Ergonomics, investigation of human physical and mental abilities and the application of this knowledge in products, equipment, and artificial environments. The application of ergonomics can result in products that are safer or easier to use, such as a family car or food mixer. Alternatively, ergonomics can result in better procedures for performing tasks, from changing a nappy to welding.

Ergonomists are scientists who have specialized in the study of the interface between people and the things they come into contact with—particularly artificial things. Their work yields information that helps other specialists, such as designers and engineers; to improve the usability of the products they develop. Ergonomists are likely to be involved in the manufacture of vehicles (cars, aeroplanes, and bicycles), household products (kitchen equipment, toys, computers, and furniture), clothing (shoes, sportswear, and jumpers) and many other products. The driver's seat in a car, for example, must be carefully designed to take account of the varying sizes of users. The instrument panel must be designed so as not to confuse the driver by providing excessive or unclear information, being neither too faint nor dazzlingly bright at night, and so on. Both physiologists and psychologists can contribute to the design.

Designing products to suit the bodies and abilities of people is not new. Even prehistoric people shaped their tools and weapons to make them easier to use. In the 20th century the search for efficiency of effort and the requirements of mass manufacturing have stimulated research. Psychologists and physiologists have extended knowledge of the workings of our brains and bodies. In 1940 the British psychologist Hywel Murrell joined the Greek terms *ergon,* meaning work, and *nomia,* referring to management or organization, to christen the new science. More recently the term “human-factors engineering” has been widely used in place of the word “ergonomics”, since it facilitates a distinction between physiological, psychological, and sociological human factors.

Today, designers and engineers rely on human-factors research, such as anthropometric data (body measurements) and experimental usability studies, to aid the process of making products easier to understand, safer to use, and better matched to the human body. The elderly, children, and disabled people are special groups with which ergonomic analyses may be concerned.

http://encarta.eng.msn.com/encyclopedia/weblinks/default.asp?ty=more&ca=264&ti=142323712&vs=e98&lv=z&os=win

http://www.ergoweb.com/

http://ctdnews.com/

Ergonomics- the study of the efficiency of persons in their working environment.

Anthropomorphism, attribution of human form or qualities to that which is not human. Specifically, anthropomorphism is the depiction of God in a human image, with human bodily form and emotions, such as jealousy, wrath, or love. Whereas polytheistic religions are mostly concerned with anthropomorphic gods, monotheistic religious thought generally holds that it is inappropriate to regard an omnipotent, omnipresent God as human. In order to speak of God, however, metaphorical language must be employed. In philosophy and theology, seemingly anthropomorphic concepts and language are used because it is impossible to think of God without attributing to him some human traits. In the Bible, for example, God is endowed with physical characteristics and human emotions, but at the same time he is understood to be transcendent. In art and literature, anthropomorphism is the depiction of natural objects, such as animals or plants, as talking, reasoning, sentient, human-like beings.

http://encarta.eng.msn.com/encyclopedia/weblinks/default.asp?ty=more&ca=1538&ti=25014272&vs=e98&lv=z&os=win

Anthropometrics - The scientific study of the measurements of the human body.

Design and Society

Technological advancement has not been the only significant influence on design in the post-1945 era. There has also emerged a new focus on the human and social responsibilities of design. In the immediate post-war period, this is most easily seen in the research and application of human factors knowledge. The professional discipline of ergonomics grew out of military research into improving the fit between people and machines. Increasingly this work moved away from the documentation of measurements of physical size and reach, known as anthropometrics, and established new work involving the investigation of people's ability to perceive, process, and act upon information. Today, the field of ergonomics makes an important contribution to the design process and many manufacturers include ergonomists in the development teams of consumer goods, sports products, and transport systems. Ergonomics research is vital in helping to make products more usable, which is essential in fields as diverse as computer software, town planning, electronic equipment, and the design of user manuals.

http://www.design-council.org.uk/welcome.html

Nursery Education, term applied universally to educational group experience for children who have not yet entered primary school. It usually refers to the education of boys and girls from the age of two to five, depending on the admission requirements of schools and the availability of places in the area.

