

# THE ART OF CONDENSATION

Technical Report Writing

# INTRODUCTION

- Summarizing is a skill, which is essential in many facets of your life.
- In this technology-driven world, everybody values time, and hence, if you master the art of condensation, you will not only save time but also communicate effectively.
- This art can be learned by practice and it can help you in preparing an abstract, or an executive summary which are essential elements of various technical documents.
- The art of condensation is also known as *précis* (*pra-se*) (summary of essential points) writing.
- It is often tested in various competitive examinations because of the importance attached to it.

# INTRODUCTION

- Précis writing does not merely involve paraphrasing (or writing in your own words) from the original document.
- It must be able to ‘stand alone’ and make sense—complete, informative, and easy to read.
- A précis can be defined as an abridged form of the text or a piece of writing.
- *Précis writing involves summarizing a document to extract the maximum amount of information, then conveying this information to a reader in the minimum number of words.*
- There is no fixed rule about the length of the précis but normally it is written in one-third of the number of the words in the original passage.

The following qualities are essential to a précis:

- **Completeness**

- The précis must have the essential contents of the original passage without omitting any important fact or idea.

- **Compactness**

- All the ideas reproduced from the original document should form a compact whole.
- The words and sentences should convey a sense of unity with each other.

- **Conciseness** (free from all elaboration and superfluous detail)

- Brevity (shortness) is the essence of a good précis. It is achieved by the process of sifting essential from unessential information, by avoiding repetition, and by omitting ornamental phrases and the like.
- But brevity should not be achieved at the cost of clarity. All the essential ideas of the author should be given clearly but briefly and concisely. There should only be economy of words but not of ideas.

## ● Clarity

- The précis should have clarity of expression. This can be achieved by getting rid of circumlocutions and equivocal (uncertain) statements.
- It should be intelligible to even those readers who have not gone through the original document.

## ● Coherence

- All sentences and ideas in a précis should follow one after the other in an unbreakable chain.
- They should follow a reasonable and natural order of development.
- One sentence should suggest the next and the process should continue till the close.
- The main theme should run through the sentences like the string of a necklace. Above all, the précis should not look like a collection of disjointed sentences, but a well-connected whole.

# STEPS TO EFFECTIVE PRÉCIS WRITING

- **Identify the reader and purpose of the précis**
  - This determines how much detail should be included and how formal the précis needs to be.
  - For instance, the précis you make of a textbook chapter for your own study purposes does not have to be as carefully refined as the executive summary of a formal report for an important client.
- **Read the original document**
  - Skim-read the document to get an overview, then read it again slowly to identify the main themes and to distinguish the key ideas and concepts from the un important ones.
- **Underline the key ideas and concepts**
  - Each paragraph should have one key topic, which the rest of the paragraph clarifies, supports, and develops.

# STEPS TO EFFECTIVE PRÉCIS WRITING

- **Write down a title which sums up the theme of the passage**
  - The title or heading is the précis of a précis and indicates what is to follow. Hence it should reflect the central idea of the passage.
  - It can be a word, a phrase, or even a short sentence. A suitable title must be provided even if not asked.
- **Write a note-form summary of each paragraph**
  - It is better to sum up the passage in the form of points. Use your own language as far as possible. Omit all irrelevant material.

# STEPS TO EFFECTIVE PRÉCIS WRITING

## ● Write the précis

- Paraphrase to express the summarized points more concisely and to develop them into coherent sentences, expressing all important points in a generalized form.
- Eliminate any repetitions or irrelevant details. Use the third person and indirect speech while writing the précis. Do not add your comments.

## ● Review and edit

- Compare your précis with the original document and make sure that it emphasizes the same points.
- Ensure that the précis is readable, concise, and coherent.



# STEPS TO EFFECTIVE PRÉCIS WRITING

- **Tips for abridging and reframing your sentences:**
  - Eliminate redundancy
  - Eliminate long-winded statements
  - Change passive voice into active voice
  - Avoid wordiness
- You can use the examples given in Table 11.1 as a ready reckoner.
- The number of words in each sentence is indicated at the end of the sentence.
- Note how these techniques help in reducing the number of words, resulting in sentences that sound direct, clear and concise.

# STEPS TO EFFECTIVE PRÉCIS WRITING

**Table 11.1:** TIPS FOR EFFECTIVE PRÉCIS WRITING

Type of Ineffectiveness	Original Version
Redundancy	<p>1. The analysis was thoroughly and wholly complete. (7)</p> <p>2. The Chairman wants to meet those employees who are working in the production department so that he can discuss the difficult crisis immediately. (23)</p>
Circumlocution	<p>1. Objects, on our first acquaintance with them, have that singleness and integrity of impression that it seems as if nothing could destroy or obliterate them, so firmly are they stamped and riveted on the brain. (34)</p> <p>2. The reason why the technicians were so upset was because their boss seemed so angry with them. (16)</p>
Passive voice	<p>1. If no satisfactory results are obtained, another study is carried out, but this time the data obtained from the first trial is included. (23)</p> <p>2. After the robot was installed, a series of problems were faced by the company. (14)</p>
Wordiness	<p>1. The secretary's proposal was adopted with the full agreement of all the members. (13)</p> <p>2. It is not fair or just in the interest of the consuming public that any commercial concern should acquire the sole power of trading in some particular article to the exclusion of its rivals. (35)</p>

1. The analysis was complete. (4)
  2. The chairman wants to meet the employees of the production department to discuss the crisis immediately. (16)
- 
1. Our first impressions of objects are the most lasting. (9)
  2. The technicians were upset because the boss seemed so angry with them. (12)
- 
1. If you do not get satisfactory results, carry out another study including the data of the first trial. (18)
  2. After installation the company faced a series of problems with the robot. (10)
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1. The members unanimously adopted the secretary's proposal. (7)
  2. Monopolizing a particular trade by any commercial concern is unfair to the consuming public. (14)

# SAMPLES (Original Document 1)

A vital factor in the success of any business is the right selection of its administrative staff. In this matter, management has the inescapable function not only of making the right selection, but after having made it, also of providing the fullest scope for legitimate ambition and individual advancement. A management which is so petty as to be jealous of the powers and authority of the officers will naturally select staff of the sub-missive type, docile men who are accustomed to obey without question. It would not take the risk of engaging able and independent-minded employees for the fear that it may one day be supplanted by them. A really go-ahead management which understands the mood of the present times will do the direct opposite. It will seek out men capable of evolving policies within their own sphere and will train them to rise to the highest position.

In connection with most administrative bodies management is self-perpetuating and is responsible for its own succession. Even the ablest management cannot foresee the future with certainty; its decisions, for the future, are at best intelligent guesses. What, however, it can and must do is to make available the enterprise to the men who will be capable of taking the decisions of the future and who are qualified, trained, and tested during the present to do so. No management can rely upon a constant supply of geniuses. It must so train its staff that, during normal times, the enterprise is capable of being run effectively by men of not much more than average ability and with a robust sense of purpose. (270)

## Vocabulary:

vital—important; legitimate—proper; docile—submissive like a slave; supplanted—removed, replaced; evolving—finding out; self-perpetuating—continuing itself; foresee—guess; rely—depend; robust—strong and healthy.

