be designed to be upgraded in the future.

The hospital decided to use Oracle software to connect and support its systems. “Oracle E-Business Suite provides a foundation for fundamental improvement in the health-care industry’s administrative and business processes,” says Larry Ellison, chairman and CEO of Oracle Corporation. “By combining customer relationship management and resource planning applications into a single,

integrated e-business system, the automated hospital will allow physicians and clinicians to focus on patient care and eliminate unnecessary paperwork and duplication of effort." The digital hospital is also providing Oracle with a test bed for new health-care software, which will include core clinical applications as well as access and outreach systems.

According to Scrushy, automation will improve business processes such as record storage and retrieval, but the greatest benefits will be for patients: It will reduce human errors, such as providing incorrect medication, and will reduce time spent on labor-intensive tasks, such as admissions.

Eight medical-equipment manufacturers – Carl Zeiss, Dade Behring, Datascope, General Electric Medical Systems, Hill-Rom, Smith and Nephew, STERIS, and Visualization Technology – are collaborating in the design, construction, and integration of equipment for the new hospital.

Scrushy insists that the hospital will provide more than just a showplace for cool toys. "Our automated hospital isn't just about technology," he points out. "It's about using the best technology available to provide the best medical care to patients. People deserve the highest level of care we can provide."

Expanding the Human Bandwidth

Ray Kurzweil is the only one who can claim to have correctly predicted a host of technological breakthroughs and he's been led to do all this by his interest in technology.

Kurzweil's interest began in high school when he invented a machine for recognizing patterns in music and writing original melodies in the style of composers such as Mozart or Chopin. The machine landed him on the "I've Got a Secret" TV show hosted by musician Steve Allen, where a panelist — a former Miss America — failed to guess that Kurzweil's machine had composed the music she just heard.

"Human thinking is based on pattern recognition, not fast logical analysis, and we're very slow at it, compared to a machine," Kurzweil says. "So how can a human play chess against a machine? It's because of pattern recognition."

After studying the unusual combination of computer science and creative writing at the Massachusetts Institute of Technology, Cambridge, Kurzweil founded Kurzweil Computer Products, also in Cambridge. From it emerged the first text-to-speech reading machine for the visually impaired and the first flatbed scanner to use a charge-coupled device (CCD). A friendship with Stevie Wonder grew after the blind musician bought one of Kurzweil's reading machines. Wonder's friendship led to another first for Kurzweil Computer: a computer-based musical instrument that could sound just like a grand piano or various other orchestral instruments.

After working on just a few projects, Kurzweil realized that because they each took time "the world was different when I finished a project [from] when I started," and he had "to time the projects so they make sense when they're done." This insight prompted him to study technology trends, which turned into another vocation,

writing books. In *The Age of Spiritual Machines* (1990) Kurzweil predicted the emergence of the World Wide Web and a computer's winning the world chess championship. *The Age of Intelligent Machines* (1999) imagined a world where the line between computers and humans blurs and Kurzweil predicts where technology can take us in the next century.

"Some say it took us 40 years to adopt the laser, so it will take us 50 years to adopt other new technologies such as nanotechnology," Kurzweil says. He disagrees. "You can use lessons of the past to predict the future only if you factor in the inherent acceleration of the pace of progress," he says.

His forthcoming book, *The Singularity is Near*, examines the geometrical growth of technology over the last century and predicts a "technological change so rapid and so profound that it represents a rupture in the fabric of human history." When this event, which Kurzweil calls the singularity, occurs, machine intelligence will match human intelligence. He predicts the singularity could happen as soon as the middle of this century.

Will his predictions about the next century's technology prove accurate? At 55 years of age, Kurzweil intends to live long enough to find out.

Kurzweil argues that if you can live to the year 2010, biology and technology innovations could theoretically carry you on for another 800 years or more, maybe not in the same body but with the same mind.

He suggests thinking of our bodies as hardware and our minds as software. When a personal computer crashes or becomes obsolete or unrepairable, we simply transfer the old data onto a new machine. If biological science can regrow every organ system, including our brains, as Kurzweil predicts will happen by the end of the 21st century, then when our bodies fail, we can upload our "software," our memories and intelligence, into new "hardware," a healthy new body.

Considering that by 2020,an inexpensive computer will have the same processing power as the human brain, Kurzweil writes there is no reason our minds can’t expand and survive.

"We can profoundly expand the human bandwidth and ability to experience the world while we expand our longevity," Kurzweil says.

Kurzweil is already working on expanding his own world, or, more accurately, his own reality. He uses virtual reality to metamorphose himself into Ramona, a 25-year-old female rock star. When Ramona performs, occasionally during keynote speeches Kurzweil has been asked to deliver at technology conferences, she usually sings a cover of Jefferson Airplane's "White Rabbit" or an original composition called "Come Out and Play," with Kurzweil's movements and voice being transformed into hers on a screen.

Virtual reality gives you a different sense of your own identity. Kurzweil says. "Ramona gives me a more relative view and opens up other personalities."

Prof Works on "Talking" Robotic Technology

After years of watching humans adapt to and learn the intricacies of mechanical devices, Medhat Moussa wants to turn the tables on machines so they adapt to us. "Most machines today assume you will read the user manual," the University of Guelph engineering professor said Monday, while describing the characteristics of user adaptive robots he is designing. Moussa said while many researchers around the world are studying robotic techniques, his research into user adaptive robots is unique. "These would alter behaviour to fit user needs and preferences."

Moussa, who has been studying robotic grasping for about eight years, is designing a prosthetic hand that will learn through voice commands. He has also developed a personal robot that works in the same manner. "You really want to adapt to the user, the patient," Moussa said. The hand uses voice recognition software and sensors to learn what objects it is grasping, with the configurations for each object then stored in its memory A small computer that operates the hand is attached to the user's belt. "The user might train the hand to grasp a banana," Moussa said. "The hand will map the shape and the friction of the banana surface. The hand then starts knowing these objects."

The next step would be the development of episodes, where the hand would recognize a number of tasks which are related, such as the movements required at a restaurant. He said talking to your hand in a restaurant "would be very unusual," so the hand would be trained to know a number of movements associated with each other, such as picking up a fork and a water glass.

While the intelligence system in the hand is still in the early phases of development, Moussa hopes to have a prototype in clinical trials within two years. There are more than 30,000 people with some type of arm or hand amputation in North America.

Along with the user adaptive hand, Moussa is developing a personal robot that can be taught to grasp items. It would be beneficial to the disabled and the elderly. "You can say 'grasp' and it will interpret your voice and the arm will go from its home position to pick this up," PhD candidate Maria Ralph said of a small rubber object she is teaching the robot to retrieve.

The work is being sponsored by the Natural Sciences and Engineering Research Council of Canada, a federal funding agency, from which Moussa received a grant of $34,000 per year for four years. While the personal robot costs $18,000 to assemble, Ralph said it should be a more practical option in the future. "I think when computers came out they were very expensive, and now they're in everyone's home."

Class Systems

The government has set targets for the ratio of computers to pupils.

Schools are under intense pressure to provide high levels of access to computer facilities. The government has set as a target an average computer-to-pupil ratio of l:6 in primary schools and l:3 in secondary schools by 2010. While this will be beneficial, imaginative use of Information and Communications Technology (ICT) in schools has much more potential than simply providing pupil access to computers, at these or any other ratios.

We're at the start of an education revolution. Schools are starting to find exciting, useful and stimulating applications, not just for computers but for allied technologies such as whiteboards and projectors. The combination of these is becoming a fundamental component of many aspects of lesson preparation and delivery and pupil assessment.

