HISTORY OF MEDICINE

Surgery at Yale in 1843: Professor Jonathan Knight’s Lectures

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Student notes allow us vicariously to attend lectures of earlier times. Such notes are subject to gaps and inaccuracies based upon the limitations of the auditor. Legibility may be a problem. There are obvious differences between prepared lecture notes of a professor and those recorded by students. Despite the value of professorial notes, student notes, when available, may recover important parts of the lecture that otherwise might be lost.

From the notes that follow, we are able to observe what medical students of the first half of the nineteenth century were taught about surgical practice at Yale. The school was only thirty years old when medical student William Strickler McCorkle recorded these notes during the winter term of 1843-1844. At the time, antiphlogistic treatment was the accepted management of inflammation based on the theory that inflammation was a condition like fire that should be cooled and subdued. W.W. Keen of Philadelphia wrote in 1900 in his Textbook of Surgery the following:

The principal method of treating inflammation a generation ago was the so-called antiphlogistic treatment . . . .

It did not take into account the causes of the process, which are now so much better understood. This method consisted in the use of emetics, venesection, cupping, and leeching, and the administration of drugs like mercury, which was supposed to have an antiphlogistic tendency. This method has given place to antiseptic treatment, which has the important advantage of dealing directly with the cause of the disease [1].

Keen writing fifty-seven years after these lectures had the advantage of knowing about the work of Pasteur on putrefaction in the 1850s, of Lister on antisepsis in 1865, and of Koch in 1878, which demonstrated that wound infections were due to microorganisms. In the second half of the nineteenth century, mercury-containing drugs were recognized as being dangerous and were in the process of being eliminated from use and Keen would have been aware of this as well [2].

Professor Knight’s lectures of surgery at Yale are recorded in a student’s bound

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notebook along with those of Professor Eli Ives and Professor Henry Bronson. Ives' notes are on the practice of medicine and the diseases of children and Bronson's are on materia medica.

Howard A. Pearson has published notes from an earlier version of Eli Ives' lectures that "represent the first systematic and dedicated American course of instruction in what today is known as the specialty of pediatrics" [3]. He found seven different copies of Ives' lecture notes dating from 1813 to 1840 in the manuscript and archives of Yale's Sterling Library. I personally examined an additional student notebook of Ives' lectures in the History of Medicine Collection of Duke University Medical Center Library that was the work of one John P. Herrick of New Haven. There was no date recorded, and it did not contain lectures by Knight or anyone other than Ives.

Jonathan Knight was an original faculty member of the Medical Institution of Yale College at its organization in 1813. He first served as Professor of Anatomy and Physiology until 1838 when he became Professor and Chairman of Surgery. He served in this position until his retirement in 1864 and, in all, lectured for more than fifty years [4].

Knight was born in Norwalk, Connecticut on September 4, 1789, the son of Dr. Jonathan Knight, a Revolutionary War surgeon's mate, and Ann Fitch, the daughter of Dr. Asahel Fitch of Redding. He entered Yale College at age fifteen and in 1808 received his diploma. For the next two years, he taught in schools in Norwich and New London. In 1810, he returned to Yale as a tutor and at the suggestion of Professor Benjamin Silliman, Professor of Chemistry, Mineralogy and Geology, resigned his tutorship to study anatomy and physiology in Philadelphia at the University of Pennsylvania. In 1811, he was licensed to practice medicine by the Connecticut Medical Society. In 1818, he was awarded an honorary degree of M.D. from Yale College. He was active in the formation of a hospital in New Haven. Despite an extensive practice, he was active in the founding of the American Medical Association serving as president of the preliminary convention in 1846 and as seventh president of the organization in 1853 [5].

His one contribution to the medical literature was "Popliteal Aneurism Successfully Treated by Compression" in 1848. Burr, in a review, in the Yale Journal of Biology and Medicine reported that Dr. Jonathan Knight was "one of the great teachers and personalities of his time" [7]. Knight was known to be "imbued with a strong sense of justice" with regard to the humane treatment of the insane. His lectures were said to exhibit clarity of mind and were dignified without becoming dogmatic. His operations were guided "by thorough anatomical knowledge and with special dexterity or nimbleness of manipulation." At the time of his death on August 25, 1864, he was president of American Mutual Life Insurance Company.

Pearson in his book on Ives includes a biographical sketch of Ives, his bibliography, his materia medica, his medical procedures, and his lectures on the diseases of children. In the monograph Pearson uses primarily the 1829-1830 notes recorded by Alvan Talcott, Yale College Class of 1824 and Medical School, class of 1831. Pearson writes:

These are the most extensive of the available versions and are presented in more than one hundred pages as opposed to thirty to forty pages in other notes. They appear to be verbatim transcripts of the lectures and are written in the first person as Ives must have delivered them. Because of their arrangement, clarity, and cross-references, I believe it unlikely that they were written down in class. Rather they may have been transcribed from class notes taken by Talcott, perhaps in his own personal shorthand. I have chosen to delete many of the long and unreadable lists of agents and prescriptions but have retained
the classes of drugs that Ives used. I have added additional information and anecdotes from other notes where appropriate and made grammatical changes to produce a coherent final version [8].

Contrary to Pearson’s opinion regarding Talcott’s note taking, I believe that McCorkle’s notes were transcribed in class. Some notes are Professor Knight’s direct quotations and others are brief, sketchy, and incomplete. Professor Knight is quoted in one lecture as saying, “I propose to bring before you this morning certain lesions of the nervous system in consequence of wounds.” The notebook used for this study differs from the six- by eight-inch bound books that Pearson used from which to publish Ives’ notes. McCorkle’s student notes taken in 1843 are in an eight by ten-inch bound book with black and white marbled covers indexed for Ives’s, Knight’s, and Bronson’s lectures and prescriptions. Ives’ and Knight’s notes are written on alternate pages.

Ives’ lectures in 1843 as recorded by McCorkle were expanded to cover the entire practice of medicine and were not limited to diseases of children as were those recorded in 1829-30 as published by Pearson. For example, typhoid fever, pneumonia, bronchitis, jaundice, hepatitis, asthma, and angina pectoris are topics in this notebook.

Many of the lectures are dated and even on one occasion the weather is mentioned. In Ives’ lecture of Saturday, December 30, 1843, there is the following comment. “This is a cold morning for hysteria young gentlemen. But it will come upon you unannounced.”

The handwriting of McCorkle in his notebook is exemplary. There are only a few words that I have been unable to identify. I have found it necessary to alter spelling and to add in brackets my own words to make the lectures more readable. I have also given explanations of obscure and archaic medical terms from a dictionary contemporary with the lectures, Noah Webster’s An American Dictionary of the English Language of 1828 [9]. I used the Oxford English Dictionary freely in this regard. They are indicated in the following text as Webster’s 1828 and OED respectively. I made additional comments within brackets in the body of the lecture notes to assist the reader.

The note taker, William Strickler McCorkle, graduated from Yale Medical School in 1844. A card to admit him to Lectures on Anatomy and Physiology Term of 1843-1844 and signed by Professor Charles Hooker of the Medical Institute of Yale College is in the possession of his family. McCorkle was a descendent of an old English Quaker family that lived in Columbia, Pennsylvania, on land they bought from William Penn [10]. According to Officers and Graduates of Yale University 1701-1924, he died in 1864 [11]. He is buried in Mt. Bethel Cemetery, Columbia, Pennsylvania. His daughter, Emily, married an Army surgeon and her letters were published as An Army Doctor’s Wife on the Frontier: The Letters of Emily McCorkle FitzGerald from Alaska and the Far West, 1874-1878 [12].

McCorkle’s notes are to our knowledge the only available set of Knight’s lectures for a complete course and are here-with offered for their historical and general interest.
Adhesive inflammation [this process was first described by John Hunter according to Sir Astley Cooper in his lectures published in 1836.] Union will take place with any of the tissues of the body if brought in contact. The connecting matter of divided nerve, muscle or bone is peculiar to itself and in a healthy subject, union by the first intention will generally take place. Venesection and active cathartic should be generally avoided until inflammation takes place — if they will prevent it, they must abate it. Opium [is used] to allay irritation in small doses [as well as] friction or warmth to the part.

Comment: Throughout the notes McCorkle spelled “inflammation” with only one “m.” “Friction” was a therapy for inflammation cited by Sir Astley Cooper as follows:

Friction has of late years, got into great repute for the cure of indurated and stiffened joints, occasioned by inflammation; it was first recommended by the late Mr. Grosvenor, of Oxford, a man of strong mind, and who possessed a great share of common sense. This remedy was his hobby; and like all other hobbies, it occasionally carried its rider into the mire; for Mr. Grosvenor sometimes would recommend friction before the acute inflammation had terminated, consequently it was productive of mischief rather than benefit; in many instances, however, when judiciously employed, the most beneficial results have been obtained [14].

The exciting cause [is] from violence to the body.

Predisposing causes — first the natural temperature, the age and sex, climate and season, and a plethoric state of the body, the inflammation of internal parts.

Approximate cause — He referred us to the books.

In ordinary inflammation of a local character, no amount of treatment is necessary. There may be structural disarrangement or infusion into cavities of joints, etc.

Active treatment — Remove the exciting causes. If [there is] a foreign body, remove it. Attend to the position of the inflamed part. Favor the return of blood to the part and this will remove the pain. Place the part at entire rest. Endeavor to bring about resolution without suppuration.

Comment: “Approximate” is used in the sense of nearest to. See Webster’s 1828. Cooper advocated the importance of body position stating that “the power of the heart is greater [when recumbent] than in the erect position” [15].