# SAMPLES (Document 1)

**Title:** Efficient Management

**Points:**

1. Success in business depends upon right selection of staff.
2. The management must foster the staff's proper ambitions and individual advancement.
3. A petty jealous management selects submissive people for fear of being replaced by them.
4. A progressive management tries to find decision-making, creative geniuses and trains them for the present.
5. Good management prepares its own succession for the future; it can only guess intelligently.
6. As the supply of genius cannot be assured, the staff must be trained to run the enterprise with normal ability and strong sense of purpose in normal times.

# SAMPLES (Document 1)

## **Précis**

Success in business depends upon the right selection of staff and fostering its proper ambition and individual advancement. A petty, jealous management will select docile people for fear of being replaced by them while a progressive management appoints decision-taking, creative, intelligent persons and trains them in anticipation of its own replacement. Even the ablest management can merely guess the future intelligently. As the supply of geniuses cannot be assured, the staff must be trained to run the enterprise with normal ability and a strong sense of purpose in normal times. (90)

# SAMPLES (Original Document 2)

For all industrial development we need power, and the ultimate restriction on power is the fuel from which it is extracted. Is there enough fuel to satisfy our ever-growing hunger for power? For conventional fuels such as wood, coal, and oil, the answer is quite clearly 'No'. The world's known stock of oil is only sufficient to last sixty years at the present rate of consumption and the rate of consumption keeps going up and up. We are burning too much wood already, and the earth's known fuel-wood forests would be consumed soon. Coal is still in fair supply, but in some areas—notably England—it is becoming increasingly difficult to mine it, and therefore uneconomical.

Besides fuel as a source of power, there is the device for harnessing energy from rapidly flowing water. Few sources of water power remain untapped, and the power they yield meets only a fraction of our total need. Moreover, it is not very dependable, because water storing in reservoirs depends on rains, which are sometimes freakish.

Conventional fuels release energy by combustion, but fission makes use of another kind of fuel, remarkable for its concentration of power. All fissionable material is extracted or manufactured from two elements, uranium and thorium, and the world has plentiful stock of them. But even so they will not last forever. There is probably enough to last for several centuries. Fission in the techniques known up till now converts only one-tenth of one per cent of its fuel into energy. Complete conversion of fissionable fuels into energy is known at present at laboratory level only. If it can be harnessed into a practical power device, one pound of fissionable fuel would be equivalent to three billion pounds of coal.

Now the scientists' quest is to find out some more efficient process for using these fuels outside the laboratory on industrial scale. But after even fissionable material is gone, what then? There is no reason to despair. The sun is continually pouring solar energy on earth: we have only to gather and harness it. Those who think that man will one day be left without any source of power are not far-sighted enough. (362)

# SAMPLES (Document 2 )

**Vocabulary:** ultimate—final; untapped—not tried, not used; freakish—queer, odd, whimsical; fission—division of cells; quest—search.

**Title:** Inexhaustible Sources of Power

## Points

1. Power, which is dependent upon fuel, is needed for all industrial development.
2. The conventional type of fuel is not going to last for a very long time.
3. There is enough stock of uranium and thorium in the world, and fissionable material, which can serve as fuel for a very long time, is extracted from it.
4. Scientists are trying to find some efficient process for the use of fissionable material as fuel for industrial purposes.
5. Besides this, the energy that we get from the sun can also be gathered and harnessed for our purposes.
6. It is only short-sighted people who think that there will be no source of power left for man in the future.

# SAMPLES (Document 2 )

## **Précis**

Power which is extracted from fuel is essential for all industrial development. The fear expressed is that conventional type of fuel is not going to last for a very long time. Fortunately we have enough stock of uranium and thorium and all fissionable material, which is a great source of energy, is extracted from these elements.

Scientists are busy researching an efficient process for the use of fissionable material for industrial purposes. The solar energy that we receive from sun can also be gathered, harnessed, and used for our purposes. So people who imagine that in the foreseeable future man would be left without any source of power only display their short-sightedness. (115)



# SAMPLES (Original Document 3 )

There is no doubt that people are growing more and more interested in the seas, and that there is a great need for that interest. Men have long tried to probe the secrets of the oceans to gain knowledge for its own sake, but there are other practical reasons for doing so. The sea can provide us with many things that we need in everyday life. Future generations will probably draw more on the seas for their food, and not only food in the form of fish. Minerals necessary for modern industries are also there, when we can find out how to extract them.

We have explored and mapped most of the land, and we are quickly exploring the air. The seas present a greater difficulty because we cannot yet, and probably never shall be able to, set foot on the deep ocean floor.

# SAMPLES (Original Document 3 )

The aim of the extensive ocean-going expeditions, of the marine biological stations around the coasts, and even of those who simply study the shore uncovered by the tide, is to build up our knowledge of this vast and unfamiliar world beneath the waves. In some cases the knowledge gained can be put to practical use, but much of it is for interest only.

For the very early mariners, interest lay in the currents, and especially those at the surface that carried their ships along. They were also interested in the weather over the sea. Yet, even these hard-bitten seamen were not immune from a curiosity about the animals and plants that lived below the waves. Their first impulse may have been to seek trade overseas, or to fish for food, but over and above this, any thing strange or beautiful, whether caught up in their nets or cast ashore by the tides, caused them to wonder. So, from the earliest time, the pursuit of practical everyday things went on side by side with the inquiry that springs from a desire to know more. Bit by bit grew the knowledge of the physical features of the seas, of such things as currents, waves, and winds, as well as of the biology the knowledge of animals and plants.(362)

# SAMPLES (Original Document 3 )

**Vocabulary:** probe—delve deep, find out, explore; extract—derive them, set them; expedition—journey; beneath—below; immune—to have no effect; impulse—feeling, emotion.

**Title:** Man's Interest in Sea Exploration

## **Points**

1. Man's interest in the seas is increasing and it is a healthy and useful sign.
2. Future generations are likely to draw more of their food from seas.
3. Exploration of seas is a difficult job.
4. The aim of all marine exploration is to know the world beneath the waves.
5. Even the earliest mariners had interest in exploring the seas for the sake of knowledge.

