By Sarah Sands

The intertwining history of paint and print, of the weightless image and the tactile touch of brush on canvas, is both a long and complicated one. For much of the last century photography and painting developed along very divergent lines, their unique materials and processes keeping them safely sequestered in their respective corners. The handmade and the reproduced, it seemed, would need to go their separate ways. However, with the advent of digital printmaking, we are standing less at a crossroads than a confluence, a coming together of seemingly divergent media in extremely rich and interesting ways. Going forward, we have a unique opportunity to write a different history that brings these traditions together. And in that endeavor, we believe, acrylics have a vital role to play. Far from being challenged by these changes, acrylics are the only medium able to play host to such a wide variety of innovations and creativity. Or at least they are now, as GOLDEN prepares to introduce three new Digital Grounds and two UV protective Gel Topcoats. These products literally free digital images from the confines of prepared, commercial print media, while also allowing the virtual brushstrokes of Photoshop® to finally take on weight and enter into the rich material world of acrylic gels, mediums and colors. In the coming pages we will walk through the basics of how these materials work, the ways they increase the quality of your images and methods to use them in your art.

Ink-jet Receptive Coatings

Take a cursory glance through any catalog of digital print media and you might quickly think the world is awash with choices for the artist to use. From glossy photo through digital art papers, from transparencies to printable canvas, what more could an artist want? But then artists always want more. Not just more choices, but more control and freedom to create the textures and surfaces that meet their needs, and at whatever scale and shape that vision requires – not just the ones that come in the standard-issue 8.5” x 11”.

While almost any porous surface that is flat enough can be run through an ink-jet printer, including off-the-shelf papers made for printmaking and watercolor, results are usually less than satisfactory as the resulting image is dull, faint or blurry. For the most part this is caused by the substrate being overly absorbent, with no way to encapsulate or prevent the ink from spreading outward or penetrating too far into the surface. Conversely, on non-porous materials like acetate, plastic and metal, the inks readily pool up, run, and are easily smeared by both the printer mechanism and subsequent handling. In order to combat these problems and achieve the desired richness of color and detail, each droplet of ink somehow needs to be kept distinct and held in place by the substrate. This is perhaps the major function and benefit of applying an ink-jet receptive coating. By controlling how the ink resides on the surface, the coating will greatly

Examples of coated and uncoated ink-jet prints on GOLDEN Coarse Molding Paste on cheesecloth.

Innovation

We’re delighted to share in this Just Paint some innovative products and processes that have kept us invigorated and challenged as we start the New Year. We’re stepping with both feet into the world of digital art. This was not done without a good deal of lively debate, understanding what we could truly contribute to the field. Our new Digital Grounds and Gel Topcoats allow for an unfettered flow of creativity from the land of the virtual to the real, with significant opportunities for artists to engage in a process that previously had been ruled by whatever software or hardware was available. We hope these products bring back the “hand of the artist” in very unique, profound ways.

We’re also introducing new “Experimental Products” for 2008. One is a blast from the past...modern Silverpoint Ground, which provides for similar feel and look of the “traditional” grounds in a much more permanent form. We’ve also stepped off the edge with four new “Eccentric Gels”. There’s no other way to describe these products - they do things that any alchemist would die for.

Departing from new product for a moment, the GOLDEN factory has undergone some wonderful changes over the last year. We unveiled our recent addition to manufacturing, our reverse osmosis water reclamation system, allowing us to significantly reduce our environmental impact and maintain our course in making better uses of our natural resources. And just this past June, we opened our new 2,000 sq. ft. gallery space, celebrating many friends who have over the years made this company possible. Finally, we were all honored when GOLDEN employees recently received the 2008 NY/NJ ESOP Association Chapter’s Company of the Year Award from the ESOP Association. Congratulations everyone!

Mark Golden
impact dot gain and color density. In addition, it provides some degree of protection of the inks from pollutants that can cause air fade.

Ink-jet receptive coatings can roughly be divided into two main groupings: porous and swellable. In porous coatings, the film is made up of millions of solid particles that quickly draw the ink into the voids between them, coating the particles in the process and spreading the ink over a larger surface area. This allows the print to seemingly dry instantly, facilitating their use in most desktop ink-jet printers, and tend to possess excellent water resistance. On the downside, they provide less protection from airborne pollutants, which can have an adverse effect on the longevity of the prints if displayed without additional protection. Swellable coatings, on the other hand, are made from various water-sensitive polymers that swell when water-based inks come into contact with their surface. The inks penetrate down into the polymer coating, essentially becoming encapsulated and sealed off from the surrounding air. This, in turn, protects the ink from pollutants should the print not be varnished, topcoated or mounted under glass. Finally, swellable coatings possess excellent transparency, which typically allows for more vivid color and deeper blacks. In terms of disadvantages, however, they take considerably longer to dry, making them often unsuitable for desktop printers without further modifications.

