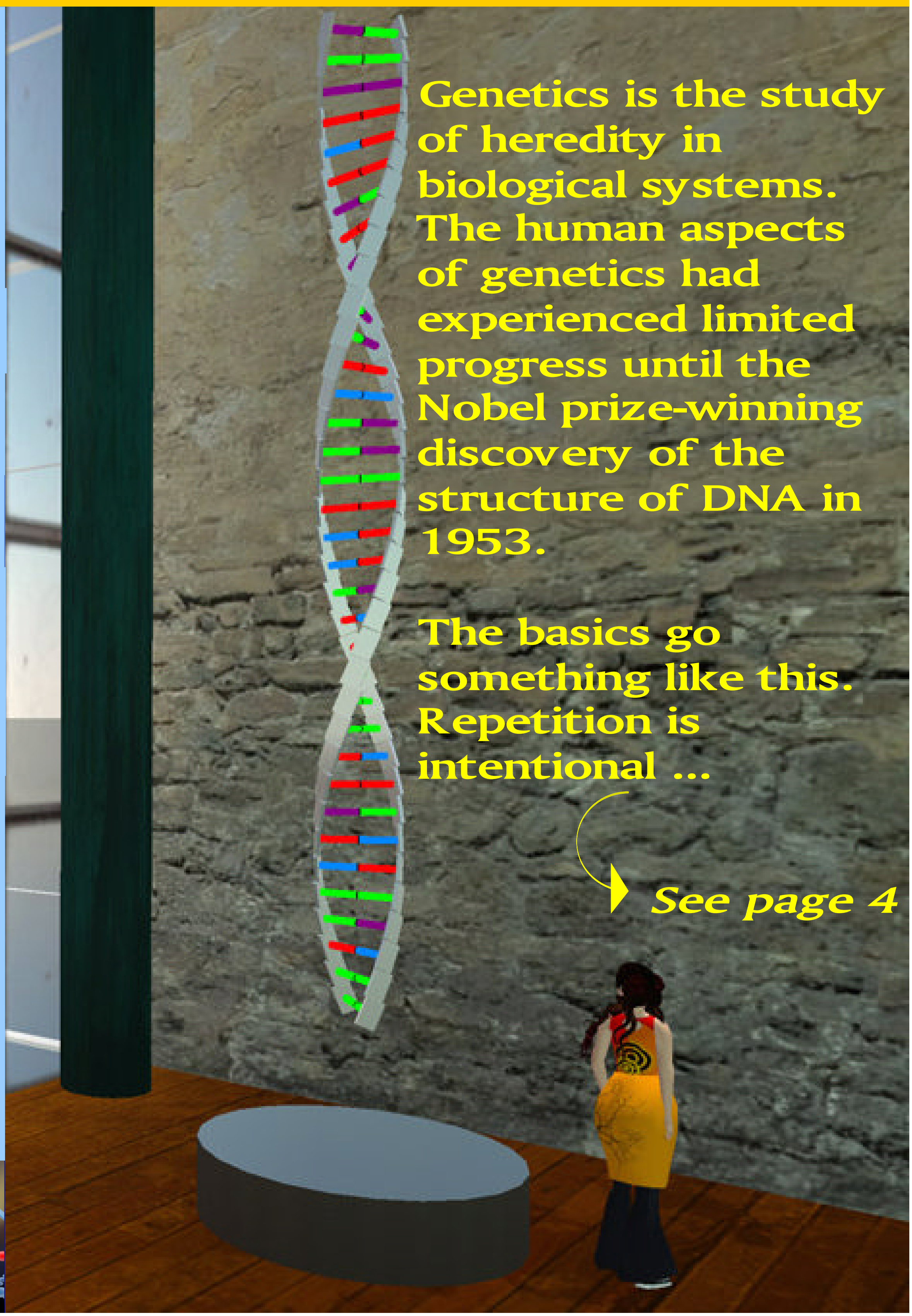
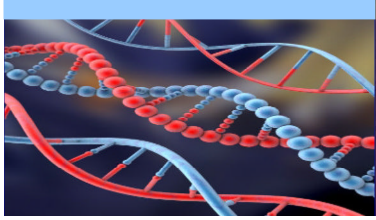
Caduceus

ata A PUBLICATION OF THE MEDICAL DIVISION OF THE AMERICAN TRANSLATORS ASSOCIATION

SPRING 2009





Genetics is the study of heredity in biological systems. The human aspects of genetics had experienced limited progress until the Nobel prize-winning discovery of the structure of DNA in 1953.

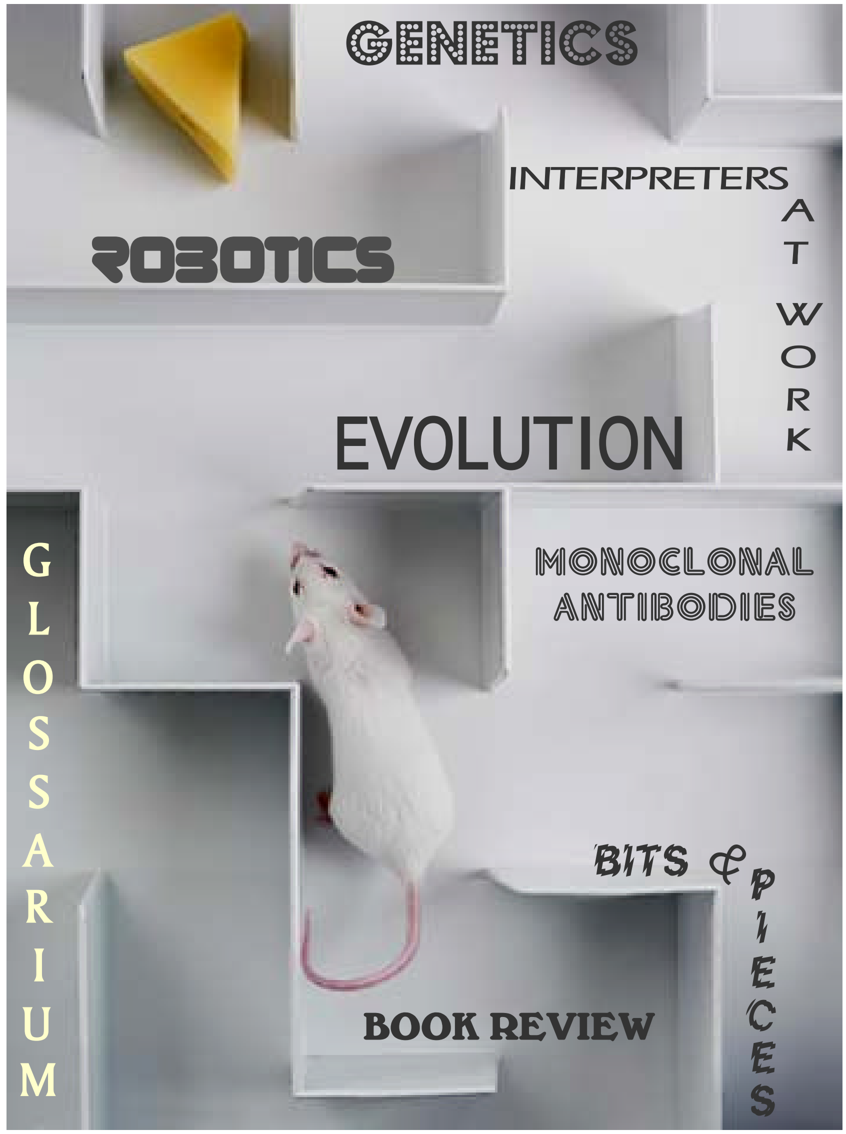
The basics go something like this. Repetition is intentional ...

See page 4

Spring 2009

Caduceus is a quarterly publication of the Medical Division of the American Translators Association, a non-profit organization dedicated to promoting the recognition of translating and interpreting as professions.

Please mail all correspondence and contributions to:
bukrak@bellsouth.net



Instructions to Authors

Submissions for publications must be sent electronically in Word format. The deadline for submissions for the Summer issue of ***Caduceus*** is 20 April, 2009.

Caduceus carefully reviews its content in order to eliminate any textual errors. Nevertheless, we apologize for any errors in grammar, punctuation, typography and the like which may inadvertently appear on our pages.

Caduceus
A PUBLICATION OF THE MEDICAL DIVISION OF ATA

Best wishes for all our readers in 2009.

We do hope you enjoy this Spring 09 issue of Caduceus. Genetics is a topic we already had on our TO DO list and heard mentioned more than once during the Orlando Conference, as a possible topic for our newsletter. Thus, it serves as the lead article in this issue. The Glossarium in this issue is also dedicated to genetic terminology. The overarching topic is really Heredity, very wide in scope. So, this issue and the next will contain material related to genetics - first, the basics and later, the hereditary diseases and more about personalized medicine.

All of our contributors have posted articles of interest in this issue: Dr. José Martí on Robotic Surgery; Dr Jim McAninch on Monoclonal Antibodies; Dr Elena Sgarbossa on News on Evolution, in this, the 150th anniversary of The Origin of the Species by Charles Darwin. Zarita Araujo-Lane tells us about Keeping Professional Boundaries in the Interpretive Setting. The regular feature Bits and Pieces rounds up our Spring session.

