

Anatomy Exhibition Text

Edited by HMS

Christ Wall

His body also was like the beryl, and his face as the appearance of lightning, and his eyes as lamps of fire, and his arms and his feet like in colour to polished brass, and the voice of his words like the voice of a multitude. Daniel 10:6

Top row, left to right

Superficial muscles of the face and neck with the retromandibular, facial, and superficial temporal veins (*lateral view*).

D&C 88:68 The days will come that you shall see him; for he will unveil his face unto you.

Deep dissection of the anterior forearm muscles exposing the radial, ulnar, and interosseus artery branches.

Isaiah 52:10 The Lord hath made bare his holy arm in the eyes of all the nations.

Cartilages of the larynx and trachea—thyroid, cricoid, arytenoid, corniculate, epiglottis (*posterior view*).

D&C 43:25 How oft have I called upon you by the mouth of my servants, and by the ministering of angels, and by mine own voice.

Venous drainage of the arm and lower arm (*anterior view*).

Matthew 26:28 For this is my blood of the new testament, which is shed for many for the remission of sins.

Superficial dissection of common peroneal, superficial peroneal, and deep peroneal nerves of the leg and foot (*anterior view*).

Joseph Smith—History 1:31 His hands were naked, and his arms also, a little above the wrist; so, also, were his feet naked, as were his legs, a little above the ankles.

Second row, left to right

Ligaments and tendons of the foot that support its arch (*plantar view*).

Luke 24:39 Behold my hands and my feet, that it is I myself: handle me, and see; for a spirit hath not flesh and bones, as ye see me have.

Divisions of the trigeminal nerve (CN V) ophthalmic (CN V1), maxillary (CN V2), mandibular (CN V3) (*parasagittal view*).

Matthew 27:44 The thieves also, which were crucified with him, cast the same in his teeth.

Semicircular canals (angular acceleration), vestibule (linear acceleration) and cochlea (sound) of the inner ear (*lateral view*).

1 Peter 3:12 For the eyes of the Lord are over the righteous, and his ears are open unto their prayers: but the face of the Lord is against them that do evil.

Intricate patterns of the right ventricular trabeculae, papillary muscles, chordae tenineae, and tricuspid valve (*anterior view*).

Jeremiah 3:15 And I will give you pastors according to mine heart, which shall feed you with knowledge and understanding.

Cross-section of the orbit and eyeball illustrating their relationships with the extraocular muscles (*sagittal view*).

3 Nephi 13:22 The light of the body is the eye; if, Therefore, thine eye be single, thy whole body shall be full of light.

Exposure of the articulation between first (atlas) and second (axis) cervical vertebrae.

Exodus 33:23 And I will take away mine hand, and thou shalt see my back parts: but my face shall not be seen.

Bottom row, left to right

Rib articulations on either side of a thoracic vertebra (*superior view*).

John 19:1 Then Pilate therefore took Jesus, and scourged him.

Palmar hand showing the superficial ulnar arterial arch overlying the tendon sheath of the flexor digitorum muscles.

Mark 10:16 And he took them up in his arms, put his hands upon them, and blessed them.

Cross-section of the eyeball depicting the cornea, iris, lens, ciliary body, zonules, sclera, choroid, and retina.

Jeremiah 16:17 For mine eyes are upon all their ways: they are not hid from my face, neither is their iniquity hid from mine eyes.

Dorsal view of the tongue, its circumvallate papillae, lingual tonsil, and vallecula; also note the palatine tonsils.

Mark 7:33 And he took him aside from the multitude, and put his fingers into his ears, and he spit, and touched his tongue.

Splenic, superior mesenteric, and inferior mesenteric veins draining into the hepatic portal vein (*anterior view*).

D&C 101:9 Notwithstanding their sins, my bowels are filled with compassion towards them. I will not utterly cast them off; and in the day of wrath I will remember mercy.

Mid-sagittal cross-section through the male pelvis; note the spatial relationship of the prostate gland to the bladder and rectum.