GOLDEN Digital Grounds

Up to now ink-jet receptive coatings have not been readily available for the artist, nor have they been a part of a broader family of art material offerings. With GOLDEN’s introduction of three Digital Grounds, however, that has changed. Not only do these grounds have the potential to extend the languages of printmaking, photography and painting in significant ways, but they liberate digital imagery from the flatland prison of pre-coated papers.

A Different Set of Archival Concerns

As with any new art material or process, questions about longer-term archival issues press quickly to the fore. Artists naturally want to know if something will last before using it in artwork meant to survive well into the future. But when innovative areas emerge it also takes time to formulate appropriate standards of permanency and performance through recognized groups such as the ASTM. Unfortunately that consensus has not yet happened and many questions remain unanswered. Certainly, when compared to acrylics and tested using the same methods and standards developed for the acrylic paint industry, these materials would likely fall short and not be rated as permanent. However, that is equally true of all traditional photographic processes as well as the newest digital ones, yet no one would deny the ongoing significance of either of these for professional artists. So, while nothing would please us more than to provide clear and solid answers to these concerns, the truth remains that currently there simply are no recognized methods for rating the performance of these materials over a long period of time under a varied set of circumstances. That said, we strongly believe these represent the best that current technologies can make available and are clearly a significant advance in the area of applied digital substrates. As we move forward, we will continue to advocate for recognized standards and to conduct our own testing focused on understanding the longer-term issues that might affect these and similar materials.

The Three Grounds

Digital Ground White (Matte) is a porous, opaque, white ground, for use on a multitude of surfaces. Like other porous ink-jet coatings, it allows prints to dry extremely rapidly, making it the safest choice for use with unmodified desktop printers that still have ‘pizza wheels’ or ejection rollers. It is also an ideal starting point for the first-time user looking for the most trouble free application on a wide range of materials.

Digital Ground Clear (Gloss) is a clear ground with a gloss sheen for use on most absorbent surfaces, allowing the underlying material to show through. Similar to other swellable ink-jet receptive coatings, prints dry much more slowly, which can sometimes present problems for desktop printers that have ejection rollers or ‘pizza wheels’. While there are rarely if any problems when used on very porous surfaces like paper, we do not recommend using relatively non-porous substrates coated with the Digital Ground Clear on a desktop printer unless the printer’s ‘pizza wheels’ or ejection rollers have been removed. However, such modifications of your printer are at the users risk and may negatively affect printer performance, void printer warranty, etc.

Digital Ground for Non-Porous Surfaces is similar to the Clear described above but optimized for increased adhesion and performance on non-porous surfaces such as aluminum or plastic. We do not recommend using the Digital Ground for Non-Porous Surfaces on a desktop printer unless the printer’s ‘pizza wheels’ or ejection rollers have been removed. As before, such modifications of your printer are at the users risk and may negatively affect printer performance, void printer warranty, etc.

Substrates

The types of substrates that can be used are nearly limitless. The main factors to note are the substrate’s absorbency, thickness, fragility, and its size and shape. Each of these can affect its performance and impact which ground will perform best. Below are three principle groups of materials with very general use guidelines.

POROUS/ABSORBENT

This group encompasses a wide selection that includes watercolor, printmaking, Japanese rice and other specialty papers, as well as canvas, various fabrics, and even unusual items like wallpaper, leather, or...
unsealed wood veneer. Either Digital Ground (Clear) or the Digital Ground White (Matte) are good choices. Depending on the absorbency and techniques being used, a minimum of two coats of a Digital Ground is recommended. In addition, some of these materials can occasionally benefit from being initially sealed with a clear acrylic medium, like GOLDEN GAC 100 or Gesso.

NON-POROUS/NON-ABSORBENT

This would include such materials as aluminum, copper, metal foil, marble, and plastics such as Mylar®, Lexan®, Plexiglas®, and acetate. Here the Digital Ground for Non-Porous Surfaces or Digital Ground White (Matte) can be used. Surfaces should be thoroughly cleaned and free of oils. Usually a minimum of two coats of the Digital Ground will give the best results.

