# Chemical weapons that Iraq did not use

***True that Iraq did not use chemical weapons in the Gulf war. But any weapon, once developed and manufactured, is bound to be used by someone,somewhere, conventions notwithstanding.*** ■ **by D. P. Sabharwal**

The Gulf war is over. Both Iraq and Kuwait stand battered under the weight of millions of pounds of high explosive ammunition dropped over them. No doubt, this mass-scale destruction as well as the weapons that caused it will be talked about at great length in the coming months. However, one thing that is not likely to be talked about anymore is the weapon that had created the biggest fear amongst the Israeli population as well as the allied soldiers on the battlefront.

No, it is not the Scud missile. Well, it is the weapon whose threatened use by Saddam Hussein had perturbed the US administration so much that the 3 most powerful persons of that country namely the Secretary of State, the Vice-President as well as the President came out with statements that amounted to that "if Iraq uses such weapons, the USA will not hesitate to use nuclear weapons."

Yes, you have guessed it rightly. It is the chemical weapons that Saddam Hussein ultimately did not use. No doubt, it is a sinister weapon, yet to understand the true nature of the threat posed by such weapons, it is important to understand not only what they are but also the strategic thinking behind them and the purposes for which they are intended.

"War is the continuation of politics by other means," said Clausewitz, the famous war tactician of the 19th century. He also remarked, "War has its own language but not its own logic." How true! A look at the events that led to the Gulf war will reveal everything but one thing, namely the logic of waging the war. And as regards the language of the war, as mentioned by Clausewitz, it can take any form—military strategy, tactics or the weaponry. No doubt, it is the language of weaponry that has been understood and perfected over the last 4-to-5 decades. And the Gulf war proved it beyond any doubt.

**The only protection against an attack by chemical weapons is the use of gas-mask and anti-chemical clothing.**



It is no doubt an irony, but also a fact, that one of mankind's greatest achievements in the 20th century is the ability to destroy his entire race several times over. Nuclear, chemical and biological weapons have the power to kill millions. There are thousands of nuclear warheads in existence today, but only one can destroy an entire city, while only a few kilograms of certain chemical and biological agents are capable of depopulating the whole planet.

### *Why the furore?*

In 1347 the Mongols besieged the virtually impregnable Genoese trading fortress of Caffa on the Crimean Peninsula. For some years, plague had been spreading westwards from Central Asia and it soon began to ravage the attacker's camp. In desperation the Mongols began to catapult the corpses of plague victims over the walls and within a short time the defenders were suffering from a major epidemic. The Genoese took to their heels and fled into the Mediterranean carrying the plague with them. This can be considered as the first reported case of biological warfare. No doubt, it was inadvertent.

Earlier, in 1192 when Richard I the lion-heart made his second attempt to take Jerusalem, he found that Saladin had poisoned the nearby wells and, faced with an over-extended supply line, he with-

Ridiculous! We have now decided to legitimatise all such births."

"Please elaborate, sir."

"This ministry proposes to create a new enlightened class, the BBC class, that could enjoy all privileges like the BCs, SCs and OBCs. That apart, the BBC qualifies for 50% gratis marks over what they have scored in educational institutions. They are assured jobs. Even SCs and BCs will be overlooked while granting promotions to BBCs."

"What does BBC stand for, sir?"

"You don't know, really?"

"No, sir. I don't know."

"The Backward Bastard Class."

"My God! You want to christen them bastards?"

"What is wrong?"

"Isn't it in bad taste?"

"No. Only you are peevish. 'Bastard' also means an unfortunate person; need not be illegitimate. It is in this sense that we recognise the BBC."

"Why this sudden provocation to elevate their status, sir?"

"Quite a few. Many among our young followers belong to this suppressed oppressed class. We have to legitimise their origin so that they are worthy enough to succeed us with impunity and honour."

"But won't the social stigma still persist?"

"Who stamps that stigma? The self-centred forward class people who want to keep us subservient unto eternity. If the epic *Mahabharat* can grant royalty to Yudhishthir and Karna, why not to unfortunate contemporary class?"

"Very well, sir. Will the BBC privileges be extended to those similarly placed in the forward class?"

"No. FC maternity is disqualifying factor."

"Does any other State follow your revolutionary policy?"

