

The UNESCO COURIER



INTERVIEW WITH
Sergei S. Averintsev

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ONE BILLION ILLITERATES

A challenge for our time



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encounters

We invite readers to send us photographs to be considered for publication in this feature. Your photo should show a painting, a sculpture, piece of architecture or any other subject which seems to be an example of cross-fertilization between cultures. Alternatively, you could send us pictures of two works from different cultural backgrounds in which you see some striking connection or resemblance. Please add a short caption to all photographs.

The ropes of silence

1984, oil painting
(60 x 70 cm)
by Simone

"Slav by virtue of her abrasive humour, Flemish in her imperturbable truculence, Latin in the freedom of her imagination, German in her power of expression, Simone is actually Belgian and Walloon", writes the art critic Michel Ducobu. "Firmly planted on the feet of Brabant peasants, her seven pillars of fear, like a set of skittles, provide an occasion for reflection at a time when the toppling of former masters is unleashing a mighty wave of liberating hilarity in Europe."



Today there are no more unexplored continents, unknown seas or mysterious islands. But while we can overcome the physical barriers to exploration, the barriers of mutual ignorance between different peoples and cultures have in many cases still not been dismantled.

A modern Ulysses can voyage to the ends of the earth. But a different kind of Odyssey now beckons—an exploration of the world's many cultural landscapes, the ways of life of its different peoples and their outlook on the world in which they live.

It is such an Odyssey that the *Unesco Courier* proposes to its readers. Each month contributors of different nationalities provide from different cultural and professional standpoints an authoritative treatment of a theme of universal interest. The compass guiding this journey through the world's cultural landscapes is respect for the dignity of man everywhere.



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A CHALLENGE FOR OUR TIME**

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Cover: the official International Literacy Year poster, designed by Zabelle Côté, a Canadian student.

Back cover: a reading lesson in Patna, Bihar state (India).

A leading Soviet medievalist sounds the alarm at the onset of a hedonistic culture in modern technocratic societies

Sergei S. Averintsev

A sense of decency

You are both a scientist and a man of culture. How would you describe the cultural situation today? What trends—encouraging or disturbing—do you see?

— The most encouraging factor is the total breakdown of ideological folly. It may return, of course—God help us if it does—but only as a kind of sinister mystification. Never again will it lead the human mind astray. Never again. The blood of innocent victims has washed the altars of these inhuman cults. The errors of the past, the fruits of worthy thinkers of the late nineteenth century and the beginning of the twentieth, have been dethroned along with totalitarian ideologies. The roots of the evil must be sought much earlier in the history of thought.

There is still reason for anxiety, however. Let's take two contemporary anti-utopian works as signposts with "Impasse" written on them—George Orwell's *1984* and Aldous Huxley's *Brave New World*. It looks as if we shall be spared the horrors described by Orwell, but we're moving dangerously close to the prophecies of Huxley.¹ In our everyday lives we can detect warning signs of a brave new world—a vulgar hedonism, which in my country can only be partially indulged because of the lack of consumer goods but which is all the more powerful since it is unsatisfied.

1. *Nineteen Eighty-Four*, a novel published in 1949 by the English author George Orwell (1903-1950), evokes a totalitarian world in which people are at the mercy of a bureaucracy which records secret information about them. In *Brave New World* (1932) Aldous Huxley depicts a future in which people are psychologically conditioned according to the planned needs of a technological civilization directed by a few individuals. *Editor*

Then there's the total disappearance of a culture characterized by a sense of decency or modesty, and finally an absurd syncretism of capitalist and Marxist values that has nothing to do with tolerance and even less with a desire for synthesis, and lumps "Ford", "Freud" and "Marx" together on the same level in a godless world.

Libido is invading life. Not a carnal libido. It is as if machines have become consumed with lust or human nature is becoming machine-like.

It's very hard to talk about a sense of decency today, especially in my country where people reject wholesale a code of good behaviour which is forcibly imposed on them as though they were eternal children. It is true that this code of conduct is only a caricature of a true culture of decency. Good behaviour cannot replace nobility of soul. It can even be said that the road which leads from good behaviour to nobility of soul is a hard one. On the other hand, the road that leads to such deviations as mass hypocrisy is, alas, so much easier. How can one fail to deplore the fact that rock groups (at best) and sex shops (at worst) have become the inevitable accompaniment and even in a sense the emblem of liberal democracy?

Let's not forget that there is a civic tradition in Europe, however imperfect it may be, and that this tradition was established by puritans. The legend that is at the origin of the Western ideal of freedom—that to defend the honour of a virtuous woman the Romans rose up and overthrew their kings—has become a joke today. It's sad, not only for virtue but above all for freedom.

Today's extreme permissiveness is as different from sin



from a Christian or Muslim point of view, indecent. But never in history has humanity been able to do without the principle of decency. Those who study the problem of mutual comprehension between cultures must take into account the fact that, for Islam, for example, the universal sub-culture of sex shops is mortally offensive. I mention Islam because no one seems to think about Christianity anymore. Although of course when a sex shop is opened near York Minster, a medieval cathedral in one of the oldest cities in Christendom, it is impossible not to see this as an attack on the rights of believers.

It's not easy for me to talk about this, since in my country the rights of believers have been treated even more roughly, and still are, as I know from my experience as a member of parliament. But take these two examples, one Orwellian, the other worthy of Huxley. The first is symbolized by a ruined Church, the second by a church flanked by a sex shop. I couldn't say which is worse.

Below, Epiphany festival at the Cathedral of the Nativity (13th century), in the Kremlin at Suzdal, Central Russia.



committed in the heat of passion as a cancer is different from a benign tumour. The defenders of nature who are, thank God, so active today should remember that human nature is threatened too, that such a systematic destruction of the ideal of decency is not restricted to sexual morality and may have unforeseeable consequences.

The culture of decency belongs to history. Its manifestations are recorded in the relativity of history; so that, for example, the sense of decency of the pagans of Antiquity is,

The development of humanity is comparable to that of a person. Its path is marked by remarkable cultural gains but losses seem to be inevitable, too. Which do you think are the most regrettable of these losses and which do you consider normal and justified?

— It's always a pity to lose something. I can't "justify" any loss. Humanity can survive without such and such a code of honour, but not without the very notion of honour. I am very sad that the classical languages, Greek and Latin, are disappearing from European life. Fewer and fewer people will be capable of reading Aristotle in the original, but that's not the whole point. The far more important question is whether Aristotelian thought will survive.

Cultures influence each other, but is there a line between the fertilization of one culture by another and its destruction? Is not every action by one culture vis-à-vis another a form of aggression? In any case, is there such a thing as a "pure" culture?

— There is nothing intrinsically aggressive in the action of one culture on another. A "pure" culture would be just as absurd as a series of incestuous marriages within the same family, inevitably resulting in degeneration. The originality of a culture is measured, among other factors, by its ability to creatively assimilate outside influences. Nearly all the lines of the *Aeneid* contain echoes of Greek verse, but that doesn't prevent Virgil from expressing the very essence of Rome.

It is usually factors that are not strictly speaking cultural that are the most destructive of other traditions. The effects of unbridled consumption, the excessive influence of distant colonial or imperial centres. As when the Seleucid king Antiochus IV Epiphanes ordered a small people to forget that they were the people of the Bible.

The freedom of humanity is the freedom of culture. What can the tide which is carrying the world towards democracy, pluralism and non-ideological international relations bring to world culture?

— Nothing less than its chance of survival. God knows that democracy can be accompanied by barbarity, but it can also be synonymous with culture. In a way it has a choice. But totalitarianism can never be synonymous with culture, no matter how strong the cultural forces with which it seeks to associate itself. The logic of totalitarianism forbids culture to be culture. This logic has infinitely more weight than the plebian origins of the seminarist Dzhugashvili or Corporal Schicklgruber.² "Freedom of thought" is a pleonastic expression, because thought only exists when it is free.

Thought can develop on the foundations of faith, but it has no place in ideology. Tasks can be fairly divided between faith and thought. The one can't replace the other



Illustration: Jean Alessandrini

Illustration: Michel Simeon

Covers of French editions of Orwell's *1984* and Huxley's *Brave New World*.

because faith, by definition, is concerned with what is transcendental to thought. Ideology, also by definition, deals with what should legitimately belong to the realm of thought, because unlike faith it has no specific object of its own, it is parasitical. It is an unworthy error for faith to wish to take the place of thought. But ideology can't do anything else: it has no choice.

How do you see the future of religions and their place in the world today and tomorrow? How are the concepts of religion and freedom connected?

— I am absolutely convinced that religious traditions are stronger than anything else. Their propensity to survive in extreme conditions is extraordinary. Everything new soon becomes obsolete, but these traditions endure. After the worst ordeals, they are regenerated. This has happened several times in history and today is one of those times.

The major threat to religions isn't the "death" that is predicted for them, but degeneration. *Homo technicus neobarbarus*, the dominant human species, is more dedicated to technology than to culture. Early on, he transformed religion into "parapsychology" or, rather, parapolitics. In short, a kind of ideology. I once heard an Italian priest quoting Teilhard de Chardin, for whom I have great esteem, with an intonation that was all too familiar to my Russian ears as that with which "the classics of Marxism" were recited for decades in my country. A religious ideology is just as inconceivable to me as a scientific ideology, and for the same reason: the intolerance of ideology denies the very existence of the need for the spiritual lucidity and the close perception of objective data that are indispensable to both the religious impulse and scientific analysis.

2. Joseph Stalin and Adolf Hitler. *Editor*



On the Banks of the Jordan, oil on canvas by the French painter
Georges Rouault (1871-1958).

Religions once inspired great works of art. Are they still capable of that today?

— Who knows? Great works of purely Christian inspiration have been produced in our century. I think of the paintings of Georges Rouault, the icons of Father Gregory Krug, a Russo-Estonian hermit working in France, of the music of Olivier Messiaen, the poems of Charles Péguy and Paul Claudel, the late work of Vyacheslav Ivanov, and the novels of Georges Bernanos. That's quite a list. Without their religious undercurrent, the works of Heinrich Böll, Graham Greene, Akhmatova, Pasternak, Solzhenitsyn, Alfred

Schnittke—our greatest living composer—and so many others would be unthinkable. And lest I be accused of prejudice in favour of Christians I will also mention some Jewish names, if only those of Bialik, Nelly Sachs and Samuel Agnon. Only ignorance prevents me from adding Muslim artists to the list. Which said, I'm not entirely convinced that we shall soon be returning to the days when entire peoples, borne on a tide of collective enthusiasm, built cathedrals. I don't expect to see any "New Middle Ages". Nothing repeats itself. God doesn't repeat anything. He "always creates anew". ■





OUR world is at once far more populous, more complex and more interdependent than it was thirty years ago when Unesco defined an illiterate person as someone “unable to read, write and understand a brief and simple exposé of facts in relation to his or her daily life”.

More populous: the world’s population has risen from 3 billion in 1960 to an estimated 5.3 billion today. Efforts to eradicate illiteracy have been colossal but they have not kept pace with the demands of explosive rates of population growth. Almost one billion adults in the world today are still unable to read or write.

More complex: a technological revolution in telecommunications and computers has called in question the very concept of “traditional” literacy. The industrialized countries have discovered that a problem once thought definitively solved by the provision of free and compulsory education is obstinately persistent. Meanwhile, in many of the poorest countries, progress along the road to universal primary education made in the 1970s has been halted by economic crisis.

And yet in some ways things have not changed. Now as then illiteracy goes hand in hand with hunger, poverty and isolation. While it may not preclude knowledge or wisdom, it bars access to modern knowledge and deprives its victims of a means of active participation in the life of the community. There is still a widening “gender gap” between male and female literacy.

At the same time the sense of interdependence has become stronger. Whereas it is for each country to face the problem of illiteracy within its own frontiers there is a feeling that the question of world illiteracy is of concern to all, and a realization that measures to improve the situation will be vain if isolated from attempts to improve conditions of health, housing and employment.

It is in this spirit that 1990 has been proclaimed International Literacy Year and it is in this spirit too that the present issue of the *Unesco Courier* has been prepared to show readers what can and could be done.

Clay figurines by the French artist Isabelle Simon (1990).
Above, emblem of International Literacy Year designed by Japanese graphic artist Koichi Imakita.

From rhetoric to reality

By John Ryan

WHAT can an International Year achieve? Does it give an impetus to action or provide an excuse for inaction, bestowing a conscience-calming benediction upon a global problem which perplexes or overwhelms us? The answer probably depends not so much upon the theme of the Year, *per se*, as upon what we are prepared to do with it. The International Year of Disabled Persons, which was observed in 1981, for example, was instrumental in transforming attitudes and redesigning facilities. Kerbs which had obstructed wheel-chairs disappeared, traffic signals no longer



merely flashed, but also buzzed, and increasingly ramps and elevators were installed to give the disabled access to public places. Many of these changes may have eventually occurred in any case, but the Year gave fresh impetus to efforts by and on behalf of the disabled, and armed those who wanted to act with a reason and occasion for doing so.

The Year also mobilized the disabled into effective interest groups, making them keenly aware of their numbers and needs. It would be an exaggeration to say that history was transformed or the future redesigned by the Year, but,

for the disabled, history was moved into the fast lane. The Year succeeded—or succeeded in many places—because it was wanted and needed. The disabled and their advocates were ready with practical proposals for converting public awareness and support into tangible results. Alas, not all International Years are equally successful. Some remain almost clandestine events, entered and exited without perturbation or visible progress. Only a few cognoscenti seem to know much about them; others may be vaguely aware; and most, if asked, would venture that it was the year of the snake or the pig or whatever.

How will International Literacy Year (ILY) be remembered? As an event that helped to push the vision of education for all from rhetoric towards reality, as 365 days that made a difference or at least a beginning, or as a non-event hardly worth remembering at all? It is evidently too early to judge. What is certain is that millions of women and men around the world are engaged in activities related to ILY, teaching and learning in schools and literacy groups, in libraries and learning centres, and working to promote education and literacy through governmental and non-governmental organizations, the media and in countless other places and ways. There are national committees or structures for ILY in 109 Unesco member states; hundreds of non-governmental organizations have established special committees or programmes for the Year; United Nations organizations are involved in a variety of ways, and the mass media—print and electronic alike—are increasing their coverage of and involvement in literacy during 1990. Thus, much is happening. How much and with what effect we will only know when an assessment is made in 1991.

There can be no doubt that the timing of the Year is auspicious. The easing of East-West tensions and the pending end of the “cold war” were neither envisaged nor imagined in the autumn of



Above, adult literacy class in Bangladesh. Left, 80 per cent of the world's 50 million blind persons live in developing countries, where lack of resources prevents many of them from achieving literacy.

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1985 when the General Conference of Unesco appealed to the General Assembly of the United Nations to proclaim an International Literacy Year, nor even in December 1987 when the General Assembly acted upon that request, proclaiming 1990 as ILY. These profound changes in the climate of international relations give special meaning and importance to ILY, for there is now reason to hope that priorities will change and attention and resources dedicated to the preparation for war will be reallocated to the pursuits of peace: to meeting the basic and urgent needs of humanity.

Education, a victim of economic crisis

ILY arrives not only at a moment of opportunity, but also at a time of urgent need. The situation regarding education is difficult, even dramatic, in many developing countries, especially in the poorest among them. The last decade has been a period of economic crisis and social tensions. Indeed, contrary to all logic and expectations, during the last years of the decade, the net capital flow has been from the poor countries to the rich ones, from the "have-nots" to the "haves" of the world. Education has been especially hard hit. Many countries have seen the goal of universal



primary education, a prerequisite for creating a literate society, slip further from their grasp.

In this International Literacy Year, there are an estimated 963 million illiterate adults (fifteen years+) and over 125 million children between the ages of six and eleven years, who are not enrolled in school and are hence at risk of becoming the adult illiterates of the twenty-first century. The situation regarding the education of women is especially serious: one woman in three is illiterate, as compared to one man in five. Action is imperative to check and reverse the decline of education, the stagnation in growth and the erosion of quality. Even in the industrialized countries, the situation is disquieting. In many such

Above, batik wall hanging produced in Togo as part of a women's literacy project organized by Unesco and financed by Norway. The text commemorates International Literacy Day, celebrated each year on 8 September.

Above left, poster from the national literacy campaign in Nicaragua, 1984.

societies, one fifth or more of the adult population is unable to cope adequately with the literacy demands of increasingly complex living and working environments. It has been calculated that the economic cost of this situation is enormous. The human suffering it entails is inestimable. Conscience and common sense alike demand that we act vigorously to confront this global problem, which is so wasteful of human potential, so unjust and so unnecessary.

A fundamental human right

The central message of ILY is, quite simply, that education matters; it is a vital and pervasive force in all aspects of life. Education shapes us as individuals and as societies. It determines, in very large measure, what we are and what we aspire to become. Illiteracy does not preclude knowledge or wisdom. There is genius in the oral traditions of all nations and peoples. Yet, in the modern world, education is the most essential condition and powerful agent of progress. And literacy is the vehicle of education—the means through which ideas, information, knowledge and wisdom are expressed and exchanged. Thus, in a larger sense, ILY is not only about education, but also about progress, development, justice, equality and opportunity. The right to education is instrumental to the enjoyment and responsible exercise of other rights. It is essential to effective participation in modern society. Education is, in brief, the very measure, means and meaning of development.

