The Beliefs of the Garos

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Pre-University Class, Arts.

The Garos are one of the Scheduled Tribes of Assam. They are found in Garo Hills, and in most of the districts of Assam. They are found even in East Pakistan.

The Garos have their own religious rites and observances, inherited from their forefathers. They have their own gods and goddesses, who, in their belief, can protect them in time of danger and do good for them. They also believe in transmigration They have given different names to their gods and goddesses. The fame and power of these gods depend upon the names given to them. Generally, they give the double names to the more powerful gods and goddesses. These gods and goddesses are :—

(1) Tatara-Rabuga :—He is the god of nature. He asked goddess Nostu-Nopantu and Machi (the name of another god) to create the earth. He is all powerful. After the completion of the creation of the earth, the idea of creation of human beings and others came to his mind and as such, he asked Rurube-Kimase-Merebah and the other gods to create Noro-Mande-Dima, Risi (the name of the first man). He also entrusted the work of healing the diseased people to his subordinate gods.

They often sacrifice fowls and pigs or cattle to him for the recovery of the sick. The head of the family, where the person is sick, has to provide with wine and food for the persons present in the sacrifice for two days.

(2) Chorabudi :—He is the god of love and protector of crops. They offer rice, millet, maize etc. to him before they take them. If they get 'suppuration' (a kind of disease) and ear-trouble, they perform sacrifices to him. Also, if they make a sacrifice to Tatara-Rabuga, they are required to offer at least a pig to him too.

(3) Nostu-Nopantu :—She is the goddess who created the earth with the help of another god known as 'Matchu Mide', when she received the conscience of Tatara-Rabuga. She does not bring any disaster to the human beings, and so they do not perform any sacrifice to her.

(4) Saljong :—Saljong is the god of fertility and crops. He is one of the greatest gods. The name of his father is Rikwa-

Sunwa and that of the mother is Poop-Andop. He also has a nephew named Sirika-Radingka. In ancient time, when men and gods lived together according to their belief, it is said that he (soljong) broke even the arm of Balwa (the name designated to mythology), and played with elephant as if it were a ball. They believe that, as he is the protector of crops ; they cannot collect them from their fields without his compliance. So, they observe a great harvest festival called 'Wangala', once a year, just ofter the harvest. In this festival, they are accustomed to do same religious offerings, where they kill a fowl, sprinkle its blood and a little quantity of liquor over the sacrificial altar, and then proceed merrily to their village for observance of this great festival.

(5) Goera :—He is the god of strength who causes the electrical flash in cloud and thunder. It is said that he was an ordinary person at first. His uncle was 'Matchuri' (.....man has relation even with animals in those days), who had got a sharp shining native sword called 'Milam' from a blacksmith, Kamel-Nepa-Ajepa, by name. But he managed to own that 'Milam' from his uncle by a trick. He then became the man of strength and left this world to firmament. His friend Toajeng Apiljeng also wanted to go with him to firmament which Goera declined, but he promised to give him whatever he wanted on earth. Toajeng Apiljeng asked his friend, Goera to turn him into 'dotileng' (a kind of wood pecker bird), so that, he could fly and cut everything as he liked. He was accordingly turned into the wood pecker bird. That kind of bird is found even to this day.

If the suffering person cannot recover for long, they pray to him to heal that person, performing a sacrifice under a tree with a pig and a fowl or a duck.

(6) Kalpame :—Kalpame is the brother of Goera, the god of life. To get his protection from injury in the forests or in the jungles they try to please him in sacrifices, offering a goat and a foul each time, and also they erect big stones as a token of honour. Usually they give the offerings to him daubing the blood of animals over those stones erected for the purpose.

(7) Susime :—He is the moon god, the giver of wealth. He is also known as 'Jajong.' They offer him a pig, a fowl, and a little quantity of liquor in each sacrificial performance.

(8) Asima-Dingsima :—She is a goddess, the mother of Susime. They believe that she welcomes none if he calls her by name. She welcomes a person only when she is called her by sick names e.g.Norebap-Norepdim, Sonapala-Kaburanche, and Nibgrom-gitor-Kisangsitop.

(9) Nawang :—He is an evil spirit who imposes taxes on the souls of men after death. He is believed to attempt to swallow the moon (at eclipses). He sometimes attempts to swallow even man and goes round the world in disguises. He causes stomach-ache, vomiting and dysentery If the man is dead, he keeps himself very close to the dead body, and is ready to eat the dead body up.

In fine, the Garos have their own distinct religious customs and culture.

