

Prosthetic and Surgical Considerations for Implant Reconstruction

“Cura Personalis (care for the
patient) in Ignatian tradition”

Pre Implant Provisional Restoration

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Burden of Oral Disease is on the Poor

- Over 108 million children and adults lack dental insurance, which is over 2.5 times the number who lack medical insurance.
- Health disparities affect members of
 - Racial, ethnic groups, lower income populations.
- #1 Indicator of Lack of Care is Zip Code

(Harris et al, *Primary Preventive Dentistry* 2014.

“don't forget about the poor”

- After Pope Francis was elected pope, his friend, Brazilian Cardinal Claudio Hummes, said **“don't forget about the poor.”**



Jesuit Presence in the World

- There are 28 Jesuit universities in U.S. and 189 universities in the world.
 - Over 800 Jesuit educational apostolates in the world .
 - According to one study, there are about fifteen institutes of women that were spawned from Ignatian spirituality.
<https://www.catholicnewsagency.com/column/53076/charism-and-consecrated-life-part-i>
- There are ~ 15,000 Jesuits worldwide.
- Takes 8-13 years to become a Jesuit.
- Every Jesuit takes vows of poverty, celibacy, and obedience.

Why the Vows?

- For victory over the **Three Lusts** of the World - 1 John 2:16
- Obedience gives the victory over - **Pride of life.**
- Poverty is victorious over – **Lust of the eyes.**
- Chastity is victorious over - **Lust of the flesh.**
- These counsels help one to live like God.
- The Most Holy Trinity lives in their 'divine communion of persons'.
 - Mutual submission (obedience) to each other.
 - Trinity existed before any creation.
 - Perfectly pure and holy in their relationships.

Jesuit 10 year plan universal apostolic preferences (2019-2029)

- [Universal Apostolic Preferences - Introduction | The Society of Jesus \(jesuits.global\)](https://www.jesuits.global/universal-apostolic-preferences-introduction)
- • 1. To show the way to God through the spiritual exercises and discernment, and the daily examen.
- • 2. To walk with the poor, the outcasts of the world, those whose dignity has been violated, in a mission of reconciliation and justice.
- 3. To accompany young people in a creation of a hope filled future.
- 4. to collaborate in the care of our common home.

Mission Reflected in Department



Oral Health Promotion Clinic Guide

'Your Path to Oral Health'
2022-2023

- OUR MISSION IS ROOTED IN THE JESUIT CHARISMS OF
- Finding God in all things, (persons)
- *Cura personalis* (personal care for the individual),
- The *magis* [Latin for “the more”] (seeking what is more, better and of greater service to God/Humanity),
- Forming men and women who will live with and for others, and
- A faith that does justice

Training how to use the hands, and also how to use the heart



**One of over 40 outreach
experiences for our students**



Ignatius conversion



- 500 years ago, St. Ignatius Loyola was wounded by a cannonball while defending the city of Pamplona.
- While reading the lives of the saints he was aware of the consolations and desolations he had.
- He noticed the consolations lasted longer and were more intense and gave him a sense of great peace vs when he read the lives of military leaders, and romance novels.
- These observations were the basis for his' rules of discernment' and 'spiritual exercises'.

I hope to show you today that what the dentist does to the mouth and patient, God does to us, the soul?

My observation is that God perfects us similar to the way we bring mouths to a level of health and perfection in our patients.

Definition – Purification

Active and Passive

- Active Purification – what the ‘patient’ or ‘the soul’ does to perfect or purify their mouth or soul, is called asceticism.
 - The patient brushes, flosses, and controls their diet.
 - The soul (person) prays, fasts, gives alms and keeps the commandments.
- Passive Purification – what the dentist does to the patient to heal the mouth, or what God does to the soul to heal us. The patient/soul is actively receptive or passive and something is done to the patient/soul by someone outside of themselves. In the spiritual life it is called mysticism (experiencing God).
 - Dentist removes caries or calculus and cleans mouth. The patient experiences the work of the dentist.
 - God removes sins, faults, and cleans the soul. We experience the work of God on us.

Definition – Purification

Active and Passive

- Similar to sailing across a lake – you are active when you row but when the wind blows you are passive, but you are still making progress across the lake.



Basic Principles

- No creature or created thing is capable of making us totally happy because we have a soul, and only God can fulfill the soul. That is why it is called 'The Spiritual Life'.
- Saint Augustine *Confessions*, 4th century said, "You have made us for yourself, O Lord, and our hearts are restless until they rest in You."
- God made the world for us, but us He made for Himself.
 - If we knew how much we are loved we would die of joy.

Basic Principles

- I am starting with the premise that Jesus is who He said He is, God, The Lord, 'I Am'. I can't get anyone there that is a gift. So is the mystery of the Holy Trinity, it is revealed. That is why it is called revelation.
- If He rose from the dead, and revealed Himself to his followers then He is still doing this today in 2022.
- He revealed Himself to Ignatius, and the Jesuits are called, 'the companions of Jesus'.

God revealed Himself to Ignatius

- In the cave of Manresa, Spain, in 1522.

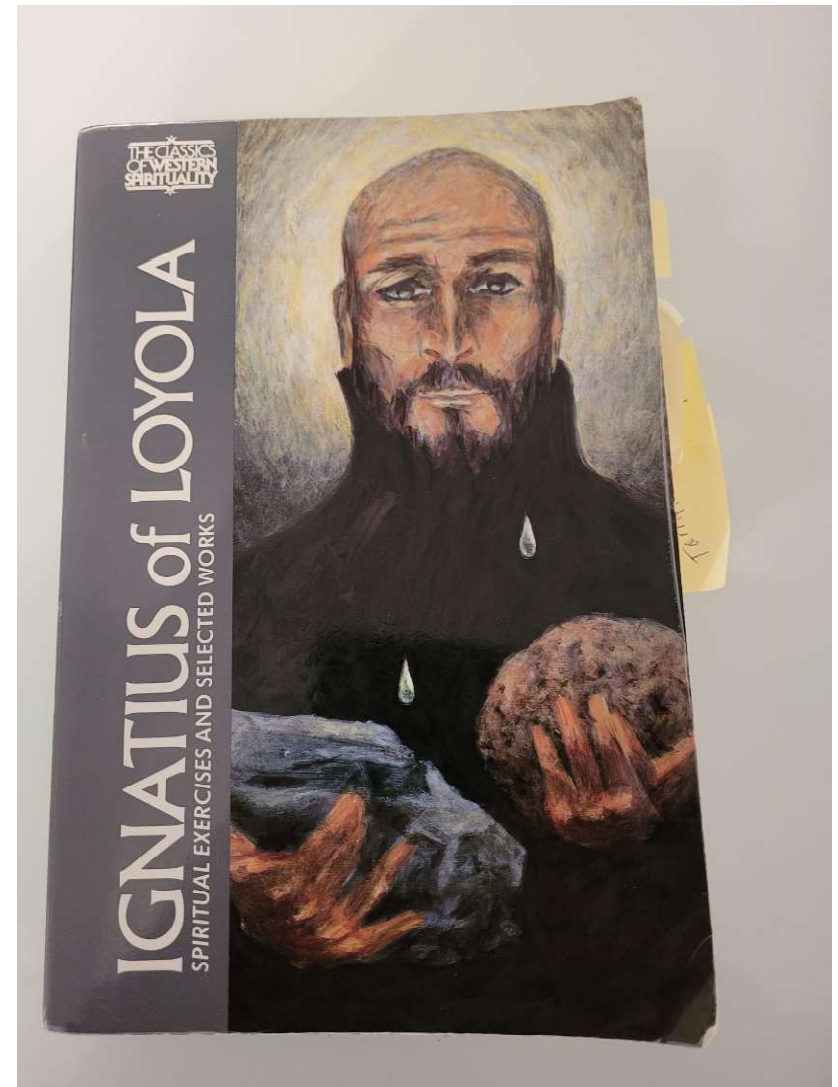
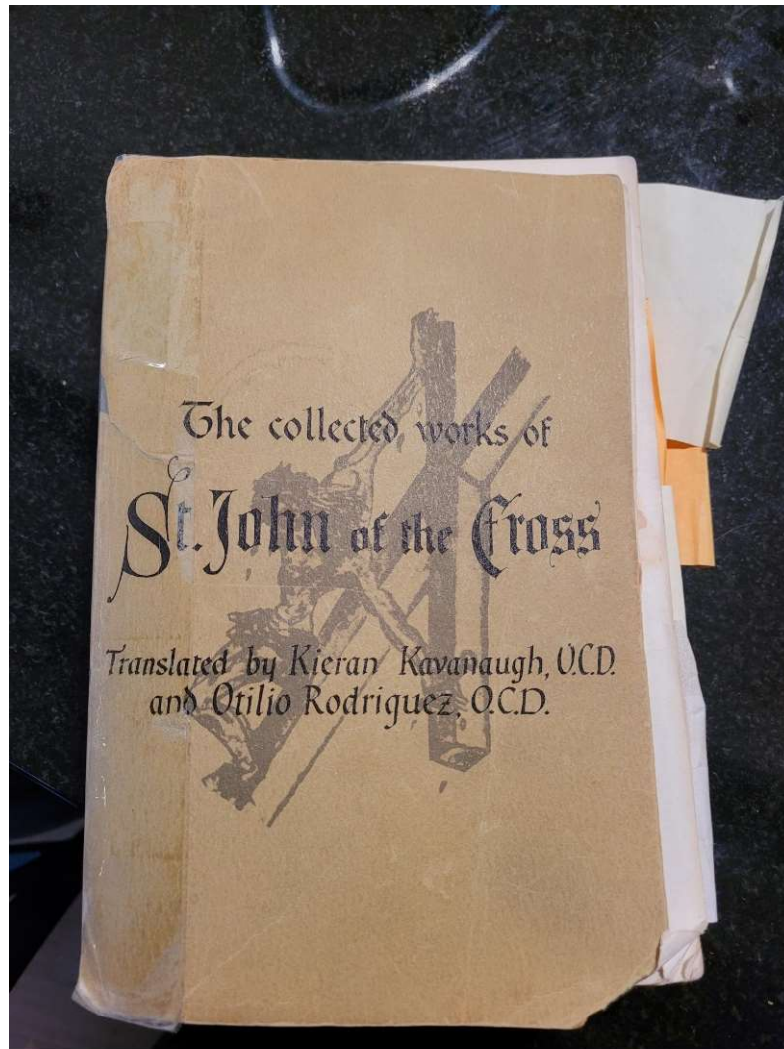


A replica is in the Heider School of Business.



Peter Faber was the first of Ignatius's companions to be ordained and he was a master of the spiritual exercises. His spiritual director was St Ignatius. He had a habit of being too hard on himself and Ignatius helped to moderate that.

Not just about information but formation. A personal living encounter.



Jorge Bergoglio – future Pope Francis

- In the early 1950s, he had a day off from school. On his way to meet up with his friends, he passed by his local parish and felt compelled to go inside. Later he would say, “I went in, I felt I had to go in — those things you feel inside and you don’t know what they are.” (heart burning)
- As he walked inside of the Church, it was pretty dark, and he saw a priest whom he’d never seen before. “I felt like someone grabbed me from inside and took me to the confessional.” During this time in confession, the teenage boy had a profound experience with Jesus’ mercy. It was so dramatic that he later described it as being knocked off a horse.
- The moment was so defining for him because God revealed Himself to Francis.

<https://focusequip.org/the-moment-when-god-called-a-teenaged-pope-francis-to-be-a-priest/>

As a Newly Converted Lay Person

- Ignatius, In 1522, without a formal education and any education in theology.
- He had five mystical experiences or intellectual illuminations that changed his life forever.
- These experiences gave him that extraordinary confidence that God was real and that He wanted to teach Ignatius about Himself, as a teacher teaches a student. (Ignatius pedagogical style)

His Five Mystical Encounters

1st - One day while saying the Office of Our Lady his understanding began to be elevated so that he saw the Most Holy Trinity in the form of three musical keys. ... That morning, ... he could not hold back his tears until dinner time; nor after eating could he stop talking about the Most Holy Trinity.



His Five Mystical Encounters

- 2nd - The manner in which God created the world was presented to his understanding with great spiritual joy.



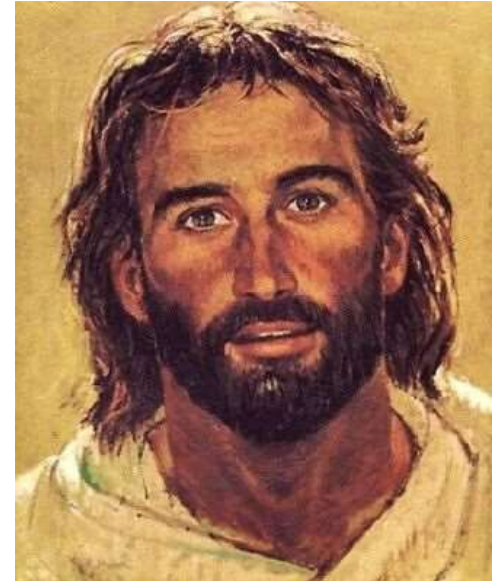
His Five Mystical Encounters

- 3rd - One day, during Mass in the church of the monastery, at the elevation of the Body of the Lord. ... He saw clearly how Jesus Christ our Lord was there in the Most Holy Sacrament.
 - Like the disciples walking with Jesus on the road to Emmaus and then at the table they encountered Him in the bread when he disappeared. Luke 24:13-15



His Five Mystical Encounters

- 4th - Often and for a long time, while at prayer, he saw with interior eyes the humanity of Christ.
- He thought to himself: If there were no Scriptures to teach these matters of faith, he would be resolved to die for them, solely because of what he had seen.



His Five Mystical Encounters

- 5th - While he was seated at the river Cardoner, the eyes of his understanding began to be opened.
- His understanding was so enlightened that he felt as if he were another man with another mind.
- Even if he gathered up all the various helps, he may have had from God, and all the various things he has known, even adding them all together, he does not think he had got as much as at that one time.”



Second Encounter with Holy Trinity

- As a priest, on his way to Rome, to get approval for his order, Ignatius had a mystical encounter with the Most Holy Trinity at La Storta, a city close to Rome.
- In a vision, God the Father was placing him with Christ his Son, with their words telling Ignatius, “I want you to serve us.”
- In the vision God the Father said to him, “I will be favorable to you in Rome.”
- And the most sacred name of JESUS, was so imprinted in his soul that he wanted his congregation to be called the Society of Jesus.



IHS – window 3RD floor on east side of building



- IHS is a “Christogram,” an ancient way (3rd c.) of writing the word “Jesus Christ”, the first three letters of his name in Greek, IHΣ (from his full name IHΣΟΥΣ).
- The Greek letter Σ (sigma), is written in the Latin alphabet as an “S,” resulting in the monogram written as IHS.

