Vector Graphics
Illustrator X FreeHand

Tiago Marques 2437
Communication Design Technologies II
Lisbon University of Fine-Arts
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Introduction

Greetings and welcome to VECTOR GRAPHICS: ILLUSTRATOR X FREEHAND, a research and creative project on the nature and utility of vector graphics in today's digital world and culture, and an analysis on the two main vector-drawing programmes in the market, Adobe Illustrator 10 and Macromedia FreeHand 10.

Vector graphics are a vital tool for the contemporary digital designer, both as a media to channel ideas and thoughts, and as an instigator of creativity itself. Given their role as a visual media, a reflection on their capabilities (today and tomorrow) should be considered and meditated – thus the proposition of this assignment.

Besides a brief HISTORY LESSON on the uprising of vector drawing, a comparison between the current creative abilities of ILLUSTRATOR VERSUS FREEHAND and a prospective on THE FUTURE OF VECTOR GRAPHICS, you'll also be presented a small GALLERY of artwork, the better to help you realize the capabilities of vector language... and maybe even trigger you to create your own designs using this exciting media.

Thank you and enjoy the reading.

Tiago Marques
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Adobe and PostScript

John Warnock and Charles Geschke, founders of Adobe Systems Inc.

On December 1982, John Warnock and Charles Geschke founded what was to become one of the world's largest software companies, as well as one of the largest contributors worldwide to the "publishing revolution" within the graphic arts industry that sprang from the mid-eighties 'till today – Adobe Systems Incorporated.

Although today the company is mostly known for various media-oriented softwares (the printed page, video and the Internet), the technology which really enabled Adobe and "desktop publishing" to take off was a programming language Warnock and Geschke developed named PostScript, created in 1985, which rose along with the first PostScript printers and image setters.

What made this programming language so unique at the time was that PostScript provided a convenient language in which to describe images in a device independent manner - what today we call a "page description language", optimised for printing graphics and text.

This device independence means that the image was described without reference to any specific device features (i.e. printer resolution) so that the same description could be used on any PostScript printer (say, a LaserWriter or a Linotron) without modification.

Besides being able to contain rasterized images in its native format, EPS (Encapsulated PostScript), the new language introduced another breakthrough to computers – that of creating vector-based drawings.

Unlike bitmap graphics, which are composed by a grid of pixels and had the downside of loosing resolution whenever they were scaled up their original dimensions (thus causing blurred or jagged edges on the image), vector-based drawings are resolution-independent, since they are made of mathematical objects called “vectors”, based on the drawing principles of Pierre Bézier (hence the name commonly associated to these drawing tools), and his theory that all shapes can be understood as being composed of segments and points - those segments being either curves or straight lines, with their condition and shape being controlled by properties of the points that join them.

Since every object can be defined as an equation, vector graphics can be scaled or distorted without image degradation unlike bitmap images. This new tool first resulted in the production of clean, smooth fonts for output (instead of the jaggy, bitmap-based fonts used then), and later enabled the creation of vector-based illustrations, proving highly useful for designers to create the kind of artwork which at that time bitmap-editing programmes (MacPaint) were unable to resolve (Adobe Photoshop only arose in 1990).

The code itself has since then developed into stronger and more consolidated versions (it even served as a base for Adobe's would-be "universal format", the PDF, created circa 1991), which also contributed to the development and growth of the programmes and their capabilities and effects.

Illustrator and FreeHand

Oddly enough, and unlike most people think, Adobe Illustrator was not the first vector-based drawing software to come up: that merit belongs to Aldus Fontographer (created by Jim Von Ehr and his AltSys Corporation, later to become an integrated part of Macromedia; Aldus was, at the time, the company responsible for the marketing and distribution of the programme), which started using PostScript to create vector-based fonts the same year the language was introduced (its predecessor was named Fontastic and only edited bitmap-based fonts)... Illustrator only arose in 1987, as a natural response to the growing number of people who were using Fontographer to produce artwork other than just fonts.

However, "the industry-standard vector graphics software", as Adobe so proudly likes to recall (not without some controversy nor some truth), did presented many of the concepts we today take for granted on any programme using Bézier tools, and could really be called as the "father" of vector-based drawing softwares - the one that really started it all.

In 1988, AltSys released Aldus FreeHand with a strong feedback from the market, as the first rival to Illustrator, and created by the same team responsible for Fontographer, lead by Jim Von Ehr. It has since been the most popular rival to Illustrator, even though a myriad of competitors were soon to follow: Corel with its CorelDRAW, Deneba with its Canvas, and so forth. Despite their strong characteristics and values, the main and most popular two have remained Illustrator and FreeHand, thus the reason they were chosen for this assignment.

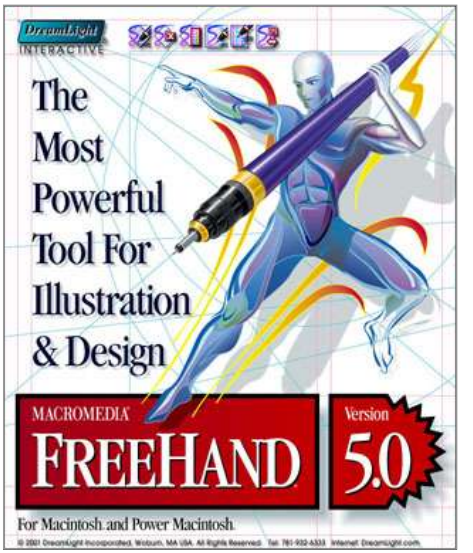
Macromedia

In the meanwhile, in 1992, another company was being created, after the merging of three major software houses – Macromind, Paracomp and Authorware. The new company was called Macromedia, and planned to show the world the most innovative multimedia creative softwares and products. With the arrival of CD-ROMS in 1992-93, programmes like Director, Sound Edit and AuthorWare found a rich enough platform to expand and show their full capabilities, and their business really took off. Later on, with the consolidation of the Internet, Macromedia oriented its efforts towards that particular area, and with outstanding success, for which it's mostly known today.

In 1995, Adobe and Aldus also agreed on a merging, which led to a lot of controversy about the ownership of FreeHand, since many people feared that Adobe was planning to extinguish the main adversary to its

Illustrator. Believing that would give Adobe an unfair monopoly of the market, and after quite a bit of juridical arguments, the courts revoked Aldus' rights on FreeHand in favour of AltSys (FreeHand 4.0 was the last Aldus version), which in turn agreed to join Macromedia, along with Fontographer and the rest of their programmes.

In some ways, AltSys was probably right on Adobe's move: at the time Illustrator and FreeHand were quite paired, which made their intentions quite comprehensible and predictable within a business logistic. Many of Aldus' programmes were extinguished due to their relatively week presence on the market (like PhotoStyler and Hitchcock, until then competitors to Adobe's Photoshop and Premiere), and some remained (like PageMaker and After Effects), and it was the acquisition of Aldus nonetheless that boosted Adobe to the market status it holds today.



FreeHand 5.0 was the first version to be released by Macromedia.

X marks the spot

Illustrator 10 icons (Application, Document and EPS File).

FreeHand 10 and 10.0.1 icons (Application, Document and EPS File).