Local Treatment — [Apply] cold and moisture to the part, cold water with lead acetate or mucilaginous ammonium acetate. Pour on or wet cloth [and] rinse off. [Add] common salt or ice to the water. Be careful of the ice. Do not freeze the part. There are exceptions. The pain of the eye or ear may be increased by this treatment; if so, use tepid water, sub-carbonate of Todd or potassium. During the night
make poultices of some of the above. [Use] narcotics as topical applications, opium, stramonium, belladonna, as pain aggravates the inflammation. Narcotics relieve the pain. Caution your patient [that] stramonium may dilate the pupil. [Perform] the local abstraction of blood with cups or leeches to the part. The constitutional distress must guide your venesection in eutonic inflammation. Venesection is demanded first by the state of the pulse, it being the principal guide — a frequent pulse. Internal inflammation will produce a more frequent pulse than external. ‘Tis not so much the frequent or full, but the hard tense pulse resisting compression that demands bloodletting.

Comment: Cold was advocated by Cooper to relieve inflammation by "abstracting heat, by lessening the diameter of the blood vessels and by diminishing the action of the part, through lessening of its nervous irritability"[16]. Chemicals added to the cold water were believed to "restore the secretions of the part, by which the tension of the vessels is removed, and the pain much abated"[17]. Stramonium was derived from the dried leaves and the flowering top of the jimsonweed, a name altered from Jamestown weed [18]. Cooper considered the abstraction of blood as "the most powerful means of reliving inflammation. Its beneficial effects principally result from producing a diminution of nervous power; and that it does this is proved by the syncope which it occasions"[19]. He also used leeches, which worked "by abstracting from the part a portion of its fluids, and consequently lessening the pain and tension" [20]. Cooper wrote, "the indication for bleeding is a hard pulse. In this state of the pulse the diameter of the vessel is diminished, yet the action is exceedingly strong, and each pulsation feels like the vibration of a wire: whenever, therefore, you find this description of pulse, you will be justified in taking away blood"[21].

[It is] not the amount of pain of the wound alone but the accompanying pain of the head and back, especially, if there is delirium and dryness of the surface of the body. Venesect. But, if the pain follows previous exhaustion, or some local disease, blood should not be drawn. Again, you are to judge from the appearance to decide whether your bleeding was proper. If the amount drawn is cupped anduffy, or either, you have done good and [if it is] necessary, it may be repeated. The constitution and age of the patient should be observed. Youth generally will lose more blood. Also, a person with fullness of the veins externally [will lose more]. If it lays flat and flabby in the bowl, the bleeding was not judicious. In a child from two to four years from three to four ounces may be taken.

Comment: Again, in Cooper, "The indication for repetition of blood-letting is said to be auffy state of the blood, but your decision must be governed by this appearance, you must still have a hard pulse. When blood is cupped it is said to be proof of strength, and that bleeding should be repeated"[22].

Cathartics excite the action of the alimentary canal and promote the secretions of the mucous membranes, the liver, pancreas, etc. The neutral salts are both cathartics and refrigerants, and beneficial in inflammation after mercurial cathartics.

Comment: Purgatives were thought at the time to restore the secretions that were considered to be depressed in inflammation. "To excite the intestinal canal should be one of our first objects. This may be done by purgatives; and they afford relief in nearly the same manner as the abstraction of blood from the arm"[23]. Webster’s 1828 defined “refrigerant” as, “among physicians, a medicine, which abates heat and refreshes the patient.” As a medical term its usage dates back to1599 in the OED.

In small pox the veins [are] the specific and exciting cause and thus the disease varies in different constitutions or according to the state of the constitution.
FRIDAY, OCTOBER 6, 1843

In inflammation with furred tongue and much nausea, [give] tartar emetic in small doses one-fourth to one-sixth grain in combination with opium, subacetate and mucilaginous drinks. [Give] mercurials first in full doses [and] then in small, [but not enough] to produce ptyalism, but [enough] to change the secretions. After free depletion [give] narcotics combined with emetics.

**Suppuration**

A yellow or straw-colored fluid. Know from others. Its formation, globules, a fibrin which may be separated and a coagulable serum. The quality is often changed, first by any febrile disease, which will change it to a dirty fluid again, any change in the cavity from which the pus flows and a free circulating ulcer exposed to air will alter the pus and also by irritation or any thing that may change the secretion of the surrounding parts by its proximity to any of the cavities lined by a mucous membrane. [These] may change it in any of the tissues.

As an abscess advances all the tissues adhere to each other, the membranes absorb, and the covering of the abscess becomes thin as it advances to the surface externally or internally toward any of the great cavities. The pus never becomes diffused through the membranes, but remains within its sac until it reaches the surface. The same law prevails in deep-seated abscesses, even in the liver. When the pain is of a cutting nature, pressure may relieve it.

The change in the form of the tumor as it advances toward the surface is an indication of pus. The skin changes after a time. The cuticle comes off. Oftimes [there is] a subcuticular abscess but the deep-seated [one] lies beneath. When it opens externally, its character is changed and it is called an ulcer. When pus is formed and suppuration takes place, the pain is more of a throbbing kind and varies by handling in some parts. The pain is more violent after suppuration and the highly inflamed part changes color, from bright pink it becomes dark. A cold shivering sometimes announces the first appearance of pus. As pus increases, rigors and a hectic fever sometime [develop].

*Comment:* Cooper describes hectic fever in abscesses as a "continuous fever, i.e. rigors followed by heat and a sweating stage" [24].

The sense of fluctuation in an inflamed tumor of deep-seated parts is not so easily determined.

Care is needed then. There are many elastic tumors, but not containing pus, or any other fluid, especially on the limb where there are many small muscles.

**Treatment**

The matter is sometimes absorbed, the cyst becoming an absorbing membrane. [Use] warmth and moisture and blisters or an iodine ointment. Pus is the result of insidious inflammation.

A superficial abscess may be suffered at times to go on but great pain, much constitutional disturbance etc. may be relieved or prevented by an early opening.

Situated about the pharynx or larynx and near or upon any of the large veins, they should be opened to relieve and prevent deformity. As a general rule, open them as soon as you are certain of pus artificially and make your incision at least twice the length on the surface as the depth.

**Opening an abscess**

Apply caustic and lime over the tumor just to a certain part. Cut a hole in a piece of adhesive plaster and apply a forceps of a specific character, advancing slowly and not pointing to the surface. This treatment is necessary. The caustic excites new action and absorbs the loose flabby texture. In other cases [use] the lancet, and
according to the structure of the abscess, make your opening. Abscesses of a scrofulous character require a larger orifice. Also, under deep fascia, the pointing of the abscess is the point at which it should be opened. Avoid any parts of vitality, nerves, and blood vessels. The tonic contraction of the abscess will be to force out the pus. Lint may be applied with simple ointment to keep it open. You may bandage to prevent motion [by using] poultices, etc.

Comment: Webster’s 1828 defines “scrofula” as “a disease, called vulgarly, the king’s evil, characterized by hard, scirrhous, and often indolent tumors of the glands of the neck, under the chin, in the armpits, etc.” Cooper described the condition. “The best example of specific inflammation is scrofula. Persons attacked by this disease have generally light hair, fair complexion, delicate appearance; when inflammation occurs, it is slow in progress, although easily excited; and at last, ulceration taking place; the discharge consists of curdy matter, or a thin serous fluid, not at all resembling the pus which is formed in healthy inflammation” [25]. The disorder was later recognized as a manifestation of tuberculosis of the cervical lymphatics.

The chronic abscess symptoms of inflammation are generally wanting, and they increase but slowly producing neither constitutional disturbance, pain, nor a fluctuating tumor.

First, the absence of all those symptoms must guide you in our diagnosis. Second, the feeling of the tumor. The various tumors may deceive you. A chronic tumor is attached to all the parts around and [it] cannot be rolled about. This is not the case with any independent tumor. There is a peculiarity in the feel. If the tumor is soft, with a hard margin with the natural feeling of the parts around, the indications are in favor of a chronic tumor.

SATURDAY MORN, OCTOBER 7, 1843

Great care is needed to distinguish between a chronic abscess and a fungoid tumor. There are simple and complicated chronic abscesses. The simple [are those] without any inflammation - The complicated are often accompanied with disease of the bones or tendinous substance and to distinguish between is often difficult. A puncture may be made and will help in your judgment. Use a grooved needle.

Comment: “Fungoid tumor” is defined by Webster’s 1828 as “any morbid excrescence, whether in wounds or arising spontaneously.” “Proud flesh” is exuberant granulation tissue in a wound. The term dates back to the fifteenth century.

Treatment

Simple abscess — open or when open treat. As a simple abscess, avoid inflammation.

No inflammation follows a wound if the lips are brought together and they unite by the first intention, but if they are apart, it appears first at the lips and goes on through the whole membranous cavity and suppuration comes on with local and constitutional disturbance. Treat as a common phlegmonous abscess.

I refer you for a moment to serous cysts generally about the neck and trunk, often deep-seated, again subcuticular. They generally increase with naught to determine their character if deep-seated. As they near the surface you may detect a fluid. The sac varies from a thin delicate to a firm thick structure, that oftentimes [have] a thin secreting membrane resembling those in the cavity of the body. If it is a serous cyst, no pain is felt. Early there is a pricking, tickling sensation when pus is formed in an abscess. A case is recorded over leaf.
**A Case of Serous Cyst Related by Professor Knight, M.D.**

A female, age seventeen consulted me for a tumor deep-seated under the pectoral muscle upon the left side. It had been of long standing [and was] increasing slowly. When small there was no constitutional disturbance or pain. Light local applications were all that was necessary. After a time it increased, even to the elevation of the arm. There was pain from pressure in the cavity of the axilla of the nerves down the arm. Soon, I could perceive upon handling [it that there was] a sense of fluctuation. I punctured it and from it flowed from three pints to two quarts of thin serous fluid. In two weeks it filled to the same size. I then introduced a trochar, drew off the serum and injected port-wine, drew it off and bandaged the parts together. The second day there was heat of the skin and a little arterial excitement. There was no treatment requisite and the disease never returned.

