
History of Ophthalmology in Hawaii

Robert T. Wong MD, MMS, FACS*

After Captain James Cook's discovery of the Sandwich Islands in 1778 and Captain George Vancouver's visit in 1793, the Hawaiian nation was devastated by foreign diseases to which it had no immunity. During the time of the Discovery Era of the 1770's, scholars estimated the Hawaiian population to have been between 250,000 and 300,000. That number fell to 108,579 according to an 1835-1836 American missionary census. The population dropped even further to 84,165 in a 1850 government census. In 1887 King Kalakaua reported that the Hawaiian population of 400,000 had been reduced to one-tenth its size.¹ Gonorrhea and syphilis in their most virulent forms were first introduced, resulting in severe disabilities, infant deaths, infertility, and *ocular complications*. Then measles, whooping cough, influenza, smallpox, cholera and tuberculosis took their toll.

The earliest report of ophthalmological problems in Hawaii was by a missionary physician Alonzo Chapin. He wrote in the 1830s, "Ophthalmia of the purulent form, abounds in every portion of the group [i.e., population], and opaque corneas and thickened coats of the eyes, are very numerous."² Missionary Mercy Whitney filled her journal with references to "the ophthalmia." On February 7, 1830, she wrote "I have an attack of it almost every year of our residence here."³

In his 1954 work, *Nine Doctors and God*, Francis John Halford describes how even physicians were not immune to ophthalmological problems. "In 1844 missionary physician James Smith of Koloa, Kauai, complained of sore eyes, probably conjunctivitis, which so many of the missionaries seemed to pick up within a short period of time after landing, obviously a contagion from the Orient, where ophthalmia is common and chronic.⁴ This affliction is usually accompanied by a catarrhal condition of the nasal and bronchial passages. It has been suggested that these symptoms are allergic responses to the molds and pollens prevalent in the moist and humid tropical atmosphere of the islands. Another possibility is trachoma, a disease endemic in the Orient."

Robert C. Schmitt's thesis entitled "Two Centuries of Eye Care in Hawaii," was written with the collaboration of Ogden D. Pinkerton MD, and published in the *Hawaiian Journal of History* in 1985.

Schmitt and Halford left the only substantial references to the history of ophthalmology. Schmitt notes that the first person to sell eyeglasses was E. H. Boardman, a maker of watches and chronometers. On September 9, 1846, Boardman advertised "gold, silver and steel-framed spectacles and other goods for sale." Optometry emerged as a separate discipline when "An Act to Regulate the Practice of Optometry" was passed by the 1917 Territorial Legislature. The law required all optometrists to have at least two years of high school and either three years of experience in a registered office or a degree from a reputable school of optometry. The most famous eyeglass seller was William "Doc" Hill, who was as an optician and optometrist. He was the first licensee under the newly passed Optometric Act. He became involved with high-level financial circles and the Hawaiian Legislature.

According to Schmitt, who depended on commercial journals for reference, one of the earliest physicians specializing in eye disorders was Joseph Bechtinger, MD; a multilingual Austrian who moved from Washington, DC to Honolulu in 1866. For six months, beginning March 24, Bechtinger advertised his services, with "particular attention paid to the Diseases of the eyes." He sailed for Hong King on March 2, 1867 and eight years later he advertised his Eye, Ear, Nose and Throat Institute in San Francisco.

In 1872 a Hugo Stangenwald, MD offered to treat "patients suffering from Chronic Diseases including the diseases of the Eye and Ear, Throat and Lungs." In 1880 Charles Neilson, MD advertised "Eye and Ear Cases successfully treated." E. Pontoppidian, MD, a 38-year-old German arrived in Honolulu on October 2, 1881 and described himself as an "Oculist, Physician, and Surgeon, Eye Diseases a Specialty." Three months later he discontinued his newspaper notices and left the islands. In 1896 Dr H.C. Sloggett was listed in the directory as a Honolulu "Eye and ear specialist," and Dr William L. Moore of Hilo as, "Makes a Specialty of Eye and Ear." From 1899 to 1905, the Honolulu Eye and Ear Infirmary was operated first by Dr Sloggett and later by Dr Moore.