# SAMPLES (Original Document 3 )

## **Précis**

Man's interest in the exploration of the seas has increased and it is a healthy sign. Future generations are to depend far more on the seas for their food. Man has been able to map the entire land, but seas offer difficult prospects. The aim of all adventure has always been to know about the world. Some knowledge thus gained may have practical utility, but most of it is for the sake of interest. Even the earliest mariners, though their primary interest was to seek out trade routes, had the curiosity to study the animals and plants that lived below the waves. This curiosity, of course, helped them in gaining knowledge.  
(115)

# SAMPLES (Original Document 4 )

## **Original Document 4**

Effective rational propaganda becomes possible only when there is a clear understanding, on the part of all concerned, of the nature of symbols and of their relations to the things and events symbolized. Irrational propaganda depends for its effectiveness on a general failure to understand the nature of symbols. Simple-minded people tend to equate the symbol with what it stands for, to attribute to things and events some of the qualities expressed by the words in terms which the propagandist has chosen for his own purposes, and to talk about them. Consider a simple example. Most cosmetics are made of lanolin, which is a mixture of purified wool-fat and water beaten up into an emulsion. This emulsion has many valuable properties: it penetrates the skin, it does not become rancid, it is mildly antiseptic, and so forth. But the commercial propagandists do not speak about the genuine virtues of the emulsion. They give it a voluptuous name, talk ecstatically and misleadingly about feminine beauty, and show pictures of gorgeous blondes nourishing their tissues with skin food. 'The cosmetic manufacturers', one of their number has written, 'are not selling lanolin, they are selling hope'.

# SAMPLES (Original Document 4 )

For this hope, this fraudulent implication of a promise that they will be transfigured, women will pay ten or twenty times the value of the emulsion which the propagandists have so skillfully related, by means of misleading symbols, to a deep-seated and almost universal feminine wish—the wish to be more attractive to members of the opposite sex. The principles underlying this kind of propaganda are extremely simple. Find some common desire, some wide-spread, unconscious fear or anxiety; think out some way to relate this wish or fear to the product you have to sell; then build a bridge of verbal or pictorial symbols over which your customer can pass from fact to compensatory dream, and from the dream to the illusion that your product, when purchased, will make the dream come true. ‘We no longer buy oranges, we buy vitality. We do not buy just a car, we buy prestige. And so with all the rest. In toothpaste, for example, we buy not a mere cleanser and anti-septic, but release from the fear of being sexually repulsive. In vodka and whisky we are not buying a poison which, in small doses, may depress the nervous system in a psychologically valuable way; we are buying friendliness and good fellowship and brilliant, witty conversation. With our laxatives we buy the health of a Greek God, the radiance of one of Diana’s nymphs. With the monthly best seller we acquire culture, the envy of our less literate neighbours, and the respect of the sophisticated. In every case the motivation analyst has found some deep-seated wish or fear whose energy can be used to move the consumer to part with his money and so, indirectly, to turn the wheels of industry. Stored in the minds and bodies of countless individuals, this potential energy is released by, and transmitted along, a line of symbols carefully laid out so as to bypass rationality and obscure the real issue.

# SAMPLES (Original Document 4 )

Sometimes the symbols take effect by being disproportionately impressive, haunting, and fascinating in their own right. Of this kind are the rites and pomp of religion. These ‘beauties of holiness’ strengthen faith where it already exists, and where there is no faith, lead to conversion. Appealing as they are only to the aesthetic sense, they do not guarantee the ethical value of the doctrines with which they have been, quite arbitrarily, associated. As a matter of plain historical fact, however, the beauties of holiness have often been matched and indeed surpassed by the beauties of unholiness. Under Hitler, for example, the yearly Nuremberg rallies of the Nazi party were masterpieces of ritual and theatrical arts. ‘I had spent six years in St. Petersburg before the war in the best days of the old Russian ballet’, writes Sir Neville Henderson, the British ambassador to Hitler’s Germany, ‘but for grandiose beauty I have never seen any ballet to compare with the Nuremberg rally’. One thinks of Keats—‘beauty is truth, truth beauty’. Alas, the identity exists only on some ultimate, supra-mundane level. On the levels of politics and theology, beauty is perfectly compatible with nonsense and tyranny.

# SAMPLES (Original Document 4 )

In commercial propaganda, the principle of the disproportionately fascinating symbol is clearly understood. Every propagandist has his Art Department, and attempts are constantly being made to beautify the boards with striking posters, the advertising pages of magazines with lively drawings and photographs. Those are no masterpieces, for masterpiece appeals only to a limited audience, and the commercial propagandist is out to captivate the majority. For him the ideal is a moderate excellence. Those who like this not-too-good, but sufficiently striking, art may be expected to like the products with which it has been associated and for which it symbolically stands.

Children, as might be expected, are highly susceptible to propaganda. They are ignorant of the world and its ways, and therefore completely unsuspecting. Their critical faculties are undeveloped. In Europe, during and after the World Wars, soldiers used to be referred to as 'cannon fodder'. Their little brothers and sisters have now become radio fodder and television fodder. In my childhood we were taught to sing nursery rhymes and, in pious households, hymns. Today the little ones warble the singing commercials.



# SAMPLES (Original Document 4 )

‘I don’t say that children should be forced to harass their parents into buying products they’ve seen advertised on television, but at the same time I cannot close my eyes to the fact that it’s being done every day.’ So the star of one of the many programmes beamed to a juvenile audience. ‘Children’, he adds, ‘are living, talking records of what we tell them every day’. And in due course, these living, talking records of television commercials will grow up, earn money, and buy the products of industry. ‘Think’, writes Mr Clyde Miller ecstatically, ‘think of what it can mean to your firm in profits if you can condition a million or ten million children who will grow into adults trained to buy your products, as soldiers are trained in advance to respond when they hear the words ‘Forward March’! (1040)

**Vocabulary:** attribute—to ascribe; lanolin—extract obtained from sheep’s wool used in ointments; emulsion—milky liquid; rancid—having a bad smell; ecstatically—delightfully; transfigured—to change the outward form; nymph—a semi-divine being, a lovely young girl; supramundane—above the worldly; compatible—impressible; captivate—attract; susceptible—impressionable; warble—to sing; juvenile—youthful, childish.

# SAMPLES (Original Document 4 )

## **Title: Commercial Value of Symbols**

### **Points**

1. Symbols play a very prominent role in propaganda. If the symbols are rightly advertised and rightly understood, it helps the rational propaganda, but if they are wrongly understood then it helps the irrational propaganda.
2. Simple-minded people are incapable of equating the symbol with the things it represents and propagandists take full advantage of the lack of understanding of the people.
3. Most of the cosmetics which are nothing but wool-fat and water beaten up into emulsion are sold at many times their cost price.
4. The manufacturers take advantage of the public's weaknesses. They actually do not sell their products but hope and prestige.
5. People are prepared to pay heavy prices to overcome their fears, fulfill their hopes, and transform their dreams into reality.
6. Rites and pomp of religion also fall into the kind of symbols that appear disproportionately impressive and captivating. They are responsible for creating faith where there is none and strengthening religious faith where it is present.
7. The beauties of unholiness many a time surpass the beauties of holiness; the yearly Nuremberg rallies of the Nazi party are an example.
8. Keats' ideas of truth and beauty do not have any place in politics and theology, where beauty is attached with nonsense.
9. In commercial propaganda, the principle of 'disproportionately captivating symbol' is practised. Drawings and photographs are taken for this purpose as these appeal to the masses, whose capture is the only aim of commercial advertisers.
10. Children fall easy prey to these advertisers, as their critical faculties are undeveloped. They are the most sought after target of manufactures, as they can be trained into becoming adult purchasers of these products.