Malcolm Burnott, ICT manager at King Harold School, illustrates how pervasive computing can become within schools. "All our teachers have laptops, and that's quite an incentive to attract staff. They do all their lesson planning on them and all the data management. Every area in the school has at least one data projector, and we also have a wireless mouse that goes with it." Using the wireless mouse means teachers can walk around the classroom and deliver the lesson from anywhere. Perhaps more importantly, they can take the mouse to the students and allow them to interact with the computer.

When lesson material is prepared in electronic form there are further possibilities. Teachers can store support material on the intranet, which students can access from home - useful if there's something they haven't understood, or they've been absent, or for revision. Parents have access too, so they can keep track of pupil homework.

Such progress is not easy, however. Often schools have to juggle the finances to reach their ICT targets. They also face some difficulties with staff. There are people who feel quite threatened - who don't want to admit to students that they don't know all the answers and who don't see the benefit of ICT in the classroom.

A fundamental change in the attitude towards educational computer networks and resources must take place. Computer technology is no longer an optional teaching aid. It requires a professional approach, and that means big money.

A more important decision is how to spend the money. The Department for Education and Skills (DfES) encourages schools to buy PCs, but unless you invest in the infrastructure you are wasting your time.

Often schools have email on the same server as the curriculum. This puts vital teaching materials at risk from hacking, viruses and denial of service attacks. It is recommended to separate servers for student email, staff email, curriculum delivery and administration.

Conventional desktop PCs are no longer the automatic choice in schools. Laptops come into their own in an establishment with a wireless network. This

technology is gaining popularity in schools. The most obvious benefit is greater flexibility. Pupils and teachers can be connected wherever they are on the school premises. Without the frequent unplugging of network connections, reliability is also improved. But in a school environment they are very stealable.

However good the technology, it is of little use unless people know how to operate it. Several schools have found that a vital component of ICT training is helping teachers to teach themselves. The best way to do this is to provide the tools so teachers can train themselves. Besides, along with teachers training different courses can be offered to extend this practice to parents, who find it very useful in controlling their off-springs.

One challenge for schools is providing the resources to support ICT equipment. This covers everything from day-to-day help for teachers and pupils to system management and maintenance for the networks and computers. Classroom assistant and full-time technicians look after the 600 laptops, managing insurance and warranty claims, repairs, organising spares, doing development work, creating images of the setups and locking down various aspects of the computers.

Fully Booked or Membership of the Global Library

Far from signalling the death of the printed word, the computer has made it easier for book lovers to indulge their habit.

If you are a book lover, you may have a lingering suspicion of computers. After all, they have been promising for years to make the printing press redundant. In fact, conversely the internet has opened up wonderful opportunities for those who are interested in books, whether it's for the objects themselves or the information in them. Here we look at the new ways of buying and borrowing books, getting hold of the new best-sellers and old, out-of-print and rare books and e-books.

Buying books online

Buying books over the internet has taken off in a big way. There are more than a dozen UK-based online bookshops, and as the internet allows you to shop all over the world, this is the tip of the iceberg. Book selling has been one of the success stories among dot com ventures. In March 2002 Amazon UK announced that it had passed the five million customers mark. In February 2002 alone its site had 2,685,000 unique visitors, and according to data from the internet research company Jupiter MMXI it was responsible for 16.6 percent of all UK e-commerce. Jupiter ranked Amazon.co.uk number one in its online retailer league, with its US counterpart, Amazon.com, in second place.

Blackwell's was the first of the well-known traditional booksellers to have a website *(www.blackwells.co.uk),* while Foyles has opened its virtual store only recently *(www.foyles.co.uk).* If you pay a visit to *www.waterstones.co.uk* you'll find an Amazon-run site. As well as allowing you to order online, this site can help you locate a branch of Waterstone's with maps and directions and has news of in-store events such as book signings.

Some book lovers have complained about the impact e-commerce has had on the conventional bookshops they treasure. In fact, the development that adversely affected small traditional bookshops was the abolition of the Net book agreement, which fixed book prices for all shops. This was already in place before the internet exploded with book-buying opportunities, although online booksellers have undoubtedly exploited it. The past couple of years has seen an overall increase in book sales and reading in general, fuelled in part by bargain prices on best-sellers in the high street.

If you want to compare the prices, including delivery, of books from online retailers, go to *www.bookbrain.co.uk* and type in the name of the author, title or ISBN to get a list of possible matches. Clicking one produces a table showing not only the prices for the book at several online bookstores but also the availability at each and delivery charges.

The bibliographic details provided by most sites are basic. Most have a thumbnail of the book jacket, either the publisher's blurb or a summary and other details such as binding and number of pages. There are exceptions to this, however: Swotbooks.com provides its own 'annotation', which doesn't necessarily repeat the publisher's information, and some of the sites provide more with readers' comments and reviews.

When you take postage into account, Amazon is not often the cheapest site - *blackwells.co.uk* offers free postage - but it generally promises the quickest dispatch.

Amazon's book descriptions often include feedback from readers by way of comments and reviews. Sometimes you'll find not just one review but several, and readers rate how useful they found the review. This may seem to be going too far, but it means that you can try to gauge the quality of the review, and it deters those with vested interests from providing a biased account of a book.

Amazon provides an email service that sends you details of new books by the same author, the same publisher or books similar to the one being viewed.

Fully Booked or Membership of the Global Library

Teleworking from home means wearing what you want, not battling for a seat on a bus or train and never being stuck in commuter traffic.

In the UK almost a million people have discovered the advantages of teleworking from home and the number continues to rise each year.

While employees enjoy cutting out the cost and inconvenience of commuting, employers are discovering that teleworkers are not only more efficient and productive but also save on expensive office space. Fuelling the home teleworking phenomena is the Internet and the arrival of budget-priced fast, efficient PC's, both of which have greatly reduced the costs of setting up a home office. Many of the traditional office equipment tasks can be carried out using a PC. For example, the ability to be both a fax machine, answerphone and with the addition of an

inexpensive scanner - even a photocopier. A PC can also store thousands of files, which means you can dispense with all of those files.

The computer you choose will initially depend on what you will be using it for and also where you plan to use it. If you intend to travel and need a computer with you, then consider a notebook PC. They are light, portable and can have as much power as a desktop machine. You can even get sub-notebooks which have external CD and floppy drives, which means even less weight when carrying them around. You can also connect a larger monitor and external keyboard for ease of use when at home. Notebook computers also help if space is tight, as you benefit from having less clutter on your desk.

If a notebook solution is not suitable, the other option is to look at a desktop machine. Decide what you will need the computer for and look at what is available within your budget. The price of computers has fallen sharply over the past few years so you may be surprised at how much you can actually get for your money.

Even low-cost desktop machines, like those in the Packard Bell's Club range, are powerful enough to run a home office and also include software packages such as Microsoft Works that provides the essential tools for home computing: a word processor, spreadsheet, database and calendar.

One of the single most essential hardware items that you should ensure your computer is equipped with is a modem. This allows you to send e-mails, faxes and surf the web from the desktop.

Modems come as standard on the majority of today's PC's. The current standard is a 56kbps modem which is ideal if you need to stay in touch by e-mail, mainly handle text files and are only spending a few hours per day researching on the web. But if your time online is more than three or four hours a day, speed is essential in your work and you need to send and receive large data files with graphics or video, then consider upgrading to higher speed digital services such as ISDN or a cable modem service.