Dr William Gibson Rogers was the first Hawaii ophthalmologist with authenticated credentials. He was born in Greenfield, Ohio, on February 14, 1864, and received his medical degree from Pulte Medical College in Cincinnati, Ohio, in 1891. From 1899 to 1900, Dr Rogers took a special course at the Royal Ophthalmic and Central London. He came to Honolulu in November, 1900 and opened an office specializing in diseases of the eye, ear, nose and throat. In 1904, Dr Rogers took a postgraduate course at the Manhattan Eye, Ear, Nose and Throat Hospital in New York, followed by additional specialty training at the Postgraduate Hospital, New York, in Vienna in 1909 to 1910, and the Chicago Polyclinic Hospital in 1916. From 1917 to 1918, Dr Rogers served as eye, ear, nose and throat consultant for the Selective Service medical advisory board. He retired in 1920 and died in Honolulu on

*Clinical Professor of Surgery
Division of Ophthalmology
Department of Surgery
University of Hawaii
John A. Burns School of Medicine

September 29, 1936.⁵

About the time that Dr Rogers retired, Dr. James A Morgan arrived in Honolulu and opened his office at the Young Hotel Building to practice eye, ear, nose and throat medicine (EENT). He had trained at the renowned Philadelphia General Hospital.

Leprosy

Any history of ophthalmology in Hawaii must mention a disease endemic in Hawaii—leprosy or Hansen's disease. Leprosy, with its inevitable ocular involvement before sulfone drugs, became a major public health problem in the mid-nineteenth century. The Hawaii Board of Health, established in 1850, founded a leper settlement at Kalawao, Molokai in 1865 and moved it to Kalaupapa a few years later. King Kamehameha V by direction of the Board of Health mandated that all lepers be isolated from the general population. The "Act to Prevent the Spread of Leprosy" authorized police officers, and Board of Health agents to arrest and deliver alleged lepers for medical inspection and for removal to a place of treatment or isolation.⁶ Poor nursing and medical care, lack of food, clothing, and shelter, and absence of law and order for several decades turned this banishment into the most inhumane edict in Hawaiian government history.

Before the advent of sulfone drugs, in 1946 nothing could arrest the disease. From 1920 to 1946, chaulmogra oil was injected intramuscularly frequently causing renal damage. Presently, the principal drugs for treatment of leprosy are dapsone (sulfone), rifampin, clofazimine, ethionamides, corticosteroids, and atropine for iridocyclitis. The *Mycobacterium leprate* can now be cultured in the live nine-banded armadillo, a *Dasypodidae*.

Leprosy affects the eyes in several ways:; it damages the zygomatic branch of the facial nerve, causing paralysis of the orbicularis muscle, it damages the trigeminal and nasociliary nerves causing loss of corneal sensitivity, conjunctivitis, keratitis, corneal ulceration, iridocyclitis, and secondary glaucoma; it damages the sensory nerve fibers of the cornea causing early photophobia and eventual anesthesia. Iridocyclitis and uveitis are very common complications.

From 1922 to 1948, Dr F.J. Pinkerton regularly visited Kalaupapa and provided surgical care for the ophthalmological problems.

Dr Robert T. Wong was the ophthalmological consultant from 1948 to 1992. He made monthly visits to Kalaupapa on a single-engine plane, which made many hazardous landings. One of his last patients before he retired in 1992 was from the Hansen's Disease Program.

Dr Donald Sort became the principal consultant to the program in 1972 and he served in the program until his death in 1996.

Advances in Ophthalmology

In 1941 Hawaii was just emerging from a decade of severe economic depression. The population statistics were:

	1940 ⁷	1990 ⁸
All Islands	422,770	1,108,229
Oahu	257,696	836,231
Honolulu	179,358	377,059

The gross state product was \$309 million in 1940 compared to \$26,945 million in 1990.⁹ Medical care, particularly ophthalmol-

ogy, was of comparatively high quality, considering that Hawaii was an agricultural community isolated from medical academic centers. Kuakini Hospital was a small institution; St. Francis had been founded just a decade earlier; Queen's Hospital was our only major hospital with a national reputation. There were no peer review committees, but our notable Drs Nils P. Larson, Joseph Strode, Harry Arnold, Sr, Rogers Hill, and F.J. Pinkerton were our leaders who elevated the quality of medical care.

