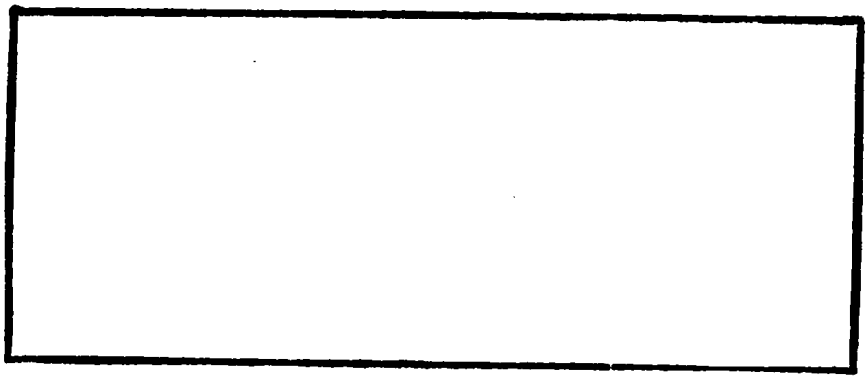
A GLOSSARY OF
ANESTHESIA
AND RELATED TERMINOLOGY



SANFORD L. KLEIN, D.D.S., M.D.

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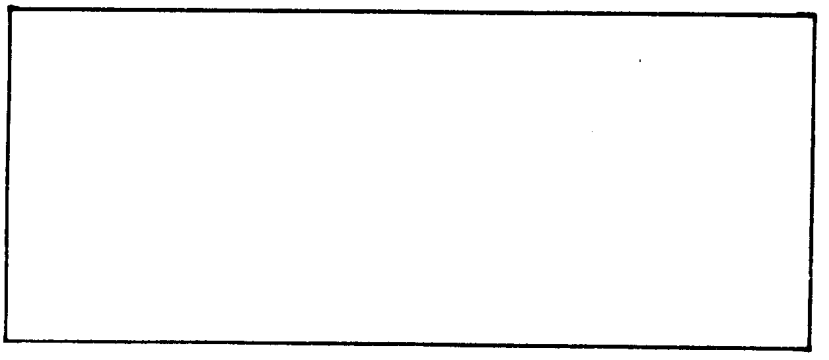

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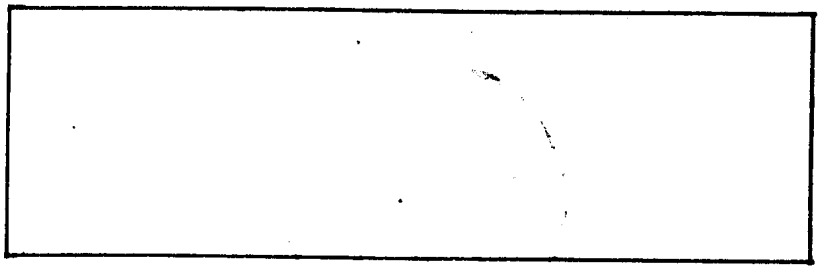

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Preface

The standard of care in anesthesia practice is becoming increasingly complex at a rate which may not be fully apparent to either the clinician or the student of anesthesia. Having to deliver clinical care on a daily basis tends to inhibit awareness of the differences between anesthesia today and 10 years ago. Even less concern may be devoted to how the specialty may change during the next decade. Similarly, the academician-researcher may be too narrowly focused to recognize the consequences of new techniques and agents.

When I started my anesthesiology training in New York State 10 years ago, three ventilators and five electrocardiograph monitors were available for 11 operating rooms in our university hospital. Diethyl ether, cyclopropane, ethylene, and fluroxene were used extensively. Monitoring of central venous pressure by a water manometer was considered sophisticated and arterial lines were a clinical rarity. Modern operating rooms in 1985 have at least a two-channel monitor (where three-, four-, five-, or six-channel monitoring is not available). Flammable anesthetics are becoming as obsolete as ocean liners, and oxygen analyzers and disconnect monitors are now, or soon will be, the universal standard of care. In the near future, intraoperative monitoring of the electroencephalogram analyzed by microprocessor will probably become routine. Within the next decade the design of the conventional anesthesia machine should change radically. Electronics will probably adjust flow control, perform startup checks, and help to do everything but "wash the hoses" (come to think of it, that is gone too, due to disposable equipment). Further, we can look toward introduction of the true analgesics and a change in the very basis for the existence of anesthesia as a separate discipline. This may happen within the lifetime of many who are in training today. Anesthesia will become even more technical and will be more involved in intensive care, while in the operating room we will still defend the patient against the consequences of surgery, certainly beyond our current considerations of fluid and electrolytes, blood replacement, and acid-base balance.

This book is written to aid the student, practitioner, and teacher of anesthesiology to cope with the ongoing changes by providing short, concise, and hopefully clear definitions of common anesthesia-related terms, so that what was, what is, and what will be can be appreciated from a common semantic background. It is not meant to be a comprehensive text. Excellent anesthesiology references already exist: Miller; Wollman and Larson. It is meant to aid in understanding a complex field and to be a quick reference when consultation of weightier tomes would be inappropriate. Some attempt has been made to be exhaustive; however, after four years of work the author would not be surprised if a simple everyday term were left out, due to either typographical error, not seeing the forest for the trees, ig-

norance, or "the word processor did it!" The project has grown considerably, so much so that we have had to delete rather than add in the final stages of preparation. My personal fondness for historical inference and reference has been somewhat curtailed. So too has my predilection for the complicated high-technology devices now becoming so popular.