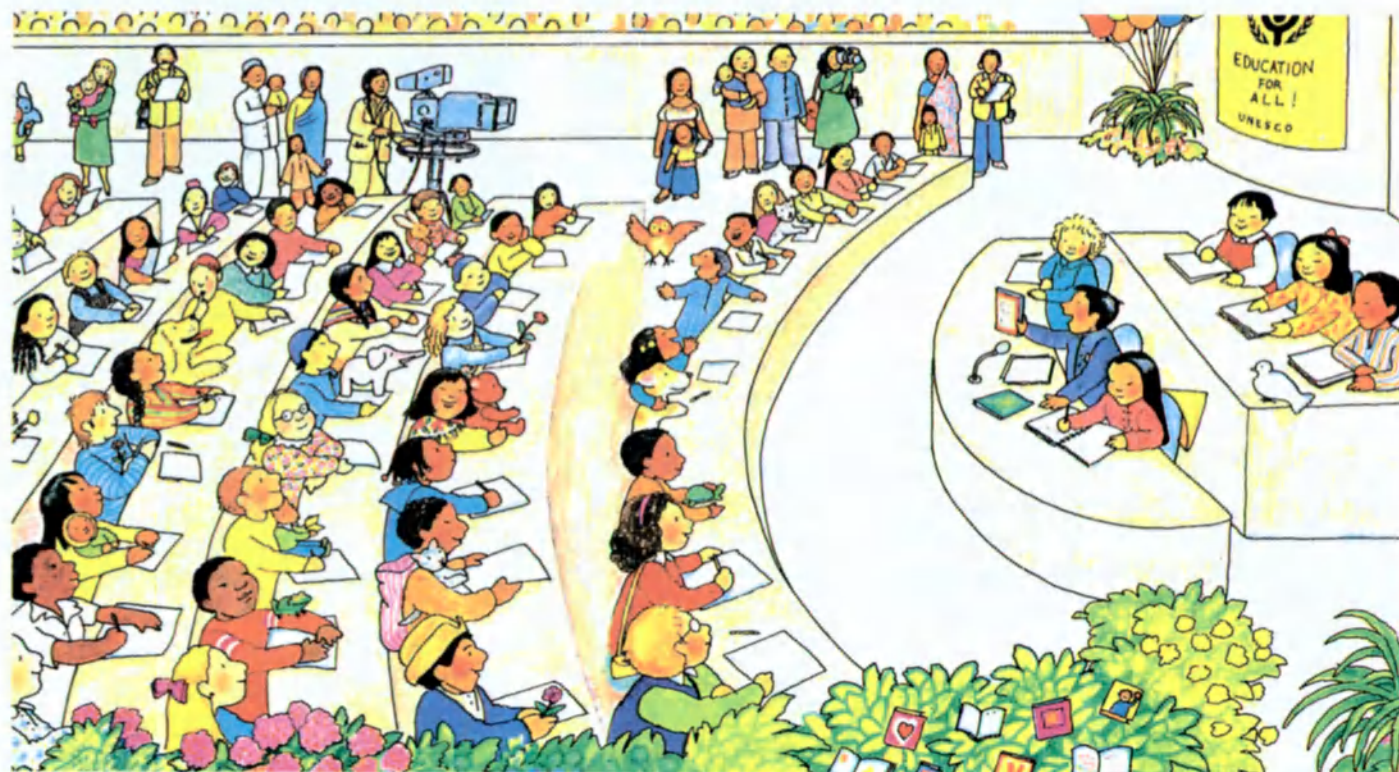


Cover of a reader produced by the Jamaican Movement for the Advancement of Literacy (JAMAL). In 1989 JAMAL was awarded the Nadezhda K. Krupskaya Prize, presented annually by Unesco in recognition of notable contributions to the struggle against illiteracy.

Children's United Nations, by Aliko Brandenburg, an illustration from a picture book for children produced by the Asian Cultural Centre for Unesco (Tokyo) for International Literacy Year.

The role of lead organization for ILY, which the United Nations General Assembly entrusted to Unesco, is paradoxically that of serving as a humble and modest animator and facilitator. If the Year is to have meaning, what will matter is not what Unesco does, but what happens around the world. Hence, Unesco's activities have been selected as a means for setting in motion action in member states, within the United Nations system, among non-governmental organizations and through the media. The ultimate measure of the success of ILY will be the extent to which it facilitates teaching and learning among children in schools and adults in literacy groups, in villages and in cities, in the "North" and above all in the "South", where the need is greatest.

For those of us engaged in the activities of ILY at all levels—local, national or international—the pages of the calendar are turning with startling rapidity. Over half of the year is already gone. We realize that what matters is not so much what happens in 1990, but what will happen in the years that follow as a consequence of ILY. We want ILY to be a summons to action. The world cannot be made literate in only 365 days, but a year is a sufficient period of time to make a commitment and a beginning. That is our goal. We hope that ILY will be remembered as a sort of "year of the ox", a year that, perhaps in awkward and plodding ways, got things moving. A year which demonstrated that vanquishing illiteracy is an enormous task, but no longer an impossible dream. A year that will be looked back upon as a season of promising beginnings and renewed commitments. ■





World literacy: where we stand today

By Sylvain Lourié

**The struggle
against illiteracy
can only be
effective as
part of a wider
strategy to
eradicate
poverty,
exclusion and
injustice**

AT least 960 million people in the world today are “total” illiterates. According to the definition established by Unesco thirty years ago, a total illiterate is someone who “is unable to read, write and understand a brief and simple exposé of facts in relation to his or her daily life”. There is also a considerable number of so-called “functional” illiterates, for whom reading and writing are not part of their daily lives, even though at some period, usually on leaving school, they have been able to read and write. If the functionally illiterate adults in the industrialized countries—estimated by some at between 10 and 20 per cent of their populations—were to be counted in with the totally illiterate, the world figure for illiteracy would exceed one billion adults, the majority of whom would be women.

The highest concentrations of the totally illiterate are to be found in the densely populated areas of the globe, notably in Asia, where they number some 700 million (490 million of them in China and India alone), and in Africa where,

in 1985, 54 per cent of the population consisted of illiterates, of whom 65 per cent were women.

As far as functional literacy is concerned, a recent (1986) study showed that one adult out of eight in the United States could not read and that in the United Kingdom, of a sampling of twenty-three-year-olds, 13 per cent had difficulty in reading, writing and counting. Similar figures were obtained in Canada, France and other industrialized countries.

These figures, however, are but snapshots or stills from a film which, as it unfolds, enables us to detect trends and assess the efforts made by some governments in the fight against illiteracy. At the end of the Second World War, 75.4 per cent of the population of Albania, for example, was illiterate; ten years later this proportion had been reduced to under 30 per cent. In 1962, 90 per cent of the population of the United Republic of Tanzania was illiterate; by 1978 the figure was down to 53.7 per cent. In 1970, there were more than ten million illiterates aged over ten in

Ethiopia; by 1983 this figure had been halved. In Latin America, Mexico went from an illiteracy rate of 77.7 per cent in 1900 to one of 9.7 per cent in 1985. In Cuba, the rate fell in a few months from 23.6 per cent to 3.9 per cent. In 1984, Nicaragua also succeeded in reducing its rate from 50 per cent to about 13 per cent in just a few months.

Some countries, unfortunately, are far from having achieved such good results. Burkina Faso and Mali, for example, have illiteracy rates that exceed 90 per cent. In Afghanistan, Benin, Guinea Bissau, Liberia and Togo, the rate is over 80 per cent. In India the rate in 1981 was 67.3 per cent, that is, more than 200 million people, of whom 120 million were women. In 1982, China had 230 million illiterates (34.5 per cent of the population), of whom 160 million were women.

Illiteracy and poverty

A glance at some statistics other than those for illiteracy reveals that one billion human beings live below the poverty line, that one and a half billion people lack medical facilities, that one billion people live in insanitary conditions.

The parallel with the billion total and functional illiterates speaks for itself; it is difficult not to recognize that the map of world illiteracy coincides with that of world poverty. This shocking fact applies primarily to the developing countries, but the odds are that the functional illiterates in the industrialized countries will almost always be found among the unemployed and those who have been left behind by the mainstream of the economy and of modern technology.

Clearly, then, any discussion of illiteracy will be merely academic unless it is placed within a wider social context than that of teaching methods and of learning to read and count. Illiteracy, it must be repeated, is but one form of marginalization or exclusion. Society has become polarized into those who have the means to improve their material and social standing and those

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Reports from around the world



LATIN AMERICA

Illiteracy, democracy and development

FOR Latin America, the last decade of the twentieth century is opening against an economic, social and political background that is complex and uncertain.

The consequences of this cannot be avoided in education, where rapid expansion slowed considerably between 1980 and 1990 and is now threatening to grind to a halt.

The situation is reflected in the figures for total illiteracy and for failure at school. The eradication of total illiteracy is proving to be excessively slow. Although Latin America has managed to reduce the percentage and even the total number of illiterate persons, at current rates there will still be some 38 million of them in the year 2000.

There is clearly a close connection between

Right, a school in Guatemala; centre, a Burkina Faso schoolgirl; far right, outside a post office in Karachi (Pakistan), a typist performs an essential service for those who cannot write or who need a typed letter.



illiteracy, poverty, unemployment and under-employment, and the fact of living in a rural area or of belonging to an indigenous ethnic group. Experience has shown that the struggle against illiteracy can only pay dividends if it is accompanied by improvements in health, housing and employment.

Total illiteracy is also the result of a discriminatory education system. Many South American children think of their schooldays primarily as a time of failure. Recent studies indicate that around 30 per cent of pupils repeat a grade in the early

Left, *The Columns of Liberty* (1989), a monumental sculpture created by 700 pupils of 17 different nationalities at the Pablo Neruda secondary school, Grigny, France.



years of primary school. Most of those affected are rural, indigenous or urban slum children from the poorest families—those whose lives are furthest removed from the cultural model dominant in school.

A notable feature of Latin American education systems is the marked polarization of school-age children. On the one hand there is a sizeable percentage of children who are totally excluded, and on the other, a relatively large number of young people who go on to higher education. If this polarization continues, it will be impossible to achieve national integration, to strengthen democracy and to create the conditions for sustained economic growth.

Simultaneous action is needed at both ends of the education system: at the primary level to put a stop to exclusion, and at the higher level to train researchers and technicians in order to build up the stock of indigenous creativity which will bring back economic growth and lead the way out of the current stagnation.

JUAN CARLOS TEDESCO ■

AFRICA

Disturbing trends

IN the early 1980s, sub-Saharan Africa had a much higher rate of illiteracy and a much lower rate of school enrolment than other regions,



although for several decades African governments had been making a big effort to eliminate illiteracy among young people and adults. The illiteracy rate of those over the age of 15 fell from around 75 per cent in 1970 to 64 per cent in 1980 and 57 per cent in 1985.

Unfortunately, this fall was accompanied by an increase in the number of total illiterates resulting from rampant demographic growth and the ineffectiveness of education systems—despite the fact that a large part of the region's GNP was being used to finance them. Since then, certain negative trends have worsened. The number of African countries whose education budget was

increasing faster than their GNP fell from 20 in 1975-1980 to 12 in the years that followed.

According to Unesco figures, there may be some 168 million illiterates aged 15 and over in Africa in 1990, 105 million of them women. These figures doubtless underestimate the true situation insofar as they are based on rather unreliable official statistics. In some cases, on the other hand, they do not take into account those who are literate in languages other than the official language of the country.

It is true that in the long run only the provision of primary education for all will make it possible to attack the problem of illiteracy at its source. But given the conditions of underdevelopment in many African countries, further aggravated by the economic crisis, the implementation of universal education is not feasible in the immediate future, especially in those countries where there are no places for at least half the children of school age. All these children, together with the victims of inappropriate education systems, are condemned to swell the ranks of the illiterate. In addition to the demographic causes of the problem there are others—social, economic and political.

Illiteracy can only be vanquished if its global nature is recognized and policies are adopted to enrich the *human capital* of African countries. Decision-makers must realize that investment in education and public health brings a high economic return.

BABA HAIDARA ■

ASIA AND THE PACIFIC

Responding to the challenge

THE effort required to carry out mass literacy campaigns, to provide the necessary post-literacy work, and to make primary education available to all, still represents an enormous challenge to the countries of Asia and the Pacific.

It is true that the literacy rate in the region rose from 39.6 per cent in 1960 to 60.4 per cent in 1980 and that during the same period the number of literate adults increased from 393 million to 953 million. It is estimated that the figure for 1990 is 1,377 million, and that it may rise to 1,888 million by the year 2000. But the picture is not as bright as it may seem. The total number of illiterates rose from 600 million in 1960 to 628 million in 1980. If this trend continues, the figure will persist into the early 1990s and will then fall slightly to 562 million in the year 2000.

In 1990 most of the countries in the region will, admittedly, have achieved 70 per cent literacy—the crucial point beyond which it seems to be proven that the literacy process is self-perpetuating until illiteracy is virtually eradicated. Fiji, Malaysia, Viet Nam and the Philippines are among the eastern and south-eastern Asian countries which in 1990 should achieve a literacy rate of 80 per cent, while the Maldives, Mongolia, Sri Lanka and Thailand will have passed the 90 per cent mark. Four out of five Indonesians and three out of four Chinese and Turks will also be literate in 1990.

Nonetheless there will still be 200 million illiterate persons in China, 23 million in Indonesia and 8.7 million in Turkey. The problem is more acute in central and southern Asia: in 1990, the literacy rate will probably exceed 50 per cent in India and in Papua New Guinea, and 60 per cent in Iran, but Bangladesh and Pakistan will achieve a maximum of 40 per cent, and Bhutan, Nepal and Afghanistan will not exceed 30 per cent.

The problem of illiteracy in Asia and the Pacific is also notable for a "gender gap". While the number of male illiterates fell from 247 million in 1970 to 233 million in 1985, the number of female illiterates increased during the same period from 390 million to 418 million.

To attain the objective of universal literacy by the year 2000, the countries of Asia and the Pacific will have to educate 62 million adults (15 years and over) each year. Aware of the immensity of the task facing them, these countries launched a Unesco-coordinated Asia-Pacific Programme of Education for All (APPEAL) in 1987. The programme concentrates notably on the introduction of new teaching methods in order to respond to the basic needs of marginalized rural and urban populations, women, minorities and the underprivileged.

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The industrialized countries: questions and answers

By Leslie Limage

1. What does "literacy" mean?

— The search for a precise definition of "literacy" is especially troubling to those who seek a quick solution to the problem of illiteracy in industrialized countries. Unfortunately, no simple definition will do. The meaning of literacy can only be defined in a specific context and will evolve as societal and individual needs change. Unesco's literacy statistics are based on official census data provided by governments whose national definitions vary. As such, they must be used with caution. They are adequate to indicate broad trends, but a dangerous basis for making precise comparisons.

"Illiteracy" is also a relative term. The ability to sign one's name and read simple messages once constituted all the skills an adult required to be considered literate. Today, "illiteracy" is variously defined to range from a total inability to use the written word to an insufficient mastery of a set of sophisticated skills. In some industrialized countries, the terms "computer literacy" and "cultural literacy" have even come to be used. In short, literacy skills which are considered satisfactory in one context may be seriously insufficient in another.

2. What do we know about the extent of illiteracy?

— Since there is a whole range of definitions of what constitutes literacy in industrialized countries, it is not surprising that estimates of the extent of illiteracy in individual countries vary and indeed are often contradictory. Figures in the United States range from 5 per cent to 25 per cent of the total population. A recent Canadian study shows some 25 per cent of the adult population has seriously inadequate literacy skills. In France, estimates have varied from 2 million to 8 million illiterates.

3. Illiterate? After 100 years of universal primary education?

— Schools usually work in the dominant languages of a society, but many of their students

may speak minority languages at home or come from diverse cultural backgrounds. Thus, equal treatment will produce very unequal outcomes. One child is ready to master a particular learning task, but another needs remedial work before doing so. Yet, in some countries, the only form of remediation is grade repetition: another dose of what failed the first time.

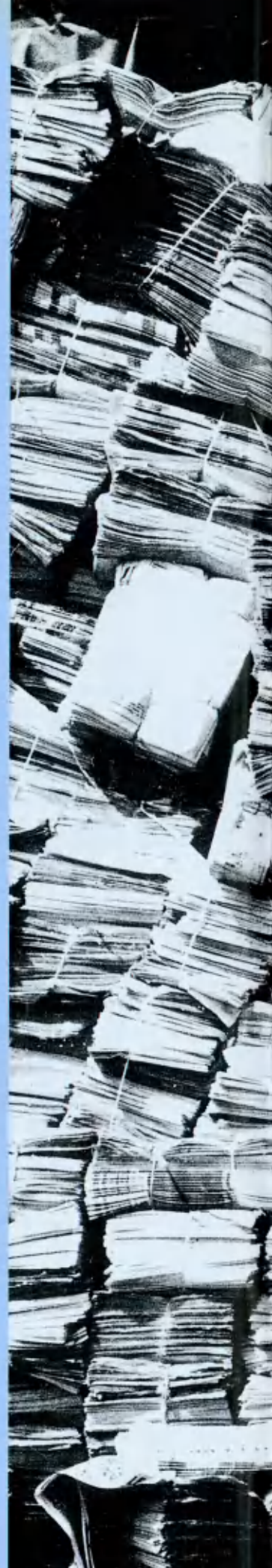
In recent years, as social expenditures have been reduced in many industrialized countries, education budgets have been hard hit. The first cuts occur in school provisions which are considered marginal: compensatory programmes and remedial tuition. Reduction in educational spending also leads to larger classes, fewer materials and lower teacher morale. A child from a home which cannot compensate for what is lacking in school will inevitably fall behind. These young people do not "relapse" into illiteracy. They never possessed self-sustaining skills.

