Par for the palette:
INSECTS AND ARACHNIDS AS ART MEDIA

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ABSTRACT
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The ubiquitous insects have been a cultural inspiration internationally, frequently used as symbols and metaphors for human existence and experience. Their boundless forms and behaviors make them logical candidates for artistic expression, providing artists with novel media to translate the mood, message and effect of a work. I survey how artists have used actual insects and arachnids in their work, both indirectly (through insects' and arachnids' bodily secretions and uniquely manufactured products, such as beeswax and caddisfly cases) and directly (using live or dead individuals). From Dubuffet's collage of lepidopteran wings and Yanagi's representative ant nations redistributing flags of sand, to the traditional use of cochineal bug exoskeletons and buprestid beetle elytra for adornment, insects and arachnids, with their accessible, varied forms and cultural significance, have served as art media throughout human history.

RÉSUMÉ
À part entière sur la palette de l'artiste:
les insectes et les araignées comme matériau artistique

Omniprésents, les insectes sont, depuis toujours une source d'inspiration universelle; leurs formes s'utilisent comme des symboles et métaphores de l'existence humaine. Leurs formes et leurs innombrables activités sont un exemple important de l'expression artistique, en donnant aux artistes des moyens nouveaux pour rendre l'humeur, message et effet d'une œuvre.

J'examine ici comment les artistes ont employé les insectes et les araignées dans leurs travaux: indirectement (à travers leurs sécrétions corporelles et leurs produits manufacturés tels que la cire d'abeille et les étuis de trichoptères) et directement (se servant de spécimens vivants ou morts). Du collage de Dubuffet d'ailes de lépidoptères aux colonies de fourmis de Yanagi, qui redistribuent des drapeaux nationaux en sable, jusqu'à l'usage traditionnel des exosquelettes de la cochenille et des élytres de buprestes comme ornement, les insectes et les araignées, avec leurs formes accessibles et incomparables, et leur importance culturelle, ont servi de matériau artistique tout au long de l'histoire de l'humanité.

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ART MEDIA AND THE UBIQUITOUS ARTHROPOD

Tools of the artist are boundless, sought after and applied for their utilitarian value, or for their philosophical connection to a planned work. They span the realm of the tangible to that of the fantastic, from the powdered remains of Egyptian mummies (Hebblewhite 1986) to the commingled blood of mortally wounded dragon and elephant, as described by Pliny (Bach 1964). An art medium is the physical material of which a work of art is made (Diamond 1992) and can take inorganic or organic form. Inorganic media are of mineral or synthetic origin. Organic media include anything containing carbon atoms, and often connote derivation from plant or animal origin. The most prevalent, ubiquitous form of animal life incorporated in artwork is found within the Phylum Arthropoda. Jointed-legged and bearing an exoskeleton, the arthropods include insects, centipedes and millipedes, crustaceans, and arachnids.

Insects and arachnids comprise the most numerous and varied of the arthropod groups and account for most of the described species of life on the planet. Their sheer number relates directly to their impact on Homo sapiens and, as a result, to their use throughout the world. They have been a cultural inspiration internationally, frequently used as symbols and metaphors for human existence and experience. Their boundless forms and behaviors make them logical candidates for artistic expression, providing artists with novel media to translate the mood, message and effect of a work. From the traditional use of buprestid beetle elytra and crushed cochineal bugs for adornment to Dubuffet’s collage of lepidopteran wings or Yanagi’s representative ant nations redistributing flags of colored sand, insects have served as art media throughout human history.

This cursory survey of arthropods as art media looks at insect and arachnid examples exclusively. These two classes of arthropods can be distinguished by the number of major body regions (three in insects: two in arachnids), number of legs (six in insects: eight in arachnids), and the presence of antennae and, commonly, of wings (insects). The categories that follow form a stepwise progression from mere involvement of insects in the production of art, to art media derived from insect and arachnid products, body parts, entire dead specimens, and live participants.

HINT OF AN INSECT

Beginning with nothing more than the suggestion of insect involvement, some works of art are either facilitated by, or remnants of, an insect’s presence. This indirect display of insects can involve either the purposeful manipulation of insects, or opportunism on the part of the human artist. Examples of opportunism include the collection of an ant-displaced mineral, the chalk recording of an ant’s wandering, and a silverfish-ravaged book.
Some Australian Aboriginals traditionally collect the limonite oxide deposited by ants at the entrance of ants’ nests. The mineral functions as a yellow pigment in the Aboriginals’ paintings (Cherry 1991). This exploitation of the ant is incidental compared with the work of Yukinori Yanagi, who followed a single ant’s wanderings with red chalk in his pieces Ant Following Plan, Ant Following Hino-maro (both 1989) and Wandering Position (1994) (Farver 1995). Wandering Position resulted in a space of red criss-crossing lines with a heavily marked periphery. The ant, in her persistence to escape, visually realized Yanagi’s commentary on political boundaries.