# SAMPLES (Original Document 4 )

## **Précis**

Symbols have great propaganda value and play an important role in advertisement. If the symbols are rightly advertised and rightly understood, they help the rational propaganda, but if they are wrongly understood, then irrational propaganda stands to gain. Simple folk are incapable of equating the symbol with the things it represents, and propagandists take full advantage of this lack of understanding of the people. Most cosmetics which are nothing but wool-fat and water beaten up into emulsion are sold at exorbitant rates with the help of commercial propagandists, who, instead of talking of the natural virtues of emulsion, give it a fancy name and present the product being used by attractive females, in fascinating pictures, and as such, mislead the common man. The manufacturers actually take advantage of the natural and universal wish of looking beautiful and attractive to the other sex, and the fear of being sexually repulsive. By assuring the people of the fulfilment of hopes and promising release from their fears, they sell their products. So in reality, the manufactures sell hope, prestige, good fellowship, brilliant and witty conversation, and culture. People of course are misled and pay heavy amounts to overcome their fears, fulfil their hopes, and transform their dreams into reality.

# SAMPLES (Original Document 4 )

The rites and pomp of religion also fall into this category of symbols. They are disproportionately impressive and captivating and are responsible for creating and strengthening faith. The beauties of unholiness are also not less impressive and the yearly Nuremberg rallies of Nazis were of this type. Keats' ideas of truth and beauty have no place in political and theological propaganda, where beauty is attached with nonsense.

In commercial propaganda, the help of captivating symbols such as beautiful drawings and photographs is taken as these appeal to the masses whose capture is the only aim of manufacturers. Children being ignorant, unfamiliar with the way of the world, fall into their trap easily. It is easy and extremely profitable to catch them young as their critical faculties are not yet developed and they can be conditioned so as to buy the products of industry when they grow up. (334)

# SAMPLES (Original Document 5 )

## **Original Document 5**

A blind reverence for the past is bad and so also is a contempt for it, for no future can be founded on either of these. The present and the future inevitably grow out of the past and bear its stamp, and to forget this is to build without foundations and to cut off the roots of national growth. It is to ignore one of the most powerful forces that influence people. Nationalism is essentially the memory of past achievements, traditions, and experiences; and nationalism is stronger today than it has ever been. Many people thought that nationalism had its day and must inevitably give place to ever-growing international tendencies of the modern world. Trade and commerce, easy communications and rapid transport, the radio and cinema, all helped to create an international atmosphere and to produce the delusion that nationalism was doomed. Yet whenever a crisis has arisen, nationalism has emerged again and dominated the scene, and people have sought comfort and strength in their old traditions. (169)

# SAMPLES (Original Document 5 )

**Vocabulary:** reverence—great respect; contempt—hate; inevitably—decidedly; bear stamp—be influenced; had its day—lost its importance; delusion—a false belief; emerge—come out.

**Title: Nationalism versus Internationalism**

## **Points**

1. The past should neither be blindly revered nor ignored.
2. The future and the present grow out of the past.
3. Nationalism is based upon past achievements and traditions.
4. It is the most powerful force to influence the people.
5. Some people thought it will be replaced by internationalism.
6. Nationalism emerges during a national crisis.
7. People seek comfort and strength in old traditions.

## **Précis**

The past should neither be blindly glorified nor be neglected. The present and the future grow out of it, forming the basis of nationalism, which symbolizes the culture, experience, achievements, and traditions of a nation. As people seek comfort and strength in old traditions during a crisis, nationalism has not been replaced by the much-talked modern internationalism. (56)

# SAMPLES (Original Document 6)

## **Original Document 6**

The process of leading men's thought and imagination away from the use of force will be greatly accelerated by the abolition of the capitalist system, provided it is not succeeded by a form of state socialism in which officials have enormous power. At present, the capitalist has more control over the lives of others than any man ought to have; his friends have authority in the state; his economic power is the pattern for political power. In a world where all men and women enjoy economic freedom, there will not be the same habit of command, nor, consequently, the same love of despotism; a gentler type of character than that now prevalent will gradually grow up. Their circumstances, not born ready-made, form men. The bad effect of the present economic system on character and the immensely better effect to be expected from communal ownership are among the strongest reasons for advocating the change.

# SAMPLES (Original Document 6 )

In the world as we have been imagining it, economic fear and most economic hope will be alike removed out of life. No one will be haunted by the dread of poverty or driven into ruthlessness by the hope of wealth. There will not be the distinction of social classes which now plays such an immense part in life. The unsuccessful professional man will not live in terror lest his children should sink in the scale; the aspiring employee will not be looking forward to the day when he can become a sweater in his turn. Ambitious young men will have to dream other day dreams than that of business success and wealth wrung out of the ruin of competitors and the degradation of labour. (281)

**Vocabulary:** accelerated—increased; pattern—sample; consequently—ultimately; despotism—absolute power; immensely—greatly; advocating—supporting; haunted—followed like a ghost; dread—fear; ruthlessness—cruelty; terror—fear; sink in the scale—come to a lower level; wrung out—taken out by force; degradation—lowering the status.

**Title: Abolition of Capitalism**

## **Points**

1. Abolition of capitalist system will lead intelligent people away from the use of force.



# SAMPLES (Original Document 6 )

2. It should not be replaced by state socialism in which officials have enormous power.
3. Capitalists control people and politics through economic power.
4. Universal economic freedom will end despotism and generate a gentler character.
5. Capitalism has corrupting influence while communal ownership gives better expectations of changing the character of people.
6. It will eliminate poverty, wealth-generated cruelty, and class distinction.
7. Competition for wealth and fear of lowered status will be replaced by constructive dreams.

## **Précis**

In a capitalist system, people and politics are controlled by economic power leading to despotism and competition for wealth. But state socialism, in which officials have enormous power, is not a better alternative. Communal ownership would be the best substitute. The result would be universal economic freedom. Communal ownership generates gentler character in men and eliminates both poverty and the tyranny of wealth which cause class distinction. It allows young people to have more constructive dreams than amassing wealth through the ruin of competitors and the degradation of labour. (86)

# SAMPLES (Original Document 7 )

## **Original Document 7**

As material civilization advances and the supply of available goods and services increases, man's needs correspondingly multiply. Advertising plays a key role in this never-ending process by stimulating the public's desire for certain products, and by promoting the sales thereof, until it has, in effect, created new needs, real or supposed, where there were none before. A familiar example is the motor car—once a rare and costly novelty, now an ubiquitous and relatively inexpensive necessity. More recently, the television set has undergone the same transformation. While some people would deny that television is a necessity, the fact that sets are found in a majority of western homes shows that it answers, to a greater or lesser degree, the need felt by millions of people for entertainment and information.