Since 1941, ophthalmology has seen more research and instrument development than in any other era. Electron microscopy has unraveled histochemical secrets of the eye previously never imagined. Newer diagnostic tools include fluorescein angiography, ultrasonography, electroretinography, computerized axial tomography, and radioactive phosphorous (P_{32}). Therapy has been revolutionized by new antibiotics, corticosteroids, diuretics, antimetabolites, antifungal and antiviral agents, and antihypertension ocular agents.

Innovations during the past 50 years include the use of alphachymotrypsin in cataract extraction, cryosurgery, phacoemulsification and phacofragmentation of cataracts, implantation of intraocular lenses, refinement of suture materials and needles, refractive surgery, retinal surgery and keratoplasty, laser photocoagulation, and new techniques in tumor and vitreous surgery. In recent years, the operating microscope has enabled the ophthalmic surgeon to perform operations with incredible accuracy and precision.

Neuro-ophthalmology and neurosurgery were advanced by Ralph Cloward. The influx of specialists began to restrict the surgical privileges of general practitioners. The leaders in ophthalmology were F.J. Pinkerton, Harold Moffat, Thomas Cowan, Robert H. Lee, Sr., Wilfred Minatoya, and Robert T. Wong.

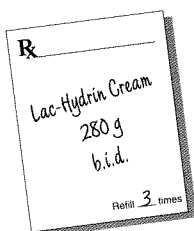
Cataract Surgery

In 1941, cataract surgery was done as follows: first a 170-degree corneoscleral incision with the von Graefe knife; then a complete or peripheral iridectomy; followed by pre-placement of corneoscleral sutures; finally removal of the lens with the Kalt or Arruga lens forceps. Complications included injury to the iris with the cataract knife, rupture of the lens capsule with the forceps, vitreous loss, and wound separation. The Kalt needle with its fine point, round edge, and insufficient rigidity made closure of the corneoscleral wound difficult. Sharp, beveled, cutting-edge needles with adequate rigidity became available in 1942. Barraquer's erisophake became available in 1950, and the keratome replaced the von Graefe knife. Shigemi Sugiki procured the first electrically powered cryoprobe for lens delivery in 1965, and phacoemulsification became available in 1971. *Intraocular lens implantation, (without doubt the most significant development in ocular surgery) began in 1972.* The pioneers of this procedure in Hawaii were Drs Percival Chee, Wayne Wong, and Gerald Faulkner.

Intraocular Lens Implantation

In 1949 Ridley of London introduced a lens implant which was unsuccessful because of the weight, inadequate fixation, and endothelial and intraocular complications. In the 1950s an anterior chamber lens was devised. Even with internationally known surgeons such as Stromboli, Danneheim, Choyce, Worst, and Barraquer involved, the high incidence of post-operative complications nearly

You have to write it to get it.



CAUTION: Federal law prohibits dispensing without a prescription.

Lac-Hydrin® 12%* (ammonium lactate cream) Cream

For Dermatologic use only. Not for ophthalmic, oral or intravaginal use.

DESCRIPTION: Lac-Hydrin is a formulation of 12% lactic acid neutralized with ammonium hydroxide, as ammonium lactate, with a pH of 4.4-5.4. Lac-Hydrin Cream also contains water, light mineral oil, glyceryl stearate, polyoxyl 100 stearate, propylene glycol, polyoxyl 40 stearate, glycerin, cetyl alcohol, magnesium aluminum silicate, laureth-4, methyl and propyl parabens, methylcellulose, and quaternium-15. Lactic acid is a racemic mixture of 2-hydroxypropanoic acid and has the following structural formula:



CLINICAL PHARMACOLOGY: Lactic acid is an alpha-hydroxy acid. It is a normal constituent of tissues and blood. The alpha-hydroxy acids (and their salts) are felt to act as humectants when applied to the skin. This property may influence hydration of the stratum corneum. In addition, lactic acid, when applied to the skin, may act to decrease corneocyte cohesion. The mechanism(s) by which this is accomplished is not yet known.

An *in vitro* study of percutaneous absorption of Lac-Hydrin Cream using human cadaver skin indicates that approximately 6.1% of the material was absorbed after 68 hours.