This text is the responsibility of the author; however, it would never have seen the light of day without the devoted work of Christine Thompson, a terrific laboratory assistant, who self-programmed to a hundred other job descriptions p. r. n. and did them better than very well. Marcia Feinberg and Phyllis Bergman spent too many hours (usually at their own expense) trying to decipher my handwriting and figuring out what I really meant to say rather than what I wrote. Without their devotion and competence a poorer book would have been ready for the publisher five years ago. I would like to personally thank the following: Amy Carter, who was consistently helpful in the production of the final manuscript; Debra Cayler, Judy Carlson, Tamara Hesse, Barbara Kirchner, Susan Tew, and Martha Lubaroff, who wore down many a finger typing and retyping my innumerable drafts; and my colleagues at The University of Iowa for reviewing portions of the manuscript. Mark Stasi and Lynn Griebahn did much of the assembly of word lists without which the job would have been impossible. Jane Vanderbosch and Sharon Schmahl contributed valuable research and Russell Spinelli helped flog the word processor programs through the IBM 370. A special thank you goes to my former work place, The Department of Anesthesia, University of Iowa Hospitals and Clinics, for its unflagging support across many years and many chairmen. Dr. Jeffrey Apfelbaum reviewed the final manuscript and did a fine job catching errors and inconsistencies.

I would also like to thank my wife, Dr. Virginia Klein, not only for putting up with this effort, but also for her help in the dual wilderness of statistics and computer science where I would have been lost forever without her assistance. Lastly, I would like to thank Esther Gumpert, my third editor at Medical Examination Publishing Co., Inc., and her predecessors, Howard Granat and Joe Cahn, for their efforts. They all deserved a more prompt and less irascible author.

notice

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A glossary of anesthesia and related terminology.

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A

ABANDONMENT: The refusal, in a medicolegal context, on the part of a physician or dentist to continue caring for a patient without the patient's consent.

ABDOMINAL ELECTROCARDIOGRAPHY: An obstetric technique for determining the fetal electrocardiogram by the application of electrodes to the mother's abdominal wall. Difficulty is encountered due to electric interference from the maternal electrocardiogram and abdominal wall musculature and gross interference from fetal movement.

ABDUCENS: The sixth cranial nerve and the most likely to be affected by a drop in cerebrospinal fluid pressure after a spinal anesthetic. Paralysis of the abducens causes diplopia. See Cranial nerves.

ABLATION: The process of removing material from the surface of an object, usually by vaporization or decomposition. Ablation may also mean complete mechanical destruction: cryosurgery is used in the total ablation of a tumor. Ablation-type heat shielding is used on the nose cones of rockets returning to earth.

ABORT: The abrupt termination of an ongoing event.

ABSOLUTE ZERO: The temperature which, according to theory, is the lowest physically possible. This temperature has been closely approached but never reached in practice. In units it is 0 degrees Kelvin, -273.15 degrees Celsius, and -459.67 degrees Fahrenheit.

ABSORBENT CHANNELING: A phenomenon occurring in poorly packed absorbent canisters which can severely affect the proper absorption of CO_2. The cross-sectional area of absorbent to which the gas stream is presented is reduced dramatically by small passageways or channels which course through the absorbent from one end to the other, bypassing the bulk of active absorbent. This can lead to a relatively rapid yet insidious buildup of CO_2 in the gas mixture which the patient breathes.

ABSORBER: See Carbon dioxide absorption.

ABSORPTION: The process by which a substance becomes available to the circulating fluids of the body. The rate of absorption depends on the physical characteris-

tics of the substances being absorbed and the nature of the barriers and membranes between the site of initial deposit and the circulation.

ABSORPTION ATELECTASIS: The phenomenon which occurs when the air passageway to the alveolus is blocked. If the patient has been breathing air it can be assumed that at the instant of blockage PAO_2 is approximately 100 torr, $PACO_2$ is approximately 40 torr, alveolar pressure of nitrogen is 573 torr, and partial pressure of water vapor is 47 torr. In capillary blood flowing past the alveolus, the partial pressures of nitrogen and water vapor are the same; however, PO_2 is about 40 torr and PCO_2 is about 45 torr. This gives a net positive pressure to the alveolus which will lose gas to the pulmonary blood and gradually collapse. This gradual collapse is splinted by nitrogen which shifts slowly to the alveolus from the blood flowing past it, tending to keep the alveolus open. In any situation where alveolar O_2 has been augmented to take the place of alveolar nitrogen, absorption atelectasis occurs more quickly because the partial pressure difference between alveolar O_2 and capillary O_2 is much greater, and in fact, when a healthy individual breathes 100% O_2, PAO_2 approaches 668 torr, $PACO_2$ is 45 torr, and water vapor is 47 torr. See Atelectasis.

ABSORPTION INDICATOR: A chemical added to CO_2 absorption granules to demonstrate progressive diminution of absorptive capacity. A commonly used indicator is the chemical ethyl violet. As absorption capacity decreases, the indicator changes from white to purple. The deeper the purple, the less absorption capacity is available. It has a critical pH (the pH at which color changes) of 10.3. Absorption indicators are only qualitatively accurate; a purple granule may turn white again when exposed to air due to a limited regeneration of strong base capacity. Any absorption chamber which is color-tinged should be refilled. See Carbon dioxide absorption.

ABS PLASTIC: A class of plastics which is identified as belonging to the acrylonitrile-butadiene-styrene group. They are usually of good rigidity, high impact strength, and fair hardness over a wide temperature range. ABS is a typical plastic used in helmets, luggage, and machine parts, where abrasion resistance is not a prerequisite.

ABUSIVE LEGAL PROCESS (BARRATRY): The use of the courts to harass an individual. Along with defamation, it is grounds for a countersuit in patient-initiated malpractice action.