A product, service, or commodity that the public needs, and knows it needs, tends, of course, to 'sell itself'. We might therefore assume that, in such cases, advertising would be of minor importance. To some extent this is true. Meat-packers, vegetable and fruit growers, and dairy operators spend less on advertising, for instance, than manufacturers of cigarettes, liquors, cosmetics, and other items of this type. On the other hand, the competition that exists between rival brands means that the suppliers of such basic necessities as food, clothing, and housing must advertise their wares to stay in business. Significantly, the industry that spends most on advertising turns out a product which almost everyone considers a necessity: soap. (247 words)

# SAMPLES (Original Document 7 )

**Vocabulary:** stimulating—exciting; promoting—increasing, advancing; transformation—change; assume—to take for granted, to think; wares—products, articles for sale.

## **Title: Advertising and Material Civilization**

### **Points**

1. With the advancement of material civilization, human needs have multiplied.
2. Advertising acts as a stimulus to demand.
3. Many items have changed from luxuries to necessities because of advertisement.
4. People dealing in luxury goods normally have to spend more on advertisement.
5. However, to outpace the competition, manufacturers of daily necessities also have to spend on advertising.

### **Précis**

With the advancement of material civilization the human needs have multiplied. Advertisement plays a prominent role in this. It changes the very nature of items from luxuries to necessities. Luxury items need more advertisement to boost sales. Far less advertisement is needed for the sale of essential commodities. But it has been noticed that business houses dealing in necessities have also to advertise to stay in business because of fierce competition. (74 words)

# SAMPLES (Original Document 8 )

## **Original Document 8**

Most of all I should need a set of professors. I would only need a dozen of them, but they would have to be real ones: disinterested men of learning, who did not even know they were disinterested. And, mind you, these professors of mine would not sit in 'offices' dictating letters on 'cases' to stenographers, and only leaving their offices to go to 'committees', and 'conferences'. There would be no 'offices' in my college and no 'committees', and my professors would have no time for conferences, because the job they were on would need all eternity and would never be finished.

My professors would never be findable at any fixed place except when they are actually giving lectures. Men of thought have no business in an office. Learning runs away from 'committees'. There would be no 'check up' on the time of the professors; there would be no 'hire and fire' or 'judge by results' or standards or norms of work for them, nor any fixed number of hours.

# SAMPLES (Original Document 8 )

But on the other hand, they would, if I got the ones I want, be well worth their apparent irresponsibility; and when they lectured, each one would be, though he would not know it, a magician—with such an interest and absorption that those who listened would catch the infection of it, and hurry from the lecture to the library, still warm with thought.

It must be understood that the work of professors is peculiar. Few professors, real ones, ever complete their work: what they give to the world is fragments. The rest remains. Their contribution must be added up, not measured singly. Every professor has his 'life work', who sometimes does it, and sometimes dies first. (284)

# SAMPLES (Original Document 8 )

**Vocabulary:** eternity—permanence; hire—appoint; fire—dismiss; norms—principles; apparent—visible; catch the infection—impressed; fragments—pieces.

**Title: Real College Professors**

**Points:**

1. The writer needs a few disinterested professors.
2. They will have no office work nor attend committees and conferences.
3. They will be available only when giving lectures.
4. Learning runs away from conferences.
5. They will not be judged by results and will have no fixed working hours.
6. They may look irresponsible but actually will be magicians inspiring students for learning.
7. A real professor's life work may never be completed.

**Précis**

The writer needs a dozen selfless devoted professors for his college. They will have no administrative work and will not attend conferences, as such activities detract from their main occupation. They will be available only when giving lectures. Their worth will not be judged by result and so the question of dismissal does not arise. There will be no fixed hours for them. Such a professor may look irresponsible but will lecture like a magician, inspiring students to learn more. A real professor never completes his work. He gives only fragments to the world. The rest remains. (93)

# SAMPLES (Original Document 9 )

## **Original Document 9**

Denudation of forests is an old story in this country. Notwithstanding the loss of natural wealth and ecological disturbances, it has continued for more than a century. Some of the rare species of animals have also been lost. Of late mountain slopes and hilly tracts have been the target of so many agencies. The problem, of course, is similar to that of urbanization. While urbanization has a single plateau—transfer of people from the villages to cities, creating unmanageable urban concentration—stripping the mountains of trees for different purposes poses many problems—ecological and otherwise.

# SAMPLES (Original Document 9 )

The mountains have been a source of inspiration since time immemorial. They have been the abodes of gods and saints. Mountain lakes are like eyes on Mother Earth. The trickling water from beneath the rocks changing into brooks creates a happy sensation in the heart. Such brooks criss-cross the verdurous hillsides like children playing in the magic land. The assault on the mountains deprives the hills of their natural beauty. The absence of flora and fauna makes them as dull and drab as the urban settlements. The emotional appeal is lost.

Little do the people in the plains think of the loss they will have to sustain if they deprive the hills of their greenery. It is the rains that sustain life—the extra rains of the mountain flowing down to the people in the valley and beyond. They just think in terms of money and change the hillside into a hill resort—a tourist centre. Agriculture and forestry have been relegated to the background and the only thriving industry is tourism. The money craze is so intense that many of the hillsides have been laid bare and hotels have come up. Private buildings too have been constructed in large numbers. (301)



# SAMPLES (Original Document 9 )

**Vocabulary:** denudation—destruction of all plants; ecological—relationship between living objects and environment; tracts—areas; urbanization—concentration in cities; plateau—surface without much change; poses—creates; flora—plants; criss-cross—move across; assault—attack; verdurous—full of greenery; fauna—animals of a region; sustain—suffer, endure; deprive—take away forcibly; relegated—removed to inferior position; thriving—successful; craze—exaggerated enthusiasm.

**Title: Denudation of Mountains**

## **Points**

1. Despite ecological disturbances and loss of natural wealth, cutting of trees in the mountains has continued for a century.
2. Some rare animal species are lost.
3. Mountain flora, brooks, and greenery have emotional appeal. Their absence makes mountains dull and drab.
4. Urban people do not realise the loss cutting of trees has created.
5. Mountain rains sustain life in cities too.
6. Due to money craze, people have ignored agriculture and forestry by changing hillsides into tourist centres, constructing hotels and buildings after cutting

# SAMPLES (Original Document 9 )

## **Précis**

Cutting trees in the forests has caused ecological disturbances and loss of natural wealth and rare animal species. The damage has continued for a long time. Denudation has created many problems. Mountain flora, brooks, and greenery have an emotional appeal. Their absence makes mountains dull and drab. But urban people have continued the assault on mountains little realizing that mountain rains sustain life in cities too. In their craze for money, they have ignored agriculture and forestry by changing hillsides into tourist centres and by constructing hotels and other buildings after cutting trees. (90)

# GUIDELINES

- The following guidelines will help you to become a good précis writer:
  - Determine the theme of the passage very carefully.
  - Précis is not the reproduction of important sentences.
  - Brevity is good but not at the cost of clarity
  - Your précis should be intelligible even to a person who has not read the original passage.
  - Use your own language.
  - Précis is always written in third person.
  - Use your discretion if the passage contains statistical information.
  - Observe proportion.
  - Do not introduce your own ideas.
  - Do not criticize or change the original source.
  - Try to limit your précis to no more than 1/3 the length of the original passage and indicate the number of words.

