“The Missing Vowel”

Have you ever noticed that we have a vowel missing. A,e,i,o,u, where’s the other one? The vowel for probably the most widely used sound we utter, very common in everyday speech and a sound that universally fills a conversational gap when brain cells are struggling to find an answer. It is a sound that we never quite know how to spell, a sound like the word ‘her’ but without the h and the r and sometimes with an ‘m’ added.

We use many vowels to represent the same sound. We use ‘a’ in the word ‘forward’, ‘e’ in ‘nerd’, ‘i’ in ‘bird’, ‘o’ in ‘word’ and ‘u’ in ‘turf’. None are quite right are they? No wonder we get confused The nearest we seem to get is “er” but it still isn’t right is it?

“Will you marry me?”
“Er, how’s your mother’s cat?”

Even Shakespeare had trouble.
“Friends, Romans, Countrymen lend me your, er, your ears.”
“be not afraid of greatness: some are born great, some achieve greatness, and some have greatness thrust upon ‘em.”
“To sleep perchance to dream: er, there’s the rub.”

We need to sort this out once and for all. What we need is the missing vowel. Here’s one: ə.

We can now spell words correctly, we can talk of ðords and ðòds and ðòks and for the first time we can accurately report those thinking pauses in conversations:

“How can I say this? Did you, ə, take a bribe?”
“No gov, it wasn’t me honest gov.”
“Where’s the money?”
“əm, I’m not telling you”
“What’s this 10 billion under your bed.”
“ə, ok it’s a fair cop.”

So there we are, as Shakespeare once said “all’s well that ends well.”

Of course sometimes it doesn’t end well and now that we have the right vowel we can discuss ærthing.

Probably the most common serious risk to life and limb in our homes poor electrical installation. Some time ago a man was killed in his shower in Ubud, electrocuted by a faulty electric water heater. ‘Just a minute’ I hear you think, was it a faulty electrical installation or a faulty water heater? The fact of the matter is that if the electrical installation was good the faulty water heater should not have killed him.

We may never know the details of his particular case but it is surprisingly, nay very worryingly common for people to get electric shocks in showers. Obviously this should occur so let us consider
how it happens and what is required to provide even basic protection.

An electric water heater has a steel tank usually lined with stove enamelled paint and covered on the outside with heat insulating material of some kind. Cold water is supplied to the heater usually through a PVC pipe.

Inside the tank is an electric heating element which is connected to a standard electrical 3 core cable which has live, neutral and earth wires in it. All very simple and straight forward.

If the heater is badly installed there may be a short between the live wire and the tank causing a short circuit. Alternatively the heater element itself might be a problem.

The electric element consists of a copper tube bent into an elongated coil. Running down the centre of this tube is a thick copper wire which is surrounded by insulation material. When those hyperactive little electrons go hurtling along the copper wire they heat it up, the heat is transferred through the insulation and the copper tube and into the water. The insulation material is very important, it prevents the copper wire from touching the copper tube and contains those mean little electrons within the wire.

As the heater ages the copper tube may corrode. If a hole corrodes through the tube this will allow water in which will quickly find a crack in the insulation and make contact with the copper wire which is carrying electricity. As we all know water conducts electricity so now we find the tank full of water is live and the steel tank of the heater is live as is anything metal that is directly connected to it.

5 metres away someone is in a shower. Water conducts electricity and so the water to the shower and the metal shower fittings will be live. You turn on the tap, the water coming out is "live". Once the water breaks up into drops the electricity flow is cut but if there is a continuous stream of water onto a person the body can receive an electric shock or even be electrocuted as the electric current flows through the body on its inevitable ecstatic journey to earth.

Of course this should not happen. If the water heater and the electrical circuits are correctly installed there should be an effective connection between the water heater tank and earth. If the water or tank become "live" electricity should be able to flow straight to earth. This flow of electricity should trip the circuit breaker and cut off the power.

As we have said before it is not the voltage but the current (ie the flow of electricity) that can kill you and it doesn’t take much. You might not even feel a very small current of less than 1 mA (a thousandth of an ampere). With as little as 10 mA (a hundredth of an ampere) the flow of electricity will cause your muscles to contract making it impossible to let go of anything you are holding. 30mA is all that is needed to stop your heart, a fraction of the 270 mA of electricity required to light a 60 watt lightbulb.

The path the electricity takes through your body will determine whether you get an electric shock or suffer an ‘ongoing negative survival situation’ (electrocution - electrical execution).

It should be noted that there have been more than one or two people killed when they decided to empty their bladders in unfortunate places and electrical current has flowed up a continuous stream
of liquid to their entertainment organs and given them a distinct absence of grumble.

Electrical installations are designed to expect something like this might happen and prevent harm to you by switching themselves off.

A correctly designed and installed electrical system will detect a flow to earth and the circuit breaker will cut off.

This is very definitely not something you should try yourself so find an electrician to do it but there is a simple test we can do to see if your electrical system will provide any protection at all. To do this we connect the live wire (after the circuit breaker) to earth and see if the contact breaker trips (switches itself off).

All too often the main PLN circuit breaker will trip before the individual circuit breakers. This should not happen, it means your circuits are not safe.

To operate, a contact breaker must have enough current flowing through it to switch itself off. If you look on the front of a circuit breaker you will see a number which indicates the maximum current that the breaker will take. Any more than this and the breaker will switch itself off. In Indonesia it is common to use 4 or 6 amp circuit breakers for light circuits and 10 amps for electrical plug sockets.

There are four reasons why circuit breakers will not operate correctly:

1. The system is not correctly earthed, a very common problem.
2. The circuit breaker is too large, also a common problem.
3. Incorrect installation.
4. The circuit breaker is faulty.

To be safe it is best to install earth leakage circuit breakers and whatever you electrician might tell you you need one on each of the power circuits.

The major causes of building fires are electrical short circuits. Generally the standard of electrical installation, even in the most expensive houses, is poor. Getting a zap from something like a washing machine or computer case is something we all take for granted. All very well but it tells you that the circuits will not protect you if you have a major problem such as an ageing electric water heater.

Food for thought, 🤔🤔🤔🤔🤔.

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