Isaiah 11:5 And righteousness shall be the girdle of his loins, and faithfulness the girdle of his reins.

Hippocampus dissection through the lateral ventricles (*axial view*).

Moroni 4:3 We ask thee in the name of thy Son, Jesus Christ, to bless and sanctify this bread to the souls of all those who partake of it; that they may eat in remembrance of the body of thy Son. . . .

East wall

About the Exhibition

We each have a body created in the image of our Heavenly Father (Genesis 1:27; Moses 2:26–27; Abraham 4:26–27). The Prophet Joseph Smith taught that “the Father has a body of flesh and bones as tangible as man’s; the Son also” (D&C 130:22). These axioms have significant impact on our individual testimonies. As we understand and care for our own bodies, we catch a glimpse of our divine potential and relationship with the Godhead.

Bodies Filled with Light showcases images that exemplify the miracle of the human body. The illustrations and scriptures are arranged in three primary themes: the body of Christ, body structures, and body systems.

An intimate relationship exists between the human body and how that marvelous creation can participate in the doctrines of salvation; the temporal element overlaps with, and to some extent even serves, the spiritual.

The scriptures tell us that all things were created spiritually before they were created temporally (Moses 3:5). With a deeper understanding of the body, God’s children can better appreciate the physical ordinances of salvation. We hope that by viewing this exhibition you will develop a deeper understanding of the body as a structural miracle designed to hold and be commanded by our spirits.

Artist Jill Penkus created the illustrations that were originally commissioned by Carmine Clemente, who used them in the 30th ed. of *American Gray’s Anatomy* (Philadelphia: Lea & Febiger, 1985) and in subsequent textbooks. Clemente

graciously gave these drawings to Jonathan J. Wisco as a parting gift from the David Geffen School of Medicine at UCLA. The reproductions displayed here, represent a small fraction of the total art collection and are enlarged and reproduced with permission.

D&C 110:3 His eyes were as a flame of fire; the hair of his head was white like the pure snow; his countenance shone above the brightness of the sun; and his voice was as the sound of the rushing of great waters.

Top row, left to right

Splenic, superior mesenteric, and inferior mesenteric veins draining into the hepatic portal vein (*anterior view*).

Lamentations 2:11 Mine eyes do fail with tears, my bowels are troubled, my liver is poured upon the earth, for the destruction of the daughter of my people.

Deep dissection of the rich arterial anastomosis around the scapula (*posterior view*).

Job 31:22 Then let mine arm fall from my shoulder blade, and mine arm be broken from the bone.

Sphenoid bone and foramina—keystone of the skull (*anterior view*).

D&C 42:12 The elders, priests and teachers of this church shall teach the principles of my gospel, which are in the Bible and the Book of Mormon [keystones], in the which is the fulness of the gospel.

Middle row, left to right

Autonomic nerves of the posterior mediastinum: thoracic sympathetic chain, vagus nerve, splanchnic nerves (*lateral view*).

D&C 88:74 Assemble yourselves together, and organize yourselves, and prepare yourselves, and sanctify yourselves.

Transverse cross-section through the thyroid gland, contents of the carotid sheath, and C7 vertebra (*superoposterior view*).

Jeremiah 17:23 But they obeyed not, neither inclined their ear, but made their neck stiff, that they might not hear, nor receive instruction.

Mid-sagittal cross-section through the male pelvis; note the spatial relationship of the prostate gland to the bladder and rectum.

Moses 8:3 And it came to pass that Methuselah prophesied that from his loins should spring all the kingdoms of the earth (through Noah).

Bottom row, left to right

Cartilages of the larynx and trachea—thyroid, cricoid, arytenoid, corniculate, epiglottis (*posterior view*).

Luke 1:42 And she spake out with a loud voice, and said, Blessed art thou among women, and blessed is the fruit of thy womb.

Intricate patterns of the right ventricular trabeculae, papillary muscles, chordae tenineae, and tricuspid valve (*anterior view*).