FreeHand and Illustrator have reached its tenth version, still quite paired, at least in my opinion, each one with their remarkable strong points.

FreeHand 10 was released in late 2001, as the first major design-oriented software for the new Macintosh Operative System, Mac OS X, followed six months later by Illustrator 10, also optimised for the new OS. Illustrator was recently updated to version 10.0.3 (such update could be downloaded freely on Adobe's website), the better to integrate itself with Photoshop 7.0, released shortly after Illustrator.

A short while after FreeHand 10 was released, Adobe won a lawsuit against Macromedia in regards to a patent for "Tabbed Panels". Since most Macromedia applications used these panels, it became necessary to revamp its UI (User Interface) to assure the courts decision.

The 10.0.1 update introduced a temporary fix for this panel issue, as well as other minor fixes. It also gave FreeHand the new MX brand of typographic-based icons. This was somewhat of a "silent" release only to make the lawyers happy, and since the update was too large to be released as a "patch" application (a combining software to the programme, in order to fix or update it in some way), it was made available only via the Studio MX package, or as a new purchase.

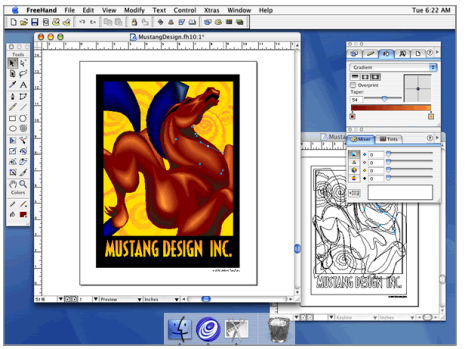
FreeHand 10 packaging.

During the course of this assignment, FreeHand eventually went on to its eleventh version, named FreeHand MX and maintaining the icon of 10.0.1... New with this release is a totally revamped interface, perfectly integrated within the MX UI, as well as presenting some new and interesting tools and effects. Anyway, for the sake of the integrity of this investigation, I've decided to maintain the analysis of version 10. FreeHand MX is a subject for another work, perhaps, on another time. Most likely Adobe will present us with a new version of Illustrator too, in a near future.

FreeHand 10

There's a saying within the graphic arts industry that FreeHand is for designers and Illustrator is for... illustrators, evidently. I don't agree with this statement (not for a minute), but I must confess I understand what it is trying to say: FreeHand multi-oriented tasks possibly make it a more flexible and suitable tool for the designer, mainly because of its capabilities as a DTP (Desktop Publishing) programme, as well as its integration with Macromedia's long-established set of Web-oriented softwares, particularly as a complement to Flash (animation and multimedia)... It has more to do with these characteristics than any hypothetical inferiority on its drawing tools, though.

In conjunction with its multi-page support, and the Page tool introduced in version 9, FreeHand10 now offers the ability to create and manage

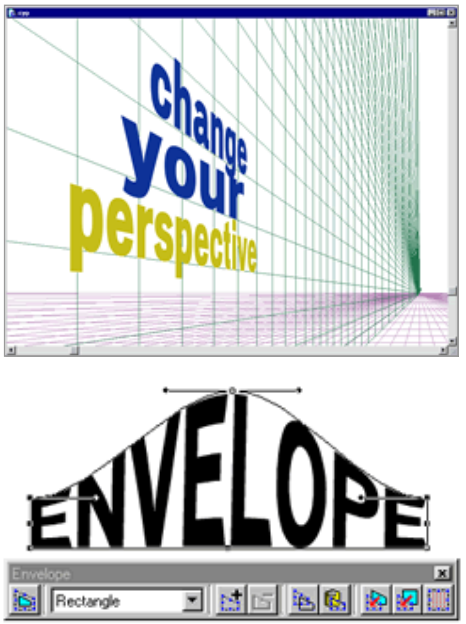


FreeHand 10 user interface (Mac OS X).

up to 32,000 master pages in a single document. Although this number sounds impressive, it also sounds a little pointless. Even when creating huge documents the amount of master pages you're going to need is probably around a hundredth of this number, or less. Nonetheless, this is a great new feature and takes its lead from QuarkXPress and InDesign, working in a similar way. An interesting detail of this feature is that you can import master pages into the Symbol library. This means that they can be used and edited like any other symbol, or using the Document Inspector.

A new Web feature to the programme is the Flash Navigation Panel, offering designers the ability to create a Flash-based Website directly from within FreeHand 10 (with certain limitations, evidently). This is achieved by simply assigning links or Flash Actions to graphics that will take the user to another page in your document or a URL.

So, in theory you could create a 100-or-so page document (thanks to FreeHand's multi-page support) and link it all together to create a Flash-based site. You don't even need to preview the SWF in an external Flash Player anymore, thanks to FreeHand 10's built-in Flash Player window. But if you're into more elaborated Flash-based website-building, it's probably better just to produce the layouts in FreeHand, export them to Flash and take it from there... FreeHand and Flash integrate with one another almost flawlessly.



The Perspective Grid and Live Enveloping are two of FreeHand 10's most powerful tools.

While version 10 maintains and improves on the Web functionality of FreeHand, the immediate novelty you'll notice is the streamlining of the application's interface, bringing it into line with the company's popular Web tools such as Dreamweaver 4.0, Fireworks 4.0 and Flash 5.0 (today all surpassed by the MX versions). Hence, the Common Macromedia User Interface has been applied to FreeHand, with Common Macromedia User Interface keyboard shortcuts to match.

Although it's obvious that the company is trying to merge its applications into one suite of highly useable Web-oriented tools, this is somewhat a radical move due to the massive print-oriented history of FreeHand. However, the new interface is far from a pain to navigate, and even relatively new users to Macromedia products will soon grasp the basics. Easy to use and fully customisable, it is even possible to save and share different interface layouts for different jobs.

Besides these considerable charms to FreeHand 10, one must not forget its abilities to produce rich and compelling vector-based graphics, one of the main reasons to its origin... and to our work.

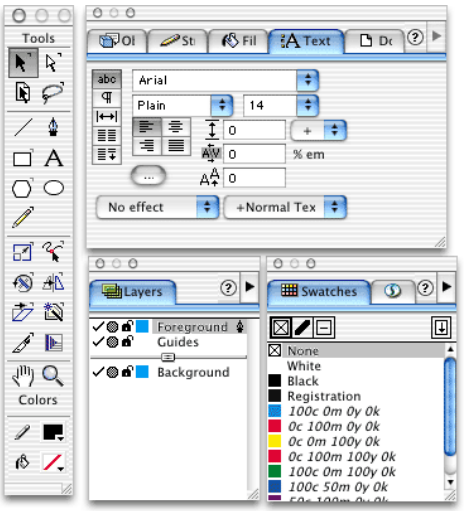
Adding to the Perspective Grid (which allows the simulation of realistic 3D perspectives) and strong distortion capabilities, Macromedia has added some natural-media-like tools to FreeHand (the better to compete with Illustrator), the first of these being spray and brush strokes. The theory is, after creating a shape, it can be transformed into a brush and

applied to any path. The brushes can take the form of paint, where your symbol is stretched and distorted along a path, or spray, in which FreeHand scatters instances of your symbol along a path.