ACRYLIC SKINS AND PAINTED SURFACES

This group of materials spans the length of one's imagination. Any surface painted or created with acrylic paints, gels, pastes, or mediums, can then be printed on by first coating them with one of the three Digital Grounds. This opens up the possibility of not just printing on top of acrylic paintings, but the ability to create prints on an array of acrylic materials that can then be layered, collaged or further developed for incorporation in other pieces. For a clear coating, either the Digital Ground Clear (Gloss) or Digital Ground for Non-Porous Surfaces can be used, with a minimum of two coats usually producing the best results. The Digital Ground White (Matte) is useful when wanting an opaque, white layer to print on top of.

GOLDEN Gel Topcoats w/UVLS

Along with the aforementioned Digital Grounds, GOLDEN is also introducing two completely new Gel Topcoats w/UVLS available in both Gloss and Semi-Gloss sheens. These gels can be used to add texture, create a clear barrier prior to working with paint or other materials, modify sheen, and provide a non-removable, water-based topcoat while also having the benefit of ultra violet light filters and stabilizers for protection against fading. In extensive testing, a 10 mil film of the Gel Topcoat has provided a similar degree of UV protection as GOLDEN MSA Varnishes and was able to preserve even fugitive dye and pigment-based inks after exposure to 1600 hrs. in a QUV Weatherometer, at 140° F, with ambient humidity normally below 50%. The accumulative UV exposure correlates roughly to the amount of UV one would expect from 100+ years of typical indoor gallery-lit conditions. In addition, the Gel Topcoats will help lower overall water-sensitivity, limit air exposure, and provide increased durability. Overall, when used as a final layer, these gels should greatly increase the longevity and lightfastness of whatever digital media you are working with. However, if exhibiting your pieces without glass, we still strongly recommend applying one of our removable varnishes in addition to the Gel Topcoat to facilitate cleaning and future conservation.

Lastly, while initially developed as a topcoat for digital prints, the new GOLDEN Gel Topcoats are fully compatible with other GOLDEN Gels, Mediums, and Acrylic Colors and therefore, can be used whenever their attributes are needed. For example, they can be used to create gel skins, image gel transfers, decoupage collage elements, extend paints or increase their transparency, create a wet layer to work into, or simply as a clear ground to work on top of. Just keep in mind that whenever mixing these gels with other materials, one is also lowering the degree of protection they can provide any underlying layers. In addition, maximum protection is only afforded when the gel sits up on top of the layer it needs to protect. Fugitive materials mixed into the gel will not fully benefit from its ability to provide UV protection.

Water-sensitivity

Whenever working with digital prints, including those made with our Digital Grounds, it is critical to be aware of the potential water-sensitivity of the various materials being used. For example, both our Digital Ground Clear (Gloss) and Digital Ground for Non-Porous Surfaces are water sensitive and can be easily re-activated with moisture. Therefore, prior to working on top of these grounds with any water-based media, including any of our Acrylic Colors and Mediums, we strongly recommend sealing or ‘fixing’ the print with Archival Varnish (Gloss). Failure to do so can cause the inks to run or the image to blur. The Digital Ground White (Matte), however, provides excellent water resistance and should not present a problem once fully dry. As always, though, test for your application.

Please note: While our Gel Topcoats, if kept undiluted, can often be applied directly on top of our Digital Ground Clear (Gloss) and Digital Ground for Non-Porous Surfaces without disturbing the print, there are a lot of variables that can impact this process: drying time, ink system, thickness of the ground and gel coatings, and degree of surface agitation, to name a few. Because of that, it is essential to always test for one's application using a test print before applying to anything of importance.

PASS-THROUGHS

Most of the time, in order to work with custom substrates, you will need to make sure your printer is able to load print media via a straight pass-through. This simply means the ability to ‘pass through’ materials directly along a straight path. This is commonly used when printing envelopes and other thicker products where a straight path...
Ink-jet Prints on Coated and Uncoated Surfaces

All of the above examples are taken from test samples used in recent application testing carried out by GOLDEN’s Technical Services Department. Printing was done using an EPSON 1520 ink-jet printer with standard EPSON ink cartridges. Digital Grounds were applied using a foam brush. The number of coats applied and the substrate used are noted. In the printer properties, paper selection was set to “360 dpi Ink-jet Paper” and print quality to “Normal”. For more information visit goldenpaints.com/mixmoremedia.
allows for better printing. Consult your printer’s documentation for additional information.