Others have looked at the natural consequences of insect bibliophiles as works of art. A show at Book Arts Gallery in New York City featured “an exhibition of books before 1600 with artwork by insects and rodents, mangled by bookbinders and dealers, etc.” The Effects of Time, as it was called, included books esthetically ingested by bibliophagous insects, which probably included the primitively wingless silverfish (Thysanura). One of these victims of “worming” was Girolamo Cardano’s De Rerum Varietate (Hansen and Minsky 1987).

Although these examples do not qualify as arthropodal media, they set the stage for an explicit incorporation of insects and arachnids in art to follow.

**INSECT AND ARACHNID PRODUCTS**

One step beyond the suggestion of insect involvement is the use of insects’ and arachnids’ bodily secretions and uniquely manufactured products as art media. This level of arthropod incorporation in artwork offers the richest history and broadest biodiversity of the categories listed. Silk, wax, and honey are products of highly evolved glands that have served as binders, canvas, and final piece for countless works of art.

Sericulture, the rearing of silkworms for the production of silk filament, finds its roots in the paired cephalic glands of larval Bombyx mori, the highly domesticated and most famous of the silkworm moths. The mythic discovery of silk’s practicability lies in China’s Empress Si-Ling-Chi, under the direction of Hoang-Ti 4700 years ago (Corticelli Silk Mills 1911, Cherry 1993), but was probably made by Neolithic farmers living in north-central China along the Huang Ho (Vollmer et al. 1983). The methods of moth exploitation remained a secret for 2000 years.

Silk is a prized commodity due in part to its sheen, produced by layers of proteins making up a triangular, prismatic fiber. Each filament runs 800-1300 yards (730-1190 m) and is lightweight, yet stronger than a comparative filament of steel (Hyde 1984). Proof of silk’s unique attributes as an art medium have been meticulously quantified and qualified. The Raw Silk Classification Committee listed raw silk’s properties as: color, luster, hand, nerve, nature, strength, elasticity, elongation, cohesion, evenness, cleanness, and size (Seem 1929).
Silk can be divided into many fabric types: velvet, crepe, taffeta, satin, chiffon, Shantung/tussah/pongee, and Japan silk (Pellew 1913, Los Angeles County Museum 1944, Erickson 1961), each with its own texture, weight and color. Traditionally, cocoons are soaked in hot water to loosen sericin (gum that binds fibroin protein expelled from the salivary glands of *Bombyx mori*), enabling thread to be unraveled and plied together. The raw silk is then reeled, graded, temporarily color-coded, twisted, washed and wound into skeins.

The secrets of sericulture were smuggled and spread across the world, facilitating the creative application of this medium globally. Contemporary fiber artists continue to incorporate silk in glorious ways, and have regained recognition in Japan with works by artists such as Michie Yamaguchi, Atsuko Yamamoto and Akihito Izukura (Tsuji 1994).

Another contemporary Japanese artist, Kazuo Kadonaga, has harnessed the efforts of silkworm moths in a more basic fashion, not to produce a textile, but by demonstrating traditional methods of sericulture. *Silk No.1, 2 Series* (1986) consists of 110,000 silkworm moth cocoons attached to wooden crates (Kadonaga 2001; Photo 1). The collective work required a two day rotation of each crate to induce even distribution of pupating larvae. Each piece was heated to kill the inhabitants, a traditional sericulture method applied to prevent the destruction of the wound thread by its eclosing spinner.

« I am not creating beauty but discovering the natural beauty of material, » Kadonaga has said of his silken works (Hubbell 1987).

Chinese avant garde artist Xu Bing has also made silkworm moth cocoons the central focus of his art, both in an untitled work (Photo 2) and in *Plant and Silkworms* (1998), as described in this paper’s *Working with the Living* section. Kadonaga and Bing’s use of unmodified cocoons in art shares a long tradition with cultures throughout the world. Over 500 species of wild silkworm moths (Saturniidae) have been described and these are the primary traditional source of moth cocoons used to make ceremonial rattles and other artifacts. Historically, Native Americans in California used cocoons of *Hyalophora euryalus* to make hand rattles, while today Native Americans of northwestern Mexico and the southwestern U.S. use cocoons primarily of *Rothschildia cincta* and southern African tribes use *Gonometa* sp. and *Argema mimosae* to make ankle rattles (Peigler 1994).