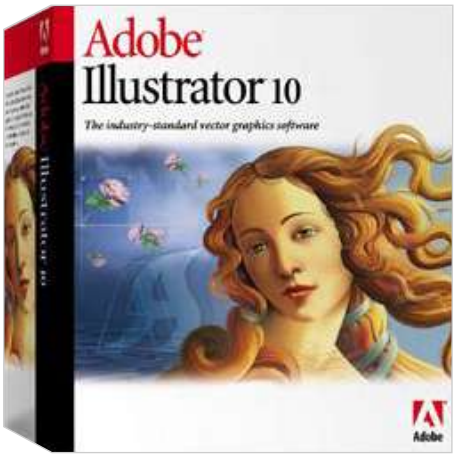
Contour Gradients are another Macromedia attempt at catching up with Adobe Illustrator, and although not offering the same level of graphic control as Adobe's Gradient Mesh, are a welcome addition to the package. Added to the Fill Inspector, Contour Gradients perform exactly as it sounds – the gradient fill follows the contours of the outlining path. A variety of effects can be achieved by altering the centre point of the gradient, just as you would with a Radial Gradient Fill.

In version 9 we saw the introduction of the Symbol library; this not only enabled designers to store frequently used graphics, but also to drag and drop instances of them into the document, thus speeding workflow. This has been enhanced in version 10, with the application now including a Flash-like Symbol Edit window. By double-clicking on the selected symbol in the library, a new window appears, in which you can tweak or totally revise the symbol. If you wish to automatically update all the instances within your document simply check the Auto Update box.

The library is saved with the document and symbols remaining in use, even if the document is exported as an EPS and brought back into FreeHand. It's in features such as this that the true versatility of



FreeHand 10 panels.



Illustrator 10 packaging.

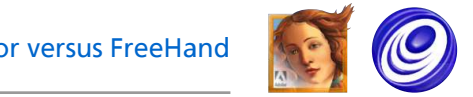
FreeHand shines through. Symbols and symbol instances are a perfect solution to the repetitive tasks of any designer, whatever medium they may work in.

From what I've read, though, the FreeHand 10 upgrade hasn't quite corresponded to its expectations... It may be that Macromedia has rushed into an upgrade in order to re-align the package's look and feel with its Web tools, or it could be that the company has ploughed time and effort into carbonising FreeHand for OS X (the first Macromedia product to be so), rather than concentrating on a more substantial new range of features.

Illustrator 10

Six months after FreeHand 10 came out, Adobe presented us with a mighty response, in the form of Illustrator 10, with quite some innovations, along with an immense set of tools and effects, for the highly elaborated graphic artist.

A key new feature of the upgrade is a new concept that Adobe calls "symbolism". Like in FreeHand, you can save a graphic as a symbol. But additionally, you can re-colour symbols, apply transparency, and change their appearance based on selections in the Styles palette. Adobe's concept of symbolism is quite interesting, and allows a much more creative use of symbols than FreeHand.

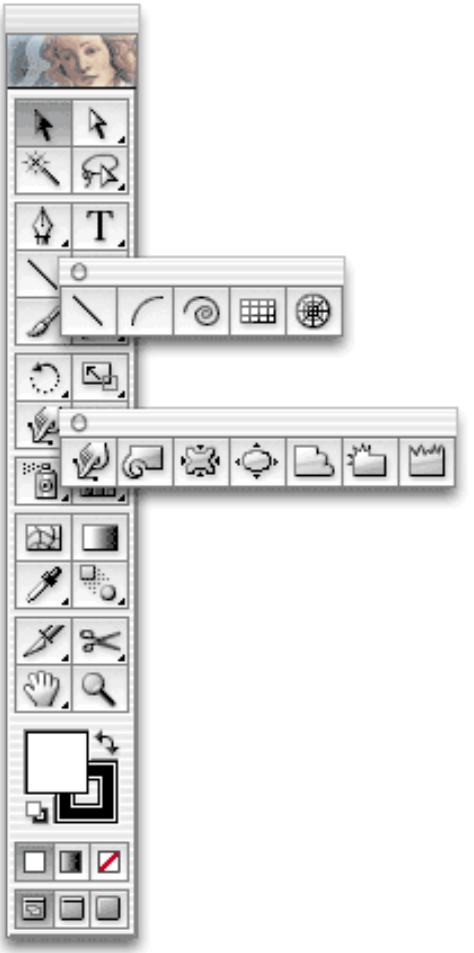


The new Envelope Distortion tools are also quite good, enabling you to set a pre-set envelope to a graphic, and edit the graphic using a "mesh". Alternately, you can use a custom shape as an envelope. New drawing tools such as Line and Arc also prove to be quite useful, and an ingenious Magic Wand tool enables you to select a range of object with similar attributes, based on stroke weight and so on. You can even save and recall selections, just like in Photoshop (the UI is also quite similar to that of Photoshop, easing the integration between the two programmes).

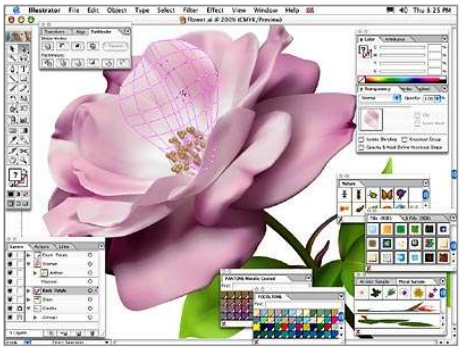
Illustrator now supports a tool for creating "lens flares". The results are interesting (if not entirely convincing), and take on a new life when you export layered artwork to other Adobe software. Being a vector graphic, a lens flare can be animated within LiveMotion or After Effects, for instance.

The programme's Web features have also been enhanced with an image slicing support. This means you can maintain artwork as re-editable vectors, and produce sliced versions on demand without destroying anything.

One area, which hasn't had a major upgrade, is Illustrator's Flash animation export, which by today's standard has become quite important on a graphic-editing application, not to mention a vector-based one. There are also frequent difficulties when using graphics created in



Illustrator 10 tools panel.



Illustrator 10 user interface (Mac OS X).

Illustrator with Flash. Still, Illustrator is well endowed for SVG design, complete with extensive support for JavaScript, and application scripting with VB and AppleScript for Windows and Mac users respectively.

Interestingly, you can attach external data links to graphics themselves: you mark up objects in your artwork to depend upon entries in a database, then dynamically produce multiple variable copies of that artwork in an automated process (basically, you create templates in which pre-defined sections of the artwork can be changed externally and the rest can't).

The main downside is that Adobe has still not turned Illustrator into a multi-page programme (however, you can get third-party plug-ins to simulate multiple pages by using a system formed by layers). But in just about every other respect, from its reliable PostScript-clean EPS output (much more than FreeHand - after all, Adobe did invented the code) to more versatile transparency and gradient control (also better than in FreeHand, although both of them are still quite far from perfection) and feathering (along with several other raster-like effects), Illustrator seems quite a charm for the professional illustrator.

Vector Rivalry

So, which one is best, Illustrator 10 or FreeHand 10? Quite frankly, I can't see the subject in such absolute terms... there is no such thing as

the strongest programme, only features stronger in one programme than in another one - a matter of “good for this situation” versus “good for that situation.”

