

EXTRACTIONS IN ORTHODONTICS



HISTORY OF EXTRACTION



'To extract or not to extract'

a key question in planning orthodontic treatment.

Reasons to extract teeth

1]to provide space

2]to allow teeth to be moved

◆ Alternative to extraction is to expand the arches.

Particular pendulum still is swinging.

HISTORY

- ◆ 1]PRIMITIVE WORLD[EARLY IN 1400]
- ◆ 2]CLASSICAL WORLD
- ◆ Hippocrates[460BC-377BC]
- ◆ 3]EARLY MIDDLE AGE[525-605AD]
- ◆ 4]EARLY 18TH CENTURY
- ◆ Etienne Bourdent [1722-1789]
- ◆ John Hunter[1728-1793]
- ◆ 5]19TH CENTURY



Edward H. Angle

- ◆ He was a strong supporter of non-extraction
- ◆ A] Trends at that time
- ◆ B] Rousseau's philosophy
- ◆ C] Wolff's law of bone

TRENDS AT THAT TIME

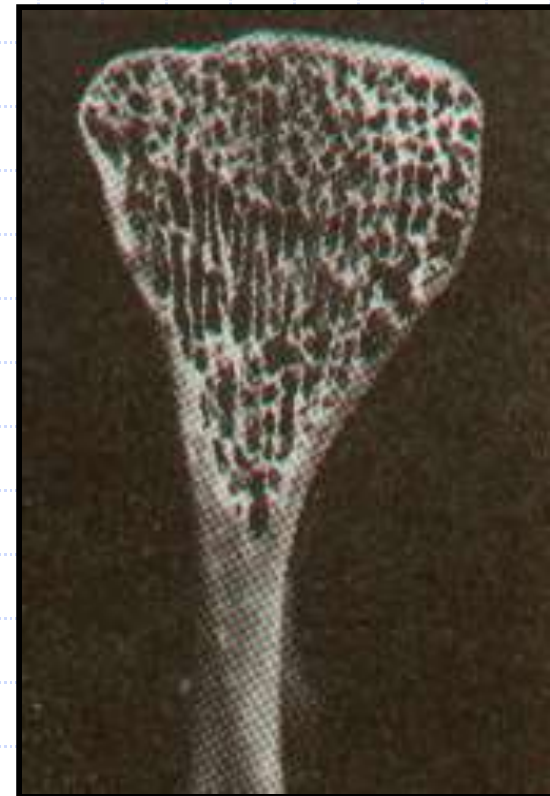
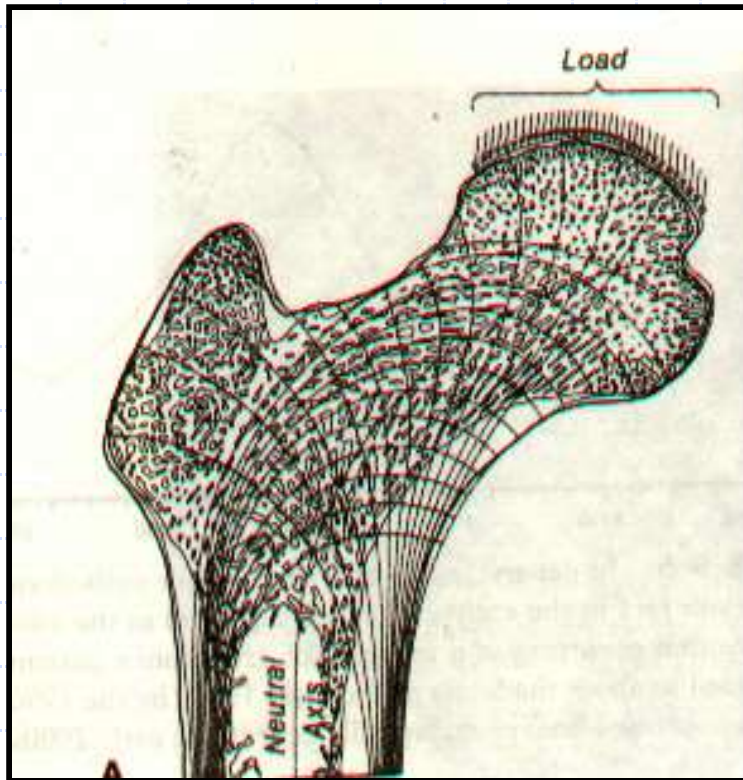
- ◆ Extraction was considered almost a crime
- ◆ Was termed as 'odontocides'.