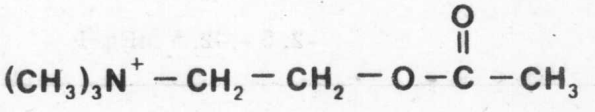
ACCUMULATION: A phenomenon resulting from repeated drug administrations which are spaced so closely together that neither metabolism nor excretion is fast enough to prevent the drug from increasing in concentration in the body. For example, succinylcholine is a drug which undergoes extremely rapid metabolism in the plasma. However, a fast-running intravenous infusion of succinylcholine can actually cause the plasma concentration of succinylcholine to rise continuously until the infusion is stopped or a plateau is reached (based on an equilibrium between administration and metabolism).

ACCURACY: A measurement or, when applied to laboratory equipment, the specification of the freedom from error of a device. Most often this is expressed as a percentage over a particular range: for example, a 2% error on a scale of 100, in whole numbers, means that 98 may be registered on the machine as 96, 97, 98, 99, or 100, and the machine is operating within design limits.

ACETAMINOPHEN (TYLENOL): An effective alternate drug to the salicylates when analgesic and antipyretic actions are needed. Acetaminophen is a breakdown product of phenacetin. It is well tolerated by the gastrointestinal tract, but overdosage may cause severe hepatic or renal damage or death.

ACETAZOLAMIDE (DIAMOX): A drug which inhibits the enzyme carbonic anhydrase. By inhibiting this enzyme, acetazolamide prevents the combination of H_2O and CO_2 from forming carbonic acid, which then dissociates into hydrogen ion and bicarbonate. It functions as a diuretic and mild antihypertensive agent. The drug at times has found controversial use as a preanesthetic agent for open eye injuries as it is known to decrease intraocular pressure. Acetazolamide interferes with the CO_2 transport mechanism and may, at least transiently, give rise to increased CO_2 tension in the peripheral tissues and decreased CO_2 tension in the pulmonary alveoli.

ACETYLATION: A form of drug metabolism in which an acetyl group, $COCH_3^+$, is added to a drug or other pharmacologically active compound to change its reactivity.



Acetylcholine.

ACETYLCHOLINE (ACh): A neurotransmitter substance released at autonomic nerve endings by cholinergic neurons. Synthesis of ACh is controlled by the enzyme choline acetyltransferase, which mediates transfer of an acetyl group from acetyl coenzyme A to choline. Following release at cholinergic nerve endings, ACh is rapidly hydrolyzed and inactivated by the enzyme acetylcholinesterase. Acetylcholine produces peripheral vasodilation (flushing of the face, increased skin temperature); stimulates secretion from exocrine glands (sweating, salivation, tearing); causes bronchoconstriction, decreased heart rate, and pupillary constriction; and stimulates gastrointestinal smooth muscle (peristalsis, defecation, urination). See Fig. See Neuromuscular blocking agent, Succinylcholine.

ACETYLCHOLINESTERASE: An enzyme found in red blood cells and nerve terminals which is responsible for the hydrolysis of acetylcholine to choline and acetic acid. Nerve terminal acetylcholinesterase is usually referred to as true cholinesterase. It is also found in the placenta, where its function is unknown. See Pseudocholinesterase.

ACETYLENE (C_2H_2): A colorless gas with a distinct odor, which can explode spontaneously when compressed at room temperature. Its primary use is for welding and cutting metals with flame. It is 92.3% carbon and can therefore be considered nearly gaseous carbon; mixed with O_2 it can reach a torch tip temperature of 3500 degrees Celsius. Employed as a general anesthetic earlier in this century, acetylene was discontinued because of its combustibility and because better anesthetics were developed.

ACETYLSALICYLIC ACID (ASPIRIN): One of a series of salicylates which are usually taken orally as an analgesic, an antipyretic, and/or an anti-inflammatory agent. In small doses, it also causes inhibition of platelet aggregation and prolongation of bleeding time; it is therefore a significant preoperative drug.

ACID: A substance which, according to the Bronsted-Lowry definition, tends to dissociate and release hydrogen ions (H^+) when in solution. The substance itself may be either positively or negatively charged or neutral.

Acid-Base Balance: (I) Acid-base normal values.

	Range	Average
Hemoglobin	12.5 - 16.0 gm%	
pH arterial	7.35 - 7.45	7.4
PCO_2	34 - 45 mmHg	40 mmHg
Total CO_2 (plasma)	23 - 33 mmol	28 mmol
Bicarbonate (plasma)	22.8 - 27.5 mEq/L	24 mEq/L
Buffer base (whole blood)	43 - 47 mEq/L	
Base excess	-2.5 - +2.5 mEq/L	

Acid-Base Balance: (II) Effect of alterations in CO_2 and HCO_3^- on acid-base equilibrium.

PCO_2	Below Normal HCO_3^-	Normal HCO_3^-	Above Normal HCO_3^-
Increase	Metabolic Acidosis Respiratory Acidosis	Respiratory Acidosis	Metabolic Acidosis Respiratory Acidosis
Normal	Metabolic Acidosis	Normal	Metabolic Alkalosis
Decrease	Metabolic Acidosis Respiratory Alkalosis	Respiratory Alkalosis	Metabolic Alkalosis Respiratory Alkalosis

ACID-BASE BALANCE: A general term for the way in which the body maintains its hydrogen ion concentration (pH) despite the constant production of cationic end products by metabolic processes. The acid-base status is ensured in three major ways: (1) maintenance of a large buffering capacity, (2) manipulation of the volatile acid (carbonic acid), and (3) elimination of excess acid or base (over a period of a few days) by the kidneys. See Fig. See Acidemia, Alkalemia, Buffer, Buffer base, Carbon dioxide transport, Henderson-Hasselbalch equation, Metabolic acidosis, Metabolic alkalosis.