*Comment:* Port wine was introduced into the cystic cavity as an irritant in hopes of obliterating it by "adhesive inflammation" of the walls.

**MONDAY, OCTOBER 9, 1843**

**Complex chronic abscess**

With disease of the bones, the lumbar vertebrae or in the neighborhood, slow inflammation causes excoriation of the bones. It may originate posterior or inferior to the quadratus lumborum. The psoas abscess generally passes down through the opening with the iliac artery and makes its appearance upon the groin.

The lumbar abscess [is situated] upon the anterior portion of the quadratus near the lumbar vertebrae. These abscesses never pass through any of the muscles but pass round or between and under the fascia and pass down to the posterior portion of the pelvis. The disease is generally slow in its progress but fatal. They ultimately succumb.

**Cause** — The exciting cause may generally be applied a long time before [and be] from falls, bruises, or sprains.

**Symptoms** — [There is] an inconvenience in carrying the body erect. [The patient] cannot bear weight upon the upper part of the body and inclines to the side affected or forward with the body or limb upon that side flexed.

An abscess may be confounded with an aneurysm or enlarged gland. The diagnosis is sometimes difficult.

*Comment:* This is a description of Pott's disease; a tuberculous abscess arising in a lumbar vertebra that presents clinically as a groin abscess. Cooper states, "in this disease the matter begins to collect in the fore-part of the vertebrae and proceeds through the psoas muscle, till it reaches the groin, where it makes its appearance just below Poupart's ligament; and from examination of these cases after death, the vertebrae are found ulcerated" [26]. Knowledge that tuberculosis was the etiology awaited Koch's discovery of the bacillus in 1882.

**TUESDAY, OCTOBER 10, 1843**

**Treatment of psoas abscess**

The opinion of the day is to let it take its ordinary course. If you open, you had better apprise your patients of the danger of inflammation if the wound does not unite by the first intention. Even if the parts unite by the first intention, pus will again secrete [and the wound will] open again and again in the cavity and fill to its original size. After a time it becomes small, and may be left open. There will be no constitutional disturbance. Make your wound so that it may readily unite and the pus be easily discharged. After several openings to produce adhesive inflammation, you may inject the cavity with corrosive sublimate, ten grains to the pint. Let it remain ten or fifteen minutes if no incon-
venience is felt. Withdraw it and bring the parts together. The opening must be of considerable size. The matter is not pure pus; there are flocculi in it. Favor the wound by raising the pelvis to prevent the matter from flowing against the lips of the wound and prevent the air from getting into the sac. Place your patient in a recumbent position. Various injections are used, port-wine and water, zinc sulfate, terebinthinate, etc., but, corrosive sublimate is the best. If there is much disease of the bones, they had better be left, without any treatment. Recovery is doubtful.

Remedial [treatment] should be applied to disease of the bones. There is often curvature of the spine and much tenderness, etc. The local abstraction of blood by cupping or leeches [is performed]. When there is local tenderness or irritation, a seton or an issue [promote drainage] and [the wound] kept open for a long time. [Use] cathartics, jalap and cream of tartar. It may be arrested even after the abscess is formed. [There should be] no handling of the part or probing. You [might] inflame the membranes and vessels. All foreign bodies irritate and inflame.

Comment: A “seton” is a tape or strip of cloth used to keep an abscess open. An “issue” is “an opening made to promote drainage,” according to Webster’s 1828. “Jalap” is a purgative derived from the roots of a Mexican plant and ultimately is named for the city of Xalapa in Mexico. An early use of the drug is documented by John Hall, physician and also son-in-law of Shakespeare, who used it in 1629 on a forty year old man who complained of “extreme vomiting, wind of the stomach, difficulty breathing, and constipation of the belly and scurry.” Jalap along with cream of tartar and a terebinth pill were said by Hall to have “wrought well” [27].

Abscesses — aposteme, the generic name [with] different names [depending on the location]

Comment: “Aposteme,” a word for abscess dates back to the fourteenth century in English. The aforementioned Hall treated a patient with an apostem in the stomach which broke [28].

WEDNESDAY, OCTOBER 11, 1843

Mortification

It is generally known by the insensitivity and lividity of the part, and by the fetor it exhales, a gangrenous sore, indurated edges, [and] a thickening of the parts, more commonly of membranous or glandular. The remedies are those which increase the action of the skin. Turpentine plaster, liniment, and ammonia water mixed with olive oil. [Use] a portion of turpentine mercurial plaster with a greater part of gum galbanum, iodine ointment, and cerate. Produce irritation without venesection with iodine and burgundy. Iodine with hard plaster [is] less irritating than any of the others.

Hectic fever

[It] comes on when the system is debilitated by long disease. If absorption takes place from the walls of an abscess, hectic fever may not appear. The pulse is always frequent, 120 to 130. [There is] usually a feeble and variable appetite [with the patient] relishing a small quantity of food. Nausea and vomiting [may occur] if the stomach is loaded. [The] skin is moist. [There occurs] a period of sweating during the twenty-four hours. Usually at night [there is an] exacerbation, with slight chilliness about midday passing off with profuse perspiration. [There is a] moist tongue. The patient will sleep and wake. Exhaustion [occurs]. [There is] a definite circumscribed red spot upon the cheek. The urine [is] pale and abundant early in the disease, and more abundant in the hours following. Many symptoms come on. Profuse perspiration, languor, and a
general wasting [ensue]. Colliquative diarrhea [develops] and death [occurs] if the exciting cause is not removed. Remedies may be employed to palliate and prolong life and make it more comfortable. [Give] tonics when there is general wasting, quinine as substance or in solution. As the stomach becomes digested change your medicines. [Give] silicium from one to two grains every hour or two and zinc sulfate in pill or solution one-half to two grains in turn. The mineral acids [such as] sulfuric are given as a drink. [Advise] nourishing food. Opium is required if nervous irritation is present, in small and repeated doses one-half to one-third grain every three to six hours.

Comment: Colliquative refers to a profuse discharge of fluids. Zinc sulfate was given as a tonic to increase the appetite, a use suggested in the materia medica lectures of Professor Henry Bronson of Yale that are recorded in the same notebook as are the 1843 surgery lectures.

Phlegmon — A subcutaneous tumor

First, phlegmon communis. A simple suppurring tumor upon the surface of the true skin requiring little treatment

Second, phlegmon oralis — in the mouth under the fascia. Gum boil. Its exciting cause is often a disease of the bone. Ofttimes there is great pain and tenderness with tumefaction of the face. Suppuration follows rapidly. General treatment for inflammation: Open from three to eight days to prevent the opening of itself upon the cheek. If there is disease of the tooth or alveolar process, there will be fistulous opening until the dead bone is removed.

Third, phlegmon auris. Generally occurs under the lining membrane of the external auditory foramen from exposure to cold, etc., generally appearing in children. The local pain is out of all proportion to the amount inflamed. Pain in the head and irritability of the nervous system [occur]. From three to five days the membrane will rupture and a serous discharge takes place. Puncture early to prevent pain and constitutional disturbance.

Treatment

Emollient poultries. A good one is boiled onion. Narcotics are often required. The pain is greater at times; sometimes there is inflammation of the bone. Keep open a fistulous tract. There will often be a discharge from the ear for a long time. It should not be healed too suddenly. It may bring on inflammation of the brain. Sometimes the temporal bone is affected, more generally the external margin of the auditory foramen. First, a feeling of hardness without any tumefaction comes on with great nervous irritability or irritation, and sometimes delirium. Early open it down to the bone as soon as you can detect fluid or even before because of the temporal artery.

Comment: With reference to a boiled onion poultice, Cooper states that “the kind of poultice to be applied to the part is of little importance; linseed-meal and water, bread and water, etc. No stimulating action would do; the object is to preserve the heat and moisture to the part, and to prevent evaporation” [29].

Fourth, phlegmon parotidia, i.e. of the parotid gland. Inflammation and suppuration seldom are to be seen of the gland itself but of the firm fascia which surrounds it of its own fascia. Along with the gland is enclosed an amount of cellular substance. This may become phlegmonous. It is excited frequently from inflammation within the mouth, a diseased tooth, etc. [There may be] severe pain, a hardness of the part with an amount of inflammation; sometimes the whole side of the neck and face is inflamed. The matter is slow in reaching the surface from the amount of fascia and muscle. But as soon as it can be distinguished, an opening should be made for it may not open for weeks and produce great inflammation,
forming sometimes upon the under surface of the gland. They open into the fauces. The process is long and painful. The jaws are swollen and closed and the patient cannot swallow.

Comment: This is a description of acute suppurative parotitis.

Fifth, phlegmon bubonis — the glands of the groin. [It may come] from exposure to cold and moisture, from wet feet, the glands of the groin or a sore upon the foot etc. (the hands and the axillae). The determination is to resolution. An action upon the skin is necessary. Unless they are reduced, they will proceed to suppuration. An early opening is requisite.

Sixth, phlegmon mamma — inflammation of the mammary gland, during pregnancy or soon after parturition, sometimes during lactation. Milk abscess is often taken for it.