Moths have monopolized the silk market for millennia, but silk is produced by a diverse array of insect and arachnid groups, including caddisfly larvae and spiders. Caddisfly larvae (Trichoptera) construct specialized cases from plant or mineral sources, often in species-specific forms. They spin silk from their mouthparts, connecting suitable materials and lining the inner surface of their cases.
Kazuo Kadonaga’s “Silk No.1, 2 Series” (1986) is the collective work of 110,000 Bombyx mori silkworm moth larvae spinning cocoons within 91 crates of cedar and pine. (detail of artist’s studio, photograph by Kazuo Shozu)

Xu Bing has also exhibited the products of the silkworm moth in displays that literally metamorphose. This untitled work (1998) was an installation of television monitor (out of view) playing a recorded image of the installation’s second element: videocassette recorder (VCR) full of pupating Bombyx mori. The adults have since eclosed and the work has reached its final stage, with only the silk cocoons of the immatures remaining in the VCR. (photograph compliments of Jack Tilton Gallery, New York City, USA)
Hubert Duprat manipulates caddisfly larvae, causing them to exit their protective cases and to selectively replace them with mosaics of gold, pearls, turquoise and precious stones, all bound together with their own silk (2-3 cm, 1980-2003; photographs by Frédéric Delpech & Jean-Luc Fournier).
Hubert Duprat has employed caddisfly larvae to construct sculptures since 1983. Duprat collects larvae of the families Limnephilidae, Leptoceridae, Sericostomatidae and Odontoceridae and carefully raises them in aquaria. He then forces the larvae from their protective cases and supplies them with precious minerals. Offering gold spangles, pearls, or sapphires to rebuild their retreats, Duprat oversees the construction of jeweled surrogates. Following a history of relevant research projects, Duprat has learned that he can selectively damage, or remove portions of a case and supply materials to be replaced, at the discretion of his trichopteran apprentices (Duprat and Besson 1998; Photo 3 A,B). Although Duprat holds a patent for his caddisfly silk-woven sculptures, stream ecologists Ben and Kathy Stout converted their Wheeling, West Virginia, USA garage into a caddisfly rearing chamber, commercially producing jewelry for WildScape, Inc. with *Pycnopsyche sp.*

Spiders, although the most famous silk spinners of all, have a limited, albeit amazing history of being exploited for artistic ends. Elias Prunner, once a resident of Puster Valley in the Tyrolean Alps, founded a practice of painting on the webs of agelenid spiders (c. 1730). Called “cobweb art,” this use of spider webs as canvas was mastered by several artists, the most prolific Prunner pupil being Johann Burgmann, with a revival of the art by A. Trager. Single sheets of web collected from the garden spider *Agelena labyrinthica*, or the house spider *Tegenaria domestica*, were secured and cleansed of prey, occasionally primed with milk (and made oily with nuts, in the case of Burgmann’s work) and eventually displayed between two plates of glass. Over 100 cobweb artworks are known to survive, 67 of which are signed by Burgmann. Many were painted in watercolors by feather, some were done in India ink, and six were engraved.

The challenge of overcoming the fragility of the medium resulted in the use of moth silk. Teams of *Yponomeuta evonymella* ermine moths exude silk from their salivary glands (agelenid spiders use abdominal glands and spinnerets) to produce a grayish-white transparent web. Wrapped around fruit tree branches in the spring, these communal moths’ webs are stronger, cleaner, and can be unfolded and stretched. The silk threads of both the ermine moths and the agelenid spiders are much finer than those spun by *Bombyx mori*, resulting in a transparency desired by the cobweb artists (Cassirer 1956, Bristowe 1974).

Spider silk is also found in Jan Fabre’s *Cocoon* sculptural series (Fabre 1997), and served an entirely different purpose in Nina Katchadourian’s *Mended Spiderwebs and Other Natural Misunderstandings*. Equipped with a *Do-It-Yourself Spiderweb Repair Kit* (Katchadourian 1999), Katchadourian has repaired many orb webs using red thread, scissors, forceps, and adhesive (when natural web adhesive would not suffice). She found that her red reparations would invariably

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1 (http://mitpress2.mit.edu/e-journals/Leonardo/isast/articles/duprat/duprat.html).
2 (http://www.wildscape.com/jewelry/).
3 (http://www.bartschi.ch/stk_jf.html).
be rejected by the incumbent spider by the morning following installation. In Katchadourian’s case, the hanging web served as ephemeral frame for, and extension of, her art.

Other bodily secretions rank as highly as silk in the lives of humans, most notably those exuded by a single species of insect: the honey bee, *Apis mellifera*. Honey is the nectar collected, prepared and stored by honey bees and is classified by the principal source from which bees gather the nectar. Glandular secretions in a nectar-collecting bee’s honey-stomach begin her conversion of nectar to honey (More 1976), which can be measured in terms of its hygroscopicity (ability to remove moisture from the air), viscosity, density, specific gravity, refractive index, color and optical rotation (Grout 1970). Artists, in testing these properties, have found honey to serve as a viable binder in their works.

The paleolithic cave painters of Lascaux ground their natural pigments with water and used honey, gum, or starch to bind them (Hebblewhite 1986). Just as any paint requires a liquid to bind the particles of pigment, this early form of watercolor functioned due to the adhesive properties of honey.

Recent art history offers a less utilitarian and more sentimental application of honey in the works of Joseph Beuys. Using honey as a metaphor for warmth and energy (Tisdall 1998), Beuys created a distribution network of pipes traversing the Museum Fridericianum’s rooms, through which two motors pumped honey. *Honey Pump* was exhibited in Kassel, Germany in 1977, pumping honey for 100 days (Beuys 1997).