ACID-BASE COMPENSATION: The adaptive response made by the body to adjust to a primary disturbance in acid-base equilibrium. A primary disturbance is a change from the normal caused by a nonphysiologic or pathologic process which precedes any body adaptation to the disturbance. The initial rapid response is due to changes in ventilation which alter $PaCO_2$ (the secondary disturbance) so as to return hydrogen ion concentration to normal. For example, in the patient with metabolic acidosis, ventilation increases allowing the CO_2 to be exhaled and arterial pH to return to normal. The slower response, completed in a number of days, occurs when the kidney either excretes more acid or conserves more bicarbonate to oppose the primary disorder. See Acid-base balance, Henderson-Hasselbalch equation, Metabolic acidosis, Metabolic alkalosis.

ACID CITRATE DEXTROSE ANTICOAGULANT: See Blood storage, Blood types.

ACIDEMIA: A condition existing when the arterial blood pH is less than 7.35 or hydrogen ion concentration is above the normal range of 35-45 nEq/L.

ACIDOSIS: A physiologic condition which would cause acidemia (pH < 7.35) if not compensated by respiratory or metabolic changes. See Acid-base balance, Metabolic acidosis, Respiratory acidosis.

ACRYLIC CEMENT: See Methylmethacrylate.

ACTION POTENTIAL (SPIKE POTENTIAL): A change in the electric state of a nerve membrane (the critical part of nerve impulse transmission). During the action potential, the polarity of the inside of the nerve membrane (relative to the outside) changes from approximately -60 mV to approximately +40 mV because of an influx of sodium ions. The electric change of the membrane from negative to positive is referred to as depolarization. Repolarization occurs when the sodium is transferred back to the outside of the membrane. Large nerve fibers can depolarize and repolarize at a rate of 1000 times/sec. See Fig.

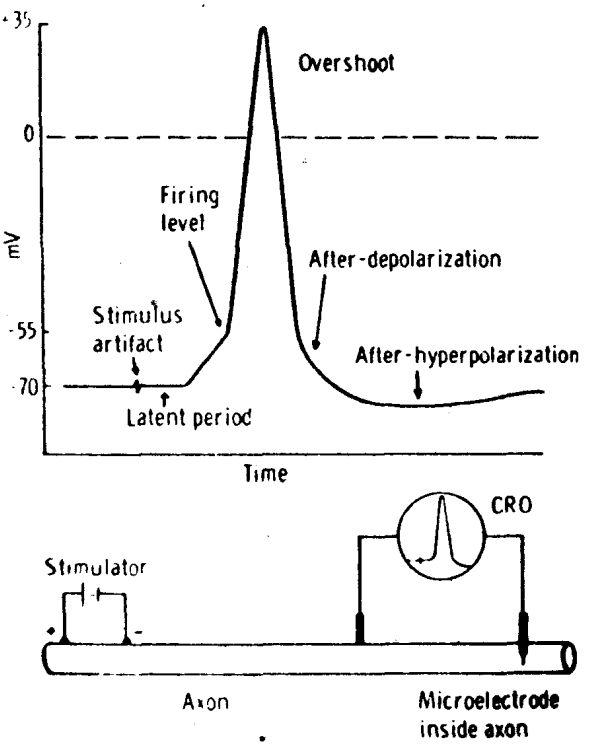
ACTIVATED CHARCOAL: A material which is nearly pure amorphous carbon. Its unique properties are due to its incredible internal surface area. Depending on its method of manufacture and the source from which it comes (which can range from petroleum and coal to peach pits and coconut shells), it can be designed to trap molecules of a particular size. Canisters of activated charcoal are commonly used to remove halogenated hydrocarbons from operating room air. The binding of material to activated charcoal can, to a certain extent, be reversed by heating.

ACTIVATED CLOTTING TIME (ACT): A blood test to determine the adequacy of heparinization for cardiopulmonary bypass patients. A blood sample is drawn into a special test tube that contains a magnet. The tube is then placed in an incubator-timer device, such as Hemachron (International Technidyne Corporation), where it is warmed. The time is noted from the start of the drawing of the blood sample until the machine detects changes in position of the magnet as it is moved by fibrin strand formation. With proper heparinization the ACT should approach infinity.

ACTOMYOSIN: The combination of actin and myosin, two proteins found in muscle cells. It is the longitudinal shortening of these two proteins as they interdigitate with each other which is responsible for muscle contraction. See Fig.

ACTUAL BICARBONATE: See Carbon dioxide total in blood.