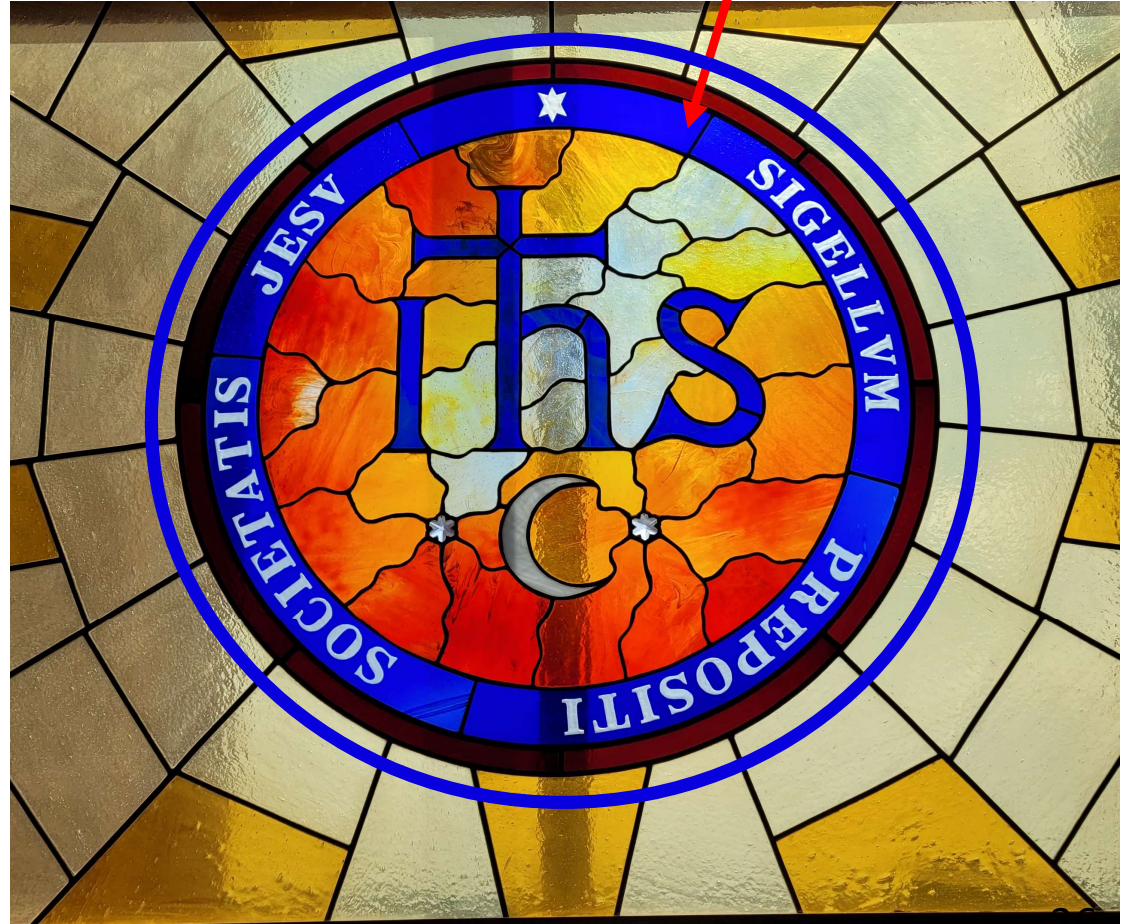


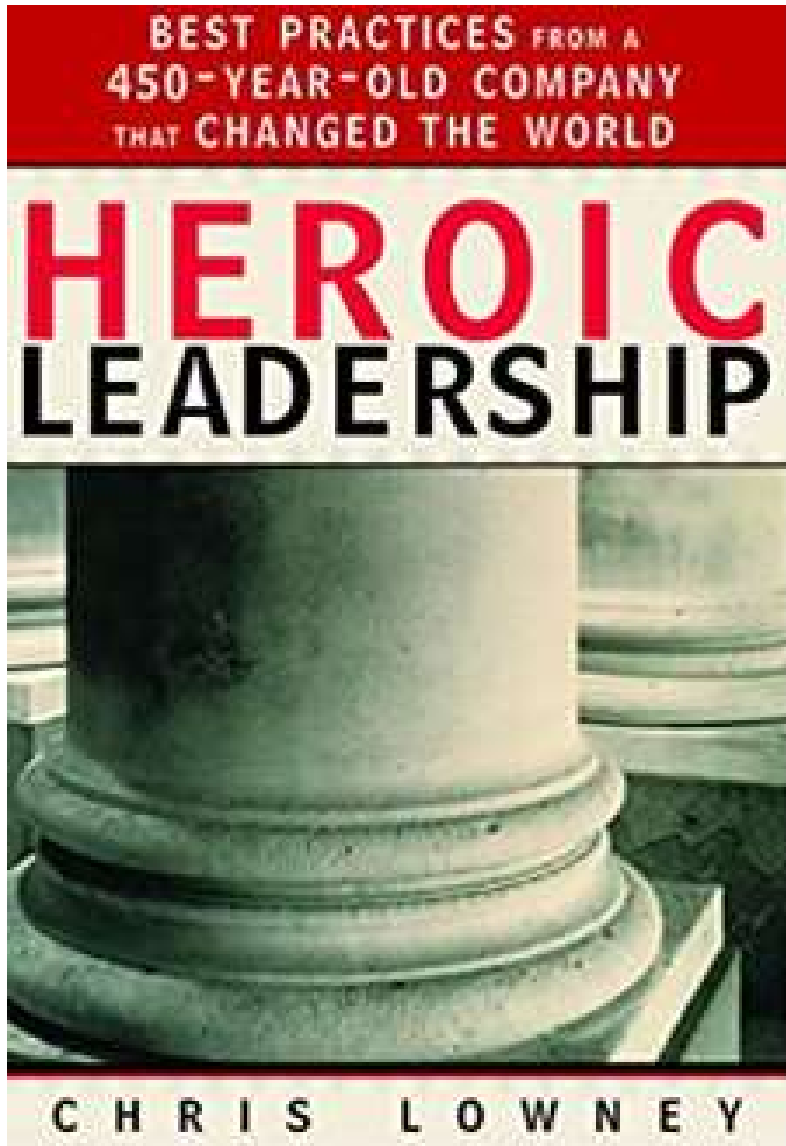
Name of Jesus in Greek/Latin

IHS – window 3RD floor

- in 1541 St Ignatius adopted the monogram to represent his newly founded order, the Society of Jesus.

In blue circle it reads. Societatis
jesu sigellum prepositi – which
is Latin for 'The Seal of the
Society of Jesus',





One of the charisms of Jesuits is to form leaders in every field (including dentistry).

- Help people identify and use their gifts.
- Affirm them in their gifts.
- Dentists/hygienists have the gift of healing.

Creighton was chosen, one of 13 universities in US, by Carnegie Foundation to study Leadership.

Two paths

Tree of Life

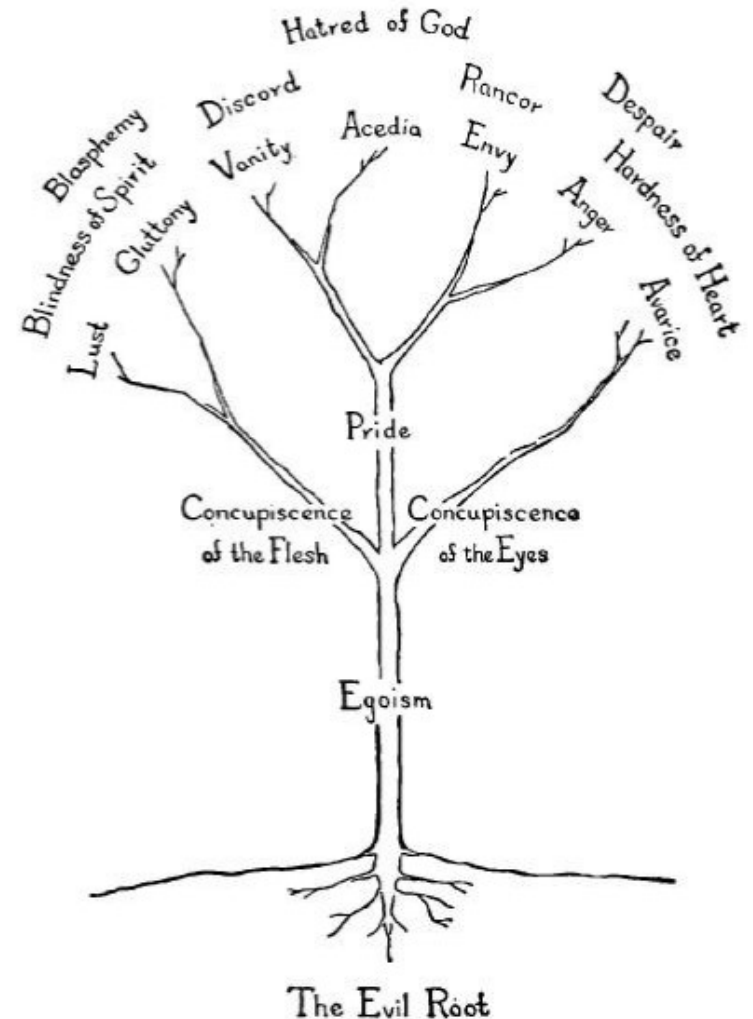
VS

Tree of the Knowledge of Good and Evil

Tree of the knowledge of good and evil

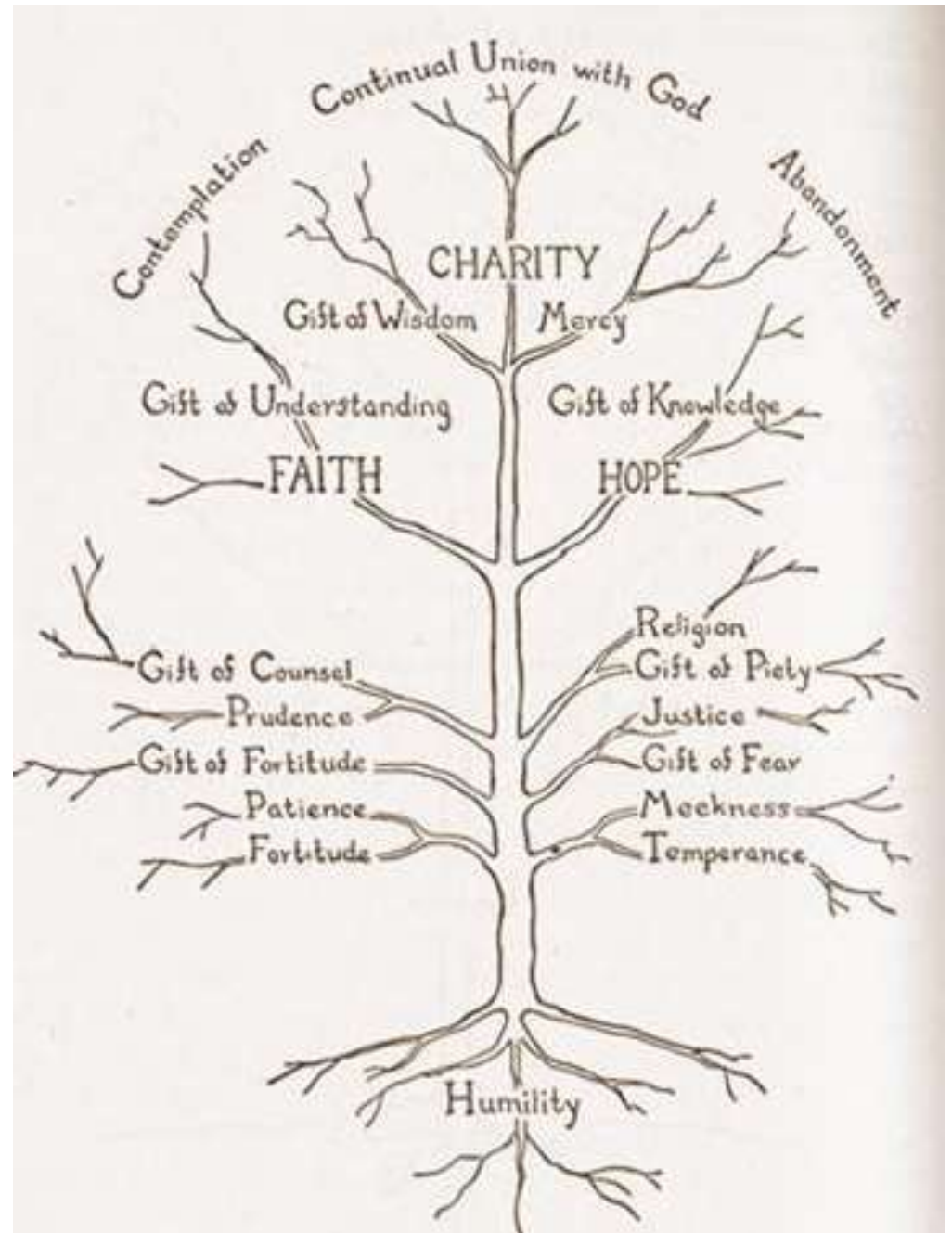
The Three Ages of the Interior Life
Volume 2

- Were we decide for ourselves what is good or evil, right or wrong.
- Fruit of that tree is domination, manipulation and controlling others. We see others as a problem or obstacle to our goals.
- Leads to authoritarianism. The strong rule by force.
- We make idols out of others and things, and they disappoint us.
- Pope Benedict 16 called it the 'dictatorship of relativism'.



Tree of Life

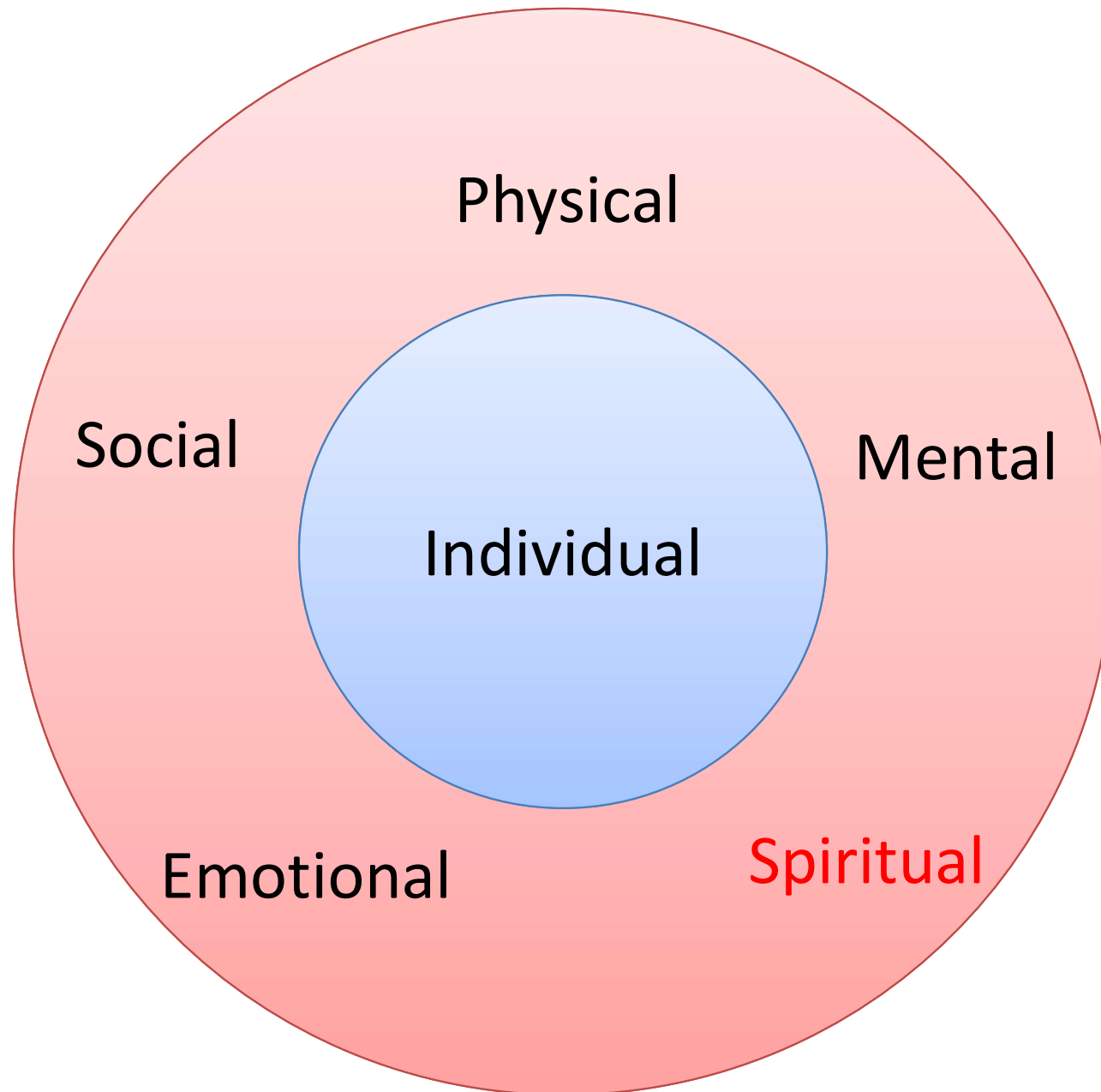
- We follow an objective way, where God defines what is true, beautiful, and good.
- We control ourselves, rather than others, and can see others as a gift, not an idol or a problem to fix or control.
- We are free from attachments, the three lusts, in order to choose the good.
- A great peace and joy is its fruit.



God Wants to Reveal Himself to Us Not Just as Information But as He is

- “Whoever observes my commandments is the one who loves me. And whoever loves me will be loved by my Father, and I will love him and reveal myself to him.” John 14:21
- “If you want to enter into life, keep the commandments.” Matt 19:17
- But when you pray, (fast or give alms) go to your inner room, close the door, and pray to your Father in secret. And your Father who sees in secret will repay you. Matt 6

Five Dimensions to Health



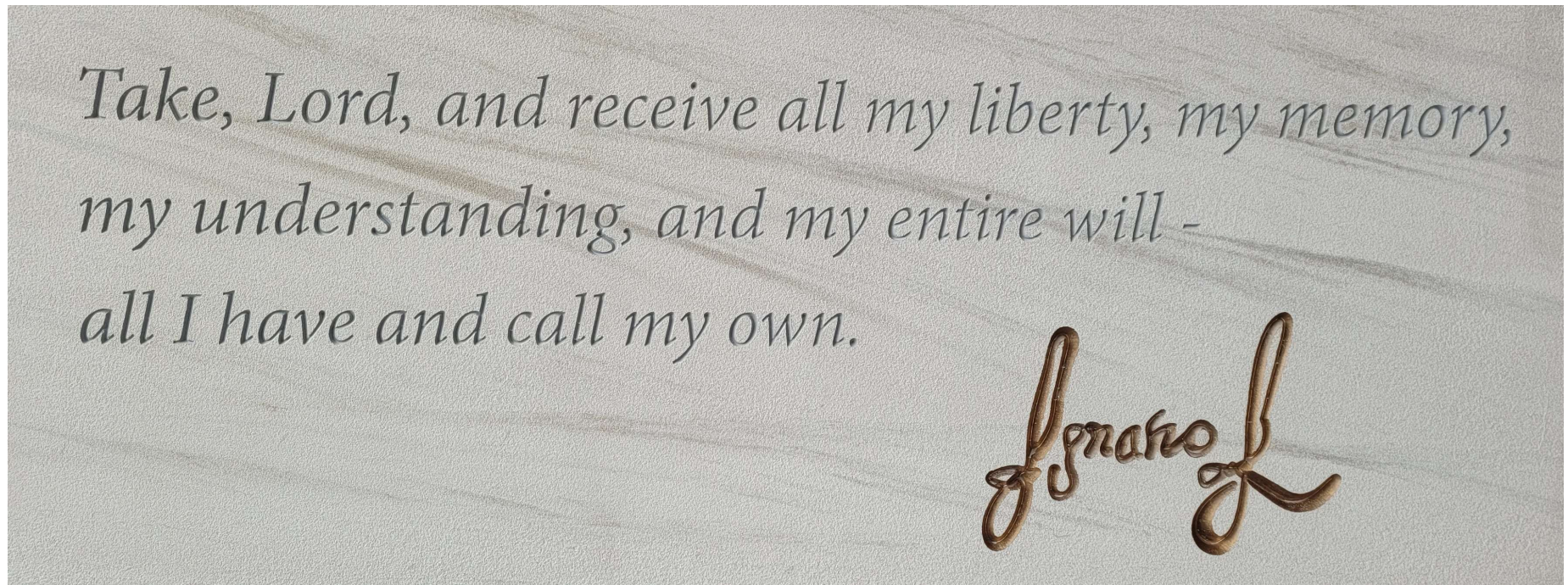
. (Harris et al, *Primary Preventive Dentistry* 2014.)