The Alzheimer's Association has published an excellent Brain Tour, a very well organized tutorial with elegant illustrations, which you can take at your own speed as many times as you like. See page 12 for details.

Once again we urge you to contribute to Caduceus. An article or an idea for an article or a topic for discussion, a cartoon, a puzzle, will serve our purposes.

Rafael A. Rivera, MD, FACP

A WORD ABOUT GLOSSARIES

Glossaries and word lists of all kinds are what translators and interpreters are always looking for. ***Caduceus*** publishes glossaries when they are related to a preceding article usually in two, often in three languages. The Glossarium in this issue is dedicated to additional terminology on Genetics, the subject of our lead article. ***Caduceus*** does not carry glossaries and word lists as a possible regular feature simply because our space is limited. However, in the Translation Resources of our Medical Division website we provide access to over 3000 glossaries. Should you know about a good glossary, one that impressed you, let us know so we can add it to our website's Translation Resources.

http://www.ata-divisions.org/MD/medical-translation-resources.htm

by Esther Diaz

It was good to see several Division members at the ATA Annual Conference in Orlando. The Medical Division helped to secure eleven medical presentations for the Conference, including our distinguished speaker, Matthew Cox, M.D., on Battered and Abused Children, and a pre-conference workshop on Mental Health Terminology with language-specific breakout sessions. The Medical Division Networking Breakfast and the Medical Division Meeting offered opportunities for member input.

At the meeting, we discussed the possibility of a joint mid-year conference with the Interpreters Division and participants supported this idea. We also discussed preliminary Medical Division survey results. Surprises included a finding that only 61% of survey respondents had attended an ATA Annual Conference and the majority did not know that Caduceus existed! When asked what would encourage members to read Caduceus, meeting participants clamored for a hard copy. This request was also expressed by others at the Division Administrators Meeting.

Administrators from the Interpreters and Medical Divisions are in the early planning stages for the mid-year conference. Preliminary plans include the following.

PROPOSED DATE July 2009

LENGTH 1 day

SITE Top choices — Washington DC area or Chicago (adjacent to a medical center). We will select the most cost-effective site near a medical center.

CONTENT One track for interpreting presentations; one track for translation presentations. We plan on at least one presentation by a provider from the local medical center; tour of host medical facility; terminology presentation with language-specific breakout sessions. Participants will able to attend sessions in both tracks.

Updates will be provided on the Medical Division listserv.

Please renew your membership in ATA if you have not yet done so. That way you will continue to receive uninterrupted announcements of the publication and availability of ***Caduceus*** issues.

We are conducting a survey. If you are reading this issue of ***Caduceus***, please let us know by sending an e-mail to the address below: Caduceusnewsletter@gmail.com.

The sole purpose of this survey is have an idea of the number of individuals reading our Newsletter. We will not be using your e-mal address for any response, communication, or other services.

by Rafael A. Rivera, MD, FACP

Heredity - the evolution of a concept

- **HEREDITY**- is simply the passing of traits to offspring. A cell or an organism acquires the characteristics of its parent cell or organism. Through heredity, variations exhibited by individuals can accumulate, mingle or modify and cause a species to change. These accumulated changes, over time, are what we call evolution.

- **GENETICS -** is the study of heredity within the field of biology.

- **INTERESTING EARLY EVOLUTIONARY THINKING** - Hippocrates speculated that "seeds" were produced by various body parts and transmitted to offspring. Aristotle thought that male and female semen were mixed at conception. In 458 BC, Aeschylus proposed the male as the parent and the female as a "nurse for the young life sown within her". By the 1700s microscopist van Leeuwenhoek discovered "animalcules" in the sperm of humans and other animals. Scientists of the time speculated that they saw a "little man", a homunculus, inside each sperm and from there a generation of "spermists" followed, believing, as Aeschylus previously, that the female contribution was simply the womb, a place for the homunculus to grow. On the other side of the aisle were the "ovists" who believed that the women carried boys and girls in their eggs and the sperm merely stimulated the growth of one or the other. Pangenesis was the idea that women formed "pangenes" in every organ, which subsequently moved via the blood into the genitals and then to the offspring.

  The terms **"blood relative", " full blooded" and "royal blood"** are relics of pangenesis.

- **MODERN TIMES** - In 1859 Charles Darwin published The Origin of the Species and shortly thereafter - 1866 - the Moravian monk Gregor Mendel - today considered the Father of Genetics - published his work on pea plants. Mendel's principles were independently discovered and verified by de Vries in 1900. Two years later Walter Sutton pointed out the relationship between cytology (cell function) and Mendelism - in other words, genetics at the cellular level. A step-by-step series of discoveries sharpened the focus between cell morphology and heredity. That is to say, how genetic information could be stored in molecular form (1). Sex determining chromosomes were first described in 1905.

- **It wasn't until 1944 that the transforming principle in heredity was recognized as deoxyribonucleic acid,** known in the English-speaking world as **DNA**. In 1953 James Watson and Francis Crick (2)(3) were awarded the Nobel prize for their discovery of the actual three-dimensional structure of DNA. ***"..it therefore seems likely that the precise sequence of the bases (of DNA) is the code that carries the genetic information"***, they said.

- **A CLOSER LOOK** - the basic unit of heredity is a **gene**. **A gene is a very, very small segment or strand of DNA responsible for a particular inheritable trait**, let's say color of eyes or color of hair, stature, etc. Thousands of genes are aggregated in large packages called **chromosomes** - genes and chromosomes are like files in a filing cabinet. Every human being has 23 pairs of chromosomes, one set from each parent. The 46 chromosomes are held in the nucleus (core) of most cells in the human body (see Fig A). Nearly every nucleated cell in the body contains the full DNA code for producing a human being. However, each cell obeys only some of the instructions in the DNA in order to make a specific kind of tissue: blood or muscle or bone, organs, etc. A **genome** is the complete set of genes in a particular organism. The actual number of genes in the human body is variously estimated to be around 26,000 to 40,000.

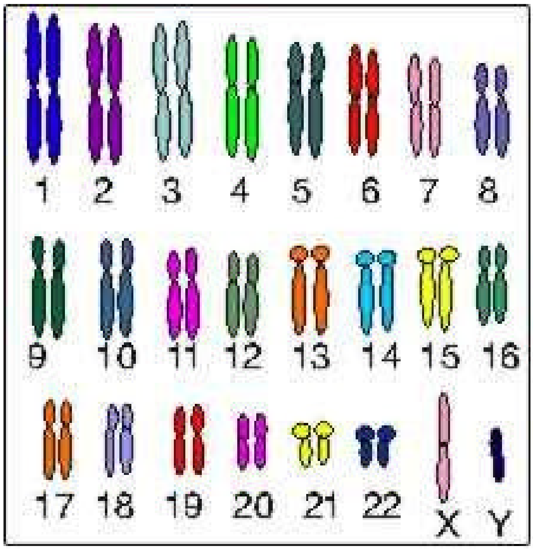


Fig A. A view of the whole group (23 pairs) of human chromosomes. Note the Y chromosome (position 23) found on males only

Male or female?

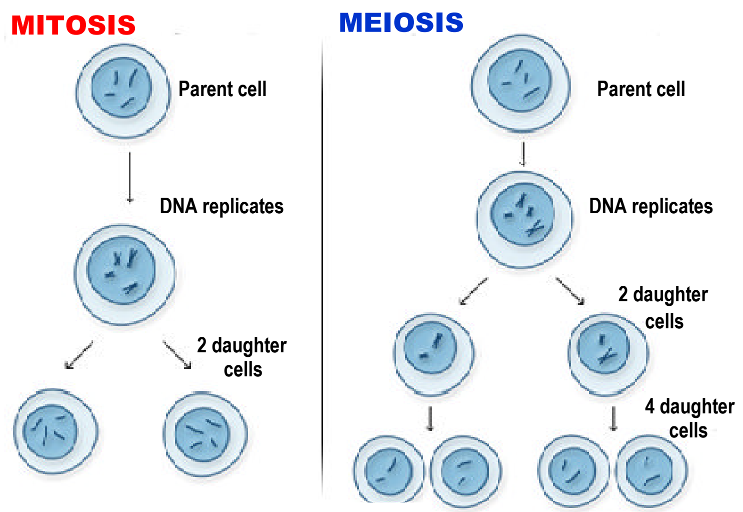
Sexual reproduction is the union of a female egg and a male sperm. The chromosomes from each partner pair up at the center (equator) of the cell and exchange genetic information. One chromosome (X) and another (Y) pair up in various ways. If the pairing up results in an XX the offspring is a female, if XY it's a male. There is no YY possibility. Females produce X chromosomes only, whereas males produce sperm with X or Y chromosome. (see Fig A.)

This process of cell division in a sex cell is called **meiosis** One chromosome from each pair is pulled away toward each pole. At the end of this reduction division, each cell receives only one homologous chromosome from each pair, ending up with one set. (Fig B). Certain genes are linked and inherited together as a unit. The process of cell division in a somatic (body) cell is called **mitosis**. Each cell divides into two daughter cells.