4. How did industrialized countries "rediscover" illiteracy?

— The economic crisis which began in the early 1970s is largely responsible for the "rediscovery" of illiteracy in industrialized countries. As traditional and low-skill employment was progressively reduced, it became necessary to retrain large numbers of young people for employment in emerging industries. Job training programmes were established for this purpose, but it was soon discovered that lack of basic skills, literacy and numeracy, greatly complicated such training. The illiterate who previously had been gainfully employed suddenly was made visible and defined as a problem by the dislocations of the economy.

5. What is being done to prevent underachievement and failure in schools?

— In many countries, the measures essential to prevent underachievement and failure in schools are under attack. Many countries, facing severe budget cuts, are turning to the private and voluntary sectors for help. Small-scale projects which receive much publicity are often taking the place





of a long-term public commitment. Literacy is everybody's business, but private efforts can only complement, not replace, public provision.

6. What is being done to provide adults with basic skills in literacy and numeracy?

— Adult basic skill provision takes place in a wide variety of settings. Community colleges and adult education institutes provide the bulk of tuition in certain countries. A much smaller but increasingly important level of provision is offered by voluntary bodies and charities in a growing number of states. Slowly, work-place literacy classes are being developed, especially in commercial and industrial firms. Community groups are defining their own needs and setting up appropriate tuition. Yet with all the various types of provision available, not more than 10 per cent of adults with literacy needs are receiving some form of tuition.

7. Who is responsible?

— A fully literate society is everyone's responsibility. Community efforts to help pre-school children to enjoy reading are important. Schools should be endowed with sufficient public resources to ensure that each child is able to achieve a minimum proficiency in the use of the written word. Efforts in schools should be flexible and varied so that all children, regardless of home background, find learning enjoyable. Once a firm commitment from the public sector is guaranteed, coalitions with business, the voluntary sector, community groups, libraries and the media should be encouraged. Industrialized countries can afford to ensure literacy and numeracy for all. Indeed, they cannot afford to do otherwise.

8. What can people do to help?

— Everyone has a role to play in bringing about a literate society. Senior citizens are needed to help the very young, especially when parents are disadvantaged or heavily burdened with earning a living for the family unit. Intergenerational literacy efforts, teaching mothers and children together, are also important. ■

who are unable to secure for themselves a minimum standard of well-being. It is in the latter group that illiterates, who have neither access to existing sources of knowledge nor the ability to create new knowledge, are to be found.

Very often, therefore, those whose standard of living is extremely low are also those who cannot communicate with people living only a few kilometres away simply because they speak different languages or dialects and have no common system of writing by means of which to exchange information.

This poverty and this cultural isolation are accompanied by isolation with regard to what might be termed the "mechanics" of social life. The ability to communicate is not only a form of cultural expression, it is also an essential element in the organization of society, promoting the association of people with common aims and the structuring of the community. These are complementary elements necessary to the creation and strengthening of the modern social fabric.

Schools of illiteracy

Who are these illiterates? And why do they remain illiterate? They are adults who have not had access to education, or young adults who have been unable to complete their schooling or training and who live in a milieu to which writing is alien and thus, after a few years, relapse into illiteracy.

Does this mean that, in a country where the illiteracy rate is high but where the rate of school enrolment is rising rapidly, illiteracy will gradually disappear as new groups of children who have passed through the school system reach adulthood? Unfortunately, the data available at present tend generally to record only the numbers enrolling in schools and give no indication of how long the entrants stay there. The number of children enrolled is not the same as the number of those who remain in school long enough (a minimum of four years) to attain a relatively "irreversible" level of literacy.

In recent years there seems also to have been a tendency for the rate of school enrolment itself to drop. Many parents no longer see the school as a means of finding employment and achieving better living conditions. The economic crisis, in particular the growing burden of debt, which has been reflected over the past decade in a reduction in public expenditure—particularly in expenditure on social services and education—has led almost everywhere to the freezing of teachers' salaries, with obvious results. The teachers are obliged to take on other jobs and the time they spend in the classroom is proportionately reduced. With most of the education budget devoted to the payment of salaries, what is left for the purchase of essential teaching materials—textbooks, exercise books,

pencils—and for the maintenance of school buildings has been pared to the bone. Contact between teachers and pupils has become less regular and of lower quality and instead of being a source of stimulation for the children's creative capabilities, teaching has been reduced to routine parroting of words and numbers. Teaching has lost all its real meaning.

It is to be feared that if present trends continue, far from reducing illiteracy, the school system will in fact be contributing to its increase.

Literacy training is a political act

In these conditions, it is impossible to consider the drive for literacy apart from the political context that has engendered ignorance. I am not thinking of literacy education as only teaching people to read, but as a form of basic training making possible, in the words of the declaration made by the International Council for Adult Education at Toronto (Canada), in 1987, "the acquisition of the sum of knowledge necessary" for the improvement of the living and working conditions of adults. Literacy campaigns must be accompanied by change in other areas of society. This was clearly stated during a symposium organized by Unesco at Persepolis (Iran) in 1975: "Literacy work, like education in general, is a political act. It is not neutral, for the act of revealing social reality in order to transform it, or of concealing it in order to preserve it, is political."

A study carried out within the framework of

In 1987 a group of 15 children and 5 teachers from Evry, France, helped rebuild the Issa Arame Seck school at Bargny, Senegal.



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International Literacy Year draws the following conclusions from experience acquired in this field: "National commitment and political priority for literacy have been crucial for attaining such positive results. Above all, the successful literacy programmes have been part of a wider process of mobilization among the people. The successes achieved have not primarily been a question of the number of books printed, rural libraries in operation or vehicles supplied. Although these components certainly are required for a literacy programme, they can never substitute for or inspire mobilization of the people, nor determine the programme contents or the implementation approach."*

Only if the entire social, cultural and political environment is favourably disposed is it possible to pass from words to action and to encourage those at whom a literacy campaign is directed actually to learn to write.

There are many governments whose desire to reduce illiteracy is virtually nullified because other priorities (defence, the creation of infrastructures, the purchase of manufactured goods, debt repayment) leave them with insufficient resources.

Other countries see their efforts come to nothing because they have been unable to make a decision on the language on which a literacy campaign should be based, or because the campaign comes up against the passive resistance of certain sections of the population or even of the civil service itself.

On the other hand, when there is free circulation of information within a society, when the members of the community communicate and are in a position to participate and to act in the general interest, literacy teaching plays an effective role in general development policy as a support for changes in customs and structures that go far beyond the education of young people and adults. After all, what is the point of teaching people to read and write if there is no follow-up, no post-literacy training and no social change which would enable a person who has learned to read and write to obtain a loan, for example, to join a co-operative or to continue his or her studies within the framework of a lifelong education programme?

Unesco's two-pronged strategy

If literacy education is seen as one of the necessary instruments of emancipation, mobilization, higher productivity and the satisfaction of individual needs, then the whole arsenal of tried and tested methods and techniques can at last be brought into play. In this way, step by step, using the two-pronged strategy that Unesco has been propounding for many years, of providing

* *International Co-operation in Literacy Training: two good examples*, by Agneta Lind, of the Swedish International Development Authority (SIDA), and Mark Foss, of the Canadian Organization for Education and Development.

Adult illiterates (age 15 and over) and illiteracy rates

	Adult illiterates (in millions)			Illiteracy rates (%)			Decrease 1985-2000 % Points
	1985	1990	2000	1985	1990	2000	
Developing countries in:							
Sub-Saharan Africa	133.6	138.8	146.8	59.1	52.7	40.3	-18.8
Arab States	58.6	61.1	65.8	54.5	48.7	38.1	-16.4
Latin America / Caribbean	44.2	43.5	40.9	17.6	15.2	11.3	-6.3
Eastern Asia	297.3	281.0	233.7	28.7	24.0	17.0	-11.7
Southern Asia	374.1	397.3	437.0	57.7	53.8	45.9	-11.8
Developing countries (total)	908.1	920.6	918.5	39.4	35.1	28.1	-11.3
Developed countries (total)	57.0	42.0	23.5	6.2	4.4	2.3	-3.9
World total	965.1	962.6	942.0	29.9	26.9	22.0	-7.9

effective schooling for children and literacy training for adults, spectacular results can be achieved.

As far as adults are concerned, there is not a single illiterate peasant-farmer who is incapable of dividing his land among his sons, assessing with almost scientific accuracy and care the number of trees, the richness of the soil, its slope, irrigation and surface area. There is no illiterate who cannot convey his deepest thoughts verbally. There is no illiterate who has not learned from his ancestors and passed on their teachings to his own children, who, whether literate or not, consider this heritage to be their most precious possession. Any literacy teaching strategy or technique must, therefore, take as its starting point the existing knowledge of the person to whom this new code of communication is to be imparted. Only by gaining an understanding of how illiterate persons



communicate and calculate will it be possible to bring them gradually to understand the new coding system, which will enable them significantly to widen their range of activities.

Similarly, school systems should fully recognize that the transmission of factual knowledge is much less important than the inculcation of learning skills, and that this goal can be reached by a wide variety of paths depending upon the individual, his or her age and social and cultural condition. Only then will schools cease to be simply marshalling yards in which all those who cannot follow the main line route of memorization, deduction and theory are shunted off on to secondary tracks and dead end sidings. They will begin to become more empirical in their approach, to appreciate gestural and artistic qualities, and to recognize that aptitudes are not all acquired at the same time and that each individual follows a pathway that corresponds to his or her talents, tastes and aspirations. Only when the way in which each pupil receives information and

Children in Cuzco, Peru, take part in a demonstration calling for the reopening of their school.

Top, for an immigrant, illiteracy is but one form of exclusion.

transforms this into knowledge is seen as being much more important than the actual nature of the information imparted to him or her shall we be able to speak with justification of an improvement in the quality of teaching.

For literacy to become rooted in the individual's experience and for education to become the reflection of each individual's qualities, agents other than teachers—whose role will always be decisive, but not exclusive—will have to be brought into play. Communities and the families involved will become the new “partners” in an enterprise whose goal must not be access to the educational system so much as the success of the educational process.

A huge amount of experience has been accumulated and many specialists are now available who could train teachers, help in the preparation of teaching materials and assess the motivation and knowledge of pupils. Thanks to its educational networks and the experience it has acquired over the past forty years, Unesco, for its part, is well placed to promote the exchange of information and personnel and to contribute to progress in this field.

Governments may favour strategies based on literacy campaigns carried out over several years or on the gradual improvement of the quality of basic education for children and young people. Alternatively, they may prefer to adopt a policy of promoting intensive literacy campaigns involving the nation-wide mobilization of resources and the media or, for example, calling on secondary level pupils to act as teachers in literacy campaigns. Such programmes, however, will only succeed if they are accompanied by a whole range of measures relating to public health, housing and to import/export policies.

Undertaken in isolation, literacy campaigns or educational reforms will remain ineffective. Only if they become an integral part of an overall movement of reform and change will they bring to fruition the hopes expressed in the United Nations resolution which designated 1990 as International Literacy Year. ■



The mind transformed

By Raja Roy-Singh

ADULT illiterates were long regarded as people who were suffering from a kind of disease from which they could be cured by learning to read and write. They were thought to be devoid of higher order cognitive characteristics and to lack the capacity for abstraction, reasoning and symbolization. Shackled to their immediate experience, they had no conception of past or future. They were mentally *tabula rasa* and somewhat childish. The acquisition of literacy was a leap across the great divide from the “illiterate mentality” to the “literate mentality”.

These myths have been extremely potent. They helped to create a psychological climate in which society is seen as divided into a dominant class and a subservient mass. This attitude, whether implicit or openly held, gave rise to methods of teaching literacy in which adult illiterates are seen as passive objects to be salvaged by the literacy process, in which they need not intervene until they have mastered the salvatory words in the right way and at the right time. This “salvatory” literacy practice is almost exclusively based on the technical drills of reading

Once regarded as the inculcation of mechanical skills, literacy work with adults is increasingly seen as an educational process based on dialogue

Above, a Tibetan storyteller at Bodh Gaya, India. Many adult illiterates have a rich oral cultural heritage which shapes their perception of the world.

and writing and often uses the same methods and texts which are used for children in their early grades at school.

It is often forgotten that many illiterate adults have an oral cultural heritage which is profoundly important to them and that the ways in which their oral traditions are stored, renewed and transmitted have shaped their perceptions and the languages in which they think. Furthermore, in most of the societies to which they belong, literacy is not new. In some cases it has formed part of creative and religious life for centuries.

These adults have acquired an array of educational experiences, competences and values in their families, in social groups, in places of work and entertainment, and in acts of worship. They have had to learn lessons relating to community life and understand the values and rules associated with their occupations. All these experiences give meaning to their lives and all of them involve uninterrupted language learning. Literacy work that does not recognize these facts and sets out to teach adults to read and write by rendering them meaningless to themselves is an exercise in

sterility and serves the economic and social forces that marginalize people and deprive them of their voice.

Literacy is only authentic if it adds meaning to people's lives and helps them to understand real-life problems. If there is no link between literacy practice and the situation of the learners, there will be indifference, resistance and rejection.

Literacy as a dynamic process

Radically new ideas and perspectives on literacy have been developed in recent decades. Literacy is no longer viewed as a simple concept bound up with the coding and decoding of signs in which the main problems are technical. The literacy process is no longer conceived of as a training process which concentrates exclusively on "implanting" specific mechanical skills; it is now recognized as an educational process, as an unfolding of human potential.

The exponents of these new approaches do not use the same terminology and emphasize different aspects of the literacy process but they have certain points in common. Firstly, they recognize that adult learners have a central role in the process and should be active in defining their learning needs and the goals which they serve. Secondly, they regard learning as a continuous, integral and deepening process of critical awareness of the self within and the world without. Thirdly, they see diversity and not uniformity or homogeneity as the true characteristic of literacy action. Fourthly, this "dynamic literacy process" finds its full expression in engaging and participating in authentic social change and developments. As the Brazilian sociologist and educator Paulo Freire has said, "The literacy process must relate *speaking the word to transforming reality* and to man's role in the transformation."

The common schema which breaks down the literacy process into stages—pre-literacy, learning to read and write, post-literacy—distorts understanding of the process.



Below, members of the Unidad de Bibliotecas Rurales, a network of libraries serving 465 rural communities in the Cajamarca region of northern Peru. Using information provided by the communities, the librarians are producing a Cajamarca encyclopedia in 20 volumes. Right, covers from 5 of the 6 books already published. Support for the project is provided by Traditions for Tomorrow, a non-governmental organization founded in 1986 to help Third World communities trying to safeguard their cultural identity.



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Literacy proceeds *from* the learner, and the impetus for it has its origin in a diversity of sources in which the situations of the learners have a profound influence. In the ultimate analysis, the “literacy need” arises in the individual or social group with a realization, however inarticulate, of a sense of disharmony or incompleteness in its particular social “universe” of relations, meanings and interpretations. As the individual or group becomes consciously aware of the disharmony of its own closed “universe”, the literacy process as a reaching out to new meanings and interpretations begins, transforming the individual/group into *learners*.

The role of dialogue

Learning to read and write is not an isolated act, nor is its goal only the acquisition of certain coding and decoding skills. Indeed, it is a relatively easy task for an adult to “alphabetize” himself if he sees a worthwhile purpose to it. It is part of a larger human process in which perceiving, knowing, reflection and action are interwoven. Not least, it is an act that transforms the learner in the very process by which the learner becomes aware of the need and possibilities of change. Along the path from the first stirring of a sense of disharmony to a state of self-appraising comprehension, the learner becomes aware of the “necessity” to learn to read and write and thus to enter a wider field of participation and sharing.

The prime method in the dynamic literacy process is that of dialogue. Whether it is used in identifying the generative themes or in heightening awareness or in developing instructional texts and methods, dialogue defines the relationship between the learners and the teachers, between them both and the realm of knowledge, and between the oral and written means of communication. One of the creative insights of profound significance that dynamic literacy practice has contributed to the general education process is the restoration of dialogue to a central role in education. The mediation of the dialogue process establishes between learners and educators a relationship of equality. It encourages the learners to raise questions and unmask problems relating to significant aspects of their lives.

Literacy action proceeds from, builds on and comes to fruition in a deepening human awareness, what in Freirian terms is known as *conscientization*. Its best expression is an accompanying sense of growing autonomy and freedom.

Literacy action which proceeds from the learner is inconceivable in any but a decentralized way. This means a decentralized development structure capable of responding to the diversity of needs at the local level and, most important, capable of creating the mechanisms at the local level through which the literacy process is sustained. ■

Most of the world's illiterates are women. What can be done to break down the barriers to literacy faced by women, especially in the poorest countries?