Goal of Spiritual Life is to Participate in the Divine Nature

- The human virtues are rooted in the theological virtues, (**faith, hope, and love**)
- which adapt man's faculties (**memory, understanding, and will**) for participation in the divine nature:
- for the theological virtues (faith, hope, and love) relate directly to God.
- They dispose Christians to live in a relationship with the Holy Trinity.

Powers or Faculties of the Soul

Memory, Understanding and Will



Carved into the chapel wall on 2nd floor of school.

Comes from Suscipe (receive)

Saint Ignatius of Loyola, 1491-1556

*Take, Lord, and **receive** all my liberty,
my memory, my understanding, and my entire will,
All I have and call my own.*

You have given all to me. To you, Lord, I return it.

Everything is yours; do with it what you will.

Give me only your love and your grace,
that is enough for me.

**Give me
what grace?**

Faculties filled with ...

Faculty or power of the soul	Filled with virtue	Other Names
Understanding (Intellect)	Faith	<u>Truth</u>
Memory	Hope	Trust, Mercy, <u>Beauty</u>
Will	Love	Charity, Purity, <u>Goodness</u>

Why Faith, Hope and Love?

- Because they relate directly to God.
- If we could see God face to face we would not need to believe [faith], nor would we need to hope, because we would possess what we see, the only thing we would do is have a mutual exchange with God, who is love itself.
 - Remember when Moses was on the top of the mountain and God passed him and hid him in the cleft of the rock. You cannot survive the beauty of God while alive in your body.



Faith, Hope, and Love

Are the virtues that keep persons together in relationships.

As long as we believe, trust, and serve one another in love, we have a healthy relationship.

If anyone of the three virtues is lacking the relationship is less than what it should be.

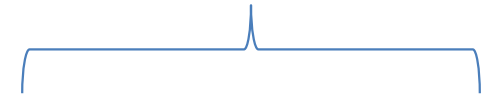
Highest Form of Professional Relationship is Based upon

Do I <u>believe</u> my dentist?	If I do I will follow their advice.
Do I <u>trust</u> my dentist?	If I do I'll let them treat me. And trust they did their best even if it does not turn out well.
Do I <u>love</u> my dentist?	I will support my dentist, and I seek what is best for them...so they can stay in business. They will send referrals. They want others to love what they love.

Anatomy of the Soul

Faculty or power of the soul	Theological virtue before the fall and virtue that heals the soul after the fall	Result of original sin <u>Intellect</u> <u>darkened,</u> <u>Memory guilty,</u> <u>Will weakened</u>
Intellect (understanding)	Faith, Truth	Error, Ignorance
Memory	Hope, Trust, Mercy	Guilt, Anxiety, Worry
Will	Love, Charity, Purity	Selfishness, Impurity, Cover with fig leaves

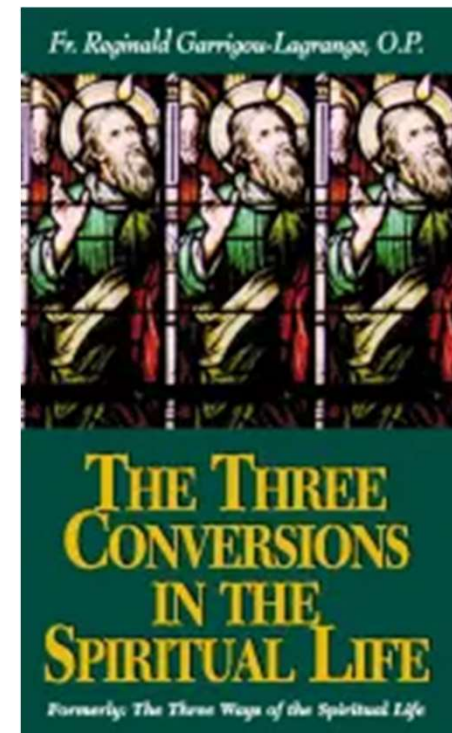
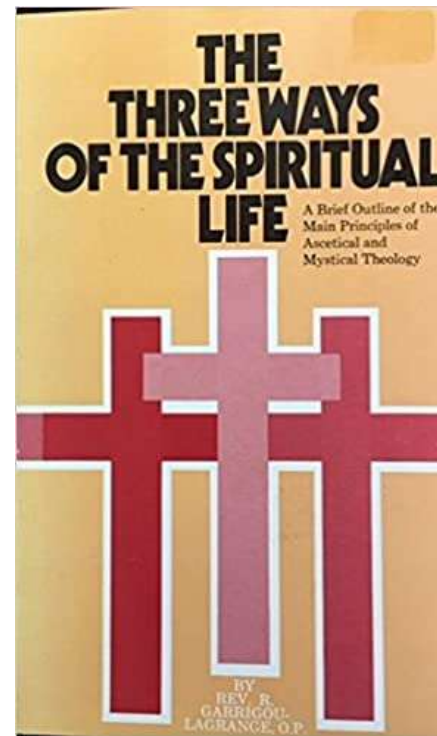
Anatomy of the Soul



Faculty of the soul	Theological virtue before the fall and virtue that heals the soul after the fall	Result of original sin	Because of original sin the 3 fold lust enters the world	Evangelical counsels that heal us from that 3 fold lust	Relationship broken as a result of original sin	Relationships healed with
Intellect (understanding)	Faith, truth	Error, ignorance	Pride of life	Obedience	Break with God	<u>Prayer</u> , Meditation and Contemplation
Memory	Hope Trust	Guilt, anxiety, worry	Lust of the eyes	Poverty	Break in relationship with others	<u>Almsgiving</u>
Will	Love, charity, purity	Selfishness, impurity	Lust of the flesh	Chastity	Break between the body and soul	<u>Fasting</u> , Sacrifice rehabilitates the will

The Three Ways

- Author is Fr Reginald Garrigou-Lagrance, OP Master of the Spiritual Life.
- Was dissertation director of St. Pope John Paul II, who had PhD in Theology and Philosophy.



History of Three Ways – Apostle John

- 1 John 2:12-17 – 1st century
- I am writing to you, children, because your sins have been forgiven for his name's sake. I am writing to you, fathers, because you know him who is from the beginning. I am writing to you, young men, because you have conquered the evil one.
- For all that is in the world, sensual lust, enticement for the eyes, and a pretentious life, is not from the Father but is from the world.
- 3 fold lust – lust of the flesh, lust of the eyes, and the pride of life

History of Three Ways – Origen 3rd century

- Said the stages in spiritual life are not literal ages, but refers to the stages in the spiritual life of,
- children, adolescents, and adults,
- or beginners, proficient, and perfect or,
- to those in their physical growth, emotional growth, and maturity.

History of Three Ways

- 6th century monk Pseudo Dionysius the Areopagite.
 - Gave us the three paths the Purgative, Illuminative and the Unitive path to union with God.
- St. Bernard, 11th century Cistercian monk (reformed Benedictines, from 5th century) and refers to it
- St. Thomas Aquinas, OP ~ 1270 AD
 - also describes these three ways.

History of Three Ways - St Ignatius - 16th century

- “For, ordinarily, the enemy of human nature tempts under the appearance of good not so much in the Purgative Life, (the First week of the exercises).
- But rather when the person is exercising himself in the Illuminative Life, which corresponds to the Exercises of the Second Week.”

- Introduction to the Spiritual Exercises of St. Ignatius,
 - in the tenth annotation, (or paragraph 10)

Jerome Nadal, SJ - ~1548

- Was close to St. Ignatius and the founder of, the first college, opened by the Jesuits, in 1548 at Messina, [Jesuit College, Messina](#)
- affirmed that the order and plan of development in the spiritual exercises of St. Ignatius is in the purgative, illuminative and unitive ways.

An Outline of the Spiritual Exercises

First Principle and Foundation

- God's creative, unconditional love and call for total response.
 - A positive sense of God, self, creation.
 - Desire for freedom.

First Week: **Purgation**

The problem of evil: global and personal sin.

The need for healing from fear, guilt, poor self-image.

Conversion from personal sin (not a breach of a law but of a love relationship).

- Coming to faith in Christ crucified (Paul to the Romans).
- Knowing oneself as totally forgiven.
- Baptism and reconciliation.

Discipleship: Incorporation into Christ.

- The Call of the King: Christ's call to follow him.
- Deeper desire to be a disciple.

Second Week: Illumination

Contemplation of Jesus in the Gospels.

- In his infancy: in the imaginative stories of Matthew and Luke.
- In his adult life: his message to all, and to me.

A choice to follow him:

- In spiritual poverty, self-emptying, and humility.
- Rejecting the way of evil: greed, honors, and pride.
- A practical decision to live one's life with and for Christ in service.

Third and Fourth Weeks: Union

The Passion of Christ: strength to carry out one's mission.

Deeper sorrow for sin and compassion for God's suffering people.

To live in the joy of the Lord: making a total response of love to God's Love.

Contemplation on God's Love: a deep and generous response to God's gifts.

<https://www.ignatianspirituality.com/ignatian-prayer/the-spiritual-exercises/an-outline-of-the-spiritual-exercises/?amp>

Purpose of Spiritual Exercises is to conquer oneself and regulate one's life without determining oneself through any tendency that is disordered. To choose a vocation/state of life.

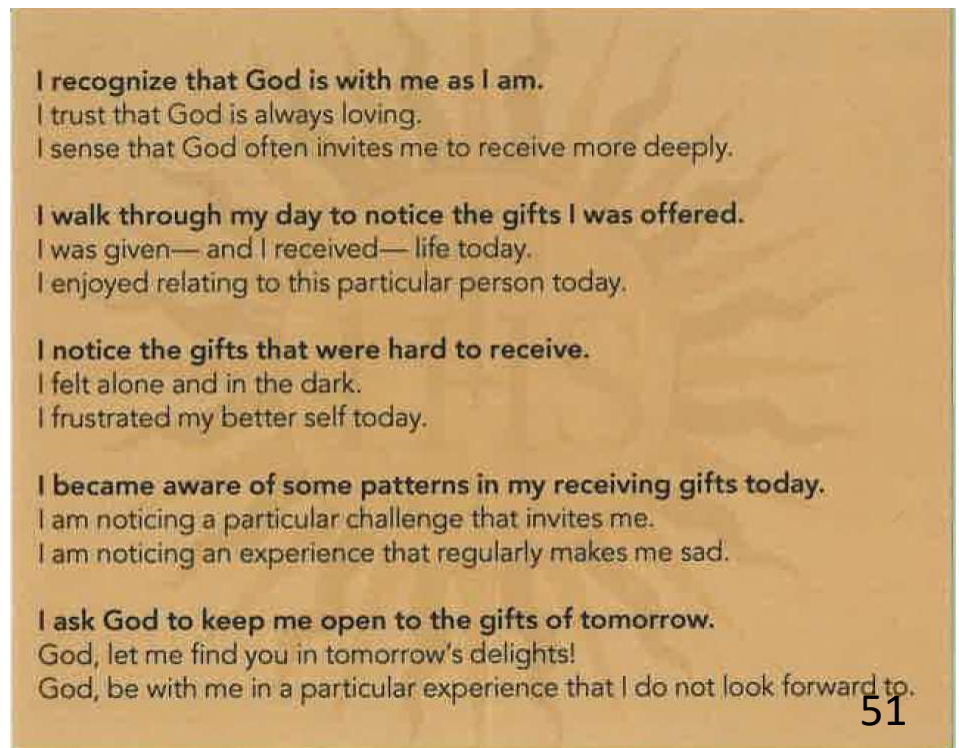
If already chose one then to grow in it.

Want freedom from attachments in order to be able to choose the magis (greater good).

There are many goods in life but what is the greatest good among the many?

Daily Examen – Note How God is Working in the Soul

- A Jesuit can never omit it in their day.
- Starts with awareness, or examen of consciousness.
- Daily reflection, or a habit of immediate reflection.



Examen presupposes that we have the ability for self reflection and self determination

- What can I be thankful for today, what went well, what was I enthusiastic about?
- What example, ethic, or virtue did I see in another person that I would like to imitate?
- What did I like or not like about the treatment I did today that I wish I could always do?
 - What did I like/not like about an interaction with a patient, staff member or another colleague that could have gone better?

Attributes of Fruitful Conversation

Did I or was I....?

- Slow to speak – think twice speak once – use your filter.
- Listen attentively.
- Seek the truth in what others are saying.
- Disagree humbly, respectfully, and thoughtfully.
- Allow the conversation the time it needs.

How to make decisions with God's Help

The 14 Rules for Discernment of Spirits: Summary and Original ~ 500 years old

- The rules deal with ways to interpret the states of **consolation** (joy, peace, gratitude, and the like) and **desolation** (depression, anxiety, fear) that people typically experience in the course of cultivating a spiritual life.
- [The 14 Rules for Discernment of Spirits: Summary and Original \(ignatiantradition.com\)](http://ignatiantradition.com)
 - Should I be a general dentist or a specialist?
 - Should I associate with this dentist or that other dentist?
 - Should I marry, who should I marry?

Three Ways of the Spiritual Life

(is the scaffolding for so many principles)

1 st Way	2nd Way	3 rd Way
Purgative (What you should not do) Confetior	Illuminative (What you should do) Readings	Unitive Communion
Beginner Love God w/ Heart	Proficient Soul	Perfect Strength/Mind
Meditation (Know God through Ideas and Images)	Contemplation (Prayer of Quiet- God reveals Himself)	Transforming Union – Pray Always- We know God in a mystical knowledge
Childhood	Adolescent	Adulthood
Friendship	Engaged	Married

Three Ways Modeled in Other Areas

	1 st Way	2nd Way	3 rd Way
Dental	Disease Control	Restorative	Maintenance
Spiritual Life	Purgative Beginner	Illuminative Proficient	Unitive Perfect
Dreyfus Model of skill acquisition (1983)	Novice-Beginner	Competent-Proficient	Expert
Stages of Religious Life	Novice	Postulant	Perpetual Vows
Stages of Learning	Knowledge	Understanding	Wisdom

Treatment Plan – 3 Ways

Patients

1st way of beginners -
Purgative - Disease Control

2nd way – Illuminative -
Restore the damage; practice
health.

3rd way – Union or
Maintenance with health

The Soul

1st way of beginners in the
spiritual life - Purgative – Sin
control. Purify the soul. God
wins over our sensibilities.

2nd way of illumination. Heal
effect of sin. Restore the soul
by imitating Christ and his
virtues. God wins over the
intellect.

3rd way – Union with God.
God wins over the will.

Treatment Plan – 1st way

More Detail

1st way of beginners – Patients

Purgative - Disease Control, remove disease.

Patient must make decisions by reason, what is true about disease and health.

Too many decisions are made by the senses and appetites.

Active purification – patient does something – brush, floss and control diet. Mortify the senses of taste and smell.

- Read about health, patient education.
- Have to follow healthy advice. Know yourself and persevere through cutting back on foods that feed the

1st way – way of beginners -Soul

Purgative – Purify from past faults, remove sin, bad habits, heal deep wounds, detachment from creatures and created things in order to become attached to God. Need to live by reason and faith, what is true, not by inordinate attractions or the senses.

Active purification – prayer, fasting and almsgiving; fight temptation. Still lives too much by feelings, feelings are purified. Keep the commandments. Meditation. God wins over our sensibilities. The soul perseveres through aridity's, temptations, and trials. Will needs to be strengthened. Expel idle⁵⁸

Treatment Plan – 2nd way

2nd way of the Proficient – Patient	2 nd way of the Proficient - Soul
<p><u>Active</u> - Restore the damage; practice health.</p> <p>Patients intellect has to be stronger than their senses.</p>	<p>Active - Imitate Christ and his virtues. Restore virtues in one's life. Infused prayer or contemplation.</p> <p><u>God wins over the intellect.</u></p>
<p>Passive purification – dentist removes what the patient cannot remove; caries, full mouth debridement, scaling and prophylaxis.</p> <p><u>When anesthetized; extractions.</u></p> <p>Dentist removes remnants of disease the patient cannot see.</p>	<p>Passive purification – like dentist acts on the mouth, God acts on the soul – full soul debridement – <u>to remove remnants of sin that soul cannot see.</u></p> <p><u>May take place in dreams when soul is asleep.</u></p>

Treatment Plan – 3rd Way

More Detail

3rd way of the Perfect/Expert – Patient

3rd way Maintenance or union with health. Patient's will is strong enough and free enough to choose health.