INDICATIONS AND USAGE: Lac-Hydrin Cream is indicated for the treatment of ichthyosis vulgaris and xerosis.

CONTRAINDICATIONS: None known.

WARNING: Use of this product should be discontinued if hypersensitivity to any of the ingredients is noted. Sun exposure (natural or artificial sunlight) to areas of the skin treated with Lac-Hydrin Cream should be minimized or avoided (see Precautions section).

PRECAUTIONS: General: For external use only. Stinging or burning may occur when applied to skin with fissures, erosions, or that is otherwise abraded (for example, after shaving the legs). Caution is advised when used on the face because of the potential for irritation. The potential for post-inflammatory hypo- or hyperpigmentation has not been studied.

Information for patients: Patients using Lac-Hydrin Cream should receive the following information and instructions:

1. This medication is to be used as directed by the physician, and should not be used for any disorder other than for which it was prescribed. Caution is advised when used on the face because of the potential for irritation. It is for external use only. Avoid contact with eyes, lips, or mucous membranes.
2. Patients should minimize or avoid use of this product on areas of the skin that may be exposed to natural or artificial sunlight, including the face. If sun exposure is unavoidable, clothing should be worn to protect the skin.
3. This medication may cause stinging or burning when applied to skin with fissures, erosions, or abrasions (for example, after shaving the legs).
4. If the skin condition worsens with treatment, the medication should be promptly discontinued.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Carcinogenesis: A long-term photocarcinogenicity study in hairless albino mice suggested that topically applied 12% ammonium lactate cream enhanced the rate of ultraviolet light-induced skin tumor formation. Although the biological significance of these results to humans is not clear, patients should minimize or avoid use of this product on areas of the skin that may be exposed to natural or artificial sunlight, including the face. Long-term dermal carcinogenicity studies in animals have not been conducted to evaluate the carcinogenic potential of ammonium lactate.

Pregnancy: Teratogenic effects: Pregnancy Category C. Animal reproduction studies have not been conducted with Lac-Hydrin Cream. It is also not known whether Lac-Hydrin Cream can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Lac-Hydrin Cream should be given to a pregnant woman only if clearly needed.

Nursing Mothers: Although lactic acid is a normal constituent of blood and tissues, it is not known to what extent this drug affects normal lactic acid levels in human milk. Because many drugs are excreted in human milk, caution should be exercised when Lac-Hydrin Cream is administered to a nursing woman.

Pediatric Use: The safety and effectiveness of Lac-Hydrin Cream have not been established in pediatric patients less than 12 years old. Potential systemic toxicity from percutaneous absorption has not been studied. Because of the increased surface area to body weight ratio in pediatric patients, the systemic burden of lactic acid may be increased.

ADVERSE REACTIONS: In controlled clinical trials of patients with ichthyosis vulgaris, the most frequent adverse reactions in patients treated with Lac-Hydrin Cream were rash (including erythema and irritation) and burning/stinging. Each was reported in approximately 10-15% of patients. In addition, itching was reported in approximately 5% of patients.

In controlled clinical trials of patients with xerosis, the most frequent adverse reactions in patients treated with Lac-Hydrin Cream were transient burning, in about 3% of patients, stinging, dry skin and rash, each reported in approximately 2% of patients.

DOSAGE AND ADMINISTRATION: Apply to the affected areas and rub in thoroughly. Use twice daily or as directed by a physician.

HOW SUPPLIED: Lac-Hydrin Cream is available in cartons of 280 g (2-140 g plastic tubes). Store at controlled room temperature, 15-30°C (59-86°F).



©1994 WESTWOOD-SQUIBB
PHARMACEUTICALS INC.
Buffalo, N.Y., U.S.A. 14213
A Bristol-Myers Squibb Company

03-5982-1

Revised August 20, 1996

doomed intraocular lens implantation.

Enthusiasm for lens implantation was revived briefly when lenses that depended on iris fixation were designed. But this proved physiologically unsound and was abandoned. In December 1963 Binkhorst did an extracapsular extraction and inserted an iris-clip lens without the anterior loops. In 1968 Binkhorst and Choyce of London devised an improved lens implant of polymethylmethacrylate. Binkhorst pioneered and demonstrated the advantages of extracapsular surgery with a posterior chamber implant fixed with loops. The incidence of corneal edema, endothelial damage, and intraocular complications were reduced dramatically.

