

WATER: THE ELIXIR OF LIFE

Humankind has always searched in vain for an imaginary elixir of life, the divine Amrita, a draught of which was thought to confer immortality. But the elixir of life lies near our hands. For it is the commonest of all liquids, plain water! I remember one day standing on the line which separates the Libyan Desert from the Valley of the Nile in Egypt. On one side was visible a sea of billowing sand without a speck of green or a single living thing anywhere visible on it. On the other side lay one of the greatest, most fertile and densely populated areas to be found anywhere on the earth, teeming with life and vegetation. What made this wonderful difference? Why, it is the water of the river Nile.

Geologists tell us that the entire soil of the Nile valley is the creation of the river itself. Egypt, in fact, was made by its river. Its ancient civilisation was created and is sustained by the life-giving waters of the Nile.

This common substance which we take for granted in our everyday life is the most potent and the most wonderful thing on the face of our earth. It has played a very significant role in shaping the course of the earth's history and continues to play the leading role in the drama of life on earth.

There is nothing which adds so much to the beauty of the countryside as water, be it just a little stream trickling over the rocks or a little pond by the wayside where the cattle quench their thirst. The rain-fed tanks that are so common in South India are a cheering sight when they are full. They are, of course, shallow, but this is less evident since the water is silt-laden and the bottom does not therefore show up. These tanks play a vital role in South Indian agriculture. In Mysore, for example, much of the rice is grown under them. Some of these tanks are surprisingly large and it is a beautiful sight to see the sun rise or set over one of them.

One of the most remarkable facts about water is its power to carry silt in suspension. This is the origin of the characteristic colour of the water in rain-fed tanks. This colour varies with the nature of the earth in the catchment area and is most vivid immediately after a fresh inflow following rain. Swiftly flowing water can carry fairly large and heavy particles. The finest particles, however, remain floating within the liquid in spite of their greater density and are carried to great distances. When silt-laden water mixes with the salt water of the sea, there is a rapid precipitation of the suspended matter. This can be readily seen when one travels by steamer down a great river to the deep sea. The colour of the water changes successively from the muddy red or brown of silt through varying shades of yellow and green finally to the blue of the deep sea. Great tracts of land have

been formed by slit thus deposited. Such land, consisting as it does of finely divided matter, is usually very fertile.

The flow of water has undoubtedly played a great part in geological processes. The same agency, however, under appropriate conditions, can also play a destructive part and wash away the soil. The problem of soil erosion is of major significance in various countries and especially in many parts of India. Soil erosion occurs in successive steps, the earliest of which may easily pass unnoticed. In the later stages, the cutting up and washing away of the earth is only too painfully apparent in the formation of deep gullies and ravines which make all agriculture impossible. Sudden bursts of excessively heavy rain resulting in a large run of surplus water are the principal factors in causing soil erosion. The slope of the land, removal of the natural protective coat of vegetation, the existence of ruts along which the water can flow with rapidly gathering momentum, and the absence of any checks of such flow are also causes for soil erosion.

Soil erosion is dangerous to agriculture. The terracing of the land, construction of bunds to check the flow of water, the practice of contour cultivation and the planting of appropriate types of vegetation are the measures that can be used to check soil erosion.

Water is the basis of all life. Every animal and every plant contains a substantial proportion of free or combined water in its body, and no kind of physiological activity is possible without water. Water is, of course, necessary for animal life, while moisture in the soil is equally imperative for the life and growth of plants and trees. The conservation and utilisation of water is thus fundamental for human welfare. Apart from artesian water the ultimate source in all cases is rain or snowfall. Much of Indian agriculture depends on seasonal rainfall. The problems of soil erosion and of inadequate or irregular rainfall are closely connected with each other. It is clear that the adoption of techniques preventing soil erosion would also help to conserve and keep the water where it is wanted.

Collection and utilisation of rain water is, therefore, of vital importance. Much of it flows down into the streams and rivers and ultimately finds its way to the sea. Incredibly large quantities of the precious fluid are thus lost to the country. The harnessing of our rivers, the waters of which now mostly run to waste, is a great national problem which must be considered and dealt with. Vast areas of land could be turned into fertile and prosperous country by courageous and well-planned action.

The systematic planting of suitable trees in every possible place is one of the most urgent needs of India. Such plantation would directly and indirectly prove a source of untold wealth to the country. They would check soil erosion and conserve the rainfall of the country from flowing away to waste.

In one sense, water is the commonest of liquids. In another sense, it is the most uncommon of liquids with amazing properties which are responsible for its unique power to maintain animal and plant life. The investigation of the nature and properties of water is therefore, of the highest scientific interest and is far from an exhausted field of research.

- **C. V. Raman**

About the Essay

The essay "Water: The Elixir of Life" written by Sir C.V. Raman analyses and discusses in a clear, concise, and scientific manner the nature and properties of water and its significance in the life of human beings. Certain issues like soil erosion and the preventive measures which have to be adopted in order to control it, the need for afforestation, the promotion of internal waterways as a cheap and economical means of transport and the production of hydroelectric power are some of the points which have been highlighted and dealt with in this essay.