How is the genetic information transmitted out of the nucleus to the rest of the cell? The full complement of human DNA is shaped like a twisted ladder composed of building blocks called **nucleotides** (see Fig C). Nucleotides are segments of genes to which a sugar or 1-3 phosphate molecules have been added. Besides DNA, there is another type of nucleic acid known as RNA, more commonly found in the cytoplasm, where proteins are synthesized. In the nucleus, the DNA code directive is "transcribed", or copied, into a messenger RNA (mRNA) molecule that carries the information from the nucleus to the cytoplasm. In the cytoplasm the mRNA code is "back-translated" into its component amino acids. This proposed flow of information from the nuclear DNA to the cytoplasmic RNA, to the formation of a protein [that determines the color of hair, the color of eyes, the color of skin, the organs - heart, lung, liver, the general body build, etc.] is known in genetics as the "Central Dogma - just simply, 'the way it is' - the established way information flows within the cell from the nucleus to the cytoplasm. A mutation is like a spelling mistake in the transcription.

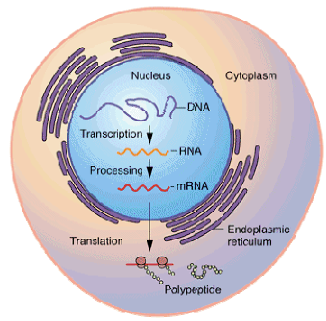
The entire genetic code is spelled out with just four chemical 'bases' represented by the letters: (A) adenine, (T) thymine, (C), cytosine and (G) and guanine. These 'bases' are the building blocks of proteins. The human genome has between 2.8 and 3.5 billion base pairs. **These base pairs form the rungs of the ladder in the DNA double helix** (see Fig C). Genes are special sequences of base pairs that provide the template for all the proteins the body needs to produce. Remember we're talking really, really small here, at electron microscopic levels.

Figure B

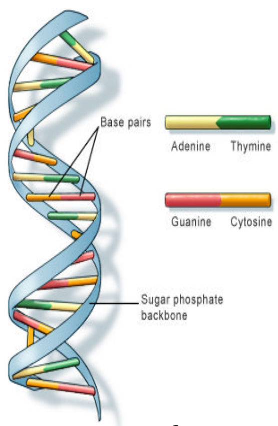


Mitosis is the process of somatic (body) cell division, cells divide into two similar daughter cells.

Meiosis is the cellular division of sex cells, each of two daughter cells further divides too form four daughter cells.



Nuclear DNA replicates itself and attaches to a messenger RNA molecule, then moves out of the nucleus into the cytoplasm where it converts back into the original nuclear piece of DNA and makes the protein ordered in the strand of nuclear DNA.

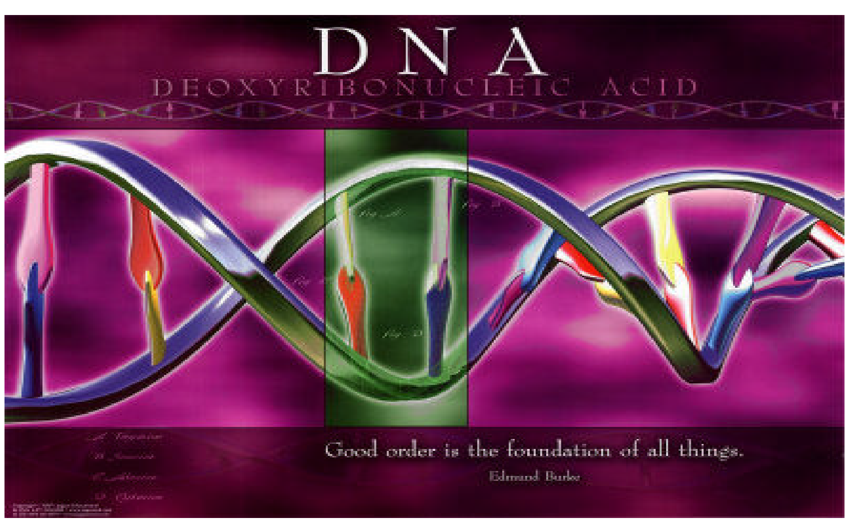


Once again…

DNA is the hereditary material in humans. It is primarily located in the nucleus of nearly every cell in a person's body. The information in human DNA is stored as a code made up of millions of combinations of four chemical bases: adenine (A), guanine (G), cytosine (C), and thymine (T). These DNA bases pair up with each other, to form units called "base pairs". Each base pair becomes a nucleotide by attaching to it a sugar molecule or a phosphate molecule. Nucleotides are arranged in two very long strands that form the spiral called a double helix (or "a twisted ladder"). DNA can replicate, *i.e*, make exact copies, of itself. Each strand of DNA in the double helix can serve as a pattern for duplicating the sequence of bases. This is critical. When cells divide each cell is an exact copy of the DNA present in the original cell. A mutation is an error in the transcription.

References

1. For a History of Genetics Timeline see http://www.accessexcellence.org
2. For Nobel prize details see:
   a) http://search.creativecommons.org/?q=Nobel+Prize++DNA++Watson+%2B+Crick& sourceid=Mozilla-search , and
   b) http://en.wikipedia.org/wiki/Francis_Crick
3. For a simple tutorial - From DNA to a Human http://news.bbc.co.uk/hi/english/static/in_depth/sci_tech/2000/human_genome/default.sm
4. For an overall reference to Genetics - http://ghr.nlm.nih.gov/



Words about words and related words

As a companion to the lead article in this issue, our Glossarium is dedicated to basic vocabulary and associated information websites.

chromosome - an aggregate of genes located in the nucleus of a cell. In humans there are 23 pairs of chromosomes that contain the entire genetic structure of the person.

cloning - reproducing without combining genetic material from the mother or the father.

differentiation - the process by which embryonic cells become adult cells.

embryo - an early stage in the post-fertilization development of an animal or plant egg.

gene - a small segment of DNA responsible for a particular phenotype / function / characteristic / trait.

> **GENOTYPE AND PHENOTYPE.**
>
> GENO type is the genetic constitution of an individual, **the entire set of instructions responsible for…. the observable physical and behavioral characteristics of an organism,** the latter known as the **PHENO type**.

genome - the complete genetic constitution of an organism.

growth factors - chemicals that, in minute amounts, cause growth of cells; used to regulate growth.

locus - the actual location of a particular gene in a particular chromosome.

meiosis - cell division of sex cells, by which each daughter cell nucleus carries half the number of chromosomes characteristic of the somatic cells of the species.

mitochondria - cell organelles that help the cell produce energy.

mitosis - somatic (body) cells divide and multiply forming two daughter cells from a single parent cell. The daughter cells are identical to the parent cell.

naming genes - The HUGO Human Gene Nomenclature Committee (HGNC) designates an official name and symbol (an abbreviation of the name) for each known human gene.

The conventional format prior to HUGO used three lower-case, italicized letters, followed by a capital italicized letter to distinguish genes with the same descriptor. Ex: ***rdeA, rdeB, and rdeC*** or ***tagA,tagB and tagC***. The 3-letter gene symbol should stand for a description of a phenotype, gene product or gene function.

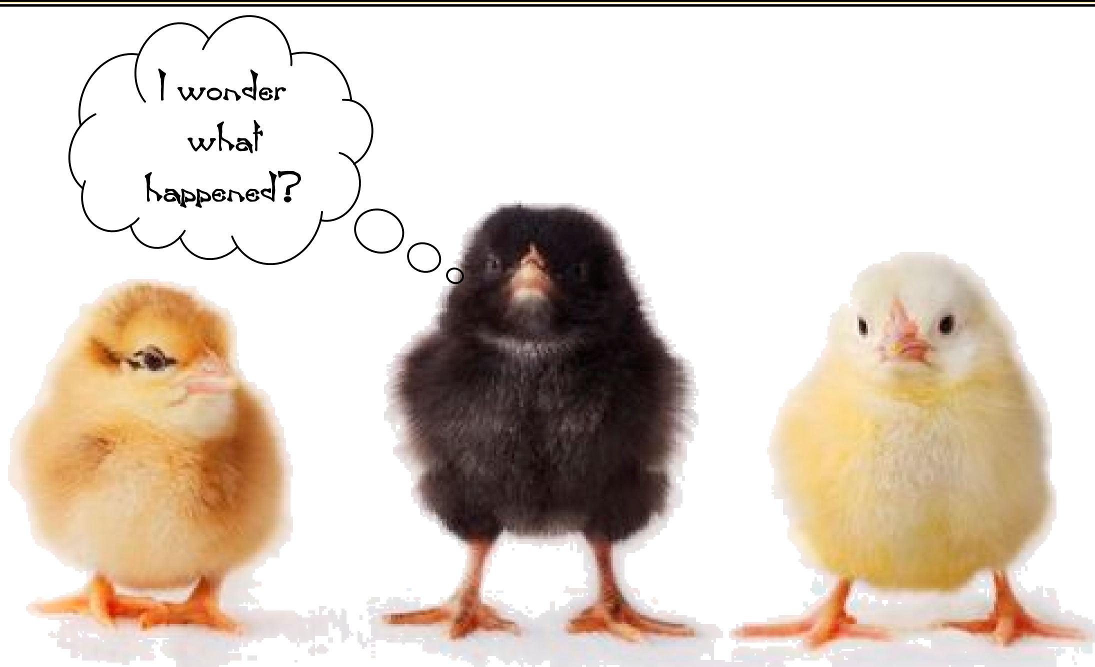
> Naming of genetic conditions is important because it allows accurate and effective communication about said conditions which will, ultimately, help researchers find new approaches to treatment. Naming can be based on:
>
> a) basic genetic or biochemical defect
> *ex. alpha-1 antitrypsin deficiency*
>
> b) major symptom or sign
> *ex. sickle cell anemia*
>
> c) the body part affected
> *ex. retinoblastoma (eye cancer)*
>
> d) a geographic area
> *ex. familial Mediterranean fever*
>
> e) the name of a physician
> *ex. Marfan's syndrome,Alzheimer's*
>
> f) the name of a patient
> *ex. Lou Gehrig's disease*

naming genetic conditions - unlike genes which are given an official name and symbol by a formal committee, genetic conditions are not named in a standard way. Doctors who treat families with a particular disorder are often the first to propose a name for the condition. Expert working groups may later revise the name to improve its usefulness.

nucleus - the compartment in a cell - one per cell, usually positioned in the center - where genetic material is stored.