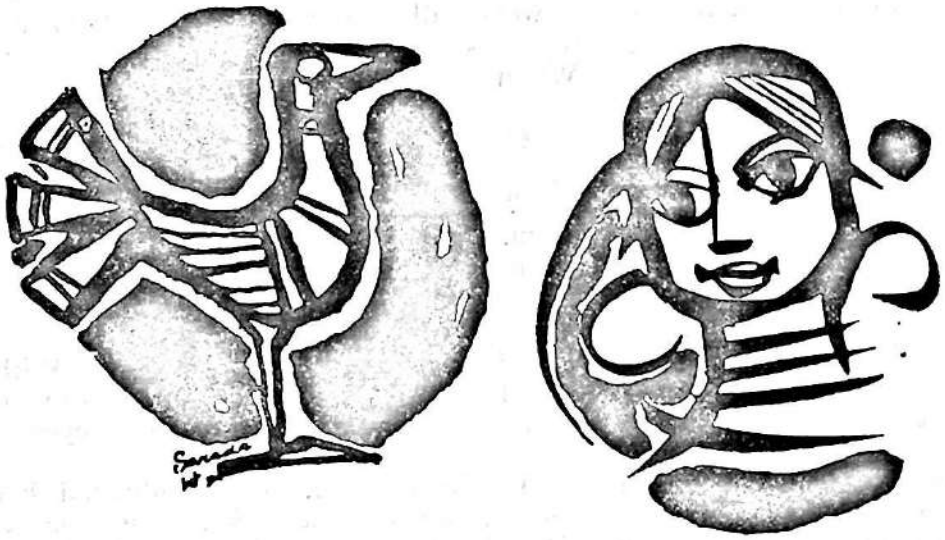
The identification of old age with growing old must be avoided. Growing old is an emotion which comes over us at almost any age. I had it myself between the ages of 25 and 30.

—E. M. Forster

If you are out to describe the truth, leave eligance to the tailor.

—Alberto Einstein

[Short Story]



UNANSWERED

Preeti Das Purkayastha
3rd Year, Arts.

In the afternoon Papi came and called me as usual "Rini Didi". She was there standng at the door. I took hold of her handi and led her to the front garden. She sat beside me on the grass. We were silent for a moment diverted by the fragrance of flowers. The gentle breeze was passing softy by us.

I broke the silence and said, "Look at the sun above the trees, Papi. How red it is !" Papi raised her eyes and looked at the sun but said nothing. Again I said, "Papi, are you not going to pluck flowers to-day ?" I understood what was troubling her. She turned her eyes towards me. Tears were trembling in her eyes. Straight came her question, a question which I wanted to avoid, "Where is my brother, Rini Didi ? Why he is not back ? My mind is heavy for him."

She received no reply from me. The deep love and affection between the brother and the sister flashed in my mind. How happy Papi was when her little brother was born. She pulled me to her house to show her little brother. Standing beside

her brother's bed Papi said to me, "See, Rini Didi, how little he is. How small his legs and hands are. Oh my God ! But how will he eat and drink with his tiny mouth ? What a small face—small eyes ? Just like my big doll. And surely he will call me Didi, will not he ?" Papi was then five years old.

To Papi's surprise the baby became three years old, eating by his tiny mouth. She always took her brother to our front garden to play with me. The boy joined Papi in her cry, "Catch the cricket Didi, come quick. " I laughed when I heard Papi teaching her brother "A.B.C.D." in their house which adjoined ours.

Papi could not realise what happened to her brother. He was sick for a few days. Then one day her uncle took the sleeping child from the bed and went away by the road beneath the orange tree. After a few hours her uncle returned without her brother. "Do you know Rini Didi where he is ? Mamma says nothing when I ask her." Papi's question cut off the links of my thought, but I said nothing except caressing her.

She said again, "I cannot play without him. It is impossible for me to chase the flight of cricket alone. It flies away by the other side if my brother is not there when I go to catch it. Am I to play the wedding of doll alone ? Must I pluck flowers all alone ? And I have no one to talk too. Tell me Didi, where he is. When will he return ?—When ?"

Gently and softly I replied to her "Papi, dear, have you not seen the stars in the sky ? Your brother is there twinkling among them. He will not come from there. He is not here Papi, my sweet. He is gone for ever."

"Then I must play alone ? With whom will I talk ? And after all, whom am I to love ?" Tears were in Papi's eyes.

I said nothing, but embraced her. She looked up to the sky. The garden was dark by the time. I gave Papi some biscuits. She took them and looked down to the road beneath the orange tree. Perhaps she wanted to follow her brother by that road. After all whom she was to love ? I failed to decide how I would calm her and answer her questions.

It is not enough to be industrious ; so are the ants. What are you industrious about ?

—Henry David Thoreau

It is well for the heart to be naive and for the mind not to be.

—Anatole France

Those who make the worst use of their time most complain of its shortness.

—Jean de La Bruyere

Come to Meet the Threat

Bedanti Kumar Bhuyan
2nd Year, Science

Our motherland is facing threat
Of Pakistan and of China
They plot to "crush" India—our lovely mother-
land.
Come brothers ! dear young people,
Save your motherland with your bold hands.

They envied our progress,
And try to stop it by "war"
Even by fighting thousand years.
Oh, brave young people ! You come out and
teach them a lesson.
They tried to make "chaos" in our country,
And tried to vanquish her.
Dear young Indian ! Come and stand
against it,
And make people's morale high.

Their propoganda is going on,
In an increasing rate in and outside.
Dear friends ! This will do harm.
You come out and stop it by any means.
Be courageous,
And come to meet this threat. *

* Awarded 'consolation prize' in the Annual Literary Competition of the College, 1966-67.