In Hawaii Gerald Faulkner MD introduced the Kelman phacoemulsification machine in 1971. Next year Drs Percival Chee and Wayne Wong successfully introduced the pupillary or iris-clip lens in a series of patients. In 1973, Faulkner combined his extracapsular extraction by phacoemulsification with the Binkhorst posterior chamber implant. The popularity and success of the posterior chamber lens has been dramatic in the last two decades. The anterior chamber lens is still used in special situations. The latest exciting development is the foldable silicone implant and sutureless cataract extraction.

Glaucoma Surgery

In 1941 considerable attention was given to acute glaucoma and the pupillary block mechanism influenced by the techniques of Otto and Hans Barkan of San Francisco. Nearly every ophthalmologist in Hawaii possessed a Koeppel or Barkan lens gonioscope and a portable Barkan binocular microscope. Curran, as early as 1920, and Otto Barkan in 1938, began to differentiate between open and closed angle glaucoma. In 1941, acute angle closure glaucoma was called acute congestive glaucoma, and the classical Graefe iridectomy was generally acknowledged as the only effective operation.

Limited access to proper medical care resulted in a high incidence of acute angle closure glaucomas progressing to chronic angle closure glaucomas or chronic congestive glaucomas. A limited number of basal iridectomies were performed for this latter condition with mostly unsatisfactory results. Iridosclectomy of LaGrange, or an iris inclusion operation, was the best procedure.

Corneoscleral trephine was the operation of choice for medically refractory open angle glaucomas. A few preferred cyclodialysis. About 1950 Scheie's thermosclerectomy became the operation of choice for both refractory open angle and chronic angle closure glaucoma.

In 1968 John Cairns of England reported his results with trabe-culectomy, the first effective and safe surgical procedure for open angle glaucoma.¹⁰ The procedure creates an opening into the anterior chamber under a scleral flap. The opening is extended from the limbus

to, the scleral spur and parts of the cornea, trabeculae, and sclera are removed. It is now the most popular surgery worldwide for glaucoma. Trabeculectomy is also the preferred procedure for uncontrolled chronic primary angle closure glaucoma and for acute angle closure glaucoma when iridectomy is considered inadequate. The procedure was established in Hawaii in 1971 by Drs Herbert Pang, Chee, Thomas Frissell, and Sugiki.

Trabeculectomy is the prime surgical procedure for medically refractory open angle glaucoma. Laser trabeculoplasty on occasion will circumvent trabeculectomy while Neo-YAG cyclophotocoagulation is considered a last resort.

Retinal Surgery

In 1941, retinal separation, retinal holes and tears, and retinal disinsertion were treated with the Walker diathermy and micro-pins. Lack of proficiency and inability to localize peripheral tears limited the success of this procedure before development of the indirect ophthalmoscope and the Goldmann contact lens in 1950. The scleral buckle was first used in Hawaii by Herbert Pang in 1962. Scleral buckling for repair of retinal detachment (particularly when there is subretinal fluid) and for retinal tears (when there is persistent vitreous traction), involves the creation of an indentation of the sclera toward the vitreous. This provides apposition of the sclera and the detached retinal parts allowing healing of the retinal tear without surgical entry into the globe. Absorbable materials such as fascia lata, human donor sclera, and gelatin were used formerly, but now, nonabsorbable materials such as silicone rubber and silicone sponge are used more often. Cryotherapy or laser surgery is used in the treatment of retinal tears when there is no fluid accumulation. New techniques in vitreous and macular surgery offer new hope. The arrival of retinal fellowship-trained Drs Donald Sroat, Worldster Lee, John Drouilhet, Gregg Kokame, Pierre Pang, Byron Wong and Vernon Wong has elevated the status of retinal surgery in Hawaii to the level of academic centers.