SIGNIFICANT GENETIC INFORMATION WEBSITES

- **HGNC Human Genetic Nomenclature Committee** - this site spreads into multiple sites such as gene search, guidelines, gene submission and others.
  http://www.genenames.org/index.html
- **National Human Genome Research Institute** - This is all about the Human Genome Project with connection to Spanish language sites and a Talking Glossary of Genetic Terms.
- **Human Genome Project** - An organized international scientific project to determine the complete structure of the human genetic material DNA
  http://www.genome.gov/10000002
  http://www.answers.com/topic/human-genome-project
- **Genetics Home Reference** - general genetic information
  http://ghr.nlm.nih.gov/handbook/mutationsanddisorders/naming
- **Guidelines for Human Gene Nomenclature** -
  http://www.genenames.org/guidelines.html



by José R. Martí, MD

ROBOTIC SURGERY

Every day we hear more and more about surgery being carried out by machines instead of humans. Is this a theme for a science fiction movie? *Frankenstein 2009*? How much of this is true; how did it all begin and how far will it reach?

Let me begin by remembering a few historical events. The original surgeons during the middle ages were the local barbers who performed incision and drainage of abscesses (today we call it an I & D), or even set fractured bones in their local barber shops. Surgery did evolve through the ages and it has become a highly specialized field. Global hostilities, such as the Korean and the Vietnam wars taught us new lessons; we learned from MASH the significance of rapid mobilization. Eventually, this was applied to highway accidents and inner city ambulance response times. The awareness of aggressive fluid resuscitation became essential for treating patients in shock; this opened the field of Emergency Room Care and Critical Care Units around the nation. Organ Transplantation emerged in the early sixties and surgical oncology opened new frontiers too. Mutilating radical procedures yielded to organ preserving surgery, without compromising survival rates for patients with cancer during the late nineties (see Fall-Winter Caduceus for the evolution of breast cancer surgery). By the end of the century, laparoscopic surgery arrived rather suddenly, introducing the concept of *minimally invasive surgery.* Gradually, we started to hear increasingly more often about these procedures; first with gallbladder surgery, and then for other type of interventions. This opened the door for the evolution of an even more sophisticated field, now known as Robotic Surgery.

The use of robotics is no longer the stuff of dreams or science fiction, it is here to stay. In fact, it was only recently that the national news reported an article regarding a minute robot used in automotive technology that has been modified and is being used today in robotic surgery for coronary artery repairs. This process has an interesting history full of excitement, which also carries something important for translators and interpreters to learn; with an ever growing glossary of new terms for language professionals.

The word "***robots***" first appeared in 1921. It was coined by the Czech playwright Karel Capek in his work "***ROSOM'S UNIVERSAL ROBOTS***"; Robot in Czech means forced labor. Thus robotic surgery evolved from primitive machines performing menial tasks to very complex machines now used mostly in computing, research and manufacturing (often interacting jointly) executing highly complex tasks. It has been only recently that a variety of robotic surgical techniques started to appeared in the market place of medicine; several of them have already been approved by the FDA too.

All this began in 1985 with the first **NON-**Laparoscopic Robot named PUMA 560, which was only used for neurosurgical biopsies. The same machine was modified and utilized later in 1989 for Trans-Urethral Prostate Resection (TURP). This generated a whole new production of TURP machines leading to a new cohort of robots designed to be used during hip replacement surgeries to move the femur. This became the first Robot approved for surgery by the FDA. Researchers at NASA and at the Ames Research Center took this concept to a higher level developing the concept of Telesurgery for Hand Surgery; after that, it expanded into many other applications.

Meanwhile, robotic surgery also made an appearance in 1987 with the first laparoscopic cholecystectomy; since then, it has rapidly expanded into many other specialties under the concept of *minimally invasive surgery.*

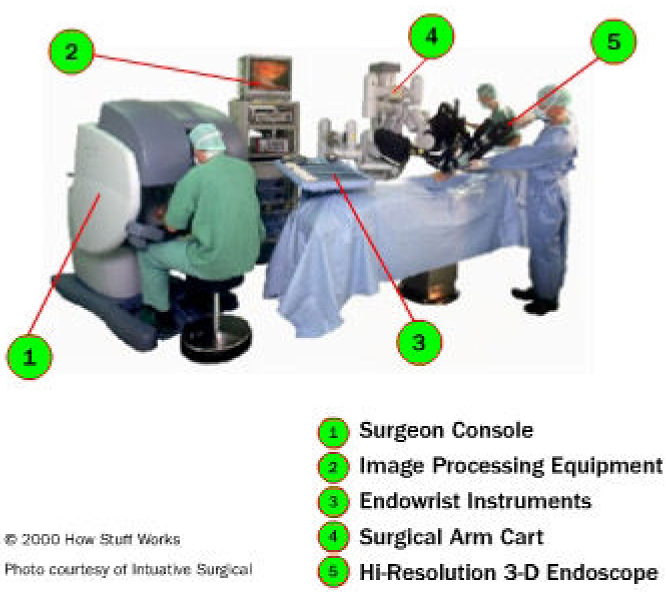
This specialty has several benefits: It carries a much shorter length as inpatient hospitalization days and a reduction in wound infection rates as well; the size of the surgical incision is also smaller. However, it also has some drawbacks: the surgeon introduces the tools while watching a TV screen, and has to move in an **opposite direction** of the target. It has restricted degrees of motion and a diminished sense of touch. In contrast, it produces an increased sensitivity to hand motion; even the slightest move appears magnified on the screen. It requires additional training for the surgical crew; it is expensive and not readily available everywhere.

Several companies have taken the lead in this field besides NASA, the Ames Research Center and PUMA. Computer Motion Inc. developed the AESOP Endoscope Positioner. This is a voice-activated mechanism used in endoscopic procedures and it was approved by the FDA in 1993 for Robotic Surgery. HERMES is also a system designed by Computer Motion Inc. used in Robotic Surgery increasingly more often. The Da Vinci Surgical System is a three-dimensional design used in laparoscopic surgery, also approved by the FDA in the year 2000. It has also been modified for use in cardiac surgery and used in more than 210 centers across the USA, Europe and in Japan. The SOCRATES Robotic Telecolaboration System was also created by Computer Motion Inc. and it produced the first ever transatlantic surgery, which was performed in 2002.

The first fully endoscopic robotic surgical system used for a totally endoscopic *beating- heart* endoscopic coronary by-pass operation was developed in 1998 - the Zues endoscopic system.

In general, Robotic Surgery (or better yet, since we are linguists after all: Robotic ***Assisted*** Surgery) is considered a new technique that has been warmly received since its very beginning. It carries two very important concepts if it is going to continue to grow: enhancement of the systems to make them more readily available and continued refinement of the instruments required for these procedures. It is also important to keep in mind that the skills of the surgeon have to be integrated along with these technological advances. Special training is required and not everyone is fit for this. The previous experience of the surgeon in traditional procedures is essential. This is a real-time three-dimensional image that requires a certain adaptation process for the operator!

Robotic Surgery has definite advantages, but it also has realistic hurdles. The cost of this technology is probably the main one, but the human scales of less pain, a shorter hospital stay and a much lesser physical deformity will compensate for that as this technology advances.



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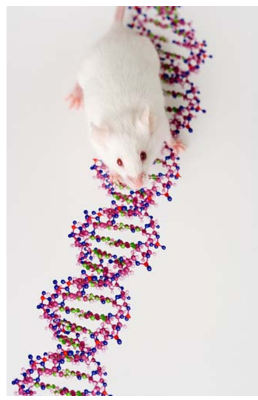
by Jim McAninch, MD

Monoclonal Antibodies -- the Basics

Cloning as described in the popular press may bring our attention to an old movie, "The Boys from Brazil" (fiction) or to "Dolly" the cloned sheep (fact). The idea that an antibody molecule could be monoclonal goes back to the early 1970's when serum samples from patients with multiple myeloma, a malignant disorder of the antibody-producing plasma cells, were noted to have specific antibody activity. These antibodies were produced by a single, malignant cell line, thus the term "monoclonal antibodies."