Both are more expensive but provide greater bandwidth - the measure of speed and capacity - for faster delivery of information. ISDN runs more than twice as fast, at speeds up to 128kbps. Even faster are digital cable modems being introduced in many parts of the UK. These will run at 512kbps - approximately nine times as fast. The set-up costs of ISDN, including installation fees for services like BT's Home Highway and the cost of an ISDN card in your PC or a terminal adapter card, can total nearly £200. In addition, monthly line rental is higher. Cable companies are still unveiling their digital line plans. New cable customers will face installation costs and monthly rentals of about £40 are expected, but unlike ISDN there will be no call charges.

Another essential item is a printer. For fast, high-volume printing a laser printer is best, especially if you want only black and white printing. Colour laser printers can cost from £1,200 upwards, while black-and-white lasers can cost as little as £160. If colour is essential and the budget limited, colour inkjets deliver superb colour as well as monochrome text nearly as sharp as some laser printers. Using higher quality photographic papers, you can also produce striking colour photos from digital images taken on a digital camera.

A scanner can be useful if you wish to convert paper documents or photographs to electronic format. Software is usually included with the scanner to enable scanned text to be converted into editable text. These are available from under £100. A scanner, when linked to a PC with a printer, can also be used to copy documents.

Interactive Ideas: Learn Italian Now!

Now's your chance to learn a whole new language without even trying (too hard)...

If you're going abroad for business, pleasure, or a mix of the two, you have a couple of choices. Either you can stick with that peculiarly British tradition of speaking very loudly and very slowly to foreigners, or you can take a more radical approach and learn a new language. And if you're feeling adventurous (or at least studious) the good news is that learning a language doesn't have to be all hard work, blood, sweat and tears. In fact, Transparent Language CD-ROMs have long been proving that language learning is what multimedia does best, and the new range is better than ever.

In no less than Version 9, the current line up of languages on offer in the illustrious LanguageNow! series includes Spanish, French, German, Italian, Russian, Chinese, Japanese, Swedish, Dutch, Portuguese, Polish, Irish and Latin. We chose Italian because of our unhealthy obsession with pizza, ice cream and shiny red sports cars.

With an easy installation that only requires 30MB of precious hard disk space, you're ready to go in no time. The disc begins by introducing you to around 100 of the most important Italian words for everyday use. It's not long before you're progressing to using simple nouns and verbs in phrases and complete sentences, as the program moves up a gear and teaches 'survival phrases'. With full-on multimedia capabilities, the program delivers far more than books, audio tapes or videos can in their own right and it takes a remarkably short period of time to become fluent in the basics.

Meet the folks

Once you're au fait with the basics, the disc provides you with a change of pace, as well as a change of scenery, by sending you packing. Yes, adding a further element of interactive learning, it's now time to pack your bags and set off on a voyage of discovery around Italy. Your guides for the trip are Gabriella and Piero, and you get pretty well acquainted with the pair as you journey to Rome, Florence, Milan and beyond. It's a great idea, with almost full-screen video putting you in the picture and enabling you to interact in 'real life' scenarios.

You can practice holding conversations in Italian, interacting with characters on screen as you make the most of your PC's soundcard and microphone. You don't have to have a microphone to use the disc, but you miss out on a lot if you pass up the chance. For example, there are recording options built in, so that you can record

yourself saying words and phrases, and then listen back to them, comparing them with a native Italian's pronunciation. There's even an on-screen gadget to appraise your diction and give you feedback on how well you're doing. It has an overly fancy title of the Advanced Speech Analysis and Pronunciation Meter, but it works pretty well, which is the main thing.

Building vocabulary

One of the most common criticisms of language-learning multimedia programs is that they aim to teach you to speak a language, without giving you a firm, written base. Learn Italian Now! does enough to silence critics by providing full on-screen vocabulary lists. As well as most of the spoken elements printed on screen as you go along, there's also more specific help for verb conjugation, correct use of grammar and the like, making the program a well-rounded and fully comprehensive affair.

And if all this heavy reference activity sounds a bit worthy but dull, there are also some new games in Version 9 to provide a more entertaining approach. These include the likes of Graffiti in which you grab letters and reconstruct sentences, and Verb Quest where you have to fit the right verb forms into sentences against the clock.

To keep an eye on your progress, there are some really useful self-appraisal tools built into the program itself and, to complement this, you can also take advantage of web-based resources provided by the company. With an all-new, simpler interface, V9 of LanguageNow! series is a great set of programs made even better.

Talk to the Machine

Max Huang says he has something cool to show me. I'm skeptical: he's holding in his hand what looks like a PDA. It is a PDA, a Compaq 3600, to be exact, unremarkable. What's special is what's inside: this PDA understands what you say.

Huang and his colleagues at the Philips Speech Processing office in Taipei, Taiwan, have streamlined the Company's Standard Speech recognition engine, meant for servers and PCs, to run instead on a PDA. It's just a prototype, Huang says, but the Mandarin-language recognizer can distinguish about 40 000 words. With it, Huang can access his address book, schedule appointments, and dictate e-mail. So I'm starting to be convinced: this does seem pretty cool.

To the extent that the average person is familiar with speech recognition, you probably start thinking of dictating reports to a PC, or maybe dialing an automated call center for flight or train schedules. Indeed, the Speech industry has been pushing those kinds of applications over the last decade.

But some of the most novel and most challenging work being done now involves putting Speech recognition where it was previously thought infeasible: into toys and MP3 players, car navigation and entertainment systems, and cellphones and PDAs.

The push for embedded speech comes at a time when manufacturers are trying to cram ever more functions into ever smaller devices. "There's just not enough room for all the buttons and displays," says Erik Soule, director of marketing for Sensory Inc. (Santa Clara, Calif.), a developer of embedded Speech products. A voice interface that lets you say the name of that Beatles song you want to listen to, rather than delving through your iPod's multiple menus, offers a less frustrating alternative. "We look at voice as a great complement to the visual and touch user interfaces," Soule says.

Will consumers buy it? The Kelsey Group (Princeton, N.J.), one of the few analyst firms that track embedded Speech, thinks so. In a white paper issued in July, Kelsey projected that Software licenses from embedded Speech will grow from US $8 million this year to $277 million in 2008, making it one of the fastest-growing Segments of the speech market.

In a sense, this is old wine in new bottles. The basics of today's speech recognizers were first worked out in the early 1970-s by researches at IBM Corp. and Carnegie Mellon University.

Nearly all the speech recognition engines on the market today are based on hidden Markoy models (HMMs), which are used to represent how phonemes and allophones are pronounced and how fast they are spoken. HMMs also require training, to create, the database of pronunciations against which the speech sample is compared. In some applications. the speaker may do the training, and the recognizer then becomes tuned to the speakers particular style. For speaker-independent applications, the engine designers gather speech samples from many people, to create an averaged set of training data.

"If we're building a speech recognition engine for the car, we go and collect the speech sample in the car, to capture the acoustic characteristics of the chamber that the system's going to be used in", explains F. Kaake, general manager of voice control at the Philips Speech Processing office in Dallas, Texas.

In fact, collecting good training data is just as important as writing an efficient search algorithm and companies closely guard how they train their models.

For starters, companies scale the applications to fit the device. At present, the most powerful embedded speech engines on the market - those running on a compaq iPag 3800, with its 200-MHz Intel Strong ARM processor and 64 MB of RAM, for example-can only recognize a couple thousand words, while voice-activated cell-phones with 16-bit digital, signal processors (DSPs) can handle perhaps a hundred words.

Limiting the vocabulary's size cuts down the searching that the engine needs to do and the memory it takes up. So while you can't dictate "War and Peace" onto your Palm Pilot, you can use voice commands to jump through menus or retrieve contacts from your address book.