For example, it seems highly limited not being able to use more than just one page per file, as in the case of Illustrator, unique within the vector-editing software market (considering Illustrator’s tight integration with PDF, this characteristic can be considered but a pity... and quite ironical). On the other hand, Illustrator’s Symbolism ability, Gradient Mesh and natural-media-like tools does give it the edge on creative graphic production and workflow, and produces some of the most unique and subtle gradients yet to be seen.

Also, FreeHand seems to be slowly becoming more of an aid to Flash than a professional illustration tool. That, and its strong DTP characteristics possibly make it a more suitable and flexible product for the graphic/Web designer than to illustrators. Since the Web is becoming (if not already) rather vital as a media, this also adds an extra appeal to FreeHand, for the reasons stated above.

Having said this, the two programmes serve their purposes quite generously and similarly, and without any further considerable differences – as would be expected, since any software that has lasted this long is sure to be rather complete and full of resources.

They export to almost any format you need and expect to be able to. They share considerably excellent integration with programmes from their software houses of origin, and quite good with other softwares (FreeHand users don't usually have difficulty combining it with Photoshop, although Illustrator and Flash seem to suffer a bit more from this problem – however, third-party plug-ins and patches can be found and used to ease these setbacks). And none of the applications really do work efficiently enough with transparencies – hopefully, this detail will continually be improved as new versions arise.

Overall, it actually comes down to what you feel more comfortable using and what seems to be more convenient for the particular tasks you're forced to deal on your day-to-day basis... Any average FreeHand or Illustrator user has more than once relied on ingenuity to be able to solve and create the kind of artwork his favourite drawing programme supposedly wasn't capable of doing, despite all their tools and options. So there aren't really any consensual rules or claims - only individual opinions and experiences.

Vector Graphics and Creative Thinking

Initially, vector editing programmes where used to draw fonts, logos or to simplify creation of some print-oriented objects (business cards, page layouts, etc). As technology and tools evolved, however, its creative potential became clear, and its attributes began to inspire designers and artists into a new visual language - symmetries, mathematical exactness, perfect circles and lines, duplications, distortions, the clear and geometrically based definition of the shapes. The ability to draw in such an accurate, smooth and clean way that could never be produced by hand inspired a methodology of building images – it still does.

New breakthroughs within the technology have enabled vector-editing programmes to produce all kind of effects and distortion, nearly mimicking reality to a degree that often mistakes those graphics for raster images (which is certainly a gratifying feeling for the illustrator – this kind of “photographic” artwork is tremendously demanding, and often consumes dozens of hours).

However, they are most commonly used to create “simpler” graphics, imagery that requires extreme clarity, independently of possessing a large amount of details or not. This type of drawing is quite useful for prototyping objects or to show changes that will be made, for instance, and are frequently used in instruction sheets, technical manuals, animations, “clipart” illustration and so forth.

Vector-based imagery allows a very clean, intuitive, simple way of working that, to some extent, actually helps a designer to think more in abstract, geometrical shapes rather than in details and textures. Vectors can be manipulated with great versatility and scaled without loosing their definition of line and object (which makes them printable on almost any surface and size without loosing visual integrity, besides allowing the shapes and objects created to be used in different projects with great ease), and tend to have very small file size.

This “economic” nature made them a very appealing vehicle when the Internet began to grow, and triggered a new concept for the animation industry and animated cartoons, games and so forth. All over the world, Flash-based animation studios increase by the number, creating animations not only for the Web, but also TV and cinema, thus contributing for a greater awareness of the use of vector graphics as a visual media, and respective craftsmen. Take, for instance, the video clips of musicians like Lemon Jelly or Röiksopp, the visual identity of music channel MCM or many of today’s TV animated cartoons (just to mention a few) – a real tribute to the beauty and smoothness of vector graphics. Flash animation is today the most popular use for vector artwork, for its considerably lower budgets than with classic animation, and because the technology is much more accessible to the average creative.

Have vector graphics reached a technological dead-end? Not likely. We have now reached a point where we have extrapolated vector graphics from a static graphic representation to a new animated language, one that allows us to narrate stories and communicate in a yet more versatile way. Vector graphics are already a determinant tool for the modern designer, either print or web-oriented... all would suggest, given it's characteristics and growing versatility, that in the future, vector technology will continue to expand into many directions and fields of design and creativity.

And if not? Well, nobody has considerably improved the paintbrush and the pencil over the last few hundred years and yet they are still with us. It is what you do with the tool that is important: vector graphics have reached a dead-end only to those who let their imagination be limited to the possibilities that are obvious, and creatives willing to look beyond the technology specifications and superficial limitations will continuously find ways to express and illustrate their ideas.

As long as there is an innovative thought, and you are using your medium, be it a computer or just an ordinary canvas, to convey a thought or an idea, you're in the process of communicating and - possibly - creating art. The question is: are digital designers aware that any kind of design is based upon the quality of the work rather than the medium it is produced or displayed in? Or are they less inclined to express ideas and more inclined towards "playing with their toys"?

Beyond Illustrator and FreeHand 10

What I've tried to demonstrate in this study about Illustrator and FreeHand is that they are simply tools – one will do this particular task more efficiently, the other will do that one, and so forth. You basically choose the one that suits you in the most number of tasks as possible within your needs as a digital designer, and which you feel most comfortable with... The less you're thinking about the interface of the software, the freer you are to focus on the creative concept at hand.

I don't know what kind of improvements they will possess in the future (not even in the case of FreeHand – I have not seen nor analysed the MX version, only read an article or two on it, so I have a very poor idea of its capabilities and characteristics). Although people have been nagging Adobe to add multi-page functionality to Illustrator for years, I have my doubts if they'll ever consider the idea, for two reasons:

First, they already have two considerably strong multi-page DTP applications, InDesign and PageMaker. Second, it could be that the concept of not needing any more pages, is due to the classical perception that illustration is conceived from start to finish on one singular support (canvas, sheet of paper, etc)... However, this is a classical way to perceive illustration and the graphic arts, and we are living in modern times, with modern needs, and vector drawing applications are continuously expected to be more and more versatile.

On the other hand, the strong relation between FreeHand and Flash has lead to some people's belief that a merging of the two softwares would be beneficial, since FreeHand is considered to be somewhat of a complement to Flash. Not that the drawing methods of FreeHand are better, quite the contrary - some people consider Flash to possess a far more intuitive and natural way of drawing (once one grasps the basics); however, it lacks the specialization and interface of FreeHand when it comes down to creating more elaborate graphics.

Whatever happens, some things are certain: the small file size, clean edges and scalability of vector graphics will sustain its appeal. And with the advent of effects and raster-like elements, as well as Web animation, the boundaries between what vector graphics can or cannot do will continue to blur... which is to say vector drawing programmes will be used for more (and more elaborate) creations with each new version of the programmes coming out.

Gallery

The following section is comprised of a series of vector-based artwork, gently donated for display in this booklet by some of the designers and artists contacted during the research.

These works do not presume to represent the majority of vector-drawing techniques nor the full creative potential of Illustrator and FreeHand – for instances, no animation was available for display, not even as a storyboard or layout-oriented vector objects and characters. Like stated in the Introduction of this booklet, its purpose is merely to delight and introduce the reader to some of the possibilities and versatility of vector illustration.