Enjoy the benefits of a healthy mouth, peace of mind and self control.

Patient has control of their health rather than bacteria.

3rd way of the Perfect – Soul

Union with God. Fruits [Love, joy, peace, patience, goodness, kindness, gentleness and self-control] are present and the Gifts of the Holy Spirit are present [fortitude, fear one is not loving God enough, understanding, counsel, knowledge of God, wisdom and piety]. Patient can live the beatitudes.

God wins over the will. No coercion, manipulation or domination in the relationship. Total free self gift. Will is now strong enough to choose the good.

Crises/Transitions Between Stages

Dark Night of the Senses:
Apostles at Crucifixion

Dark Night of the Spirit:
Apostles between Resurrection,
Ascension, and Pentecost

1 st Way	2 nd Way	3 rd Way
Disease Control Senses	Restorative Reason	Maintenance Choosing with Will
Prayer-Vocal to Meditation	Contemplation (Quiet/Ecstasy)	Transforming Union
Beginner	Proficient	Perfect
Friendship	Engaged	Married
Childhood	Adolescence	Adulthood

Puberty

Transition

In order to encounter the Creator-have
to let go of attachments to creatures,
created things.

In order to encounter the Creator as He is
and love Him for his own sake, one
has to let go of their attachments to His
spiritual consolations and pleasures

The way of perfection or health

- Passes by way of the Cross, self denial.
- There is no holiness without renunciation and victory over the 3 fold lust; the devil, world and flesh.
- There is no health without renunciation of sweets, victory over bacteria, and a battle with one's self will.

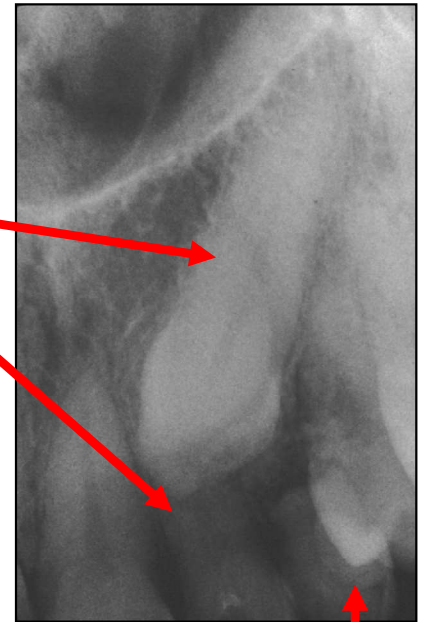
Ignatian values are used to care for the
poor (cura personalis)

Implants are great but because of health
disparities other provisional treatments
are necessary.

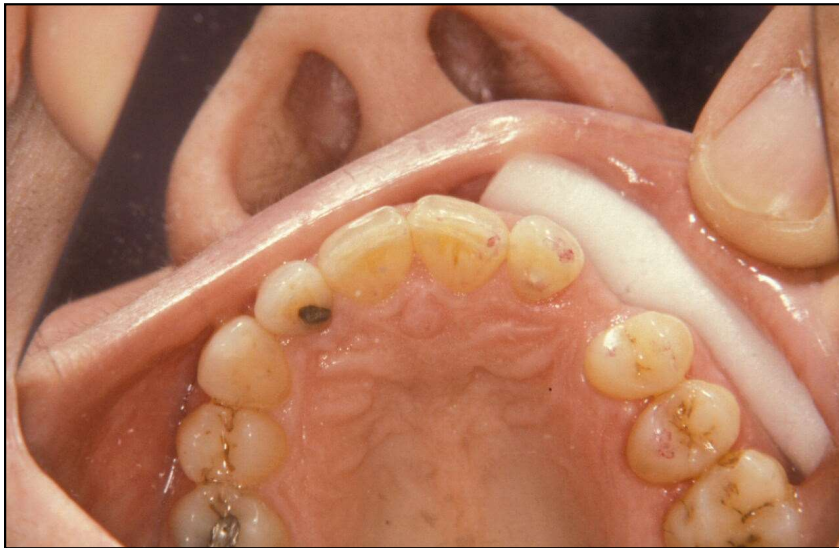
I had to care for people and apply
scientific evidence.



Impacted #11
with resorbed #10 root.
Patient in pain from
impacted #11



Deciduous
canine tooth



Purk JH. A direct adhesive technique using composite resin as an interim replacement of a missing maxillary canine. Gen Dent 1991 March-April;39(2):110-12. Case report 26 months post op.