Corneal and Refractive Surgery

Dr Thomas Frissell performed the first successful corneal transplant in 1956. The first-fellowship-trained cornea specialist, Dr Gilbert Yamamoto, arrived in 1979. With the help of the late Dr Kent Bennett at Straub, Yamamoto transformed the Makana Foundation tissue procurement system into today's Hawaii Lions Eyebank (which is sponsored and funded by the District 50 Hawaii Lions Club). The Eyebank can now network with mainland tissue banks and process local tissue for distribution. Approximately 120 to 140 keratoplasties are performed each year. As of 1995, 1,300 corneal transplants have been performed since the in-

ception of the Eyebank in 1980. Now there are several more fellowship-trained cornea specialists in Hawaii, viz Lloyd Minaai, Rhodes Stevens, Steven Gee, and John Olkowsky. With the advent of high technology refractive centers, patients can seek PRK (photorefractive keratectomy), ALK (automated lamellar keratoplasty), PTK (phototherapeutic keratotomy), and soon, LASIK (laser-assisted in-situ keratomileusis) for correction of nearsightedness, astigmatism, and corneal scarring.

Oculoplastic and Reconstructive Surgery

Vernon Jim, who retired in 1992 was board-certified in both plastic surgery and ophthalmology, pioneered this field. Jorge Camara arrived in Hawaii in 1982 after a fellowship at Baylor College of Medicine in oculoplastic and reconstructive surgery.

THE SUPPORT

With 1,700 American Express® Travel offices in 120 Countries around the world, we're there to help you almost anywhere you go. American Express® Travel is your home away from home.

THE VALUE

The volume of business we generate for our travel partners provides us extensive price advantages that we pass on to you, our customer. Let us show you how you can save money on air, hotel, car, cruise and tour arrangements.

THE SERVICE & EXPERIENCE

Dedicated to providing local personalized service, your American Express Travel team is composed of seasoned travel professionals. With over 250 years of experience among them, you can rest assured your travel arrangements will receive the attention to detail they deserve.

TRAVEL FINANCIAL SERVICES

American Express is your "one stop shop" for all your travel financial service needs, including Travelers Cheques® (7 major currencies), Foreign Exchange, Gift of Travel certificates, Gift Cheques, MoneyGram, etc.



AMERICAN EXPRESS® CARDMEMBERS

We also provide American Express Cardmembers with services such as emergency check cashing, emergency card replacement and exclusive offers for Cardmembers.

You Make People Well. We Make Travel Easy.

For relief of travel headaches, take this ad and call us in the morning. Whether you're traveling for business or pleasure, nobody covers the world like American Express Travel.



Travel

COMMERCE TOWER

1440 Kapiolani Blvd. • Suite 104
(Corner of Kapiolani Blvd. and Keeaumoku Ave.)
947-7171 and 941-0568

Scott Kortvelesy trained in neuroophthalmology has made contributions in orbital surgery. Carl Minatoya and Steven Sameshima have distinguished themselves in ophthalmic plastic surgery.

Retinopathy of Prematurity

One of the first cases of retrolental fibroplasia was documented in Hawaii in late 1941. In 1942, T.L. Terry of Boston¹¹ reported cases of premature infants with gray-white opacities behind their lenses. The incidence of retrolental membranes increased alarmingly. In 1950, Gordon of Colorado suggested the high concentration of oxygen given the infants as the cause. In 1977, retinopathy of prematurity was reported in 50 percent of infants weighing less than 1500 grams. This incidence has been reduced dramatically by careful monitoring of oxygen concentration in infant incubators.

Xenon Arc Photo Coagulator, Cryosurgical, and Lasers

Diathermy was formerly used to produce chorioretinal adhesions around retinal breaks. In 1946 Meyer-Schwickerath began experimenting with sunlight as the energy source to produce chorioretinal burns. A commercial photocoagulator was subsequently developed which produced light radiation by passing electrical current through gas. This instrument, the Xenon Arc Photocoagulator, was the highlight of the International Congress of Ophthalmology exhibit in Brussels in 1958. In 1965 Harry Cooke donated this equipment to St. Francis Hospital where it was used extensively by Drs Herbert Pang and Frissell for retinal detachments and at least on one case of bilateral retinoblastoma with excellent results.