During the years following the first attempts to produce monoclonal antibodies that might be useful in the treatment of human disease, especially cancer, many obstacles had to be surmounted. The idea evolved that some types of cancer cells have very specific "epitopes", or antigenic entities and that those markers could allow a "magic bullet" approach to treatment with a highly specific antibody directed at that epitope. Fusion of malignant myeloma cells with mouse spleen cells (from mice previously immunized with the antigen) allowed an "immortal" cell line to be cultured, capable of producing antibody that, unlike the normal state in which antibodies are "polyclonal," (from many cell lines) was instead "monoclonal" (one cell line). Things did not go very well in the early days; human patients developed their own antibodies, called "HAMA" (human anti-mouse antibodies) to the mouse part of the monoclonal antibody. Later technology used "humanized" variants by incorporating recombinant DNA and other technologies into the process. Many other practical problems had to be addressed.

The poster child for successful clinical use of monoclonal antibodies is the commonest form of non-Hodgkin lymphoma, so-called B-cell lymphoma. It turns out that most of these lymphatic tumors produce a marker (an epitope) called CD-20. A monoclonal antibody directed against CD-20, called rituximab, trade name Rituxan®, was released for clinical use in treating lymphoma about 10 years ago. Its efficacy and low toxicity have been well documented, either when used alone or in combination with chemotherapy. It also has been combined with a radioisotope. (Bexxar®), Zevalin®.

In recent years, the use of monoclonal antibodies has expanded into diagnostic testing as well as treatment of a number of malignant and non-malignant disorders. Drugs that are actually monoclonal antibodies have generic names ending in "mab."

A brief glossary Eng > German is provided below which contains some of the commonly used terms that translators are likely to encounter in translating pharmaceutical and medical texts involving monoclonal antibodies.

Term	Definition	German
monoclonal antibody	An antibody derived from a single clone, or cell line	monoklonaler Antikörper
cell line	The cell-descendants coming from a single cell	Zelllinie/Zellklon
hybridoma cell line	The cell-descendants of fused cells (human myeloma/mouse spleen	Hybridomzellinie
epitope	The specific site on an antigen that elicits an antibody response	Epitop
plasmacytoma	The actual malignant tumor-type seen in multiple myeloma	Plasmozytom
chimeric monoclonal antibody	The antibody contains part human and part mouse antibody	chimärer Antikörper
humanized monoclonal antibody	The antibody contains mostly human and less mouse antibody	humanisierter Antikörper
human monoclonal antibody	The antibody contains only human antibody	humaner Antikörper
polyclonal antibody	The usual antibody, from multiple cell lines, in a normal immune response	polyklonaler Antikörper
immune response	The physiologic response to an antigenic stimulus (produce polyclonal antibody)	Immunantwort

C	C	U	P	R	P	A	T	E	L	L	A	F	S	B	I	R	W	A	F	T	I	R
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CLAVICLE

CRANIUM

COCCYX

FEMUR

FRONTAL BONE

HUMERUS

ILIUM

MANDIBLE

PATELLA

PUBIS

RIBS

ROTULA

STERNUM

VERTEBRAE

Answers on page 24

A little bit of everything ...

The Alzheimer's Association has developed a simple tutorial about the human brain and Alzheimer's disease that includes excellent anatomic and histologic illustrations. http://www.alz.org/brain/01.asp

BRAIN TUTORIAL

PULSES - HOW MANY ARE THERE? - the word 'pulse' immediately brings to mind **a)** the typical pulsation of an artery that can be felt through the skin, typically the radial artery pulse at the wrist or the carotid artery pulse at either side of the neck. In any location it represents the peripheral manifestation of a heartbeat. However there are other meanings, such as **b)** ***pulse therapy*** - the slow, direct, intravenous administration of a dose of medication, usually a high dose, and usually repeated at prolonged intervals, a week or a month as it is with chemotherapy. Each direct IV injection is called **c)** ***a pulse***. A single direct IV injection of a medication in other circumstances is called a bolus **d)** ***pulse pressure*** - refers to the difference between the systolic (the higher reading) and diastolic (lower reading) of the blood pressure. A wide pulse pressure is often associated with hyperthyroidism, pregnancy, old age (rigid arteries) and use of vasodilating drugs among others.

HEADACHES - How many are there? The first US classification of headaches (HA) was established in 1988. At the time HA was considered more of a psychosocial problem, not an established neurobiological problem - 'the unwanted stepchild of neurology', said somebody. This notion did not change much with the advent of the first International Classification of Headaches: ICHD-1. A headache was just a headache, there was no 'gold standard' definition (see Caduceus Fall-Winter 2008). From those humble beginnings we have progressed through ICHD-2, 3, 4 up to the current ICDH 10, which has not yet been adopted in the US. A simple view of the headache (HA) panorama includes the following kinds of headaches:

1. **Tension HA** - the most common, caused by tight, contracted muscles in the shoulders, neck, scalp and jaw, caused by emotional and /or physical tension, use of alcohol or street drugs, chocolate, cheese, MSG.
2. **Migraine HA** - severe HA usually accompanied or preceded by visual disturbances or nausea. It tends to begin on one side and spread to the other
3. **Cluster HA** - sharp, extremely painful HA that can occur several times a day for extended periods of time, then goes away for equally extensive periods.
4. **Sinus HA** - pain in the front of the head and face, between the eyes, nose and cheeks due to allergy or inflammation of the sinus cavities. A postnasal drip or discharge is common to this variety of HA.
5. **HA due to multiple causes** - during menstruation or a premenstrual syndrome, postnasal

drip, the flu, fever. Also close work in front of a microscope, computer. A space-occupying lesion in the brain (tumor, aneurysm), a stroke or transient ischemia or brain infections (meningitis, encephalitis). Posttraumatic HA and headaches due to an organic disease somewhere in the body.

Reference:

Headache Classification Committee. Classification and diagnostic criteria for headache disorders, cranial neuralgias and facial pain. Cephalalgia 1988:8:1-96

Committee on Classification of Headache. Classification of headache. JAMA. 1962;179:717-718.

ACUTE - How many meanings are there? - This topic came up for discussion recently on our listserv. A brief summary goes like this: **acute** is primarily used in medicine to denote the recent onset of illness or symptoms. It is commonly used colloquially as a synonym of severe, strongly felt symptom. Then there is the word **peri-acute** which refers to events or treatment strategies occurring during the acute period. For example, the immediate coronary catheterization and placement of a stent during the acute phase of a myocardial infarction (initial 4-6 hrs) is a peri-acute intervention. Lastly, **peracute** in which the use of **per** raises the severity of magnitude symptoms to a fulminant, intense, life-threatening level.

LOOK-ALIKE WORDS

Typhus and **Typhoid** - **typhus** refers to a group of infectious diseases caused by a variety of rickettsial organisms that are closely related clinically and pathologically. The better known is epidemic typhus caused by *Rickettsiae prowasekii* transmitted by the body louse, characterized by chills, fever, stupor, muscle aches and a body rash. **Typhoid** is another infectious disease caused by a *Salmonella* variety of organisms characterized by fever, diarrhea, drowsiness, weakness ending in death if untreated.

lime and **Lyme** - lime is the well-known tropical fruit and Lyme is a town in Connecticut, USA, where the disease we know today as Lyme disease was first identified as being transmitted by the bite of a tick. The blacklegged tick that carries the bacteria Borrelia burgdorferi is prevalent in North-eastern and mid Atlantic states. The disease is characterized by fever, skin rash and fatigue. If left untreated it can affect the heart, the nervous system and cause Lyme arthritis.

parental and **parenteral** - parental refers to parents, whereas parenteral means < other than enteral >. Enteral referring to the gastrointestinal tract. The administration of medications is most often a) by mouth to be absorbed from the GI tract, or b) parenteral, meaning other than the GI tract, usually by intramuscular injection, or intravenous delivery. Other means of delivery are: intraarticular - directly into a joint, intrathecal - directly into the spinal canal and intraorbital - directly into the eye.

Fat is fat anywhere in the body, right? - not quite. Abdominal fat, the one most often in question these days, includes two different kinds: a)subcutaneous, the more obvious one, just below the skin and b) visceral fat, fat inside the abdomen. Visceral fat is really the one connected more and more to various medical problems. Visceral fat releases metabolic products directly into the circulation, so free fatty acids accumulate in the liver and other organs - all of which impairs the body's regulation of insulin, blood sugar, cholesterol, etc. Also, these fat cells seem to produce a large number of proteins that lead to metabolic abnormalities, inflammation and heart disease. As far as we are concerned the way to eliminate either is through diet and exercise.

by Elena Sgarbossa, M.D.

Aged Digits in the Digital Age: News in Evolution

The year 2009 marks the 200th anniversary of Charles Darwin's birth and the 150th anniversary of his book *On the Origin of Species by Means of Natural Selection.* Darwin will be commemorated throughout the world with numerous events. His Theory of Evolution changed our understanding of life on Earth; it was as fundamental to Science as was Copernicus' realization that Earth is not at the center of the Universe. Darwin (and, independently, naturalist Alfred Wallace) arrived at the groundbreaking conclusion that geologically older species of life gave rise to geologically younger and different species through the process of natural selection. Since then, Evolution and evolutionary biologists study the descent of species from a common ancestor over many generations and the variation developed in new lineages.