1 Chronicles 22:19 Now set your heart and your soul to seek the Lord your God.

Pediatric maxilla and mandible dissected to show the permanent teeth deep to the deciduous teeth (*lateral view*).

D&C 124:52 And I will answer judgment, wrath, and indignation, wailing, and anguish, and gnashing of teeth upon their heads, unto the third and fourth generation, so long as they repent not.

Somatic and autonomic nerve trunks of the peripheral nervous system (*anterior view*).

Mosiah 27:19 The astonishment of Alma was so great that he became dumb, that he could not open his mouth; yea, and he became weak, even that he could not move his hands.

The Mind

Trepanation is a technique of boring a hole into the skull, a practice done commonly in pre-modern Europe and pre-Columbian Peru, possibly as a tribal ritual or a therapy for pain. A form of the surgical technique exists today as the craniotomy.

The field of neuroscience as we know it today is only 125 years old. Prior to that time it is clear from archeological evidence that the brain was considered to be an essential organ, but it wasn't clear where a person's spirit resided. The scriptures, however, are filled with references to the mind.

Challenge

Look up all scriptures that reference the mind and determine what proportion are referring to the brain, the heart, free agency, etc. How has the concept of the mind changed between the recording of scriptures and our twenty-first century interpretation of the scriptures?

Mammary gland and its arterial supply on the anterior thoracic wall.

Psalm 22:9 But thou art he that took me out of the womb: thou didst make me hope when I was upon my mother's breasts.

Fetus in utero supported by the placenta, amnion, and uterus; note the intimate connection between mother and baby.

Jeremiah 1:5 Before I formed thee in the belly I knew thee; and before thou camest forth out of the womb I sanctified thee, and I ordained thee a prophet unto the nations.

Fetal circulation anatomy showing the umbilical arteries and vein, ductus venosus, foramen ovale, ductus arteriosus (*anterior view*).

Luke 1:31 And, behold, thou shalt conceive in thy womb, and bring forth a son, and shalt call his name Jesus.

Sagittal cross-section of a lymph node showing the subcapsular sinus, germinal centers, and hilum.

Alma 9:22 Yea, and after having been delivered of God out of the land of Jerusalem, by the hand of the Lord; having been saved from famine, and from sickness, and all manner of diseases of every kind; and they having waxed strong in battle, that they might not be destroyed; having been brought out of bondage time after time, and having been kept and preserved until now; and they have been prospered until they are rich in all manner of things.

Head of the femur and its ligament dissected through the bony pelvis (*internal view*).

Revelation 19:16 And he hath on his vesture and on his thigh a name written, King of Kings, and Lord of Lords.

The appendix and its many possible locations relative to the cecum of the large intestine (*anterior view*).

3 Nephi 17:6 And he said unto them: Behold, my bowels are filled with compassion towards you.

Southeast wall

Cranial nerves emanating from the brain and brainstem (*anteroinferior view*).

Romans 8:6 For to be carnally minded is death; but to be spiritually minded is life and peace.

Great vessels and vagus nerves of the superior mediastinum (*anterior view*).

Mosiah 4:2 O have mercy, and apply the atoning blood of Christ that we may receive forgiveness of our sins, and our hearts may be purified.

Common and external carotid arteries of the neck with surrounding deep neuromuscular and visceral structures (*lateral view*).

Joseph Smith—History 1:31 His head and neck were also bare.

Course of the vagus nerve its exit through the jugular foramen at the base of the skull to the stomach (*lateral view*).

Ezekiel 37:5 Thus saith the Lord God unto these bones; Behold, I will cause breath to enter into you, and ye shall live.

Great vessels, thyroid gland, brachial plexus, suprahyoid and infrahyoid muscles of the neck (*anterior view*).

Jeremiah 17:23 But they obeyed not, neither inclined their ear, but made their neck stiff, that they might not hear, nor receive instruction.

Scapula against the thoracic cage forming the scapulothoracic joint (*left: anterior view; right: posterior view*).

Mosiah 24:14 And I will also ease the burdens which are put upon your shoulders, that even you cannot feel them upon your backs, even while you are in bondage.