# Tips for Condensing Longer Sentences

- Try to replace clauses by phrases and phrases by words.
- Make use of one word substitutions.
- Avoid all unnecessary repetitions.
- Link various sentences.
- Omit examples, comparisons, contrasts, digressions, and minor details.

# EXERCISES

Condense each of the following passages in about one third of the total number of words. At the end, write the number of words in your précis.

(i) Experiments have shown that in selecting personnel for a job, interviewing is at best a hindrance, and may even cause harm. These studies have disclosed that the judgements of interviewers differ markedly and bear little or no relationship to the adequacy of the job. Of the many reasons why this should be the case, three in particular stand out.

The first reason is related to an error of judgements known as the halo effect. If a person has one noticeable good trait, their other characteristics will be judged as better than they really are. Thus, an individual who dresses smartly and shows self-confidence is likely to be judged capable of doing a job well regardless of his or her ability.

Interviewers are also prejudiced by an effect called the primacy effect. This error occurs when interpretation of later information is distorted by earlier connected information. Hence, in an interview situation, the interviewer spends most of the interview trying to confirm the impression given by the candidate

in the first few moments. Studies have repeatedly demonstrated that such an impression is unrelated to the aptitude of the applicant.

The phenomenon known as the contrast effect also skews the judgement of interviewers. A suitable candidate may be underestimated because he or she contrasts with a previous one who appears exceptionally intelligent. Likewise, an average candidate who is preceded by one who gives a weak showing may be judged as more suitable than he or she really is.

Since interviews as a form of personnel selection have been shown to be inadequate, other selection procedures have been devised which more accurately predict candidate suitability. Of the various tests devised, the predictor which appears to do this most successfully is cognitive ability as measured by a variety of verbal and spatial tests. (300)

(ii) A recent phenomenon in present-day science and technology is the increasing trend towards 'directed' or 'programmed' research, i.e., research whose scope and objectives are predetermined by private or government organizations rather than researchers themselves. Any scientist working for such organizations and

# EXERCISES

investigating in a given field therefore tends to do so in accordance with a plan or programme designed beforehand.

At the beginning of the century, however, the situation was quite different. At that time there were no industrial research organizations in the modern sense: the laboratory unit consisted of a few scientists at the most, assisted by one or two technicians, often working with inadequate equipment in unsuitable rooms. Nevertheless, the scientist was free to choose any subject for investigation he/she liked, since there was no pre-determined programme to which he had to conform.

As the century developed, the increasing magnitude and complexity of the problems to be solved and the growing interconnection of different disciplines made it impossible, in many cases, for the individual scientist to deal with the huge mass of new data, techniques, and equipment that were required for carrying out research accurately and efficiently. The increasing scale and scope of the experiments needed to test new hypotheses and develop new techniques and industrial processes led to the setting up of research groups or teams using highly complicated equipment in elaborately designed laboratories. Owing to the large sums of

money involved, it was then felt essential to direct these human and material resources into specific channels with clearly defined objectives. In this way it was considered that the quickest and most practical results could be obtained. This, then, was programmed research.

One of the effects of this organized and standardized investigation is to cause the scientist to become increasingly involved in applied research, especially in the branches of science which seem likely to have industrial applications. Since private industry and even government departments tend to concentrate on immediate results and show comparatively little interest in long range investigations, there is a steady shift of scientists from the pure to the applied field, where there are more jobs available, frequently more highly paid and with better technical facilities than jobs connected with pure research in a university.

Owing to the interdependence between pure and applied science, it is easy to see that this system, if extended too far, carries considerable dangers for the

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future of science—and not only pure science, but applied science as well. (419)

(iii) Beyond all the hoopla involving fancy terms like ‘embryonic stem cell research’ and ‘guttled egg reprogramming’ lies the nasty little fact that the technology can xerox you. That is the nub of the whole hassle. Because who in his or her right mind is going to object to a sure-fire drug for diabetes? Come to think of it; nobody has any problem with a safe and permanent cure for cancer either. Also not withstanding all the cacophony of national and international ethics committees around the world, mortality thumping and accusations of playing God, everybody in their heart of hearts knows that 50 or 75 years from now, cloning will be as common as warts.

The discord and friction is not about whether the benefits of cloning outweigh the possible social consequences, or that its abuse can unleash powerful forces which can be exploited to produce horrendous results. It is also about whether it will help to produce discoveries that would hugely affect the study of human genetics, development, and growth or it is an affront to religious sensibilities by interfering with the natural process. It is not even about the subconscious fear that men would no longer be needed for reproduction.

What it is about is not being able to come to terms with an impending social upheaval, the likes of which human society has not seen in its entire ten-thousand-year-old history. In other words, ‘What does your cloned child call you?’

By circa 2045 you could walk into the local clinic and get yourself cloned as easily as eating a pie. Nine something months later you get delivery of what? Your child, your brother/sister/yourself?

Strictly speaking though, one reason the child is your sibling is because it has the exact mix of your parent’s genes as you have. That is because the process of cloning is fundamentally the same as what happens when a fertilized egg splits into two at a very early stage of development to produce identical twins sharing the same genetic blueprint. Usually there is always an age difference between twins that is measured in minutes; the only difference is, in your case it would be measured in decades.

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Protests of losing diversity of genes and interfering with the course of Darwinian evolution are objectives that will turn out to be peanuts compared to the magnitude of this intrapersonal problem we will soon have to deal with. Of course we will resolve it, but the resolution will probably demand a jettisoning of a whole lot of received wisdom and will completely metamorphose the way we live with ourselves and others. (440 words)

(iv) Sweet and cold, with a wonderful mouth feel, ice cream is an American favourite, but far from the soft, icy product produced by hand-cranked freezers, today's commercial ice cream is a complex product designed and engineered for the best attributes.

'There are a variety of formulas which are used to derive recipes', says Dr Robert Roberts, associate professor of food science and director of the Penn State Ice Cream Short Course, the nation's oldest and best-known educational program on ice cream manufacturing.

Legally, ice cream must contain no less than 10 per cent milk fat, and no less than 20 per cent milk solids. In general, most ice creams contain 10 to 16 per cent fat and 9 to 12 per cent non-fat milk solids with 11 to 15

per cent sucrose or equivalent for sweetness. Then, of course, there are the flavourings and the emulsifiers and the most important and often a forgotten component, air. Choices within these ranges produce economy, premium, and super-premium ice cream.

