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Hanwell Telemetric System
- a Users Report

Measuring RH and temperature has always been a problem for me. It was a time consuming occupation. If it was impossible to do anything about the problem was there any point in spending valuable time monitoring it. I remember saying this to a well-known conservator who informed me that I had to do it because that was "one of the things that conservators did". So not wishing to rock the boat I continued to gather data from my clockwork and later electronic thermohygrographs.

However, all we seemed to accumulate were lots of charts, which I found time consuming to interpret, and they were also difficult to use when explaining problems to non-conservators. The accuracy of the charts depends very much on the skill of the operator, whether the equipment was calibrated properly at regular intervals. The arms could be bent, the charts were sometimes not put on the same way every time, pens could dry out, and changing all the charts could be time consuming. Also there is a time lag between a change in RH or temperature occurring and this showing on the chart. Occasionally we would find that children had tampered with the thermohygrographs or moved them. But the major drawback for conservators is that you have to wait a week or a month for your information, there can be no immediate response.

I looked wistfully at the electronic systems that were available but was always stopped by the price of these systems; the fact that the monitors needed to be hard wired or downloaded individually into a computer. Laying wires round a building could be difficult and was virtually impossible if the building was listed.

It was not until the telemetric systems came on the market that the possibility of installing an electronic system became a possibility. No wires were needed, so installation was easier. The monitors were no more expensive than thermohygrographs, sometimes cheaper in fact. The main cost was in the logger, the software and a computer capable of running the system.

In 1994 we won a £2,000 prize in the Conservation Awards. With this and some of our own money we were able to think seriously about buying a telemetric system.

The two on the market at the time were the Hanwell and the Meaco.

We had both systems on trial for a few weeks and decided to buy the Hanwell system.

The Meaco system came with a computer which also acted as the logger, however, this had to be left on all the time, which contravened our safety regulations. The Meaco graphics were very good and the software was easy to understand.

The Hanwell system was used by a number of major museums, which when questioned gave glowing reports as to its effectiveness. The software and graphics were difficult to understand but we were informed that this was in the process of changing and constant updates would be provided. When we purchased the system it was very new and still under development.

The instructions we received from Martin Hancock, the co-inventor, were rather basic and a complete computer illiterate like myself would have had great difficulty installing and setting up the system without assistance from colleagues. Martin was always happy to help when he could and would provide any extra information on request. However, if a more comprehensive users manual had been supplied with the system many of these problems would have been more easily overcome. I still find that adding monitors to the system, changing plans or changing the set up in any way very confusing and difficult.

Overall the system has worked very well, although there have been a number of problems.

1. Thunder storms or radio interference can disrupt the logger and data can be lost.

2. Occasionally monitors have had trouble radioing into the logger. This can happen for no apparent reason and can be very frustrating. The monitor must then be tested to see if the problem is with the electronics or its position.

3. We have a modem link to an outside station. Setting up this link was difficult, and initially we had problems. The manufacturer's instructions were again basic, and after installation the modem would occasionally refuse to operate for no apparent reason.

4. The monitors are calibrated with 3 salts and via the computer. This can be a confusing and lengthy process, as each salt must be left on the monitor for about 20 minutes. At present we have 35 monitors and this is not a job we enjoy!

Monitors can be sent away for calibration but this service is expensive.

The advantages of the system are self-evident:

1. Once the system is set up and running the Windows based software is very user friendly and operation is straightforward.

2. Immediate access to continuously updated information. We can react to problems as they are occurring.

3. Alt analysis and interpretation can be done at the touch of a button.

4. The charts, plots graphs and summaries are easy for curatorial staff to understand. This has made it easier for us to initiate environmental controls plans in the galleries and stores. You can't argue with hard evidence when it is well presented!

5. The monitors are smaller and less obtrusive than thermohygrographs. Curators and designers are happy for us to place them in cases and in amongst displays.

In short, we are very happy with our Hanwell Telemetric System. Since its installation environmental control has a much higher profile in the museum and I have to do less hard sums!

Janette Pearson
Ipswich Museum

The following five pieces are all from Kate Andrew, Ludlow Museum.

The Specific Risks of Incorrect Temperature for Natural HistoryCollections - with particular reference to geological collections

An increase in temperature will increase all reaction rates, be it chemical breakdown or breeding bugs. Rob Waller's article in this issue discusses a risk assessment related to increased temperature.

Incorrect temperature can cause the following problems in mineral species; violation, dissociation of hydrates, thermal shock and fracturing of specimens with fluid inclusions exposed to high or low temperatures. Polymorphic phase transitions of some mineral species are also a function of temperature but the rate of change from temperature of formation to storage temperature is so slow that most species exist in a what is called a "metastable" state. For a thorough discussion of these potential problems, the chapter by Rob Waller "Temperature and humidity sensitive mineralogical and petrological specimens" in "The care and conservation of geological material" edited by Howie should be referred.

The manager of a general geological collection needs to be aware of the effects of incorrect temperature on some fairly common mineral species and on certain types of crystals.

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