Family Planning and India's Five Year Plans

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Among the most intricate problems which India has faced to-day is the increasing rate of growth of its population despite efforts to popularise family planning. It is the greatest obstacle to the country's progress. The population of India is growing too rapidy but not the food production and that makes the fundamental imbalance in our economic system. In a poor country the employment of surplus population causes constant headache. That is why, our per-capita income is rising very slowly although national income has recorded good progress. In the past decade, the annual rate of population increase was 2% which has upset our planners' calculation. The aim of our planners now is to stabilise the population at a level constant with the requirement of country's economy. It has been seen, the poorer the family, the more mouths it has to feed. The problem is so acute that it should draw serious attention from the Government as well as the people; because it is only through the Co-operation of the people and the Government that the problem can be tackled. Unless the people become aware of the fact that they are multiplying more than what the country's economy can accomodate, the problem can hardly be solved. So the government of India had to take 'FAMILY PLANNING' as a part of the state policy to control population growth.

In recommending the programme of family planning the First Five year Plan stated—'It is apparent that population control can be achieved only by the reduction of the birth rate to the extent necessary to stabilise the population at a level consistent with the requirements of national economy. This can be secured only by the realisation of the need for family limitation on a wide scale by the people. The main appeal for family planning is based on considerations of health and welfare of the family. Family limitation or spacing of the children is necessary and desirable in order to secure better health for the mother and better care and upbringing of children. Measures directed to this end should, therefore, form part of the public health programme.'

During the First Five Year Plan, 126 family clinics were set up in urban areas and 21 in rural areas. In the course of

the Second Plan, the number of clinics was increased to 549 in urban and to 1100 in rural areas. In addition to those clinics, family planning services were provided at 1864 rural and 330 urban medical and health centres. A number of health centres have also been established. The programme was guided by the central and State Family Planning Boards. All States had set up special units for family planning works. Considerable amount of research works was in progress at the contraceptive Testing Units in Bombay and elsewhere under the guidance of the Indian Council of Medical Research.

The programme for family planning in the Third Five Year Plan was (a) education and motivation for family planning (b) provision of services (c) Training (d) Supplies (e) Communication and motivation research (f) Demographic hygiene and (g) Medical and biological research.

In the first plan facilities for sterilisation operations had been extended to several States and about 125.000 operations had been carried out. Within the programme of the family planning, sterilisation undertaken as a basis of voluntary choice had a valuable contribution to make. In the third plan facilities for sterilisation had been extended to District hospitals, sub-divisional hospitals and to those primary centres which had no necessary facilities for surgical works. With the help of mobile units these facilities were further extended.

The main task in the field of family planning is to find out effective solutions to certain basic problems and to mobilise all the available agencies for educational and extension work in support of family planning. Administrative arrangements at the centre and in the States will need to be greatly strengthened. To equip thousands of primary health centres and in due course their sub-centres as well, with personnel and supplies, and to be able to reach out to the village not merely with advice but more positively with means to family planning, are tasks whose magnitude and complexity should not be underestimated.

Besides the facilities which are undoubtedly needed in any large-scale efforts to limit families there should be the greatest emphasis on moral and psychological elements, on restraint and on social policies on education of woman, opening up of new employment opportunities for them and raising of the age of marriage. In addition to advice on birth control the family planning programme should include sex and family life education and advise on such other measures as may be necessary to promote the welfare of the family.

The success of the programme depends on people's response to the scheme. People in urban areas have access to various facilities for controlled parenthood. The difficulty arises in rural areas. Apart from its vastness there is lethargy on the part of the population to take initiative in the matter. Moreover, they have not the means. The enormity of the problem should not puzzle us. Voluntary organisations can carry the scheme further while intensive research on the medical and biological aspects of the scheme can find some suitable and safe contraceptive, preferably in medicine which can be used by people without medical guidance.

Family planning, like so many other schemes of development, is still in an embryonic state. The magnitude of the problem, it may be repeated, has to be recognised, before expecting any quick or tangible result. Work in research laboratory, planning in the organisational sphere and finally actual field-work in clinics, family planning centres and contact with the village folks in their own house—all these activities have to be carefully and patiently co-ordinated.

The last census has revealed the necessity of controlling birth rate if the advantages of Five Year Plans are not to be negated

by population increase. We must pay heed to the warning.

The target in the Fourth Five Year Plan is to bring down the birth rate to 2·5 percent.

The IUCD, commonly called loop, has proved popular and is spreading fast. So far 1,564 doctors had been trained in the loop programme and 9·5 lakh loops have been supplied to the States.

So far we discused the necessity of family planning. But we must not forget that increasing population is not always a curse. Sometimes large population increases economic co-operation and stmulates production and thus serves as a blessing.

The error of youth is to believe that intillegence is a substitute for experience while the error of age is to believe that . experience is a substitute for intelligence.

—Lyman Bryson

The art of teaching is the art of assisting discovery.

—Mark Van Doren

In the all-important world of family relations, three other words are almost as powerful as the famous "I love you." They are, "Perhaps you're right."