Most nurseries and playgroups operate policies of learning through play. Sand, water, and paint form the basis of many learning exercises; storytelling, nursery rhymes, and the development of early literacy and numeracy skills are an equally important part of the curriculum.

Qualified teachers, nursery nurses, and holders of the National Nursery Examination Board certificate staff state and private nurseries in Britain. Playgroups are often run by experienced but unqualified workers, volunteers, and parents, although many playgroup

staff have taken training courses and diplomas organized by the Pre-School Learning Allianc.

http://www.earlychildhood.com/

http://www.parenthoodweb.com/

English Toy Spaniel, general name for two breeds of toy dog, which reputedly originated in Japan in ancient times and apparently then became known in China. From Japan they are believed to have been introduced into Spain in comparatively modern times, and there became the prototype for the breeds known today. The dogs were also known in England from about the first third of the 16th century. The two breeds are the King Charles spaniel and the Cavalier King Charles spaniel. The King Charles spaniel, which is usually black and tan, was named after Charles II of England, who kept dogs of this breed as favoured pets. The Cavalier originated as a white and chestnut-red spaniel, called Blenheim after the family seat of John Churchill, 1st Duke of Marlborough, who first bred the dog at the beginning of the 18th century and whose family later specialized in developing the breed. Today black and tan, ruby, and tricolour Cavaliers are also recognized. King Charles spaniels may also be ruby, tricolour, or Blenheim in colour. Both breeds have a domed head; dark eyes set wide apart; a short nose; unusually long ears; and a coat of long, silky, wavy hair. Cavalier King Charles spaniels weigh 8 to 9 kg (18 to 20 lb) and stand up to 34 cm (13.5 in) tall at the shoulder; King Charles spaniels are slightly smaller.

Toys, playthings for the use of children, usually intended to provide amusement or as aids to education. Until the 19th century, the word “toy” was used for any small objects created for the pleasure or amusement either of children or of adults, ranging from trinkets of little intrinsic worth to valuable models made of precious metals. Since the 19th century the word has come exclusively to signify those objects used by children in their play. It is widely believed that toys influence the emotional, social, mental, and physical development of children.

The Earliest Toys

The evidence of toys in prehistoric times is ambiguous in that such objects as doll-like figurines, which to modern eyes may bear a similarity to toys, probably had a religious significance. Toys must have existed in prehistory, however, since children and adults universally use their imagination to create toys out of pieces of wood, straw, hide, feathers, or other materials that are easily perishable. Objects which have survived, because they were made in terracotta, and which can be more securely classed as toys have been discovered at sites in the Mediterranean, the Near East, and the Indus Valley dating from the 1st and 2nd millennia BC; these include models of animals, some in the form of pull-along toys on wheels and some with articulated parts. However, it is still difficult to tell whether miniature pots and figurines excavated from the same sites were intended as children’s toys, or as objects of religion and ritual.

In ancient Egypt, Greece, and Rome, the grave goods in children’s burials included dolls; particularly striking are the Egyptian paddle-dolls, made of flat, paddle-like pieces of wood that were given arms and a head; the piece was painted and the head given beaded hair. Games equipment, such as counters, dice, and marbles, also survives from ancient Egypt, Greece, and Rome. Small terracotta animals, often with moving parts or on wheels, are widely found, as are jointed figurines. Toys made of cloth have

rarely survived. The use of such toys as hoops, yo-yos, and knucklebones is illustrated on Greek vases and in Greek and Roman sculpture.

Universal Toys

Such toys as dolls, figures of animals, balls, spinning tops, and toys with a simple mechanism are universal in that they are found in almost all cultures throughout the world. These types of toys form a significant aspect of folk art. Within the folk-art tradition, toys that execute simple movements are widely found. Among them are jointed figures sent into acrobatic antics by pressure or torsion; similar figures activated by swinging weights; toys in which opposed figures move in apparent conflict; balancing or falling toys motivated by gravity. Pecking-bird toys, for instance, in which movement is activated by weights can be found all over the world.