RUSSELL TATE [Illustrator]

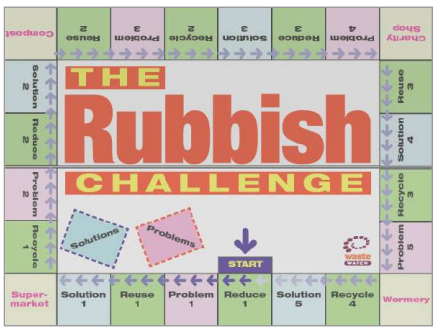
Rubbish Challenge
- A recycling game for London school kids. Also displayed here are conceptual sketches and photo of the final product.

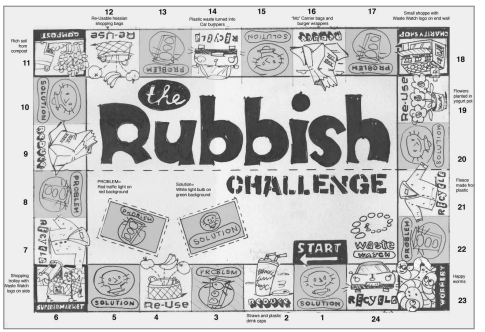
***Darling Harbour Map** (opposite page)*
- Map for the Darling Harbour area of Sydney, Australia.

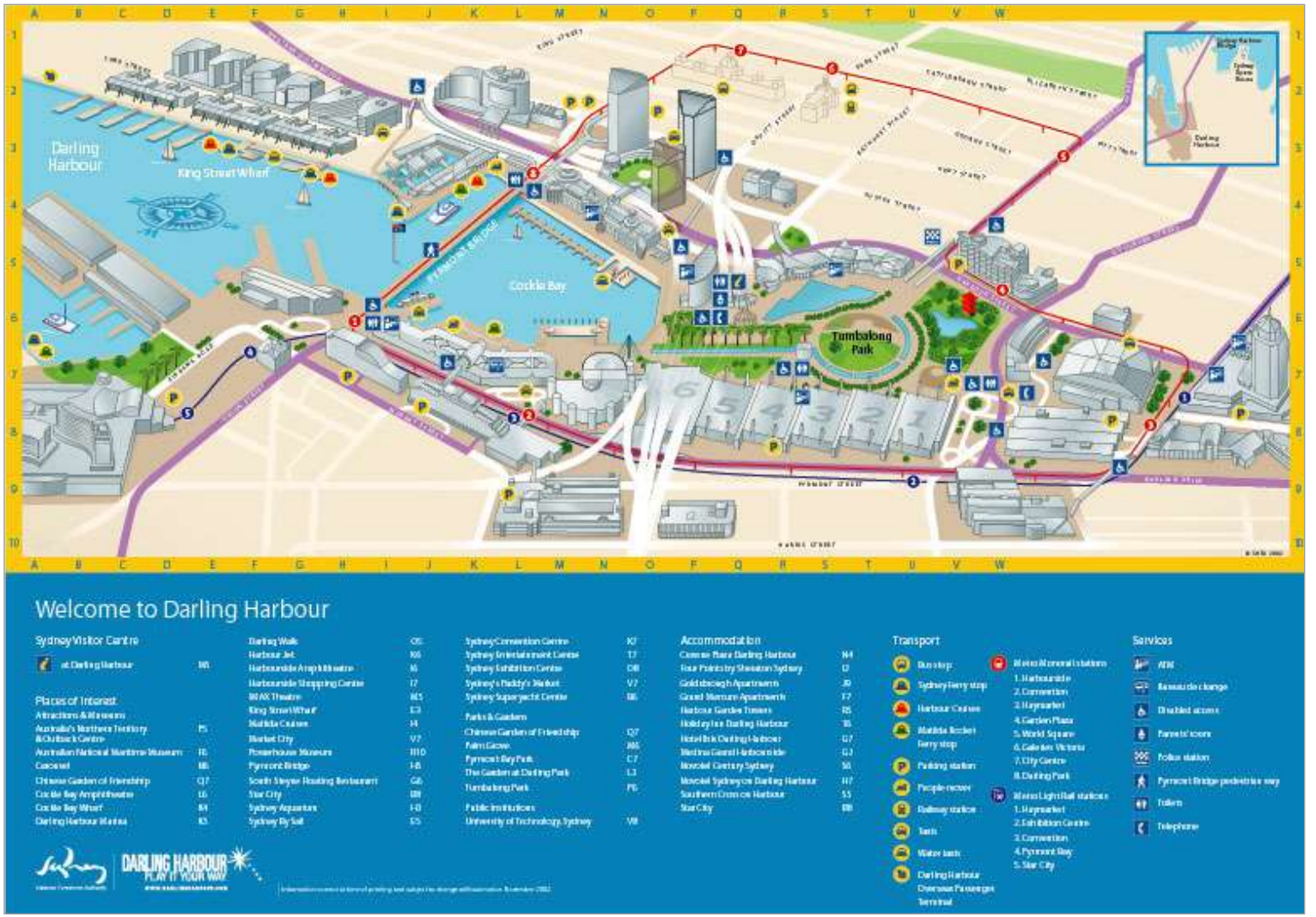
***Telephone** (page 34)*
- This portfolio piece was made using blends and gradients (absolutely no "mesh") and took 18 hours to produce.

TREVOR JONHSTON [FreeHand]

***Parka** (page 35)*
- This hyper-realistic vector illustration is composed of over 2.000 objects.






Darling Harbour
King Street Wharf
Cockle Bay
Tumbalong Park
Welcome to Darling Harbour
Sydney Visitor Centre
Places of Interest
Accommodation
Transport
Services
DARLING HARBOUR
PLAY IT YOUR WAY