PHILOSOPHY OF ROUSSEAU

- ◆ -Perfectibility of man.
- ◆ -Extraction inappropriate if man was inherently capable of having a perfect dentition.


WOLFF'S LAW OF BONE

- ◆ -German physiologist Wolff demonstrated that bone trabeculae were arranged in response to the stress lines on the bone.



Two key concepts

- ◆ 1] Skeletal growth could be influenced by external pressure
- ◆ -skeletal structure were so adaptable that just rubber bands connecting the upper to the lower teeth could overcome improper jaw relationships, stimulating growth where it was needed.

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- ◆ 2] Proper function of the dentition would be the key to maintaining teeth in their correct position
 - ◆ -forces transmitted to teeth cause bone growth.
 - ◆ -described edgewise appliance .

ANGLE'S INTERACTION WITH PROFESSOR WUERPEL

- ◆ -Angle consulted him for advise about the prefect face.
- ◆ -He concluded that the relationship of the dentition to the face and with it the esthetics of the lower face vary but for each individual ideal facial esthetics would result when the teeth were placed in ideal occlusion.
- ◆ -Relapse meant adequate occlusion had not been achieved.

○ Angle was leader of 'new school'

....the best balance ,the best harmony ;the best proportions of mouth in its relation to the other requires in all cases that these should be made to occupy its normal position....

CONCEPTS CHALLENGED

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graph TD; A[CONCEPTS CHALLENGED] --> B["CALVINS. CASE  
[1847-1923]"]; A --> C["MARTIN DEWEY  
[1881-1933]"];
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CALVINS. CASE

[1847-1923]

MARTIN DEWEY

[1881-1933]