One feature of folk toys is the inventive use of materials found readily to hand: bones, nuts, pine cones, maize cobs and ears of corn, and, in the later 20th century, tin and plastic containers and lengths of wire. The vehicles made from wire by African children show an extraordinary ability to model three-dimensional forms. It is in eastern regions of Europe and in India, Africa, China, and Mexico that the folk tradition of toymaking is the most vigorous today. Miniature carved utensils and wooden toys continue to be made by the rural populations of eastern Europe, particularly in parts of the former Yugoslavia. Toys made of natural materials and produced by traditional methods feed a demand in the West for individualistic, handmade goods, which contrast with the mechanically mass-produced toys, made overwhelmingly of plastic, that are manufactured by multinational companies.

The Middle Ages to 1800

The few toys that survive from the Middle Ages in Europe have usually been found in excavations. These are often games pieces and earthenware figurines, but many are toys made of cast metal. The craftsmen who made pilgrimage badges could as easily produce toy soldiers, such as the famous 14th-century example in the Musée de Cluny, Paris. Written references to toys are a reminder that children, then as always, could make their own toys; the 15th-century poem *Ratis Raving* mentions a girl making a doll from a cloth, and children constructing dens from sticks and stones. Among the most frequently illustrated toys in illuminated manuscripts and early printed books are windmills and hobby horses, which, used in play imitating the activities of the adult world, could provide an introduction to the culture of chivalric warfare.

After the Middle Ages, evidence of the manufacture and marketing of toys emerges in Germany, in areas where woodcarving was a traditional craft. Toys were among the many productions of the carvers of Oberammergau, in Bavaria, who were active from the early 16th century. A busy carving community in another Alpine village, Berchtesgaden in Austria, also produced toys among much other carved work in the 17th to 19th centuries. On the southern side of the Alps, the Gröden valley, now in the Italian Tyrol, supported a vigorous toy industry from the 18th century. Further north, two areas enjoyed toymaking booms in the 19th century: the Meiningen uplands around Sonneberg in Thuringia, where papier-mâché was a favourite medium; and, eastward, the Erzgebirge mountains around Seiffen, where woodturning was a speciality. These areas dominated the world toy trade well into the 20th century. Nuremberg, more or less equidistant from each, became their trading centre, from where toys were exported throughout Europe.

Throughout this time toymaking remained chiefly a cottage industry. Wholesalers, whom the cottage industries supplied, initially carried with them quantities of samples to show potential buyers. In time, rather than demonstrating the range of their goods

through samples, wholesalers began to produce catalogues, illustrated by copper engravings and, later, lithographs. The early 19th-century catalogues of the Nuremberg dealer Georg Bestelmeier show quite complicated toys that reflect contemporary life—market stalls, kitchens, stables, farmyards, barracks. Later catalogues illustrate multitudes of small picturesque figures, both of people and of animals, many of which were too fragile to have survived. These catalogues have therefore become vital documents for toy historians. They also reveal that small-scale versions of musical instruments (fiddles, trumpets, and drums) and weapons of war (swords, guns, and bows and arrows) made especially for children were staple toys in the 18th and 19th centuries, as were hoops, tops, battledores and shuttlecocks, and similar games equipment. The manufacture of lead soldiers was pioneered in Nuremberg in the later 18th century by Hilpert, Heinrichsen, and other makers.

An inventory of the merchandise of an English shop in 1681 shows that among toys available at the time were wooden horses, dogs, birds, "babyes" (dolls), painted boxes, trumpets, and whistles. Most were probably imported from Germany. "Dutch" dolls (in fact made in the Tyrol) received this name perhaps because they were exported from Germany by way of the Rhine through Holland, or perhaps because "Dutch" is a corruption of "Deutsch" (meaning "German"). Among the largest toys to be imported from Germany were Noah's arks, their many small animals made by the labour-saving method of shaping a length of wood on a lathe to the profile outline of a camel or lion, for example, and slicing the length of wood to produce multiple figures, which were then hand-finished and painted. Larger toys, such as dolls' houses and rocking horses, which became widely available in England in the late 18th century, were made locally.

