

The Dental Research Institute (DRI) has been in existence since 1954. It was formed as a joint venture between the CSIR and the University of the Witwatersrand. In 1970 the MRC took over the health research functions from the CSIR and the DRI thus became part of the MRC.

Although the reasons for the establishment of the DRI are obscure, there is no doubt that tooth decay must have been high on the research agenda. Prof. Jan Dreyer (Director 1960-1970) was a member of the 1967 Governmental Commission of Inquiry into the Fluoridation of Public Water Supplies. This recognized fluoride as an effective agent against tooth decay - suitable as a preventive agent in South Africa. His public support of the anti-decay effect of fluoride helped to ease the introduction of fluoridated

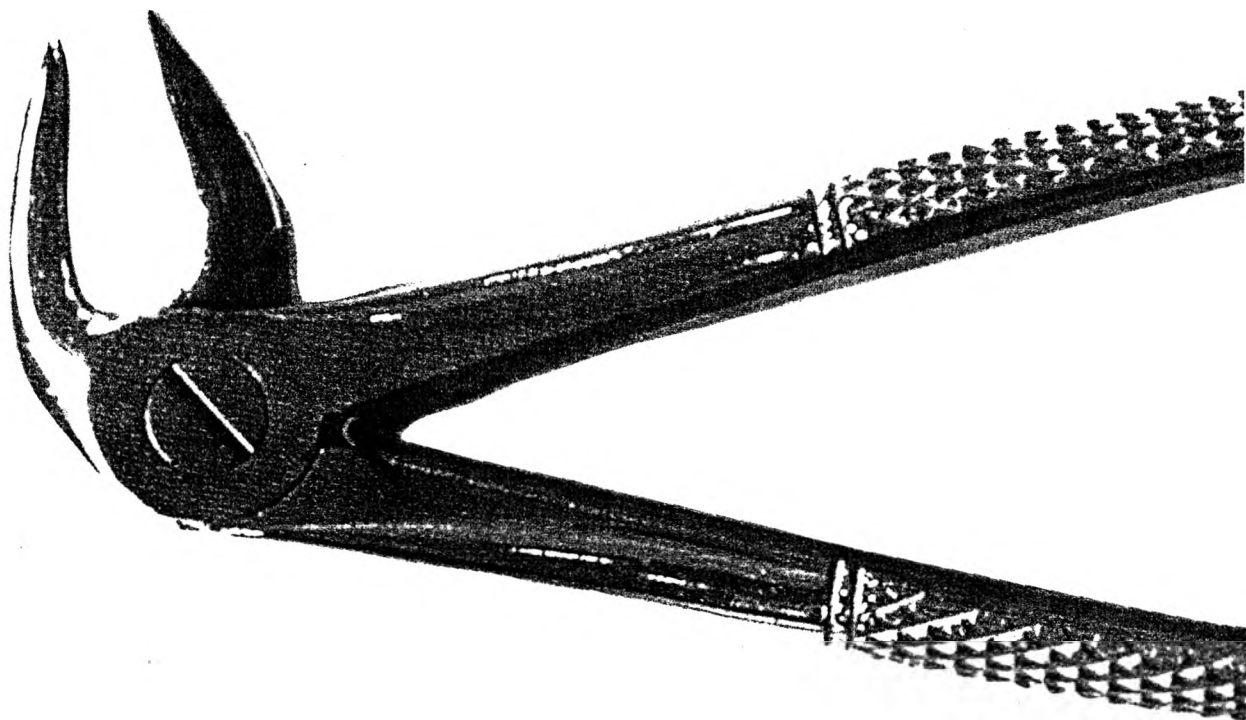
The Dental Research Institute situated at the University of the Witwatersrand will celebrate its 50th Jubilee at a function in early April. DR ELLY GROSSMAN writes about the history and the contribution this Institute has made to dental research – both local and abroad.

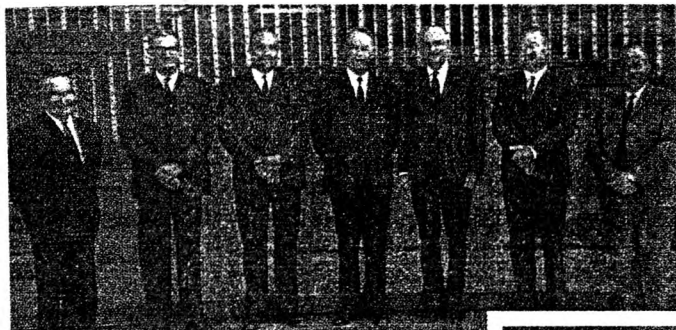
health products into South Africa. This has contributed to the significant drop in dental decay that we enjoy today.