The gender gap

By Agneta Lind



NOT long ago a group of newly literate women from the south coast of Kenya were explaining the advantages of their recently acquired skills in reading, writing and calculation. Now they could sign their names they had more control over money transactions. They could read medical prescriptions and instructions. "Our eyes have been opened," said one of them, expressing the new sense of pride and increased self-reliance they all felt.

The preliminary findings from a questionnaire sent out in September 1988 by World YWCA to its member associations confirm such liberating effects of literacy. The responses show that:

- Women who receive literacy training are more respected in the community and at home.

- They are better equipped to search for jobs and can therefore earn more.
- They realize that they can do some jobs which are traditionally considered to be for men only.
- They are more able to run small businesses and keep records on their own.
- They become more effective leaders of women's groups.
- Their political awareness, participation and organizational skills are enhanced.
- They gain better understanding of their rights.
- They are much more capable of helping their children with their schoolwork.

There are many human, social and economic reasons why literacy education for women and girls should be a priority objective. For many women, achieving literacy could be one of the first steps in a process enabling them to take control over their lives, to participate on a more equal basis in society, and eventually to free themselves from economic exploitation and patriarchal oppression. The sole fact that mothers' level of education has a positive effect on their children's health and progress in school should be a strong enough argument.

The figures show that the gap in literacy rates between men and women is constantly widening. Moreover, it seems likely that this "gender gap" will become even wider as economic constraints lead to increased demands on women's unskilled work and push literacy lower down the scale of priorities of people and governments.

Illiteracy among women and men in Third World countries is linked to poverty, inequalities and oppression. The education system introduced by colonial powers sometimes tended to accentuate various forms of discrimination, and the consequent inequities in access to school account for most adult illiteracy in Third World countries today. The traditional division of family and social roles between the sexes also prevented most girls from achieving literacy through schooling, and even when girls were enrolled in schools,



Left, overburdened with domestic tasks, relatively few illiterate women manage to achieve literacy.



educational practices often reinforced their subordination. Although the open discrimination practised during colonial days may be less common today, patriarchal ideologies and social systems that disfavour women have persisted.

Yet in many Third World countries, many women do participate in literacy classes, especially among the rural population. One reason for this is that they tend to see literacy as a way of helping them to cope with responsibilities that were previously monopolized by their menfolk who have migrated to the towns in search of work. If they are literate they can also read their husbands' letters and write back without having to call in other people.

Obstacles to learning

But although there are many reasons why women should want to participate in literacy classes, their traditional and new occupations do not leave them much time for regular attendance and efficient learning. They tend to be overburdened with domestic tasks such as cooking and cleaning, fetching water and firewood, as well as farming

and earning money. Frequent child-bearing leaves little time and energy for learning how to read and write. Even when mothers do attend classes they often bring their smallest children. Concentration is obviously difficult when babies and toddlers have to be looked after during the lessons.

Only rarely are child-care provisions made for women during class time, although in some countries they have been offered literacy courses in boarding centres, away from competing demands and duties. Nonetheless, other problems have arisen such as poorly qualified tutors, shortages of food, uncomfortable living conditions, and insufficient programme time.

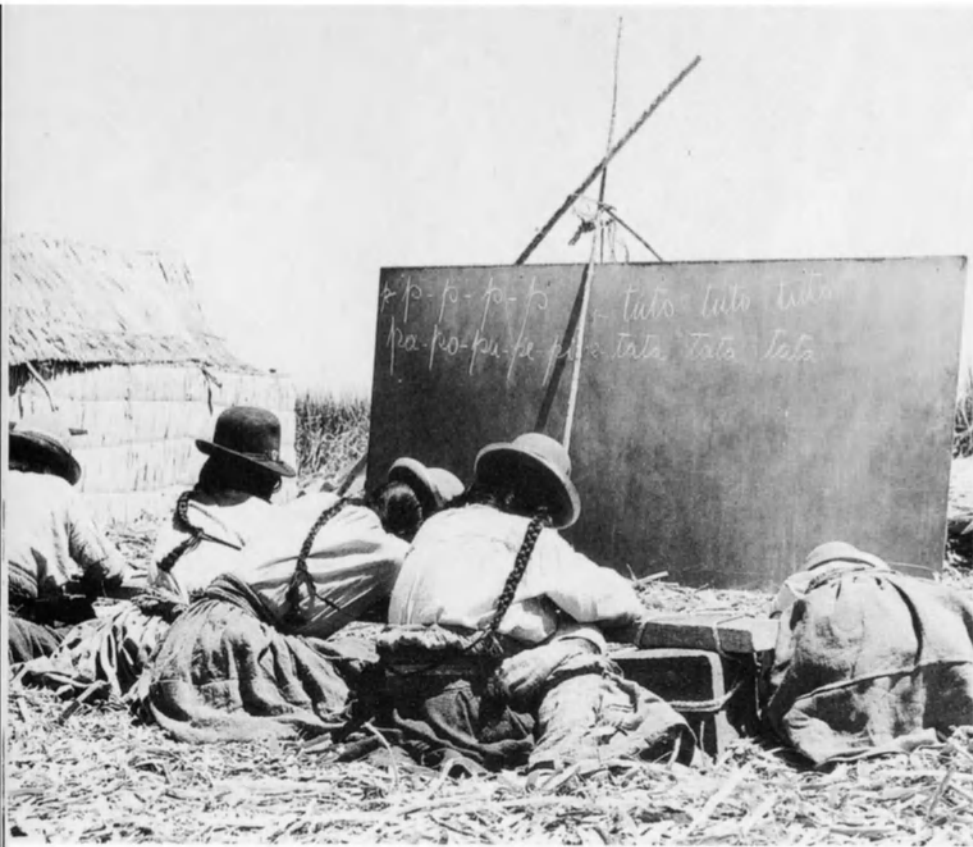
Women are, moreover, directly discouraged by the attitudes of men, often including male teachers, to their capacities in the classroom. Husbands and guardians sometimes even forbid them to attend literacy classes. The men are afraid that women who learn more than they do may expose their ignorance and, above all, challenge their power position within the family.

Even where women and girls do manage to acquire elementary literacy skills, it is often more difficult for them than for men to sustain these

Above, a Togolese woman makes soap during a literacy class.

skills. The reading material at their disposal is often not designed for their interests and needs, and in any case they often have less access to it and less time for reading. The support and mobilization which take some women and girls through to literacy tend to dwindle when they become literate.

One response to these difficulties is to integrate literacy courses for women into programmes related to health care, family planning, nutrition and income-generation. In practice, however, this approach often leads to a



neglect of literacy instruction, since the women are expected to be involved in so many other activities at the same time.

Women and mass literacy campaigns

The general experience of adult literacy programmes, whether organized on a large scale by the state or on a small scale by non-governmental organizations, is that without various forms of mobilization—awakening or creating motivation—the response is weak.

Only national mass literacy campaigns have successfully managed to mobilize and teach hundreds of thousands of illiterate women and men elementary literacy skills. Such campaigns have taken place in countries where literacy was part of a national policy for overcoming poverty and injustice, where both the state and the people concerned expected literacy to be one of many factors which would improve social, political and economic conditions and help develop human and material resources.

In most of these campaigns the teaching

methods have been traditional, but the contents have focused on national issues and have included themes stressing equal rights and the need for women's emancipation and equal participation in all spheres of society.

In national mass literacy campaigns, as well as more local campaigns, the degree of women's participation in particular has depended on community attitudes. While a superior and patronizing attitude among literacy organizers and teachers discourages interest, a democratic, open and involved attitude, treating the learners as equal adults, and creating an atmosphere of confidence, has a positive influence on attendance and results. Local women teachers working with separate women's literacy groups are often successful in encouraging learning and participation.

The active involvement of local leaders in favour of literacy activities has often been crucial for the achievement of high levels of participation and learning. In 1971, for example, when the first drive of the Tanzanian literacy campaign reached the island of Mafia, the local leaders insisted that men and women were to participate. Separate classes for men and women were organized. Mobilizing visits by national leaders were followed up by the appointment of an Area Commissioner who was a committed adult educator himself.

The reason why this support was so important was explained by one woman who was asked what her husband thought about her participation in literacy classes. "Yes, he grumbles a bit, as men do," she said. "Some men are very worried, and they don't let their wives attend classes. But it's too late, I think. When the Area Commissioner held a meeting here both men and women were asked to come. We didn't dare, in the beginning. But the cell leader had brought his wife, and she came back to fetch us. The Area Commissioner had complained that so few women were present and said that he would not start the meeting until everyone had met up. These classes have meant a lot to us."

Illiterate women often want to become literate, but relatively few manage to satisfy this wish. The constraints—time-consuming duties, shortcomings in the design of the literacy programmes offered, and men's resistance—are often overwhelming. It is important not to overload the learning programmes or to expect women to be involved in too many programme activities at the same time. Mass literacy campaigns, genuine political priority and community support for literacy have been the most successful factors in mobilizing women to participate in and complete literacy programmes. In these campaigns men have been pressurized to accept women's participation in literacy and in other social, economic and political activities. It is important to promote awareness of women's rights within literacy programmes designed for them, and, indeed, this contributes to the success of such programmes.

Peruvian women learning letters and sounds. This photo features in a travelling exhibition organized by Unesco for International Literacy Year (see page 50).

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National languages and mother tongues

By Adama Ouane



The problems of access to literacy in multilingual societies

IN any literacy teaching project, the choice of the language to be taught is of paramount importance. Highly complex human and cultural factors are involved in this learning process, whether for the child, the continuity of whose affective, cognitive and psycho-motor development it is the guarantee, or for the adult, for whom literacy training will only be motivating if it leads on to greater participation in the political, economic and social life of the community to which he or she belongs.

Literacy teaching in the mother tongue has a head start, since the pupil begins with an already acquired knowledge of the language. Literacy teaching in a foreign language makes learning the mechanisms of reading and writing considerably more complicated, since it introduces difficulties inherent in the acquisition of new vocabulary and of new ways of thinking.

What is a mother tongue? The “mother” in the term has no “genetic” or “biological” connotations, but relates to the linguistic community in which a person is born and brought up. A mother tongue is the prime means of expression of an ethnic group and is the instrument of the socialization of the individual within the basic social unit, usually the family.

Above, open-air literacy class in India, where there are some 1,600 mother tongues for a population of almost 800 million people.

According to their status or their function, mother tongues become community or vehicular languages when they are also used for inter-ethnic or inter-community communication. They are called “national languages” when they constitute the language of the entire nation or of its main ethnic components. From this point of view, the linguistic situation on our planet is extremely complex, since, including dialects, there are thought to be between 3,500 and 9,000 languages in the world, distributed over some 200 sovereign states.

Mother tongues and national unity

Very few countries are strictly monolingual. The situation of multilingual countries varies according to their history, their social and economic context, and the ethnic composition of their populations. The relationships between local languages, the functions they fulfil, the status it is desired to give them and the educational aims of the society all influence the definition and implementation of language policies.

The adoption of a common language can, obviously, promote national unity. Many decision-



makers are convinced that the encouragement of several languages militates against such unity, and the risk of accentuating cleavages between communities and the danger of being left outside the main currents of knowledge and information flow are often invoked to justify the choice of one or a restricted number of national languages, even, perhaps, a foreign language, as official languages.

Monolingualism continues to be perceived as a major element in the founding of a nation. Yet what heightens dissension is not so much the plurality of languages as the conflicts of interest that they express. A plurality of languages should be seen as an enrichment and as the reflection of a plurality of cultures.

The substitution of interdependent relationships for ties based on domination contributes greatly to national integration. Apart from ensuring the development of widely used languages, the coexistence of several mother tongues guarantees better mutual understanding between cultures.

For sociological and sometimes psychological reasons relating to history, and in particular to the colonial past of some countries, certain languages have become devalued because they are considered unsuited to express the complexities of the modern world. Still hovering between the oral and written forms, they may indeed find it difficult to cover the vast and changing field of contemporary science.

The coexistence of several languages necessarily raises the question of their "parity" or "equality". Theoretically, all languages are of equal value and are intrinsically capable of expressing the same realities and of developing—it is in being used that they develop and become refined. In practice, however, their true position depends upon the status accorded to them as well as the functions they fulfil and the fields in which they

are used. In this respect, true equality between languages is impossible. But is it even necessary? In a plurilingual context the aim should rather be to achieve complementarity of roles and functions.

Those who decry the use of mother tongues in literacy work invoke economic and technical arguments, pointing out that, in a society with no basic infrastructure, it is difficult to bear the cost of the operations necessary to integrate these languages into the educational system.

It is true that to publish textbooks and primers in languages that are in the course of becoming established raises a number of material and technical problems. The phonetic and grammatical structure of languages that have only recently acquired a written form involves the use of graphic signs and printing characters that demand a technical competence rarely available in the countries concerned. These, however, are difficulties that can be reduced by the use of informal teaching methods and simplified printing techniques.

Between these two extremes—making use of all a country's languages, which is practically and financially impossible, or adopting a single language (often a foreign language), which is culturally and politically unacceptable—there lies a third way: that of a graduated multilingualism, in which the emphasis is placed on certain languages, yet without neglecting the development of the others.

Within a given national unit, at least two linguistic levels can always be distinguished, that of the individual's mother tongue and that of the main, official language of the state. Sometimes there may be three, four or even five levels, corresponding to an equivalent number of languages which it is desirable to know. However, mastery of the first language, the mother tongue, or of the variant that replaces it, remains the decisive step in the individual's linguistic development.



The teaching of the mother tongue leads to an uncomfortable dilemma: attaching too much importance to local languages can be a handicap with regard to economic and scientific matters, but to ignore them is to condemn them to regression. The dilemma resolves itself, however, if the primary objective is to encourage the emotional development, the self-discovery and concern for the future of the community of the person learning to read, rather than to ensure the acquisition of a socially and functionally dominant language.

Different approaches

The mother tongue may be used as the vehicle of education at all levels of the educational system. It may enjoy exclusive status, but in some cases it is used up to a certain level and then replaced by another language. In other cases, it is used for the teaching of certain subjects only.

Sometimes the mother tongue is the subject, but not the medium, of teaching. Literacy work with adults is often carried out with a partial use of the mother tongue.

Some national languages are not equipped to perform effectively all the functions required in a complete education. In these cases, enrichment of the language becomes part of the task of literacy and post-literacy work.

In most of the multilingual countries of Africa and Asia, in which the language spoken in the family circle is often not that used by the authorities or in schools, literacy work is usually conducted in the local languages. When these languages have only a recent written tradition, literacy work marks the transition from the oral to the written, with all that that implies for specific modes of perception and reflection.

Clearly, these countries are attempting to create and maintain a social, economic and cultural climate favourable to the written word,

including the greatest possible stimulation and incitation to written expression.

One of the essential functions of those engaged in literacy work is to produce, acquire and manage teaching materials in the national languages and mother tongues. Some of this material is printed, some is produced for the modern media (radio, television, audio-visual display) and some for the traditional media (theatre, folklore, various types of games). Libraries, fairs, exhibitions, listening groups, study circles and action groups are set up to make these materials available and to encourage the largest possible number of people to use them.

The newly-literate must be placed in an environment in which they are constantly faced with the challenge of the written word. Printed material alone is not enough. The newly-literate must be involved in activities which are too complex for them to rely on memory and oblige them to use written communication. Most of the French-speaking countries of Africa are thus trying to familiarize their civil servants and development personnel with the written forms of languages used in literacy work. They are encouraging the use of these written forms in technical and administrative documents, road signs, advertisements and the labelling of goods, as well as the diffusion of books, brochures and newspapers written in these languages.

The purpose of these measures is to overcome reservations about, if not disdain for, the languages used in literacy work on the part of officials most of whom are the product of a different educational system and who normally use another form of communication such as a European language (in this case French). They also help to demarginalize the newly-literate by offering them a written environment in which they feel secure.

“Including dialects, there are thought to be between 3,500 and 9,000 languages in the world.... Very few countries are strictly monolingual.” Above left, a store in Jaipur (India); centre, a Hong Kong street; above, shops in Abu Dhabi (United Arab Emirates).

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**Industrialized
countries
discover the
extent of
widespread
illiteracy in their
midst**

Waste

By Jean-Pierre Vélis

WHEN you read the first line of this article you have no difficulty at all in deciphering the graphic signs of which it is composed, grasping the arrangement of the different terms and understanding their meaning. Without your giving the matter any thought, your eyes have scanned the text and your brain has unconsciously mobilized all kinds of highly complex physiological and intellectual mechanisms. For you reading is second nature, so self-evident that you may have forgotten the effort its acquisition cost you. You can scarcely imagine life without reading.

As the twentieth century draws to a close, in the so-called industrialized countries, reading, writing and arithmetic, the three universally-accepted components of literacy, are considered normal skills that everyone must master. Especially since in these countries schooling is generally compulsory and free, and sometimes has been so for more than a century, and it is the duty of the school to teach these skills. It would seem inconceivable that a person who has attended school for many years should be unable to read on reaching adulthood, especially in societies where the written word is practically indispensable to everyday survival. The general reaction to the existence of illiteracy is one of amazement and incredulity.

