Why The Paragraph?

There is no absolute necessity for paragraphs, nor for the specific within-paragraph recommendations made in this course, in any type of writing. In the novel *Lord Jim*, by James Conrad, for example, one chapter consists of a single paragraph stretched over four pages. James Joyce's novels are also noted for paragraphs of extreme length. In science, if one looks to the famous papers of yesteryear, while paragraphs were never avoided, they were on average much longer than those of today's papers. For example, the third paragraph of Pasteur's "The Physiological Theory of Fermentation" (appended below) contains thirteen sentences and 481 words (excluding the footnote!).

While not necessary, the use of paragraphs in scientific text is however highly expected by readers, and makes the extraction of information from the text much more efficient. Some of the reasons for this are explored below.

Paragraphing helps the reader to navigate a complicated text

Imagine you are asked for directions about how to drive across town, from A to B. You could give a street-by-street, turn-by-turn description of the entire journey, but your enquirer would probably find it less of a strain if you broke the journey down into a number of stages, each with its own memorable end-point. Likewise, paragraphing parcels the content of the text into more manageable portions, reducing the chance of attention overload. For example, if you break up a long written argument into paragraphs, wherein the Framing Sentence of each defines a major point in the argument, then as the reader proceeds, they will (ideally) need to keep ONLY those major points in their memory bank, not every single point in all the paragraphs.

Of course, if you provide too many landmarks when giving directions you can arrive back at something that is as difficult to remember as a street-by-street description. This is the equivalent, when writing, of having too many paragraphs.

There is no Golden Rule as to the ideal length of a paragraph - it largely depends on how much of a load the content places on the reader's attention. The more conceptually difficult the content, then the higher the attention load for a given length of a text. Thus it makes sense to parcel the content into smaller portions. On the other hand, descriptive paragraphs, especially those that list things, demand little of a reader, and as long as their content is introduced clearly, and organized intelligently, the length is almost immaterial. In the same way, tables can stretch on for pages without being a burden.

An early framing sentence help the reader who scans, rather than reads, the paper

It has been shown that as scientists become more experienced, rather than reading a paper in one go, they tend to scan it, focusing on those locations that commonly contain the most important information. For the typical English paragraph, that location is its beginning, itself an indication of the general benefits of establishing an interpretative framework as early as possible. Since this style of reading will likely become even more common with time (since it is a response to being overburdened with information) it makes sense to write paragraphs that allow the reader to rapidly assess their likely utility. In Set B we will see that the Framing Sentence does not have to be the very first sentence of a paragraph, it just has to appear relatively early - as in several of the paragraphs of the text you are reading now!

3rd paragraph of Pasteur's "The Physiological Theory of Fermentation"

The least reflection will suffice to convince us that the alcoholic ferments must possess the faculty of vegetating and performing their functions out of contact with air. Let us consider, for instance, the method of vintage practised in the Jura. The bunches are laid at the foot of the vine in a large tub, and the grapes there stripped from them. When the grapes, some of which are uninjured, others bruised, and all moistened by the juice issuing from the latter, fill the tub--where they form what is called the vintage--they are conveyed in barrels to large vessels fixed in cellars of a considerable depth. These vessels are not filled to more than three-quarters of their capacity. Fermentation soon takes place in them, and the carbonic acid gas finds escape through the bunghole, the diameter of which, in the case of the largest vessels, is not more than ten or twelve centimetres (about four inches). The wine is not drawn off before the end of two or three months. In this way it seems highly probable that the yeast which produces the wine under such conditions must have developed, to a great extent at least, out of contact with oxygen. No doubt oxygen is not entirely absent from the first; nay, its limited presence is even a necessity to the manifestation of the phenomena which follow. The grapes are stripped from the bunch in contact with air, and the must which drops from the wounded fruit takes a little of this gas into solution. This small quantity of air so introduced into the must, at the commencement of operations, plays a most indispensable part, it being from the presence of this that the spores of ferments which are spread over the surface of the grapes and the woody part of the bunches derive the power of starting their vital phenomena [Footnote: It has been marked in practice that fermentation is facilitated by leaving the grapes on the bunches. The reason of this has not yet been discovered. Still we have no doubt that it may be attributed, principally, to the fact that the interatices between the grapes, and the spaces between the bunch leaves throughout, considerably increase the volume of air placed at the service of the germs of ferment.]. This air, however, especially when the grapes have been stripped from the bunches, is in such small proportion, and that which is in contact with the liquid mass is so promptly expelled by the carbonic acid gas, which is evolved as soon as a little yeast has formed, that it will readily be admitted that most of the yeast is produced apart from the influence of oxygen, whether free or in solution. We shall revert to this fact, which is of great importance. At present we are only concerned in pointing out that, from the mere knowledge of the practices of certain

localities, we are induced to believe that the cells of yeast, after they have developed from their spores, continue to live and multiply without the intervention of oxygen, and that the alcoholic ferments have a mode of life which is probably quite exceptional, since it is not generally met with in other species, vegetable or animal.