DEF
ABC
GHI
1
JKL
5
MNO
6
PRS
7
TUV
8
WXY
9
OPERATOR
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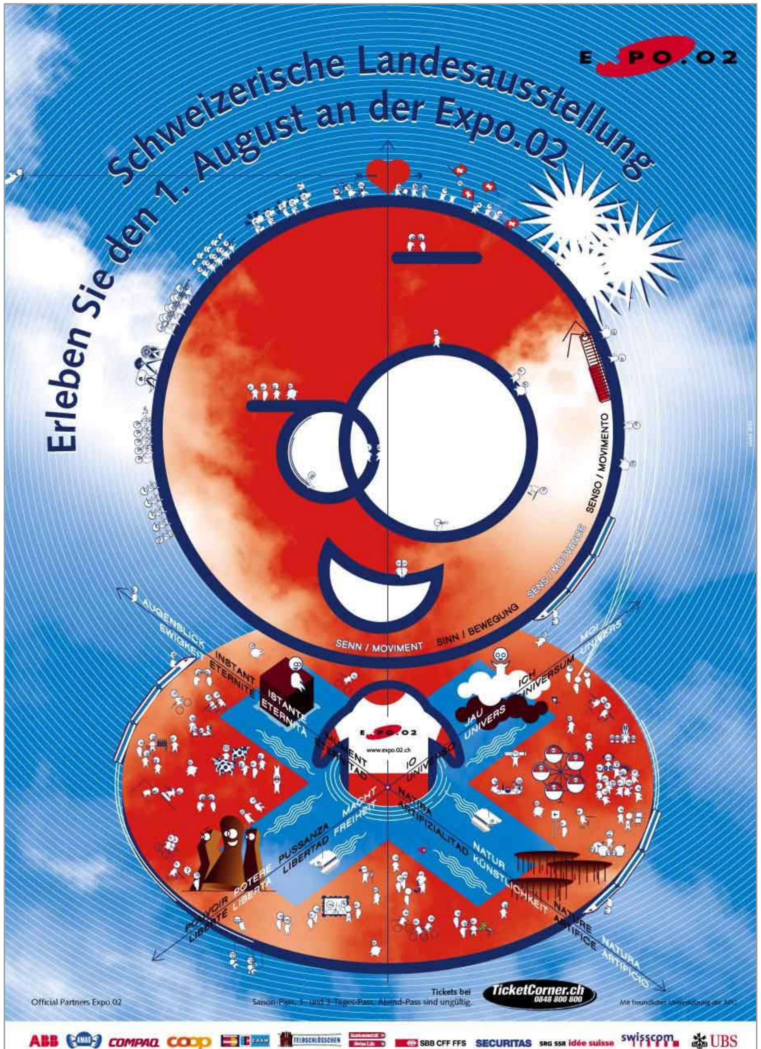
Russell
Tate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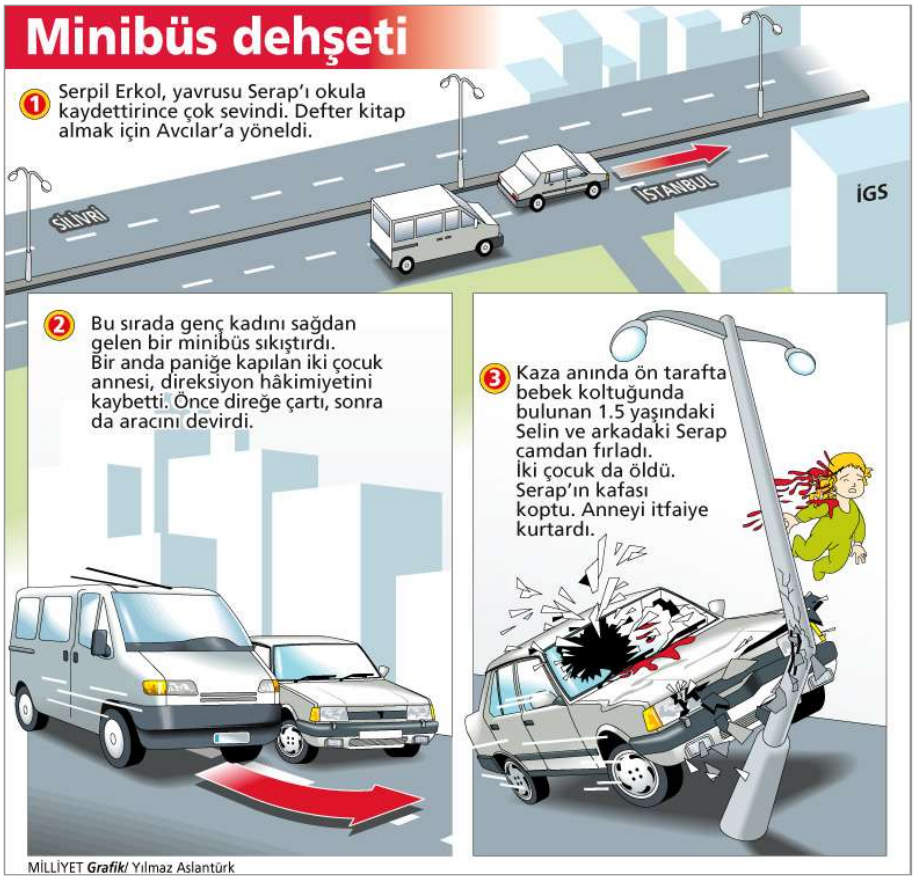
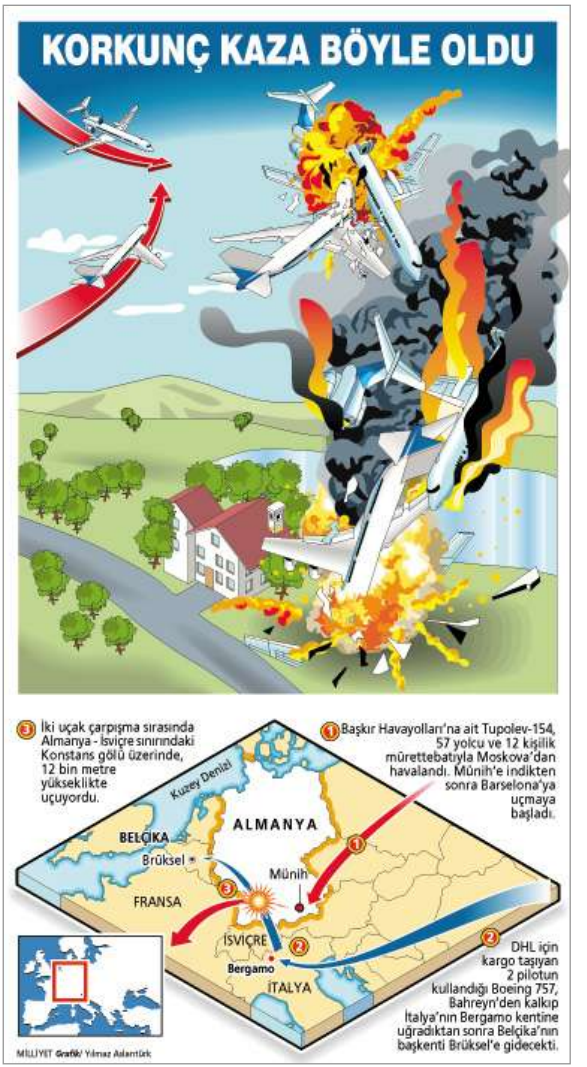
FRANÇOIS CHALET *[FreeHand]*

Expo 2002 *(opposite page)*
- Oficial poster for the opening of Expo 2002. François Chalet has refined his own unique vector-based language, which he uses in almost every artwork he does.

RONNIE AND GAYLE NELSON *[Illustrator]*

Zebra *(opposite page),* ***Lily*** *and* ***Helmet***
- These deluxe cliparts really boast Illustrator's graphic skills, particularly with gradients.