A recent revelation

To be illiterate in a country where for several decades there has been a struggle against illiteracy is a far worse handicap than it is in a country where illiteracy is the general rule. In industrialized societies the illiterate are the victims of an unusual form of segregation which often causes them to feel ashamed. And since they tend to conceal their existence, it was a long time before they were noticed. Was this oversight deliberate or unconscious?

It was in the early 1970s that illiteracy suddenly reappeared as a public issue in the industrialized countries. In 1972 the British people were astonished to discover, from the findings of a small charitable organization, the British Association of Settlements, that between 7 and 10 per cent of adolescents aged sixteen or more were barely able to stumble through a simple text

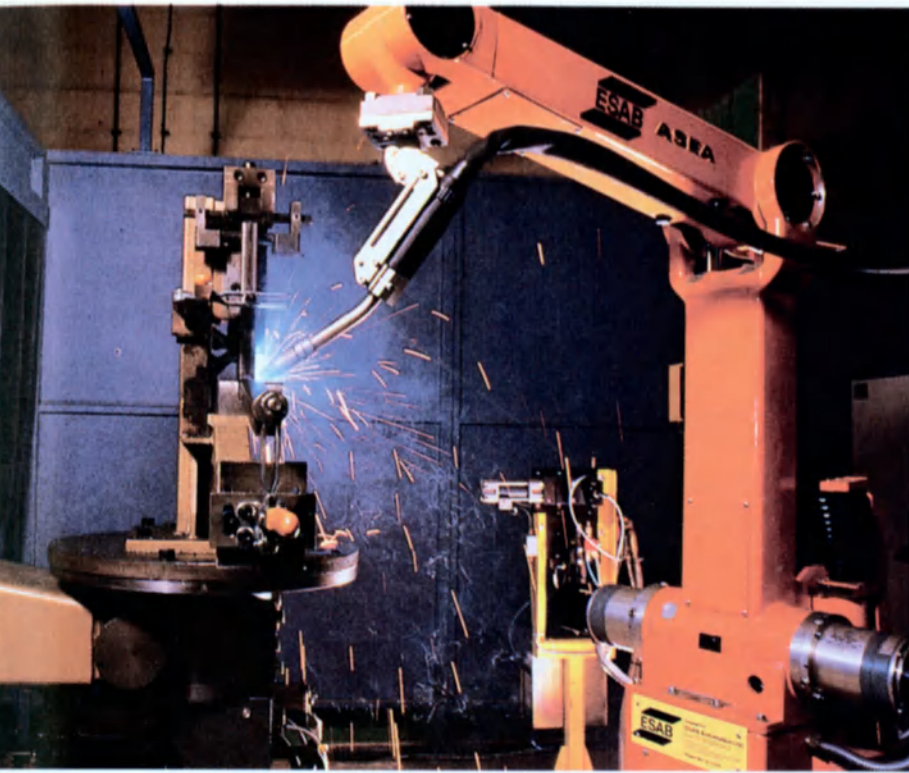
when they left school, and that there were some two million illiterate people in the United Kingdom, not counting immigrants.

This revelation was important for several reasons. It was the first time people realized the full extent of a phenomenon that was far from marginal. (Over the next fifteen years, many industrialized countries produced official or unofficial estimates of a comparable order of grandeur¹). Secondly, a campaign to make public opinion aware of the problem launched by the BBC

Automation tends to reduce the numbers of unskilled jobs and has revealed the existence of "functional" illiteracy.

Below, Jane Fonda in *Stanley & Iris* (1990), a film by the American director Martin Ritt which deals with illiteracy in the United States.





programme *On the Move* and the government measures to which it gave rise (such as the creation of an agency for adult literacy), have often been taken as models. Finally, this revelation encouraged reflection on the concept of illiteracy and its persistence in wealthy societies that are proud of their culture and their record of school attendance.

Another form of illiteracy

There have always been illiterates in the industrialized countries, but the public has not always been aware of their existence, and their numbers gradually declined to the point where they were statistically negligible. As schooling has become more widespread and education has become more democratic, their numbers have constantly decreased in recent decades while the general level of education has risen. So is this a question of much ado about nothing?

These illiterate people are adults who have attended school and have had some contact with reading and writing. They may know the alphabet and even be just about capable of deciphering a few words. They may be able to write a little. They may recognize figures and be able to do a few sums, but their knowledge in these fields is rudimentary and insufficient for them to cope easily with everyday life. They are not totally illiterate, but they are illiterate in the context of the society in which they live. For this reason the term most frequently used to describe their situation is "functional illiteracy", a relative notion the content of which may vary widely at different times, in different countries and even in different regions.

These functional illiterates are not a recent phenomenon. A specific form of illiteracy has arisen in contemporary Western societies in which structural developments in employment have resulted in requirements for higher levels of training and qualification.

In rural societies where there are large numbers of manual and unskilled jobs, the illiterate managed to achieve social and professional integration. This is no longer possible in industrialized societies whose economies in the final decade of the twentieth century are increasingly dependent on the services sector. The large-scale disappearance of unskilled jobs, together with the constant rise in the qualifications required, is leaving functional illiterates behind. Whenever a firm reduces its staff, closes down or introduces new technologies, workers hitherto considered competent and efficient are devalued, incapable of being retrained because their reading, writing and calculating skills are inadequate. Labelled as "functional illiterates", they find themselves queuing up in employment agencies or receiving some form of public assistance.





It is not surprising that functional illiteracy should have been rediscovered in the early 1970s—the time of the first oil crisis, the beginning of the world economic crisis and the spectacular rise in unemployment, especially among young people.

It soon became clear that there was a close correlation between poverty and illiteracy, though it was not possible to unravel cause and effect. Hence the battle against illiteracy from the beginning has been seen as an activity with social and humanitarian connotations.

A number of countries have sought the help of voluntary workers—mothers willing to give their free time or retired people—on the principle that people who know how to read, write and count should be able to pass on their knowledge, if only for a few hours a week, to those who do not. Unfortunately there have been many disappointments and setbacks. Lack of method, teaching materials suitable only for immigrants, the absence of training facilities for voluntary teachers, have led even the most enthusiastic to despair. In addition, even today, financial resources are often insufficient, and support from the authorities is often half-hearted. Where adult illiterates are concerned, help has almost always come from voluntary associations supported by social workers. Some twenty years on, apart from a few notable exceptions such as the Netherlands and Portugal, the situation is still unchanged.

More than an economic challenge

Initially viewed as an educational problem closely linked to mechanisms of social discrimination, functional illiteracy in the late 1980s became the centre of an alarmist economic scenario. In North America it has been the subject of a number of reports and studies whose conclusions have been voiced by political leaders and industrialists swayed by the simple argument that illiteracy is expensive both for companies and for the nation as a whole. “The estimated direct cost of illiteracy



Above, two booklets from a set produced for adult literacy students in 1977 by a British publisher. Each is based on the vocabulary and skills needed in an everyday situation.

Above left, a retired man from Troyes (France) acts as volunteer adult literacy tutor in his spare time.

to the business world in Canada is some C\$4 billion. It could actually be higher, since the total loss to Canadian society is estimated, at the very least, to amount to C\$10 billion a year.”² Functional illiteracy is expensive today and tomorrow will be even more so since in the long term it weakens a country’s competitiveness on the world economic market. A US Congressman has declared that “Members of Congress are beginning to understand that, as a matter of fact, illiteracy is going to determine whether we are competitive or not competitive in the years to come.”

And so measures to solve the problem cannot be left exclusively to voluntary workers. A firm commitment from governments is required. “The time is clearly past when the government could look on while the voluntary organizations took charge of the problem of illiteracy,” the Canadian Prime Minister stated in 1987 when he announced that his government would be investing C\$110 million over a five-year period in an attempt to solve the problem. In the same vein, the French Secretary of State for Professional Training, speaking in 1989, stressed that “The scale of the task calls for a veritable national crusade. I intend to ensure that training activities designed to combat functional illiteracy are rid of the secretive atmosphere in which they are all too often shrouded and become one of the main concerns of the training schemes introduced for people whose low standards of knowledge currently exclude them from the labour market.... This campaign is all the more pressing since such exclusion is a threat to progress and spells the ruin of development in the long run. It is economically necessary for us to win the battle and it would be socially unjust not to fight it.”

Such is the situation as the 1990s begin beneath the emblem of International Literacy Year. This is more than an educational, social or economic challenge; it is a human challenge. By the time the industrialized countries enter the twenty-first century, will they be able to halt the development within them—alas well underway—of a two-tier society, a large majority of whose members will enjoy the benefits of progress from which an important dependent minority will continue to be excluded, because they are unable, or not sufficiently able, to read, write and count?

JEAN-PIERRE VÉLIS, a French journalist specializing in education, is the author of *Through a Glass, Darkly—Functional Illiteracy in Industrialized Countries*, published by Unesco, Paris, 1990. He was formerly assistant editor-in-chief of the French journal *L'Education*.

1. The overall total (illiterates, those without schooling and those who have not completed basic primary and secondary education) of non-literates over the age of 10 is 36.4% in Spain; 23% in Italy; 23.2% in Greece; one adult in five in France; 24% of adults over 18 in Canada; 13% of those over 17 in the USA. There are between 300,000 and 500,000 non-literates in Wallonia and in Brussels (Belgium). According to a survey carried out in Hungary among a sample of adults, 30% had never used writing in their lives and 16% had never held a printed sheet in their hands.

2. *The Cost of Illiteracy in Canada*, Canadian Business Task Force on Literacy, Toronto, 1988.

The
microcomputer
has become
an important
support for
new forms
of literacy



The PC and the 3 Rs

By Kenneth Levine

IN a century of almost continuous technological innovation affecting all the major media of human communication, the last decade has been particularly marked by rapid and striking developments in telecommunications and the power and cost-effectiveness of computers. Until recently, the inculcation of reading and writing skills has been the pre-eminent and unchallenged objective of almost all programmes of basic education the world over, but it is natural that sophisticated technical developments should prompt some reflection about the future significance of literacy, for both individuals and societies.

Among the many issues that arise, we can usefully concentrate our attention, in turn, on three. Do "traditional" literacy and the medium of print retain their importance in the face of competition from new modes of transmitting infor-

mation, and if so, how will they be altered? What degree of change is likely to take place in the level and spread of skills constituting literacy? Should the new media be seen as benign and potentially democratizing forces, or as sinister additions to the armouries of already powerful élites and bureaucracies? We can simplify our task somewhat by selecting the impact of the personal computer on literacy as the main example under scrutiny.

Before tackling these specific questions, there are two preliminary considerations of a general kind. The first is an obstacle to sound reasoning that must be removed. Many of the forecasts and scenarios that are being dispensed by contemporary commentators contain a debilitating flaw in their analysis. They assume that the new technologies usher in a set of predetermined social and

Optical fibres (above), glass filaments no thicker than a human hair, are revolutionizing telecommunications.

economic consequences that are universal and irresistible—an assumption often referred to as “technological determinism”.

Many of the scenarios, whether optimistic or pessimistic in tone, consist of the extrapolation and generalization of trends from a particular technical development in a particular society. In predicting what will happen when that technology emerges in, or is transferred to, other societies, little or no allowance is made for the



mediation of local economic, political and social processes.

The second consideration relates to literacy itself. Literacy is not a unified skill but a plurality of different capacities. A pedant would insist that we speak always of “literacies” in an effort to accommodate the fact, for example, that people “literate” by all of the conventional benchmarks may nevertheless not be able to read or write in “foreign” languages, or even use many of the specialist applications of writing and print available in their own natural language (for example, notations for music or chemical compounds, phonetic alphabets, proof-reading marks, maps, timetables, engineering plans, meta-languages for logical, mathematical or computing purposes).

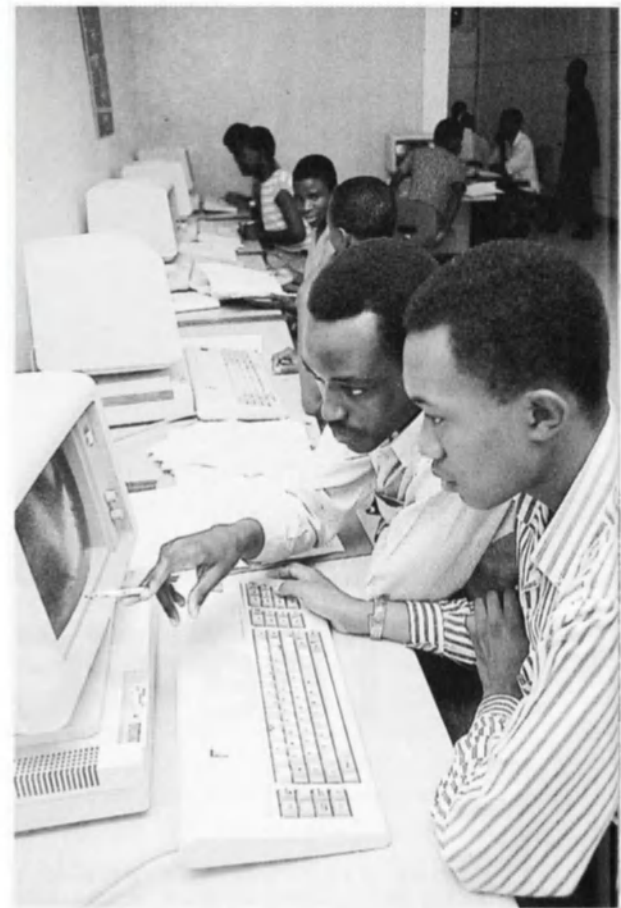
One of the indirect impacts of new technologies is that they alter prevailing social definitions of the skills (and the level of the skills) that constitute literacy. It is important clearly to distinguish improving or declining rates of literacy from shifts in the way in which it is being conceived and defined.

Let us now take up the question of the durability of traditional literacy. One reliable measure of its continued importance is the level of consumption of printed paper, which has shown steady increases in both developed and developing societies over the past decade. Partly through its close connection with techniques of bureaucratic organization and project management, the incorporation of reading and writing into all spheres of life and into a vast assortment of mundane transactions is at work on a global scale. The situation is broadly similar for “serious” writing and publication. Despite the forecasts that

have been repeatedly made over the last fifty years concerning the imminent eclipse of “book cultures”, the statistics show that the market for conventionally published works has held up in the face of the expansion of ostensibly “rival” media such as recorded music, television and video.

Software that takes the drudgery out of writing

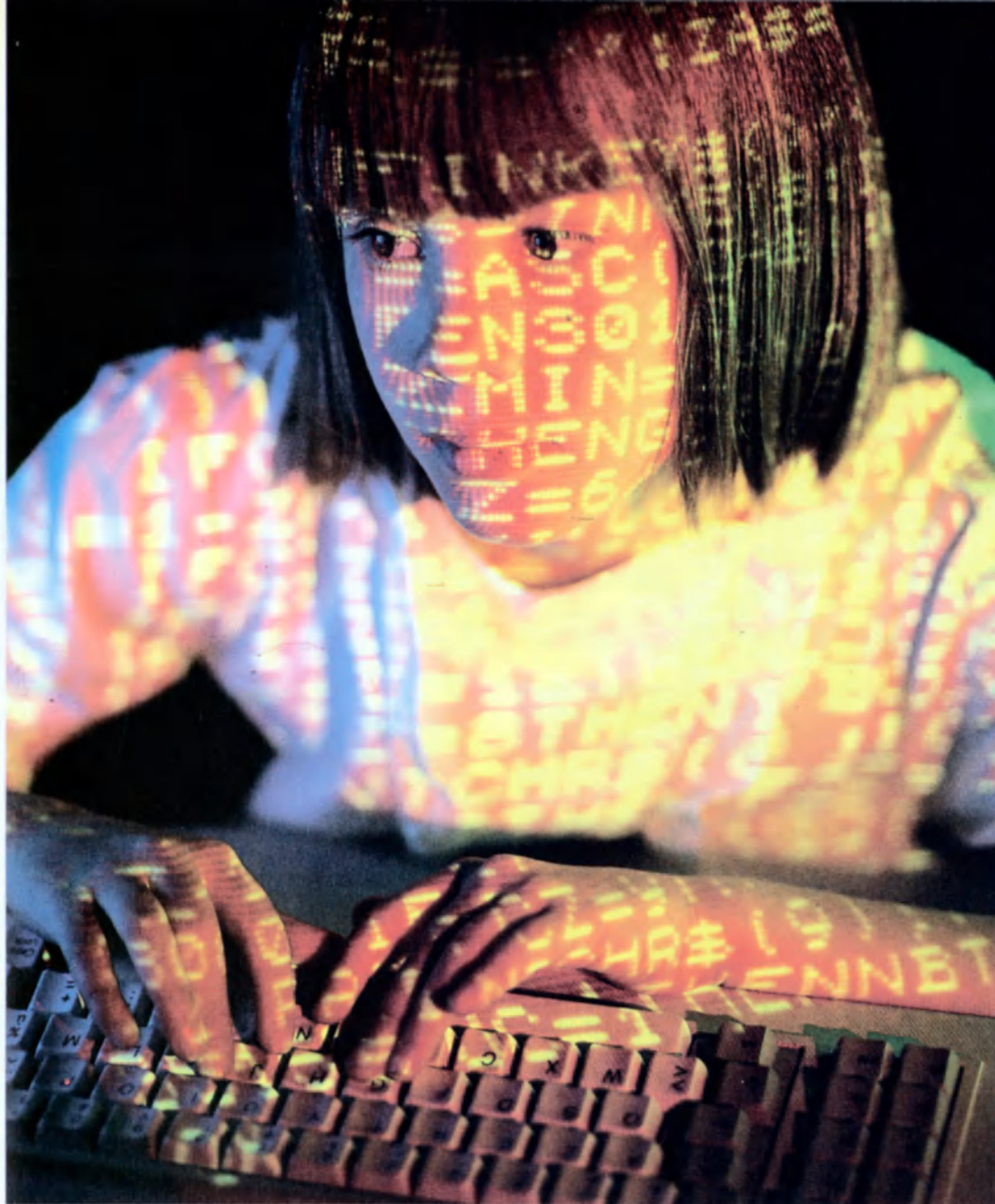
There are several reasons for viewing the advent of micro-computers as an important support for the literacy/print combination. The potential of this kind of equipment as a literacy aid, mainly within the framework of conventional schooling, has been recognized for some years. Unfortunately, the first generations of computer software for use in literacy training were, in general, pedestrian in conception, offering little more than drill exercises on a display screen rather than on paper. The greatest contribution to literacy studies so



Computerization of the workplace: (above) India; (right) Zaire.

far has come from word processing software which has eliminated much of the drudgery associated in the past with the creation of finely-tuned and error-free texts, allowing the novice and the experienced author alike to concentrate on the creative process and to experiment freely.