A case of milk abscess in a mother when the child was a year old. It was smooth externally and gradually increasing. When the size of my fist, I first saw it. I found it as not scirrhous, [but] uniform in feel and not indurated and between soft points, I detected a slight fluctuation. Under these circumstances I ordered mild applications. It increased to the size of a quart bowl. There was then distinct fluctuation. I opened and a fluid-like cream or milk flowed out without any flocculi... probably from some of the milk ducts.

Mammary abscess of the gland itself is of the cellular tissue [and occurs] generally three to six days after parturition. When the breasts are filled with milk twill be smooth, hard, and painful to the touch. [There is] a distinct tumor in the gland itself or the cellular substance around. At the same time there will be symptoms of constitutional disturbance [such as] rigors, pain in the head and back, skin hot and dry, fever, etc. The tumor increases and a mammary abscess is formed. If a portion of the gland is affected there will be more pain and soreness extending to the axilla, etc. If [it is] in the surrounding cellular substance, the symptoms will be less. If deep-seated, the pain will be great and the progress slow. It may terminate by resolution or suppuration. The former should be attempted. Treatment [is] similar to other inflammations, [i.e.] local bleeding, mercurial cathartic pills, and senna and salts to produce large watery evacuations. If there is much disturbance of the stomach and a furred tongue, give an emetic, ipecac if the patient is of a delicate or debilitated habit, tartar emetic, if the contrary. Cold applications are improper, particularly if the patient has just gone through parturition. It may bring on inflammation and puerperal disease. The treatment by other local remedies is not good here. [With] warmth and moisture, suppuration will take place. Sometimes an early opening should take place if [there is] a superficial abscess and the patient [is] in good health but generally the following would forbid an opening. First deep seated under the gland, matter will form early and [be] covered by the gland itself. Its process will be slow. There will be great pain in the part if opened. Sinuses will appear and remain long open and will be hard to heal. The matter will flow slowly. It may accumulate in the passage and new abscesses may form again. For this reason, I let them adhease to the surface ere I open. Patients are often affected after parturition by slight constitutional disturbance. During the periods there will be hardness of the gland. If distinct inflammation comes on, I suffer it to go on to suppuration itself. [Use] emollient poultices, mild cathartics until it is covered with naught but the cuticle.

Phyma hordeolum — i.e., sty, showing itself upon the eyelids — a small tumor, no pain at first. [It] increases in size and becomes very painful shortly after it is formed. There will be an apex, and something like purulent matter. It sometimes
extends to the eye itself — [Use] emollient poultices, mercurial ointment.

P hyma furunculus — boil. Always subcutaneous in any part of the body. First [there is] a small tubercle just under the skin, hard to touch, and as it increases it becomes painful. The cuticle becomes elevated [with] a drop of pus under it. The cuticle is rubbed and this is discharged. There is then inflammation, rather irritation, pain in the head and back. The bowels, if affected, are constipated; the tongue is furred. [There is] a depression upon the outer surface of the skin and when ulceration takes place, there will be a discharge of thin purulent matter. Ulceration goes until the pathological surface is loose and the matter is thrown out. You have an ulcer. About the firm parts or in the joints, it is more painful and hard to heal. Treatment — resolution cannot be hoped for. Cold water, neutral salts, [will] retard the progress of inflammation. Local treatment that will retard the progress of inflammation is not good. By some they are cut out, but it increases the sore. Warmth [with] moisture is the best remedy. Emollient poultices [are advised] suffering it to go without opening. Then [use] a simple, mild plaster. [Give] general treatment if any is necessary. Disorder of the system will lead to their increase or continuance. Mild cathartic, regular diet, etc. may remove the tendency.

SATURDAY, OCTOBER 14, 1843

A tumor [was] taken from the abdomen of a female about thirty years of age, of a hard nature, regular in its appearance, and not lobulated like an adipose tumor. There had been no constitutional disturbance and it was easily taken away except for some little caution in dissecting it from the parts underneath. There was nothing left but a thin fascia and the peritoneum, next the cavity of the abdomen. Its external appearance [was] smooth and regular. Internally [it was] of a scirrhous character [with] light colored edges and dark in the middle.

MONDAY, [OCTOBER] 16

P hyma anthrax — carbuncle

Whatever portion is affected is vitally so and having thrown [it] off, it affects other [parts of the body] beside the cellular tissues. When the part is dead it becomes a foreign body ere it is thrown off. Anthrax differs entirely from furunculus. It may make its appearance upon any part of the body. The local affection shows itself suddenly, loss of appetite, furred tongue, and much disturbance. First, a general irritation or itching [develops] and the part [is] stiff. There a number of small points show themselves elevating the cuticle. They soon rub off. The parts will be firm and solid to the touch. A large surface [is] inflamed. Then come on the various symptoms, slight delirium, wandering, pulse 120 to 130, quick and frequent, easily compressed, an entire loss of appetite, nausea and vomiting, great thirst, then exquisite pain of a burning, stinging kind [that is] hard to tolerate. The constitutional symptoms increase; the force of the circulating system is lost. When ulceration takes [place], you will find from one to a dozen openings, half-formed pus or a dirty colored, sanious fluid excoriating the skin as it passes out. The openings become large and troublesome. About the head they are dangerous.

Comment: Until Pasteur discovered the organism responsible for “splenic fever” in sheep and cattle in 1876, the word “anthrax” referred to a carbuncle, both words derived from the word “coal” in the sense of a burning coal, “anthrax” from Greek and “carbuncle” from Latin. Since Pasteur’s discovery, anthrax has only been associated with the infectious disease of animals and humans. “Sanious” is defined in Webster’s 1828 as “thin or serous.”]
Treatment

Depletion is seldom called for. If [there is a] disorder of the digestive organs, mercurial cathartics are kept up until the stools are changed. [Use] an emetic, ipecac or ipecac and zinc sulfate or emetic and cathartic together if there is nausea and a furred tongue. The local treatment [is] to produce resolution. First, a blister. [Use] silver nitrate to vesiculate. Relieve the symptoms. Then emollient poultices. Another plan [is] to make deep incisions into and all around the inflamed part. It may be done if the disease is too far-gone to vesiculate.

Erythema of the skin

Erysipelas — a modification of common inflammation. There are three kinds. First, from a light wound or scratch, redness of the part, darker than a phlegmoneous ulceration, gradually extending to an indefinite point. The pain is of a burning kind. Tumefaction [develops]. The cuticle is elevated and extends with the redness. There is a thin fluid secreted under the cuticle. The disease is not a dangerous one. These vesicles break and the cuticle falls off in their branny scales. The symptoms differ from phlegmon [where there may be] delirium and a soft, small, frequent pulse. The digestive organs are disordered. It comes on spontaneously in debilitated or indolent habit, in persons of a flabby texture [with a] tumid abdomen, in women generally and upon the ankles and legs. [It] extends gradually encircling the limb upward and downward, sometimes over the whole body.

Another form shows itself upon the head and face, proceeded by a chill of some severity, fullness and uneasiness in the head, almost to bursting, heat and dryness of the skin, restlessness, sleeplessness, [and] loss of appetite. This may continue some days. First after a small red spot is seen upon some part of the head, extending around, there will be great tumefaction as it affects the eyes, nose, or mouth. [It is] supposed to begin in the arachnoid membrane. Dark colored serum of a peculiar character with a coagulable lymph floating in it is seen upon post-mortem exam. Erythema of the cellular membrane is more common of the subcutaneous [tissue]. It may arise from wounds small or large.

TUESDAY, [OCTOBER] 17

Of all the species of erysipelas, the pain is greater than the exciting cause. The pulse is generally quick but easily compressed. In the second form, generally in old age, or advanced life and upon the extremities. In bilious erysipelas, the third form, the head and face are attacked coming on with chills. Strange noises are heard for several days before the sore is seen. Erythema of the cellular membrane sometimes comes on spontaneously. A case was related of erythematosous inflammation of the arachnoid membrane of the brain where spicula of bone were driven through the dura mater. On being removed a dark colored serum flowed out. The patient sank under the disease. It may come on in necrosis, either of the bones or periosteum. A similar disease may affect the blood vessels, especially the veins, [with] phlegmonous inflammation of the veins terminating in suppuration. It may follow venesection. The lips become inverted and will not unite. A dark serum is poured out. [It] follows in malignant disease, scarlet fever, etc. The peculiarities of the disease are first in its sensation of a burning, stinging kind. Second, the tumefaction is not circumscribed but diffused and less firm, of a doughy feel. Third, the color is darker, not that bright scarlet of phlegmon. Fourth, there is no effusion of coagulable lymph. There is no limit to the extent of the disease. It runs independently through the veins. Fifth, the matter pours out. It is a sanious fluid, a dirty serum, highly vitiat-
ed, offensive, a deathly smell [that] pours out [in] large quantities and not into a confined cavity as when pus is formed. It is diffused into the cells of the cellular membrane and widely diffused through them, the fluid exciting the disease. It becomes a stringy slough like tow. The change of secretions to purulent matter takes place before recovery. Sixth, the extent of the disease is out of all character to the amount of injury. Sometimes [it] arises from a small scratch, from a wound of a fish, etc. When recovery takes place it is through phlegmonous ulceration, purifying granulations filling up the cavity.

Comment: Bilious erysipelas was not necessarily indicative of jaundice but was a condition with symptoms of malaise, constipation, headache, and indigestion that was attributed to an excessive secretion of bile and was indirectly based upon the ancient Greek's humoral theory of medicine by way of Galen.