Sadly, some 20% of children have 80% of decayed teeth and suffer the miseries of toothache often without accompanying dental treatment. This group of children has been the focus of Prof. Cleaton-Jones's attention for much of his directorship (1977-2004). Research topics included examining diverse confounders such as diet and snacking, social class, ethnic background, oral flora and mother's education level to identify possible relationships.

None of the above has significantly been linked to the suffering of these children, but the various surveys have lead to a current study on *Streptococcus mutans* (the bacterium implicated in tooth decay)

Golden jubilee for Dental Research Institute





LEFT: This photograph was taken in 1969 to mark the end of the association of the CSIR with the then Dental Research Unit prior to MRC affiliation. From left to right, Mr I Glyn Thomas (Academic Advisor Wits); Mr MF Baxter (Head, University and Medical Research CSIR); Prof. GR Bozzoli (Vice-Chancellor, Wits); Prof. SM Naude (President, CSIR); Mr SP Jackson (Deputy Vice Chancellor, Wits and Chairman, Joint Steering Committee Dental Research Unit); Prof. CJ Dreyer (Director Dental Research Unit and Dean of the Faculty of Dentistry, Wits); Dr DH Retief (Chief Research Officer, Dental Research Unit). The group is standing on the steps of the entrance to the Oral and Dental Hospital, Wits University.

BELOW LEFT: Ruth Sinwel of the DRI giving a speech at Dr Betty Richardson's retirement function in 1986. Next to her are Prof. Peter Cleaton-Jones, Jean Shute of the then MRC Transvaal office and Dr Alec Walker.



LEFT: DRI staff and honorary researchers in 1988. Top row: Absolom Moepe, Mirriam Mogotsi, Jenny Mackeown, Aita Smit, Tony Hargreaves, Don Moyes, Kim Mizrahi, Elly Grossman, Dinah Maragelwe, Janice van Wyk and Barbara van den Heever. Second row: John Matejka, Peter Cleaton-Jones, Hazel Ball, Marj Forbes, Les Fleisch, Mary Boardman, Ugo Ripamonti, Carol Jones, Christine Hahnert. In front: Dougie Beere and Shaun Williams. Once again the group is standing on the steps of the entrance to the Oral and Dental Hospital, Wits University.

and its genotypes. This study, which is being carried out by Ms Cheryl Toi, one of the researchers in the DRI, has linked the capacity to ferment sugars (and thereby cause decay) to uniquely South African *S mutans* genotypes. These, together with typical dietary practices, may solve in part the perplexities of causative agents creating severe caries in this treatment-unresponsive group of children.

Nutrition expertise was provided in the early years through collaboration with Dr Betty Richardson of the National Research Institute for Diseases and Dr Alec Walker (also

bonding of orthodontic brackets to teeth. At that time the only way to move teeth orthodontically was via an unsightly and cumbersome system of metal bands around entire teeth. The more aesthetic orthodontic banding which is in current use today arises directly from his research. Kim Mizrahi, an orthodontist in private practice, was also a major contributor in this field and most of his experimental work was done using DRI facilities.

Prof. Retief's other passion was the development of tooth coloured filling materials and was one of the reasons why he was head-hunted to

atraumatic restorative treatment (ART). This is carried out in conjunction with Dr Steffan Mickenautsch (Division of Public Oral Health) who provides the clinical input for this filling technique.

ART is eminently suited to third world demographics and the DRI is the only place where laboratory and clinical aspects of ART are researched side by side.

Degrees and research papers

In keeping with its ethos of capacity building the DRI has successfully supervised the research of post-graduates. This has culminated in

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funded by the MRC). Such has been the influence of the DRI's knowledge of diet and dental caries that the DRI was a participant in the instigation and planning of the study now known as Birth to Twenty. This study examines the health of a cohort of children born in 1990.