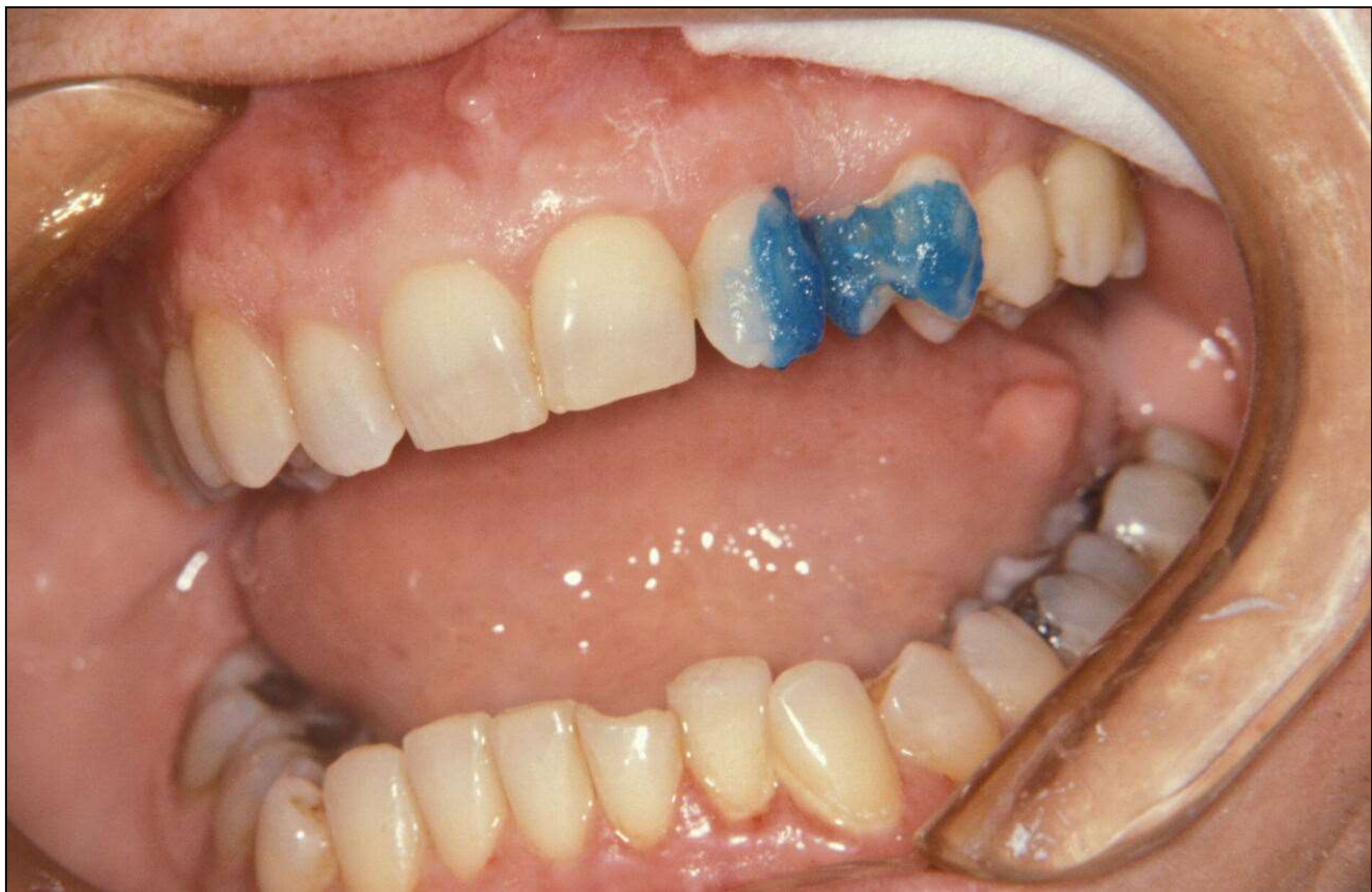
Make a matrix from a study model

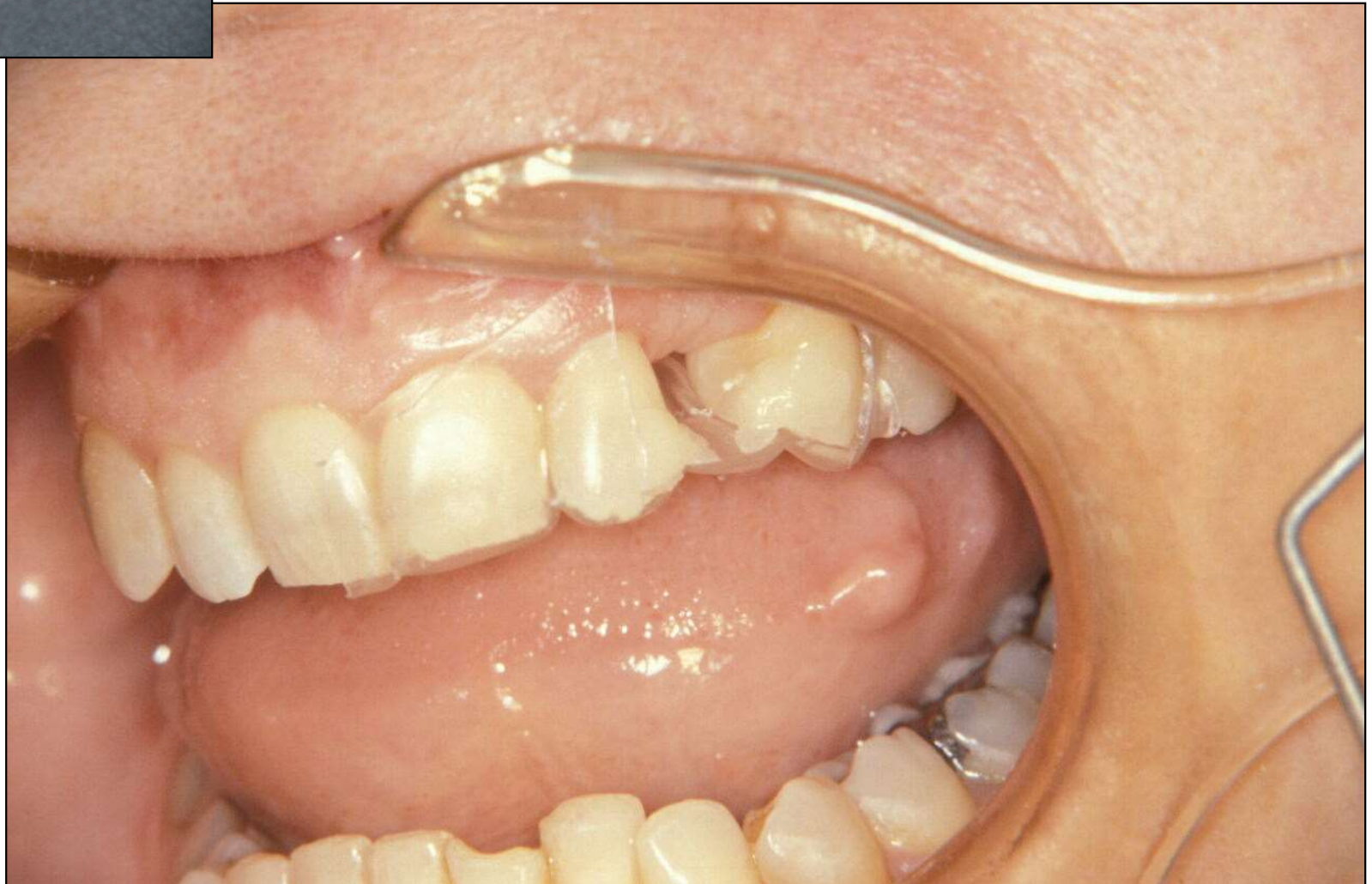


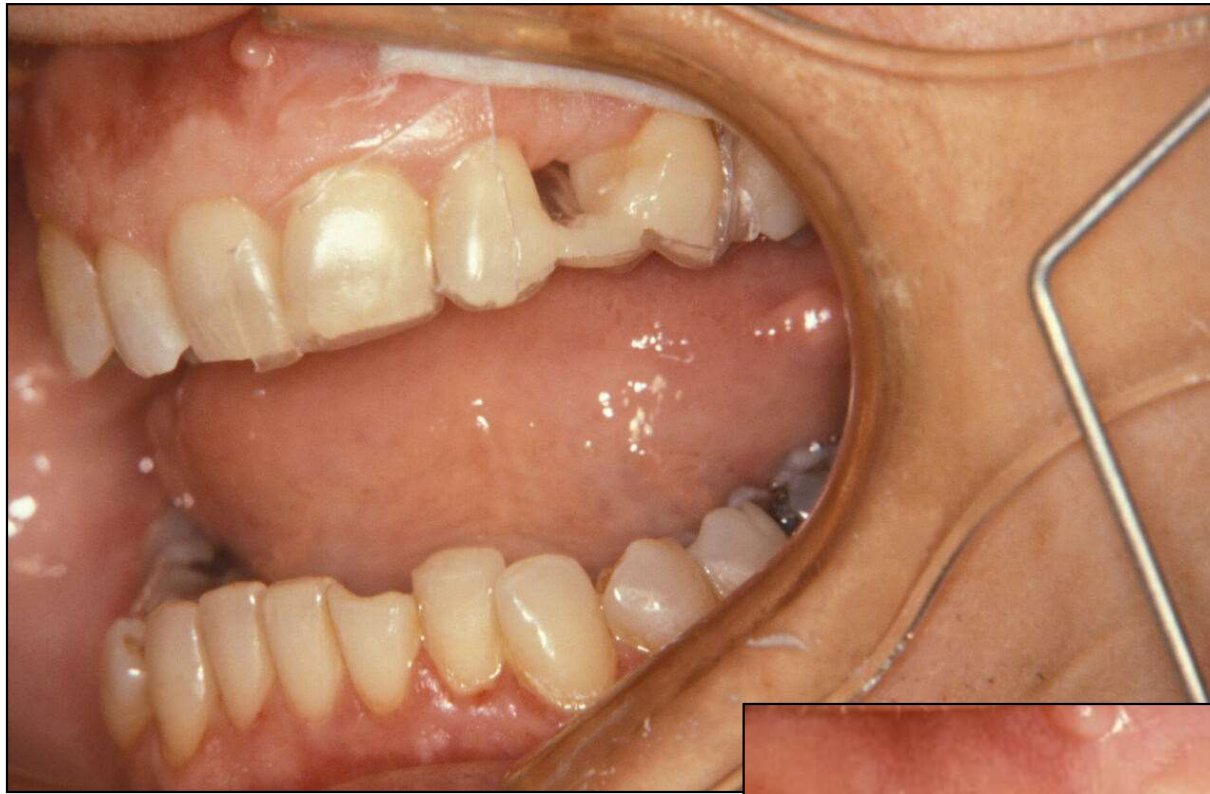
Ellman Pressform

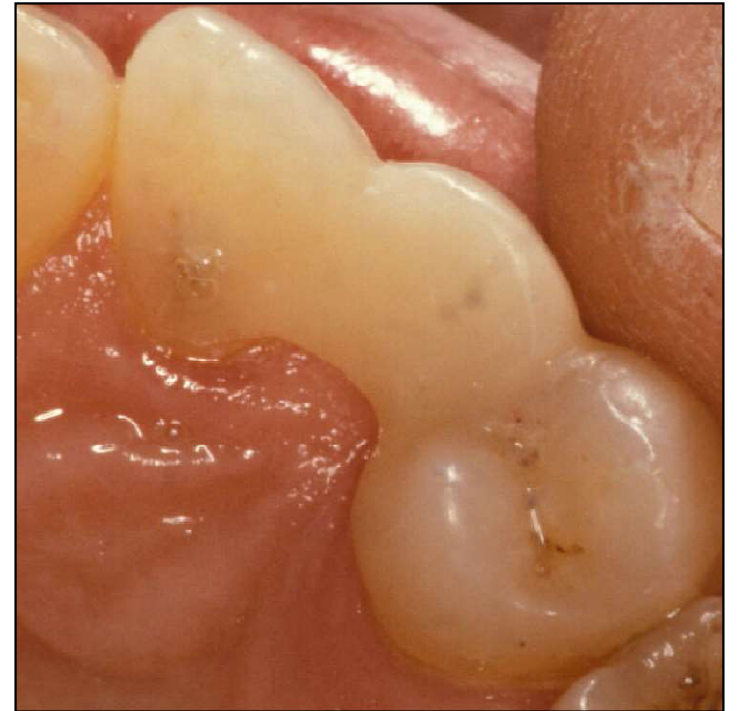


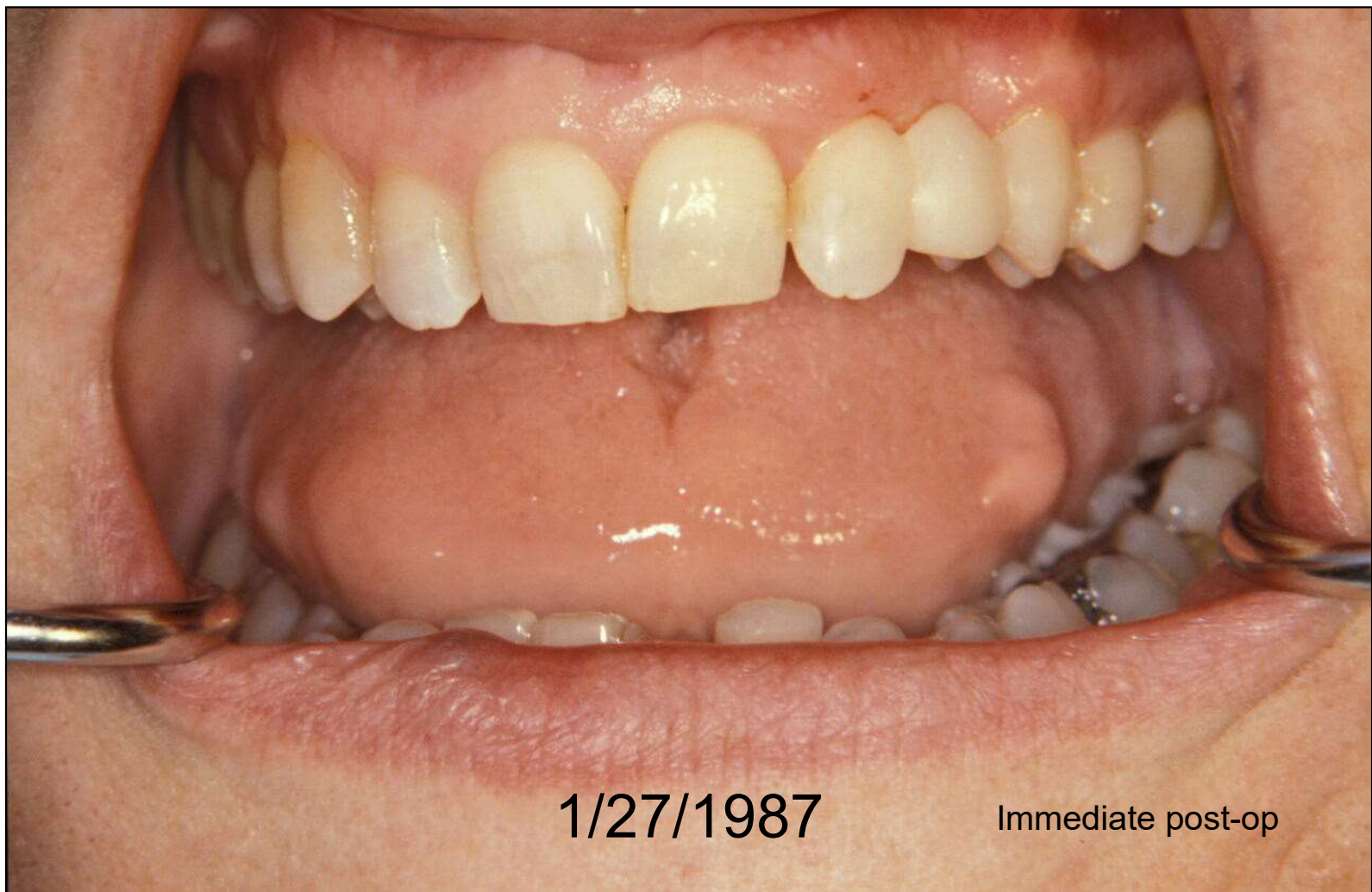






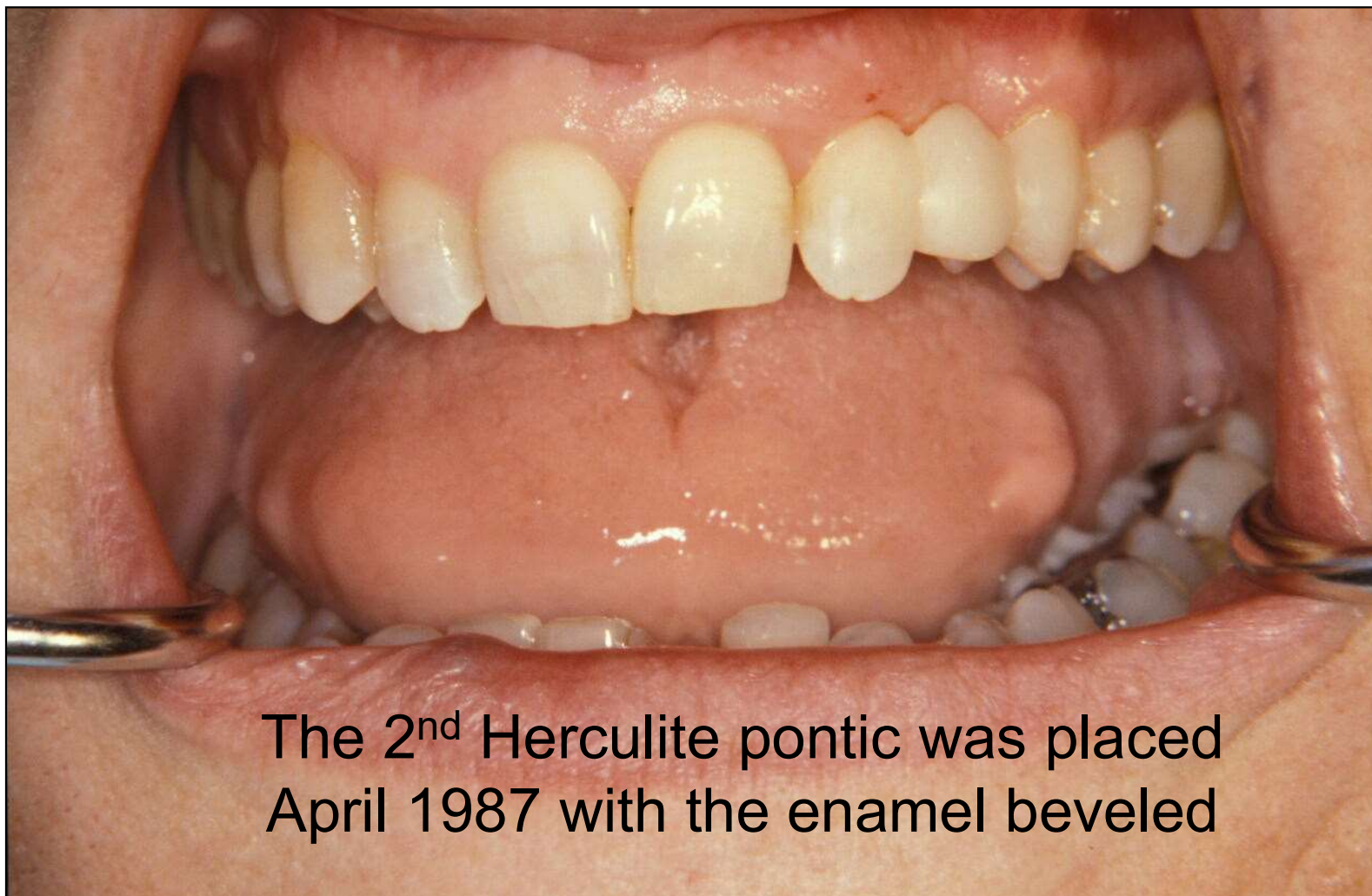






1/27/1987

Immediate post-op



The 2nd Herculite pontic was placed
April 1987 with the enamel beveled



22 years post-op

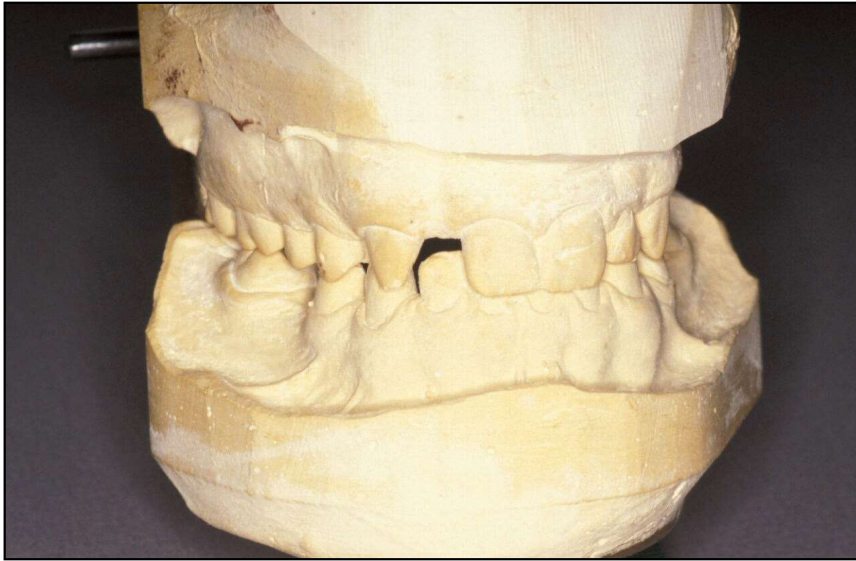


Patient passed into eternal life in 2018.
Pontic in place for 31 years.



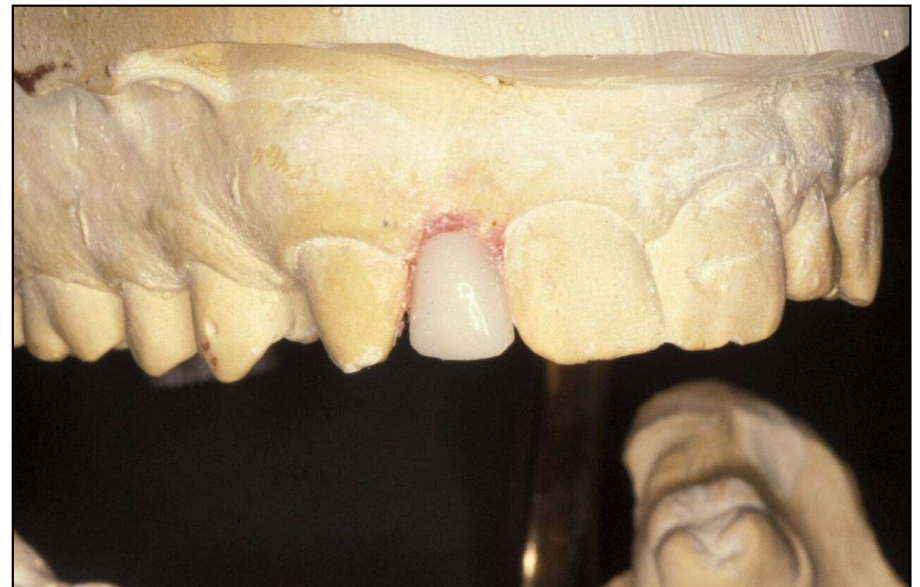
20 yr Old Male - March 1987
Did not want to wear a flipper!

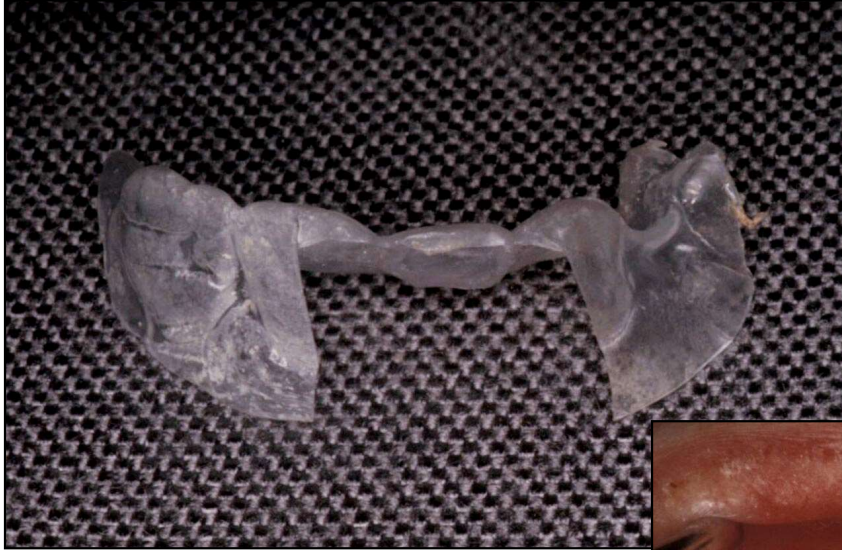




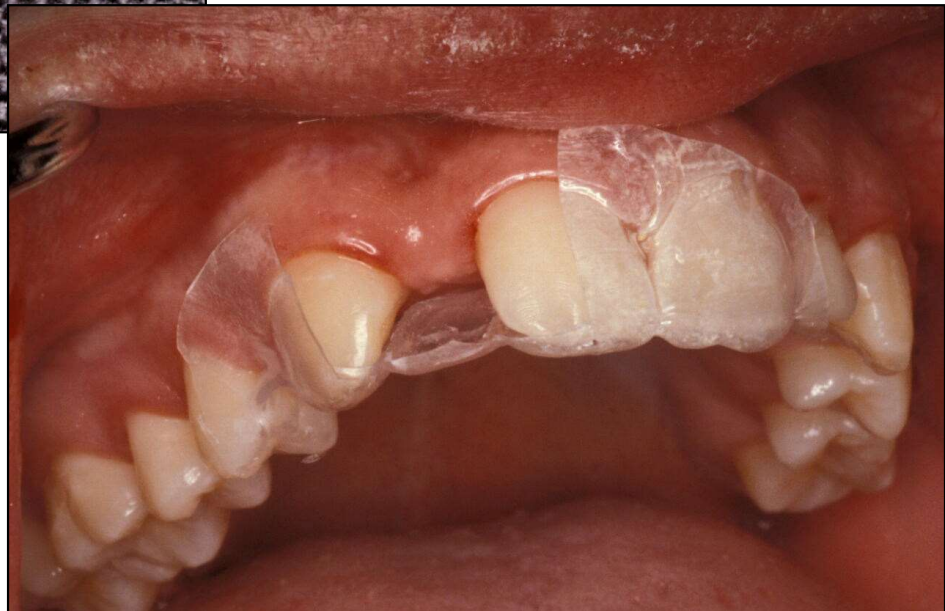
1. Study models

2. Replace space
with a Denture tooth
- Make a matrix

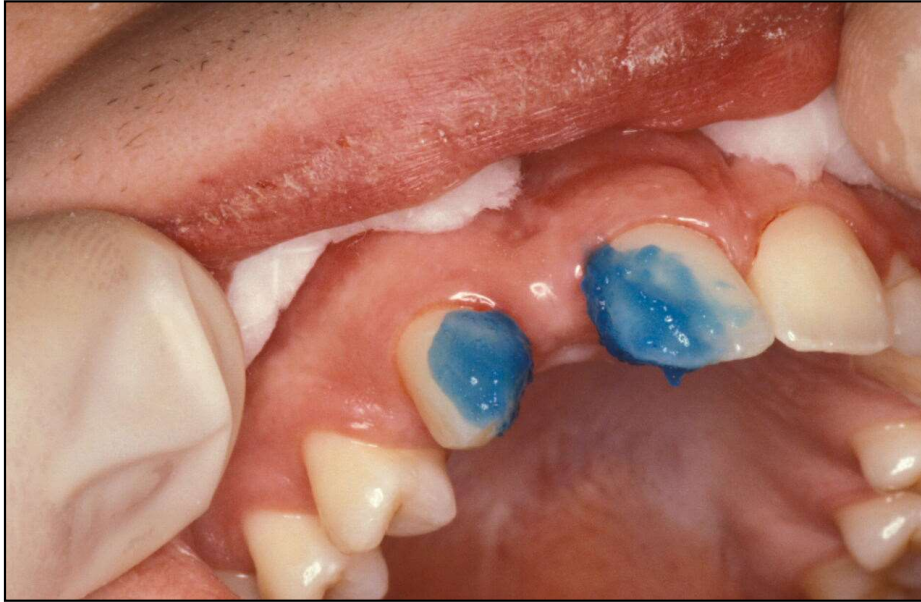




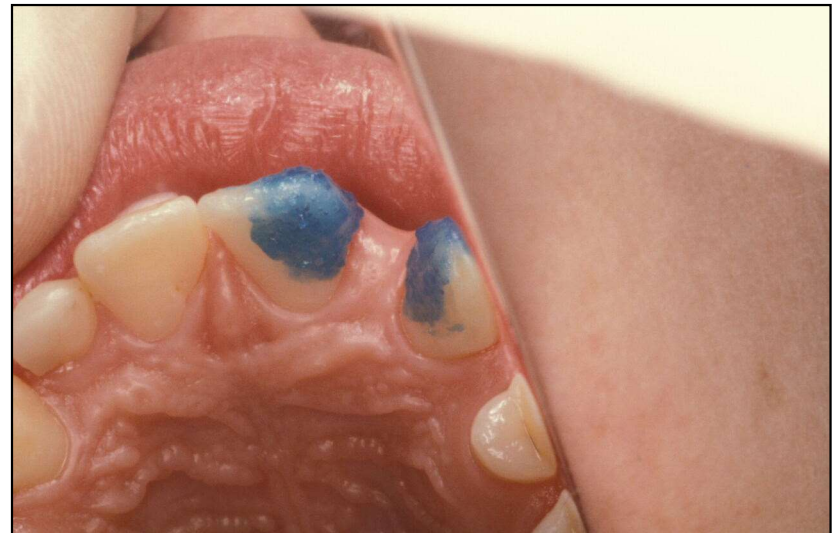
Cut out the facial
so resin won't slump



Acid etch as much area as you can.
Larger area distributes the force and reduces the stress on the bond.