HEAD HEIGHT

Head height refers to the clearance between the print head and the paper, which in turn limits how thick one’s substrate can be. Unfortunately, in most desktop printers there is little one can do to adjust this; if one finds they can, however, then setting it on the highest clearance is usually best. In any case, it is important to know what the maximum clearance is to avoid causing a jam or damage to the print head when working with thicker materials. This information is usually contained in the printer’s documentation or spec sheet, or consult the manufacturer.

The Proof is in the Printing

Ultimately the story of the Digital Grounds, and the possibilities they open up, is best told in pictures. On the facing page are a series of images comparing prints on uncoated and coated surfaces. The substrates include #12 Cotton Duck Canvas, Fiber Paste, Aluminum, Absorbent Ground, and Fluid Titan Buff. As you will see, the untreated surfaces display varying degrees of loss in detail, color saturation and value range. At times the failure can be dramatic, especially on relatively non-absorbent surfaces like the Clear Tar Gel, where the ink will literally crawl and pool, rendering the image unreadable. On naturally absorbent surfaces like GOLDEN Absorbent Ground, the losses will seem more subtle and muted, although the image will still appear sunken-in and lackluster.

All of the examples we show are taken from test samples used in recent application testing carried out by GOLDEN’s Technical Services Department. Printing was done using an EPSON 1520 ink-jet printer with standard EPSON ink cartridges. Digital Grounds were applied using a foam brush. The number of coats applied and the substrate used are noted. In the printer properties, paper selection was set to “360 dpi Ink-jet Paper” and print quality to “Normal”. Obviously one’s results will differ depending on the specific printing equipment, ink system, printer settings, and type of images.

Image Transfers

One immediate and obvious benefit from the new Digital Grounds is the complete redefinition of the longtime process known as Image Gel Transfers. This application relied on coating a toner-based copy with an acrylic medium or gel, letting it dry then soaking it in water to remove the paper. Because the image had to be toner-based, this severely limited the control and types of images an artist could use. Now, however, ink-jet images can be easily printed directly onto any gel or paint ‘skin’ coated with one of our Digital Grounds, greatly simplifying the process and expanding the effects one can create. After printing, the skins can easily be used as collage elements or as a starting point for additional layering. In addition, if using the Gel Topcoat w/UVLS to make the skin, and printing your image in reverse, one can then place the skin image-side-down and get the full benefit of the UV protection of the gel as well as have a protective layer for the image all in one step.

Advanced Techniques

Beyond using the Digital Grounds to coat various substrates, there are many advanced techniques that involve multiple layers of printing, painting, and the incorporation of various other mediums and collage elements into the final piece. Digital Atelier® artists Karin Schminke, Dorothy Simpson Krause, and Bonny Pierce Lhotka have played an instrumental role in developing these processes, and are recognized as being innovators in the use of alternative grounds for digital printmaking. One can find many of their techniques outlined in their book, Digital Art Studio, and the GOLDEN Digital Grounds can be easily adapted to most of their processes. If you have specific questions along those lines, simply give our Technical Support staff a call.

Final Protection

Like all printmaking and photographic processes, digital media remain vulnerable to water sensitivity, fading caused by UV exposure and airborne pollutants, surface abrasion, dirt, etc. Unless planning to frame and mount the piece behind glass, some form of final protection is strongly recommended. Without it, the print can be easily damaged and its longevity greatly shortened. To accomplish this, one has several choices.

Continued on Page10
New Water Reclamation Process

By Ben Gavett

Water, nature’s universal solvent, is the most common and most vital compound on Earth. However, even though water covers the majority of our planet’s surface, the increasing scarcity of potable fresh water is of growing concern in many regions of the world. In addition to nourishment, many other uses compete for its supply, including the manufacture of acrylic paint.

Water is the single most common component in the paint we make. Water in acrylic paints and mediums carries the polymer, pigment and additives, maintaining them in a useful state until application, whereupon it evaporates. Beyond our need for water as a paint ingredient, we need about a gallon of it to clean the production equipment and tools used for each gallon of paint we manufacture. Ultimately, both the water that evaporates from the paint during drying and that which we use for cleaning returns to the ecosystem. It disallows us from taking for granted its supply or from being apathetic to its future; to do so would be irresponsible. It is in this spirit that we long ago began pursuit of a goal to constantly improve our practices relative to the preservation and reuse of water in our products and processes.

We have made a significant advancement, just this past summer, in our efforts to achieve greater recycling of our precious water resources. We installed a Reverse Osmosis (RO) filtering system that allows us to reuse over two-thirds of our cleaning water each day. While not the endpoint of the zero discharge future we envision, it is a giant innovative step forward. These goals have been pursued over years, through research, testing and financial support from the Environmental Services Unit of the New York State Department of Economic Development.