Spelling checkers, now often integrated with word processing software, represent a useful half-way house on the road to high-level literacy: they allow the learner to eliminate errors (and mistypes) that would, if uncorrected, detract from the polish and authority of the resulting text. In future, grammar and style checkers will extend this kind of facility, although at present they are generally crude and unreliable. As significantly



more powerful hardware and software become available, the quality of such aids will improve drastically. Many creative possibilities are also opened up by the way in which the micro-computer can be used as the heart of a “hypermedia” system—that is to say, as the device that controls the generation of a “performance” involving text, graphics and sound that is structured interactively according to the responses of the learner to the programme.

New ways of learning

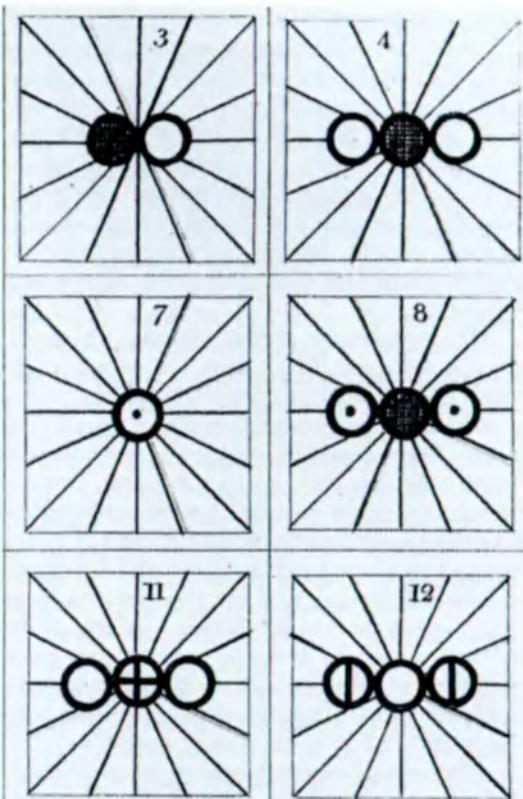
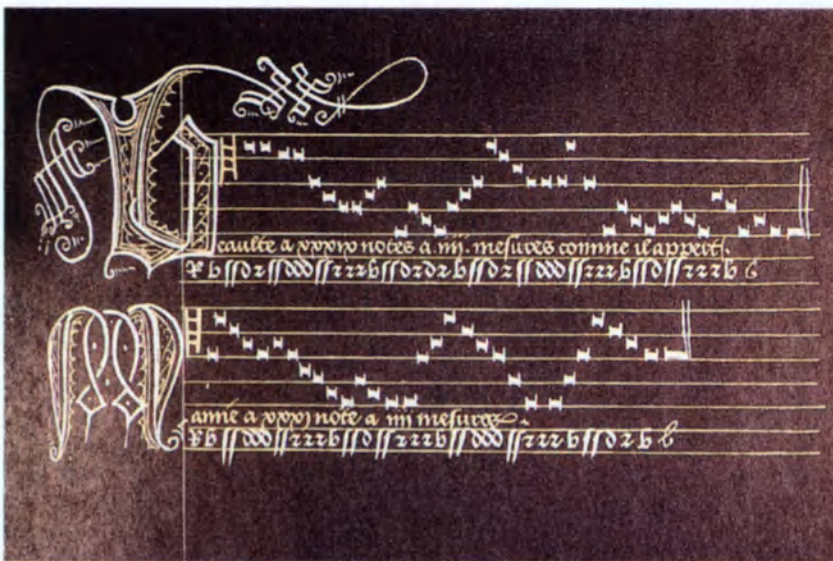
The linking of micro-computers to telecommunications networks is another area of immense potential, particularly for the study of foreign languages. Pupils can send messages to their peers across continents quickly and relatively cheaply, adding spice and interest to language studies and frequently providing the contacts that lead to collaboration on projects and exchanges of personnel. This kind of “electronic mail”, which involves an amalgam of the characteristics of face to face interaction, telephone contact and letter writing, has the hallmarks of a distinctive medium of communication with a unique blend of intimacy, informality and distance.

One of the most important characteristics of these latter developments is that they promote a participative form of learning; they permit (and frequently require) the learner to have a proactive role in decisions about how the pedagogic project is to be approached, and they are generally congruent with a philosophy of releasing the learning process, as far as possible, from the physical boundaries of any specific educational institution.

The next issue concerning possible changes in the constituent skills of literacy is an important one with two principal aspects. The first is that change in the print-bearing medium does directly alter the character of reading and writing skills, but in most cases, only at the margins. Thus, to the extent that micro-computers become standard classroom teaching aids, some elements of “computer literacy” such as familiarity with keyboards and basic knowledge of the capacities of word processing systems and their associated equipment will increasingly be incorporated into popular expectations of what literacy signifies, in much the same way as use of the electronic calculator is being assimilated into notions of numeracy.

The second aspect concerns the probability that, in many societies, “inflation” will lead to

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Above, musical notation, 16th century. Left, diagrams of the structure of the atom, from *New System of Chemical Philosophy* (1808-1810), by the British chemist and physicist John Dalton.

a rise in the threshold of the minimum acceptable standard of reading and writing (a standard often referred to as “functional literacy”). This inflation occurs because literacy is never a purely instrumental skill; possession or lack of it universally carries implications for the individual’s social standing, so there is a tendency to seek the highest level of attainment possible, irrespective of the difficulty of the materials that will be written or read.

Literacy is also the means to gaining educational qualifications that can secure entry to remunerative and prestigious forms of employment. In the face of competition, some candidates for such posts will choose to invest in higher levels of literacy in order to acquire the advanced qualifications that give them an advantage over their rivals. Over time, others will copy their example, until everyone finishes up in their original relative positions. To achieve any advantage, an individual must now make a further investment in literacy and qualifications, fuelling an inflationary spiral of standards. The general implication of this spiral is that there will be a need to enhance the attainment targets in many programmes of basic education and also to offer more comprehensive provision for intermediate and advanced language studies.

Finally, are the new technologies essentially democratic and egalitarian, or threats to civil liberties and personal freedoms? It has been argued, for example, that tools such as desk-top publishing, which can greatly facilitate the production of low-cost documentation such as newsletters and teaching materials, will empower many marginal and scattered minority groups, giving them for the first time a collective voice and identity. It has equally been argued that the capacity of national governments to acquire the most powerful available means of information storage and processing leads to ever greater dangers of centralized control and cultural uniformity.

As suggested at the start of this article, abstract generalizations in this area are likely to be unsound. As with technology generally, in benign hands the new tools of literacy are themselves benign. The ends to which they are applied are a political and cultural consideration determined within each host society. There is, however, one significant global aspect: the cost of the new information systems, although falling rapidly in real terms, represents yet another potential source of inequality between the developed and the developing nations.

The new information technologies cannot be looked to for a once and final solution to the problem of world literacy. Indeed, we must accept that this problem is not of a kind that lends itself to final eradication since literacy and illiteracy are both relative rather than absolute conditions. The least literate in any society will always be seriously disadvantaged, while the fluent will increasingly demand opportunities to acquire specialist technical or foreign language literacies. In all probability, new technologies alone cannot cope with this rise in expectations, but if they are developed and implemented in a manner sensitive to local needs and conditions, they can make a more than modest contribution to meeting the literacy aspirations of a new century. ■

The road to reading



By Ralph C. Staiger

WE enjoy doing the things we do well. A good football player enjoys outwitting the opposition as the ball moves towards the goal. A graceful dancer enjoys the movement, rhythm and music of the dance. A good reader is more likely to reach for a newspaper or a book than someone who stumbles over every word.

A child who is a slow, halting reader will avoid reading even the most beautifully illustrated storybook. He or she may try to understand the gist of a story from the pictures, but will be unable to enjoy it fully.

Many people believe that the first steps

**How adults
can introduce
children
to a lifelong
pleasure**

towards reading take place in a school, and that the teacher has the primary responsibility in guiding them. This is not wholly true. School reading books provide some reading experience, but they are meant to teach children *how* to read, and cannot be expected also to ensure that the learner will derive lifelong pleasure from reading. The responsibility for creating lifetime readers is a broad one, shared by family, school, libraries, bookstores and the mass media.

Even before school starts, a child experiences much within the family circle which can lead to reading. Mother, father, brothers, sisters, uncles,

aunts, grandparents and friends of the family provide the most important early experiences on which it is possible to build concepts and attitudes which create a successful reader. The disposition of the family towards ideas, towards books and reading, establishes important values which may stir even the youngest baby.

It is never too early to start. The infant in its mother's lap who is read to—even if the stories are not understood—learns that reading is a comfortable experience and that words and pictures must be good. Later, when the stories become pleasurable on a different level, this attitude will continue. Most children also enjoy the comfort of hearing the same familiar stories over and over. Sometimes they gleefully finish sentences. This does not mean that it is no longer necessary to read that story. The child is showing appreciation and learning has taken place from the story.

Playing games with words

Exposure to language—just talking to a baby—is important. As children grow, they usually enjoy word play and word games which help them show their mastery over words. The whole family can join in the fun of playing games with words. Active teaching of basic concepts and attitudes is also the responsibility of a parent. Learning to recognize, name and differentiate between colours may seem rudimentary, but it is an important building block, as are many other concepts and experiences about which a child will be expected to know and eventually read.

A mother or father who reads a story to a

child may entice the child to enjoy more difficult tales. By listening to their parents reading aloud from books too difficult for them to read themselves, young learners find out how complex stories take shape and how words are used. Their understanding of what books can be is enhanced, and when they later encounter these stories in their own reading, they are meeting old friends. Reading to children should continue long after they have begun to read for themselves.

There is evidence that even in the most depressed economic conditions, whether a child becomes a reader or not depends upon a role model in the family to provide an example. Parents who read themselves are likely to have children who read. Parents who discuss what they have read and invite their children's contributions to the conversation are directly influencing their children's reading development. The role model's enjoyment helps make a reader for the future.

All of this takes time. But it is well worth the investment. A daily period for family reading may take several forms. Instead of the parent doing all the reading, several children may read from their books and talk about them. An older child or a parent may start a sentence or a paragraph and have a younger child try to finish it appropriately. The resulting discussion (or argument) is a useful way of developing vocabulary and social skills and learning about language structure.

After setting the stage for reading and other intellectual activity, perhaps the most important contribution a parent can make to readers in the family is to make sure that books and other materials are available for them. This does not

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You can take a book almost anywhere.



necessarily mean buying books or journals, but may involve going to the library, borrowing books from friends and neighbours or making available books from other sources.

The electronic media play an important role, too, for films, radio and television can help build the world of ideas which a reader needs. Television and radio can often be useful instruments for discussing plots and the use of language, and for evaluating the worth of a specific programme

collectively. The media can stimulate children to read more about a subject. If children spend an inordinate amount of time mindlessly watching television, it is sometimes necessary to limit the amount of viewing time and to help them decide which programmes to watch. Television is a source of learning about many things. It should be used with co-operative judgement.

Schools are responsible for sharpening the reading abilities of young people, but they cannot

The children's corner of a bookshop.

be expected to perform the entire task of shaping perceptual skills, providing experiences and motivating each pupil for a lifetime of reading. Teachers can do much to create an atmosphere in which learning will not be a dreaded memory. If a sharp-tongued teacher ridicules a poor reader, the other pupils soon join in. This is inexcusable. It may teach the victim to avoid reading for life.

Like a parent, a teacher who reads to the class from a book which he or she has enjoyed—even though it may be above the class's reading level—plants seeds for future adult reading. Not only is an example being set, but the teacher's enthusiasm may be infectious, and the student's curiosity aroused. Poetry particularly lends itself to being read aloud.

Encouraging children to create

Just as there are many kinds of reading materials, so there are many ways to read. Reading a recipe is different from reading a news item in the paper. For most children, stories are the commonest and most enjoyable kind of reading. Even here, however, different reading approaches are the norm. Some children will race through a story to find out what happened. Others may use the plot as a launching pad for imaginative thinking and acting. Such children may become creative artists.

All children should be encouraged to create. Their early attempts to write should be encouraged, for a writer is likely to become a reader. Adults should remember that spelling words is an acquired skill. More literal-minded young-

sters use reading primarily to gather and deal with information, although they may also enjoy an imaginative story. Helping to build vocabulary and suggesting how information can be located and used may be the most profitable ways of helping such children. Librarians know how to use reference works and can almost always show the information-gatherer where to look.

Children's interests and attention spans vary; some maintain regard for what is read, even if the story is from adult materials which the parent enjoys and would like to share. When it becomes obvious that the child is no longer paying attention, it is time to move to books which are closer to the child's level of interest. The parent's obvious interest and enjoyment are eloquent, however, whether the materials are easy or difficult.

Setting aside a time for family reading—an hour during which parents and children read something of interest to them—is especially useful in families which discuss their reading as a matter of course. If the reading hour is perceived as a form of punishment, it can backfire.

Parents should avoid closing doors to books and ideas through unwitting ridicule, verbal or subconscious. "What, nose in a book again!" even if said in jest, can quench a child's interest quickly. They should also avoid making discussion about books and ideas a testing situation, with penalties for answers which do not agree with a parent's preconceptions of the subject. Nor should they force a child to read a book without previous discussion about it. When reading is a voluntary activity, it is much more likely to be relished and continued for life. ■

"The responsibility for creating lifetime readers is a broad one..."



● ● ●
Soviet-American magazine launched in USA

An English-language scientific quarterly for young people has been launched as the result of a joint effort by three US teachers' associations and the USSR Academy of Sciences. The magazine, entitled *Quantum* and based on *Kvant*, a popular Soviet magazine for secondary school students, is published in Washington, D.C. Its contents include articles and problems on geometry, algebra, physics and chess, as well as profiles of famous Soviet and American scientists.

● ● ●
Air traffic set to double by the year 2000

Long-term forecasts of scheduled passenger and freight traffic issued by the International Civil Aviation Organization (ICAO) indicate that traffic worldwide will double by the year 2000, and that European and American airlines will be overtaken by those of Asia and the Pacific. International traffic is expected to grow faster than domestic, ICAO reports, and the number of passengers carried is expected to increase from 1,000 million in 1988 to just under 2,000 million in 2000.

● ● ●
Nuclear power

Ten new nuclear power plants were brought on line in 8 countries in 1989: Bulgaria, the Federal Republic of Germany, India, Japan, the Republic of Korea, Mexico, the UK and the USA, reports the International Atomic Energy Agency. The world's total number of operating nuclear electricity plants now stands at 435, accounting for nearly 17% of electricity production.

● ● ●
Scanning the Sphinx

A team of French restoration experts appointed by Unesco has tested the structure of the 4,500-year-old Great Sphinx at Giza, Egypt. The colossal portrait statue of the Pharaoh Khephren was scanned with ultrasonic equipment in order to diagnose the condition of the stone. Initial findings show that the head is firmly attached to the neck and that the quality of the stone is good.

● ● ●
Unesco aids Bangladesh Polytechnic for women

The first graduates of the Mohila Polytechnic Institute in Dhaka (Bangladesh), all of whose students are women, will receive their diplomas in architecture and electronics this year. It was to help promote greater equality of opportunity for women that the Government of Bangladesh founded the Polytechnic with help from Unesco and the Kingdom of Saudi Arabia. The Institute currently has some 200 students enrolled in its 3-year courses, which are in great demand—about 1,000 young women applied for 80 vacancies last year.

● ● ●
'Steel collar workers' and safety

The International Labour Organisation (ILO) reports that there are likely to be 10 million robots in the world by the year 2000. Some 141,000 of these "steel collar workers" are already being used in Japan, more than anywhere else. But as the number of robots in the workplace has risen, so has the number of robot-related accidents. The ILO has responded with a study which sets out basic principles and practices for working safely with these machines.