Honey bees also produce wax. In times of comb-building need, eight abdominal wax glands of certain workers will secrete flakes or scales of wax which project ventrally from the last four abdominal segments and are manipulated from hindleg to mandibles, masticated, and incorporated into the honeycomb (Grout 1970). Wax has been used as a vehicle for pigments, as paint filler by Van Gogh and many of his contemporaries, as adhesive in stained glass, a binder for miniature mosaics, and as prototype and final sculpture.

The primary historical use of beeswax as art medium has been as vehicle to carry pigments in two-dimensional art. Both cold and hot wax painting techniques were mastered centuries ago by cultures with advanced apiculture. Melted-wax paintings, or encaustics, were produced by Egyptians, Greeks, and Romans (Diamond 1992). This technique of melting wax permanently fuses the painting, so encaustics are found on mummies, Greek marble, and as Pompeii wall murals (Newman 1966).

The lost wax process, or *cire perdue*, involves the molding and subsequent melting of a three-dimensional wax model, replacing it with a molten metal cast. Artists first applied the lost wax process in the third millennium B.C.E. in the Middle East and its use spread to Egypt, Greece, and Italy (Noble 1975).

Wax itself has been used as the final medium of sculptural works. The Egyptians and Greeks modeled deities, and Romans adopted the use of colored wax
busts and masks. The Mayans cured the sick by burning wax replicas of the afflicted anatomy (Newman 1966), and Australian Aboriginals fashioned ritual objects and human figures for sorcery and love magic (Cherry 1991). Sculptors in all of these cultures chose wax, in part, for its plasticity. Wax also offers a humanlike translucency, used to great effect by Giovanni Bologna, Giulio Gaetano Zumbo, and Madame Tussaud in their human waxworks.

When working with honey bee bodily exudates it helps to understand the natural history of the honey bee. Garnett Puett is the stepson of a third-generation apiculturist who has managed to cleverly fuse the world of apiculture with his love of creating art. In art school he abandoned his final bronze sculptures, preferring the process of sculpting over the final product. Apiscaryatid and Four Couples Erased (1985) are two of Puett’s armature-supported beeswax sculptures of human figures over which honey bees have been induced to form honeycomb. Puett has learned some of the bees’ criteria for accepting or rejecting his preliminary pieces, and creates works with the aim of forcing viewers into seeing the essence of his apisculpture, at the risk of frightening them (Hubbell 1987). The critic Timothy Cohrs (1985) responded to a piece in progress, on display and coated with a colony of 80,000 honey bees:

« There were so many bees, so many thousands of bees, that they stacked up two and three and four deep, dripping from the mass like magma turned into a lifeform. The figure, once it could be identified as such, seemed frozen with shock, stung into a paralysis that at any moment could break and send it and the box and the glass sheet smashing to the ground. The sight of something so primeval, so vital, and so terrifying thrust into the cocoon of the gallery scene was more than surprising – it actually stunned the crowd of art-weary art-watchers at the ArtMart opening into a uniform silence. »

Other insects produce wax that has undoubtedly been used as an art medium, such as the Chinese wax scale Ericerus pela and the Indian wax scale Ceroplastes ceriferus. The Indian lac insect, Laccifer lacca, also produces a white wax, but is famous for exuding the amber-like resin used in varnishes and shelllac (Sen and Ranganathan 1939).

**ELEMENTS OF ARTHROPODS IN ART**

The use of insects’ and arachnids’ bodily products is still one step removed from the use of the organisms themselves. Incorporating anatomical parts of insects and arachnids in art offers a world of opportunity to the artist. Wings and legs adorn some art pieces explicitly, while others discretely reflect the colors of crushed insect bodies.

Animal-derived red dyes primarily have come from the pulverized bodies of three species of scale insects. Scale insects are true bugs that, as maturing and adult females, are typically wingless, legless, sessile plant feeders that secrete a

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4 For an exhibit of wax, including Puett’s work: (http://www.spiral.org/oldsite/wax.html).
waxy or scalelike covering (Borror et al. 1989). Historically extensively domesticated, kermes, lac, and cochineal bugs were ground and added to hot water to produce a bright red solution called carmine. A wide spectrum of colors can be achieved by the addition of a mordant, or chemical agent used to impregnate cloth. Mordants for these dyes are the salts of tin, aluminum, iron, or copper (Pellew 1913).

Kermes, a European source of red dye produced from the bodies of Kermes vermilio, dates at least to 1400 B.C.E. It was originally thought to be the product of either a berry or worm, as the etymology suggests (Donkin 1977). Kermes, lumped with the Armenian dye insect Porphyrophora hamelii, was the most important of the animal dyes of the Old World. These dyes were replaced by cochineal, a much more efficient dye (twelve parts kermes: one part cochineal), brought to Europe by the late 1600s (Gerber 1978). K. vermilis breeds on the kermes oak Quercus coccifera L. (Fagaceae).