WEDNESDAY, [OCTOBER] 18, 1843

The constitutional peculiarities of erythema are great nervous irritability and vitiated secretions of most all the mucous membranes. Muscular strength fails suddenly. The pulse [is] frequent, from 120 to 130, often quick, rarely hard. Sometimes hardness is felt from the tumefaction of the parts. It will be uniform. Ossification is generally in rings. The state of the skin varies, in the beginning hot and dry, pungent to the feel, [and] similar in malignant fever. Then moisture follows upon the upper part of the body and goes on to colliquative sweat. The urine [is] scanty and high colored in the beginning, and then dark colored and offensive [leaving] a deposit like coffee grounds. Tongue [is] covered [with] a slight brownish coat, the papillae obscured by a mucous coat, ultimately black. The fur on the tongue cracks and is thrown off. The lips become dark and crack, the tongue and fauces similarly. Seventh, the stomach, generally [shows] nausea, the appetite gone, great thirst commonly. The bowels are easily constipated though sometimes may be easily moved. After the first evacuations, the stools are loose, offensive and of a tarry color. Then diarrhea comes on [as] colliquative diarrhea.

The cause first [is] neither childhood nor early youth except [with] necrosis or infantile erysipelas. Second, [it] rarely appears in healthy persons. The digestive organs are generally out of order. Some have [the] disposition.

Predisposing cause — That state of the digestive organs from excess in eating and drinking predisposes to erythematic inflammation, and exposure to cold and warmth, [leading to] to wasting evacuations. Sometimes the course is slow, generally from wounds of the extremities. Individuals are differently affected from excesses in the use of ardent spirits. Those who show the excess, have a skin full are the ones predisposed to erythema. Those whose nerves become affected and are made wild by its effect are not predisposed. Third, exposure to cold and moisture. Fourth, exposure to malignant epidemics. Also, causes [that] prevent union by the first intention. Fifth, impure food, debility, etc., [or] long continued abstinence from food. The capillaries lose their power of action. If the heart fails to receive sufficient blood, it loses its power. If the stomach does not receive its nourishment, it becomes feeble and diseased. The disorder of the digestive functions is one of the principal causes of erythematic inflammation.

Erythema — the loss of the power of capillaries to secrete coagulable lymph. The bite of a viper, infiltrating urine into the surrounding cellular substance and all highly irritating fluids will produce it.

Treatment. St. Anthony's Fire — erythema of the skin. From disorders of the bilious functions, you must be guided by
the state of the digestive system. [Use] mercurial cathartics to change the secretions in small doses, five to ten grains. Mercurous subchloride. Its action is slow. Give until bile is seen in the evacuations.

A case

I injected corrosive sublimate, ten grains to a pint of water, into a deep abscess to produce phlegmonous inflammation. It brought on ptyalism. The character of the disease was changed and the patient recovered.

There is a difference of opinion in regard to early evacuations. Some recommend free depletion similar to phlegmon, but great debility [and] the small and frequent pulse will not admit of depletion with us. The only symptom for bleeding here is hot skin of a pungent feel. Venesection would increase the heat of skin and nervous excitement. Different from this is that state when there is great determination to the head, the flushing, and hardness of the pulse, etc. Here bleeding may be of benefit. If there is nausea and a bad taste in the mouth, [give] emetics, ipecac or with eight to ten grains of zinc sulfate to carry off the excitement from the bowels. Opiates [are given] if there is nervous irritability with ipecac, etc. [and are] repeated often, every four to six hours. Often previous to desquamation a tonic may be given. The vegetables are preferred, from one to four grains, [very] three, four, or six hours [of] quinine according to the state of the patient. If increased, pressure in the head, tinnitus auriurn, [a] symptom showing it should be reduced or stopped. Alcohol [is given] after the cuticle is elevated.

Comment: “Determination” at the time referred to the tendency of blood to collect in a part of the body, in this case the head. See the OED.

Rule for the quantity of alcohol to be prescribed. If it produces unusual excitement of the brain, it is inadvisable. If not, but a pleasurable excite, it is the article and will be certain to do good. It may be given in the latter stages of all forms. Push the medicines to the farthest extent. Adjuvants to quinine [are] any of the vegetable tonics. Cornus succinatus-It is an astringent and local tonic producing increased vigor of the system and restraining the predisposition to colliquative diarrhea.

[Give] opium to prevent the disturbing effect of other medicines and allay nervous excitement. This treatment is good for all forms of erythema. Local Remedies- Keep the part covered to prevent the air from the part with anything except ointments. [Use] a mild liniment, oil and limewater. If you can bring about a change in the capillaries, you can obviate the disease at once. Then apply a blister, not only to the inflamed part, but beyond; it affords immediate relief. The application of silver nitrate is now used and of such a strength to produce the separation of the cuticle.

FRIDAY, [OCTOBER] 20, 1843

Remove all oily matter from surface, wash first with some alkali, and then cover all the parts around, except such as are to be touched with silver nitrate with some ointment. Then, in the second place, rub a portion of silver nitrate in some water, about as thick as paste, and apply with a pencil. Continue until you see the effect. Venesection will generally be productive and remove the pain. Or the stick may be used. Continue as above until you vesicate. It is likely to stop the disease; at least it does no harm. A blister [is] preferable, if the disease [is] on the face. The blue ointment is used for cutaneous erythema. I like the mercurial ointment better.

There is a difference of opinion with regard to local depletion. The common lotions used sometimes in phlegmon are good, cold water [and] lead acetate, etc. [especially] when the constitutional symptoms are not very severe. [When there is
involvement] of the cellular membrane, deep-seated or otherwise I think there are few cases where bleeding or local depletion will be of any benefit. If it weakens the patient, the symptoms are aggravated. The skin is generally pale except where the erythema is.

[Use] mercurial cathartics, emetics, and opiates, Dover’s powder, one-half grain. Tonics are indispensable. Peruvian bark in full doses twenty grains or one dram if the stomach will bear it. [Give] a wineglass [of] warm brandy, one ounce, and bark. Let it cool, and then add two ounces of water. Give also the infusion in combination [with] a tablespoonful of each every one, two, or three hours according to the state of the stomach. [Give] ammonia carbonate from five to ten grains every two to three hours.

Comment: Dover's powder is a combination of opium and ipecac named for Thomas Dover, English physician.

If treating for a wound you should always continue your applications after the inflammation has subsided and an intemperate man should always be allowed a certain portion of his accustomed stimulus.

Inflammation of the cellular membrane — [Use] warmth and moisture and if from a wound, bring about union, by the first intention. [Give] an infusion of hot camomile. Free vesication [is] employed externally over the whole ulcer and upon the sound skin. Twill relieve [the pain] if [the inflammation is] cutaneous and change the character, if deep seated. Some make large free incisions. There is doubt as to the practicability of an incision if there is deep-seated pus, but if there is concealed matter, it should be opened early. [Do] not wait until it points as a phlegmon. The opening should be sufficient to allow the slough of the cellular membrane to come away. Select a point for your opening unless there are parts to prevent. The local treatment should be to bring about suppurative inflammation.

Inject tincture of myrrh of such strength as to cause mild heat and trifling pain. Increase until such is felt. [Use] tonic and vegetable astringents. The parts become used to [the] articles in a few days and you should change the oak bark, Peruvian, etc. [Use] the mineral [acids], sulfuric, zinc, iron, and cupric, either one or two drams, and corrosive sublimate ten grains to the pint. The knife is the best remedy, opening the abscess and admitting the free access of air. [Use] basilicon ointment. When the tissues of the whole limb are affected, the ends hanging out of the wound and [if there is] injury of the bone, amputation must be resorted to. There is no remedy but it, for the disease will advance to the trunk and prove fatal.

Comment: “Bazilicon” was an ointment prepared with the herb basil.

SUNDAY, [OCTOBER] 21, 1843

Erythema anatomica

The specific diseases are not likely to produce erythema [such as] cancer, scirrhous tumors, [or] venereal [disease] unless the primary sore is present. [In] diseases of the horse [with] suppuration of the glands, if the matter comes in contact with the living tissue in man, it will produce the disease. It will also occur from bodies dying of erythematic inflammation [as in] erysipelas, etc., more usually, if the examination is made recently after death while the body is warm; [it is] not so liable if putrefaction has taken place. “Tis supposed there [is] always a predisposition in the person affected and that a person in good health will not be affected. The first measure [is] to free the wound from any ordinary irritation by free suction and ablution with any of the alkalies and bring about union by the first intention. Keep the
part from air and the patient from the changes of temperature. If [there is] much pain and inflammation, [use] silver nitrate, then a poultice. If the pain continues and red lines are seen running up the limb with weariness of it, there will appear an inflamed spot some distance from the wound and an abscess [will] form there requiring similar treatment as in all erythmatic inflammation.

**Erythema venomosa**

[It] arises from poisonous insects usually slight and merely local. Moist clay will usually take out the venom. But there are cases where violent symptoms come on from stings on the face or head [with] a sense of muscular weakness [and] a loss of vital energy comes on. Suddenly [there is] weakness of action of the heart and arteries. Alcohol in some form [is] given freely or [is] combined with opium, also, ammonia water [is used] to resuscitate [from] the extreme nervous irritability.

*Comment: This is a description of an anaphylactic reaction to hymenoptera venom.*

From animals this is often a puffy swelling. If the injury is on the hand, it then passes up the arm to the lattissimus dorsi and the same symptoms make their appearance as before. Painfulness, loss of motion, and dimness of sight and hearing pass on to a fatal termination.