Relationship of the duodenum to the head of the pancreas (*anterior view*).

Ezekiel 3:3 Son of man, cause thy belly to eat, and fill thy bowels with this roll that I give thee. Then did I eat it; and it was in my mouth as honey for sweetness.

Neurovascular structures of the left posterior thoracic wall, including aorta, hemiazygos vein and thoracic sympathetic chain (*lateral view*).

Luke 6:45 A good man out of the good treasure of his heart bringeth forth that which is good; and an evil man out of the evil treasure of his heart bringeth forth that which is evil: for of the abundance of the heart his mouth speaketh.

The Neck

Flexibility in the neck is not only a sign of central nervous system and musculoskeletal system health, but it is also a symbol for obedience to the laws and commandments of the gospel (Deuteronomy 31:27; 2 Nephi 28:14).

The neck is the most important anatomical structure to sustain the brain. It supports the skeletal protective structure for the skull. It transmits essential digestive, pulmonary, and neurovascular structures to and from the skull.

Challenge

Does the soul reside in the heart or the brain? This question has been debated for centuries despite our advancing understanding of anatomy and physiology. Given that the neck connects the regions where these two organs reside, examine the insight of gospel references to the importance of the neck as an indicator for spiritual health.

Treasure

Matthew 6:19-23

19 Lay not up for yourselves treasures upon earth, where moth and rust doth corrupt, and where thieves break through and steal:

20 But lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal:

21 For where your treasure is, there will your heart be also.

22 The light of the body is the eye: if therefore thine eye be single, thy whole body shall be full of light.

23 But if thine eye be evil, thy whole body shall be full of darkness. If therefore the light that is in thee be darkness, how great is that darkness!

Challenge

Examine the drawing to your right. The thoracic cavity itself resembles a treasure chest with the crown jewel of the heart in the center. What is your treasure chest, and where is your heart?

Chinese Proverb

“The world makes a large universe; the human body makes a small universe.”

There are three theories that the Chinese use to describe and categorize the universe, and those same three theories are also used to describe and categorize the

body. The three theories are: Yin & Yang, Five Elements, and the eight trigrams (from the Taoist philosophy).

Since Traditional Chinese Medicine has compared the body to the universe, and the universe has been identified in five elements, various ancient and modern medical publications would categorize all things pertaining to the body in fives. For example,

five vital, internal organs: lungs, heart, spleen, liver, and kidney; five bowels, internal organs: pancreas, small intestines, stomach, large intestine, and bladder.

Challenge

Can you think of five facial organs, five emotions, and five tastes?

Southwest Wall

Anterior abdominal wall muscles: rectus abdominis, external abdominal oblique; arcuate line exposed on the posterior rectus sheath.

Nahum 2:1 He that dasheth in pieces is come up before thy face: keep the munition, watch the way, make thy loins strong, fortify thy power mightily.

Branches of the celiac arterial trunk—common hepatic, left gastric, splenic—shown through the lesser sac (*anterior view*).

Proverbs 18:20 A man's belly shall be satisfied with the fruit of his mouth; and with the increase of his lips shall he be filled.

Transversus abdominis muscle, which is responsible for compressing the abdominal cavity (*lateral view*).

D&C 27:15 Wherefore, lift up your hearts and rejoice, and gird up your loins, and take upon you my whole armor, that ye may be able to withstand the evil day, having done all, that ye may be able to stand.

Kidney and ureter in relation to the inferior vena cava and aorta in the posterior abdominal wall (*anterior view*).

1 Peter 1:13 Gird up the loins of your mind, be sober, and hope to the end for the grace that is to be brought unto you at the revelation of Jesus Christ;

Muscles and neurovascular structures of the anterior brachium—biceps brachii muscle, median nerve, ulnar nerve, brachial artery.

2 Chronicles 32:8 With him is an arm of flesh; but with us is the Lord our God to help us, and to fight our battles.

Branches of the superior and inferior mesenteric arteries forming arcades around the colon (*anterior view*).