Picture Phones Put to Use in Business World

Real estate agent Michele Portlock is doing a slow twirl as she surveys the living room of a small condominium. She stops suddenly and lifts her silver cellphone to eye level. "I want to get this fireplace," she says, just before her cellphone emits a digital click. A few minutes later, Portlock, 38, is in the door-way of the unit's bathroom, framing a shot of the gleaming marble floor and walls. "This unit will fly when it comes on the market," she says. "That's why I want to get these shots to a couple of my clients, fast." Portlock is way outside the target market for the new generation of picture phones.

Trend-conscious youth are the primary focus for this "fun" technology currently being marketed by a number of wireless service providers. But many of these services are discovering a surprising new segment they hadn't anticipated — business people and professionals who are taking digital snapshots and quickly sharing them with colleagues and customers.

"Camera phone usage is still evolving," said Eugene Signorini, senior analyst at the Yankee Group, a Boston research company. "The wireless phone services are still looking for applications that stick." On-the-go workers such as engineers and plumbers may be developing those applications on the fly. Portlock, who has owned her Sprint Sanyo 8100 picture phone for about a month, has clearly been won over by its functionality. It has already helped facilitate two sales by allowing her to shoot and send images to prospective buyers before a property is publicly listed. "It gives me an edge," she says. "In this market, it's all about quickness."

Building contractor Bob Pino said his four picture phones are more about convenience than speed. He uses them to stay in touch with his crews working in three Boston-area locations. "If the guys can send me a picture of a problem and save me a trip... that's worth a lot.".

Picture phones are standard cellphones with built-in lenses that enable rudimentary photography. Users can send postage stamp-sized images to other picture phones or to any e-mail address. The e-mail recipient sees the picture in the body of the message or as an attachment. The latest picture phone units, manufactured by companies such as Sharp, Nokia, Samsung, and Sanyo, have already found a market in Europe and Asia, particularly Japan. About 18 million were sold last year worldwide, according to the U.S. research group Strategy Analytics.

Because the quality of the picture phone image is dramatically lower than even the most basic digital cameras, wireless services have been marketing the device for fun uses, such as spontaneous "wish you were here" shots from the beach, ballpark, or vacation destinations. But it turns out the picture phone also works for serious uses. It's too early to say what percentage of owners use them for work, but Strategy Analytics says that in five years as many as 20 per cent will be used for work-related purposes.

"Before picture phones, if one of my guys had an unexpected problem, he would call me and try to explain it," Pino said. "Most of the time, I'd have to drive

over to look at it. Now he just sends me a picture." Last week, for example, one of Pino's crews discovered a broken drain pipe in a wall. Instead of driving over to examine the situation, he requested a cellphone picture. Within minutes the Winthrop crew was proceeding with his updated instructions. "That saved me an afternoon," Pino said.

Pino also uses his picture phone to stay in touch with customers, taking advantage of the phone's capacity to send pictures to e-mail addresses. "If I reach a point where I have a question, I just e-mail a picture of the situation to the client," he said. "Most of them are sitting in front of a computer all day anyway". When Darrell Allen of West Palm Springs, Calif., bought a picture phone in January, "it wasn't about fun at all," he said. "I sent a picture of our dog to my wife at work, and that was about it," he recalled.

But Allen, who works in the used car business, now sends multiple images from his picture phone every day. When he visits auto auctions, he sends pictures from his phone to his manager back at the car lot, and to prospective clients. "If I get a favourable response from a client, I'll go ahead and buy a $20,000 or $30,000 car," he said.

Despite all these emerging business uses, picture phone adoption in North America is still at a very early stage. Neil Strother, senior analyst at In-Stat/MDR, a market research firm in Scottsdale, Ariz., said only two million to three million camera phones will be sold in the United States this year, compared with about 35 million worldwide.

One factor hampering adoption is the "carrier barrier," which prevents pictures from being exchanged between users on different wireless services. The services, however, allow users to send pictures to e-mail addresses. Strother and other analysts believe the carriers eventually will cooperate on a common standard that will allow cross-carrier picture messaging. Another barrier is the low quality of the camera phone images, which prevents detailed uses like medical images and engineering diagrams. But many believe that quality will improve when more people begin using the phones for business.

You'll Never Believe Who's on the Line

A NEW TYPE of telephone has arrived in Britain. It looks innocent enough, just like a normal household appliance, in fact, but there's one very big difference. The "truth phone" tells the user when the person on the other end of the line is lying.

Manufactured by an American company specialising in a range of surveillance and counter-surveillance equipment, the truth phone contains a "voice-stress analyser", otherwise known as a lie-detector. The company claims that it monitors uncontrollable, sub-audible tremors that exist in the human voice when the subject is under stress.

Voice-stress analysis [VSA] has long been recognised as a proven method of lie detection. The manufacturer has only combined the technology of VSA with the telephone, where so many of the most important conversation in life take place.

During a conversation, a digital read-out is constantly displayed on the telephone console, reflecting the sub-audible tremors in the subject's voice. An answer to a simple, stress-free question such as "Is today Saturday?" produces a reading somewhere between 10 and 40. A more searching question such as "Are you having an affair?" might produce a reading of 80 or 90.

According to the manufacturer, however, it's not just a case of the higher the reading, the bigger the whopper. Correct use of the truth phone requires a series of carefully structured questions in the context of a formal interrogation and a detailed analysis of the readings. (In America, where VSA is admissible as court evidence in certain states, there is a certificate of qualification for voice stress analysers. VSA is not admissible in a British court).

"Control questions" help to distinguish between the anxiety of interrogation and the stress of lying. Unrelated to the main issue (a school theft, say), some of them are easy ("Are you wearing a tie?"), while others are designed to produce stress ("Have you ever shoplifted?"). These provide the interrogator with bench-marks to compare with the response to the main question ("Did you steal 200 pounds from the office?").

The implications of the truth phone could be devastating, particularly in the business world. Employees suspected of pilfering company money, fiddling their expenses, talking to the opposition or leaking information could be summoned to the phone. ("It's the boss. Wants a word with you on the truth phone").

At 2,499 pounds, the phone is not cheap. According to the manufacturer, the first people to spot its potential in Britain have been insurance firms wanting to check the validity of their clients' claims.

But Liberty, a civil rights organisation, expresses some concern about the equipment. "I think it's an issue of privacy as much as anything", says John Wadham, Liberty's legal officer. "People could be measuring your emotional response without you knowing. The information could also be very inaccurate if it's taken out of context".

Home Movies, Live via Webcam

LAST autumn I set up a Webcam in my living room. A Webcam is a video camera — in our case, a very modest one — connected to a computer and through it to the Internet.

It doesn't record videos but sends signals across the World Wide Web. So when I sign on to the Internet and turn on the Webcam, I transmit a continuous rendition of a small portion of my family's daily life to anyone who wishes to view it on-line.

So far, that has been about 10,000 people, for about a minute each, all in an apparent desire to see a dumpy middleaged mother of three take her clothes off.

At least that's what the e-mail messages I get keep requesting. The bulk of these messages seem to come from France, which certainly seems to belie the image of the French as great lovers.

How the Webcam came to our house has to do with a peculiarity of our computer, indeed of every computer we have had. Shortly after each one arrives at our home, it sends subliminal messages to me that it requires accessories.

Many people are able to buy a computer, put it in a corner, use it when they wish and happily leave it as that. But my computers pulse messages into my brain, like, "If you attached a microphone, you could add your voice to your Web site," and, "Wouldn't a CD-ROM bunner be just what the doctor ordered?"

So when people ask, and they always do, what in the world would compel perfectly ordinary people to broadcast themselves all over the World Wide Web, I can honestly say the computer made me do it.