—Oren Arnold'

Problem of World Peace

Ranjita Sharma
3rd Year, Science

Man of today is totally different from the man of primitive age. In this scientific age man's wants know no bounds. His mind is not satisfied with what he gets, but he wants something more. The problem of world peace is the problem of war, the problem of war is the problem of human greed, the problem of human greed is the problem of materialism.

War is one of the most futile and ferocious of human follies. This futility and ferocity have multiplied a thousand—fold in regard to fighting with atomic weapons. War is the ugly manifestation of the dormant animalism in man. Strong nation wants to dominate over the weak ones. This is the main cause of war.

At the end of the second World War, people became perplexed, frustrated and exhausted. They prayed, so to say, for the resurrection of man from the ravages of war and for peace in the world. The experience of the two wars have demonstrated beyond shadow of doubt that in a modern war the so-called victor is not better than the the vanquished. In order to maintain peace in the world, the United Nations Organisation (U.N.O.) was established in 1955 just after the second World War with its headquarters in Sanfrancisco, U.S.A. Now U.N.O. plays a very important role in shaping the world politics. As a moral deterrent, the U.N.O. has been successful in preserving peace and in restraining the development of a global war out of local incidents.

Neutralist countries like India, Egypt, Ceylon, Burma and others, that are not aligned to any power block are keeping balance between the two blocks—Capitalistic blocks led by America and England and the communist block led by Russia and China. They try their best to establish peace in the world. It should be clearly borne in mind that the destruction between the belligerent and the neutrals, which had become quite thin during the last world war, will disappear altogether during future nuclear wars. Radio-activity is a monster, which once let loose, gets completely out of the control of its master. In fact, the neutrals will be subjected to long and painful suffering and face deterioration through the delayed effects of the radio-active fall out. Hence, the attempts to banish the atomic warfare is the duty of every people for that is the only means of saving mankind.

It is also correct that many attempts were and are being made from time to time to establish world peace through conferences but these conferences ended in smoke. There can be no peace in the world as long as the powerful nations are possessed by greed. With the invention of the nuclear weapons, civilization is to face a new terror.

Some of the people and independent thinkers like Bertrand Russel, have ably discussed this problem of world piece and suggested that a world government should be established. The purpose of world govenment is the establishment of universal peace and avoidance of war. The greatest contributory factor in securing what world government seeks to secure is the cultivation of a strong world public opinion A world government, so often envisaged, can at best be a distant ideal. There will be a clash of nationalistic ideals based upon social, geographical, and other economic factors. The haves may not feel inclined to share its plenty with the have nots and thereby voluntarily undergo privations of their amenities. The enforcement of law and order and the unemployment of force will present insoluble problems.

We are living in a complex world. Our activities generally affect millions of others besides ourselves. Especially, this is true of the work of scientists and inventors, what they do affect the whole of mankind sooner or latter.

An invention, for instance, can make life happy, comfortable or miserable and unbearable. We, therefore, ask whether science can be left to itself and whether scientist can use their intelligence in any manner they like.

Late Dr. Bhabha, the famous physicist, of India, struck a note of stern warning and advice to scientists while presiding over the Atoms for Peace Conference at Geneva. He pointed out that scientists owe a duty first to mankind and civilization and then to nations to which they belong. Therefore scientists should not allow their intelligence or talents to be bought or exploited by the politicians, who are guided by nationalist pride and jeolousy. If the scientists of the world refuse to carry on atomic research for destructive purpose the menace of nuclear war will be buried for good.

To dream about the future has always been an attractive occupation for man. What is going to be the ultimate destiny of man and the world he lives in, has been a pleasant subject of speculation.

Therefore, it is for man to decide whether he will delight in killing or live in peace for ever. The future of mankind and civilization can be safe-guarded only by selfless, disinterested people.

One of the weaknesses of our age is our apparent inability to distinguish our needs from our greeds.

—Don Robinson

Make it a rule of life never to regret and never to look back Regret is an appalling waste of energy, you can't build on it, it's only good for wallowing in.

—Katherine Mansfield

[Short Story]

A SOLDIER'S TRAGEDY

Madan Sarma,
1st year, Arts.

It was when the Chinese attacked our motherland. We were taken to an interior place in NEFA from our original camp at Gauhati. The place in which our camp was situated was a very beautiful place on the foot of a hill. In front of our camp a small river was flowing with a murmurring sound. By the side of the river there were some trees with far stretching branches. The whole area was like a beautiful garden Because, all the trees were covered by flowers of various colours. We, the soldiers became happy to have such a fine place. The natural beauty of the place attracted us so much that soon we forgot our worries and we felt quite comfortable there.

On the opposite bank of the river there was a small village. The huts of the inhabitants of the village were rarely seen from our camp. Neither I knew the name of the village nor could I say who the inhabitants of the village were. I, of course, saw the inhabitants now and then, because, they had a close relation with the river. They came to the river to bathe and to fetch water for their domestic use. I saw the girls and the women who came to fetch water from the river. These people were not tall like us, the Assamese. They wore some dresses made of the fur of animals. The women and girls wore many ornaments of different colours. Their clothes also were of various hues. When the girls came to the river with thier pots I was always gazing at them. They were cheerful like birds. We had been there for six months and within that pariod I always used to go to the bank of the river in the evening.