Our wastewater treatment process still begins with a primary step where the murky wash water is flocculated and filtered to remove solids, resulting in a sludge comprised of acrylic, pigments, and diatomaceous earth filter media. The filtrate from this is remarkably clear, but is not clean. High levels of dissolved organic molecules remain. These are the remnants of the complex array of raw materials needed to produce acrylic paint, and include surfactants, glycols, and preservatives; all invisible but measurable in units of Biological and Chemical Oxygen Demand (BOD/COD). After this primary filtration, the water looks clean enough to reuse for cleaning, but isn’t, because a significant amount of skin contact and inhalation of water mist is typical in washing the paint-making equipment. Instead, our practice has been to send all of this water, via tanker truck, to the city treatment works 20 miles distant, where the BOD/COD is eliminated through aerobic and anaerobic bacterial degradation.

Using reverse osmosis to further filter the water allows us to concentrate the impurities and recover about 70 percent of the water for reuse, proportionately reducing the fuel needed for transportation, as well as the resultant diesel exhaust, taking a moderate bite out of our carbon footprint. It also directly decreases our groundwater withdrawals by the amount we are able to reuse due to this new filtration step.

Our current level of performance in this area has been achieved through a process of innovative problem solving. But unlike making a new product for delighting our customer, the goal of this effort is to recognize the responsibility of every business...of every person...to view their impact in a much larger context and to make a change. We realize that we still have many opportunities ahead to achieve greater environmental stewardship, but through a steady commitment, focus and innovation we will continue to make a difference.

Left to right: GOLDEN Resource Management Technician Tim Knapp; Commerce Chenango President and CEO Maureen Carpenter; Linda Jacobs, with the Environmental Services Unit of Empire State Development; and GOLDEN Facility Engineer Fran Reale discuss the benefits of the new Reverse Osmosis System.
**How Reverse Osmosis Works**

A semi-permeable membrane, like the membrane of a cell wall or a bladder, is selective about what it allows to pass through, and what it prevents from passing. These membranes in general pass water very easily because of its small molecular size; but also prevent many other contaminants from passing by trapping them. Water will typically be present on both sides of the membrane, with each side having a different concentration of dissolved minerals. Since the water in the less concentrated solution seeks to dilute the more concentrated solution, water will pass through the membrane from the lower concentration side to the greater concentration side. Eventually, osmotic pressure (seen in the diagram below as the pressure created by the difference in concentration side to the greater concentration side) will counter the diffusion process exactly, and equilibrium forms.

The process of reverse osmosis forces water with a greater concentration of contaminants (the source water) into a tank containing water with an extremely low concentration of contaminants (the processed water). High water pressure on the source side is used to “reverse” the natural osmotic process, with the semi-permeable membrane still permitting the passage of water while rejecting most of the other contaminants. The specific process through which this occurs is called ion exclusion, in which a concentration of ions at the membrane surface form a barrier that allows other water molecules to pass through while excluding other substances.

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**Golden Foundation Silent Art Auction Benefit is a Tremendous Success**

_Evening Celebrates 10 Years, Honors Foundation Director’s Retirement & Raises Thousands for Endowment_

On Saturday, October 6, 2007, the Sam & Adele Golden Foundation held its second Silent Art Auction Benefit at Golden Artist Colors, Inc. in New Berlin, N.Y. The auction featured artwork from more than 135 of some of the most acclaimed artists of our time, raising $62,700 in proceeds to benefit the Golden Foundation Endowment. The evening was also dedicated to celebrating the Foundation’s first 10 years and the retirement of its Director and longtime supporter of the arts, Lucy Tower Funke.

“We are thrilled with the outcome of the event,” said Mark Golden, Golden Foundation President and CEO of Golden Artist Colors, Inc. “The outpouring of support we received from the artist community throughout the last year in order to make this event possible has been incredible. It is through our friends’ unwavering support that has made reaching our Foundation goals possible.”

During the event, retired Foundation Director, Lucy Tower Funke, recounted her involvement in the organization and its importance within the arts community. “As the Golden Foundation charters a new course, I am honored to have been part of the long history of Sam and Adele and the Golden family,” said Funke. “The Golden Foundation has been blessed with the generous support of the artists who have donated significant works of art to benefit the endowment. Their civic involvement has helped strengthen the Golden Foundation’s purpose to become a meaningful resource for visual artists. Their personal investment has helped to assure that the vision to establish an artist residency program will soon be a reality.”