'Many people think that the higher the quality of the ice cream, the higher the fat content since fat makes the ice cream feel unctuous and creamy', Roberts told attendees at the annual meeting of the American Association for the Advancement of Science in Boston. 'Fat is also a cold insulator and is involved in trapping air and perhaps most importantly, it tastes good', he notes. In essence, ice cream is a frozen foam. During the freezing and shipping process, proteins in the ice cream mix encircle the air bubbles incorporated in the liquid and then the fat stabilizes the bubbles. 'Protein traps the air, but cannot hold it, much like skim milk foams', says Roberts. 'The fat in ice cream partially destabilizes and traps the air. In ice cream, in contrast to other products, emulsifiers are added to destabilize the fat, allowing partial agglomeration and air cell



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stabilization.’ During ice cream mix manufacture, the ingredients are measured by weight, and then mixed, pasteurized, and homogenized.

‣ ‘The pasteurization process is required by law to destroy any potential pathogens and make the product safe for consumption’, says Roberts. ‘Homogenization, a high pressure process designed to reduce the size of the fat globules and increase whipability is very important. Without homogenization, the mix might overdestablise during the freezing process leading to a defect known as buttery, which is definitely not what people want in ice cream.’ The pasteurized, homogenized mix is cooled and allowed to age for at least four hours to create some fat crystals. Allowing time for the fat to assume the appropriate form is a critical step. ‘The surface area of the fat in a quart of mix is equal to about 1,200 square yards’, says the Penn State scientist.

After aging, the mix is ready to be frozen. Commercial ice cream freezers, though much larger, operate on the same principle as hand crank machines. The outside wall of the freezer gets cold and a series of blades remove the ice crystals from the wall and move them towards the centre, also incorporating air. Roberts

and others have looked at the speed at which the dasher moves to determine if an optimum setting exists.

Contrary to previous understanding, about 50 percent of the energy removed by the refrigeration process is due to the frictional heat created by the dasher scraping the freezer wall. While freezing under agitation, only about half of the water in the ice cream mix freezes, leaving the other half liquid. The proteins, salts and sugars in the mix lower the freezing point enough to require further freezing. The hardening stage, when the rest of the mix solidifies, must be done rapidly to avoid the formation of large ice crystals. (620)

(v) Advertising is part of the world we live in and on the whole, strictly organized and ethical. It can do a great deal of good in informing us of the goods and services available, in helping improving standards and quality, launching new products, lowering prices through large-scale production, thus helping maintain and improve the standard of living of the country, in ensuring the freedom of the press and as a public servant.

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Advertising helps—it is not the entire answer, and it never was .... Advertising can play an integral part in repairing the consuming power of the world. Advertising nourishes the consuming power of men. It creates want for a better standard of living. It sets up before a man the goal of a better home, better clothing, better food for himself and his family. It spurs individual exertion and greater production. It brings together in fertile union those things which otherwise would never have met. Advertising, as every advertising man will admit, is not all. There must be a spirit of enterprise on the part of the individual. There must be stability, there must be goodwill. But all these conditions might exist unconnected, unless advertising was brought in to unite them and to fuse them into one effective whole, to make them vital and to make them active.

Advertising can help; it cannot do these things on its own and for advertising to play its part, there is a great deal more to it than producing a picture and a slogan.

For advertising to be effective, a great deal of preparation and planning is necessary. The product must be right. For advertising cannot bring repeat sales of

a bad product. There must be adequate distribution of the product at the right time, or else people cannot buy it, no matter how much they want to. The right people, potential customers, must be told about the product, and of the sales points which will be of interest to them. They must be told through the advertising medium which will reach them most effectively, and the message must reach them at the right time. Getting all these factors correct is vital, for if any one of them is wrong, the advertising will not and cannot produce the results required. The advertising money will be wasted, the product will not sell in the required quantities, the manufacturers may go out of business, people may lose their jobs, and the public will not have the benefit of the product. (416)

(vi) Every drop of water in the ocean, even in the deepest parts, responds to the forces that create the tides. No other force that affects the sea is so strong. Compared with tides, the waves created by the wind are surface movements felt no more than a line a hundred fathoms below the surface. The currents also

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seldom involve more than the upper several hundred fathoms despite their impressive sweep.

The tides are a response of the waters of the ocean to the pull of the moon and the more distant sun. In theory, there is a gravitational attraction between the water and even the outermost star of the universe. In reality, however, the pull of remote stars is so slight as to be obliterated by the control of the moon and, to a lesser extent, the sun.

Just as the moon rises later each day by fifty minutes on the average, so, in most places, the time of high tide is correspondingly later each day. And as the moon waxes and wanes in its monthly cycle, so the height of the tide varies. The tidal movements are strongest when the moon is a sliver in the sky, and when it is full. These are the highest flood tides and the lowest ebb tides of the lunar month and are called the spring tides. At these times the sun, moon, and earth are nearly in line and the pull of the heavenly bodies is added together to bring the water high on the beaches, to send its surf upward against the sea cliffs, and to draw a high tide into the harbours. Twice each month, when the sun, moon, and earth lie at the apexes of a triangular con-

figuration, and the pull of the sun and moon are opposed, the moderate tidal movements called neap tides occur. Then the difference between high and low water is less than at any other time during the month. (329)

(vii) Under certain circumstances, the human body must cope with gases at greater than normal atmospheric pressure. For example, gas pressures increase rapidly during a dive made with scuba gear because the breathing equipment allows divers to stay underwater longer and dive deeper. The pressure exerted on the human body increases by 1 atmosphere for every 10 metres of depth in seawater, so that at 30 metres in seawater a diver is exposed to a pressure of about 4 atmospheres. The pressure of the gases being breathed must equal the external pressure applied to the body; otherwise breathing is very difficult. Therefore, all of the gases in the air breathed by a scuba diver at 40 metres are present at five times their usual pressure. Nitrogen, which composes 80 percent of the air we breathe, usually causes a balmy feeling of well-being

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at this pressure. At a depth of 5 atmospheres, nitrogen causes symptoms resembling alcohol intoxication, known as nitrogen narcosis. Nitrogen narcosis apparently results from a direct effect on the brain of the large amounts of nitrogen dissolved in the blood. Deep dives are less dangerous if helium is substituted for nitrogen, because under these pressures helium does not exert a similar narcotic effect. As a scuba diver descends, the pressure of nitrogen in the lungs increases. Nitrogen then diffuses from the lungs to the blood, and from the blood to body tissues. The reverse occurs when the diver surfaces, the nitrogen pressure in the lungs falls and the nitrogen diffuses from the tissues into the blood and from the blood into the lungs. If the return is too rapid, nitrogen in the tissues and blood cannot diffuse out rapidly enough and nitrogen bubbles are formed. They can cause severe pains, particularly around the joints.