It was Tuesday. That day I was off from my duty. In the evening I went to the bank of the river as usual. The day is a memorable day in my life. Because, that was the day on which I met my beloved for the first time.

I was standing on the bank of the river.

A girl of seventeen or so came to the river alone and was washing her hands and feet in the water. I was gazing at her. Because, though already I have said that most of the people of the village were ugly, yet I found something peculiarly beautiful in her which compelled me to look at her. Immediately I was attracted by the beauty of the girl. When the girl was about to return home then she once looked at me and saw me gazing at her. Twice ot thrice she cast her glance at me and then she went away. Even when she was going home she turned round and looked at me a number of times. I was gazing at her until she disappeared at a distance. When my eye-sight failed to see her then I came back to our camp. Thus I met my beloved for the first time.

That night I was thinking about her and the more I thought of her beauty the more my desire to see her again grew. I continued to go to the bank of the river every evening. Now my aim of going there was only to have a glance of her. I did not see her always. I was so charmed and attracted by the girl that whenever I saw her I could not move my eyes from her and whenever I did not see her I became sad. Thus in the spring of my life this girl was like a cuckoo bird. I always throught of asking her something. Because, my mind always wanted to know whether she loved me or not. I was hankering after a chance of getting her alone and asking her the question whether she loved me or not. But that opportunity did not come to me. Whenever I met her I did not meet her alone. But at long last my desire was fuifilled one day.

It was sunday. When I reached the bank of the river I saw her alone weeping on the bank of the river wearing some wet clothes which made every part of her body quite visible. When she saw me she took her clothes properly which were not in order. She was gazing at me. Then I jumped in to the river and swimming across the river at once went near her. Still she was gazing at me as if she was waiting for me. I said to her—"What happens ?"

—"Nothing" —a sweet voice came out from her.

—"Why are you weeping then ?"..

—"I have lost an ornament of gold in the water."—

I looked at her neck and ears and saw that one of her ear-rings was missing. She was also gazing at me and after a moment's interval she asked me—"Who are you ? Why do you come here always ?"

My heart was throbbing. I got the opportunity of expressing my fondness for her. So I replied—

"I come here to see you always, because I love you."

I noticed her and saw that her face was reddened. Her head was bent down. I caught hold of her hand and taking it to my bosom asked—

—"What's your name ?"

—"Neela"—she answered.

—"Don't you like to see me always ? Do you love me Neela ?"

No answer came from her. I dragged her to my bosom and said—"Don't be sad Neela. I shall give you a nice ornament of gold. Now please go home and meet me here always."—I released her from my embrace and she went away.

I met her twice or thrice after that day. Within those days I could understand that she also loved me very much. Even one day she expressed her willingness to accept me for life. Thus a few days passed away and were lost in the great ocean of the past for ever.

I did not meet her for more than half an hour daily For a man in the army it is not possible. But I longed for longer inter-

view with her. I wanted to get her alone not for a moment but for the whole life. But as I was a soldier it was not possible for me. There was only one alternative to have her. It was to flee with her from the camp.

It was 11 o' cloak at night. The night was dark. Everywhere there was silence. A cold breeze was blowing out side. I got up from my bed and stealthily came out of the camp and started for the bank of the river. I scarcely could escape from the sight of the guards of our camp. When I reached the bank of the river, I saw Neela standing under a tree according to my earlier instruction. I went near her and dragging her to my heart kissed her once. Then without making any more delay we two began to proceed on our way towards the hill. We were proceeding so carefully that none of the camp-guards saw us. But after a few minutes when we were climbing a huge rock of the hill I heard two shots of firing and immediately Neela fell on the ground with a shrill cry. For a moment I was bewildered and did not know what to do. Next moment I bent down and took Neela's head in my lap. In the meantime I saw two men running towards us from the camp. When they came nearer I saw that they were none but two of my friends who were guarding our camp that night. I did not pay any heed to them. I touched the body of my dear Neela and found it to be ice-cold. I realised that she was no more in the world. I was still sitting there with her dead body in my lap. A cold breeze passed by us. I gazed and gazed at her face which became pale at the silent touch of Death's icy-hand. Two drops of hot tears came out from my eyes and fell on her cold face.*

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* Awarded 'consolation prize' in the Annual Literary competition of the College, 1966.

After the Battle is Fought

Amrit Lal Dutta,
3rd Year Arts.

After the battle is fought,
Soldiers are outcast as a lot,
Some are injured, and some dead,
There's none to bury or save.
All are enemies before they bleed,
All are friends after they dead.

Souls of the soldiers are now moving,
Some are dancing and some kissing,
Some are moving like monsters
Some have become apparitions or stars.
It's a new world where there's no pain
None in it to lose, none to gain.
I'm to reach that place,
There all are of new and agile face.

Science

Yeast and The Microscopic World

Prof. Debabrata Ghosh, M.Sc.
Department of Chemistry.