It was also at this time that toyshops began to appear in England and France and that booksellers and publishers began to focus on children as a new market, issuing not only children's books, but also paper games such as jigsaw puzzles and board games *(see* Children's Games). Most early board games (where English publishers such as Harris, Wallis, and Spooner led the way) were based on the "race" principle, in which players follow a numbered course, moving counters according to scores obtained by throwing dice. These games were immediately made educational, for the race format could easily be adapted to convey historical, geographical, and other types of information.

The 19th Century

In the second and third decades of the 19th century, several English publishers and print-sellers created a vigorous market for toy theatres. The toy theatre probably evolved from the practice of publishing for theatregoers souvenirs of productions in the form of sheets printed with the principal actors shown, in the costume of their role, striking dramatic poses. Toy theatres consisted of sets of sheets on which were printed the scenery of a play and its characters in various poses; the figures and scenery would be cut out, pasted on to card, and used, with the abbreviated scripts provided, to create dramatic scenes in miniature. The toy theatre enjoyed its greatest vogue from about 1815 to 1835, but remained popular into the 1850s. It was taken up by print publishers in almost every European country. Such publishers also continued to produce board games, jigsaws, and other paper puzzles.

For girls, clothed dolls, hitherto usually made of wood, were now made in a greater variety of materials. Bodies were generally of stuffed cloth or kid, and were therefore softer, more realistic, and doubtless more appealing to children than their wooden precursors. Heads and hands could be of composition (in the case of German dolls),

wax (in the case of English dolls), or wax over composition. The finest wax dolls were produced in England throughout the 19th century by two Italian immigrant families, the Pierottis and Montanaris. From the 1830s onward heads and limbs were made of ceramic. Almost all dolls represented adults at first. Manufacturers (such as Jumeau or Bru in France, Kämmer & Reinhardt, Armand Marseille, or Simon & Halbig in Germany) produced expensive dolls that are now collectors' items. Dolls representing children (and known as "bébés") became common in the 1870s. Baby dolls were available from the 1850s but came into their own only in the 20th century.

For boys, animals and transport toys were popular. Wooden horses and carts of every conceivable type were staple toys into the beginning of the 20th century. However, as transport changed, so did transport toys. The arrival of railways in Europe in the 1830s and 1840s was initially reflected in simple pull-along trains in wood or tin, and later, when tin-plate manufacture had become more sophisticated, in elaborate models self-propelled by clockwork or steam. Small tin toys of all kinds (today regarded as dangerous for children because of their sharp edges) abounded at the turn of the century.

Toys producing interesting optical effects were developed in the 19th century. The kaleidoscope, a tube with an eyehole at one end through which an endlessly varied succession of symmetrical patterns can be seen by rotating a box containing mirrors and pieces of coloured glass or paper at the other end, was invented in 1816. The Victorians were enthusiasts for toys, such as geometrical puzzles, hydraulic toys, and optical toys, that helped children learn the rudiments of science. Persistence of vision, in which the eye continues to "see" an image after that image has been removed, was exploited in the manufacture of optical toys such as the zoetrope. A zoetrope is essentially a spinnable cylinder with slits cut in its circumference. Into the inside of the cylinder could be placed strips with sequences of images, showing, for example, a horse approaching and jumping over a fence. When the drum was rotated, the images seen in rapid succession through the slits produced the illusion of fluid movement. There are close links between experiments with the persistence of vision and the development of cinematography.

It has been argued by some historians that the fact that more toys became available for children from the late 18th century onward may reflect a more sympathetic attitude to children and a greater emotional warmth in family life in western Europe. These tendencies were fervently developed in the 19th century. At this time Christmas was virtually reinvented as a gift-giving festival for children, and ever since the toy trade has been geared to meeting the demands of the Christmas season.

The 20th Century

By the end of the 19th century, the scientific study of child development, both physical and mental, was under way. One result of this was a burst of interest, in the first two decades of the 20th century, in artistic toys—toys whose good design, it was believed, would encourage aesthetic appreciation in children. These toys, usually produced by designers in Germany, Austria, and France, reflected the current vogue for Art Nouveau.