"They are studying it. But let me be the pioneer. Many developed European countries have adopted this for centuries. In Denmark, Sweden, Norway, etc , maternity is equally recognised as paternity. Sadly, in our undeveloped country, father's name alone is considered. Let us attempt to tread, though belatedly, the progressive path."

"But we still prize an unblemished family reputation."

"THAT stupid illusion must fade away fast. You should train yourselves to evaluate humans on their innate merits, not those inherited from forefathers. These moth-eaten fixations should be removed.

"Another law that deserves abrogation is the one on bigamy. When most of our godheads have more than one wife, why should mortals be chastised for bigamy? Why, I have more than one wife. Am I not respected by society? Was I not voted to power by the electorate?"

"Will your own partymen condescend to entertain connubial links with BBCs?"

"Once upon a time couples of inter-caste and inter-religious marriages were excommunicated. Now?"

"Another point, sir. Claimants to BBC status may have to expose their own mothers."

"Not at all. Both mother and father are responsible for the birth of a child. For BBCs, only the mothers' names are mentioned. Mother is a fact; father a myth. Let us prefer fact to myth. Casting aspersions on any such woman will be a penal offence in this State. We will protect motherhood at any cost."

"What is the BBC population in this State?"

"I don't have any realistic figures. May be 2% or 3%. In the next census, we will come out with exact enumeration."

"What will be the Centre's reaction to your move?"

"I bother the least. This is a State subject, not included in the concurrent list."

"How many BBCs are there among your Cabinet colleagues and MLAs?"

"Look. BBC status has to be claimed independently by individuals themselves. The Government will accept their declarations with no questions asked."

"Any privileges extended to the wronged women?"

"Don't say 'wronged women'. The law bestows on them the title of 'spinster mothers' like surrogate mothers who carry no stigma. The Government is actively considering family pension besides granting agricultural land and loans to them."

"Can a spinster woman have more than one BBC child?"

"No limitations."

"About family planning for them?"

"The existing norms apply with a slight change in the slogan 'Me one, mine one.' However, it is not illegal to beget more kids."

"If a BBC woman begets a BBC child?"

"The status will be enjoyed by the succeeding generation too."

"If a BBC mother marries later?"

"She loses the privileges as a spinster mother, but the BBC ward retains the benefits."

"Was this move deliberated upon in the party committee?"

"I am the party; the party is me. However, this was hotly debated among the rank and file. Therefore, before our party is thrown out of power, I want to rush with the Bill. For this, we have the blessings of our venerated departed leaders."

"Thank you, sir." □□

# AROUND THE WORLD

Indonesian farmers who found a crock of 1,000-year-old gold artefacts will get a reward of 201 million rupiah from the Government for handing it in. The 10th century gold ceremonial set, including a necklace, bracelet and pipe was found by 6 farmers a year ago in their village near the ancient Hindu temple of Prabanan in Central Java.

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A Royal Canadian Commission on reproductive technologies has been told by a federal advisory committee in Ottawa that sexually transmitted diseases have reached a staggering level among female teenagers. The infections were costing Canada astronomical sums of money. The rate of sexually transmitted diseases was increasing among teenage women because they are the most sexually active group and don't feel they are at risk.

The first view of the first journalist to ride into space was darkness: "This is Akiyama aboard Soyuz 7," began the report of Toyo Hira Akiyama, about 2 hours after rocketing into orbit aboard a Soviet rocket as a paying passenger.

Only his voice could be heard, although TV cameras on the spacecraft showed pictures of Akiyama briefly during the lift-off. The words "space correspondent" appeared on the screen at one point.

