Oh, NO !

SOME TIME in the life of every orthodontist there comes that sinking feeling when a voice on the phone relays the word that the impossible has happened. It may come from a Dental colleague, from a patient or from a parent, but whatever the source, the message is the inescapable fact that THE WRONG TOOTH HAS BEEN EXTRACTED.

After much careful planning, the difficult decision to remove healthy teeth in order to optimize the future prospects of the rest of the dentition has been made. All that remains is to remove them and proceed with the corrective treatment. Then the bombshell drops.

Back to square one; a new treatment plan must now be developed to correct the malocclusion of a different set of teeth. To be sure, these situations rarely challenge our skills as much as many of the problems that we face every day. They can usually be resolved effectively, with little or no compromise of the original treatment objectives; but even in the best of circumstances, somewhere in the back of our mind there remains that aborted treatment plan that, for one reason or another, had been selected as the best.

How can these things happen?

Of course, it is the "human factor", but that begs the question. What is it that causes the human mind of a skilled and careful professional to make such a seemingly obvious mistake?

Such problems are not unique to dentistry. The same lapses have caused countless airplane pilots to skid ignominiously to a halt with their wheels still securely tucked up inside the aircraft. Others have landed at wrong airports, or even worse, unknowingly descended prematurely to an unexpected landing in such unlikely spots as Mobile Bay.

These acts result from a combination of factors, with MINDSET and DISTRACTION often paying a prominent part.

WITH MINDSET, the problem seems so straightforward that further thought is essentially turned off. The pilot is so convinced that the altimeter is unwinding from 2,000 feet to 1,000 feet that the small thousand-foot needle is blocked out while the mind concentrates on the big hand as it winds on down to zero. The dentist is so convinced that the teeth are properly identified that the effect of a change in lighting, or lip position, or angle of view, goes unnoticed as the wrong tooth is grasped.

DISTRACTION detours the mental processes in a more obvious but still deceptive way. Attention to another problem takes the mind off the subject of tooth identification, and the lapse in continuity and essential information that was so confidently understood just a fleeting moment ago goes unnoticed until it is too late. We return to the procedure on the original time scale without ever recognizing that the momentary departure bypassed an essential act.

The comparisons with aviation are quite valid, but in the case of flying, these situations develop on a glacial

time scale compared to that irrevocable grasp and twist that makes completion of an extraction obligatory.

A case in point

An actual case illustrates two critical aspects of the problem — its *uniqueness* and its *speed*. We have no classic scenario that can be addressed and resolved. The circumstances leading up to the actual act are rarely the same, so the key figure is unaware of the developing situation until after the fact.

Jennifer's orthodontic problem as it related to the extractions was a combination of asymmetry with space deficiency, so extraction of the lower right second bicuspid, along with the first bicuspids in the other three quadrants, was the solution of choice.

As in all extractions, the extraction prescription included both diagrammatic and longhand identification of the teeth, with appropriate emphasis on the atypical exception. So far, so good, *but this clarity actually set the stage for an "all is well" mindset.*

With the teeth clearly identified and the prescription fully understood, the problem of tooth identification is resolved. No red flags, so the operation proceeds routinely. *The trap is set.*

Now comes the distraction. A small tip of the upper bicuspid root remains attached in the depths of the socket. Still no great problem, but the assistant must leave to get an appropriate elevator. Waiting for the instrument, patient sitting with mouth open, waiting for it all to end, full anesthesia, lower tooth below in clear view and still awaiting removal, the Doctor proceeds to remove it.

The mind plays tricks in these situations. Tooth identification has already been resolved, has it not? But that impulsive grasp of the "obviously correct" tooth was ***not*** correct. IT IS ALREADY TOO LATE TO TURN BACK.

What can we do?

Is this an avoidable problem? We can rationalize and say that "accidents will happen." We can say that it would not happen with proper care. We would be wrong either way. Humanity has been reducing "irreducible minimums" throughout our history, so we know that further reduction may be possible, but absolute zero is still an elusive goal in any human activity.

Orthodontists are especially concerned because healthy teeth are usually involved, but this is a problem for the entire dental profession. The diseases that require extraction are not always readily apparent on visual inspection, and angulations and unusual dental relationships often make the translation from radiograph to mouth something less than obvious. Visual illusions can arise anytime, anywhere.

Have we just accepted the present low incidence as irreducible, and stopped looking for ways to reduce it further?

This problem was a new one to Jennifer's father, and he has cast about for ways to keep the same thing from happening to others. He is not a Dentist, so he is not trammelled by past experience and tradition — and he does know people. We would do well to consider one of his suggestions.

Surgeons routinely mark out their incisions in advance with some kind of dye. Foresters blaze or tag trees before the chain saw is started. Can this same approach not be applied to extractions? A cotton pellet, dipped in something like Gentian violet or iodine, could be used to mark the buccal gum tissue at teeth to be removed.

While errors of this kind may never be reduced to *zero*, such a visual aiming point could go a long way in that direction. Is it not worth a try?

rct