All of the donated artwork remains listed on the Golden Foundation Web site: www.goldenfoundation.org. View it by selecting the “Benefit Art Auction Gallery” tab at the bottom. Those pieces that have been sold are duly noted.

**Participating Artists:**


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*Issue 18 page 7 © 2008 Golden Artist Colors, Inc.*
Five Innovative New Experimental Products
By Scott Bennett

What is an “Experimental Product”?

GOLDEN Experimental Products are a series of limited-production, custom materials made available to the professional artist wishing to engage in experimentation and push the technical boundaries of their work with developmental materials. Although availability is limited, all GOLDEN Experimental Products have passed the basic requirements for freeze/thaw and shelf stability, permanency, adhesion testing to standard products, and general compatibility with other GOLDEN brand products. We believe these products are suitable for fine art use, however, we consider them experimental because proof of long-term performance, lot-to-lot consistency, and reliable availability still need to be established. Therefore, as with all new materials, testing for your application is highly suggested prior to use in actual artwork.

These five new experimental products are innovative in that they take paint and medium characteristics and working properties that may have only been hinted at with existing products, or have not been seen before as desirable, or even possible, and with a combination of newly found raw materials and wizardry in the custom lab…well, ok, a lot of trial and error and hard work…then give them life as innovative products that will push the boundaries of what is possible with acrylic paints and mediums, and in one particular case revive a very ancient marking and drawing medium.

This year we are introducing a new Silverpoint Ground and four new gels that we could only call “Eccentric Gel Mediums” for their very unusual rheologies, consistencies and handling properties.

Silverpoint Ground

This ground is putting a new modern spin on a traditional drawing technique using various metal styli to mark a specially prepared surface.

The history of Silverpoint, also called Metalpoint, dates back to before 1560 AD, when the first pencils, as we know them, were invented. The earliest use of metal styli was used to record various business transactions, and this is where silverpoint has its origins. Initially, the marks were made on wax and clay tablets, then specially prepared animal skins, and ultimately paper. The ground was often a mixture of burned bones, ash, chalk, and various other solids. The most common binder was probably spittle. Metalpoint was in frequent use from the late 14th to the 17th century, and was used by many Renaissance artists.

This Silverpoint Ground is provided in a very fluid consistency for easy application and leveling. Not only is this ground easy to apply, but it provides for incredible accuracy of line using a very permanent, lightfast pigmentation and acrylic binder. Additionally, this ground will remain much more flexible over time than traditional preparations.

The easiest way to get started is to dip a good varnish brush (a bristle brush can work as well) into the well-shaken Silverpoint Ground, and apply a thin coat to a piece of hot press fine art grade paper. One will see bubbles and foam as it is brushed, which will eventually disappear as the product soaks into the paper, allowing for a thin, even coat. Let it dry thoroughly and start to draw.

Easily make custom metal styli by taking almost any piece of metal – copper, bronze, nickel, gold, silver, etc. (the harder the metal, the lighter the line, and remember that metals that tarnish will ultimately exhibit that color; copper will turn greenish), and using various metal working tools, such as grinding wheels, files and sandpaper, shape the stylus in various ways.

Silverpoint is still favored today for its permanence (although different metals will leave marks that will change color as they tarnish, and at that point, will be stable), and unparalleled fineness of line and detail. It is much easier to hone a piece of metal into a fine point compared to a piece of graphite or other drawing media.

There is quite a lot of interesting history to mark making, writing and drawing utensils, and for more details, refer to the links below:
http://silverpointweb.com/groundwork.html
http://en.wikipedia.org/wiki/Silverpoint

Eccentric Gel Mediums (The Long and the Short of it)

What can we say about these gels other than you just have to try them? To understand some of their properties we need to begin with some definitions of terms used in the text (that may be unfamiliar):

Rheology - The study of the deformation and flow of matter under the influence of an applied stress. The terms “long” and “short” are used to describe two ends of a spectrum of rheologies. For example, water is short and honey is long.

Dilatant - Describes a material where the viscosity increases with the rate of shear. A dilatant effect can be most commonly seen with a mixture of cornstarch and water (sometimes called “oobleck”), which acts in counter-intuitive ways when struck or thrown against a surface.

Thixotropic - Describes a material which undergoes a reduction in viscosity when shaken, stirred or otherwise mechanically
disturbed and which readily recovers the original condition upon standing.

Now that we've given a number of wonderful new terms, let's describe the working and handling properties of the gels, rather than specific techniques. However, in doing so, various effects, techniques and potential uses may become apparent. The gels have several things in common.