I



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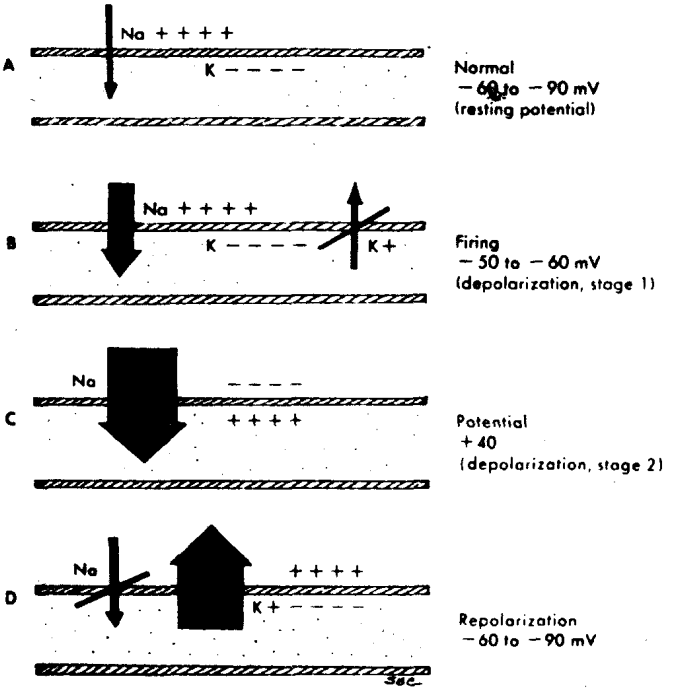
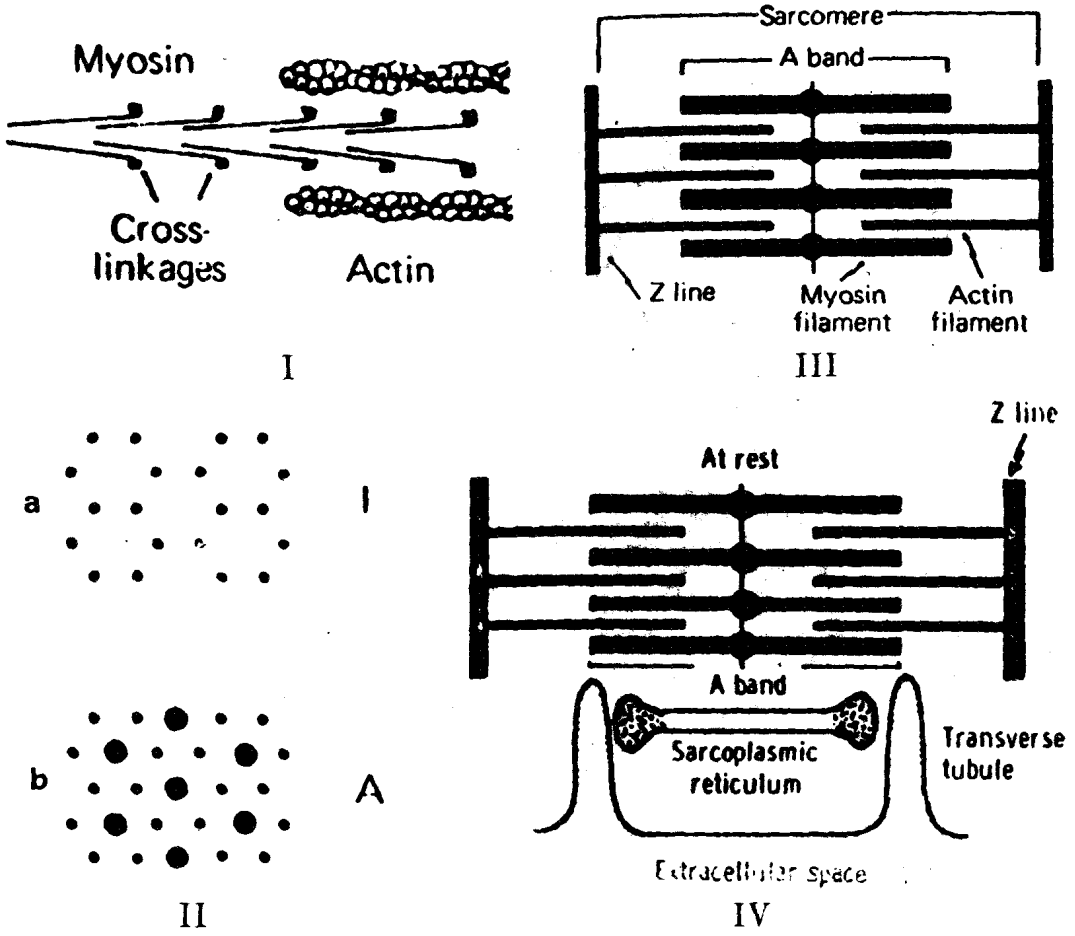


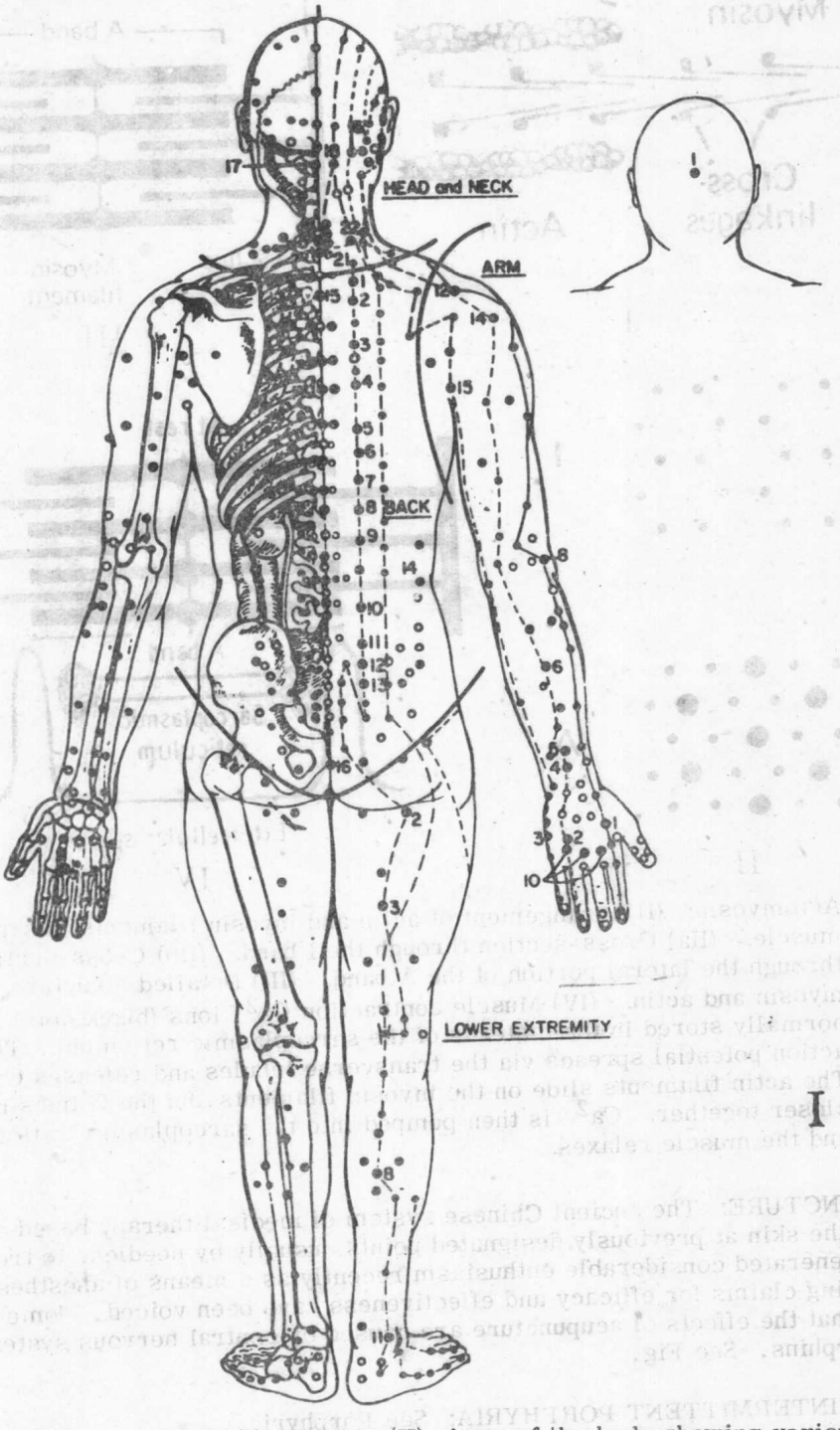
Action Potential: (I) Recorded with one electrode inside and one electrode outside the cell membrane. (II) Ionic shifts across the cell membrane which cause changes in electric potential.



