

POETRY AND SCIENCE

I am happy to have this opportunity to say something of the private life of a scientist. There are many scientists who, after a day of struggling with facts and figures, turn in the evening to reading poetry or listening to music or looking at pictures from the world's great galleries.

The mathematicians turn most often to music. Sir James Jeans, the great astronomer, wrote a book on "Science and Music". Einstein was never far from his violin. Last August at an International Meeting of Astronomers at Berkeley (California) one evening, when a string ensemble put on a program for us, we were treated to two concertos composed by the astronomer, Sir William Herschel.

It was not only in the past but also today that scientists turn for relaxation to the beauties of nature and the fine arts.

Two years ago, I was at a science convention in Madrid. I omitted going to one session in order to go to the Prado to see the paintings. There I ran into about a dozen of my fellow scientists. Some of those whom I met looked sheepish like schoolboys who had been caught playing hookey. Others came up to me to congratulate me on my good sense.

About two years before that again, I was at an Astronomical Congress in Dublin. One morning, the discussion became long and involved. That afternoon I met a Fellow of Balliol College, Oxford. He said to me, "Did you sit through the morning session?" "Well, no", I said, "after two hours, I got up and went out for a breath of fresh air". "Good", he said, "I stuck it out for an hour and a half and then went to the Zoo to see the baby giraffe".

I believe that I have learned the difference between science and fine art more by experience than by precept. A few years ago, standing by the remains of the home of Leonardo da Vinci, I saw an American taking photographs of the scene. I thought of the inadequacy of the camera to portray the Tuscan Hills. It needs an artist to put on canvas all that those hills say to us. And then in Switzerland, I thought how even the brush of the painter fails to distinguish the blue from the silver lake. In England, the thought came to me -- it is the poet alone who does justice to the folds and downs with grazing sheep. In Ireland, I wondered if on any painter's palate, one could find as many soft shades of green as seen all together at Killarney.

Before I had ever travelled through the Canadian Rockies, I had often seen travelogues of them. No coloured pictures, not even coloured movies, can capture the vista of the Rockies seen by the eye and perceived by the other senses. One has to see the Rapids of the Fraser River flowing and notice that its waters are cool and fresh.

And as our own Peggy's Cove has moods -- with fog and storm and sun and snow -- so also have the deserts of the South West United States. I have seen the Nevada Desert when it resembled somewhat the pictures of it, which show it as an arid region baking beneath the sun and I have seen it in downpours of rain, in thunder and lightening, resembling the scene of desolation on the Day of Judgment as engraved by Dore.

Such scenes as these bred in me a desire to paint. But the painter cannot capture all that the poet does. The painting is, at best, silent poetry; the poem is a painting moving, moving and with sound effects.

The Sicilian poet, Quasimodo, in his paysages makes one to see, hear, taste, smell and feel all that he describes: crows and cranes in flight, gulls and laughing magpies, eucalyptus trees and poplars, alders and wind-swept pines. As we read him, we can hear the shrill of the shepherd's horn, the rifle shot of the night patrol. We can smell the acrid odour of the lindens and feel the hot breath of the sirocco breeze scented with orange blossoms. One can almost taste his waters, whether in springs or in whirling pools or ripening in salt.

The fact that science and photography cannot give what the poet can is evidence, I think, that man is more than physical; besides his outward senses, he has a soul. He can perceive values which neither the chemist nor the physicists can weigh or measure.

Joseph Priestly, the British discoverer of oxygen, writing twenty years before the French Revolution, predicted a glorious future for science which would make man's situation in the world more easy and comfortable and consequently, he said, more happy.

He was correct in his forecast that the advance of science would bring us material comfort but wrong in his conclusion that we would be, in consequence, more happy. We now live in a material age, made comfortable by science but we are not happier than our ancestors. If poetry were to die, we would be less happy.

The facts of science do not help us to face trial, tribulation or tragedy with equanimity. But the poets do. Homer, Dante, Shakespeare have made men more steadfast and also more generous, more compassionate, more loyal, than a century of preachers. These great poets do not preach. Their power is not so much in their words as in the lessons read between their lines.

Poetry and science considered as human activities are poles apart. But each is necessary; each is necessary to make life full. Each has its role to play. As Matthew Arnold says, "It is the task of science to ascertain the facts of life and the task of poetry to relate those facts to human experience". But how? Shelley's answer is that poetry administers to the perceived effect by acting on the cause. By creative imagination, it brings into relief for the ordinary mortal to perceive, the beauty in all that is seen.

Creative imagination is the link between poetry and science. One cannot begin to become a scientist without some imagination. I have witnessed students who set out to be scientists, fall at the first hurdle, which is mathematics. One cannot understand or operate the tool which we call mathematics without imagination.

To be a successful scientist, one has to have a creative imagination -- especially in these times when nearly every day brings new problems to be faced. A scientist who lacks a creative imagination evolves in time to being a mere technologist.

If some people believe that scientists are not humanistic, it is because they confuse and confound technologists with scientists. And this, in turn, is due to the fact that they mistake the uses or applications of science for science itself.

This confusion is pardonable, inasmuch as the public generally knows science chiefly through its material achievements. The public knows little of the internal beauty of science or of the beauty which it extracts from the bosom of nature or from the depths of the universe.

Modern science has come from the exploration by the minds of men of the atom, the cell and the stars. The knowledge derived from

the excursions of the scientists has brought new beauty to light. This beauty is not ignored by its discoverer.

The ardent scientist is possessed by a sense of wonder equalled only by the wonder of the medieval mystic. His mind is not dried up by his pursuits. Indeed, it is developed. He has to be curious and enquiring. He has to ask questions of nature and seek her secrets. All that is good for the mind -- as good for the mind as love is good for the soul.

And love also comes to the scientist. In his quest for knowledge, the scientist discovers love. The astronomer discovers:

the love that makes the planets shine;

the love that makes the sun to burn;

the love that makes the ions in our space;

the love that makes the protons in the stars;

the love that makes us love the things of God;

and the astronomer from his discovery of beauty, learns to live. He learns that fundamental to the art of living is to have a sense of the poetry of life. And from his heart, he says: thank God for poetry and God bless the poets!

For: March 10, 1962; Lord Nelson: 6.30 PM

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It is not only in the past, but to-day, also, scientists turn for relaxation to the beauties of nature which are not subject to being weighed ~~or~~ nor measured.

Two years ago I was at a science convention in Madrid. I skipped one session to go to the Prado, to see paintings. There, I ran into about a dozen of my fellow scientists. The first whom I met, looked sheepish, like schoolboys who had been caught playing hockey. Others came up to me, - to congratulate me on my good sense, in playing hockey.

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And in Switzerland, even the brush of the painter fails to ~~capture~~ distinguish the blue and silver lake. The poet, alone, does justice to the Downs and Folds of England with grazing sheep. And on the painter's palate, I doubt if there ever are as many/^{soft} shades of green as seen in Ireland, and all together at Killarney.

In our own country, I had often seen travelogues of the Canadian Rockies before I travelled through them. No coloured pictures, not even colored movies, can capture the vista seen by the eye and other senses. One has to see the Rapids of the Fraser River flowing, and ~~xxxxxxxxxxxx~~ notice that its waters are cool and fresh.

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