Though very different, they are all self-leveling and pourable, so ultimately surfaces will tend to be smooth and tool marks softened. All will dry with a range of gloss surface sheens. A number of other characteristics distinguish them from one another. The gels are listed in specific order starting with the Long Strand (Spider Web) Gel (yes, that’s right) and ending with the Slow Leveling Gel. These two are at opposite ends of the spectrum in terms of rheology. One is very long and the other very short. The remaining two gels are more closely related, have unique combinations of long and short rheologies, and therefore are in the middle of the spectrum. Another thing in common, that will have to play a part in any technique developed with these new products, is that with at least three out of the four gels, the speed in handling them is a major factor with getting them to manifest their multiple working characteristics.

**Long Strand (Spider Web) Gel**

This gel medium is closely related to Clear Tar Gel in terms of its long rheology, however it is much longer and stickier, and can produce longer and finer strands that can be manipulated and used to “draw” by drizzling with quick movements. If one tries to move the Clear Tar Gel quickly it will tend to break apart, but the Long Strand Gel will keep its long strands and seems to get thinner (thixotropic) the faster it moves. It is whiter and more opaque looking as compared to Clear Tar Gel, and does not dry as clear. A good method for making lots of very fine strands of the gel is to have a small quantity of the gel on a palette surface and to begin dipping the flat underside of a palette knife into the wet gel using a quick up and down motion, while at the same time moving one’s arm forward and backward, keeping one’s hand low and close to the surface. If a painting surface is placed next to the palette, one can move over it directly as this motion is performed, causing the gel strands to fall on the surface. The faster one moves, the thinner the lines, and at a certain point they become like spider web silk. When freshly dried, the film will be gummy, tacky and delicate, but within several days becomes much more cohesive and less tacky.

**Long/Short Gel**

At first, this gel medium appears very similar to our Self-Leveling Clear Gel or Clear Tar Gel, especially when pouring it slowly out of a container, or slowly pulling some out with a palette knife. Very quickly one will notice that with any quick movement it will tend to thicken somewhat and break apart. Stirring it will cause this thickening (Dilatant) effect, and pulling some out very quickly with a palette knife will cause it to “break” in a way reminiscent of Silly Putty, however the viscosity of this gel is much thinner, somewhat comparable to Soft Gel. When it exhibits this “short” or Dilatant characteristic, there will be, for a short time, an actual jagged looking break pattern to the gel. This begins to soften and level out very quickly and eventually will completely disappear. At the same time, it is still possible, with slow movements, to make very long skeins of gel if the tool being used is held close to the surface. There is a more “gelatinous” feel to this gel compared to Clear Tar Gel or Self-Leveling Clear Gel.

**Dilatant Gel**

The multiple viscosity properties found in both the Long/Short Gel and Dilatant Gel suggest some very interesting techniques, where a Gel and paint blend could be moved over a surface, using the thicker viscosity that results from this action, and then allowing it to “melt” into itself, creating surface and color patterns not possible with a single rheology product. This gel is a somewhat thicker and more dilatant version of the Long/Short Gel. The dilatant quality will become quickly apparent as soon as one dips a palette knife or other tool into the gel and begins moving it around. The resistance increases and the product thickens as it is
moved, yet just as quickly, softens and levels back out when left alone. The same qualities described with the Long/Short Gel will be more extreme with this gel. While working the gel with either a brush or a palette knife, it will appear to coagulate and the resulting textures will tend to be rough, but as soon as it is left alone, it will begin to soften and level out, as if it is melting.

Slow Leveling Gel

This gel seems the most like Soft Gel, as compared to all the others, except that it has more leveling properties and a very short rheology that is immediately apparent when scooping some out of a container. This particular short rheology does not show itself in the same way as in the two former gels, in that it does not “break” in the Silly Putty fashion. When first applied or handled one will see marks which will quickly appear to “melt” away. Ultimately, there will only be faint reminders of any painterly marks and the gel will have the appearance of melted soft ice cream. It is reminiscent, in consistency, of the type of yogurt that has gelatin added, and is quite opposite from the Long Strand Gel.

If three separate batches of this gel are colored with some Fluid Acrylic and applied one on top of another, the three colors will melt into one another and a low domed mass of paint will remain that has an even, gently curved surface with very sharp separation lines between the three colors. When mixed with some Heavy Body paint and applied with a brush or palette knife, the mixture will dry with a wonderful surface and appearance reminiscent of melted wax.