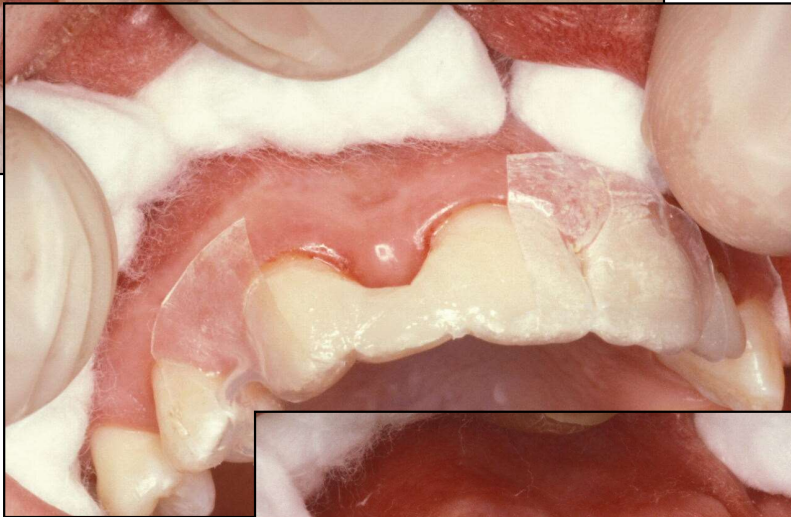
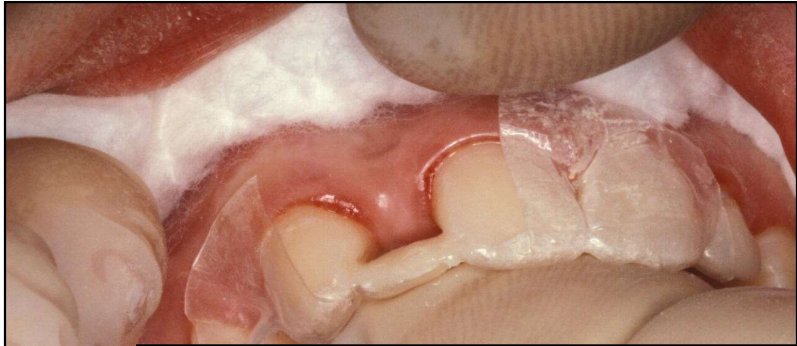
Did not ground (bevel) the enamel.



Used a Hybrid



Placed in increments
to minimize shrinkage
stresses on the resin
to enamel bond.







What do you think of this
diastema closure?

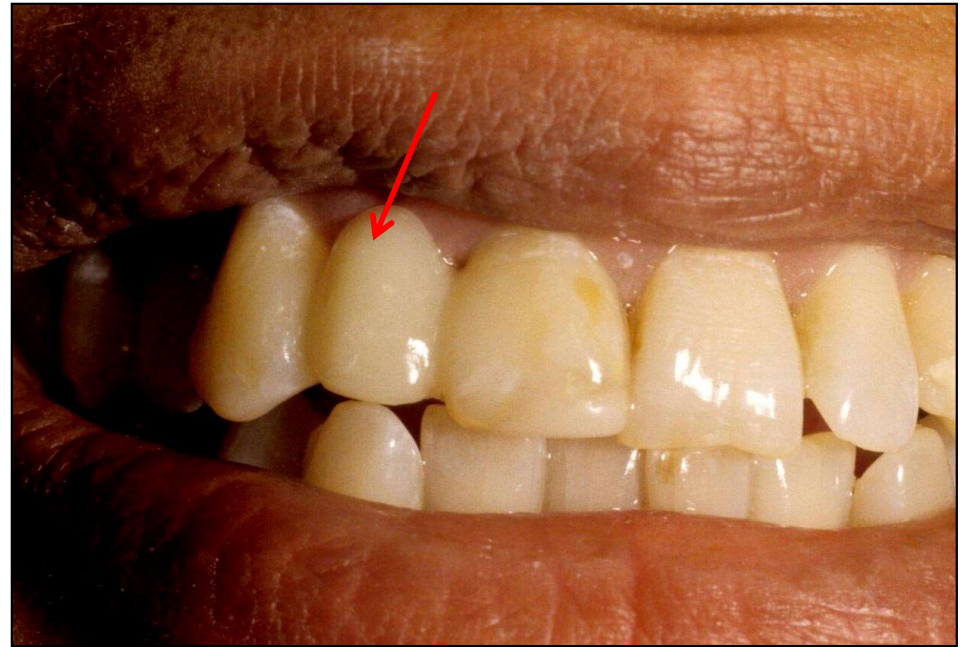




Emergency Chair

Female Pipe Fitter

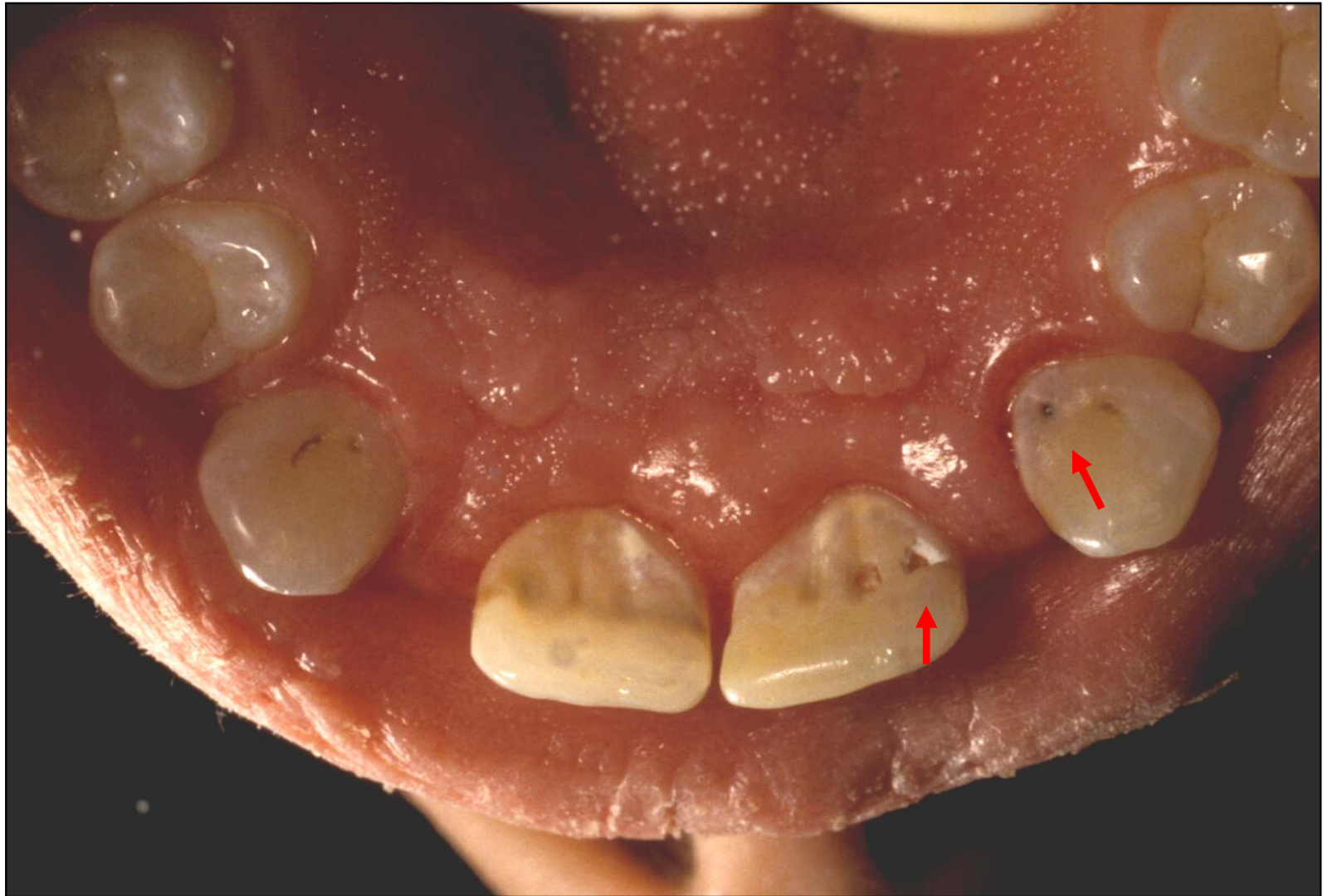
Pulled on a wrench and fractured #7 and needed extraction



2 hours post extraction



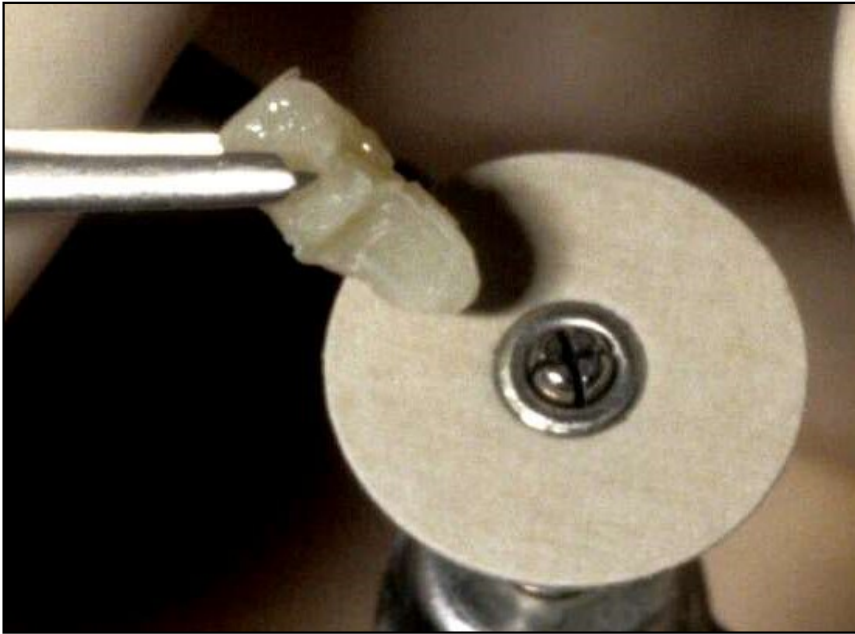
Female – age 19
10/16/98 – Treated at Dental School
Prime and Bond TPH Shade B2



Patient wore a flipper.
Lingual **caries** damage.
Inflamed palate.

Indirect pontic
fabrication on casts and
transferred to mouth
to save time.





Lightly polished without touching surface and 'glazed' with Optiguard the area that would be in contact with pontic ridge.



Transferred pontic
to mouth and
'tack bonded'
pontic in place







5.5 yrs later
(4/6/04)
Fracture of
“solder joint”

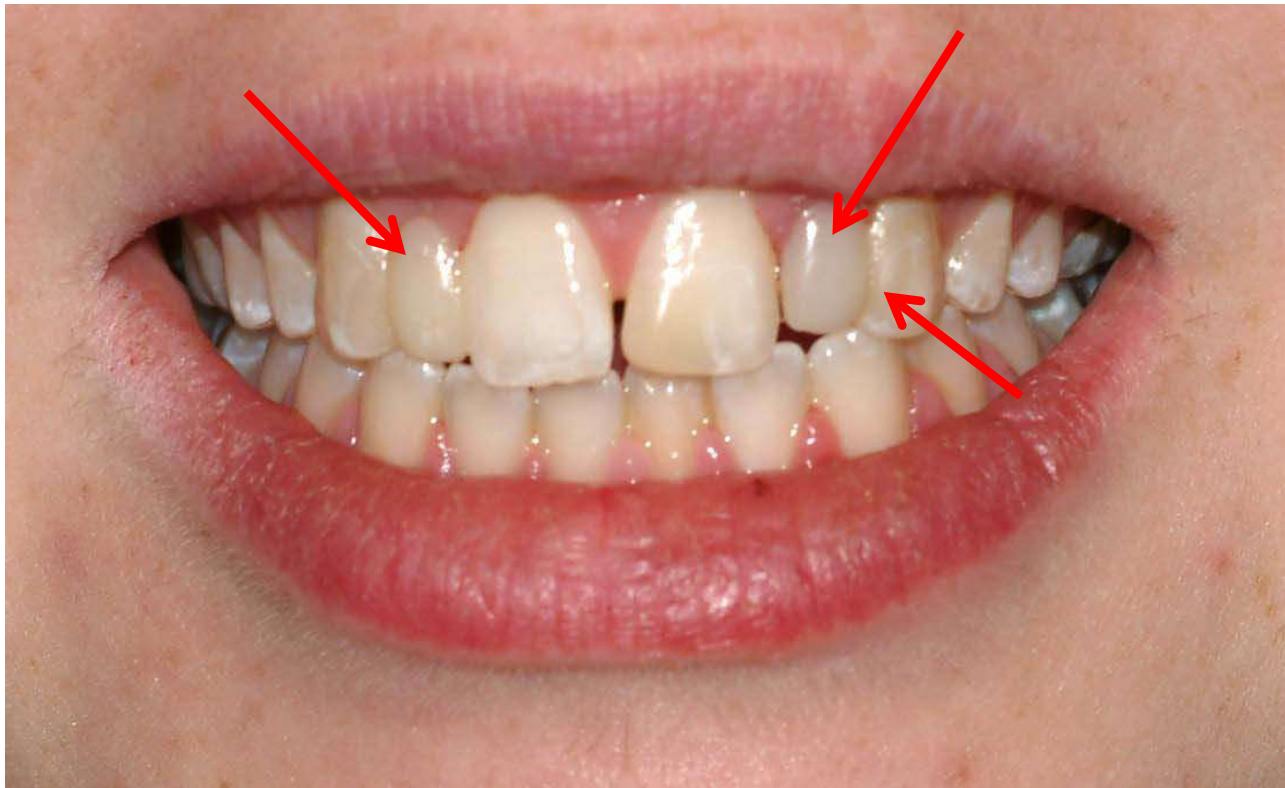




Finished and polished



10 years post op (6-4-2008)

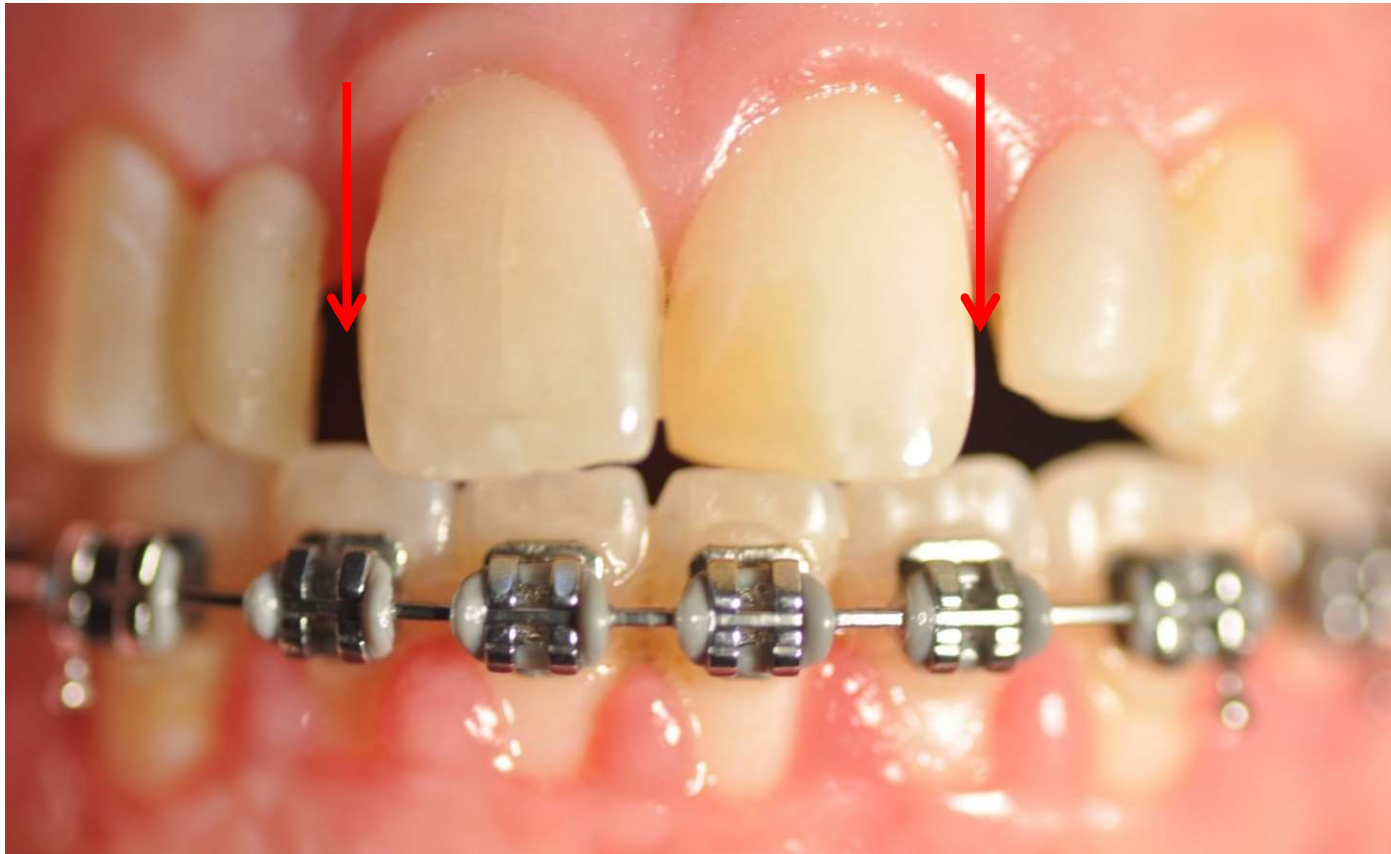


Cantilevered still in place 4.2 yrs later (4-6-2004)

Patient went to private practice
and had orthodontics for implants



Sections of pontics were cut
to make room for orthodontics



9-22-10

Ortho completed on upper arch, wires removed.
Not enough room for implants!



