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CU S100/07

Title : Science course unit 7.

Tape No. 6LT/70139

Project No. 00520/1141

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Seq.	Time	Footage	Sequence List	Sound Cue
	44"	12	M.J. Pentz with graph showing peaks of the mass spectrum which students were asked to work on to determine the relative atomic mass of an element.	544.6
	1'07"	18	Pentz identifies the element as mercury. He tips a sample of mercury from one beaker to another.	546.663
1.	2'23"	38	Pentz performs an experiment on the mercury. In a darkened studio he trains a mercury vapour light source on the sample of mercury in the beaker. A vapour can be seen rising from the beaker	
	2'51"	46	Pentz next trains a sodium vapour light source on the mercury sample. The rising vapour can no longer be seen.	546.382
	4'01"	64	Pentz places a sample of sodium over a bunsen burner. The flame vapourises the sodium. Under a sodium light source the shadow of the vapour is seen but not when using a mercury light source.	use proper instrument
2.	4'54"	76	W.A. Coates with a spectrometer. He explains how the instrument works. He demonstrates using white light.	Mr. Bill Coates. Coates, W.A.
	6'02"	93	Commentary for this sequence (through 10'31") by R.A. Ross. Spectrum line of sodium is shown on screen and compared with the image of full white light spectrum.	
	6'51"	104	Absorption experiment is carried out. Sodium is vapourised over a burner and the vapourised atoms absorb the sodium light from a sodium light source. (The projected sodium line from the spectrometer disappears).	

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Continuation

Seq.	Time	Footage	Sequence List	Sound Cue
2.	7'26"	112	The absorption experiment is repeated, this time using the full white light spectrum. The yellow light portion of the spectrum, that occupied by sodium light, goes dark showing that the radiation at ~~that~~ this frquency has all been absorbed.	546.382 535.840724
	8'33"	128	Shot of the spectrum of sodium light showing all sodium lines in the visible range.	
	[redacted]'57"	133	Shot of diagram showing the hydrogen spectrum. This spectrum is much simpler than the sodium spectrum.	
	9'55"	146	The two spectra above are shown together and compared. The regularity of the line spacing is pointed out.	
	10'31"	154	Possibility of constructing an energy level diagram from this spectroscopic data discussed. Such a diagram could be used to calculate ionisation energy.	Can tell us
	12'45"	183	J. Callomon and R.A. Ross in the laboratory at University College, London. Callomon shows how his apparatus for performing molecular spectroscopy experiments works.	I went to ..... Callomon, J.
	[redacted]'53"	197	J. Callomon shows how the position of lines in the spectrum is measured to determine wave length.	
	15'45	216	J. Calloman shows a print of the spectrum of a bunsen burner flame. He explains details of an experience for determining what molecules cause the colour of the flame.	541.22
3.		253	J. Calloman shows the energy level diagram obtained from the bunsen burner spectrum. He explains the deductions which can be made from this diagram. (C_2 is the molecule which gives the blue colour to the flame)	

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Continuation

Seq.	Time	Footage	Sequence List	Sound Cue
	19'03	259	Ross lists things which can be determined through molecular spectroscopy. 1. Nature of molecule. 2. Type of bond links. 3. Strength of bond.	10^{19} seconds
4.	19'33"	265	Pentz introduces an experiement which measures ionisation energies from spectra.	It does seem .....
	[illegible]'26"	275	Ross with a model of the apparatus. He holds up an electron gun. This is the vital part of the experiment.	
	22'46"	302	Ross shows, explains and demonstrates the experimental apparatus. He uses a graph to show how the energy level is extrapolated.	
	23'37"	311	Pentz sums up. Credits	