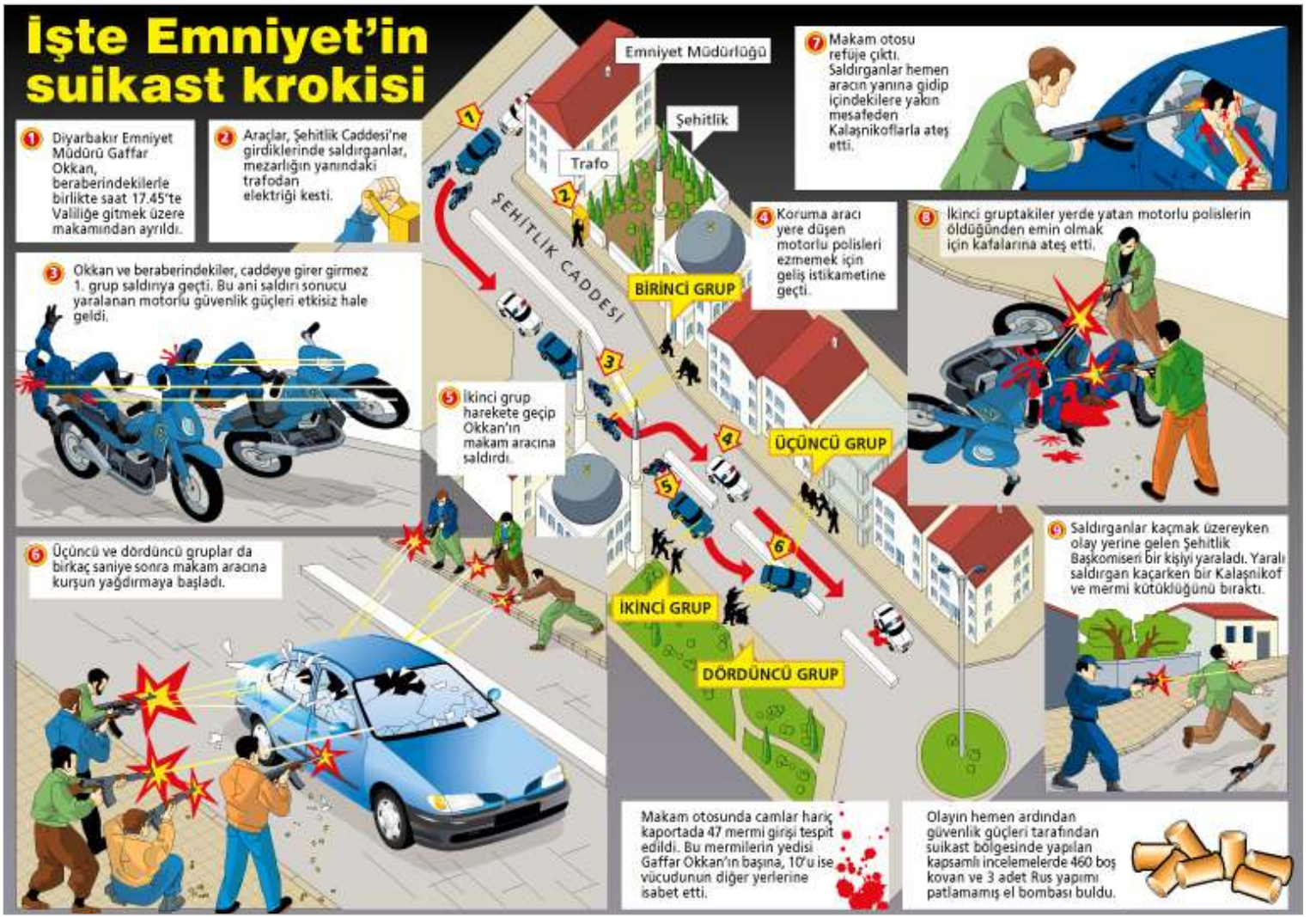




YILMAZ ASLANTURK [FreeHand]

***Infographics** (pages 38 to 40) and **Cellular Phones Prototypes** (page 41)*
- Infographics are extremely narrative and usually make strong use of the line legibility and repetition of objects that characterizes vector illustration.


Kule Anatolia uçağını piste 5 mil kala iniş yapmaması için uyardı
Uçak da pas geçerek 360 derecelik dönüş yaptı
Bu sırada inişe geçen bir uçak da pas geçmesi halinde pervaneli uçakla çarpışacaktı.
anatolia
Pistteki pervaneli uçak kalkış için başka bir uçağın havalanmasını bekliyordu
Bodrum'dan gelen Anatolia Havayolları'na ait airbus 18-36 pistine inişe hazırlandı.
1
2
3
MİLLİYET Grafik/ Yılmaz Aslantürk


İşte Emniyet'in suikast krokisi
1 Diyarbakır Emniyet Müdürü Gaffar Okkan, beraberindekilerle birlikte saat 17.45'te Valiliğe gitmek üzere makamından ayrıldı.
2 Araçlar, Şehitlik Caddesi'ne girdiklerinde saldırganlar, mezarlığın yanındaki trafodan elektriği kesti.
3 Okkan ve beraberindekiler, caddeye girer girmez 1. grup saldırıya geçti. Bu ani saldırı sonucu yaralanan motorlu güvenlik güçleri etkisiz hale geldi.
4 Koruma aracı yere düşen motorlu polisleri ezmemek için geliş istikametine geçti.
5 İkinci grup harekete geçip Okkan'ın makam aracına saldırdı.
6 Üçüncü ve dördüncü gruplar da birkaç saniye sonra makam aracına kurşun yağdırmaya başladı.
7 Makam otosu refüje çıktı. Saldırganlar hemen aracın yanına gidip içindekilere yakın mesafeden Kalaşnikoflarla ateş etti.
8 İkinci gruptakiler yerde yatan motorlu polislerin öldüğünden emin olmak için kafalarına ateş etti.
9 Saldırganlar kaçmak üzereyken olay yerine gelen Şehitlik Başkomiseri bir kişiyi yaraladı. Yaralı saldırgan kaçarken bir Kalaşnikof ve mermi kütüklüğünü bıraktı.
Emniyet Müdürlüğü
Şehitlik
Trafo
ŞEHİTLİK CADDESİ
BİRİNCİ GRUP
İKİNCİ GRUP
ÜÇÜNCÜ GRUP
DÖRDÜNCÜ GRUP
Makam otosunda camlar hariç kaportada 47 mermi girişi tespit edildi. Bu mermilerin yedisi Gaffar Okkan'ın başına, 10'u ise vücudunun diğer yerlerine isabet etti.
Olayın hemen ardından güvenlik güçleri tarafından suikast bölgesinde yapılan kapsamlı incelemelerde 460 boş kovan ve 3 adet Rus yapımı patlamamış el bombası buldu.