*Comment: This refers to snakebite as will be made clear under treatment.*

**Treatment**

First, prevention. To prevent the progress of the virus through the veins, suction may be resorted to without hazard. Free ablation [is] continued [with] a ligation above the wounded part. “Tis useless to cut out the part. “Tis generally too late. Again [use] local remedies [such as] silver nitrate, narcotic irritants, tobacco, stramonium, belladonna, and bloodroot. None [are] of much importance. Tobacco [is] the best. Then again [use] stimulants and stimulating narcotics [such as] opium or opium and alcohol. Strong aqueous ammonia [is] given freely from one to three drams every ten to fifteen minutes. If from the more violent reptiles, [give] the Tangier pill made of arsenious acid [white oxide of arsenic] and strong spices. [Give] Fowler’s solution, two drams every hour, if the symptoms are severe. Such doses are given in the West Indies. Large doses will be borne. The local symptoms come on after the more violent are passed.

**MONDAY, NO LECTURE, [OCTOBER 23, 1843]**

**TUESDAY, [OCTOBER] 24, 1843**

**Burns and scalds**

The inflammation following heat is always erythmatic. If the local effect be slight, there will be but a slight redness. If more intense, the symptoms will be increased. Hot water falling upon the body will only vesicate generally. If kept there [it] will destroy the cuticle and the subcutaneous cellular substances. The appearance of the part will generally be sufficient to form your judgement. The effect varies if the heat applied is a compound of moisture and dry. In the latter the parts will be immediately destroyed, [and become] dry and shriveled. The immediate constitutional symptoms vary by the extent of heat applied to the body. [There may be] great prostration, pulse feeble and small, skin cold, insensibility of the nervous system, rapid breathing, and intense thirst. The strong impression is upon the cutaneous nerves and that affects the whole system. Action of the heart ceases and the patient dies. Vapor from boiling water has similar effects.
The internal viscera are affected by heat. Inflammation of the lungs often follows the application of heat to the body and they die from this affliction rather than from the heat. Again peritoneal inflammation and severe internal pain should be carefully watched for when heat is applied to any part of the body.

**Treatment**

First, the local remedies. They vary according to the severity of the case. If [there is] only vesication, open the vesicle and treat as a blister. If more extensive and the true skin is destroyed, cover and exclude the access of air. When an eschar is not formed, the skin should be kept over it if possible. Be careful in removing the clothing. If the cuticle is gone, [use] animal or vegetable oil, molasses, and soft soap, any vegetables made soft or farinaceous articles are spread upon lint or wool. Some cover the part with layer after layer of gum arabic letting [alone] the first day. On the second starch, etc. They all act similarly by excluding the air from the part. I think they do no more.

**Cutaneous burns**

Common liniment, lime-water, wet cloths and apply them. Let them lie easily upon the part, and be wet, not taking them off. Make no necessary irritation. If from intense and moist heat, there will be an exudation of serum, let this flow off, for if retained, it becomes a foreign body. Cut holes in your cloth for it to exude. Cotton is not a good application. The first dressing should be suffered to remain as long as possible and as you remove one part, cover ere you uncover another. There may be reason to uncover from various causes, and when inflammation is established, they require frequent applications. Some treat burns as any other inflammation with cold lotions. I do not like it. It may do in slight burns. Others apply active irritants, attempting to change the phlegmonous inflammation. When the application of heat is to a limited portion of the body, [use] cloths wet in alcohol and a dry cloth over to prevent the evaporation or mixed with some of the essential oils, clove, etc. When the cuticle remains in a burn the size of my hand, I saw good effects from oil [of] turpentine alone or mixed with wine.

Where vesication is present and the cuticle is not removed and the part insensible from the long application of intense heat, I have found useful spirits [of] turpentine rubbed on with a feather ending in simple phlegmonous ulceration, suppurating and you have a common ulcer. Whenever there is the appearance of granulations, the turpentine must be stopped. It will produce pain. When the change takes place, the dressing should be changed to simple cerate, Turner’s cerate. When in a state of suppuration use lead acetate, Dr. Hubbard’s ointment.

Comment: These notes on burn management show that fluid loss, as a cause of death was not appreciated. Keen’s Textbook of Surgery published fifty seven years later in 1900 also indicates a lack of understanding this where it states that death after burns results from “congestion of the internal organs produced by vaso-motor paresis” [30]. “Turner’s cerate” may have been a preparation devised by Mr. Daniel Turner, Chirurgeon of London, who was honored with the first M.D. degree given by Yale in 1723 when the Trustees sent him a diploma of “Doctor of Physic” for his donation of a sizeable number of books that included his own works on physics and chirurgery [31]. “Hubbard’s Ointment” is likely the recipe of Dr. Thomas Hubbard, Professor of Surgery at Yale 1829 to 1839. He followed Nathan Smith and preceded Jonathan Knight in this position [31].

If the ulceration is large and very offensive, it will be slow in healing. Then change the secretions. [Use] silver nitrate ointment, mercury ointment, stick of silver nitrate, zinc sulfate, or cupric sulfate. Often the effect is but transient and you must vary your treatment.
FRIDAY, OCTOBER 27, 1843

Chilblains

When parts have once been injured, they may readily be again. Prevent pressure upon the part. [Use] common emollient poultices. When there is an amount of inflammation, then [use] some of the stimulating ointments, basilicon or simple cerate, red or white precipitate, onedram. Elevate and bandage the limb, if the pain is gone, to prevent the swelling. When intense cold has been long applied destroying the tissues and subcutaneous cellular membrane even down to the bone, amputation should take place. Be careful and not mistake cutaneous [injury] for destruction of the deep parts. When great ulceration takes place, the treatment is similar to burns.

Ulceration

That process by which parts so dead as to become useless are removed from the body from severe and continued inflammation. There will first be seen a red line surrounding parts about to come off; it being the first indication between living and dead parts. Then a shallow groove is seen, gradually deepening and separating the parts. A cavity forms. Granulation and cicatrization follow filling up and closing the wound, thin at first, a layer of coagulable lymph. Vascular [tissue] covers over the part, smooth and regular. It then becomes red and granulated from the blood vessels and nerves entering into it. The granulations are taken up by the absorbents and are carried away. Upon the surface of the granulations a small quantity of healthy pus is formed making a healthy ulcer.

Comment: An "absorbent" is "a vessel which imbibes, as the lacteals, lymphatics, and inhaling arteries." Webster's 1828.

Granulations are not muscles, nerves or vessels, but a cellular substance that fills the cavity. A thin pellicle then advances from the edges of the ulcer adhering to the granulations. The size of the ulcer is lessened by cicatrization. The parts change and all the tissues are reproduced.

Comment: A "pellicle" is "a thin skin or film." Webster's 1828.

Treatment of a healthy ulcer

As long as a bland purulent matter is formed, nothing is needed. Cover it without producing pressure or irritation. Simple cerate [is] the best application. Disturb only to cleanse. Wash with tepid water. Meddlesome surgery is bad surgery. Favor the process by approximating the edges with adhesive straps. If there is no inflammation, [use] bandages. Motion should be avoided. It will rupture the granulations. Splint and bandages are sometimes needed about the joints. Many things interfere with [the healing] process.

SATURDAY, [OCTOBER] 28, 1843

Diseased ulcerations — Ulcus exuberans

First, exuberans — where there are an increase of excessive granulations. Second, irritable — the indolent ulcer. Third, irritable — by increased action and irritability of the nerves and vessels called phagedenic. Fourth, Ulcus gangrenosum.

First, exuberans. The granulations form rapidly larger in size like pinheads. Instead of being conical they are hemispherical and flattened. They are darker, contain venous blood, are insensible to the touch, [of] loose texture, and bleed freely, arise about the surrounding parts and texture. Cicatrization is prevented, called "proud flesh." It may appear anywhere upon the body. The proud flesh is caused sometimes by the continued applications of warm poultices. To change the character
of the ulcer, [apply] uniform pressure [with] lint. Then a bandage will ordinarily retain or prevent some of the irritants or escharotics. [Use] red precipitate according to the symptoms or it may be sprinkled over the margin. If new skin is forming, do not touch it. Silver nitrate may be used. If there is not much discharge, you may make pressure with the adhesive straps. When the granulations are large the secretion is imperfect pus. A circular ulcer is hard to heal.

Second, the indolent, ulcer inirritable, [occurs] more commonly in imperfect constitutions and advanced life or with a disorder of the digestive system. Upon the lower extremities, the skin, etc. Sometimes large and deep, passing into the muscle. The edges sometimes [are] perpendicular and slanting downward or inverted, varies in appearance. The bottom [is] irregular, smooth and shiny, lighter than healthy granulations, at times bloody and offensive, and insensible. Generally slow in its appearance and progress, stationary for a long time, years. There are periods of inflammation. When great pain is felt, the limb becomes enlarged above and below requiring treatment [with] cooling applications and poultices. If there is no inflammation, irritants alter the character of the ulcer. Skin never forms over a deeply excavated ulcer, or when the granulations rise above, touch the edges daily with silver nitrate or red precipitate. Wash with corrosive sublimate. Prescription: from five to fifteen grains to the pint of wine, white oak bark, strong cinchona, two or three times per day, the carrot grated and mixed or thickened with warm water. Lotions of silver nitrate, four to ten grains to one ounce of water. Nitric or sulfuric acids.

If the edges are very abrupt and indolent cut them off with a slanting incision and healthy granulations will follow. Mechanical means [are utilized by] steady uniform pressure by adhesive straps extending over the whole ulcer on the true skin of three or four inches in breadth according to the size [of the ulcer]. Bandage the whole limb. It prevents tumefaction. You may use some irritating substances. Elevate the limb and the wound will heal more rapidly. The color changes to healthy granulations. If your treatment is beneficial, then continue it. Some fill up the cavity with melted wax. Bandage loosely. When granulations appear, remove the wax. Again [use] chalk and oil of a proper consistency. If the granulations become exuberant, [apply] pressure by a layer of thin lead and bandage. [Do] not do when there is an excavation. Remove constitutional symptoms.