Cryosurgical units operate on the Joule-Thompson principle that temperature drops when pressurized gas is forced through a narrow aperture. Cryosurgery was first used for cataract extraction in 1965 by Sugiki. It is the preferred instrumentation for retinal breaks and intraocular tumors.

Light amplification by simulated emission of radiation (laser) was first described in 1960. Investigations into laser light iridectomies were begun immediately. The first laser available, the pulsed ruby, failed in iridectomies. Improvements in performance started an investigative furor in the mid-1970s. The success of these investigations has made the argon laser iridectomy the procedure of choice.

Argon laser first became available in 1980. Argon laser photocoagulation has a high degree of effectiveness and applicability. It is the current treatment for certain stages of diabetic retinopathy. It is used for laser trabeculoplasty. It is the preferred method of prophylaxis for lattice degeneration, cystic retinal tufts, degenerative retinoschisis, and retinal breaks. In many cases, of retinal breaks transconjunctival cryotherapy for retinal breaks is preferred, especially for eyes with cloudy media.

Use of the Neodymium YAG laser (neodymium yttrium-aluminum-garnet) is classified as photodisruptive surgery. It was developed in 1984 and became available in Hawaii the same year. The most widespread application of this laser technology is in sectioning the posterior capsule of the aphakic eye.

Conclusion

Ophthalmology has been transformed into a specialty of supreme sophistication. The metamorphosis from the ancient surgical art of

cataract couching to a precise and skilled discipline has been driven by the revolution in instrumentation and technology. Hawaii is fortunate to have benefited from a constant and unrelenting flow of ophthalmologists who have been trained in the most current techniques and their contributions to health care in Hawaii is simply outstanding.

Acknowledgements

Thank you to Carolyn Ching from the Hawaii Medical Library for preparing this article.

References

1. Nordyke, EC. *The Peopling of Hawaii*. 2nd ed. Honolulu, Hawaii: University of Hawaii Press; 1989:17-18, 27.
2. Schmitt RC. Two centuries of eye care in Hawaii. *Hawaiian Journal of History*. 1985;19:140.
3. Schmitt, 136.
4. Halford FJ. *Nine Doctors and God*. Honolulu: University of Hawaii; 1954:191.
5. *In Memoriam: Doctors of Hawaii*.
6. Mouritz AA. The Path of the Destroyer: A History of Leprosy in the Hawaiian Islands and Thirty Years Research Into the Means By Which It Has Been Spread. Honolulu: Honolulu Star-Bulletin; 1916:33-35.
7. Schmitt, RC. *Historical Statistics of Hawaii*. Honolulu, Hawaii: University of Hawaii Press; 1975:8, 16.
8. *State of Hawaii Data Book 1995: A Statistical Abstract*. Honolulu, Hawaii: Department of Business, Economic Development, and Tourism; 1995:12, 21.
9. Schmitt, RC. *Historical Statistics of Hawaii*. Honolulu, Hawaii: University of Hawaii Press; 1975:164.
10. Cairns JE. Trabeculectomy. Preliminary report of a new method. *Am J Ophthalmol*. 1968;66:673-9.
11. T.L. Terry of Boston. Retrolental Fibroplasia. *Am. J. of Ophthalmol*; 1942, 25: 2: 203-208.

Editorial

Continued from Page 224

- 1994 - Dr Robert Michael Blaese, Deputy Chief, Metabolism
- 1995 - Flossie Wong-Staal, PhD, Florence Riford Chair in AIDS Research, Professor of Medicine & Biology, University of California, San Diego.

The Blue Ribbon Panel on Living and Dying with Dignity

The Governor's Blue Ribbon Panel on Living and Dying with Dignity has been meeting since January, and plans to hold public hearings around the State in October to hear from Hawaii residents. The 18-member panel has been studying more than just physician-assisted death, and has looked at issues of pain management and palliative care, financial costs of dying, hospice, legal concerns including whether advance directives are being followed, spiritual and religious aspects, cultural differences and perspectives from various special interest groups. After the public hearings, the panel will develop policy and program recommendations. Prior to presenting these recommendations to the Governor, the panel will hold additional public hearings.

The panel has just published its first newsletter, and persons wanting to be included on the mailing list for that newsletter should contact the Executive Office on Aging at 586-0100. The specific dates and times for the public hearings will be soon available.