1
2abc
3def
4ghi
5jkl
6mno
7pqrs
8tuv
9wxyz
*
0
#


C
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1
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MENU
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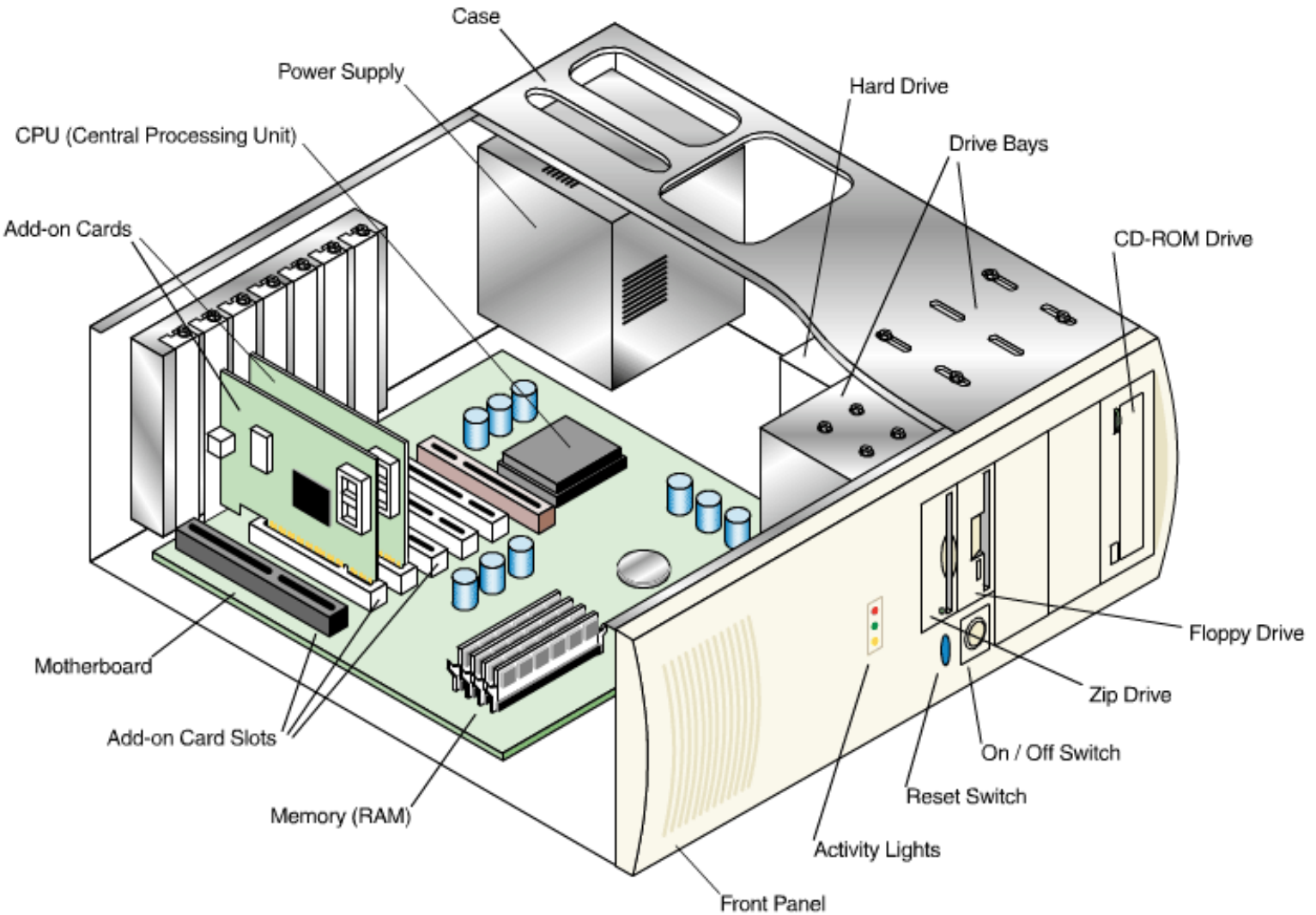
9
*
0
#

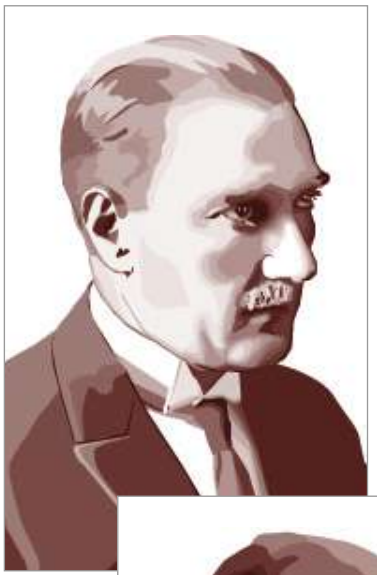
MIKE DOUGHTY [FreeHand]

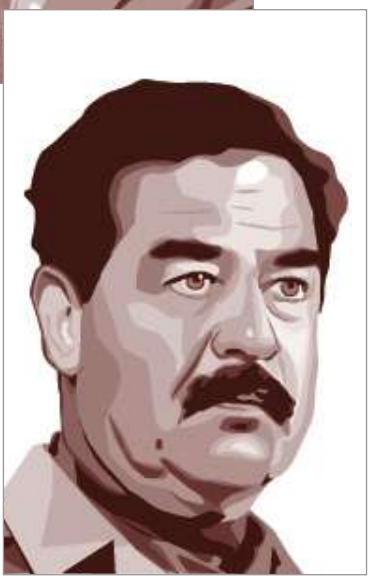
***Pivotal Performances, Biancardi's** and **Computer Inside** (opposite page)*
- Vector graphics are ideal for logos and page layouts, as well as technical and instructional illustrations.

KORAY NERGIZ [FreeHand]

***Various Illustrations** (pages 44 to 47)*
- The right use of gradients and transparencies can make even the most ordinary motif into pure eye-candy.


Case
Power Supply
CPU (Central Processing Unit)
Add-on Cards
Hard Drive
Drive Bays
CD-ROM Drive
Floppy Drive
Zip Drive
On / Off Switch
Reset Switch
Activity Lights
Front Panel
Motherboard
Add-on Card Slots
Memory (RAM)






SW
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Publishing

Bit nº 50 [*November 2002*]
Computer Arts Special [*nº38 2002, Future Publishing*]
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CreativePro.Com [*www.creativepro.com*]
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FreeHand Fan [*www.apionet.or.jp/~terra/*]
FreeHand Professional Tips and Tricks [*www.tema.ru/f/r/e/e/h/a/n/d/index.html*]
FreeHand Source [*www.freehandsource.com*]
François Chalet [*www.francoischalet.ch*]
Gainesville Design [*www.gainesvilledesign.com*]
Hausgrafik [*www.hausgrafik.ch*]
Houdini [*www.houdini.se*]
Identikal [*www.identikal.com*]
IdN [*www.idnworld.com*]
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Karen Greenberg [*www.karengreenberg.com*]
Katsuey Design Works [*www.katsueydesignworks.com/freehand.htm*]
Kirsten Ulve [*www.kirstenulve.com*]
Koray Nergiz [*www.graphics.com/modules.php?set_albumName=albun04&op=modload&name=Gallery&file=index&include=view_album.php*]
Kot & Kat Illustrations [*www.kotekat.com*]
Lawrence Zeegen [*www.zeegen.com*]
Lindkvist [*www.lindkvist.com*]

Macromedia [*www.macromedia.com*]
Magic Torch [*www.magictorch.com*]
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Mutabor [*www.mutabor.com*]
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[*www.nelsonsfreelance.com*]
Nidus Corp [*www.nidus-corp.com*]
Russell Tate [*www. russelltate.com*]
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Tonal Values Inc. [*www.tonalvalues.com/illustration*]
Torisukoshiro [*www.torisukoshiro.com*]
Trevor Jonhston [*www.trevorjohnston.com*]
Wow Web Designs [*www.wowwebdesigns.com*]
Yilmaz Aslanturk
[*www.graphics.com/modules.php?set_albumName=album87&op=modload&name=Gallery&file=index&include=view_album.php*]

Collaborators

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