There is no reason to look at our Webcam *(www.ca-marades.coml~946S6016T)* unless you are interested in looking into other people's living rooms, but surprisingly, a lot of people are. One person, who felt compelled to tell us by e-mail how bizarre we were, spent 11 minutes on our site.

Camarades, the company that provides the software to run the Webcam and the space on the Web to broadcast it, also includes our cam in its own digital community of people with Webcams. I, too, find myself wasting a lot of time clicking on the thumbnail pictures of complete strangers to watch their lives for a few minutes.

Twenty-four people have looked at our Webcam in the last half-hour. Fourteen may be watching now. Four minutes later, up to 18 viewers. Twenty minutes later, down to seven, four of which just signed on.

My oldest son, who despises the Webcam with the self-righteousness of a teenager, suggested that we put a mirror up to the Webcam to create a cam cam.

We have reached an emptier level of fame, beyond even the "being famous for being famous" level. We are feeling famous for just being in view of anyone who wants to look.

I have been caught, however, mistaking the picture on the Webcam for real life. Once I was on the computer, sort of watching the kids, and I started scolding them for wrestling — but it turned out that they were sitting quietly, doing their homework, and I was seeing the delayed pictures you get when your Webcam is on a slow phone line.

One day, I accidentally turned the camera around to face a cow candle my oldest son gave me a few years back. Twelve people have visited to view the cow candle. But no e-mail has arrived asking the cow if it would mind slipping out of its cellophane wrapper. Not even from France.

Ready for Tech-off

Computers take airborne entertainment to new heights.

The next generation of systems is starting to look more like personal computers than simply a way to watch a movie on an airplane.

"It's like having 400 computers at 30,000 feet," says Rob Broolder, spokesman for the World Airline Entertainment Association, a trade group for the in-flight entertainment industry.

For passengers, the latest systems are about more choices to while away their hours aloft.

On Singapore Airlines' first 747 fitted with the latest system, first-and business-class viewers can choose from 25 movies, play computer games or view text such as headlines updated every hour in the air.

On-board servers can store up to 110 hours of filmed entertainment — from *Shakespeare in Love* to episodes of TV's *Suddenly Susan.* There also are Internet-style sites that give information on destinations and 50 full-length music albums available with CD-quality sound.

Sony has rolled out its own advanced entertainment-on-demand system, which is installed on two Air Canada A340s and a South African Airways 747. US Airways also has signed up for the system, Sony officials say.

"You surf our system like you surf the Web," Sony senior manager Lori Krans says.

But the technology is pricey, which could slow the rollout. Singapore is spending $1.3 million, or $18,500 each, for 70 first- and business-class seats on its 747 flying between Sydney, Australia, and London. Cost aside, the new systems are a far cry from what most people think of as in-flight entertainment — watching a movie, played once in each cabin, through tiny earphones.

In the past decade, in-flight entertainment has taken off.

"In the 1990s, we have gone through an explosion in technology that has caused an explosion in in-flight entertainment," says Russell Johnson, Matsushita's marketing director.

Evolution

First came individual viewer screens a decade ago. Then, airlines lined up multiple players so that several movies could be shown at the same time on different channels. Some first-class passengers had seat-side video-cassette recorders and could choose from a stack of movies.

But the goal for entertainment system designers was always to create a system in which movies could be played digitally from one unit. It would be more reliable, reducing airlines' costs, and an array of movies would be available to all passengers whenever they wanted to view one.

Airlines have been quick to snatch up each improvement.

Passengers' expectations have been raised, Brookler says. "Airlines have to meet the expectations. They are competing very vigorously for these packages."

Introduction of the entertainment systems hasn't been entirely seamless.

One of the first video-on-demand customers, Swissair, turned off its advanced entertainment systems as a preventive measure after the crash of one of its MD-lls off Nova Scotia in 1998. Investigators are looking into whether a short in the system's wiring might have led to a fire that caused the crash, although a link has not been proved.

With each succeeding generation, however, in-flight entertainment providers say that the systems are becoming more capable.

In the latest versions, passengers use a remote control to click through a menu on screens that range from 10 inches to 14 inches in first class and 6'/2-inch screens in business and economy classes.

Gradually, an airborne version of the Internet is creeping into the systems. Matsushita's version will come out next year. Sony says its systems are Internet-capable now.

Airlines will be able to update a selection of websites before take-off. Some content, such as stock quotes, will be updated during the flight.

"It's our intention to give the passenger the feeling they are on the Internet," Johnson says, even if "severe limitations" of technology actually prevent them from being on it.

While Matsushita and Sony slug it out, there's always the danger they could be blindsided by new technology.

AT&T hopes to equip the first jet this winter that will let passengers receive e-mail, news, stock quotes and sports scores over their laptops in the air. It would be a variation on the technology in the plane's seatback telephone systems.

Tools and Toys

Nowadays the dizzying variety of electronic gadgets is greater than ever and if you want to buy a gift you must know that making a choice has never been tougher. But something from among the items collected here, might even strike your fancy. They include a pen from Logitech that has an optical sensor to capture your pen strokes, a processor to digitize them, and on board flash memory to store up to 40 pages of notes. The digital Logitech. Pen is significantly fatter than a ballpoint, but comfortable in the hand and surprisingly light (53 grams with cap) Scribble your notes, diagrams, or to-do and calendar items on special paper that helps the optics orient itself in following the text. Put the pen in its cradle for synchronization through the cradle's USB connection with your Windows 98/Me/2000/XP computer. From there your notes may be stored or e-mailed using software included in the started package.

One more hot new product which is not bigger than a pack of chewing gum, can help you to take your files with you. The device plugs into a USB port and is recognized by the computer as just another removable drive. Many have a clip or a ring so they may be attached to, a set of keys, hence their being called memory keys.

If you crave music, consider the Nomad Mu Vo memory, which is also an MP 3 player. The 64 MB model will store up to 15 MP 3 song files downloaded through a USB port. It plays them back using control buttons on its face. Power for 12 hours of playback using headphones comes from a single AAA battery housed in an included cradle.

Spies may line up for the Pocket Digital camera from Logitech Inc.

It could easily be mistaken for a business card holder, but press the tiny button on the back, and the 6-mm-thick device takes a fairly decent snapshot . Its CMOS image sensor draws only 15 mW ..

Naturally, to put the camera in a body this small, some features that are standard on bigger, more expensive models had to be jettisoned. For example, an optical viewfinder replaces a liquid-crystal display, and there's no built-in flash.

The Pocket Digital comes with download Software and a driver that allow the choice of which images to transfer.

If you're looking for a basic cellphone, you probably won't be interested in many of the models that throw in cameras, PDAs, games — nearly everything but the kitchen sink. But if you are an early adopter or gadget lover, read on.

The T68i, from Sony Ericsson one of the first offspring of the joint venture of the two consumer electronics giants, is also one of the first camera-cellphones available. It often takes better images than it can display on the phone's LCD screen, although it can instantly send those better images over the phone's e-mail service to any e-mail account that accepts attachments.

A wireless access protocol (WAP) Internet browser, plus multimedia messaging service (MMS) capability, as well as features associated with the optional snap-on digital camera, expand the phone's abilities beyond the routine task of simple voice calling.

As you can see there are a great number of electronic devices on the market today. Have you made your choice that best matches your wishes? But our list of new products isn't complete yet.

Windows Left Open to Massive Internet Attack

Government and industry experts consider brewing hacker activity a precursor to an Internet attack targeting enormous numbers of computers left vulnerable by a flaw in Windows software from Microsoft Corp. The Microsoft flaw affects Windows technology used to share data files across computer networks. It involves a category of vulnerabilities known as "buffer overflows," which can trick software into accepting dangerous commands.