● ● ●
1st stage of Sistine Chapel restoration complete

The first phase of the restoration of Michelangelo's biblical frescoes in the Vatican's Sistine Chapel is now complete, after 8 years of work. A specially developed computer system was used to create a visual record of the frescoes before and after restoration. Accurate to within a millimetre, the system made it possible to trace Michelangelo's day-by-day progress when he painted the frescoes on the Chapel vault between 1508 and 1512. The restorers are now working on *The Last Judgement*, on the altar wall. Work on this is expected to be finished by 1994.

● ● ●
Music for Molière

The original version of Molière's last play, *Le Malade Imaginaire* (1673), has been reconstituted thanks to a discovery by an American musicologist, John Powell. In the archives of the Comédie Française in Paris Mr. Powell found much of the manuscript score of music composed by Marc Antoine Charpentier to accompany the play, originally described as a "comedy mingled with music and dance."

● ● ●
Reporting from space

The first journalist in space will be either Ryoko Kikuchi, a Japanese camerawoman, or her colleague Toyohiro Akiyama. The two are semi-finalists selected for training from among 163 employees of a Japanese private broadcasting company. The winner will board a Soviet Soyuz spacecraft scheduled for launch on 2 December 1990 and will make live broadcasts in Japanese for radio and television during the 8-day mission.

● ● ●
40th anniversary of WMO

The World Meteorological Organization (WMO), a specialized agency of the United Nations, celebrates its 40th birthday this year. In 1950, WMO succeeded the International Meteorological Organization, a non-governmental organization founded in 1873. The World Meteorological Convention of 1947 provided for the establishment of a new organization to promote a worldwide meteorological information system, the standardization and international exchange of observations, the application of meteorology to other fields, and the establishment of national meteorological services in developing countries.

● ● ●
International conference on earth architecture

The 6th international conference on the Conservation of Earthen Architecture will be held in October at Las Cruces, New Mexico (USA). It is being organized by the Getty Conservation Institute, the Museum of New Mexico State Monuments and ICCROM (International Centre for the Study of the Preservation and the Restoration of Cultural Property), under the aegis of US/ICOMOS (International Council of Monuments and Sites). Topics to be covered include the history of earthen architecture, problems with moisture, restoration and conservation, clay chemistry, and seismic mitigation. It is estimated that between 30% and 40% of the world's population today live in dwellings in which earth is used as a building material.



After literacy what next? Many of the questions raised in this essay written nearly half a century ago by a great Spanish poet are still as topical as ever.

The new illiterates

By Pedro Salinas

In the beginning there was illiteracy. Over the centuries and thanks to God, light gradually dawned, until today we have compulsory primary education. Most people, including many teachers, would agree that the acquisition of literacy skills, or rather the ability to read, marks a frontier so clearly defined that it divides humanity into two totally different groups.

On one side of the divide is the anonymous mass of unfortunate

people who are unable to penetrate the mysteries of the printed word and remain on the outside, for all the world as if they were standing on the shore of a sea across which they could be borne to marvellous lands, if only they had a ship to sail in. On the other side are the legions of the privileged, who have had the good fortune to achieve that blessed state in which they know for certain that c and o make co, that c and a make ca and, thanks to this knowledge, can decipher the posters which proclaim the magic words: "Coca Cola".

Yet I must confess to harbouring serious doubts about the authenticity of this rigorous division of humanity into literates and illiterates and, in particular, about using it as a yardstick with which to evaluate people.

Not knowing how to read and write is natural; all of us come into the world that way. No one was born educated. I mean by this that man in the natural state, at birth, is illiterate; but insofar as he is able to learn to read, he is also potentially literate.

For various reasons which I will not go into here, society decides to turn this potential into reality. In other words, to transform man's innate capacity to understand letters and signs into mastery of the art of reading. This is achieved by means of a complex process which begins with a primer and ends goodness knows where. At the end of these efforts, referred to as primary education, the subject is proudly declared to be literate, a person of superior distinction—which he undoubtedly is.

So far, so good. But the ability to read is in itself only a potential state. To know how to read is one thing, but actually to read is another. If the newly-literate person does not exercise his reading skills, what is the point of learning to read at all?

We now come to the next stage in this analysis of the true value of literacy. Let us assume that the potential reader takes the next step and actually becomes a reader. Does this mean we can say that the objectives of literacy have been attained? By no

means, because at this stage a new scenario unfolds. The illiterate person has become literate, the literate person has become a reader, and the reader is reading. But what and how does that person read?

The same question arises again. Every reader is potentially a *good* reader. But will he or will he not become one? If the answer is yes, we can say that the aim of literacy has been achieved: the ability to read well, in such a way that the word becomes spirit and texts come to life.

It is clear that the objective of literacy is rarely fully attained. We must recognize the existence of those whom I call the neo-illiterates. These are people who, although freed from the hell of total illiteracy, have not yet attained the empyrean of reading, but hover in a limbo somewhere in between.

I am not referring to those who cannot read because of a lack of books or libraries. This kind of practical problem is relatively easy to solve.... I am thinking rather of those who can read but do not do so, for more profound and complex reasons than the fact that they do not have a book at hand.

I would suggest that two types of illiterates should be recognized.

First, there are the "pure", classic, *natural* illiterates who for some reason do not know how to read. Such people may be tragic insofar as they have the potential to achieve excellence but lack the mental stimulus to realize their potential, which remains dormant for lack of knowledge and culture. I feel respect, sympathy and admiration for this category of illiterates. In my country, you only need to stroll awhile in the hills of

Castile or in the olive groves of Andalusia to come across illiterate people who, when you get to know them, prove to be as humane, as dignified in their behaviour and as wise in their judgement as many people whose heads are stuffed with learning.

The other type of illiterate person might be described as impure, counterfeit, the product of modern education and, unwittingly, the embodiment of its faults. Those who know how to read, but nevertheless to all intents and purposes remain illiterate, I call the neo-illiterates.

This type of "neo-illiteracy" may be total or partial. Total neo-illiterates are those who, after learning to read at school, choose not to use their reading skills except when they actually have to read a letter, scan a cinema or theatre programme, or



Opposite page, "Innocents newly saved from the darkness of illiteracy, from the dragon of native ignorance, must be closely watched."

Right, a page from *The Absurd Alphabet* by Walter Crane (English, late 19th century).

consult the telephone directory. Some of them may glance at the sports pages, thereby enjoying a form of journalism which is particularly meritorious since for many people it provides the only occasion when they read....

Many of these people are active, practical and—to borrow a fashionable modern term which associates the mysteries of Greek with those of engineering—dynamic....

There is also a species of partial neo-illiterates whose members may be seen hovering round newspaper kiosks like bees buzzing round a magnificent flower, in search of ingredients with which to make the honey of their intellectual lives. They never read books but they are fascinated by the proliferation of magazines and the topics they cover. They deserve sympathy because far from sparing their efforts as readers, they are prodigal with them. They read voraciously, poor things, returning home laden with magazines which they plough through for hours on end, without getting much more out of them than a child playing with a jigsaw puzzle that he never manages to finish, never seeing the overall picture in which everything falls into its rightful place....

This kind of reader arouses our compassion. The more he reads, the further he drifts in this boundless sea

of print, the level of which rises a few metres every week. The reader of a book knows where his task begins and ends; he can relax, take a holiday. A magazine reader, especially if he is a subscriber, feels pursued as if by the Furies by these terrible weekly, bi-weekly or monthly creatures. If he flags, he will drown in a rising tide of newsprint. To keep abreast of the material that pours from the presses, the reader must make a titanic effort. A hundred writers penning articles for a score of magazines snap at his heels like a pack of tireless hounds which allow their quarry no respite....

Several conclusions can be drawn from this necessarily incomplete portrait gallery of neo-illiteracy. Firstly, it should never be forgotten that the word "read" is ambiguous and so, consequently, are such expressions as "learn to read" and "know how to read". These are complex expressions which should not be taken in their most literal, superficial sense as simply describing the capacity to understand the most obvious meaning of the written word. There is no doubt that the possession of this simple technique wrests man from his natural illiteracy and opens up vast perspectives. But if this aptitude for expanding the potential of the soul, for spiritual fulfilment, is not used, he will find himself in a situation which

sounds paradoxical yet is nonetheless very real—that of an illiterate who knows how to read. He has been wrested from pure illiteracy, yet through disuse or neglect of the faculty of reading a regressive mechanism begins to operate which, sooner or later, will take him back to his point of departure, or worse—spiritual illiteracy....

Although this is the harsh truth, statistics and social convention uphold the fiction that such people should be counted as literate, and that they belong to the privileged group of those who know how to read. In this, as in much else, the world does not scruple to accept a half-truth which it welcomes with

the jubilation which ought to be accorded to the whole truth, at the same time feeling vaguely that everyone is at once victim and perpetrator of a confidence trick.

This new group is slowly growing, and the time has come to name and confer a status on its members. They are the neo-illiterates and they are far more threatening and dangerous than the pure illiterates. They do not lurk in the shadows of ignorance with the devil nor do they aspire to the light of divine knowledge. They are capable of everything yet venture nothing....

There is a further consequence of their increasing numbers: we must abandon our idolatrous and hypnotic



Pages from reading primers: (left) Franco-Flemish, first half of 19th century; (above) French, 1940s; (above right) Russian, second half of 19th century. Right, a newsstand in Thailand.

attitude towards the so-called "problem of illiteracy". Modern educational policy has a fetish, a blood-stained deity to which everything is sacrificed though it guarantees nothing to its most fervent worshippers: the struggle against illiteracy. This phrase, repeated over and over again in newspapers, magazines and political rhetoric, strikes awe into people's hearts....

Some of my readers may feel indignant at this heretic who has the temerity to harbour doubts about the struggle against illiteracy. Yet, if my argument is, or at least may be, well-founded, namely that teaching people to read is not enough, in most cases, to wrest them from their original spiritual poverty—or, as T.S. Eliot put it, that "only in a very limited sense can it be said that education produces culture"—it will perhaps be understood that what I am attempting to do is to give to this phrase, this slogan, this endeavour—"the struggle against illiteracy"—a new vigour.

I do not wish to minimize the tragedy of illiteracy; on the contrary, I believe that we are faced by two powerful enemies. One is the long-familiar, immediately recognizable enemy on whom our educational big-



guns are trained; but beside it is another figure disguised behind the mask of literacy, deceiving us, making us believe that it is not a problem, that it is one of us, one of the workers in the city of the mind, when in reality it is the fifth column of total illiteracy, the sworn enemy, through inert opposition, of the word become spirit.

It is of course praiseworthy that thousands upon thousands of children are today snatched from the jaws of illiteracy by primary education. But these innocents, newly saved from the darkness of illiteracy, from the dragon of native ignorance, must be closely watched. A terrible surprise lies in wait. These infants start out in life armed only with basic reading and writing skills, confident in the belief that they have already conquered their native ignorance, only to encounter a much more formidable adversary around the next corner.

This new Circe lures them to her and turns them into lesser beings, neo-illiterates who will live contentedly in the snug confines of unawareness, with all the material advantages of the modern world yet sentenced for life to another form of ignorance—surfeited, not with the acorns of Homer's noble oak, but with the synthetic sustenance that is the ultimate miracle of progress. ■

PEDRO SALINAS
(1891-1951),
poet, scholar, dramatist and
essayist, was an outstanding
member of the group of
Spanish writers known as the
"Generation of 1927". He
emigrated to the United States
on the outbreak of the Spanish
Civil War and taught at
Wellesley College, Mass., and
Johns Hopkins University,
Baltimore. A selection of his
love poems in English
translation, *To Live in
Pronouns*, was published in
1974. This article has been
extracted from his essay "The
new illiterates", first published
in *Revista de América* (No. 4,
Bogota, April 1945).



D O C U M E N T



It seemed like a dream come true. Two chemists had come up with a cheap, simple, clean and virtually inexhaustible source of energy. If it had been true, and could have been made to work, it would have solved the energy problems of humankind for far into the future.

But science does not usually yield such easy solutions, and this case was no exception. It is fairly certain now that the so-called "cold fusion" phenomenon was not the breakthrough it was initially claimed to be. No one is yet certain what the phenomenon is or even if there is a phenomenon at all, but the events that have surrounded it since last year hold many lessons for those who practice science.

Martin Fleischmann of Southampton University and Stanley Pons of the University of Utah, both respected scientists in the field of electrochemistry, announced on 23 March 1989 that they had achieved nuclear fusion in an electrolytic cell. They had filled the cell, similar to a glass beaker, with a solution made from heavy water, in which the hydrogen in the water molecules is a rare form known as deuterium. They immersed in this solution two

electrodes, one of platinum and one of a metal called palladium. They passed an electric current through the solution by connecting the electrodes to a battery. After some time they found that a large amount of heat was being produced in the cell, much more than that generated by the power of the battery.

Their explanation was simple: passing an electric current through the solution freed the deuterium from the heavy water molecules and it was then absorbed into the palladium electrode. Once inside the electrode, they claimed, deuterium atoms fused together to form larger atoms of helium and released energy in the process. This nuclear reaction is the same process as that which fuels the sun and other stars as well as providing the destructive power of the hydrogen bomb.

It was in the 1920s and 1930s, when scientists were probing the atomic nucleus and piecing together its structure, that they realized that reactions between nuclei could release large amounts of energy. Nuclear fission is the reaction where a large heavy nucleus splits apart into two or more fragments. A working fission reactor was first demonstrated

Cold fusion— a storm in a test-tube?

By Dan Clery

in 1942, and in 1945 fission was put to lethal use over Hiroshima and Nagasaki.

Nuclear fusion is the binding together of small light nuclei and is the basis of the devastating hydrogen bombs developed in the 1950s. Scientists have been trying for the last thirty years to harness nuclear fusion as a peaceful source of energy, but the methods they have been using are still probably decades away from success. Fusion has certain advantages over fission as a source of energy: it produces little in the way of radioactive waste and its fuel is deuterium and another heavy form of hydrogen known as tritium, both of which can be extracted in great abundance from seawater.

The problem in achieving fusion is getting the nuclei close enough together for them to fuse. Nuclei are composed of protons, sub-atomic particles which have a positive electric charge, and neutrons, which are neutral. Nuclei thus have a net positive charge and, like similar poles of a magnet, two positive nuclei will repel each other. This repulsion, known as the Coulomb barrier, is very strong, and scientists have tried to overcome it using huge fusion reactors about the size of an office block.

There are a number of such reactors in the United States, the Soviet Union, Europe and Japan. They are used to heat up a plasma, a charged gas, of deuterium and tritium to enormous pressures and temperatures, comparable to conditions in the interior of the sun, and they confine the plasma with strong magnetic fields. Under these conditions, nuclei collide together with such force that fusion reactions do take place, but in current machines the amount of energy put in to create the reaction is greater than the energy produced by the fusion so they are not yet feasible as sources of energy. There are a number of alternative methods such as bombarding small pellets of fusion material with powerful laser or particle beams to produce brief bursts of energy.

Opposite,
electrolytic cell of the
kind used in cold
fusion experiments.

Considering all the time, effort and money that has been put into pursuing traditional "hot" fusion research, it is not surprising that there was some disbelief when Fleischmann and Pons announced their breakthrough with cold fusion in something akin to a test-tube. Much of the disbelief was reserved for the method the discoverers chose to announce their discovery. Scientific advances are usually announced by submitting a paper to a specialist journal or conference. Before publication or presentation to the conference, the paper is refereed by other experts in the field and often changes are made to it as a result of their comments. First reports of cold fusion appeared in London's *Financial Times* and New York's *Wall Street Journal*. The same day Fleischmann and Pons held a press conference at the University of Utah and that evening cold fusion was on the national television news.

The search for signs of fusion

The two Utah chemists were not the only people who were experimenting with cold fusion. Just 75 kilometres from the University of Utah at Brigham Young University, Steven Jones, a physicist, had been working for years on exotic ways of achieving nuclear fusion. He had detected signs of fusion in electrolytic cells similar to those of Fleischmann and Pons. The two research teams were aware of each other's work and had agreed to submit their results simultaneously to the British journal *Nature* on 24 March. When Jones heard about the press conference at Utah University on 23 March he went ahead and sent his results to *Nature* only to discover that Fleischmann and Pons had submitted a paper to another publication, the *Journal of Electroanalytical Chemistry*, on 11 March. The two chemists then went on to submit a paper to *Nature* but when asked to make some alterations they said they were too busy with new work and withdrew their paper.

After publication of a scientific breakthrough, it is common practice for other researchers in the same field to repeat the experiment to confirm or refute it. Dozens of teams around the world tried to do so after hearing the press reports about cold fusion but they were hampered by lack of

information. Even when Fleischmann and Pons's paper was published a couple of weeks after the announcement, the technical detail was scarce.

The most obvious way to identify that fusion is occurring is the detection of heat. But this is not a simple matter in an electrolytic cell where there are many other factors affecting the heat content of the cell. Other possible by-products of a fusion reaction include neutrons, gamma rays and tritium. Detection of one or more of these would be strong evidence. Fleischmann and Pons claimed to have detected in their original experiment large amounts of excess heat as well as gamma rays and neutrons, but gamma rays can be produced naturally by rocks, and some neutron detectors are notoriously inaccurate. In the weeks that followed the announcement, research teams around the world declared that they had found heat, or one of the by-products, or a combination, but many found nothing. One of the main discrepancies in the chemists' claim was that for the amount of heat they observed, the number of neutrons detected was far too low.