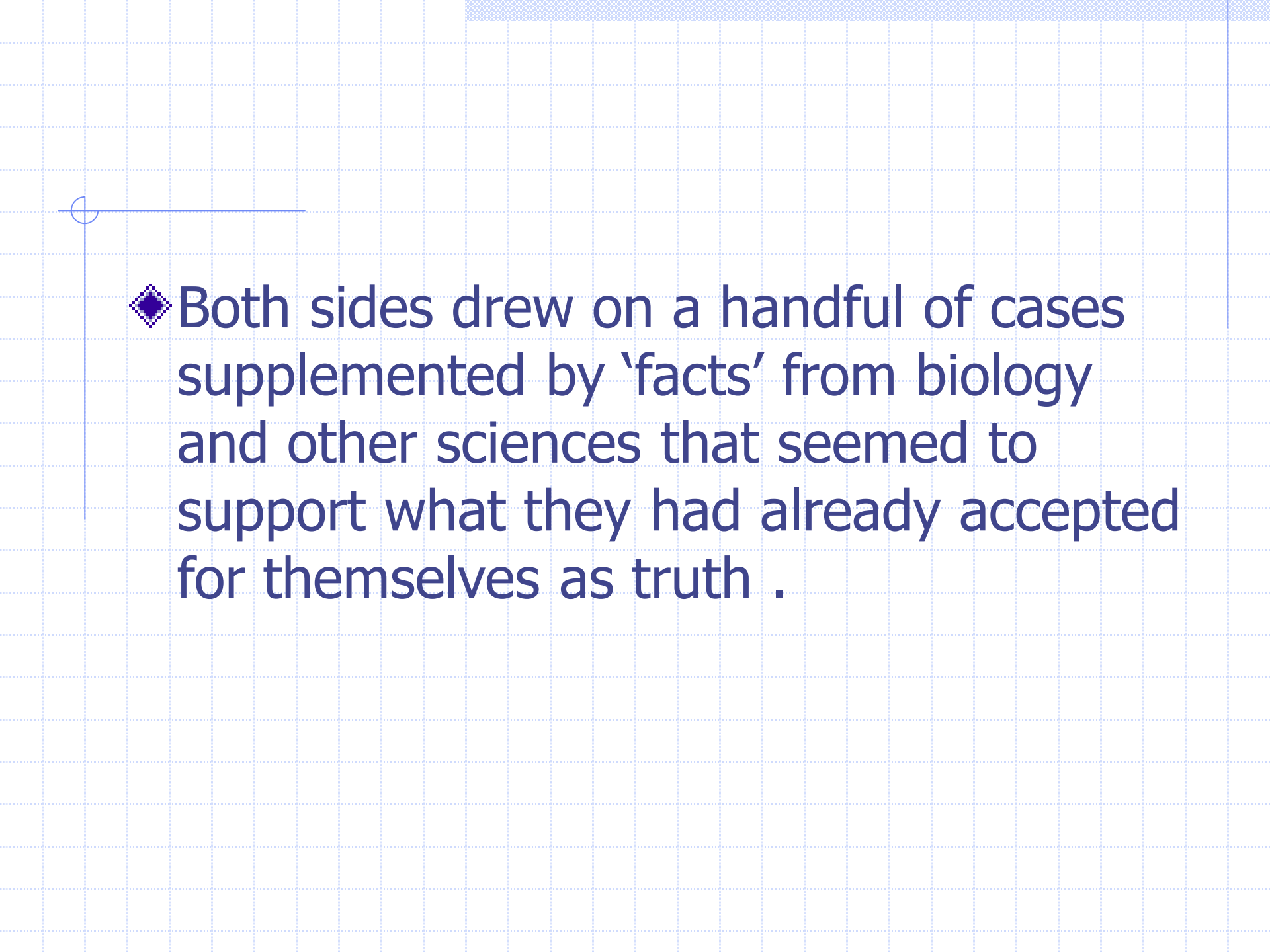
Calvin Case

- ◆ -Leader of the 'rational school'
- ◆ -Neither esthetics nor stability satisfactory in the long term for many patients.
- ◆ Controversy culminated in a debate between Angle and Calvin Case & Angle's student Dewey in 1911.



◆ -Angle believed that nature doesn't make mistake .

◆ -Bone could be induced by mechanical means and grow beyond its inherent size.



◆ Both sides drew on a handful of cases supplemented by 'facts' from biology and other sciences that seemed to support what they had already accepted for themselves as truth .