Ground pontics with Diamond bur, etched + adhesive/resin

Bond strength is ~ 25MPa of new to old composite

Bond strength similar to bonding to enamel

Rathke et al, Clin Oral Invest (2009) 13:317–323



Centric = no occlusion



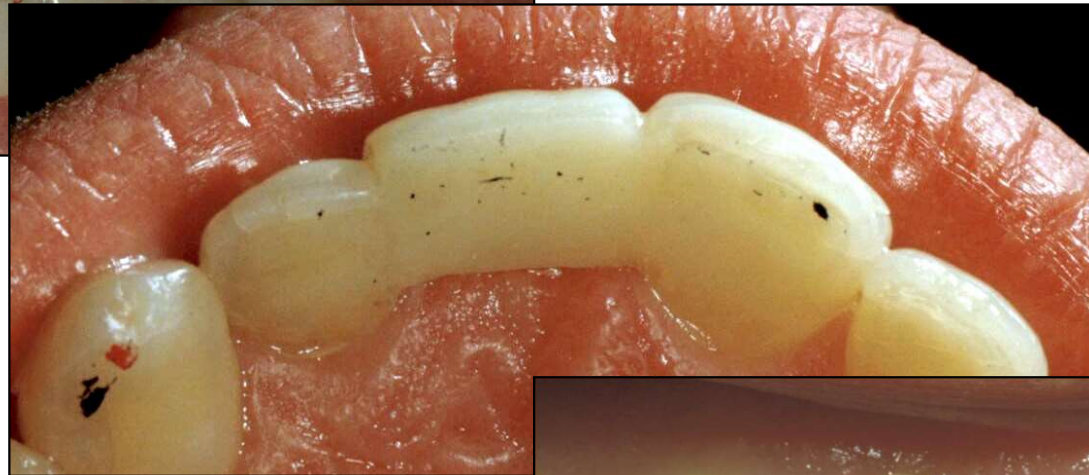
Protrusive = no occlusion



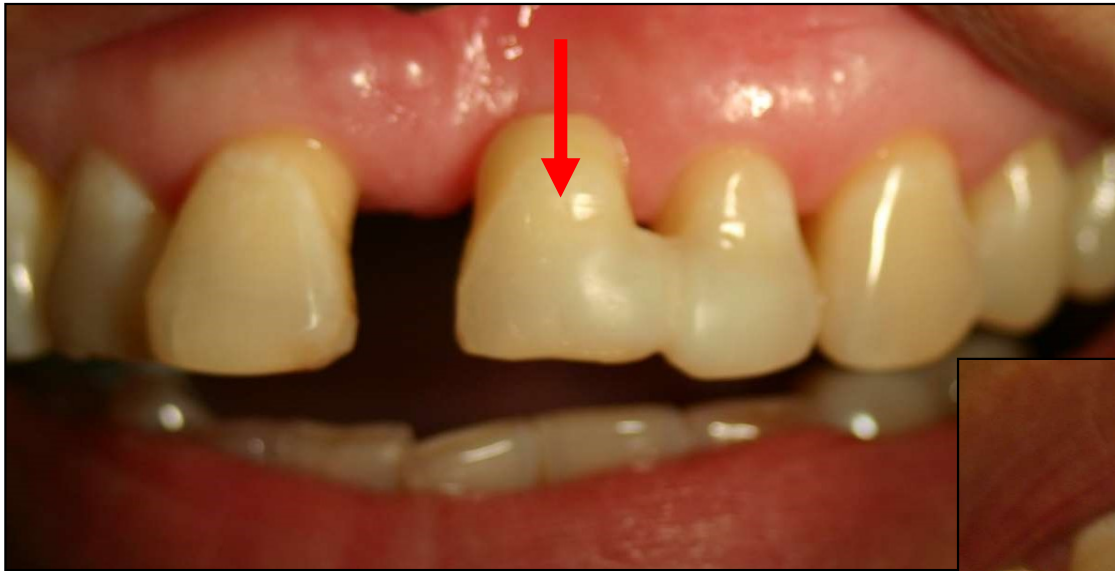
Cuspid guided = no occlusion

Cantilevered Bonded to mesial of both cuspids
since 10/16/1998 - ~19 years (2017)





Mike Dougherty, DDS



9 was extracted, endo performed, and cantilever bonded to #10. Enamel roughened with a diamond bur. No occlusion on anterior teeth. [Optibond Solo plus and TPH - 2/13/2008]

Today's picture is 1.5 yrs later (8/19/2009).
#10 and 11 still have contact

Patient wanted the diastema closed



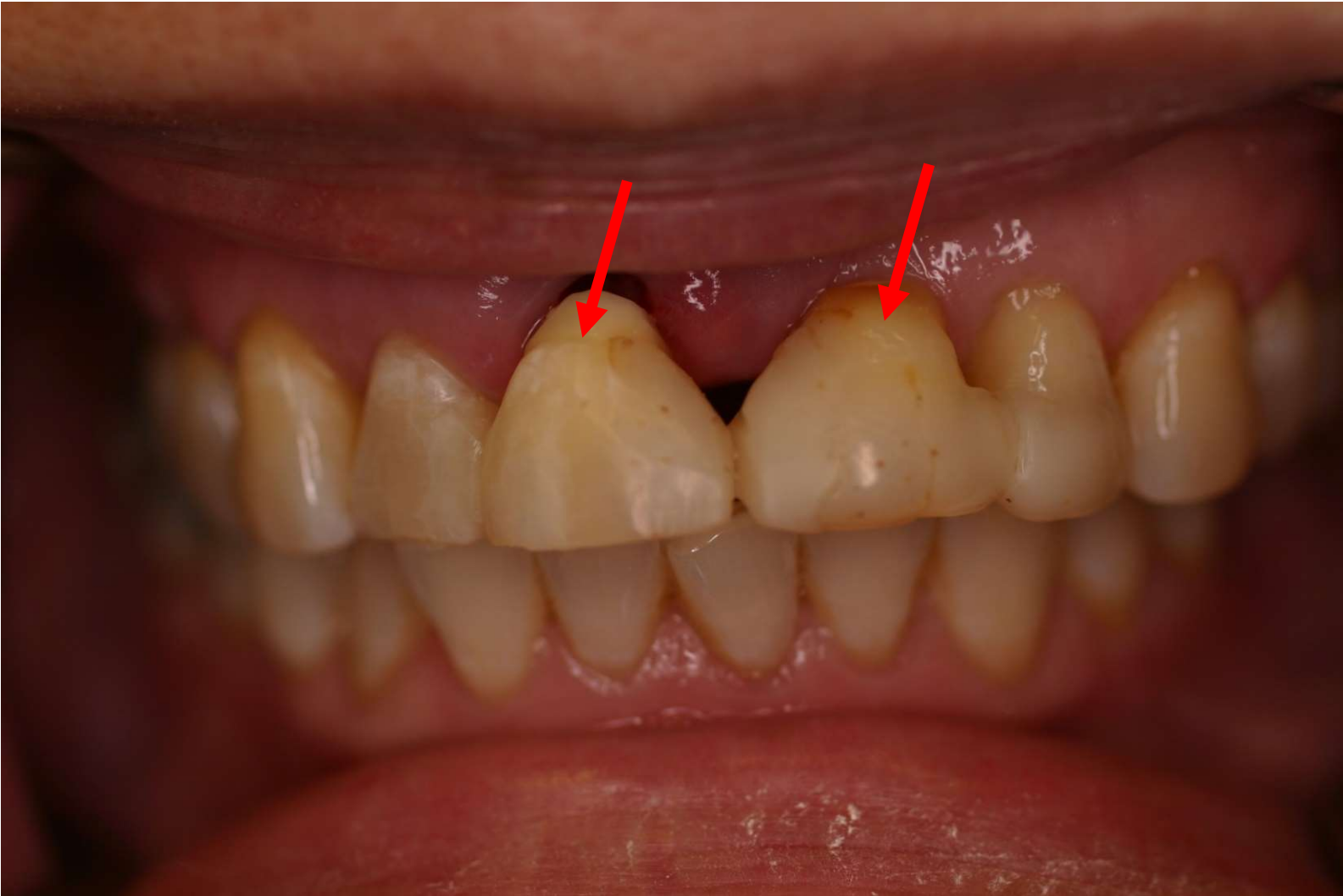
4.5 years later tooth #8 had to be extracted due to 12 mm pocket and class IV mobility (10-13-12)



#9 still bonded from 2/13/08 – 4.5 years later ←







Both centrals are cantilevered only.
#8 and 9 are not bonded together.

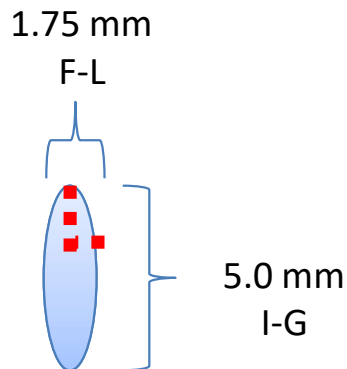


#9 bonded to #10 for 14.5 years = cantilevered
#8 is still bonded but had to be reattached
due to lack of enamel to bond to.
Had to place class III prep.

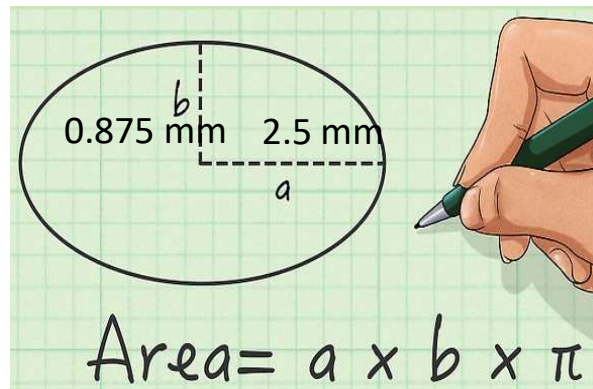
Why does this work?

$$\text{Force}/\underline{\text{Area}} = \text{Stress}$$

Area of bonded proximal contact (elliptical)



Resin 'solder joint' at interproximal surface is ~5.0 mm (I-G) high and 1.75mm (F-L) wide



<https://www.wikihow.com/Calculate-the-Area-of-an-Ellipse>

a is half the height and b is half the width therefore

$$\underline{2.5} * \underline{0.875} * \underline{3.14} = \underline{\mathbf{6.9 \text{ mm}^2}} \text{ for one abutment}$$

If bonded to both proximal teeth, area is $\sim \mathbf{13.7 \text{ mm}^2}$ for two abutments

Force/Area = Stress

Forces during biting and chewing (Newtons)

- Maximum biting force on incisors for males age 20-30 ranges from 36.5-110 lbs, (16-50kg), or 156-490 N. (Klaffenbach JADA 1936)
- However forces during **chewing** are considerably lower than maximum **biting** forces.
- Maximum chewing forces do not exceed (4.5–7 kg) or 44-69 N
and
- 95% of the time do not exceed (1 kg) 9.8 N. (Ramfjord, S 1979)

$$\text{Force/Area} = \underline{\text{Stress}}$$
$$[\text{N/mm}^2 = \text{Mpa}]$$

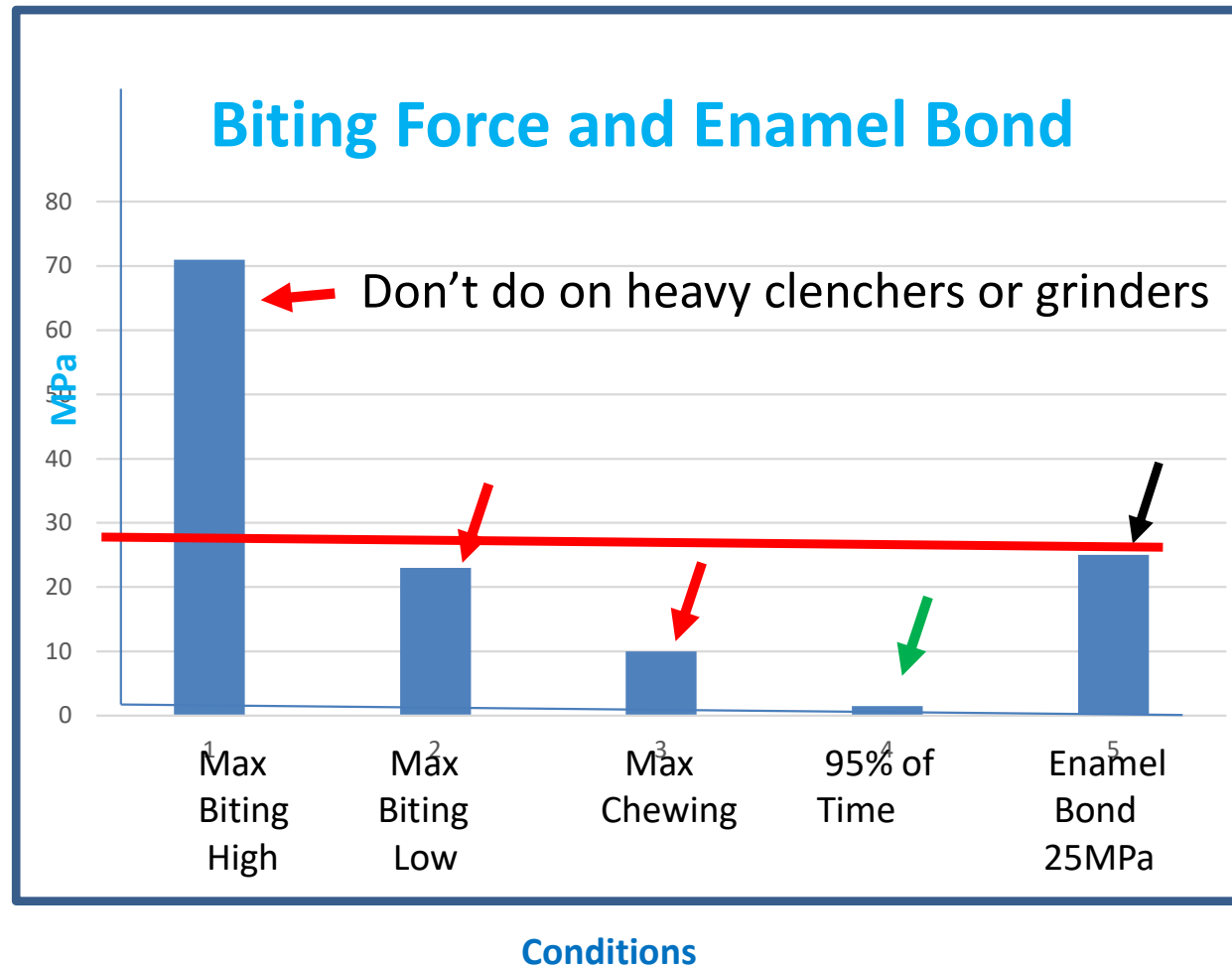
Max Chewing Forces

- 7 kg = 69 N;
- $69/13.74 = \sim 5 \text{ MPa}$
(2 abutments)
- 10 MPa for 1 abutment
- $69\text{N}/6.87 \text{ mm}^2 = 10 \text{ Mpa}$

95% of the Time

- 1 kg = 9.8 N;
- $9.8/13.74 = \sim 0.71 \text{ MPa}$
(2 abutments)
- 1.5 MPa for 1 abutment
- $9.8\text{N}/6.87 \text{ mm}^2$ 95% of time

Bond to enamel (25 MPa) is > maximum biting low range, maximum chewing, and 95% of time chewing forces with bonding to one abutment



Standard of Care

- It is an 'adaptive standard of care'
 - Could be standard if more dentists did this
- These are provisional restorations
- Keep occlusion off pontic
 - Bond success is directly proportional to force on "solder joint"
 - No bruxers or maximum chewing clenchers

Suggestions

- Increase surface area of enamel with beveling
 - Ground (beveled) enamel improves adhesive bond by 18% over unground enamel (Ibarra G et al, *J Adhes Dent.* 2002 4(2).
 - Also removes fluoride rich layer of enamel (1000-2000 ppm) vs ~ 20-100 ppm for beveled enamel. (Featherstone J. *JADA.* 2000;131)
- Do Incremental placement to minimize c-factor
 - so stress of polymerization shrinkage is relieved in the flow of the composite and not at the enamel-composite bond
- I think cantilevered pontics are better than bonding to two abutments (since teeth have different mobility)

Pontic Height

- Average pontic height at the embrasure joint was 5.5 mm and average pontic circumference at the embrasure joint was 17.6 mm.
- Heymann suggested a minimum inciso-gingival height of 5.0 mm as being necessary to bond a porcelain pontic to abutment teeth.
 - Increasing the size of the inciso-gingival pontic height attachment from 4.3 to 5.8 mm did not increase the fracture strength of reinforced interim fixed partial dentures (Pfeiffer P 2006)

We are caring for people who

- Are created in the image and likeness of God
- Who also have the power to think and choose what is best for them. Financial, how much risk they want to assume etc.
- Respect patient autonomy.