Another complication may result if the breath is held during ascent. During ascent from the depth of 10 metres, the volume of air in the lungs will double because the air pressure at the surface is only half of

what it was at 10 meters. This change in volume may cause the lungs to distend and even rupture. This condition is called air embolism. To avoid this event, a diver must ascend slowly, never at a rate exceeding the rise of the exhaled air bubbles, and must exhale during ascent. (377)

(viii) In the world of birds, bill design is a prime example of evolutionary fine-tuning. Shorebirds such as oyster-catchers use their bills to pry open the tightly sealed shells of their prey; humming birds have stiletto-like bills to probe the deepest nectar-bearing. Line flowers and kiwis smell out earthworms, thanks to nostrils located at the tip of their beaks. But few birds are more intimately tied to their source of sustenance than are crossbills. Two species of these finches, named for the way the upper and lower parts of their bills cross, rather than meet in the middle, reside in the evergreen forests of North America and feed on the seeds held within the cones of coniferous trees.

The efficiency of the bill is evident when a crossbill locates a cone. Using a lateral motion of its lower mandible, the bird separates two overlapping scales

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on the cone and exposes the seed. The crossed mandibles enable the bird to exert a powerful biting force at the bill tips, which is critical for maneuvering them between the scales and spreading the scales apart. Next, the crossbill snakes its long tongue into the gap and draws out the seed. Using the combined action of the bill and tongue, the bird cracks open and discards the woody seed covering and swallows the nutritious inner kernel.

This whole process takes but a few seconds and is repeated hundreds of times a day. The bills of different crossbill species and subspecies vary—some are stout and deep, others slender and shallow. As a rule, large-billed crossbills are better at securing seeds from large cones, while small-billed crossbills are more deft at removing the seeds from small, thin-scaled cones. Moreover, the degree to which cones are naturally slightly open or tightly closed helps determine which bill design is the best.

One anomaly is the subspecies of red crossbill known as the Newfoundland crossbill. This bird has a large, robust bill, yet most of Newfoundland's conifers

have small cones, the same kind of cones that the slender-billed white-wings rely on. (340)

(ix) The three learned professions cannot be the only professions for all time. Times change. The sphere of human activity and endeavour is constantly expanding, giving rise to problems which require specialization and expertise. In the course of the last two centuries, trade, commerce, and industry have vastly developed, bringing in their wake problems which have been tackled by experts. The old crystallized learned professions of the church, medicine, and law are by the very nature of their training, unable to solve the problems of the new developments in trade, commerce and industry, which, *inter alia*, threw up a team of experts in the shape of Company Secretaries, Chartered Accountants, and Cost Accountants having specialized knowledge.

As to whom we call a professional manager, it is very difficult to give a comprehensive definition. The skills which identify the professional manager from others may be described as the former's ability to first analyse and sift facts, and then take an overall view of things so as not to lose sight of the variables from

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reckoning, and his ability to fully appreciate the working of human psychology, his ability further to motivate and direct both himself and others to act honestly and purposefully to achieve the just results not from his own private angle but with a detached view from the angle of the society as a whole. It is evident that in the nature of the exercise of these skills, the professional manager has to act independently and fearlessly. It is also evident that there is always the underlying assumption of the exercise of some power or authority on the part of the professional manager, something which is not accessible to others.

The Company Secretary who wields considerable authority in the corporate hierarchy is undoubtedly a manager. He is often described as a Principal Officer of the Company. The most important managerial skill which distinguishes him from other managers is the coordinating skill which he has to exercise continuously within the organization for the purpose of achieving the company's objectives. At the same time his job involves the exercise of some skill and exercise which is peculiar to formalization of business activity. The growing complexity of modern business has been increasingly laying emphasis on the formal aspect of

running a business. These formal requirements are so complex in nature that his client, the corporation, has to leave them to the sheer discretion of the Company Secretary for their due compliance. The Company Secretary is, therefore, a unique combination of a manager and a professional. (421)

(x) Invention is one thing, practical application is another. So many inventors have failed, despite ingenious ideas and great diligence, because they had business experience and did not know how to tell the world about their inventions. Edison was remarkable in both fields. As soon as he had developed his electric lamp to the point where it would burn for 500 hours, and he was sure that it could be mass produced, he set about to explore the industrial and commercial possibilities.

First he invited everybody who wanted to come to see his electric lamps at Menlo Park. On New Year's Eve, 1880, thousands of visitors availed themselves of this unique opportunity. They were greeted by the glow

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of hundreds of lamps strung along two wires on the road from the station to the laboratory. Financial backers were greatly interested and finally Edison put forward his big project, to turn a whole district of New York into the first electrically lit area of the metropolis.

There followed two years of almost insuperable difficulties—technical, organizational, financial—until the power station had been built, 900 buildings wired, thousands of meters installed, and 14,000 incandescent lamps put in as many sockets. Everything had to be invented, adapted, organized, improvised. It was Edison's greatest adventure; September 4, 1882 was to be The Day.

'The thousands of electric lamps in the hundreds of building throughout the area burst into a bright and mellow brilliance as the switch was pulled at a signal from the famous inventor', reported the *New York Herald*. 'Lo and behold, the dim flicker of gas was supplemented by a steady beam, under which one could sit down and write for hours without the consciousness of having any artificial light about him—What his critics said was impossible, the wizard of Menlo Park has made an everyday reality.'

The electric age had begun.

Edison was proclaimed the greatest American of his day. All New York thronged the streets to get not only a glimpse of the new lamp but also of the man. Everybody knew what he looked like, a large, friendly, candid, energetic face with a prominent nose and a finely moulded mouth. It was the face of dreamer—and yet of a man of action at the same time. (371)

(xi) Each advance in microscopic technique has provided scientists with new perspective on the function of living organisms and the nature of matter itself. The invention of the visible-light microscope late in the sixteenth century introduced a previously unknown realm of single-celled plants and animals. In the twentieth century, electron microscope has provided direct views of viruses and minuscule surface structures. Now another type of microscope, one that utilizes X-rays rather than light or electrons, offers a different way of examining tiny details; it should extend human perception still farther into the natural world.

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The dream of building an X-ray microscope dates to 1895; its development, however was virtually halted in the 1940s because the development of the electron microscope was progressing rapidly. During the 1940s, electron microscopes routinely achieved resolution better than that possible with a visible-light microscope, while the performance of X-ray microscopes resisted improvement. In recent years, however, interest in X-ray microscopes has revived, largely because of advances such as the development of new sources of X-ray illumination. As a result, the brightness available today is millions of times that of X-ray tubes, which, for most of the century, were the only available sources of soft X-rays.

The new X-ray microscopes considerably improve on the resolution provided by optical microscopes. They can also be used to map the distribution of

certain chemical elements. Some can form pictures in extremely short times; others hold the promised special capabilities such as three-dimensional imaging. Unlike conventional electron microscopy, X-ray microscopy enables specimens to be kept in air and in water, which means that biological samples can be studied under conditions similar to their natural state. The illumination using so-called soft X-rays in the wavelength range of twenty–forty angstroms (an angstrom is one ten-billionth of a metre) is also sufficiently penetrative to image intact biological cells in many cases. Because of the wavelength of the X-rays used, soft X-ray microscopes will never match the highest resolution possible with electron microscopes. Rather, their properties will make possible investigations that will complement those performed with light- and electron-based instruments. (349)