

MONTHLY UPDATE

DEPARTMENT OF BIOCHEMISTRY

April 2018

OUR BUILDING & HOW IT WORKS

THE HIDDEN SPACES

SPECIAL EDITION

BROUGHT TO YOU BY BRONWYN AND PETER SMALL

WIN CHOCOLATE - COMPETITION ON BACK PAGE



**WATER, HEAT, COOLING, AIR, STORAGE,
POWER, STERILISATION, SANITATION,
COMMUNICATION - IT'S ALL BEHIND**



THESE DOORS



THIRD FLOOR WEST PLANT ROOM

This is the largest plant room in the building, and access is through a locked door near the third floor shower room.

AIR



On the left, Peter Small is standing under the plenum (an air chamber under pressure) that supplies air to the west end of the building. The air in every room is completely replaced three times every hour. On the right is the exhaust duct and fan.



Every fume hood has to have a separate “exhaust pipe”, to prevent the possibility of back-flow from one hood to another. This results in great knots of ducting all through the plant rooms and through the between-floors spaces.



HEAT & STEAM

Heating for the Department is powered by steam, which is piped all the way from the hospital steam plant at 169 Castle St. The picture to the right is of the heat exchanger that transfers steam heat to the hot water that is used in our radiators.



STERILISATION

Steam for the autoclaves is produced in this boiler. Its electricity supply is three phase at 180 amps, compare that with the supply for your electric kettle at 10 amps.



COOLING

The temperature controlled plant growth rooms on the third floor need cooling as well as heating - the cooling is done by circulating the chilled water that is stored in this tank.



STORAGE

The third floor plant room has historically been the place where unwanted-but-potentially-useful things have been dumped. Periodically it gets cleaned out - mostly when more space is needed for building infrastructure. These are the times when really old stuff gets moved to the staff common room and turned into a “museum”, and when the west foyer is filled with obsolete electronics and ancient furniture waiting to be removed.

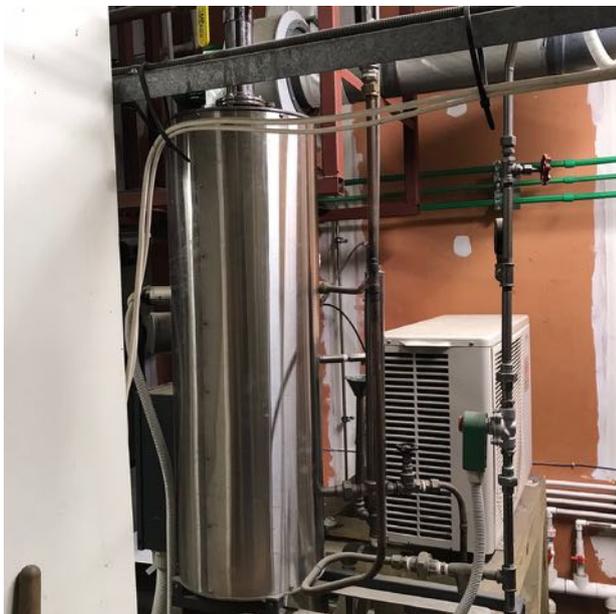
To the right you can see a stack of radioactive waste bins that might come in handy again one day, and a large unused Dewar.



WATER



The water that we refer to as distilled water is actually not distilled at all. It's purified by filtration before processing through the reverse osmosis system (left) and stored in large tanks (right). It is then pumped up to a header tank on the roof. The “distilled water” is used in the steam boiler for autoclaves, it feeds into the MilliQ systems, it is a final rinse in lab dishwashers, and of course in the distilled water taps.



We do have an old-fashioned distiller (left), that captures the condensate from boiling water – which is why we continue to refer to the distilled water, but these days it is just used as a backup to the reverse-osmosis unit. The distiller is too slow to keep up with all our needs now and it uses a lot more power.

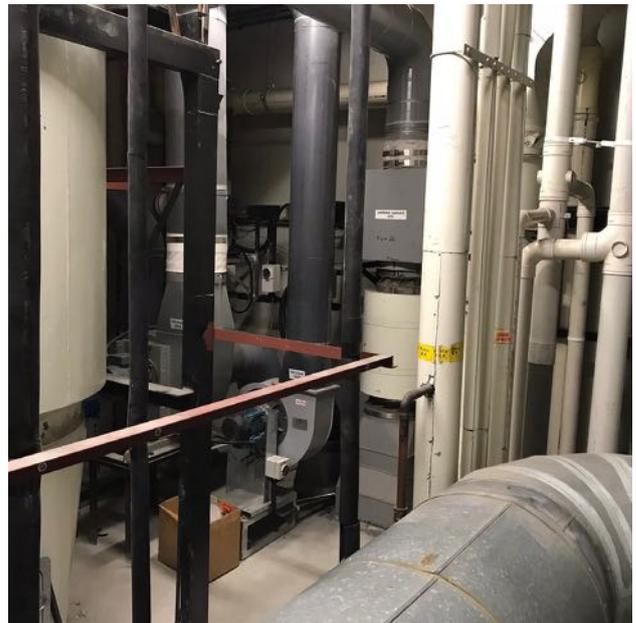
Water for taps is heated in the tanks pictured right, and is in constant circulation around the building in “ring mains” that have short feeds to wherever hot water is needed. That’s why you don’t have to wait forever for the water to be hot when you turn on a tap - so long as everything is working as it should, that is.