Another monophagous European dye insect, Margarodes polonicus, has the unusual behavior of feeding on the roots of its host plant Scleranthus perennis L. (Illecebraceae). M. polonicus was used commercially to make Polish cochineal, or St. John’s Blood, from at least the beginning of the Christian era until the early 19th century (Donkin 1977).

Lac-dye is the product of Laccifer lacca, a polyphagous species mentioned earlier in the context of insect exudates. The laccic acid of the red dye is stored internally, so falls within the body parts realm of this survey. L. lacca is an Asian source of red dye and was used in India for calico-printing and for the dyeing of silk, wool and leather (Sen and Ranganathan 1939). Lac dye can produce scarlet, orange, and crimson shades on wool which are faster and more solid, but not as brilliant as cochineal (Pellew 1913).

Cochineal is the red dye of the Western Hemisphere. It is made from Dactylopius coccus, one of five cochineal insects which feed on Opuntia (Opuntiaceae) and Nopalea (Nopaleaceae) cacti (Borror et al. 1989). The bodies of the bugs are dried and crushed in hot water to release the carmine. As silk was with the Chinese, cochineal was a closely guarded secret, upon penalty of death, of the Spanish conquerors. The French and English finally learned the secrets of the process in the late 18th century after a French naturalist smuggled some prickly pear pads with cochineal bugs to Haiti in 1777.5 Cochineal has been used extensively in fabric art, notably in the brilliantly dyed textiles of Mexico. The Navajo traded for Spanish cochineal-dyed flannel blankets, unraveled them, and wove their own scarlet fabrics.

From the unrecognizably pulverized bodies of scale bugs, the next gradual step toward the entire insect body can be seen through the ocular of a microscope. Called “living pointillism” by Charles Hogue, the scales making up the

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5 Arthur Gibson’s economic botany course manual, University of California, Los Angeles; (http://www.botgard.ucla.edu/html/botanytextbooks/economicbotany/Cochineal).
The color of a butterfly’s wing are analogous to the mosaic of dots in a work of pointillism, divisionism, or chromo-luminarism. The individual elements become fused by the human mind. Hogue called scales “molecules of color” and compared their ability to please the human eye to that of the masterpieces of Georges Seurat. Butterfly scales are modified setae, or hairs, which reflect either the non-metallic colors of chemically based pigments, or the iridescence of structurally periodic surfaces (Hogue 1968).

Rearranging these natural masterpieces was the craft of Victorian scientist Henry Dalton (b. 1829). Dalton and a group of Victorians painted with a palette of butterfly scales and diatoms (Photo 4). The technique of mounting mosaics of individual butterfly scales began with a proposed design and the collection of an ample array of butterflies. Scales were removed with a delicate needle, placed and sorted on black cardboard, and arranged individually on a circular glass slide. No adhesives were used. Pressure with a pig bristle or ivory toothpick was enough to secure each scale to the slide. Before sealing the lepidopteran mosaic with a coverslip, dust particles had to be removed (Fields and Kontrovitz 1980). This practice of decorating under the microscope died with the Victorian Age, making way for mosaics on a scale magnitudes more manageable.

Entire butterfly wings have been used by many artists in as many ways. Jean Dubuffet created collages by adhering butterfly wings to a substrate in Personage of Butterfly Wings (1953) and Jardin des Isles (1955). The Art Guys (Jack Massing and Michael Galbreth) produced Floating, a collage of butterfly wings in the form of an astronaut (Massing and Galbreth 1995). Robert Edwards has incorporated the wings of butterflies in his paintings, remnants of those raised in his Michigan, USA garden.

A contemporary of Edwards’, Mayme Kratz, embeds organic material in her urethane works. These include butterfly wings in her resin piece Search (1998), cicada wings in A Dream Flown (1999), and a dragonfly wing in Exile (Kratz 1999). The Hapsburg Emperor Rudolf II (1552-1612) also used insect wings, adhering the wings of dragonflies onto bodies of the insects he painted (Moonan 1998).

Wings most universally used as art media are those of beetles, and particularly of the metallic wood-boring beetles and scarabs. The forewings, or elytra, are sclerotized, protective shields that range in size, form, opacity, durability, surface texture and color, depending on which of the 350,000 described beetle species is selected. People around the world have incorporated the elytra of beetles in traditional artwork, from Mexico, Central America, and the Amazon to the highlands of New Guinea, Northern Thailand, and India (Rivers 1993). Beetles have been harvested commercially for their elytra, once with a purported average of 1137 kg procured per rainy season in Myanmar (Rivers 1993). Elytra are chosen to adorn textiles and ornaments and were one of the signatures of Basohli School miniature paintings (1690-1730) in India (Rivers 1994). Even Lady Macbeth, in an Irving theatrical production of Macbeth, was portrayed in a green...
silk dress embellished with red and green beetle elytra, as depicted in *Ellen Terry as Lady Macbeth* by John Singer Sargent (Ormond 1998).