[Within this world there is another world the inhabitants of which are very very small living bodies; they are around us but we cannot see them—they help us, they harm us. Prof. Ghosh in this article gives us a glimpse of that microscopic world].

Our universe is the place where we live in, but there are two more worlds—one is the solar or the telescopic world and the other is microscopic. People studied and could know a lot about the former from the very ancient time, but the latter was discovered only in the latter part of seventeenth century.

It was in 1675 when an optical glass maker while observing through a thick lens quite accidentally saw the movement of some living bodies under water. This led to the scientists to look into the matter and to conclude that there is a world of very very small living bodies, beyond the sight of our naked eye. From the Greek word micros (small) they were named microbes. The object through which they can be seen is called microscope and the study of these micro-organism is called micro-biology. In this microscopic world there are several forms of plant and animal life viz,—protozoa, algae fungi, bacteria and virus. Among these the fungi is a low form of plant life and includes a type which is of great chemical interest in the process of fermentations.

Yeasts are the low forms of plant life and are the members of the great class fungi. They consist of only one cell with a thin coating of cellullose around it they lack chlorophyll and thus cannot derive their principal food from outside air and water. They live upon decaying animals and vegitative matters and thereby acquire the energy necessery for their growth.

Morphology :—There is no single morphological characteristic common to all yeasts. A few species are small, but the young active growing cells of most of them are 3-5 micron wide and 5-10 micron long—(micron is one thousandth of a millimetre). The yeast cell is ovoid or ellipsoidal, more rarely spherical, cylindrical, and fillamentous. A large variation in size and shape of some species will be found in different environments. Each cell contains a single small but well defined nucleus. The nucleus is devided by a process called mitosis in which half

of the nucleus remains in the mother-cell and the other goes to the daughter cell.

Reproduction :—The reproduction of the yeast cells goes by a sexual process in which one cell alone is sufficient by itself to increase their number, without taking helps from any other. Most yeasts reproduce vegitatively by a budding process. A small bump appears on the side of a yeast cell, the nucleu is divided and one half migrates to the bud. The bud gradually grows in size and is separated from the mother cell by constriction. The two cells may separate or remain attached. If the cells are multiplying rapidly, a single cell may have several buds and these may have formed buds of their own, before reaching the size of the original cell. Pasteur, who has the greatest contribution in the subject, obtained one kilogram of yeast cells from only one pin's head size of yeast cells.

In some spores under certain conditions the contents of the cell are divided into four spores. Meiosis occur during their formation. When these spores germinate—conjugation takes place between pairs of the cell produced. Each fusion cell starts with a new succession of vegitative cells. These cells are called diploid.

In other cases the vegitative cells are haploid. Conjugation may take place between two of these, and the fusion nucleus now devided three times to form eight ascospores. In this process meiosis occurs. Each of these spores starts a new series of haploid vegitative cells

Now a days the importance of these cells lies only in the use of industrial processes, such as bread making, preparation of alcholic beverages, acetic acid, etc. In all these reactions the function of the cell are catalytic. The catalyst or more correctly the bio-catalyst is a highly complex organic compound, void of life called enzyme (Greek —en and zyme mean leaven) secreted by the plant cell. As mentioned earlier the cells cannot get their food from air due to lack of chlorophyll and those are enzymes who supply proper food and energy to the cells. When added to the reactants they pass out of the cells and digest carbohydrates, fats, proteins, etc, by a hydrolytic process and thus make them soluble so that they can enter the cell and be used as food. These are the tasks done by the extra cellular enzymes, where the intra-cellular enzymes remain within the cell, where they are responsible for the cellular material and respiratory system of the cell.

A few enzymes that have been isolated in the pure form have been protein in nature. It appears that the majority of the hydrolytic enzymes are of this type. Enzymes have the ability not only to accelerate some reactions but even to initiate a few of them. In doing so they first form a compond with the reactants and get liberated after the reaction is over. So during reaction they change only temporarily. Any one enzyme is highly specific to reaction which it may catalyse. It is seen in the alcoholic fermentation which consists of several steps, requires different enzymes for different reactions. Enzymatic activity is much sensitive to the concentration of the reactants, temperature changes, the pH of the system to the concentration of the inorganic ions some of which (K, Mg, Fe) serve as activators and few others as inhibitors. Most enzymes are inactivated by boiling.

ALCOHOLIC FERMENTATION :—

From the economic point of view the importance of the yeast cell lies chiefly in their power to ferment sugars to carbon-di-oxide and alcohol.

In bread making :—The origin of the leavening of bread is lost in antiquity. But it is now highly standardised and yeast is the most common agent used in bread making. The yeast grows in the bread forming alcohol and carbon-di-oxide, from sugars in the dough. It is the small bubbles of carbon-di-oxide that lighten the bread. The yeast is killed, most of carbon-di-oxide are lost during the baking process.

The preparation of alcoholic beverages

is an ancient process in which every sugary solution including milk has been fermented to alcoholic drinks. In places where sugar containing material was not available, people saccharified starches to form sugars necessery for the fermentation of alcoholic beverages. Wines and beers are the primary products obtained by this process. Since yeasts are inhibited by the alcohol concentration of 10-14. p.c., beverages of high alcohol content —brandy, whisky, rum etc. are made by the distillation of wines and beers.