New developments in toymaking in the 20th century included the manufacture of soft toys, constructional toys, and wheeled toys. Commercial production of soft toys, in

which the German maker Margarete Steiff was an important pioneer, began around the turn of the century. The teddy bear (named by association with President Theodore "Teddy" Roosevelt) appeared in 1903, and since the 1980s has had a cult following among collectors. Many other animals, from rabbits and puppies to pandas and lion cubs, have been used as models for soft toys, which gave children a new opportunity to play with toys that yield to hugging and fondling. After World War II, plastics were increasingly adopted as materials for toys, as for many other things. It was not until Bakelite and, later, vinyls were used for dolls' bodies that dolls, especially baby dolls, began to look truly realistic.

Meccano, consisting of a set of metal pieces of different shapes that could be screwed together in almost any combination, appeared in 1901 and was the first major success in constructional toys. Since then, an enormous variety of toys designed to impart to boys an enthusiasm for engineering have been produced. The great age of cycles, scooters, and pedal-cars for children was the 1920s and 1930s. Transport toys remained popular. Train sets became smaller and more intricate after electricity superseded clockwork from the 1930s onward. These were followed by miniature road vehicles, aeroplanes, and, eventually, spaceships. Production of small die-cast vehicles, such as those marketed as Dinky toys, boomed after World War II.

The German toy industry developed these and many other new lines to augment its traditional range of wooden toys. However, Germany lost its hold on the international toy market during the conflict of World Wars I and II. Filling the vacuum created by the absence of German imports, other countries, including England, fostered their own toy trade. The American industry, meanwhile, had been developing independently since the late 19th century.

During the inter-war years, great developments were made in what was then called "character merchandising"—toys associated with fictional characters (such as Bonzo and Dismal Desmond) known to children from books, from strip cartoons (such as Rupert Bear and Bécassine), or, especially, from the new animated cartoons (such as Mickey Mouse and Felix the Cat). Toys like these, now known as "concept toys", have come to dominate the market, where advertising-led crazes for the latest concept can be financially rewarding for manufacturers. In 1996, the British Toy and Hobby Association listed over 400 "character properties", which toymakers can use under licence. Today, it is rare for a toy to develop a character of its own that gives it long-term popularity. The most prominent example is Barbie, the teenage fashion doll created by the American firm Mattel in 1959, followed by Action Man and Sindy Doll. Barbie dolls are now produced with clothes and appearance appropriate for the black and coloured market.

Perhaps the biggest change ever seen in the history of toys has been brought about by electronics, which have led to the development of remotely controlled model cars and aeroplanes, and computer science, which has opened up a new market in computer games, which are enjoyed by both children and adults.

Learning Toys

Pioneer educational reformers, notably Friedrich Froebel and Maria Montessori, were quick to adopt toys as means of inculcating their value-systems in young children. In the 1930s, developmental psychologists systematically charted the stages of infant development, so that toymakers could devise a repertoire of toys linked to

developmental stages. Since the 1950s, “the right toy for the right age” has become standard doctrine, not only for individual designers but also for large toy manufacturers, so that infants are now supplied with stimulating toys.

History and Collecting

The first tentative histories of toys came from within the toy trade; for example, the London toyshop owner W. H. Cremer published *Toys for the Little Folks* in 1873. In 1900, trade and collectors came together at the Exposition Universelle in Paris to present a historical exhibition of toys, which gave rise to several lavish pioneer works by the antiquary H. R. d’Allemagne. Most books on the history of toys ever since have been written from the point of view of collecting. Toy collecting today, in which the United States is the clear leader generally focuses on such toys as bears and other stuffed animals, model vehicles, automata, dolls and dolls’ houses, and board games. It is fuelled by regular auction sales, and by a variety of collectors’ periodicals. Toy historians of the future, meanwhile, will be indebted to trade magazines that document national toy industries in Argentina, Belgium, Canada, France, Germany, Italy, Japan, Mexico, the Netherlands, Norway, Spain, Sweden, the United Kingdom, and the United States.

http://www.londontoy.com/