Cicadas have sacrificed more than their wings for artists Cao Yijian and Kim Abeles. Yijian disassembled and reassembled cicadas to construct three-dimensional figures, while Abeles’ *Great Periodic Migration* metaphorically created rush hour traffic with cicada nymphal exoskeletons (Hubbell 1987).

All previous examples of anatomical elements as art media have belonged to Class Insecta, but a swarm of arachnid limbs will close this section. Tom Friedman attached the legs of harvestman to a white sheet of paper in *Spider (sic) legs on paper* (1999; Photo 5). As Friedman says:

«I like the thought of breaking something down further and further to find its ingredients. The ingredients are building blocks. Finding that place is like an intersection of possibilities.»

### THE ENTIRE SPECIMEN

The beauty of the arthropod has been recognized in all manner of ways, but the unadulterated, entire specimen finds its traceable origin as art object in the Wunderkammer, or wonder rooms, of early 16th century Europe. These cabinets of curiosities were collections spanning the oddities of nature placed alongside antiquities and artwork. Displays representing insects as art have sporadically continued since. *Etre Nature* recently investigated “the reciprocity between a work of art and nature” at the Cartier Foundation for Contemporary Art in Paris (Moonan 1998). In it, Jacques Kerchache (2000) exhibited his collections of insect specimens.

A somewhat more contrived display of intact insect specimens in art begins with Buchsbaum and Boscarino, two pioneer cockroach artists. Positioning their subjects in somewhat unlikely scenarios, the artists use the American cockroach *Periplaneta americana* as their base medium. Boscarino, a jewelry maker who once hoped to be an entomologist, combines his talent and lost dream to compose works of tension, like the *Last Supper*—his most popular—using outfitted roaches. This hearkens back to the 1920s rage of dressing flea corpses as brides and grooms.


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6 Feature Inc. (NYC art gallery) archive: Tom Friedman interview.
Tom Friedman likes to “start with the ordinary” and depart from and build onto this “foundation of the familiar”. Portions of arachnids (in this case the legs of harvestmen; Order Opiliones), form Friedman’s foundation in “Spider (sic) legs on paper”. (23 x 30 cm, 1999; photograph compliments of Feature Inc, New York City, USA).

Photo 4. One of Henry Dalton’s mosaics

Henry Dalton (a.k.a. Harold, Harry, and H. Dalton) was a master Victorian microscopist who arranged microscope slide mosaics composed of individual diatoms and butterfly (Order Lepidoptera) wing scales. The photograph was taken by Phillip A. Harrington, a microscopist himself, who has more recently created slide-mounted insect abstracts. (image first published in Smithsonian, Fields and Kontrovitz 1980)

Photo 5. “Spider legs on paper”
The third letter (Photo 6) is a transparent layered sequence of ant-composed text and formulae that ends with a formicid-formed “NO” as an answer to Marxism.

Butterfly specimens have been arranged on monochromatically painted canvases, as in Damien Hirst’s I Feel Love (1991), I Love Love (1991), Do You Know What I Like About You? (1994), and calipered in suspended arrangements (Michael Dann). Other artists embed their insects in resin. Charlie Hines uses acrylic resin to embalm his jewelry subjects, both insect and arachnid. Mayme Kratz, aside from including elements of insects in her embedments, has produced works with entire specimens, as in The Union (1998), a work with dragonflies (Odonata), and Bee Box (1992), a large bee embedded in a brass box (Kratz 1999).

Quinter’s Thought Trap was an exhibit by Tasha Ostrander displaying rusting metal boxes with spinning butterfly specimens (e.g., Morpho sp.), a series of enlarged butterfly specimen images seen through glassine covers, and an overwhelming collection of labels at two desks, lit by bare hanging bulbs (Photo 7A,B). Although Eric Quinter is a well-known lepidopterist, he is made to be a fictive character in this thought trap, the trap being (Brandauer 1997):

« his way of producing knowledge, which then obviates the possibilities for direct experience. »
The following pieces of art displaying dead insects are photographic in nature. I will limit these examples because the process of photography leaves the viewer once removed from the insect subject as medium.

Gregory Crewdson composes surreal suburbia in eerie dioramas of paper maché houses and spread insects. Each scene takes approximately one month to complete in his Brooklyn studio before he is prepared to photograph (Sheets 1994). Barbara Norfleet takes a lighter approach in The Illusion of Orderly Progress, her book of parodic insect and arachnid arrangements. Jayne Hinds Bidaut also photographs a varied assortment of insect and arachnid specimens, but does so individually as positive images on sheet iron blackened with tar (Bidaut 1999). “Entomology felt like a world of precious gems” to Bidaut, and her ferrotypes/tintypes treat each specimen as just that.