One of the most prominent Indian scientists in history, C.V. Raman was the first Indian to win the Nobel Prize in science for his illustrious 1930 discovery, now commonly known as the "Raman Effect".

GLOSSARY

Immortality	: the condition of living forever or being remembered forever
geologist	: one who studies rocks and soil that make up the earth
suspension	: the act of stopping something from continuing
momentum	: the ability to keep increasing, developing or being more successful
gully	: a small narrow valley, usually formed by a lot of rain flowing down the side of a hill
ravine	: a deep narrow valley with steep sides
rut	: a deep narrow track left on soft ground by a wheel
erosion	: the process of being gradually destroyed by rain, wind, the sea etc.
harness	: the control and use of natural force or power of something
physiological	: concerned with the science of the body.

Activity1: COMPREHENSION

A. Tick the correct alternative:

- 1) What according to the author, is the divine 'amrita'?
 - a) water
 - b) snow
 - c) ice
 - d) none of the above
- 2) Much of indian agriculture depends on.....
 - a) seasonal rainfall
 - b) modern techniques
 - c) rivers
 - d) canals
- 3) The most advantageous result of the availability of electric power is that
 - a) It allows villages and small towns to be lighted up.
 - b) It helps the small farmer to increase the production.
 - c) It helps the underground water to be tapped to a greater extent than present.
 - d) None of the above

B. Answer the following questions in about 30-40 words each:

- 1) What, according to the writer, is the real elixir of life?
- 2) What does C.V.Raman say about rain-fed tanks?
- 3) How does the water in rain-fed tanks get its colour?.
- 4) What does the writer mean by civilized forests? Mention any two advantages of civilized forests.
- 5) How will planting of suitable trees help in providing a source of wealth to the country?

C. Answer the following questions in not more than 60-80 words each:

- 1) What are the main causes of soil erosion? How can soil erosion be prevented?
- 2) How does C.V Raman prove that Water is the elixir of life?
- 3) Why does the writer say that the study of the nature and properties of water still have plenty of scope for scientific research?

D. Say whether the following are True or False. Write 'T' for true and 'F' for false in the bracket:-

- 1) Tanks play a vital role in south indian agriculture. []
- 2) Soil erosion is not dangerous for agriculture. []
- 3) Water is the basis of all life. []
- 4) The systematic planting of suitable trees in every possible place is one of the most urgent needs of India. []

Activity 2: VOCABULARY

A. Which is the odd word in this set of words? (Note: it could be odd either in the meaning or in the grammatical form.)

precipitation	fertile	erosion	investigation
suspension	conservation		

B. Match the following.

- | | |
|----------------------|-------------------------------------|
| 1. elixir of life | a. chief source of water |
| 2. rain-fed tanks | b. Amrita |
| 3. Egypt | c. danger to agriculture |
| 4. seasonal rainfall | d. Nile valley |
| 5. rain | e. source of wealth |
| 6. suitable trees | f. necessity for Indian agriculture |
| 7. soil erosion | g. South India |

Activity 3: GRAMMAR

Ought(to)

Ought(to) and should are synonymous in certain ways-

In American English, Ought is never used in questions.

The following are sentences where ought (to) can be used –

- They ought to help him. (duty)
- We ought to help the poor. (moral obligation)
- We ought to buy some furniture. (necessity)
- He ought to be ashamed of himself. (fitness)

Used(to)

Used to expresses past habit or habitual action. In this sense, it is a substitute for would.

He used to smoke but now he doesn't.

Besides, there are Modals or more appropriately Semi-modals such as Dare and Need. Ask their use as a Principal verb and as an auxiliary from your teacher.

Now do the following:

1. What would you say in the following situations? The first one has been done for you.

- (i) You want to seek one's permission to use his/her telephone.
May I use your phone to make a call?
- (ii) You want to tell your friend that it is not necessary to hurry up.
.....
- (iii) You request your teacher to explain a certain point.
.....
- (iv) You tell your mother what you want to do after tenth.
.....

Activity 4: SPEECH ACTIVITY

As C. V. Raman says, "there is nothing which adds so much to the beauty of the countryside as water, be it just a little stream or a little pond by the wayside where the cattle quench their thirst.....The rain fed tanks that are so common in South India—alas often so sadly neglected in their maintenance—are a cheering sight....Water in a landscape may be compared to the eyes in a human face." In the light of this statement, discuss the importance of water in the class.

Activity 5: COMPOSITION

It is being said that if the Fourth World War is fought amongst the nations, the root cause will be water/potable water. It is thus obvious that the scarcity of water shall be one of the major reasons (as has been in the past also) to drag the mankind into oblivion. Using this hint, develop a paragraph of about 150 words on the 'Importance of Water'.