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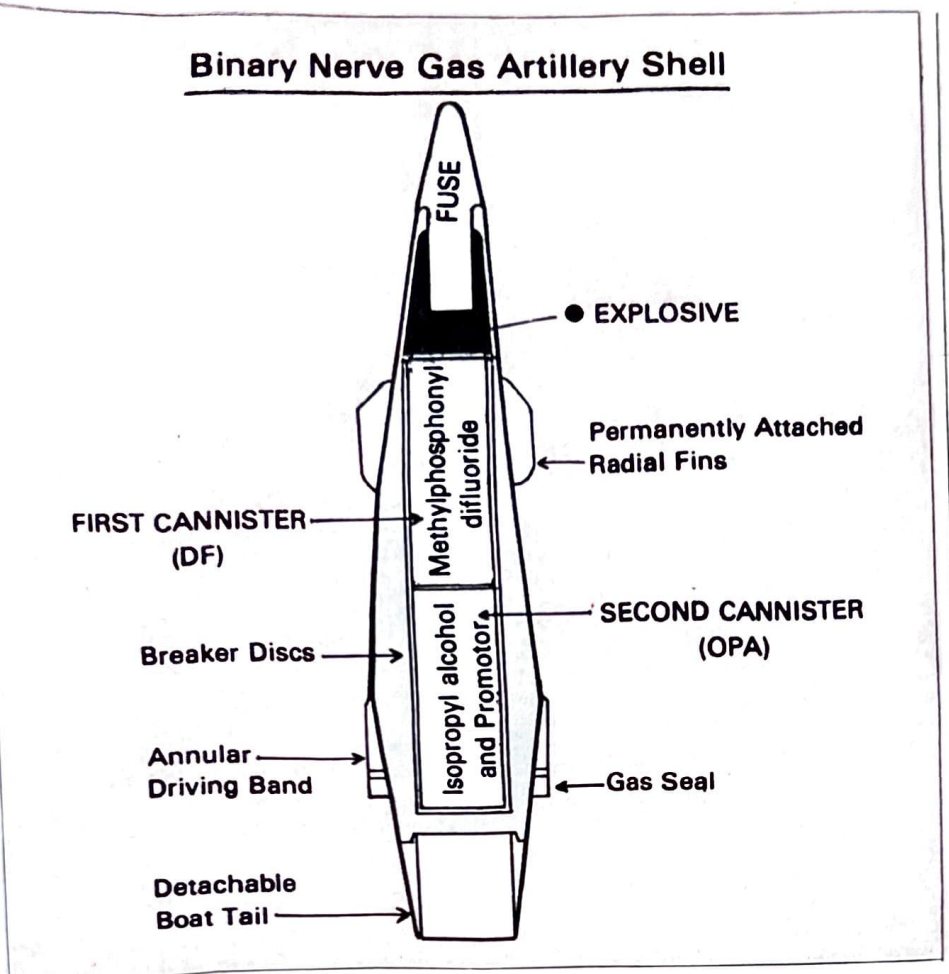
A 44-year-old Japanese woman has given birth to her 18th child at a hospital in Chiba, to become the "Most Prolific Mother" in Japan. Since the couple's first child when she was 19, Mrs Hisako has given birth to 9 sons and 8 daughters. Their eldest is a 25-year-old son, and until the latest boy, the youngest was a 15-month-old daughter. □□




drew. This is one of the earliest cases of the use of toxic materials to fight an enemy. Under the present-day terminology, it is described as a case of chemical warfare.

Again in colonial America, the British are reported to have exploited a smallpox outbreak at Fort Pitt, Pennsylvania, and distributed blankets to hostile "Indian tribes."

Although poisons, tainted arrows and the like have been used for many centuries, it was not until 22 April 1915 that the full military capabilities of chemical warfare were exploited. On that day, at 5 pm, the Germans released nearly 200 tonnes of chlorine gas upwind from the French lines at Ypres. Some 5,000 soldiers died and a gigantic gap was opened in the British trenches. It is a different matter that, not knowing what to expect, the Germans failed to take advantage of this.

The Germans are also alleged to have infected Allied horses with glanders, and to have tried spreading plague on the eastern and western fronts during World War I.

By the time World War I was over, chemical and biological warfare had been resorted to so widely that revulsion against it grew and eventually in 1925 a Geneva Protocol banned its use. However, like all other treaties, agreements and protocols, this too was observed more in breach than in practice. Simply because though signatories, both the United States and the Soviet Union interpret it as prohibiting a first use only and reserve the right to retaliate.

### Facts speak otherwise

Facts, however, speak otherwise. Since 1918, there are numerous incidents of first use of such substance by modern armies on poorly-equipped ones; the Italians in Ethiopia, the Japanese in China, the Egyptians in the Yemen, the Vietnamese in Cambodia, Laos and on the Thai border, the USA in Korea, Vietnam and in clandestine attack on Cuba. More recently, unsubstantiated allegations have been added; the Russians in Afghanistan, and Iraq against Iran and Kurdish civilians.