The third form, Ulcus irritable, inflamed ulcer. Characterized by increased activity of the blood vessels and nerves. The edges are of a bright red color, irregular, [and] pointed. The inflammation extends far with slight fissures in between and loose from the surrounding parts. The surface [is] unequal and differs in appearance and color, painful, and extends above to the trunk. [The] foot is edematous. [It is] hot above and often discharges a sanguineous fluid from the dark points in the bottom of the ulcer. At times a spot of healthy granulation will be seen. It will be absorbed and great pain and soreness will be felt. There will be vescication of the parts from the fluid. Ulcerated and indurated. The size of the ulcer increases rapidly. [It is] called “phagedenic”, an eating ulcer.

MONDAY, OCTOBER 30, 1843

Constitutional symptoms vary. [There are] usually febrile symptoms with great irritation and jactitation and sometimes delirium. Motion aggravates the part. Sometimes healthy absorption does not go on regularly and the vessels bleed.
Comment: "Jactitation" is a restless tossing of the body or a twitching or convulsive movement of a limb or muscle.

**Treatment**

Ordinarily you need venesection, leeches or cups in the vicinity of the ulcer. At times [they are] not necessary. [Give a] mercurial cathartic, full dose. Then alternate and change the secretions. Do not produce ptialism. Opium, Dover’s, two or opium and calomel [are prescribed]. Healing [granulations] will not take place until the secretions are changed. [Advise a] vegetable diet and avoid all animal food, [give] diluent drinks, and [prescribe] absolute rest in a recumbent position. [Use] black wash (dilute nitric acid fifteen to thirty drops in a pint [of] water.) when a dark spot appears in the cavity of the ulcer, also, nitric potash, one ounce to the pint.

Prescription: To make a fermenting poultice, moisten flour, then add honey or molasses, and make [to] a proper consistency. Spread as thick as your fingers. Then take yeast and spread over your former layer. Cut it in to it and the heat of the skin will produce fermentation.

In regard to the two last forms of ulcer, our remedies will fail at times and they must be changed according to circumstances. If the purulent matter changes and the appearance becomes more red, your remedies are of benefit. Be careful and examine if there is disease of any of the internal organs and if so, remove. If there is constipation, the bowels must be evacuated. The ulcer will heal of itself at times. Observe and restrict the diet. Prosecute any favorite remedy. I have known many sore legs kept up by the free use of cider. Sometimes disorder of the menstrual function will keep up the disease in females.

A case was related and when the discharge was brought about, the ulcer healed of itself.

**TUESDAY, [OCTOBER] 31, 1843**

**Ulcus gangrenosum**

[It] occurs in hospitals, camps, on shipboard etc., and among [those of] intemperate and depraved habits. In others [it occurs] upon the genitals from venereal [disease] though not always. [It] Increases rapidly [and] destroys the parts around. This ulcer may appear after any malignant disease and extend through all the tissues. There are deranged secretions of [the] digestive functions. Treat for such when severe. [For] erythmatic inflammation, the treatment will differ. [Use] the strongest acid at once to the whole ulcer as soon as the gangrenous appearance presents itself. Lint saturated with any of the alkaulis should be placed around the ulcer before you apply the acids.

Probably this is a contagious disorder. The dark colored appearance of the sore indicates the death of the part. Hemorrhage often takes place; for adhesive ulceration often does not; and the ulcer always assumes a circular form. Constitutional Treatment — Active emetics and cathartics, ipecac and with sulfur, iron, and copper, then free mercurial cathartics [with] action up and down. Tonics and stimulants are not indicated. Opium is given full and freely. Local remedies similar to former treatment. Fowler’s solution [is used]. Remove all slough and wash the part until the color is changed to a lighter hue. Then reduce one-half. If the character is changed, [continue] the ordinary treatment. The cauterity is sometimes used.

In some of the former ulcers there is sometimes a state of the veins and varicose veins generally below the knee with a thickening of their coats and generally of the cutaneous veins on the inside of the leg. They may be felt in clusters [that are] hard and thickened. If you empty the veins you have the feeling as a groove on the leg. If there is an ulcer at the same time, do not heal until you treat for the veins.
[Apply] simple uniform pressure over the whole foot and leg by roller. There is pain and uneasiness from such a state of veins, and if they continue [there will be] swelling, inflammation and ulceration. Sometimes the blood coagulates in the veins.

*Comment: A roller is a long and broad bandage.*

**A case**

When all the veins of the leg were much distended, [and] blood coagulated, etc., I made an incision through them all from the knee to the foot. Inflammation and suppuration followed. The wound healed and the varicose state of the veins were cured. In some cases the saphenous vein is tied above the knee or as it passes over the joint, by ligature. I would not advise the tying of veins under any circumstances.

**WEDNESDAY, NOVEMBER 1, 1843**

Fistulous ulcer or sinus. [It develops] from inflammation of any kind differing from an ordinary ulcer. [It] extends deeply to the parts under the skin. There is a small opening or canal which may lead to an excavation of some size. There is a membrane lining the canal similar to a mucus secreting a peculiar pus. The following properties in the membrane resemble mucus.

First, there is no tendency to adhesion of the sides. From this fact they do not easily heal and healthy granulations do not readily take place upon these membranes. A small loose tubercle is often seen and sometimes the orifice heals, the matter being retained. Inflammation comes on, the sinus increases and a new opening may be formed. Sometimes there are two or three leading to a large cavity. From the above fact, a simple sinus ulcer among the loose and moveable parts is kept up.

Another sinus may arise from a foreign body in the part from wounds. [There is] another form, a cavity lined with mucous membrane, fistula in ano.

Treatment will vary according to the sinus. The first object is to change the character of the membrane. Silver nitrate is the best application to allay the pain of the granulation at the external opening. Some active irritant must be employed the whole length of the canal to change its character. Inject silver nitrate from four to six grains to the ounce of water, zinc sulfate, six to twelve grains in one ounce of water, corrosive sublimate, from two to four grains in one ounce. Tincture of cantharides, produces vesication. Pressure and absolute rest should be observed. Spirits of turpentine has been of some benefit. Inject repeatedly; bandage the part. Tincture of myrrh is good and if properly attended to, you will succeed. [The] better plan is to lay open the whole canal from one end to the other with the knife. When this can be done, twill always be of benefit. Introduce a grooved director and cut along it, severing the integuments. Then keep the parts open by a simple ointment [avoiding] uniting by first intention.

Healthy granulations will soon appear. Setons are sometimes carried through the whole sinus and brought out through the integument. When the secreto-ry fluid changes to healthy pus, you may gradually draw out the seton.

Sinuses may be occasioned by a foreign body. A piece of cloth may be introduced and not easily detected, or wood. A hard metal may be more readily detected. The facts of the case must guide you [to] the cause of the wound, etc. If a sinus remains from a wound, you may be led to suppose a foreign body is present. Its removal [is] the first object of attention and the foreign substance may not be in the neighborhood of the ulcer. I have seen an ulcer in the groin from an incurved toenail. Remove such and the ulcer will heal.
It may arise from dead bone with necrosis. In ulcer of the parotid duct of the gland itself or surrounding parts or where the inflammation extends through the duct to the gland with an actual cavity, carry your wire suddenly through the whole duct or inject tincture of cantharides.

**Gangrenous mortification**

There is a peculiar disposition to this disease. Siccative gangrene shows itself upon the extremities, but rarely under fifty years [of age], though sometimes [it occurs] in children, generally in [those with] impaired constitutions from eating and drinking or indolence, more frequently in males. There are some premonitory symptoms, pain in the limb of a rending, tearing kind, more severe at night, and also [when] in a recumbent position. A peculiar circumstance [indicating] a good prognosis. If you depend the limb, the pain ceases. Sensation is similar to going asleep of the limb. The part changes to a white appearance from a want of circulation in the cutaneous vessels.

*Comment:* “Siccative” refers to dry. “Depend the limb” is to let it hang down.

The symptoms attenuate and remain a time before gangrene comes on. Sometimes a dark purple spot [appears] alongside the toenail, coming on at times without an exciting cause. The part becomes dry, a dark spot advances along the toe to the foot. A puffy swelling firmer than edema, tumeffied [with] discolored lines in the skin passing up the limb. The veins become varicose. The texture of the arteries change, [and are] sometimes ossified. The progress of the death of the limb [is] slow. [After] great heat and pain then it advances rapidly, sometimes reaching above the knee ere death comes. [There is] sleeplessness and great irritability of the nervous system. The pulse [is] more frequent and gradually looses strength. [The]

appetite [is] impaired, and [the patient] ultimately sinks.

The immediate cause uncertain. It is attributed to ossification of the artery. Yet such is not always the case. Dr. [Nathan] Smith attributes it to a diminished action of the capillaries and a disordered state of the digestive organs. It is not an ordinary inflammation. Fat persons more readily die than lean ones. The earlier it appears, the more favorable the case in healthy constitutions.

**Treatment**

[Use a] fermenting emollient and tonic poultices, nitrate of silver, etc. The irritants, vesication, etc. rather increase the state of gangren humida [wet]. I use those of a mild nature without affecting the part [a] simple narcotic, stramonium. There is often great heat in the part and those evaporating lotions seem to increase the pain. [Use] opium freely [with] repeated doses, increase slowly from one-half to one grain every three, four, or six hours. If [given] often, [it] relieves suddenly. Vegetable tonics in humida gangrene are beneficial [such as] bark, etc. but in siccative gangrene, they do but little service. If the skin is moist, and the secretions favorable, bark may be of service. [Give] alcohol when the patient has been in the use of it. If early treated, it may be cured. The secretions are irregular and [there is] disarrangement of the digestive organs. Amputation is inadvisable except in early life with a good constitution.