The vast majority of species that have ever lived subsequently became extinct. This was one reason why, when *On the Origin of Species* was published, myriad knowledge gaps existed regarding the Tree of Life. Gradually, however, cumulative geological, paleontological and genetic evidence on both modern and extinct species begun to emerge. Recent discoveries on "missing links" (more accurately called "transitional forms") have been particularly important. They have shed light on the macro-evolutionary transition between fishes and land vertebrates. Fishes are indeed the forerunners of the entire *clade* that comprises amphibians, dinosaurs, birds, and mammals—including apes and humans.

Macroevolution: the precursors of human fingers and toes

Medical and scientific translators are now likely to encounter in their source documents the words "fins" and "fingers" (or "toes") in the same sentence. This is because yet another piece was recently added to the extraordinary puzzle of Evolution. Fishes currently comprise over 50% of all known chordates or vertebrates. Eons ago, however, fishes dominated the planet, which was mostly water. Certain fishes that first appear in the fossil record in the Silurian time of the Paleozoic era over 400 million years ago are called "lobe-finned" or "Sarcopterygian" because of the stout, bony supports in their appendages.

Some Sarcopterygian fishes appeared first in Devonian time, about 380 million years ago. Their skeleton changed over countless generations from cartilage into bone. They adapted to breathe air, and slowly moved out of the water. This required a number of morphological and physiological transformations. Life in the water is radically different than life on land.

It is likely that the respiratory shift from gills to lungs triggered the gradual morphing of the shoulder girdle and pectoral fins. Indeed at some point, the fishes' appendages evolved from fins to limbs and thus gave origin to primitive limbed animals, called tetrapods. The fish-to-four-legs transition took place about 370 million years ago.

But how did fins evolve into arms, legs, hands and feet?

This question persisted until recent years, because the fossil record was sparse. Paleontologists of the early twentieth century thought that the transformations were driven by the transition from aquatic to terrestrial life. One hypothesis was that fish were forced out of water because Earth's climate became drier some 370 million years ago. As the ponds dried, the fish adapted to survive on land and so developed the pertinent features. Paleontology textbooks taught that the acquisition of limbs was an evolutionary novelty in tetrapods, i.e., a change that arose after the tetrapods' ancestors came ashore.

The proximal elements of the fin and the tetrapod limb show considerable homology. The pectoral and pelvic fins are homologous to the tetrapod forelimb and hindlimb, respectively. Comparisons of the distal parts of the limb, i.e. the hand or foot, to the rays of the fins, however, had scientists stumped. The assumption that terrestrial life and natural selection would favor the development of rudimentary five-digit hands and feet over fins had a theoretical problem. It would require the descendents of lobe-finned fish to dramatically alter their genes. Indeed since the work of E.B. Lewis in the twentieth century it is known that the same eight master genes—called “Hox” genes—are present (with only minor variations in the genetic code) in all animals. We all share the same control genes that sculpt the basic body plan.

Unlikely as a drastic transformation from fins to hands and feet seemed, no counter evidence was available.

Then, the reverse hypothesis was advanced. Limbs *could* have appeared before tetrapods left the water. The idea found no confirmation, however, in a twentieth-century paleontological discovery made in Latvia. There, animal fossils surfaced of an animal that lived 380 million years ago in shallow, muddy waters. Named Panderichthys **(see Figure 1,** p. 19**)**, this freshwater specimen was a very early transitional form between lobe-finned fishes and the first tetrapods. It had no dorsal or caudal fins and was shaped roughly like a crocodile. Panderichthys’ eyes were atop its skull. This was convenient for looking for food above the mud. Its broad fins probably provided support for the fish to lean on; he was able to hop out of the water if necessary. Examinations of its fins, however, showed plate-like appendages but failed to identify distal fin radials. Thus the conventional assumption that digits developed later—in the evolutionarily more recent tetrapods—prevailed.

Fishes with fingers?

Then, a scientific breakthrough occurred. An expedition led by paleontologist Jenny Clack to Greenland in 1987 in search of tetrapods and limb precursors yielded fossils of a creature that lived about 360 million years ago (i.e., also in the Devonian period), when the current Greenland was a much warmer area. The animal was Acanthostega **(see Figure 1,** p. 19**)** , of which only skulls had been ever been collected (in 1952). A painstaking release of its fossils from their rocky sarcophage (which took years) revealed that, concordantly with the results of carbon dating, Acanthostega had features that placed it later than Panderichthys in the fossil record. Acanthostega had a fishlike tail and gills, but also lungs to breathe air. Yet its ribs were too short to provide a scaffold for the lungs and prevent their collapse once out of water.

Acanthostega was a primitive tetrapod. It did have rudimentary legs and feet. Its wrists and ankles would not flex, however. The ankles could not support the animal's weight on land. The limbs were proto-limbs adapted for use in water—like paddles for swimming. Acanthostega’s most striking feature was at once expected and unexpected: as predicted, the animal’s limbs did end in digits; not *five*, however, but eight in the front legs and seven in the back legs **(see Figure 2,** p. 19**).**

Evidence on the evolutionary origin of limbs continued to mount. In 2004, paleontologist Neil Shubin and doctoral student Ted Daeschler reported a fossil find they had made a decade earlier in Northern Pennsylvania—an area that 370 million years ago was warm and covered by water. After they released the fossil pieces from their rocky encasing (which was in turn surrounded by fish scales), the fin bones of a lobe-finned fish materialized. The Devonian fin contained a fanshaped array of unjointed bones in the positions where fingers would be **(see Figure 3,** p. 19**)**. "The structure of the fin is so limb-like that we're tempted to call it a fish with fingers," Daeschler and Shubin's report read. The bone for the upper arm, or humerus, was apparently attached to the rest of the body with a hingelike joint. This was inadequate for a walking gait, but it would have enabled the acquatic animal to prop its body and breathe air. The animal probably also used its limbs to advance along the water. This fossil finding provided further support to the hypothesis that the role of the limb in propping the body arose not in tetrapod limbs but in fish fins.

Enter a long-awaited transitional animal: Tiktaalik

The same team of paleontologists soon provided an even more pivotal piece of the fins-to-limbs puzzle. Shubin and colleagues set out to find fossils of a specimen they predicted in the evolutionary record. It would be a transitional animal between fishes and tetrapods. They explored an area in the Canadian Arctic rich in Devonian rocks. After a long and frustrating search in freezing weather, in 2004 they succeeded and found the fossil bones of three individuals of a species they named Tiktaalik roseae **(see Figure 1,** p. 19**)**. Tiktaalik was among the first creatures that crawled out of water onto land. It was far more fish-like than Acanthostega. While lobe-finned fishes had shoulder bones that only allowed them to paddle back and forth in the water, Tiktaalik had a shoulder and elbow that could be flexed with the distal skeleton extended to support its body on the water bottom. It also had wrists and jointed digits capable of extension and flexion; they could be splayed out against the ground. Its ribs and spine gave Tiktaalik adequate support. In addition, its eyes on top of its head allowed it to see prey (and predators) swimming overhead.

Tetrapods also lack a bony gill cover, which allows for a moveable neck. Unlike all previously known species, Tiktaalik has a neck and no bony gill cover.

Tiktaalik's bones share a clear common ancestry with our own arms and legs. Shubin poses that Tiktaalik and its descendants acquired limbs with fingers to adapt to their new ecosystem of streams and swamps.

Tiktaalik confirmed the theoretical predictions made by scientists. It fills the gap between Panderichthys (i.e. fish) and other tetrapods. It may become a "missing link" type of evolutionary icon, as did the proto-bird Archaeopteryx which bridged the gap between reptiles (probably dinosaurs) and today's birds.

It's all in the genes

The story of fish with fingers continued to unfold. The closest living relatives to tetrapods are lobe-finned fish, including paddlefish. Paddlefish first appeared 300 to 400 million years ago, and currently it is farm raised. Its fins have an elaborate skeletal pattern and resemble those of the more studied (but only distantly related) zebrafish.

Shubin and his team studied a paddlefish as a proxy for a primitive fish ancestor. What would the gene coding for the paddlefish fin reveal? Would those genes that are activated to create fish fins differ from those that are activated to create hands and feet in tetrapods? The scientists looked at Hox genes—which control limb development—in the pectoral fins of paddlefish, where molecular markers were inserted. They found that the activity pattern of the Hox genes was indeed similar to patterns produced by the Hox genes in tetrapod limbs.

In tetrapods, Hox genes have a second phase of expression that happens at a later time. It is during this second phase that hands and feet develop **(see Figure 4,** p. 19). This phase is not known in zebrafish—yet it was demonstrated in paddlefish, who used it to help pattern out a fin. This reveals that the pattern of gene activity once attributed exclusively to vertebrates with hands and feet is much more primitive. It appeared well before the 375-million-year-old Tiktaalik.

This finding is supported by new data about the evolution of fins in sharks and the Australian lungfish.

A loose end is tied

In 2008, biotechnologists at Uppsala University in Sweden examined the pectoral fin fossils of Panderichthys with computerized tomography for the first time. The scan did reveal distal digit-like radials **(see Figure 5,** p. 19**)**. Investigator C. Boisvert said “[Panderichthys] is doing push-ups on land with its big fins and then its pelvic fins (hind fins) are used for an anchor in the mud."

So why had these digit precursors been overlooked initially? Probably because they are small and were hidden beneath the fin's skin and bony scales and rays.