Experts described an unusual confluence of conditions that heighten prospects for a serious disruption soon. They cite the high numbers of potential victims and increasingly sophisticated attack tools already tested successfully by hackers in recent days. The Homeland Security Department cautioned that it had detected an "Internet-wide increase in scanning" for victim computers. In an unusually ominous alert, it warned the threat could cause a "signifficant impact" on the Internet.

Experts advised computer users with renewed urgency to apply a free repairing patch that Microsoft has offered on its Web site since July 16, when it acknowledged that the flaw affected nearly all versions of its flagship Windows operating system software. An attack could come "any day now," predicted Chris

Wysopal of At-Stake Inc., a security Company in Cambridge, Mass. Another, company, Qualys Inc., put the threat at the top of a newly released ranking of the Internet's most severe vulnerabilities. Depending on the hackers' designs, attack tools could be engineered to disrupt Internet traffic by clogging data pipelines, delete important files or steal sensitive documents.

Alan Paller of the SANS Institute in Bethesda, Md., said a disruption could be worse by orders of magnitude than previous high-profile attacks — such as the summer 2001 outbreak of the "Code Red" virus — because of the numbers of vulnerable systems. Applying Microsoft's repairing patch takes a few moments for home users but is a more daunting challenge for large corporations with tens of thousands of Windows computers.

Researchers' biggest fears — that hackers will quickly unleash automated "worm" software that attacks large numbers of computers within minutes — have so far been unrealized. "Everybody is predicting a wide-spread event, going from zero to 60 very quickly," said Dan Ingevaldson, an engineering director for Atlanta-based Internet Security Systems Inc. He estimated a major Internet attack as "closer to imminent than probable."

Oliver Friedrichs, the senior manager for security response at Symantec Corp., predicted that widespread attacks will not occur soon because hackers still need to resolve important glitches in their own attack tools. "It is a little early," Friedrichs said. "The exploit needs to be perfected."

FBI spokesman Bill Murray said bureau investigators were studying several hacker tools designed so far and were highly concerned about a wide-scale Internet attack. "We implore the private sector — both business and home users — to visit the Microsoft Web site and install the patches and mitigations necessary to prevent this from creating a negative effect on the Internet as a whole," Murray said.

Symantec corp., F-Secure Corp. and other anti-virus companies have free tools for removing the worm. All users, whether their companies were infected or not, should also obtain Microsoft's fix by going to http://windowsupdate.microsoft.com. They should also update any anti-virus or firewall products they have by visiting the vendors' Web sites.

Internet Viruses Can Get Worse – Much Worse

Bugbear, the newest Internet virus, was first spotted in Malaysia. Within 24 hours, it was found in over 100 countries; in its first week, it infected over million computers.

It's shaping up to be one of the worst viruses so far. Instead of trashing files, as Klez and Sircam did, or overloading networks and bringing them to their knees, as did the infamous Nimda and Melissa, Bugbear can quietly log passwords and credit card numbers, and leave them exposed on the Internet. What's more, it can leave the computers and networks it infects open and at the mercy of hackers and future viruses by deleting antivirus software and firewall protections.

Yet as bad as Bugbear is, viruses to come will be much worse, say many computer experts. They say that the biggest threat the Internet faces today is the propagation of a big worm.

Worms are particularly nasty computer viruses because they can exist independently of other files or programs. They can move from one user to another on their own, without the user having to open or download a thing, spreading to more computers than ever. For example, in 1999 users might have seen one infected message in 1500 and today it's as much as one in 150.

One problem is that old viruses don't die, and they can even take a very long time to fade away. In a network, the infected computer gets fixed and put back online without becoming immune to reinfection. Moreover, on the Internet, with its highly concentrated hubs, viruses spread much more efficiently.

Several experts warn that it will be a worm that subtly changed data over time. They also say that on its first pass, it won't show itself, but once it's living within your corporate environment – changing individual cells in spreadsheets, for example – there's no telling the damage it could do. Another pointed out that such a virus could actually be out there right now: "You could be running it for weeks, the bad data could work itself into backups, and sites wouldn't know."

And here's an even worse thought: worms could be designed to dynamically adapt themselves over time. That is, once a system is infected, the virus could get new deadly code across the Internet, in the way updates are sent from software manufactures.

So, what is to be done? Experts believe that it is necessary to build resistant systems from the bottom up. Programs should check themselves and alert us if a virus is trying to modify it. And data and code should be separated.

If data and code (a computer's executable software, that is) are separated, then the code can be protected, greatly limiting the damage from code introduced by a virus.

No Safety Net on the Web

Shevaun Pennington a typical victim of wiredpredators.

In the kitchen of a house west of Manchester 2 days ago, a 12-year-old girl asked her parents if she could have her passport. She told them it was so she could apply for a bus pass and the passport was duly handed over. Thus fell into place a vital part of the plans Shevaun Pennington had been hatching with her secret friend.

He was American. She had met him on the Internet months ago. They would e-mail each other for hours. He had written her letters and phoned her at school. And he was coming to meet her and they were going to take a holiday. It would be just like all those great e-mails, only better. He was her secret friend, called Toby.

The friend had secrets, too. Big ones. Like, Toby Studabaker was accused of sexual assaults on two young girls. And thrown out of his father-in-law's house. He collected a $120,000 US life insurance payout when his wife died of cancer. They

were the kind of things that maybe you would not mention to your new girl. Especially if she was 19 — going on 12.

Not that Shevanun's parents had any idea about.

The school holidays were coming and life seemed just as it always was, with Shevaun tapping away at the Computer in the kitchen. She seemed popular at school, had lots of friends, but there she was, most nights, on the Net for hours and hours. Still, it was safer than being out on the streets?

As Shevaun kept her secret, 6,000 kilometres away in the small town of Constantine, Mich., her friend was getting ready. Just a couple of weeks out of the Marines, he told his brother Leo he had met an English college girl on the Net and was going to see her.

The day before he flew, he dropped in at the tae kwon do academy where he earned a black belt, and become so friendly with his trainer, he babysat her kids.

He said he might be off to Europe.

The next day, Leo took Toby to the airport, where he took the overnight to Amsterdam and then boarded KLM Flight 1073 to Manchester.

As he was in the air, Shevaun told her parents she was going shopping and left the house at 7.30 a.m. She took her passport, clothes and $36 Cdn and headed to Manchester airport. Studabaker landed at 7.45, and shortly after in the airport Shevaun finally came face-to-face with her secret friend.

At 2.50 p.m. they caught a British Midland plane to Heathrow, and then the same airline's flight to Paris. No one seemed to have asked this 12-year-old who she was flying with. After all, as the airline said, a minor travelling with an adult is deemed accompanied.

The Penningtons thought Shevaun was still shopping in Manchester. It was only at 8 p.m., as she was landing in Paris with the 31-year-old burly ex-U.S. marine, that they raised the alarm. Within 24 hours, the whole world knew Shevaun's secret. Worryingly for everyone, some of Toby's secrets were also emerging.

It didn't take long, as police on both sides of the Atlantic tried to track down the missing girl and her "friend," and for the media to knock on the door of Leo Studabaker and his family in Three Rivers, Mich.

On Tuesday, there was Leo again, telling the cameras Toby had just phoned. He was real mad at Shevaun for not letting on her real age, but she was safe, had not been touched and even signed a letter to that effect.

Police said the contents of his home computer strongly suggested he knew Shevaun's real age; and there was the story of Christmas 1998 at his in-laws' when two relatives, aged 13 and 10, accused him of making advances on them. He was charged with two counts of criminal sexual misconduct, but the case never came to court. This was reported, but the discovery of child porno images on his computer was not. The police, fearful of provoking Studabaker into breaking contact, asked the media to suppress the news.