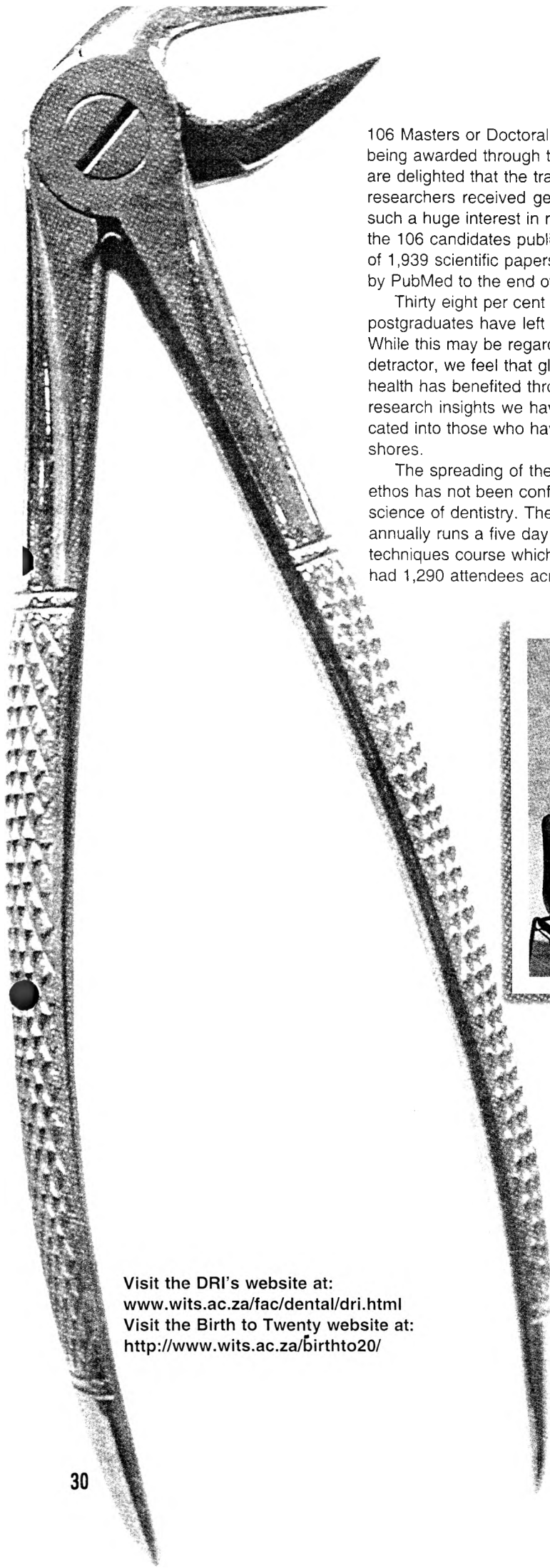
Dental materials

Prof. Hugo Retief (Director 1970-1976) started the DRI's long term involvement with dental materials. His particular passion was the

start the dental materials section at the University of Alabama. His interest in dental filling materials was not confined to tooth coloured materials but all filling materials. This encompassed their biocompatibility with the pulp and the seal they formed with the tooth cavity wall.

When he left Wits this research field was ably carried forward by Dr Andrew Jodaikin and thereafter Prof. Elly Grossman, to culminate in current laboratory studies on the "filling without drilling" technique of

Prominent researchers emanating from the DRI are Prof. Ugo Ripamonti (Director of the Bone Research Laboratory, who started his research career with the DRI in 1987) and Dr John Austin (Director of the MRC's Delft Animal Unit). Dr Austin formulated his ideas on experimental laboratory animal care after joining the DRI in 1972.



106 Masters or Doctoral degrees being awarded through the DRI. We are delighted that the training these researchers received generated such a huge interest in research - the 106 candidates published a total of 1,939 scientific papers, as cited by PubMed to the end of 2003.

Thirty eight per cent of our postgraduates have left the country. While this may be regarded as a detractor, we feel that global dental health has benefited through the research insights we have inculcated into those who have left our shores.

The spreading of the research ethos has not been confined to the science of dentistry. The DRI annually runs a five day research techniques course which to date has had 1,290 attendees across all

disciplines, genders, races, nationalities, religions and sexual proclivities. Unfortunately such capacity building has not served to thaw the remorseless demographic freezing of active researchers which show a 3:1 relationship of old (55 years or older) to young (40 years or less) in our cohort of 106 postgraduates.

Finally the DRI has been instrumental in the establishment and support of the South African Division of the International Association for Dental Research (SA IADR). At the founding of the SA IADR in 1967, seventeen of the 43 founding members were active co-researchers with the Dental Research Institute. The SA IADR has been well supported by us with approximately 14% of all presentations emanating from the DRI.



Dr Betty Richardson taking the particulars of a child during a survey in 1984.



Mr Absalom Moepi who was with the DRI for 40 years, assisting with the collection of saliva samples from children during a field trip in 1984.

Visit the DRI's website at:
www.wits.ac.za/fac/dental/dri.html
Visit the Birth to Twenty website at:
<http://www.wits.ac.za/birthto20/>