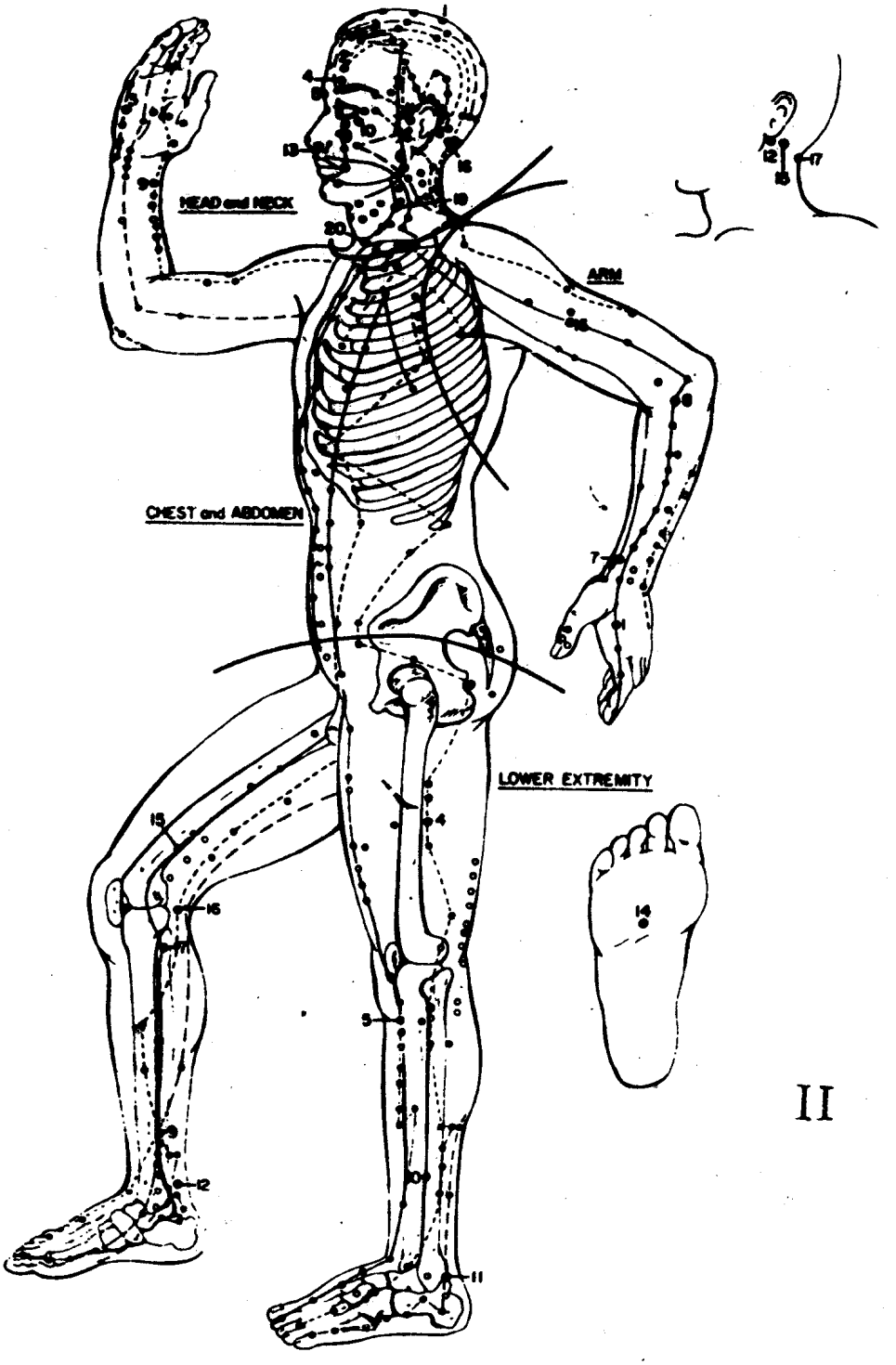
Actomyosin: (I) Arrangement of actin and myosin filaments in skeletal muscle. (IIa) Cross-section through the I band. (IIb) Cross-section through the lateral portion of the A band. (III) Detailed structure of myosin and actin. (IV) Muscle contraction Ca^{2+} ions (black dots) are normally stored in the cisterns of the sarcoplasmic reticulum. The action potential spreads via the transverse tubules and releases Ca^{2+}. The actin filaments slide on the myosin filaments and the Z lines move closer together. Ca^{2+} is then pumped into the sarcoplasmic reticulum and the muscle relaxes.