Just to indicate as to how much and what damage can be caused by such chemical/biological substances, let us take a simple and innocuous case. During the Vietnam war, Americans used the now highly controversial chemical "Agent Orange" to basically defoliate the jungle. No doubt, it achieved its aim at that time. But now there is clear evidence that dioxin (contained as a by-product in one of the constituents of Agent Orange) may cause long-term genetic damage even in sub-lethal doses. In fact, the US Government is facing claims from former soldiers who were exposed to Agent Orange. There is also evidence of birth deformities in Vietnam associated with parental exposure to herbicides used in Agent Orange.

### Banned biological weapons

Biological warfare involves the use of disease-producing micro-organisms—bacteria, viruses, fungi and rickettsiae—in support of military or paramilitary operations. There are 2 methods of delivery, direct or via a vector.

A vector is an animal or insect which transmits the disease from an infected individual to a healthy one. The yellow fever virus, for example, requires a mosquito vector as it is parasitic on both man and insect.

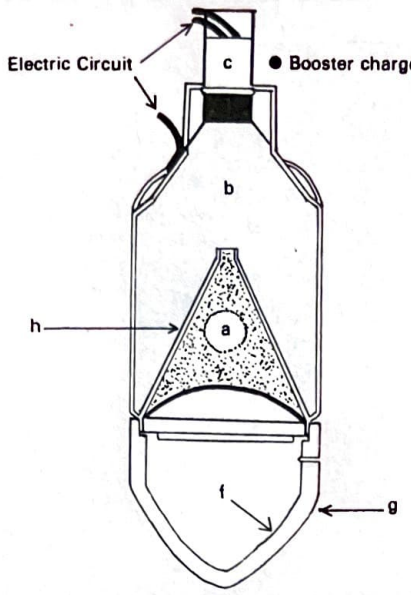
Direct transmission, on the other hand, simply involves creating sufficient amount of agent in the air to cause infection through inhalation or ingestion. This requires the creation of a cloud of infectious material over the area to be attacked. Pulmonary infection is by far the most effective.

By now it is a well established fact that biological weapons have massive, unpredictable and potentially uncontrollable consequences. In addition, they can produce global epidemics and profoundly affect the health of future generations. It is basically this fact which has contributed to the willingness to abandon these weapons.

There is, of course, an additional factor. In order to be militarily useful, agents for these weapons should be capable of being manufactured on a large scale. However, the manufacturing of most putative biological weapons agents, especially of viral variety, pose serious safety problems for the personnel engaged in this work.

All this led to the 1972 Geneva Convention on Biological Weapons which prohibits the development, production and stockpiling of bacteriological (biological) as well as toxin weapons. 109 States are party to this Convention; however, only 25 States have signed it.

This Convention includes a class of chemicals which are extracted and purified from biological entities but are themselves not living. These include the deadliest organic materials and are known as toxins. Snake venom falls in this category. However, despite their extreme toxicity, they have never proved to be cost-




CHEMICAL WARHEAD FOR TOW MISSILE

Upon striking the target, the outer nose cone (g) is crushed into contact with the inner Cone (f) thus completing an electric circuit and thereby causing the arming device (c) to fire the PBX booster charge. The booster ignites the shaped-charge explosive (b) which directs its force forward to bore and cut its way through the target. At the same time, the aluminium cone (b) is crushed and toxic chemical agent (a) is drawn into the target by the explosive forces ahead.

effective for weapons and their disadvantages outweigh their potential military benefits. Though the 1972 Convention forbids the stockpiling of toxins for both military or covert purposes, their use for later purposes (such as assassination) can never be overlooked nor can it be prevented.

### Use of toxins

The best illustration of the practical use of toxins is the assassination of Bulgarian defector and BBC broadcaster Georgi Markov in London in September 1978. He died a mysterious death. Subsequent investigations revealed that he had been attacked by a pinhead-sized pellet composed of 90% platinum and 10% iriduim. The 1.52 millimetre pellet contained 2 cavities of 0.35 millimetre, each of which were designed to contain 1 or more lethal agents. It was designed to be fired from an air gun which, in Markov's case, was probably disguised as an umbrella. After penetrating the skin, the pellet was activated by the victim's body heat and muscular movements which wore away a protective coating and released the agents into the blood stream. The agent was discovered to be a castor-based poison "ricin" rated as one of the most deadly known poisons in the world.

Although chemical weapons were not used in World War II, these were developed in basically 2 forms—as chemical herbicides as also anti-personnel agents.