Meanwhile, on 26 April, Fleischmann and Pons appeared before the Science, Space and Technology Committee of the US House of Representatives to explain their work. They requested \$25-40 million to set up a cold fusion institute at the University of Utah. Their request was refused but a centre was set up in August with money from the state of Utah. Government interest was such that the Department of Energy set up an expert panel to investigate the matter.

The debate among scientists continued to rage. At a meeting of the American Electrochemical Society in Texas in early April, Fleischmann and Pons were hailed as heroes. By the time of the American Physical Society Meeting at the beginning of May, however, there had been a growing number of negative experimental results. The consensus at a specially convened meeting at Santa Fe in late May was ambiguous, with virtually equal numbers of results for and against.

The number of unfavourable experimental results continued to grow during the course of the year. On 12 November the Department of Energy panel published its report and its conclusions were unequivocal: "the experimental results... reported to

date do not represent convincing evidence that useful sources of energy will result from the phenomena attributed to cold fusion... No special programmes to establish cold fusion research centres... are justified".

One year after the original press conference at the University of Utah, cold fusion still refused to lie down and die. The new National Cold Fusion Center in Utah held its first annual conference and dozens of papers were presented in support of the phenomenon. Many reputable research groups around the world were still claiming to have detected one or more of the key signs of cold fusion. But just one week before the conference, *Nature* published a paper by scientists from the University of Utah who monitored Fleischmann and Pons' own electrochemical cells for five weeks and found no trace of any unusual nuclear radiation.

The negative paper in *Nature* has in some sense polarized the debate. Some see it as the final nail in the coffin of cold fusion, while believers see it as strong evidence that a strange, unknown type of fusion is occurring since the production of heat in the cells cannot be denied. It seems possible that an interesting phenomenon is at work, just not the kind that will solve all the world's problems.

It could be said of the events surrounding cold fusion that the scientific establishment seemed actively to try to discredit the breakthrough just because it was so revolutionary. But the success of the recently discovered high-temperature superconductors shows that revolutionary science can gain recognition. It has also been said that the cold fusion story gave the outside world a glimpse of how the world of science works. In reality, it gave a very distorted image of science: science under extreme stress, trying to come to terms with something that is new and unexplained. What the world did see was an example of science that was not some form of miracle cure, nor an ominous threat to humankind. It was simply wrong, and with that somehow more human. ■

DAN CLERY
is a British journalist
specializing in the
popularization of science.

DESPITE the billions of dollars that are spent on science, much of the best scientific information and understanding is not getting through to key decision-makers in government and business.

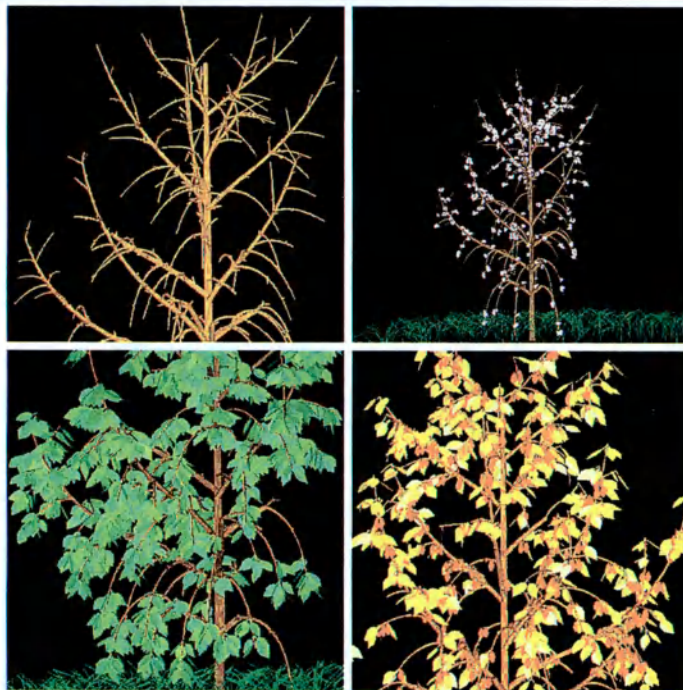
To a large extent this is because government, science and business are three separate worlds, each with its own language, cultural norms and motivations. They are organized differently and frequently fail to recognize when there is a need to work in co-operation. Even when they do recognize such a need, they are often unable to communicate.

Furthermore, while relatively little science gets through to business and government decision-makers, what does get through is not necessarily good science. The science that crosses the barriers into the worlds of business and government often does so only because it is noisy, dramatic or threatening and receives sensational media coverage.

The International Federation of Institutes for Advanced Study (IFIAS), an international association of leading independent research institutions, exists to bring the best science to decision-makers in government and business at the national but especially at the international levels. To do this effectively, it focuses on a limited number of selected global issues, and develops international scientific research programmes around them. The dissemination process is carried out through symposia, seminars and workshops attended by research scholars and corporate and governmental decision-makers, and through IFIAS publications.

Originally established in 1972 in Stockholm (Sweden), where it still has its international headquarters and secretariat in Toronto, Canada, and a project development office at Maastricht, the Netherlands. IFIAS research programmes are developed and carried out through a network of 43 research institutes from 27 countries which constitute the core of the Federation. Their participation in IFIAS activities mobilizes individuals from a wide range of disciplines and from many nations in a research effort which is neither bureaucratic nor politicized.

In addition to the scientific exper-



Computer simulation of the seasonal changes in a fruit tree. The technique makes it possible to visualize plant growth processes.

Science for decision-makers

THE INTERNATIONAL FEDERATION OF INSTITUTES FOR ADVANCED STUDY

tise of its member institutes throughout the world, IFIAS is supported by corporate affiliates which contribute to the development and execution of its research programmes and help to bring the results of these programmes to the attention of the business community.

The hallmark of IFIAS programmes is that they are multidisciplinary in character and global in reach, and seek to be policy relevant.

Efforts are concentrated on issues which have yet to be comprehensively addressed by other organizations.

IFIAS activities are currently focused on three programmes: Human Dimensions of Global Change, Coastal Resources Management, and the International Diffusion of Biotechnology.

The *Human Dimensions of Global Change Programme* (HDGCP) was launched in 1987 as a joint initiative

of IFIAS, the International Social Science Council (ISSC), the United Nations University (UNU) and Unesco. Its purpose is to create a network for research which will bring the resources of the social sciences and the expertise derived from the management of human activities to bear on the analysis and understanding of change in the global environment.

The earth's coastal regions host much of the world's population and a large proportion of global economic activities. Pressures resulting from continued population growth and an intensification of economic activities have increased user-conflicts and environmental damage along many of the world's coastlines. Efforts to manage coastal zones are usually carried out in a piecemeal way by different agencies responsible for separate activities in each area, thus failing to take into account the complete picture of local resources. IFIAS's *Coastal Resources Management Programme* attempts to develop a more integrated approach.

New ecological problems have led to a rethinking of the human role in transforming the environment and the need for alternative development strategies. Biotechnology has the potential to transform economic systems and provide a wide range of benefits, but it could lead to social, economic and environmental problems. IFIAS's *International Diffusion of Biotechnology Programme* grew out of an earlier IFIAS programme on science and technology in global economic change. The aim of the programme is to help understand knowledge and techniques relating to biotechnology so that developing countries can formulate policies that will encourage sustainable development and ensure that the imminent "biotechnological revolution" proves as beneficial as possible. A network of research teams has been established which involves researchers from both developed and developing countries. ■

International co-operation is founded on a network of daily contacts, exchanges and initiatives which create bonds of solidarity between men and women all over the world. In addition to the intergovernmental agencies of the United Nations system, hundreds of non-governmental organizations (NGOs) today form part of this network. These organizations exist thanks to the dedication of people with similar professional interests or common aims who wish to share their experience and combine their efforts. Our regular feature "Forum" gives them an opportunity to talk about their activities.

IFIAS

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Letters to the Editor



Why not an Esperanto Courier?

Esperanto is a language which is needed for basic international communication in our shrinking world and could be widely used if further promoted. I would take out a second subscription to the *Courier* if an Esperanto edition were available, and so might others.

E.M. Wardle
Seaford (United Kingdom)

Many people would like the opportunity to read your magazine in Esperanto. There are Esperanto speakers in over a hundred countries.

Madame Henri Normand
Tourène (France)

By publishing an Esperanto edition you would doubtless lose some subscribers to other language editions, but you would certainly gain many more. Esperanto speakers are more receptive than most people to your "window on the world". They are used to dialogue.

A. Legros
Bondy (France)

Smokeless zone

As an enthusiastic stamp collector, I am pleased to see postage stamps reproduced on the letters page of the *Courier*. But in my capacity as spokesman for the Danish anti-tobacco association Landsforeningen RØGFRIT MILJØ, I can only deplore your choice of a stamp depicting a Danish actress of the 1930s, who in any case is virtually forgotten today, smoking a cigarette. Our association recently wrote to the Danish Minister

of Communications and to the director general of the Post Office to protest against the use of motifs associated with smoking and the fact that no anti-tobacco stamp has yet been issued in Denmark. Through the European Non-smokers Union, we intend to propose a motion calling for the regular issue of anti-tobacco stamps at the next European Conference of Postal and Telecommunications Administrations.

Please note that my name is spelled Røjfri, not Røgfri as in the name of the association to which I belong, although both words mean "smokeless" in Danish.

Røjfri Andersen
Aalborg (Denmark)

The stamp will be replaced in the next issue. If you send us an anti-tobacco stamp, we shall be pleased to reproduce it on our Letters page. Editor

Return to inner space

I was very interested in the article on "Creatures from inner space" in your October 1989 issue, but I don't agree with some of the points that were made. The importance of *Star Wars* was not sufficiently emphasized. This was a watershed in the history of science fiction movies and it put an end to the fact that, for decades, such movies had lagged way behind written sci-fi. I agree with Claude Aziza's view that it "rekindled childhood dreams and revived medieval legends" (as in the search for the Princess), but the basic theme of the film seems to be the eternal struggle between good and evil (in this case, the Galactic Empire versus the rebels).

Also, was *E.T.* really Spielberg's version of the New Testament? The comparison made between the immortality of Christ and that of *E.T.* is understandable, but perhaps "rekindling childhood dreams" is more appropriate to this film.

The worlds visited by Flash Gordon and Buck Rogers in the old black and white serials may have been "very like the real world", but in the 1980 movie version of Flash Gordon (not mentioned in the article), of all the planets visited by the hero, few could be compared to anything in the real world.

An important film of the late 1980s, *Alien Nation*, also not mentioned in the article, was subsequently made into a television series which is now showing in the United States. It deals with the issue of integration and the racism brought about when *E.T.*s land on Earth—reminiscent of today's intolerant world.

Finally, perhaps a link should be drawn between the development of *E.T.* movies with developments in the conquest of space. Perhaps new angles and ideas will emerge from science fiction as the race for the first manned mission to Mars begins.

Jonathan Fenton-Fischer
London

The changing values of civilizations

Robert Bonnaud's article "A new model for a universal history: world rhythms", in your April 1990 issue, inspires me to make a few comments. Yes, there is such a thing as a universal history. Yes, there are factors common to the histories of different peoples. These should not be sought in synchronisms or universal turning-points, as all peoples do not advance at the same speed. Nor should they be sought in specific rhythms, for history sometimes leaps forward, sometimes it is static, and sometimes it regresses. These universal constants are to be found in the driving force of civilizations: their values....

The oldest of these values grew out of the family group—the genetic bond of the tribe to their great mythical ancestor. This is how ancestor cults came into being, as did the fertility cults derived from them and

based on the mother goddess, the bull or the serpent.

After the tribe, the cultural extension of the family, the city-state developed, centred on the temple. The great ancestor gave way to the fertility god, represented on Earth by the priest-king and the priestly élite. The Hebrews sacrificed bulls to Yahweh and, by circumcising baby boys, symbolically offered their god the virility of the male. The king had to be of divine origin.

The warrior-figure succeeded that of the priest. The gods also became warriors. The serpent gave way to the eagle, symbolized in myth as a struggle against the dragon. Just as the Bible transformed the bull into the "golden calf", the warrior-figure turned the serpent, born of the Earth and of the forces of Nature, into a hideous and fearsome monster which would be laid low by the hero. The minotaur of Greek myth was thus defeated by the bravery of one man. This spirit of the great empires of Antiquity persisted until recently.

Today's major wars are economic. Work and money are the predominant values of Western societies. The banker of the Middle Ages, although already very powerful, was dependent on the warrior. Now it is the other way round....

The states whose cohesiveness is currently based on religious values call on their traditional values as a source of strength. There is good reason to fear that this harking back to the past, which cuts them off from a changing world, may lead to a full-scale recurrence of warlike urges....

As the values of civilization evolve, the social structures which cultivate them become more complex: from the family to the tribe, from the tribe to the city-state, from the city-state to the state. The future value of civilization must be capable of transcending the structure of the state, of uniting all states. The *Unesco Courier* stands for this value.

Jean-Marie Lang
Metz (France)

LITERACY LESSONS

On the occasion of International Literacy Year, the International Bureau of Education (IBE) has prepared a series of 40 brochures entitled *Literacy Lessons*. Written by specialists from all over the world, the brochures take stock of current knowledge and experience in the field of literacy and post-literacy work.

The booklets, grouped together in a box, are available in English and in French. A Spanish version is being prepared.

To order a set, please send a cheque or money order for the equivalent of US \$10, made out to the Unesco Special Account for World Literacy, to either:

The International Literacy Year Secretariat, ED/PBL, Unesco, 7 place de Fontenoy, 75700 Paris, France.

or International Bureau of Education, P.O. Box 199, 1211 Geneva 20, Switzerland.

Please specify which language version you require.

A TIME FOR LEARNING

Right, two pictures from a Unesco travelling exhibition entitled *1990, International Literacy Year*.*

The exhibition consists of a boxed set of 17 black and white large-format (30 x 40 cm) photographs which illustrate reading, writing and learning situations in many countries. An introductory text and captions suitable for display are provided in French, Spanish or English versions to accompany the pictures.

ILY NEWS

The latest issue (No. 1, 1990) of *The Challenge: ILY News*,* a 16-page illustrated magazine containing literacy-related news and features, has just been published (in English, French, Spanish and Arabic versions) by Unesco's International Literacy Year Secretariat. Contents include reports on the World Conference on Education for All (Jomtien, Thailand, March 1990); Kottayam, India's first illiteracy-free town; articles on literacy and survival, and women and literacy; and updates on ILY activities around the world.

*Copies of the magazine and of the exhibition are available free of charge from the International Literacy Year Secretariat, Unesco, 7 place de Fontenoy, 75700 Paris. Please specify which language version you require.

UNESCO AND INTERNATIONAL LITERACY YEAR

HOW YOU CAN HELP

If you wish to assist literacy efforts in developing countries, Unesco provides two channels: its Special Account for World Literacy and its Co-Action Programme.

The Special Account supports a wide variety of literacy-related activities in all parts of the world. Voluntary contributions finance operations such as the purchase of paper and printing material, reading books, textbooks, pencils, blackboards and other supplies. They also finance research, media programmes, the training of specialists, and the organization of seminars and study courses. Donations to the "Special Account for World Literacy", may be addressed to the Education Sector, Unesco, 7 place de Fontenoy, 75700 Paris.



If you would like to contribute to the Unesco Co-Action Programme, which enables donations to be channelled to specific projects in some 20 countries, a catalogue of literacy and post-literacy projects aided by the Programme can be obtained from The Unesco Co-Action Programme, BAO/CSF, Unesco (address as above).

RURAL WOMEN AGAINST ILLITERACY

For some 500 million women who live in rural areas of the Third World, life is an unending struggle for survival. From morning to night they work in the fields, transport water and fuelwood, prepare meals and take care of their families. The lives of these women and their attempts to achieve literacy skills and escape from poverty, exclusion and silence are portrayed in a forthcoming book entitled *Inside the Third World: Rural Women Against Illiteracy*, which will be published by Unesco in September 1990. The author, Krystyna Chlebowska, is a Unesco specialist in the education of women and girls. English and French versions of the book can be ordered from the Unesco Press Sales Division, 7 place de Fontenoy, 75700 Paris. A Spanish translation will be published later.

HISTORY OF WRITING EXHIBITION FOR ILY

To mark International Literacy Year, the European Centre of Educational Alliances has organized a chronological exhibition on the history of writing, from the cryptogram to the computer. It will be shown at the International Bureau of Education in Geneva from 3 to 9 September 1990, and at Unesco headquarters in Paris from 24 September to 5 October.

A wide range of ancient bas-reliefs, both originals and reproductions, parchments, books, sculptures, photographs, prints and paintings will be displayed. Puppets from all over the world, each symbolizing a letter of the alphabet, will illustrate what writing means to each of the cultures represented—"freedom" for some, "light" or "communication" for others.

Painters, sculptors, writers and musicians wishing to contribute on the theme "Writing and the artist today" are invited to contact the European Centre of Educational Alliances, 34 rue Marius Aulan, 92300 Levallois-Perret, France; Tel: 47 58 07 45.

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