Two parts to the soul

- Sensual which relates to the outer world
 - Sensual gets its information from the senses and uses the senses (vocal prayer, meditation)
- Spiritual which relates to God, our inner world
 - Spiritual gets its information from God who directly infuses into the soul, faith, hope, and love (contemplation)

Two parts to the car windshield

- Outside surface of window - Sensual which relates to the outer world
- Inside surface of the window - Spiritual which relates to the driver

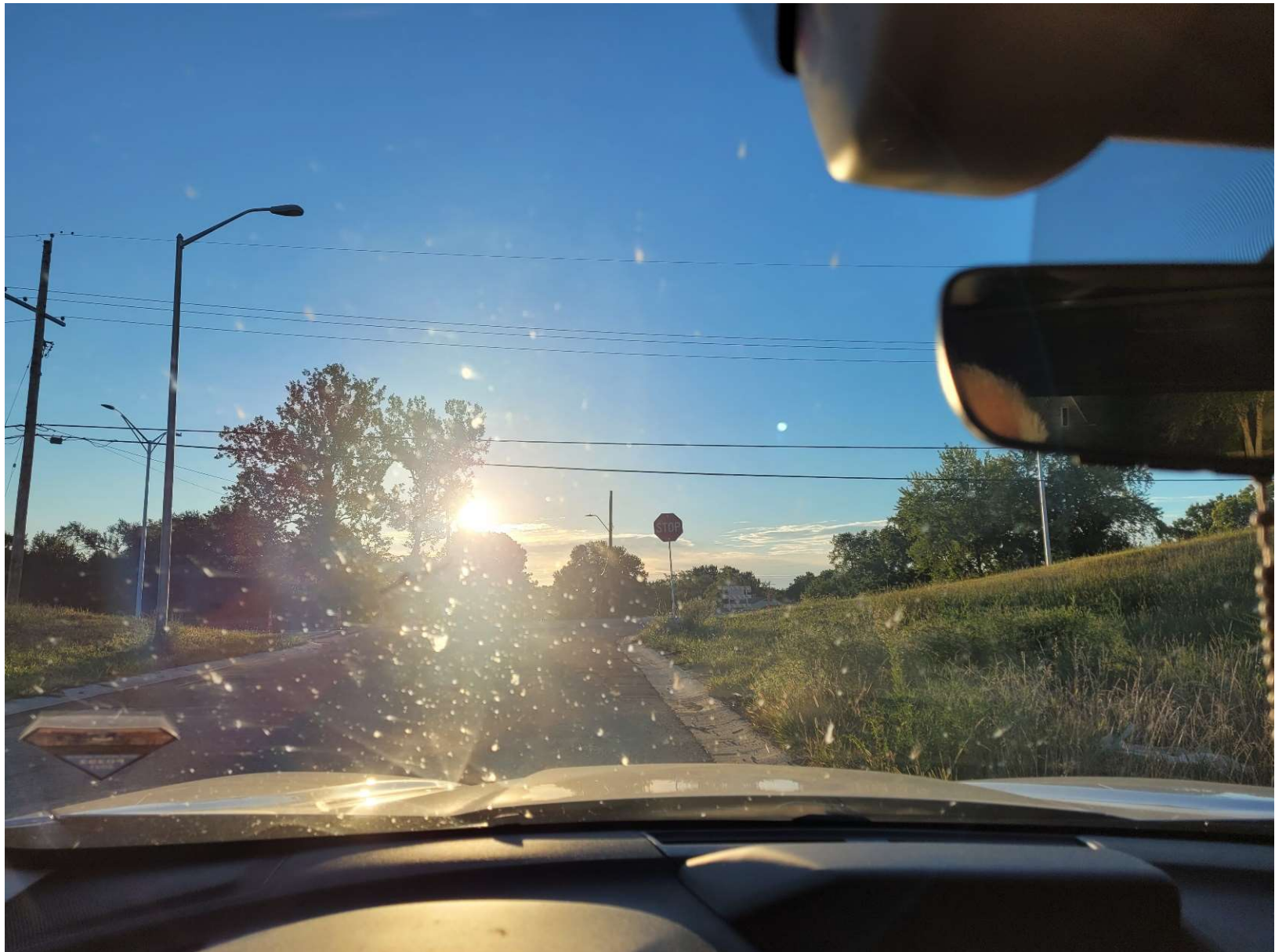
In the morning

The wrong way
away from work

Where you need to
go East to work



Way to Work in the Morning is to
the East Towards the Sun



If I Turn Around and Go West I Can See
But I Am Going the Wrong Way



In Order to See I Need to Clean the Windshield



When Peter had caught all the fish and turned to the Lord all he saw was his sins and he said, “Lord depart from me for I am a sinful man.” He is blinded from seeing God by his sins. Jesus says, “be not afraid”

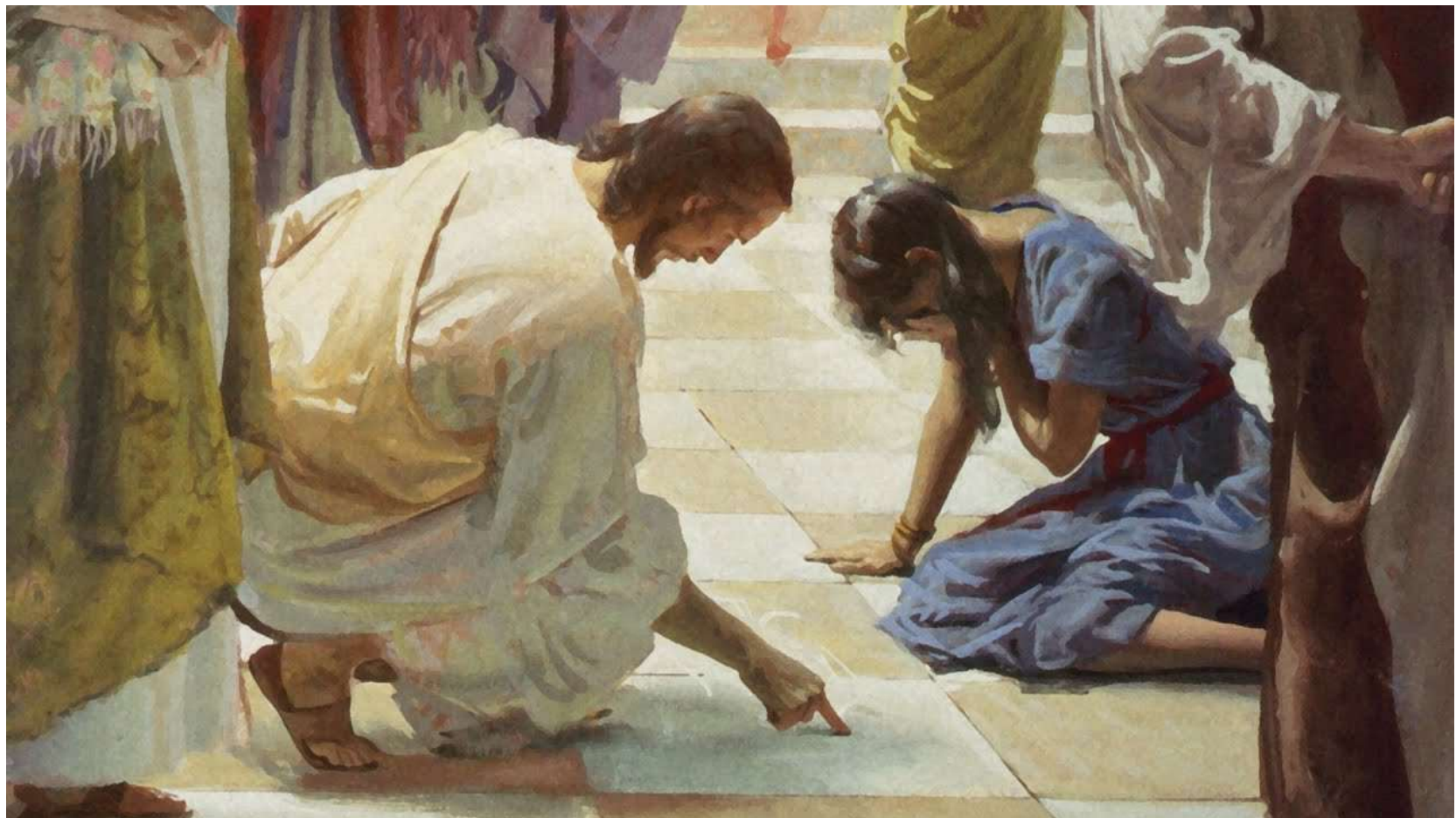
Towards the Son - Jesus Christ – He reveals our self to us



The woman caught in adultery cried over her sin. Her tears of repentance healed her.

**“Has no one condemned you
neither do I.”**

**Blessed are those who mourn...over
their sins...they will be comforted**



Blessed are they who mourn.
Tears clean the windshield and the
window of the soul.



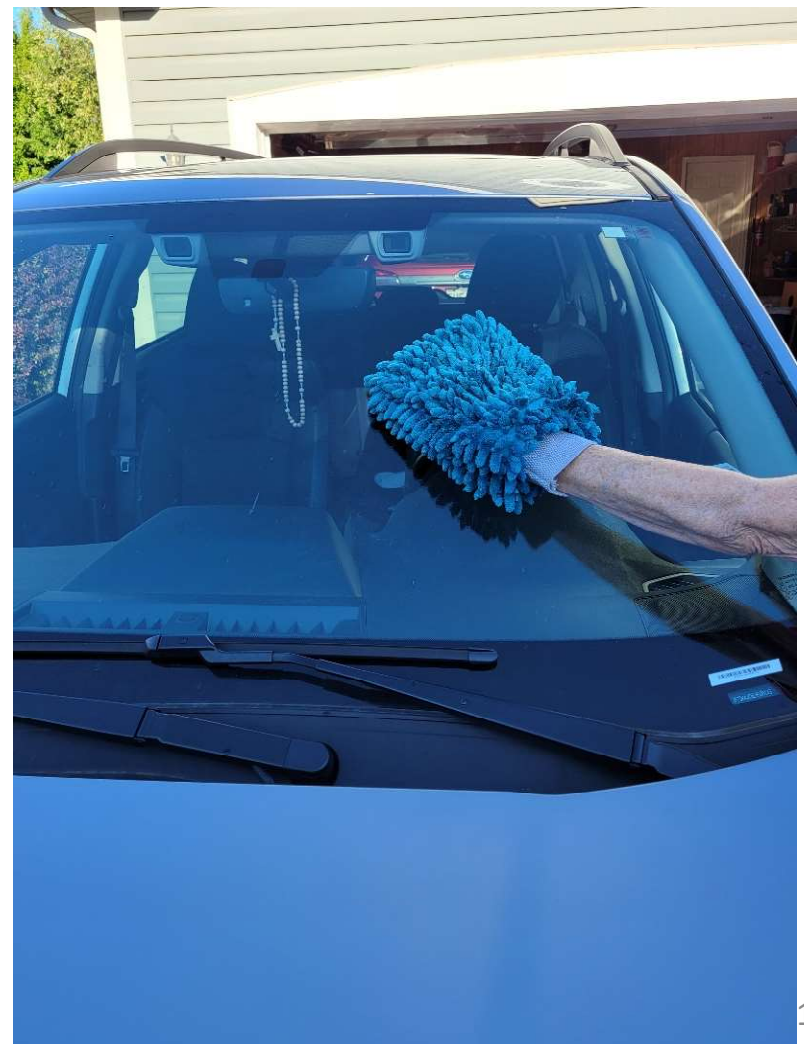
**OUTSIDE WINDOW IS CLEANER BUT
ISN'T TOTALLY CLEAN YET ..**

Needs a purification or cleaning by a power greater than the car wipers.



Passive Purification

-



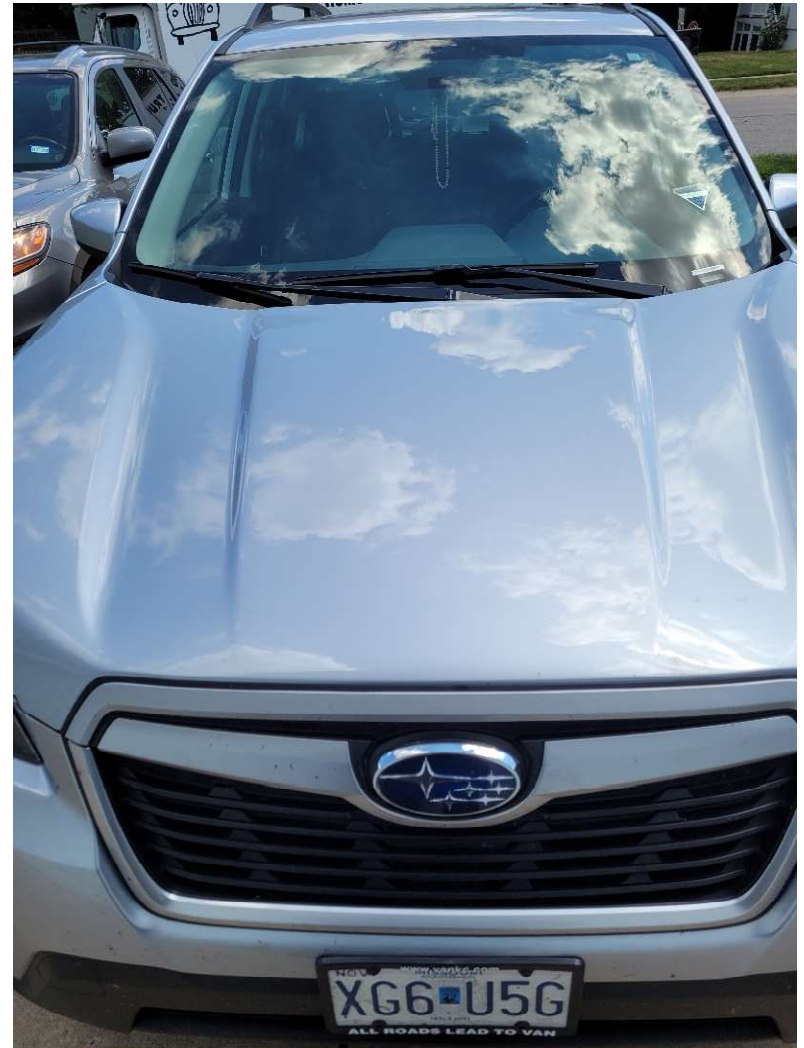
Now you discover that the inside of the window is dirty and can't fully see.



2nd purification of the
window is needed



Clean



Clean and I can see where I am going

I am free to see going towards the
Sun or the Son



Fruit of 1st week of Spiritual Exercises

- The soul experiences themselves as a loved sinner.
- Our patients need to now that we accept them and are committed to them without judging them.
- I would tell my patients, When they confess their mouth is a mess after I show them what is in there with the operatory light and mirror.
- “Be not Afraid, I’m glad you are here, so we can help you”.

Fruit of 1st week of Spiritual Exercises

- In the presence of God, his purity reveals our self knowledge and often it is not pretty but he says, “Be not afraid. I am the friend of sinners.”
- When Jesus’s light illumined Peters soul he said, “Lord depart from me for I am a sinful man and Jesus said, Peter, Be not afraid.

What to say?

- Fear is useless what is need is trust. So when patients tell me they are afraid I say, “well can you trust me? I won’t proceed to do anything without your permission.”
- God never does anything to us without our permission, he respects our freedom. He doesn’t force himself on us.

<https://www.youtube.com/watch?v=mKpagVgR404>

VIDEO OF PASSIVE PURIFICATION OF TOOTH FROM CALCULUS

<https://www.youtube.com/watch?v=DUyiY-27lwM&t=50s>

VIDEO OF LEAKY DENTIN
DOES FLUID MOVE THROUGH DENTIN?

QUESTIONS?

References and acknowledgement

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- I am starting with the premise that Jesus is who he said he is, God, The Lord, I Am. Jesus has to be either a liar, a lunatic or who he says He is “The Lord.”, he cannot just be a prophet or a good man. Scottish Christian preacher “Rabbi” John Duncan (1796-1870) and popularized by C.S. Lewis in Mere Christianity, <https://www.thegospelcoalition.org/blogs/justin-taylor/is-c-s-lewiss-liar-lord-or-lunatic-argument-unsound/>
- Smiling Jesus - https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.ebay.com%2Fitm%2F263615154686&psig=AOvVaw20WtUpW4w0I3RcFYIkUgoi&ust=1664585651990000&source=images&cd=vfe&ved=0CAwQjRxqFwoTCIC0mfmmu_oCFQAAAAAdAAAAABAE

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