The use of chemical herbicides was, however, considered by the Allied forces. By 1945 a plan had been drawn up to use these herbicides against Japan as part of the campaign to invade and conquer the Japanese home islands in 1945 and 1946.

According to the plan, some 20,000 tonnes of a particular herbicide (2, 4 dichloro-phenoxy-acetic acid) would have been spread across 7.8 million acres of rice plantation. Also considered was an attack on Japan's 4.4 million acres of wheat and barley crops. The method to be used for dispersal of these chemicals were two-folds—by cluster bombs, and spray from an aircraft flying from an altitude of between 15 and 30 metres.

Anti-personnel agents include various deadly gases such as phosgene, the blood gases cyanogen chloride and hydrogen cynide, varieties of mustard gas, also known as harassing agents and more toxic nerve gases such as Tabun, Sarin and Soman.

Phosgene corrodes the lungs and it has been alleged that it was used by the Egyptians in the Yemen. The 2 blood gases kill chiefly by blocking the enzyme in the red blood cells that is responsible for removing carbon dioxide from the system. Mustard gas is in fact an oily liquid which causes damage via the skin and eyes rather than kills.

On one occasion in July 1944 the British Prime Minister Winston Churchill considered the option of using mustard gas and phosgene on Germany's population in retaliation for V-I attacks and because of unfounded fear, of course, that the V-2 might devastate London. He was mainly interested in mustard gas, partly because the vast majority of casualties would probably recover eventually.

He remarked: "We could drench the cities of the Ruhr and many other cities in Germany in such a way that most of the population would be requiring constant medical attention.... I do not see why we should always have the disadvantages of being the gentleman while they have all the advantage of being the cad." Churchill's idea received little or no support and he quickly dropped it after the Combined Chiefs had rejected chemical warfare as having little military effect.

### Anti-riot gases

Phosgone and mustard gases are basically harassing anti-riot gases which are not expected to kill anybody. It is only in most unusual circumstances that they may cause appalling physical damage. These are, thus, incapacitating chemical agents. Nerve gases, on the other hand, are highly poisonous and are termed as lethal chemical agents. Unfortunately, today's arsenal of chemical weapons comprise mainly nerve gases.

The least toxic of nerve gases, Tabun is about 4 times as poisonous as mustard gas if inhaled, and Sarin is roughly 4 times as lethal as Tabun. Only about 1 milligram of Sarin may prove fatal if inhaled. Death through asphyxia may follow within a minute of exposure to a large dose and even small doses may prove highly incapacitating, with death possibly following within a few minutes to an hour or so later. Symptoms are: difficult breathing and then vomiting, muscle spasms, lack of control over body functions, possible paralysis, coma and death.

As if Sarin was not toxic enough, efforts have continued to develop even more lethal substances. The USA has developed V-agents out of which one agent codenamed VX has actually been deployed as a chemical warfare agent. It is more toxic than either Sarin or Soman and about half a milligram can be fatal when inhaled. There are reports that Swedish F-gas is even more toxic than VX, but has yet to be deployed anywhere in the world.

Stockpiles of chemical weapons are difficult to gauge because of the strict secrecy that surrounds the subject. However, various specialists credit the USA with approximately 38,000 tonnes of chemical agents while estimates for the USSR are in excess of 50,000 tonnes. While French stockpiles probably amount

to a few hundred tonnes, British stocks of nerve gas officially amount only to a few kilograms for research purposes.

As per reports, more than 20 countries either possess or are capable of making chemical weapons.

Both American and Soviet Union's stockpile of chemical weapons consists of artillery shells, bombs, rocket warheads and land mines. While the USA has chemical warheads for its missiles like TOW, the USSR is considered to have deployed chemical warheads—filled with hydrogen cyanide or thickened Soman—for the 110 kilometre range Frog-7 rockets, Shaddock cruise missile and the short-range Scud ballistic missile.

Now Soviets might not have supplied the Scud missiles to Iraq with chemical warheads. But the fact that Iraq had 5 chemical weapons research, development and manufacturing facilities gave credence to the rumours that Iraq is capable of launching chemical attacks. That explains the fear amongst the Israeli population as well as the Allied troops.

### Nerve gases

Nerve gases are difficult to store. They pose many dangers during storage and transportation. Sarin, for example, is highly volatile and when dispersed, it spreads out in a vaporous cloud. Under ideal weather conditions, casualty-producing concentrations of Sarin can drift more than 100 kilometres downwind. Thus there are many circumstances when these gases might prove a greater hazard to civilians in the country than they would to an invading army well equipped with anti-gas equipment and thoroughly trained in its use.