GOLDEN Gel Topcoats

Whether used as part of a final layer in a piece, or applied solely for protection at the end, the Gel Topcoats will provide substantial UV protection while lowering the risk of water and chemical sensitivity as well as direct exposure to environmental elements. However, because they are water-based, care must be taken when applying them over any water-sensitive materials or substrates, including those coated with the Digital Ground Clear (Gloss) or Digital Ground for Non-Porous Surfaces. One should always test for their application and if any blurring or lifting of color occurs then take steps to initially seal the surface with either GOLDEN Archival or MSA Varnish. Also, please note that pieces coated with the Gel Topcoat will remain susceptible to dirt collection over time, not to mention surface damage from handling or shipping. For best practice and to address longer-term concerns of cleaning and conservation, we would still recommend applying one of our removable varnishes as a final layer.

All of GOLDEN’s varnishes will provide UV protection and lower water sensitivity, along with the advantage of being removable for cleaning and conservation purposes. As mentioned above, they can be used in conjunction with the Gel Topcoats to provide additional protection. If used in place of the Topcoats, however, it is best to first apply a non-removable isolation coat whenever possible. If applying a varnish directly to the print, we recommend starting with Gloss to seal the surface then switching to whatever sheen one desires.

Please visit the Mix More Media™ section of our site for additional information about the new GOLDEN Digital Grounds and Gel Topcoats w/UVLS. There you will find printing tips, application sheets and additional resources for reference. Look for the new Digital Grounds and Gel Topcoats starting March 2008.

goldenpaints.com/mixmoremedia

1 Dot gain’ is a printing term referring to the increase in the size of a dot of ink when printed.
2 Air fade’ refers to the fading of a paint due to exposure to ozone and other airborne pollutants.

1600 Hours UV Exposure Unprotected
1600 Hours UV Exposure Gel Topcoat w/UVLS

1600 Hour Accelerated Lightfastness Test on Ink-jet Prints

*Exposure of 1600 hours is equal to more than 100 years of typical gallery-lit conditions. Samples were printed on EPSON Stylus® Photo R2400 printer, UltraChrome™ K3 Inks and Ultra Premium Presentation Matte Paper.
Ever found yourself wanting to walk up to a display of GOLDEN paint and just start squeezing, drizzling and scooping paint out of each and every container you could get your hands on? I bet fighting that urge took all the strength you had, didn’t it? It’s like a kid in a candy store — you want to sink your teeth (your brush in this case) into one of each kind you see. Your mind is spinning 100 mph with ideas; if only you could just get a chance to spread it, pour it, trowel it, and layer it — until your heart was content. If only you had someone to share your ideas with while your creative juices were flowing.

Well, up at our facility in Columbus, New York, we’ve created our own mix of ice cream shop and western saloon with paint instead of sundaes or booze with the new GOLDEN Paint Bar. After having robbed Barbara Golden’s antique collection of some less than prized furniture, we assembled an eclectic assortment of things strange and new to play with at this one-of-a-kind bar!

Golden Artist Colors, Inc. has always welcomed and embraced the opportunity to work intimately with artists — since the beginning it’s been about having a conversation. This dialogue, which began over 27 years ago, created the foundation by which the company was built and continues to inspire us each and every day. We truly value the close, personal relationships that have grown from these conversations and therefore, are delighted to share with you our new Paint Bar. It is one more way to collaborate with some of the most amazing artists of our times.

The Paint Bar is all about brainstorming, pushing paint around and having fun! This unique, innovative space gives artists the opportunity to explore our products and spend time talking with someone from our Technical Support Department. We’re confident its eye-catching design will inspire creativity and experimentation, making the possibilities endless. So, we welcome you to take some time out from the daily grind, visit the GOLDEN Paint Bar and let the conversation begin!

“I think this bar will continue to expand and eventually become a collage of sorts of all the wonderful collaborations we’ve had over the years,” states Mark Golden, co-designer with Bill Berthel of the bar. The Paint Bar is open M-F, 8:30 am – 5:00 pm EST. If you are interested in scheduling time in this one-of-a-kind setting, please contact Jodi O’Dell at jodell@goldenpaints.com.
Reinventing the Future: GOLDEN Digital Grounds and Gel Topcoats w/UVLS

New Water Reclamation Process

Sam & Adele Golden Foundation for the Arts Silent Auction Results

Five Innovative New Experimental Products

A Place for Conversation

goldenpaints.com

The unique rheology in GOLDEN Experimental Long Strand (Spider Web) Gel allows you to create very fine, thin strands, which can be manipulated and used to "draw" by drizzling it with very quick movements. See page 9.