ACUPUNCTURE: The ancient Chinese system of medical therapy based on stimulation of the skin at previously designated points, usually by needles, to treat disease. It has generated considerable enthusiasm recently as a means of anesthesia. Widely conflicting claims for efficacy and effectiveness have been voiced. Some evidence exists that the effects of acupuncture are caused by central nervous system release of endorphins. See Fig.

ACUTE INTERMITTENT PORPHYRIA: See Porphyria.



Acupuncture: Back (I) and side (II) views of the body showing various points for the application of acupuncture. (Index of selected points shown on page 10.)



II

Head and Neck

1.	Vertex	hyakue, pai hui (GV20)
2.	Supraorbital	yohaku, yang-pei (GB14)
3.	Temporal	taiyo, tai-yang
4.	Mid-eyebrow	bichiyu, chien
5.	Glabella	Indo, yin-tang
6.	Inferior Masseter	kyoshiya, chia-che (S3)
7.	Infratemporal	Gekan, hsia-kuan (S2)
8.	Median canthus	seimei, chang-ming (B1)
9.	Midinfraorbital	shiyokyu, cheng-chi (S4)
10.	Lateral infraorbital	kyugo, chiu-hon
11.	Superior tragus	jimon, erh-men (T21)
12.	Posterior earlobe	eifu, I-feng (T17)
13.	Infranasal	jinchiyu, jen-chung (L1)
14.	Lateral oral angle	chiso, ti-ts'ang (S7)
15.	Inframastoid	Imei I-mong
16.	High lateral trapezius	Fuchi, fengs-chi (GB31)
17.	C1-C2	Amon, ya-men (GV15)
18.	Para C1-C2	Tenchyu, tien-chu (B10)
19.	Lateral thyroid	jingei jen-ying (S9)
20.	Supra Sternal	tentotsu, t'ien-t'u (CV22)
21.	C7-T1	Daizui, ta-ch'ui (GV14)
22.	Para C7-T1	Chizen

Chest and Abdomen

1.	Midsternum	danchyu, shan-chung (CV17)
2.	Subxyphoid	kyubi chiu-wei (CV15)
3.	Sub Breast	nyukon, Ju-keng (S18)
4.	Midepigastrium	chyukan, chung-wuan (CV12)
5.	Lateral umbilicus	tensu, t'ien-shu (S25)
6.	Upper hypogastrium	kikai, chi-hai (CV)
7.	Low hypogastrium	kangen, kuan-yuan (CV4)
8.	Lower hypogastrium	chyu kyoku, chung-chi (CV3)
9.	Suprapubic	kyoku kotsu chu-ku (CV2)
10.	Lateral inguinal	Iho

Back

1.	para T2-T3	fumon, feng-men (B12)
2.	para T3-T4 (lung)	haiyu, fei-yu (B13)
3.	para T5-T6 (heart)	shinyu, hsin-yu (B16)
4.	para T7-T8 (diaphragm)	kakuyu, ke-yu (B17)
5.	para T9-T10 (liver)	kanyu, kenye (B18)
6.	para T10-T11 (gallbladder)	tanyu, tanyu (B19)
7.	para T11-T12 (spleen)	hiyu, p'i-yu (B20)
8.	para T12-L1 (stomach)	Iyu, wei-yu (B21)
9.	para L2-L3 (kidney)	jinyu, shen-yu (B23)
10.	para L4-L5 (colon)	daichyoyu, ta-chang-yu (B25)
11.	para L5-S1	Kangenyu kuan-yuan-yu (B26)
12.	para S1-S2 (small bowel)	shyochyoyu, hsiao-ch'ang-yu (B27)
13.	para S2-S3 (bladder)	bokoyu, p'ang-k'uang-yu (B28)
14.	Lateral L2-L3	shishitsu chih-shih (B47)
15.	T3-T4	mumei
16.	Posterior anal	chyokyo, ch'ang-ch'iang (GV1)

Upper Extremities

1.	First dorsal web	gokoku, ho-ku (L14)
2.	Fourth dorsal web	chyushyo, chung-chu (T3)
3.	Fifth lateral metacarpal	kokei, hou-chi (SI3)
4.	Dorsal distal forearm	gaikan, waikuan (T5)
5.	Dorsal low forearm	shiko, chih-kou (T6)
6.	Dorsal upper forearm	shitoku szu-tu (T9)
7.	Radial styloid process	Ietsuketsu, lieh-ch'uen (L7)
8.	Lateral cubital crease	kyokuchi, chu-ch'ih (LI11)
9.	Volar distal forearm	naikan, neikuan (P6)
10.	Inter M.P. joint	hachuja, pa-hsieh
11.	Finger tip	jissen, shih-hsuan

ACUTE LABORATORY: A laboratory (operating room, blood gas, intensive care) usually staffed around-the-clock to deliver accurate quantitative evaluations of patient samples in a time which is only slightly longer than the analysis apparatus cycle time and the administrative bookkeeping time combined. Reasonable objectives of an acute laboratory are the determinations of blood gases, serum electrolytes, ionized calcium, serum glucose, fluid osmotic pressures, hemoglobin, and hematocrit. As an example, semiautomated analyzers for blood gas measurement usually cycle in 2 or 3 min. Therefore, an acute laboratory can reasonably be expected to report on every blood gas specimen received in under 5 min.