Cinematographers, like the Brothers Quay and Wladislaw Starewicz, have animated dead insects in their films. Starewicz, an entomologist/filmmaker wired carcasses in Beautiful Lucanida or the Bloody Fight of the Horned and Whiskered, The Fight of the Stag Beetles, and The Dragonfly and the Ant as
early as 1910, introducing Russia to stop-motion animation. The innovative Stan Brakhage forewent the camera and pasted moth wings and flowers directly to a clear strip of 16 mm film before running the 16 minute *Moth Light* (1963) through the printing machine.

An appropriate close to a section of insect specimens as art medium lies with Jan Fabre, great-grandson of the great ethologist/entomologist Jean Henri Fabre. An insect collector and expert himself, Fabre’s body of work is rife with insects and arachnids. As art media, the insects and arachnids are displayed unmodified on a two-dimensional substrate, in monumental composites, or as radically rearranged pieces. A pair of unmodified leaf insects (Phylidae) face off on a canvas of blue ink (1989), as *Fantasy Insect Sculptures* (1976-1979) feature embellished arthropod bauplans. Beetles don a cephalic bottlecap, elytra capsules, a rostral quill, or prothoracic stamp handle (scarabs, with the exception of the quill-bearing brentid). Tarantulas (Theraphosidae) sport a dorsal shotgun shell, abnormally chained drain plug, or feathered wings.

Fabre’s most glorious insect-incorporated works are draped in a fabric of shimmering green, brown and black beetles. Gowns of wire mesh are graced with the siennas and umbers of lucanids and scarabs, or shrouded exclusively with metallic green buprestids, or flecked with chafers (Cetoniinae spp.). Hollow bee keepers’ robes sit brooding or stand forebodingly, clad with the above array of scarabs, lucanids, buprestids, and cerambycids. Further assemblages form urinal, cross, microscope, rabbit, and jester (Fabre 1995). Fabre’s coleopteran carcasses shine with an iridescent reanimation.

**WORKING WITH THE LIVING**

Employing live organisms in art poses new challenges and instills new levels of spontaneity and suspense. For this reason, I will briefly cite examples of “recorded” art, in the form of sound and photographic works, before moving on to the genuinely vivacious pieces.

The songs of insects have long been appreciated, especially in Asia, but have only mildly been explored in the mixing of recorded music. Masaoka played processed and mixed vibrations of bees’ wings while projecting video footage of bees in her *Bee Show* (1999). *The Insect Musicians* (1986) is an album performed and produced by Graeme Revell. It is a symphony of tsetse fly, death’s-head hawkmoth, bog bush cricket, screech beetle, queen bee laying eggs, and 35 other insect sounds collected from around the world. Revell (1986) saw the potential for insects as an auditory art medium:

« Perhaps the most fecund territory for future explorations in art and music lies in the miniature; in detailed experiments with nuances of rhythm and timber, detail and colour. And perhaps the ultimate horizon of technology is Nature itself. »

Photographers and cinematographers have documented the natural and unnatural histories of arthropods far more than have the composers of music.
Catherine Chalmers has compiled her series of staged predations in *Food Chain* (1994-1995) and Richard Avedon took a portrait of beekeeper Ronald Fischer covered with Fischer's live subjects.

Many films thematically depend on the inclusion of insects or arachnids, either subtly, as in Teshigahara's *Woman of the Dunes* (1964), or explicitly, as in Claude Nuridsany and Marie Perennou's *Microcosmos* (1996), or David Blair’s *WAX or the discovery of television among the bees* (1991). The Colombian artist Maria Fernanda Cardoso produced *Cardoso Flea Circus* (1997), a video homage to the practice of training fleas (Siphonaptera) to perform.

Xu Bing crossed over, at least halfway, to the direct display of live insects with his untitled work (1998) coupling *Bombyx mori* silkworm larvae in an open video cassette recorder with a monitor playing a recording of the same. In the same year Bing exhibited the appropriately titled *Plant and Silkworms*. The larvae were allowed to pupate, lending an element of change and progress to each piece.

*Antics*7 (2000; Photo 8), a collaborative effort by photographer Chip Hedgcock, metal worker Philip Joachim, graphic designer Michael Mayer, organizer and ant breeder Steve Prchal, and performance artist Janet K. Bardwell, celebrated the lives of several Sonoran desert ant species (*Pheidole rhea, Cremato-

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7 for images: (http://sasionline.org/Antics/exhibits.html).
PHOTO 9A. “The World Flag Ant Farm”
1990. Ants, colored sand, plastic box, plastic tube, plastic pipe.

PHOTO 9B. “Three China”
1997. Ants, colored sand, plastic box, plastic tube, plastic pipe.
Each panel 13.5 x 20 inches. Glass jar 5.5 x 2.5 inches (not shown).

PHOTO 9C. “Red, White and Blue”
1996. Ants, colored sand, plastic box, 15.75 x 23.62 inches.

PHOTO 9D. “Pacific #6”
1997. Ants, colored sand, plastic box, plastic tube, plastic pipe.
13.58 x 67.52 inches.