Events now picked up speed. Shevaun called home Wednesday to say she and Studabaker were on their way to Stuttgart, where he put her on a plane for Amsterdam with a ticket on to England. He then contacted the FBI again, arranged

for his surrender, and made his way to the U.S. consulate in Frankfurt, where he was arrested.

On Friday, as he sat in a German cell awaiting extradition and Shevaun was having details gently coaxed out of her by police, came news of another of his secrets. For the past year he had been corresponding with another girl, 12, Elizabeth Short, from Fort Myers. More than 500 e-mails were exchanged between the two, with the full knowledge of her mother, Jami.

"He was a father figure towards her," she said, revealing he talked of visiting them in Florida and going to the beach.

Shevaun's secret had a happy ending. But others will not. As you read these words, faceless, fantasy, furtive 'friends' will be in the chatrooms insinuating themselves into the lives of the vulnerable. After last week, their existence should no longer be a secret to anyone.

Tempers Flare as Technology Breaks down in Workplace

More than 80% of network managers report that users have become abusive — smashing monitors, breaking keyboards or kicking hard drives — when faced with computer woes, based on a 1999 poll by Concord Communications of Massachusetts. When technology fails, workers report that they sometimes feel as ready to explode as a shaken up can of soda. Equipment failures seem to cause more headaches than summertime road construction.

Far from being a frivolous malady, such chronic anger can be a sign of serious morale problems and a catalyst for on-the-job stress.

"One guy ripped out a keyboard. Another guy punched out a screen; he was so frustrated," recalls Jeffrey Doriman, owner of ETS Consulting, a computer consulting firm in Connecticut. "He was actually relieved because he'd gotten even. I just went outside, chuckled, and came in and did my job."

Lonnie Helgerson, CEO of Computer Franchise Systems in South Dakota adds: "We see a lot of anger. They're mad at their modem, mad at the Internet. Our people in our stores have to get them to calm down and find out if the problem is with them or their computer."

"When my computer crashes, I become extremely upset because what I was previously working on is now lost," says Leslie Russell, 18, an office assistant for a consulting firm in Virginia, adding that her reaction is worse if a lot of work gets wiped out. "Then I will have to step away from the computer until I calm down or else the computer would be smashed into little pieces."

And those are just the little things. Consider what can happen when equipment really goes haywire. Melissa, a computer virus that sent a blizzard of e-mail to victims' computers this year, forced at least 50 to 60 systems worldwide to shut down.

At least 200 interns and short-term employees at the World Bank in Washington, D.C., went without paycheques for part of the summer because of a hi-tech related to a new computer software system. And millions of workers coped last

year with pagers that fell silent for days when Galaxy IV an orbiting satellite, rolled out of position.

Experts say there are several reasons.

• We expect instant fixes. It no longer takes days to get documents in the mail; they arrive in minutes via e-mail. In an age of microwave lunches and video conferencing, employees aren't used to delays.

• We don't have time for technology woes. Companies have shed excess fat by getting rid of employees, but that also means job responsibilities have been piled on. With so much to do, many workers don't feel they have the spare time to fritter away on technology woes.

• We're taking out anger about other issues on technology. The wrath, workers exhibit toward their equipment, can be a sign of deeper problems. Employees may vent at their equipment even though they're really steamed about a boss, job responsibilities or an organization. Technology may be a scapegoat rather than a cause of frustrations.

New FBI Computers Promise Access

Some day, surely, historians looking back on this era in intelligence will divide their subject into pre-and post-9/11. But before-and-after changes do not come swiftly to sprawling bureaucracies, even when their business is spying. So the dividing line, like so much about this shadowy world, will be murky.

The terrorist attacks exposed troubling shortfalls at U.S. intelligence agencies. Many of the most fundamental problems have nothing to do with technology. But big technology – related problems were also exposed, such as the inability of the National Security Agency (NSA) to process promptly the immense flood of communications it intercepts every day and the woefully antiquated computer systems of the Federal Bureau of Investigation (FBI). The inadequacy of the FBI's computers is linked to another basic weakness: too little cooperation and data sharing among intelligence agencies, such as the FBI, the Central Intelligence Agency (CIA), and the NSA.

How, according to Robert M. Blitzer, a former chief of the FBI, the bureau is still getting used to the idea of computer-based recordkeeping. The centerpiece of its current investigative record-keeping system is the nine-year-old, mainframe-based Automated Case Support (ACS) system.

One of the biggest initiatives proposed for the NSA is to extend and improve its powerful computer-based systems, which analyze transcripts of intercepts, look for certain words or phrases, and automatically route any hits to prespecified intelligence agencies in the United States or abroad.

For the FBI's part, its problematic computer systems and networks run primitive proprietary software, have no multimedia capabilities whatsoever, lack secure connection to networks at other government agencies (or even within the FBI), and do not give even FBI insiders easy access to all the files on a particular case.

So, new information technology (IT) systems were offered for FBI. The project, called Trilogy, encompasses not only the bureau's computers and software, but also its networks. Trilogy aims to shift the bureau from mainframe-based systems to a Web-based one that will provide secure connections to the FBI's 500 facilities worldwide. ACS is to be replaced with a "virtual case file" that will let agents store and retrieve text files as well as images, sound bites, and other multimedia data.

Several huge IT projects were described. One will install systems that will let the FBI securely share data with other intelligence and law enforcement organizations. Another project will set up the bureau's first-ever system to let its own agents e-mail each other securely.

Although the Trilogy program is still months away from completion, it has already been criticized on security grounds. Experts say that given the FBI's current computer security posture, the present course is problematic; even the very rush to complete the upgrade project could enable a compromised insider to introduce holes in the system that could be exploited later.

Clearly, the FBI is struggling with one of the hard truths of the intelligence business: the more widely you share sensitive data, the more likely it is to do some good – and the more likely it is to fall into the wrong hands.

MOUSE Test Helps Snare Cyber Addicts

Extreme cybersurfing can be hazardous to your health — not to mention your job prospects. That's the conclusion of a new study by University of Florida psychiatrists who have published a set of guidelines to help doctors and mental health professionals determine when personal Web surfing has slipped over the line into Internet addiction.

"Problematic Internet users are older than what you might expect. Both male and female, they spend about 28 hours a week in pleasure, recreational or personal computer use, and they report problematic use for about three years," said Dr. Nathan Shapira, an assistant professor of psychiatry in University of Florida's College of Medicine. The heaviest Internet usage was among people ages 30 to 39, who spent an average of 21 hours a week on computers, including nine hours on the Net. A 1999 Harris suryey showed that almost two-thirds of all adult Americans used a computer at work or at home an average of 15 hours a week. Those who used the Internet spent, on average, six hours a week on the Web. What separates the many people who are functional high users, incorporating the Internet into their lives in a useful way, from dysfunctional high users who cannot control the impulse to get online? And is an unhealthy level of Internet use a disorder of its own, or a byproduct of other psychiatric disorders?

Shapira devised the MOUSE criteria after conducting face-to-face psychiatric evaluations of 20 volunteers who admitted to having problems with Internet usage and 17 randomly selected college students with varying levels of Internet use. The volunteers who felt they had problems were online more than 30 hours a week, and their nonessential Internet use was 10 times greater than their essential use. "One of the first things we did was divorce problematic Internet use from the criteria used to describe other impulse control disorders," Shapira said.

Taking a set of guidelines for compulsive gambling, and just substituting the word "Internet" for "gambling" is not an effective way to diagnose the problem, he said.