D&C 121:3 How long shall they suffer these wrongs and unlawful oppressions, before thine heart shall be softened toward them, and thy bowels be moved with compassion toward them?

Mid-sagittal cross-section through the female pelvis; note the spatial relationships of the uterus, fallopian tube, and ovary.

1 Nephi 21:15 Can a woman forget her sucking child, that she should not have compassion on the son of her womb? Yea, they may forget, yet will I not forget thee, O house of Israel.

Palmar hand showing the superficial ulnar arterial arch overlying the tendon sheath of the flexor digitorum muscles.

3 Nephi 11:15 The multitude went forth, and thrust their hands into his side, and did feel the prints of the nails in his hands and in his feet.

Lymph nodes and their vessels draining the colon towards the intermesenteric and aortic nodes (*anterior view*).

Colossians 3:12 Put on therefore, as the elect of God, holy and beloved, bowels of mercies, kindness, humbleness of mind, meekness, longsuffering.

Tibial nerve continuity from the sciatic nerve in the posterior thigh into the deep posterior leg (*posterior view*).

D&C 84:109 Therefore, let every man stand in his own office, and labor in his own calling; and let not the head say unto the feet it hath no need of the feet; for without the feet how shall the body be able to stand?

Health in the Navel

D&C 89:18-21

18 And all saints who remember to keep and do these sayings, walking in obedience to the commandments, shall receive health in their navel and marrow to their bones;

19 And shall find wisdom and great treasures of knowledge, even hidden treasures;

20 And shall run and not be weary, and shall walk and not faint.

21 And I, the Lord, give unto them a promise, that the destroying angel shall pass by them, as the children of Israel, and not slay them. Amen.

Compare Job 40:16 Lo now, his strength is in his loins, and his force is in the navel of his belly.

Challenge

Examine the location of the navel in the drawing to your left and the location of the abdominal visceral organs in this area of the exhibit.

The promise in D&C 89 begins with “health in their navel.” What an odd anatomical region to ascribe to physical and spiritual health. Why do you think the Lord would ascribe health to this particular anatomical region?

Bowels of Mercy

Alma 7:10-13

10 And behold, he shall be born of Mary, at Jerusalem which is the land of our forefathers, she being a virgin, a precious and chosen vessel, who shall be overshadowed and conceive by the power of the Holy Ghost, and bring forth a son, yea, even the Son of God.

11 And he shall go forth, suffering pains and afflictions and temptations of every kind; and this that the word might be fulfilled which saith he will take upon him the pains and the sicknesses of his people.

12 And he will take upon him death, that he may loose the bands of death which bind his people; and he will take upon him their infirmities, that his bowels may be filled with mercy, according to the flesh, that he may know according to the flesh how to succor his people according to their infirmities.

13 Now the Spirit knoweth all things; nevertheless the Son of God suffereth according to the flesh that he might take upon him the sins of his people, that he might blot out their transgressions according to the power of his deliverance; and now behold, this is the testimony which is in me.

Challenge

Why do you think the bowels are associated with mercy?

Hands

Hands are a very personal part of the body that mediate many functions. Hands help us complete tasks at work and can help us convey emotion. Rough, hardened hands express a lifetime of manual labor; whereas soft, delicate hands express sensitivity and delicacy.

Our core body temperature can be gauged informally by the temperature of our hands, which is why we warm our hands up first, before any other part of our bodies.

Most importantly, hands are associated with physical intimacy. Holding hands is a sign of affection. Indeed, it has been shown that blood flow increases to the hands when in contact with another person's hands.

Challenge

Gesticulation is the act of moving the hands and arms to emphasize a communication. How do you use your hands to express gratitude, service, or love? What will be your next expression of kindness?

Rotating Systems West Wall

And I, God, said unto mine Only Begotten, which was with me from the beginning: Let us make man in our image, after our likeness; and it was so. . . . And I, God, saw everything that I had made, and, behold, all things which I had made were very good. Moses 2:26, 31

Nervous

Cardiovascular

Muscoskeletal