Aged digits, digital age

In summary, paleontological and genetic studies over the past decade or so have shown that many of the critical innovations in those fish that would evolve to tetrapods arose while the fish were still largely aquatic. The very first changes may have been related not to locomotion, but to an increasing ability to breathe air. The four limbs common to today’s land animals (including humans) evolved not as a means for moving ashore, but rather as a means for navigating swampy wetlands. Once on land, many millions of years later, the animals found their limbs a survival advantage. Evolution frequently produces adaptations that later become useful for a novel purpose.

As Shubin has written, “The ancient world was transformed by ordinary mechanisms of evolution, with genes and biological processes that are still at work, both around us and inside our bodies.”

And it is only in this digital age that we have come to fully grasp these concepts. We could not have lived in more exciting times for Science.

SOURCES:

Nature: www.nature.com/nature/journal/v456/n7222/abs/nature07339.html

http://www.nature.com/nature/journal/v440/n7085/full/440747a.html

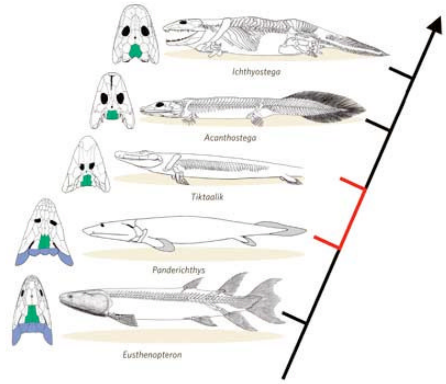
PBS: http://www.pbs.org/wgbh/nova/link/clack.html

National Geographic: http://news.nationalgeographic.com/news/bigphotos/images/080924-fish-fingers_big.jpg

Scientific American: http://www.sciam.com/article.cfm?id=getting-a-leg-up-on-land

University of California Museum of Paleontology and National Center for Science Education, via Understanding Evolution: http://evolution.berkeley.edu/evolibrary/search/topicbrowse2.php?topic_id=46

Figure 1.

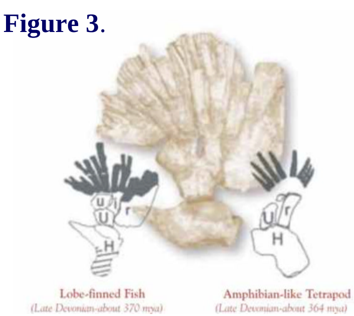


Five of the most completely known fossil animals of the lineage that bridge fishes with tetrapods are shown. The oldest, at the bottom, is the fish Eusthenopteron (380 to 375 million years ago); above it are the transitional forms Panderichthys and Tiktaalik; and above them the primitive tetrapods Acanthostega and Ichthyostega (365 million years ago). (Panderichthys' spine is poorly known and not shown). The skull roofs (left) show the loss of the gill cover (blue), reduction in size of the postparietal bones (green) and gradual reshaping of the skull. The transitional zone (red) bounded by Panderichthys and Tiktaalik has now been characterized in detail. These animals are between 75 cm and 1.5 m in length.
From: A firm step from water to land, by Ahlberg PE, Clack JA. Nature 2006;440:747-749: http://www.nature.com/nature/journal/v440/n7085/images/440747a-f1.0.jpg

Figure 2.

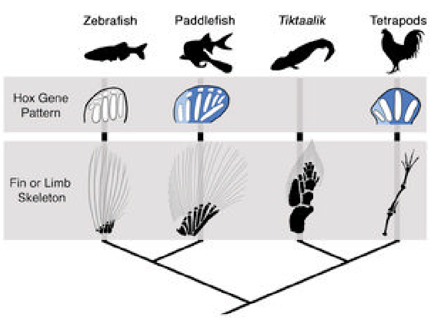
Acanthostega, one of the earliest known tetrapods, was adapted to an aquatic environment but its paddle-shaped fins ended in tiny fingers.
From PBS: http://www.pbs.org/wgbh/evolution/library/03/4/l_034_03.html

Figure 3.



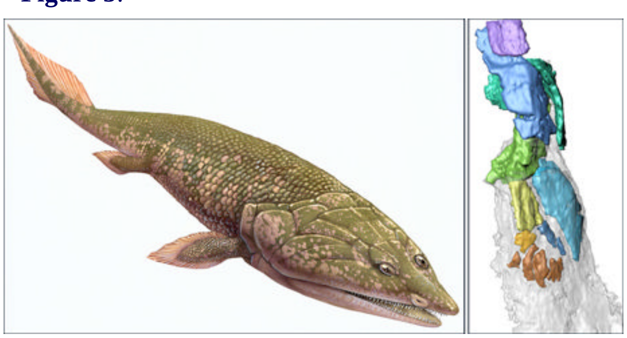
Comparison of homologous bones of the forelimbs (pectoral appendages or arms) of a lobe-finned fish from central Pennsylvania (left) with an amphibian like tetrapod from Greenland (right). Both are right limbs seen from the underside. H=upper arm bone or humerus; U and r=forearm bones or ulna and radius; u and i=wrist bones or ulnare and inter- medium. The hand and finger bones are dark. (Modified from Daeschler and Shubin, 1998). From the American Geological Institute and The Paleontological Society: Evolution of Vertebrate Legs, by John Pojeta, Jr. and Dale A. Springer: http://www.agiweb.org/news/evolution/examplesofevolution.html#legs

Figure 4.



Paddlefish fins revealed a pattern of Hox gene expression previously thought unique to the developing hands and feet of land vertebrates. From Newswise: http://www.newswise.com/images/uploads/2007/05/21/fullsize/Davis-Media01.jpg. Credit: University of Chicago Medical Center.

Figure 5.



Panderichthys. This 3D reconstruction of the fossil fin skeleton shows the four finger precursors at the fin tip. Credit: C. Boisvert and P. Ahlberg. From National Geographic.com: http://news.nationalgeographic.com/news/bigphotos/images/080924-fish-fingers_big.jpg

by Zarita Araujo-Lane, LICSW
Edited by Aida Cases

Keeping professional boundaries in a very challenging situation

When faced with giving bad news at times interpreters struggle with their different roles as conduits, culture brokers and in this case as patient advocates. Often interpreters try to overcompensate for a perceived emotional or cultural void between the patient and provider relationship. The following vignette although based on a real situation was reformulated as a result of many other situations so that the identity of all the triadic members was kept confidential.

A Portuguese speaking interpreter is asked to cover 12 OB/GYN outpatient appointments for the same patient. On the fourth visit, the provider asked the pregnant patient a few questions and the answers were all positive but the patient was a bit concerned that the baby seemed to be less active in the past few days. At first, the tone of the session was chatty and upbeat, but soon it became silent and sterile as the provider could not get the baby's heart beat. No words were spoken but so many words were felt! Finally the silence was broken; the provider assertively requested that a staff member get him a monitor.

The room was filled with tense moments translated by the provider's worried face, but still no further words were exchanged. The silence only grew. The interpreter felt angry at the provider for not informing the patient of what was going on. The interpreter was worried for the patient; the interpreter was confused regarding the appropriateness of whether she should ask for a status on the situation or if she should wait for the patient to request it? The interpreter was feeling great empathy for the patient. Could the patient take the liberty of asking a question, was her cultural framework preventing her from being more assertive and was the provider's framework of valuing her linear thinking blinding him from patient-doctor bedside manner? Only a few minutes passed but they felt like years. Should she do something about the emotional pain the patient may be experiencing?

She entertained the idea of asking the patient if she had any questions, but was this ok? The interpreter's thinking and feelings seemed to overwhelm her more and more. What an emotional storm she was experiencing! Should she comfort the patient? Why isn't the provider talking to the patient?

The interpreter soon began to feel sad and she calmed herself by considering the possibility that perhaps the provider needed new equipment. This was all about a malfunctioning issue, but still no words were expressed amongst all in the triadic encounter! She again calmed herself down by thinking that during hard times one can not lose hope and began to think about the need for feeling hopeful; the other session had gone well and perhaps the provider should just give the patient a sip of orange juice. It worked with her for each of her pregnancies!

The monitor had not arrived yet. The provider left the room for a second and kindly told the patient that he needed to try and listen to the heart beat with the monitor. It was not going to hurt and it would take a few seconds. The patient with tears in her eyes began to tell the interpreter that she "got a scare" and that she may have "damaged" the pregnancy!

The provider walked out without acknowledging the patient's statement. The interpreter smiled as if comforting the patient with her eyes and she stayed with the patient. She knew the rules of leaving the room with the provider, but how could she now leave this patient all alone? It all went too fast and still, each time the patient expressed how sad she was, the interpreter silently showed great empathy through her body language, by kindly looking into the patient's eyes, smiling and nodding as if she were acknowledging the patient's story.

While the doctor was looking for the monitor, the patient again told the interpreter that she believed that the scare "may have caused her to not hear the baby's heart beat." The interpreter again kindly smiled at the patient. The patient asked if she could call a family member. She looked into her purse and she could not find her phone. Kindly she asked the interpreter if she could use her phone. And the interpreter felt bad for the patient so she gave her the cell phone. The patient called her family member and started to cry, and expressed in a trembling sad voice that she could not tell her father that something was wrong with her baby. He was waiting for this birth. He was so sick and this was the only thing that kept him still alive.