In addition to the University of Florida guidelines, Shapira points to a 1999 Harvard study by Maressa Orzack showing that strong predictors of computer addiction are things like boredom, self-consciousness, loneliness, social anxiety, shyness and low self-esteem. "If you found at least three of the predictors, you might want to find out more about the level of Internet use in your significant other, your child or your parent," Shapira said.

He noted that "cyberslacking"—personal use of the computer at work — can have serious implications in the workplace. A survey conducted by the Saratoga Institute revealed that more than 60 per cent of U.S. companies have disciplined employees for inappropriate use of the Internet. More than 30 per cent have fired an employee for the offence.

TIME TO LOG OFF?

University of Florida researchers have proposed five questions to help doctors and mental health professionals assess when a cybersurfer is spending too much time on the Internet:

M: More than intended time spent online.
O: Other responsibilities neglected.
U: Unsuccessful attempts to cut down.
S: Significant relationship discord because of use.
E: Excessive thoughts or anxiety when online.

Silicon Shows Its Mettle

"It can't be bargained with. It can't be reasoned with. It doesn't feel pity, or remorse, or fear," said the hunted human. Reese, of the title character in the movie, *The Terminator*. He could have been speaking of Deep Junior (DJ), the computer chess champion of the world. After a six-game match slugged out over two weeks in New York City against Garry Kasparov, the highest-rated human player ever, the computer managed an even score.

Matters could hardly have gone better for the event's chief sponsor, the International Chess Federation (FIDE, Lausanne), which put up a US $1 million prize. Upwards of two million people followed the games live on a number of Web sites that carried move-by-move commentary by grandmasters and tyros alike.

Six years ago, the legendary Russian grand master Kasparov, then world champion, attributed a certain inhuman sentience to IBM Corp.'s Deep Blue, a dedicated chess machine with hundreds of processors that made history by beating him. It is a measure of how far things have come that he must now pay similar respect to a commercially available program (albeit one running on up to 8 off-the-shelf microprocessors with as much as 8 GB of RAM).

To be sure, even the best computers still occasionally make moves so strange or stupid that no human, not even a beginner, could have made them.

"DJ has passed the chess Turing test," wrote chess analyst Michael Greengard on chessbase. com. (Alan Turing, the British mathematician, famously proposed that any computer, communicating remotely, that could not be distinguished from a human being must be deemed intelligent.)

In the first three games, Kasparov got an advantage by exploiting the machine's shaky strategic insight. This manifested itself in DeepJunior's propensity to position pieces poorly (in games one and two) and allow the weakening of its king's position (in game three). Yet Kasparov won only the first of those three games. The computer's nerveless feats of calculation enabled it to exploit Kasparov's tactical mistakes to draw the second game and win the third. Kasparov got no advantage at all in the fourth and fifth games and was fortunate to draw them. In the sixth game, Kasparov got a rather better position, but – cowed by his earlier reversals – he agreed to a draw.

In the game the computer won, the third, Deep Junior made such moves that required seeing ahead nine captures and recaptures, checks and threats, all in a forcing line – that is, one in which the defender typically has only one or two possible moves. Kasparov himself would surely have discovered this move, if he had been at his best, with plenty of time to think, rather than the 10 minutes he actually had to make his next eight moves. The computer not only had far more time left on its clock, it required far less time to see the combinations. And, of course, the computer is always at its best when it is a matter of brute-force calculation.

Faced with the prospect of being down two pawns with no compensating attack, Kasparov clutched his head in disgust. After two more moves, he resigned, leaving the match tied. Neither side would win another game.

Will Wireless Telephony Spell Freedom, or a New Tyranny?

In January 2001, peaceful demonstrators overthrew Philippine president Joseph Estrada, organizing and communicating among themselves via text messaging on cellphones. Political protest is a tricky thing – if enough people do it, it can be successful; if too few people do it, they can not only fail, but get themselves into quite a bit of trouble. According to technology observer and author Howard Rheingold, mobile communication gave the demonstrators a way to assemble the critical mass needed for success. He calls such group "smart mobs", and it's the name of a new, modern youth trend and it is also the name of his new book.

In a word, *Smart Mobs* is about the intersection of mobile computing and collective behavior – and not just organized ones, like the Philippine demonstrations. Rheingold says, "won't be hardware devices or software programs but social practices."

The inspiration for Smart Mobs came to Rheingold when, in the spring of 2000, he "began to notice people on the streets of Tokyo staring at their mobile phones instead of talking to them."

As he tells, his futurist senses tingled as they had only twice before.

And indeed, Rheingold was ahead of the curve when he wrote about the revolutionary significance of PCs in 1985 (with the Macintosh newly born, before the release of Windows 1.0), and again in 1994, writing about virtual communities, the heart and soul of the Internet, just as the graphical Web was being born.

He also tends to become a booster for the technologies and trends his books are about: the technologies interest him because they promise to change the world for the better. Where description ends and promotion begins is another matter. It's easy to be less optimistic than Rheingold about the prospects of a glorious mobile future if only because no one could be more optimistic than he is.

Some of the social changes he predicts are already manifesting themselves in places like Tokyo. For example, a group of teenagers will get together without any prearrangement, relying on text messaging as they first head to a popular area, and then eventually settle, like birds on a wire, at one particular locale. Rheingold speculates that our very sense of time, or at least timeliness, will change. It's OK to be late, according to these developing rules, because the taboo against it has been replaced by one against not having one's cellphone.

The mobile phone seems a rather lightweight scythe to cut through thickets of habit and custom, but Rheingold sees it more as an interface than an end technology – a "general purpose remote control device". A Nokia engineer wires his home with sensors to remotely control appliances, lighting, and door locks. Another engineer at DoCoMo connects his cell phone to a webcam in his baby's bedroom.

Rheingold does, in the end, acknowledge that the wireless telephony will not be an undoubtedly good thing. In addition to the prospect of governments and marketers using information from cellphones for tracking of purchases and travels, he also discusses in detail a serious practical problem: the establishment of trust and reputation in a wireless world. Such problems are shared by the landlocked Internet as well.

In fact, as the desktop-dominated Internet becomes more and more broadcastlike, telephone-like mobile devices and services are becoming the platforms of choice for pure peer-to-peer social interaction such as text and instant messaging. (The rest of the world is on this bandwagon already; only in the United States do consumers own more PCs than cellphones.)

Possible solutions reveal themselves to Rheingold in features of some of the larger sites on the Internet, such as Amazon.com, with its whole of user recommendations and reviews for everything it sells. On the auction site *aBay,* though sellers can remain pseudonymous, they develop reputations that are too valuable to risk with dishonest transactions.

Thus *Smart Mobs* is the successor of the technological and cultural trends Rheingold has written before; it is about the interaction of computing and community. As you see, we have an extremely strange and interesting future ahead of us.

Св. план 2004, поз. 46

Учебное издание

ОЗНАКОМИТЕЛЬНОЕ ЧТЕНИЕ

Методическая разработка
по английскому языку для студентов 2-го курса ФКСиС и ФИТУ
дневной формы обучения

Составители: Дубовец Наталья Ивановна,
Ершова Ирина Ивановна,
Карпик Людмила Станиславовна и др.

Корректор Е.Н Батурчик

Подписано в печать 11.02.2004.	Формат 60x84 1/16	Бумага офсетная.
Печать ризографическая.	Гарнитура Таймс.	Усл.печ.л.
Уч. – изд. л. 3,0	Тираж 600 экз.	Заказ

Издатель и полиграфическое исполнение:
Учреждение образования
“Белорусский государственный университет информатики и радиоэлектроники”
Лицензия ЛП № 156 от 30.12.2002
Лицензия ЛВ № 509 от 03.08.2001
220013, Минск, П.Бровки, 6