ACUTE TOXIC ENCEPHALOPATHY: See Reye syndrome.

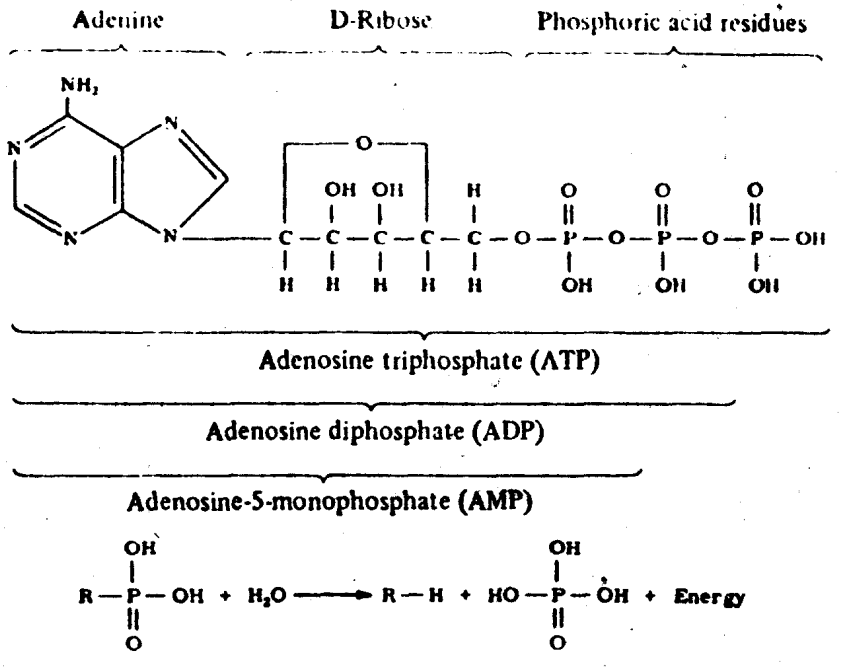
ADAPTATION: See Nociceptor.

ADAPTOR: A specialized form of connector joining two or more components which are otherwise physically incompatible.

ADDICTION: A pattern of behavior characterized by compulsive and undeniable use of a drug by self-administration for pharmacologically, physically, or socially unacceptable reasons.

ADDISON ANEMIA: See Anemia.

ADENOHYPOPHYSIS: See Hormone.



Hydrolysis of energy-rich phosphate bonds

Adenosine Triphosphate: Adenosine triphosphate, its subunits, and the basic chemical reaction for energy release.

ADENOSINE TRIPHOSPHATE (ATP): A ubiquitous, labile compound, present in all cells of the body, which provides energy for many of the body's biochemical reactions. ATP can function as an energy transfer molecule because the two phosphate molecules of ATP are joined to adenosine monophosphate by "high-energy bonds," i.e., making or breaking this molecular bonding requires a large amount of energy, in this case 8000 cal. See Fig.

ADENYL CYCLASE: An enzyme activated in many combinations of hormone and receptor sites which in turn causes the conversion of cytoplasmic adenosine triphosphate (ATP) into cyclic 3',5'-adenosine monophosphate (cAMP). See Receptor receptor site.

ADIABATIC: Occurring without loss or gain of heat. Anesthetically, adiabatic processes occur during the expansion and compression of a gas. In the adiabatic compression of a gas, no heat is added from the surroundings during compression. However, the temperature of the gas rises according to the following ratio: final temperature/initial pressure X final volume initial volume. This relationship, which is seen in regulator accidents, occurs when high-pressure O_2 is admitted to a regulator which has been inadvertently oiled. The gas already in the regulator is compressed very rapidly in an adiabatic process. As it is compressed, its temperature rises, surpassing the ignition temperature of the oil, causing a fire which will then be O_2-fed.

ADRENAL CORTEX: See Corticosteroid.

ADRENALIN: The term used by the British Pharmacopoeia for epinephrine. See Epinephrine.

ADRENERGIC BLOCKING AGENT: See Autonomic nervous system. Receptor receptor site.

ADRENERGIC DRUG: See Autonomic nervous system.

ADRENERGIC NERVOUS SYSTEM: See Autonomic nervous system.

ADRENOCORTICAL STEROIDS: The collective term for the steroid hormones synthesized and secreted by the adrenal cortex. (They are all derivatives of cholesterol.) The two classes of steroids are the corticosteroids (with 21 carbons, C_{21}) and the adrenal androgens (with 19 carbons, C_{19}). The corticosteroids are subclassified into mineralocorticoids and glucocorticoids. See Corticosteroid.

ADULT RESPIRATORY DISTRESS SYNDROME (ARDS): A symptom complex with many etiologies that is typified by severe hypoxia, increasing hypercapnia, interstitial infiltrates and edema, microemboli, alveolitis, and, as the disease progresses, frank filling of the alveoli with fluid and the appearance of alveolar hyaline membranes. Pathophysiologically, the most striking phenomenon observed is the severe reduction of lung compliance or "stiff lung," which is due to the interstitial infiltrates, filled alveoli, and an increase in absolute lung water. Stiff lung increases the work of breathing. The functional residual capacity progressively decreases, ventilation/perfusion mismatch increases, and alveolar dead space increases. Treatment is aimed toward immediate relief of the hypoxic condition, usually requires mechanical ventilation, and is often accompanied by positive-end expiratory pressure, while acid-base derangements caused by hypoxia and hypercapnia are brought under control. See Infant respiratory distress syndrome, Surfactant.