As she overheard this conversation between the patient and the family member, the interpreter shed a few tears. She had a flashback of her own experience when she lost her pregnancy.

A clinical assistant that spoke the same language as the patient overheard the conversation between the patient and her family member reported the incident to the clinical supervisor. Within a few minutes a family member is walking into the patient's room. She was her ride and was in the waiting area for the patient to finish her routine appointment.

The provider arrived with the monitor and asked the family member to step outside. As he is setting up the monitor, the provider kindly informs the patient of his concern and the patient shares again her fear that in fact the baby may not have a heart beat due to "a scare". The provider looks puzzled and the interpreter explains to the doctor that in fact a scare in the patient's culture can cause a woman to lose her pregnancy. The provider seems irritated with this intervention and he abruptly informs the interpreter to stick to the interpreting piece only.

The doctor finally informed the patient through the interpreter that the heart beat was too faded and that the patient needed to be transported immediately to the hospital by ambulance. The patient started to cry as the supervisor walked in to set up the transfer. The patient asked to have her family member with her in the room and the nurse asked all kinds of questions related to the transfer. The patient asked the supervisor if the interpreter could ride with her in the ambulance and the interpreter used the first person as she conveyed the message. So it sounded to the supervisor like the interpreter was asking to ride with the patient.

The Nurse firmly asked the interpreter to stick to questions and answers. She asked the patient if she wanted a family member to go with her, the patient said yes -"my friend can go". The nurse informed the patient that only immediate family members could ride with her. The interpreter told the nurse that in fact she was a family member. According to the patient's culture the boyfriend's sister was considered family. The nurse stated firmly the friend could follow the ambulance in her car but could not ride with her.

The interpreter finished with her interpreting and went home feeling angry and sad. Feeling that the provider and the staff at the site were not friendly and that they may not like patients who speak her language. The site contacted the interpreter supervisor and requested that this interpreter would never be sent to the clinic again. She stated that the interpreter was having private conversations with the patient and that she kept interjecting her opinion which did not reflect well for a professional interpreter.

Have you ever faced a situation that was so emotionally loaded and what did you do about it?

There are no good or bad people in this story, but clearly communication broke down. In fact the ambulance was insured to only carry family members so it did not matter for them if the friend was culturally perceived as family, but this information was never shared.

In my opinion the interpreter was trying to fill an emotional void that she was sensing from the patient and decided to somehow fix the situation. As a result, the interpreter broke a few rules and deviated from her role as a conduit; for example, staying with the patient alone, sharing her phone, and it may be argued, her cultural brokering when explaining that the friend was in fact considered a family member.

We understand that the patient liked the interpreter and felt this great support from her but she went to the hospital feeling lonely scared and with no language assistance. Although it is not the responsibility of the interpreter to assure that there is proper communication between patient and provider, there were a few golden moments where the interpreter could have facilitated communication.

For example when the provider stopped being chatty and seemed worried, the interpreter could have informed both patient and doctor that she was available to interpret anything they may wish. When the provider left the room, the interpreter could have moved between the door and the hallway, still keeping some eye contact with the patient but not being in the room alone with the patient. The patient would not have felt alone but this move would have allowed the interpreter to remain separate from the patient avoiding awkward situations. The interpreter when asked by the patient to use her phone could have suggested to the patient that she would in fact interpret the patient's request to the supervisor or provider.

When the supervisor asked if the friend was a family member and she did not allow her friend to join the patient in the ambulance, the interpreter could have stepped outside and asked for a brief consult with the supervisor. She then kindly could have stated that the patient considered her friend a member of the family, a common practice in many of the patients from a similar background. Hopefully at this time the supervisor would have informed the interpreter of the law. The interpreter could have suggested that the supervisor used an explanatory model by acknowledging to the patient how frightening it must be for her to travel alone and although in her eyes her friend was a family, due to liability insurance her "family" could not travel with her. And suggesting to the supervisor that she was going to make sure that the ambulance could always access an interpreter as they were on the road and that an interpreter was waiting for her when she arrived at the hospital. This "explanatory model" helps the interpreter quickly coach the supervisor in acknowledging the conflict and giving back the provider in this case the staff member, the power of connecting with the patient directly.

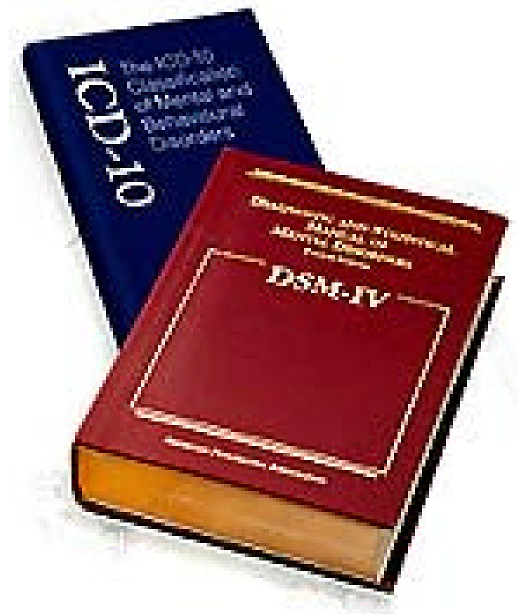
Stepping out of the conduit role is an art and it takes a lot of self-care, discipline and creative thinking where one has to quickly move from feeling the outsider to being a team player who is a culture coach in a non-intrusive way. The role of a conduit is to be able to give the patients a voice in their medical encounter.

Oftentimes during emergencies or if there is a fear losing their patient, providers may go into emergency medical default mode as they deal with the crisis as quickly as possible. It may be possible that the provider may in fact have felt the anxiety of the patient and rather than loose control of the situation and to act quickly, emotionally disconnected from the patient and the interpreter. Interpreters walk a fine line all the time. The interpreter was dealing with how the patient and the provider felt. The interpreter may have felt protective of the patient without fully understanding the reaction of the provider, and felt a need to "fix the situation." The role of the interpreter during these emotional times requires remembering the tools provided to interpreters as conduits such as repeating a sentence, coaching the provider, asking for clarification or culture brokering to help them react to the silence.

Researchers in this field may discount the anecdotal stories because they are not based on science and reliable data but I hope that this story will in fact bring a soul and human touch to the triadic session. Interpreters need to know that we all need to be aware of our own feelings and agenda and stepping out of a conduit role takes practice, trust and great understanding of the medical culture.

My hope is that in relaying these stories you will find different angles on how to best proceed as an interpreter. Please visit the many interpreting associations' web pages and apply the standards of practice. I hope that one day you -- the interpreter -- can continue to address the many facets of interpreting and apply for grants and consider working on a research project, offering a true interpreter perspective.

DSM - Diagnostic and Statistical Manual of Mental Disorders



The DSM, now in its fourth edition, is often called the “bible” of psychiatry. It is a comprehensive tome that has been translated into 13 languages and has no other similar reference book. Under the auspices of the American Psychiatric Association (APA) it is the result of the DSM Task Force and its various Work Groups that painstakingly compile the pertinent data for the various categories of mental disorders.

The DSM is used by clinicians and researchers of many different orientations within the field of psychiatry: biological, psychodynamic, cognitive, behavioral, interpersonal. It is used by psychiatrists, psychologists, social workers, nurses, rehabilitation therapists, counselors and others who work within different settings: inpatient, outpatient, private offices, community settings, schools, the armed forces and others. It is also the reference source for collecting data for public health statistics. All relevant psychiatric organizations throughout the world have been afforded access and/or opportunity to provide input to this one-of-a-kind psychiatric nomenclature. It is the primary reference book used in psychiatric training programs.

The first edition of the DSM was published in 1952 and, so far, it has undergone four revisions since. The fifth edition is currently under way along with some criticism regarding “the curtain of secrecy” that allegedly prevails among the reviewers and the review process. Also, there is the question of the relationship of reviewers with the pharmaceutical industry that provides annual fees to some reviewers. That is countered by the fact that such honoraria are common and are limited to $10,000. The reviewers themselves forcefully counter by claiming their review process is transparent and available for review.

The field of psychiatry has evolved from an ideology in Freudian times to a scientific pursuit. In the 1950s psychiatry was dominated by the model of Sigmund Freud who proposed that psychological suffering was resolvable by talking to a therapist. The difficult to grasp psychoanalytic process was followed by an alternative biologic - genetic model that started when neurotransmitters that mediate brain function were discovered and followed thereafter by brain scanning techniques. The pharmacological approach to symptom relief soon followed. As the field has changed and experience grown, the number of psychiatric disorders has tripled to approximately 300 with a notable increase in use of pharmaceuticals for symptom relief.

The only other existing diagnostic classification of diseases, the ICD - International Classification of Diseases and Related Health Problems - developed by the World Health Organization, now in its 10th edition, has worked closely with the DSM and coordinated suitable psychiatric changes to the ICD.

The next issue of the DSM is scheduled for 2012.

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CLAVICLE

CRANIUM

COCCYX

FEMUR

FRONTAL BONE

HUMERUS

ILIUM

MANDIBLE

PATELLA

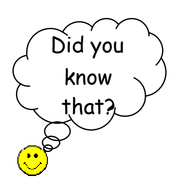
PUBIS

RIBS

ROTULA *

STERNUM

VERTEBRAE



* **Rotula** is the Spanish word for **Patella**