PHOTOS 9A,B,C,D. Yukinori Yanagi’s works
Yukinori Yanagi creates arenas of plastic boxes, tubes and pipes within which colonies of ants disperse colored sands.
All images are compliments of Haines Gallery, San Francisco, USA; (http://www.hainesgallery.com/YY.work.html)
gaster sp., Camponotus festinatus, Aphaenogaster cockerelli, and A. boulderen-sis) by displaying their behaviors in graphically engaging open exhibits. Live specimens require care, and Bardwell would ignore all gallery visitors for the sake of tending her ants.

Mark Thompson is another artist who performs with hymenopterans, but his choice subject is the honey bee Apis mellifera. Thompson creates what he calls “models of interaction.” His interactions involve donning gasmask and sharing an enclosure with a swarm of bees in A House Divided, and forming a hairdo of live bees (Tracey Warr, pers. comm.). Wearing living insects has a traditional component and is practiced today by Mexicans on the Yucatan Peninsula with zopherid (formerly tenebrionid) beetles (Carl Olson, pers. comm.). The beetles are adorned with jewels, affixed to apparel and meant to be worn alive.

Sometimes living art necessitates sacrifice. The macabre works of Damien Hirst took a live insectal turn recently with A Thousand Years, a glass vitrine containing the decomposing head of a cow and its accompanying fly larvae. The maggots eventually matured, to face an additional element of the display: an Insect-O-Cutor. Mortality is also a theme of Huang Yong Ping’s Globe Bar (2000), an antiquated globe-turned-arena for scenes of animal combat. Tarantulas and scorpions (Scorpiones) are some of the key combatants pitted against one another in this miniature colosseum.

To close this chapter of live insects and arachnids as art media on a note of global decay and destruction would do a disservice to the arthropods themselves. I turn to Yukinori Yanagi, once again, for his works with ants. Plastic tubes connect framed, transparent ant farms filled with different colors of sand (Photo 9 A,B,C,D). Ants, in digging their tunnels for colony expansion and brood rearing, disperse the colored sands throughout Dollar Pyramid (1999), In God We Trust (1999) (Photo 10) and a series of flag pieces. EC Flag Ant Farm and The 38th Parallel (1991) portray the flags of North and South Korea connected. The World Flag Ant Farm 1991 – Asia – expands the scope to all of Asia, and The World Flag Ant Farm (1990) to all 170 flags of the United Nations (Farver 1995). When thousands of ants are added to The World Flag Ant Farm, as with each of the other pieces, a transformation occurs, and the vivid, recognizable boundaries of each flag “dissolve and evolve into one universal flag.” “An ant doesn't comprehend a national flag,” as Nishie Masayuki phrased it (Yanagi & Hillside Gallery 1991), making this insect group a perfect vehicle, or medium, for Yanagi’s continuing commentary on borders.

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8 Known as jANeT, she would take written questions and mail her typed answers.
THE ARTIST IN TIME AND SPACE

From a hint, to an expulsion, to an anatomical element, to entire dead specimen, to living organism, this categorical, stepwise survey of insects and arachnids as art media is primarily limited to our visual domain. Each of our other sensory modalities could serve to decipher esthetic information, and much potential lies in the artist’s exploration of the olfactory, tactile and auditory realms. Only gustation comes remotely close to being an explored art, with culinary appreciation by partially entomophagous cultures. Within the visual domain, artists have opportunistically discovered the wondrous array of insects, arachnids, and the properties of their products through time and across the world.

PHOTO 10. “In God We Trust” (Yukinori Yanagi)
is one of several US monetary manipulations.
1999. Ants, colored sand, plastic box, plastic tube, plastic pipe. 17 x 40.5 x 1 inch.

ACKNOWLEDGEMENTS

I owe my deepest gratitude to Arnold Klein for his French translations and for his obsessive archiving, a critical force behind all of my efforts. Also to Arno Klein for his technological expertise and photography, to Robin Roche, Jen Cooke, Tracey Warr, Joyce Cloughly and Bill Logan for their research, and to Yee-Fan Sun for image reproduction. Janis Ekdahl generously allowed my twin to research the MoMA’s insect holdings. The artists, be they cognizant of their contributions (Mayme Kratz, Steve Prechal, Chip Hedgcock, Hubert Duprat, Robert Edwards, Kazuo Kadonaga, and Yukinori Yanagi) or not privy to these proceedings, made this research both possible and exciting. Merci beaucoup to Elisabeth Motte-Florac for her organization of the Insects in Oral Literature and Traditions Conference, and special thanks to Diana Wheeler, Carl Olson, and The University of Arizona’s Department of Entomology.
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**TABLE 1. Insects and arachnids cited**

All insects and arachnids cited within the survey are listed by species name in alphabetical order. More inclusive taxonomic groupings and common names follow. Twelve insect orders were cited, including Homoptera (eight times), Coleoptera and Lepidoptera (seven times each), Hymenoptera (six), and Trichoptera (four). Three arachnid orders were cited, including Araneae (three times), Opiliones, and Scorpionidae.