Commercial ethyl alcohol—Commercial alcohol of chemical uses may be produced by the fermentation process or from petroleum products. The fermentation process is dependent upon materials having plentiful supply of carbohydrate materials. In U.S.A. molasses is used and in other countries potato, sugar beets, rice and other grains are used. These are digested chemically to get the starch out and then starts the enzymatic reactions. Starch is converted to a sugar—maltose, by an enzyme diastase; maltose is converted by maltase to glucose and finally it is the zymase which converts glucose to ethyl alcohol and carbon-di-oxide. In this process the supply of oxygen is an important factor. In the presence of excess of oxygen the yeast cells grow aerobically and use most of the sugars for building more yeast cells resulting very low yield of alcohol. In absence of oxygen yeast carries out fermentation and sugar is largely converted to alcohol and carbon-di-oxide.

In another such process when wine is allowed to oxidise to acetic acid in presence of a cell bacterium-aceti, the supply of oxygen must be controlled in order to stop the oxidation of alcohol to carbon-di-oxide.

So it is clear now that there is another world of micro-organisms of which the yeast is one member and with which we are not much acquainted. Vigorous research is going on the study of these micro-organisms. We cannot but be surprised when we think about the power of these micro-organisms inspite of their micro size.Those are helpful, harmful too. Some of them carry out reactions, some cause desease, some others cure the same. The door of this microscopic world is now opened and the only thing for us now is to have a close view of everything in it and to show it to the others.

By appreciation we make excellence in others our own property.

—Voltaire

Marlowe As A Dramatic Artist

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1st year, Arts.

As we are going to study Marlowe as a dramatic artist what claims our first attention and interest is a little knowledge of his life. But, not such can be known about Christopher Marlowe. In a shoe-maker's house of Canterbury he was born in February, 1564. Marlowe was educated at Cambridge University and there he took his B.A. degree in 1583. History has it that some die when they reach the 'top.' Marlowe, too, could not avoid this. In 1593 this great dramatist was murdered in the little village of Deptford by 'a rival of his lewd love."

Christopher Marlowe is a dramatist of the pre-Shakespearean Age. When the secular-drama made its appearance in England, Marlowe started his career as a dramatist. His plays, all tragedies, were written only within five years. But within that short period Marlowe made stupendous contribution to the growth and development of English drama. His position in the history of English dramatic literature is next to that of Shakespeare. Had Shakespeare not been born, Marlowe would have been counted as the greatest of all dramatists. Even Shakespeare also could not avoid the influence of this great dramatist in writting some of his plays.

Marlowe has left behind him four tragedies—(i) Tamberlaine (ii) Dr. Faustus (iii) The Jew of Malta and (iv) Edward II. All his tragedies are one-man plays. Everything in the play centres round the personality of the hero.

In 1587 Marlowe's first play "Tamberlaine" appeared before the audience and it could draw the interest of the public. Tamberlaine is a shepherd-robber. Marlowe begins his play when this shephered-robber rises to power and his splended career beings. His Tamberlaine is a man of gigantic stature and of quenchless ambition. His ambition coupled with a heart that knows no fear enables him to battle successfully against the mighty forces on earth. He conquers Kingdom after Kingdom. He easily subdues the mighty king of the world and yokes them to his chariot in place of horses. The play ends with the death of his beloved Zenocrate and of Tamberlaine himself.

This play is written "on a them essentially undramatic" and it can scarcely be regarded as a play. The play seriously lacks in dramatic qualities. Here we do not have a well-knit plot. The theme of the play itself has no possibility of being shaped into a well-constructed plot. It presents before

us a mere succession of scenes which are linked together by the presence of the hero in each of them. Thus the play derives its dramatic unity only from the presence of the hero in each of the scenes.

Again, there is no dramatic conflict in the play though the hero fights against one king after another. In each scene of the play the hero makes his appearance as an invincible conqueror. There is no such power on this side of the grave that can oppose him. Indeed, with such a man as its hero the play cannot have any conflict. The same is the case with his other two plays—(i) Dr. Faustus and (ii) The Jew of Malta.

"Dr. Faustus" is the first dramatization of a man of medieval legends. Faustus is a German scholar and a physician who sells away his soul to assuage his lust for supernatural power. The play begins when Faustus calls up Mephistophel—the agent of the devil. It ends when the hour to surrender his soul draws near. This play was first produced in 1588.

Marlowe's third play "The Jew of Malta" is a study of the lust for wealth. This play centres round the terrible moneylender Barabbas.

When Turkey demans tribute from Malta, the ruler of Malta decideds that it shall be paid by the Jews of the land. But Barabbas, a rich Jew of the state, refuses to obey the orders and as a result all his wealth is seized. Then the Jew becomes furious and even poisons his own daughter. When the Turks besiege Malta, Barabbas offers them help and as a reward the Turks make him the governor of the state. Then Barabbas plots to kill the Turkish commander by means of a collapsible floor under which he keeps a cauldron hot with oil. But, at the end we see that he himself falls a victim to his own plot.