RE-INTRODUCTION OF EXTRACTION IN MID-CENTURY



CHARLES TWEED

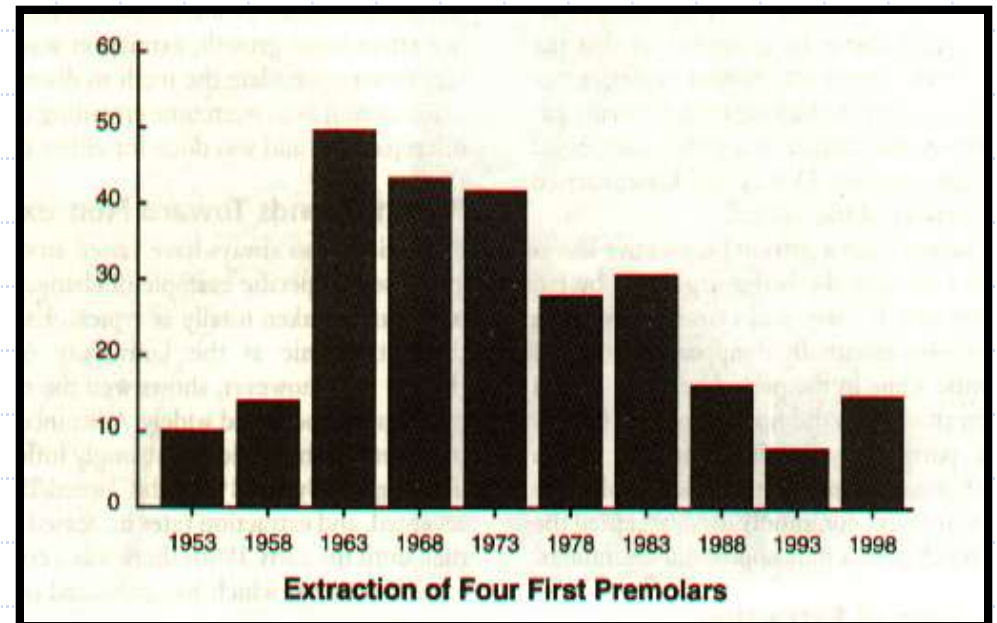
RAYMOND BEGG

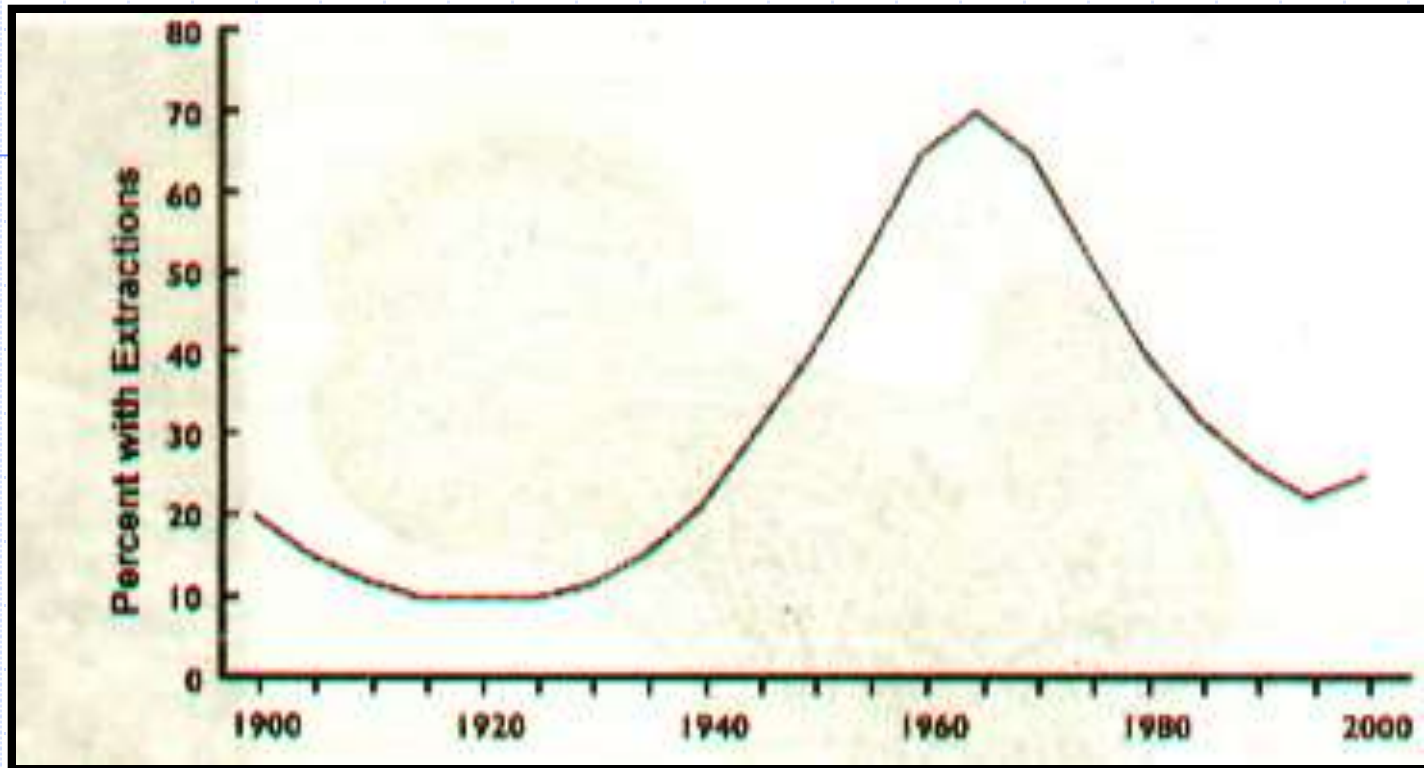
- relapse of treated cases by 1930.
- Charles Tweed devoted 3 yrs of his life to study his failures and successes
- Concluded that to upright mandibular incisors one must extract teeth.
- 1936--published his first paper.
- 1940--produced case reports with 4 sets of records of 100 treated patients and presented in the meeting of Angle Society in Chicago.
- reintroduction of extraction by late 1940's.

- ◆ -Raymond Begg in Australia modified Angle designed and produced what is now called the Begg appliance.
- ◆ -Breeding experiments with animals of Stockard-malocclusion could be inherited.
- ◆ -1960—extraction of some teeth.

RECENT TRENDS TOWARDS NON-EXTRACTION

- ◆ Experience in orthodontic clinic at University of North Carolina .
- ◆ 1950s-non extraction
- ◆ 1960s-extraction
- ◆ 1990s-extraction





Extraction of teeth for orthodontic purposes was rare in early 20th century, peaked in 1960s declined by 1990s.

Why decline in extraction rates more recently?

- ◆ -premolar extraction doesn't necessarily guarantee stability of tooth.
- ◆ -public prefer fuller lips.
- ◆ -change from fully banded to largely bonded appliances.
- ◆ -TMD problems attributed to extraction of upper 1st premolars.

CONCLUSION

- ◆ -Non-extraction treatment once again is being carried to an extreme,so that stability problems once more are likely to become prominent;and controversy over the role of extraction continues because there are no good data to settle the issue.
- ◆ -At present every shade of opinion and practice relative to extraction can be found.