**Inflammations of the Fingers and Toes**

Onychia — belonging to nail
Paronychia — in the neighborhood of the nail itself

Whitlow — the part immediately under the nail is affected. It is from an external cause, sometimes from a rupture of the vessels. The blood will remain without any pain until absorbed. Yet, sometimes inflammation comes on rapidly.
Treatment

If not painful, let it remain. If acting as a foreign body, remove the effused blood. Remove by a bistoury or scrape the wall with glass, cut a hole in it and let the blood or pus flow out. If on the toe from the turning in of the nail and acting as a foreign body, the edge turned down entangled in the tissues. After a time a slight inflammation with ulceration follows. A bulbous projection [may] extend out beyond the toe. [There are] granulations covering the whole toe and irritable. The edge of the nail still acts as a foreign body. Remedies may vary. A simple operation of raising the nail and letting it grow over the flesh often answers. Scrape the middle of the nail thin even to the living membrane and keep it thus. Raise the edge of the nail and place a dossil underneath. If of long standing and large loose granulations [are] forming, silver nitrate will relieve the pain. Your intention must be palliative or curative. You might slit the nail and cut the piece out. This is but temporary for it will grow again. You might remove the whole nail, having a common flesh wound which would soon heal.

Comment: A “dossil” is a portion of lint made in a cylindrical or date-shaped form.

Whitlow — any of the tissues, generally in the hand.

Felon — upon the finger [tips]. When on the hand [there is] inflammation of the tissues [under] the strong fascia, [it is] always accompanied with some pain [as] the result of violence or cold and moisture. The first symptoms [are] pain and itching. Then a small point of pus elevates the cuticle. It will discharge without allaying the pain; it is rather increased. Great nervous irritation follows. It is more violent and more protracted if the bone or periosteum is affected. The same treatments [are used] in all forms of the disease. Resolution can be produced within the first twelve hours, by making a strong impression over the inflamed part. Plunge into hot lye, as strong and hot as can be borne. Vesication [develops] over the part. Soak the finger in the alkali and scrape the rough cuticle off, then apply your vesicating [solution] or silver nitrate.

If it goes on to suppuration, [make] a free incision down the seat of inflammation. The common applications for inflammation may be employed, narcotics, stramonium, poultices, etc. If in the bone, “tis necrosis and [is] to be treated as such.

Nevus maternus or mother spots. Usually attributed to some mental affection of the mother. They are various and differently sized, some subcutaneous, others cellular more commonly a mere discoloring of the skin. Again there are some upon the outside of the skin. First, a brown spot, increasing in size, elevating and thickening with hair growth on it. [It] becomes hard and cracks, ulcerates and becomes offensive. Remove by caustic or better by the knife, taking along the skin, an efficient remedy.

There is also at times a bright red spot arising upon different parts of the body of enlarged vessels. They may be arteries or veins and [are] distinguished by the colors. A slight pulsation may be felt upon the outer surface. Hemorrhage may be restrained by pressure. There is no danger from them. Yet, I have removed them by astringents, by the mercurial ointment, or by the knife. Be careful you do not leave a larger scar than the tumor itself. Caustic will leave an eschar. Make a seton. Carry a thread through the base of the tumor and it may be removed after a time. If the child has not had the kine pox, you may vaccinate then [?].

Another form [is] increasing subcutaneous enlargement of the artery. There is no danger from rupture or hemorrhage. Aneurysm by anastomosis. There are some cases when the removal cannot take place. In such parts where the danger would be increased, [and] if of no great
Of wounds

A solution of continuity produced by violence.

Comment: The “concept of solution” of continuity is found in the writings of Galen (A.D. 129-c210) as follows, “Unnatural lumps are to be divided into inflammations, erysipelas, indurations, and tumors. A constant pain in a part indicates either a dissolution of continuity there or an overall change of substance. Continuity is dissolved by cutting, erosion, compression, or tension.” [32]

First, incised, made by a short simple incision. There are two kinds. A simple incision and then a portion cut out.

Second, lacerated and contused. Under this head are gunshot wounds.

Third, puncture wounds.

Fourth, complicated, [with] any of the above, reaching some important part or severing some important vessel. I propose to bring before you this morning certain lesions of the nervous system, in consequence of wounds. They are of various forms differing in symptoms and treatment.

I have fixed them under three heads. First, from slight mechanical injury from a prick of a needle, lancet, etc. or from a blow without laceration. Acute pain comes on suddenly in the part extending [to] slight convulsions at times affecting all the muscles [producing] great feeling of weakness and coldness of the extremities [with] faintness and great mental agitation. Females of a nervous lymphatic temperament [are] more likely to be affected.

Comment: A “lymphatic temperament” implies that of an individual “having the characteristics of flabby muscles, pale skin, sluggishness of vital and mental action formerly supposed to result from an excess of lymph in the system.” OED

Treatment

Ammonium carbonate, opiates, warmth and moisture, especially to the wounded part. There is sometimes languor and debility for a few days. It may run into a chronic state. Then the weakness of the limb increases. Any exertion produces pain and weariness. When this continues for a time, edema comes on. It is light colored and slightly pitted. [The] limb [is] colder than natural, [and there is] no appearance of inflammation. With these local symptoms the constitution is affected [by] loss of appetite and sleep.

Treatment of the chronic form

Local remedies are of little benefit except friction with some stimulating liquid and frequent, or weak tincture of cantharides with capsicum or canella alba.

Comment: “Friction” consisted of “rubbing the body with the hand, or with brush or flannel, etc. or a rubbing of a diseased part with oil, unguent or the other medicament.” Webster’s 1828

Use two or three times a day. The cantharides, one dram to the quart, over the whole limb [with] the object to excite slight action of the capillaries. [Apply] terebinthinate, [and prescribe] absolute rest of the part affected. Trust not to your patient [to remain immobile]; splint and bandage him and continue it for a long time for motion will reproduce the pain. There is usually tumefaction. It will be
relieved by the straight bandage, equal fullness over the whole limb.

The constitutional treatment in leucophlegmatic habits is a steady uniform tonic treatment.

Comment: "Leucophlegmatic" refers to one "having a dropsical habit of body with a white bloated skin." Webster's 1828.

The whole of them may be used. Exercise in open air. There is another remedy. If the injury is supposed to be that of the nerve, to divide the nerve by cutting through the back of the wound as deep as the original wound. The chronic state resembles tic douloureux. The trunk of the nerve is divided by cutting down to it and incising it or cutting off a part. [For puncture] wounds of no severity, pain comes on from two to five days. The wound [is] more painful and [there are] tonic contractions of the muscles in the neighborhood of the wound. If of the hand, the fingers will be flexed upon the palm, then clonic spasms twitching of the muscle gradually and ultimately extending to the jaws. [There is] great pain from the ensiform cartilage of the sternum to the spine affecting the diaphragm. From the tonic spasms, the jaw will be closed. In exhaling, saliva will be thrown out between the teeth with a hissing noise. I consider it a disease of hysteria. It may be called traumatic hysteria.

Comment: This is a classic description of tetanus.

Continuation of Professor Knight's remarks upon delirium tremens:

During the last twenty-five years I have not had a death from the disease in the New Haven jail.

When more active treatment is necessary, give an emetic of zinc sulfate and ipecac, [or] an ipecac formed with mustard, and then a cathartic. If [there is] a soft pulse, free perspiration [on the] face, and tongue, and pallor, then [give] opium and opium freely, one half dozen powders, six grains each every two or three hours in this form of the disease. Opium is the remedy; alcohol will not do here, I think. There is another form where they lose their appetite, and their accustomed stimulus nauseates, or will not produce its effect. Sometimes there is a determination to the brain, great heat of skin, and the entire absence of all that shrinking of the skin, a diminution of all the secretions [with] no perspiration, urine scanty, opium will not do here; it will throw [the patient] into paroxysms. Ipecac free and full and after opium may be given. [Apply] irritants and blisters to the skin. I have but little confidence in [this]. Other narcotics may be of service. There may be an intermittent stage between the emetic and the opium stages when digitalis is the remedy in dram doses. I have employed irritants to the spine as an adjuvant and [I] try to calm the patient from his hallucinations.

[End of notes]

DISCUSSION

These notes give an actual account of medicine and surgery as it was practiced in New Haven in the fall of 1843. Textbooks on the other hand may mislead due to delay in publication. Professor Knight's presentations represent the experience of a mature, practicing surgeon at the top of his profession in the United States.

In many ways, clinical surgery of 1843 was closer to Galen with his humoral theories and his use of venesection than to current practice. The influence of John Hunter and the beginnings of scientific surgery can scarcely be seen except for mention of "adhesive inflammation," a result of Hunter's observations. Many of the medications are centuries old and are not only without benefit but also are actually harmful.
Even the medical vocabulary is unfamiliar to the modern reader. In a show of learning, doctors of the day used freely Latin and Greek terms, for example, “aposteme” and “colliquative.” Words have taken on new meanings since these lectures were given. Professor Knight used “virus” in connection with a poisonous or venomous substance from a snakebite, not an infectious agent; and, “anthrax” was a medical term for carbuncle prior to the time of Pasteur. Early English words used in the lectures, such as “chilblains” and “wens,” probably arose from folk medicine and now have almost completely disappeared from current usage.

But one truth remains constant, and that is the surgeon’s use of the knife to drain pus. Professor Knight clearly emphasizes this surgical principle. This has been, in both the pre-scientific and the scientific era of surgery, probably the major area where the surgeon has been most effective in relieving suffering.

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