Both of these two plays, like "Tamberlaine", present before us a series of scenes in each of which the hero is made to appear. Thus both the plays turn out to be one-man shows lacking in dramatic conflicts. When the play "Dr. Faustus" begins, there is some conflict in the mind of the hero. But that is also soon over, because, soon Faustus decides to sell his soul. Though "The Jew of Malta" is better constructed and from the view of structure there is a mark of improvement when compared with either "Tamberlaine" or "Dr. Faustus", the play has no dramatic conflict worth the name.

In his fourth play Marlowe enters into a different subject. His "Edward II" is a chronicle play. And here Marlowe, for the first time, deals with the normal human beings. The hero of the play is not a superman like Tamberlaine nor a legendary character like Faustus. The play begins after the accession of King Edward the Second to the throne and successfully deals with the main events of his reign—his recall from exile of his minion Gaveston; the revolt of the Barons, the capture and execution of Gaveston; the rebellion of Queen Isabella against her husband; and the king's abdication and his murder in Burkley Castle. The play ends with the funeral rite of the king. This play was first produced in 1593.

"Edward II" is called the structural triumph of Marlowe. It is the best of all his plays. In this play we notice an improvement over his earlier plays. Like "Tamberlaine" and "Dr. Faustus" the play is not a collection of some scenes. Here, for the first time, Marlowe attains to a dramatic unity. This play has a well-knit plot with its regular exposition, climax and catastrophe.

Again, for the first time, here we notice a real dramatic conflict between two contending forces—the King and his favourites on the one side, and his rebel Lords on the other. This conflict continues from the beginning till the end of the play. At one stage the King defeats his rebel Lords but towards the end of the play he is defeated and murdered by the treachery of his own queen.

Some more dramatic qualities we notice in this play. The dialogues of the play are superior to those we find in his earlier plays. The last few scenes of the play are the most pathetic scenes in the history of dramatic literature in England. The King's screamings in his sorrows and sufferings and his murder in Burkley Castle thrill our heart and produce the feelings of awe and pity. About these scenes Charles Lamb says "..the death scene of Marlowe's king moves pity and terror beyond any scene, ancient or modern, with which I am acquainted."

But with all the excellence of "Edward II" as a play "it can scarcely be regarded as reaching great tragedy."
It is because of its tragic hero. A tragedy is not a mere tale of sufferings and sorrows. It is something more than that. Its essence lies in the greatness of the hero's soul, in the nobility of his character. But in Marlowe's "Edward II" the hero "Edward is not a soldier or a commander, he is an aesthete and a voluptuary." Till almost the end of the play it exhibits before us the pictures of folly, inefficiency and cruelty of the hero. The hero himself is responsible for his sufferings. Shakespeare, too, makes his characters responsible for their action and believes in the principle "character is destiny." Tragedy comes to Hamlet because of his vacillating nature. Macbeth meets his tragedy for his overweening ambition. Thus, in each character of Shakespeare's plays we notice a fatal flaw which brings about the tragedy. But the thing is that a Shakespearean hero possesses the greatness and nobelity of the soul. His Macbeth is not a virtuous character. Yet, Shakespeare gives him something of greatness. Thus a Shakespearean hero can draw our admiration with pity and sympathy, but not so a Marlowian hero who is not even a victim of ruthless circumstances. Marlowe's heros are great in their power, not in their nobelity and moral sense. Only death ends the career of power and victory of a Marlowian hero.

In Marlowe as a playwright we notice many defects. In most of his plays Marlowe ignores the minor characters. About this one critic says "Outside Edward II Marlowe scarcely steps down to interest himself in mere ordinary men and women." It is only in "Edward II" that Marlowe takes care of all the characters.

Love makes Shakespeare's dramas highly interesting. We admire his treatment of love. But in Marlowe's play we cannot even see a real female character. His "Zenocrate plays but a shadowy part in Tamberlaine, Helen is but a vision in Dr. Faustus." Though in "Edward II" Queen Isabella is not a neglected character, she also fails to draw our interest. Marlowe fails to paint any womanly grace in her character. She makes her first appearance before us complaining against her husband. It seems that Marlowe does not know the secret of woman.

Marlowe is devoid of humour too. He has no bent for comedy. All his plays lack in comic elements. The few comic parts found in some of this plays are really inferior. Indeed, as a dramatist Marlowe has serious limitations.

Still, we must say that Marlowe is a great dramatic artist. In the starry sky of English dramatic literature his brightness is next to that of Shakespeare. Marlowe's greatness as a dramatist can be suggested in these words "He found the drama crude and chaotic ; he left it a great force in English Literature." Marlowe's dramas are far above the earlier secular-plays. He wipes away the crudity and coarseness of the dramatic field and harvests a new artistic beauty in it.

Marlowe's contribution to the development of English drama is really stupendous. He raises the subject matter of the drama to a higher level. Until Marlowe's advent as a dramatist the subject matter of the secular plays was trivial. Though "Gorboduc" is the first English tragedy dealing with human life and problems, Marlowe is the first playwright to give life and reality