To reduce the chances of accidental release of gases from the weapons under deployment, new type of weapons called binary-systems are being developed. The idea behind this system is to create the toxic agent at the point of use rather than manufacture it for long-term storage or for immediate insertion into a delivery device which is then stockpiled until needed. No doubt, it is relatively safe, but it is militarily less efficient. A few of the latest chemical weapon systems are briefly described in succeeding paragraphs.

The first of the new generation of chemical weapons will be 155 mm artillery shell. It will have 2 separate cannisters inserted end-to-end behind an explosive burster charge in the nose. First cannister contains DF (Methyl-phosphonyl difluoride) and the rear cannister contains IP (Isopropyl alcohol). Both are relatively non-toxic chemicals. When the shell is fired, inertia breaks the rupture discs separating the 2 cannisters, forcing the DF back to meet and react with the IP. At the same time, the spin imparted to the shell by barrel's riffing ensures a rapid and complete mix.

The 225-kilogram Bigeye VX bomb is the other advanced chemical weapon based on the binary system. However, unlike artillery shells, this bomb cannot utilise inertia and spin in the same efficient manner and thus requires a fairly complicated set of internal gadgetry to bring about the final reaction between the 2 agents.

Other binary weapons under active consideration for future production include warheads for a number of missiles including short-range surface-to-surface Lance and even the 2400-kilometre range Tomahawk missile. The illustration shows a TOW antitank missile chemical warhead capable of penetrating 25 cms of armour and dispersing a lethal or incapacitating agent.

The only protection against an attack by chemical weapons is the use of gas-mask and anti-chemical clothing. This, however, is going to reduce the potential mobility of troops.

To detect the presence of agents used in a chemical attack, monitors are used. A typical monitor works by "sniffing" samples of air and ionising the gases it finds. Different gases travel at different speeds through the monitor, depending on their mass and charge.

Smaller molecules, such as nitrogen and oxygen, which are normally present in the air, will travel more quickly and reach the collecting electrodes first. Heavier molecules, such as nerve gases and other chemical agents, will take longer.

When chemical agents are present in the air, the collecting electrodes will register 2 peaks, 1 of which represents the detection of the gases normally present in air, and the second will mean the presence of heavier vapours of the contaminating agents. An amplifier and a micro processor convert these signals so that a soldier can read them.

In January 1989 through the Paris Declaration, 149 nations promised not to use chemical arms and called for their elimination. This, however, is only a small step towards the goal, which is a complete ban on production, stockpiling and use of chemical weapons, talks for which have been going on for more than a decade now.

### Final agreement

Even when a final agreement is reached, it will not be total because the eventual ban on chemical weapons is being negotiated by only 40 governments. Certain Arab States are reluctant to abandon the possibility of keeping arsenals of chemical weapons. This is to counter the nuclear arms they believe Israel possesses. It is probably because of this deterrence that chemical weapons of mustard gas and nerve gas are dubbed as "the poor man's nuclear bomb."

It is certain that Iraq did not use chemical weapons in the Gulf war. But it is confirmed by United Nations investigators that Iraq had employed such weapons in the Iran-Iraq war which had caused considerable damage and havoc. Though experts differ on whether the chemical weapons really changed the course of the 8-year long war, and how effective a weapon it is, they admit there is wide perception that Iraq finally managed to turn the war in its favour by using it.

Conventions notwithstanding, any weapon, once developed and manufactured is bound to be used by someone, somewhere. Perhaps because that particular individual or a group of individuals at the helm of affairs at that time will believe in the axiom that "everything is fair in love and war." Yet, the possibility of use of chemical weapons in any war makes this quote of Winston Churchill absolutely apt: "War was once cruel and magnificent, but now cruel and squalid." □□

- *A casual acquaintance is a person you know well enough to talk* about *but not* to.

## DO YOU KNOW?

***There are only two words in the English language in which the vowels (a, e, i, o, u) are set in the same order and used only once each. They are:***

***FACETIOUS and ABSTEMIOUS***

***In the French language there is much use of the vowel 'e', but in 1969 George Parek wrote a complete volume in French, without using it even once!***

***—Compiled by Santosh Pattanayak***