THIRD FLOOR EAST PLANT ROOM

Have you ever wondered what lies between the OGBF sequencing machine lab at the top of the east stairwell and the Cancer Lab?

This room handles the air supply for the east end of the building (Peter is standing by the plenum below) and it's a much smaller room than the west end one, so there is very little space to move. You have to climb under and over things, even to get away from the door.



COMMUNICATION

Bundles of ethernet cables, telephone cables, and electrical cables traverse the walls.



BASEMENT



Through the door behind the gate under our fire escape you turn right to the chemistry plant room, or left into our basement.

The chemistry plant room is the concrete bunker-looking thing on the other side of the fire escape. It's two floors high, with its floor at basement level. The blue compressor that provides compressed air for our workshops lives there.

Our basement is basically a damp tunnel full of pipes (below), with a side tunnel that takes more pipes off to the chemistry building (below right).

The pipes carry steam, water, electricity, sewage, and goodness knows what else.



SANITATION

To the right you can see the length of our building basement. You can also see the puddles on the floor, that are just water and NOT sewage. Peter is very happy about this, because a while back, during Murray Cockerill's time, sewage is what they would have been. Some of the pipes leading down from the building began to disintegrate, with the inevitable result. Peter didn't tell me whose job it was to get in there and clean up the mess, but it is a good example of the sort of "invisible" background activities necessary to keep us going, and for which we should be very grateful.



ROOF

That door next to the west stair well on the third floor is not a cupboard. It hides a scary ladder/stairway hybrid that takes you to the roof. The roof contains the motor for the lift (left), air conditioning units, and fume hood exhausts (right).



CHEMICAL STORES



The store area contains several hidden spaces. There is the new main Department switchboard that was installed last year (left) in a room off Tim's office, and two rooms full of the chemicals you can buy at the store (right).



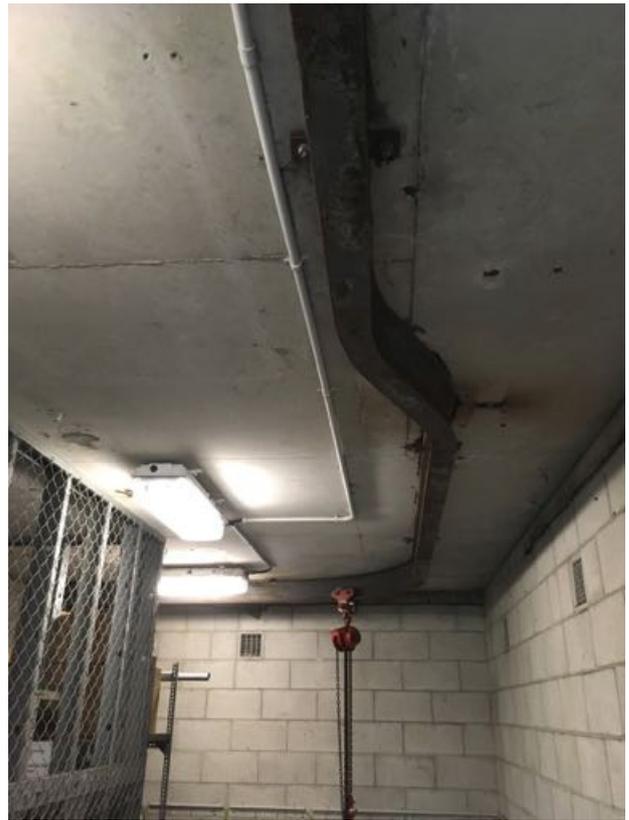
From outside the building there is access to three more chemical storage spaces. In the main building are the acids store (shared by Human Nutrition) and the solvents store (below).

Each room has a heavy-duty eyewash station (bottom right).

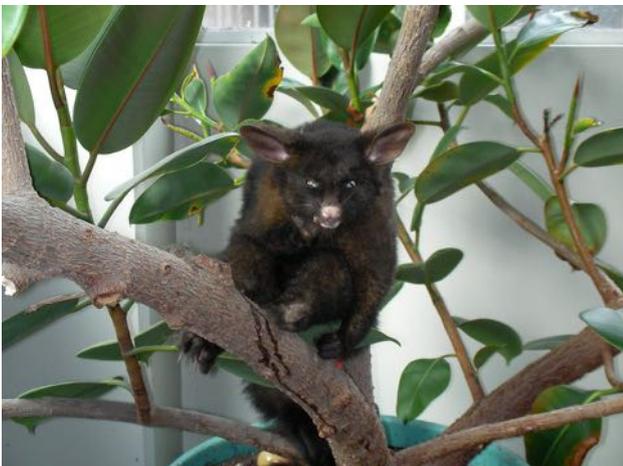


Around the side of the building is the bulk store. This is where the large drums of ethanol, methanol, and oil for the workshops are stored. There is also a fenced off area which is the Human Nutrition solvent store.

There is a block and tackle system for manoeuvring large chemical drums, and the rail it runs on extends out of the door to the side of the main building. The gap that it runs through is how an adventurous possum got in to the store in 2012, necessitating the visit of an exterminator.



Possum entry point



After the exterminator had been, the possum made a short visit to the staff common room.

COMPETITION

Identify these photographs.

Every **student** to accurately identify where each of these photographs were taken by **5pm on Wednesday 11th April** goes in the draw for some Whittakers chocolate.

Put your entries in Bronwyn's mailbox in the office. If you don't want to tear off the back page of the newsletter, extra forms will be available in the staff common room.

