

INSTITUTE FOR THEOLOGICAL ENCOUNTER
WITH SCIENCE AND TECHNOLOGY
(ITEST)

NEWSLETTER

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Announcements:

Father Lawrence Barry, S.J. has joined the ITEST office staff replacing Father Daniel Costello, S.J. who has taken a position at Saint Louis University. Fr. Barry holds a doctorate in philosophy from Southern Illinois University - Carbondale. He has just returned from Fiji where he taught theology for four years. Beginning with this issue, Fr. Barry is the editor of this Newsletter. It is hoped that before the end of the year the Newsletter will become a bi-monthly -- rather than a quarterly -- publication.

For Your Calendar:

The fall ITEST Conference will be held at Forgyce House (St. Louis) on October 5-7, 1979. The topic is "Technologies of Social Control." The basic subject material is to be found in the ITEST Proceedings of March, 1978 on the same topic. The meeting will feature the "second part" of a paper on "Utopianism and Scientism: Dilemmas of Social Engineering" by Dr. Meredith W. Watts, University of Wisconsin, Milwaukee. Discussion will attempt to come to some conclusions on the themes developed in March, 1978. We would welcome your attendance and your contribution to this topic.

The spring 1980 Workshop has been scheduled for March 14-16. More details should be available within a few months.

The Workshop of March 16-18, 1979 on Government Intervention and Regulation was warmly received by the participants. Proceedings should be available late in the summer or early in the fall. The October, 1980 Conference is tentatively directed toward a further discussion of the issues raised about intervention and regulation.

The Proceedings of Fall, 1978 ITEST Conferences are now at the printers. They include a brief summary of the October, 1978 Conference on "The Planned Future" and the ITEST-NASA Conference (via Satellite) of November, 1978 on "The 'Social Contract' between the Research Community and the Public."

ITEST News:

The Director of ITEST, Father Robert Brungs, S.J., has been reappointed by Pope John Paul II to a second five year term as a consultant on science and technology to the Vatican Secretariat for non-Believers. Dr. Harold Harper, the Dean of the Graduate School at the University of California Medical School, San Francisco, and long-time ITEST member has also been named a consultant. Bishop Mark Hurley of Santa Rosa, CA. has been reappointed to be the American member of the same Secretariat.

Bishop Hurley has just finished his term as the Chairman of the National Conference of Catholic Bishops' Committee on Science, Technology, and Human Values. As some of you may be aware, this Committee has been retained by the NCCB after indications that it might be closed down because of budgetary problems.

Father Brungs has also been named to the delegation of the Vatican's Secretariat for Promoting the Unity of Christians for the World Council of Churches' Conference on "Faith, Science, and the Future" to be held in July at MIT.

ITEST membership is at an all time high having grown already this year to 20% more than at the end of 1978. We hope to have four hundred members by the end of this year.

Steven L. Goldman delivered a paper at a conference on science and society sponsored by ITEST and NASA, on November 15, 1978. Dr. Goldman is the Andrew W. Mellon Professor in the Humanities of Lehigh University in Bethlehem, Pennsylvania, and he is the director of the Humanities Perspectives on Technology Program. The title of the paper is "Present Strains on the Relations between Science, Technology and Society."

The main headings of the presentation are 1) the existence of these strains, 2) the fact that the criticisms now made were made long ago and ignored, and 3) it is changes in social values that are responsible for the fact that long ignored criticisms are now passionately acknowledged.

To show the existence of this strain Dr. Goldman states:

A catalog of illustrations virtually presents itself. There is the falloff, by well over 20% during the last ten years, in total public support for basic research. There is the enormous popularity of extra-scientific and anti-scientific approaches to the study of the world, for example, of astrology, magic and spiritism, of forms of parapsychology and of mysticism. There is the revival of fundamentalist religions and the proliferation of radically authoritarian cults; also the continuing enthusiasm for UFO and Bermuda Triangle theories, for the speculations of Immanuel Velikovsky and Eric von Daniken.

At almost every point in our culture we find defenses of the superiority of intuition and feeling to logic and reason. These range from the climactic scene in the motion picture "Star Wars" (where the hero turns off his computer-controlled guidance system and trusts his feelings to guide his bombing run on the enemy dreadnought), through the series of books by Carlos Castaneda about the Yaqui Indian sorcerer Don Juan Matus, who helps Castaneda acquire supernatural powers by liberating him from the rational and scientific conditioning that prevent him from seeing the world as it really is, to the physicist Fritjof Capra's argument, in his book The Tao of Physics, that the anti-intellectualism

of Eastern mysticism in fact embodies a trans-logical approach to reality that is validated by quantum mechanics and quantum field theory and to the philosopher of science Paul K. Feyerabend's reduction of science to myth in his Against Method.

To this rather impressive list he adds the popularity of many books critical of science and technology. The books vary widely in quality and value and many make some criticisms with which almost everyone would agree, but the number and the popularity of such books shows the extent of the hostility to science in our present culture.

Dr. Goldman does not think that the change in attitude toward science was brought about by changes in science. He maintains that we must look for changes outside science. The Judeo-Christian tradition long rejected an identification of personal well-being with the possession of material goods. Plato and Aristotle had subordinated the understanding of and mastery of nature to higher types of knowledge. In the eighteenth century Swift, Rousseau, and Goethe had reacted against preoccupation with knowledge of nature and with a mastery over it. In the nineteenth century Thoreau contrasted the view of the ethical philosopher and the mechanical philosopher. Dr. Goldman continues:

The former (the ethical philosopher) believes that if "he will reform himself... then nature and circumstances will be right", while the latter (the mechanical philosopher) believes that if one can "reform nature and circumstances ... then Man will be right". All that can fruitfully be added to this, I think, is the observation that Western society in fact chose the approach of the mechanician and rejected the approach of the ethician, until recently, when the question of which approach was the right one, or what compromise between the two was the most valuable one, has again come up for discussion. Characteristically, however, the discussion today is not placed in an historical context that exposes the centrality to this problem of value judgments, made by people and incorporated into institutions made by those people, but is made to seem a rebellion against a uniquely current state of affairs.

The possibility of the depletion of available sources of energy was raised by Javons in his book, The Coal Question, published in 1865. Another source of energy and its destructive potential was foreseen, but the foresight caused little or no alarm.

Finally, let me just read a quotation from a talk given by the English physicist Frederick Soddy, home on leave from the war in 1915. After describing to his audience recent developments in atomic physics and the suggestion of the possibility of a new explosive based on these developments, an explosive that would dwarf TNT, he asked his listeners to "imagine... what the present war would be like if such an explosive had actually been discovered instead of being still in the keeping of the future." Its discovery "conceivably might be made tomorrow, in time for its development and perfection for the use or destruction, let us say, of the next generation, and which it is pretty certain, will be made by science sooner or later." From

the side of science and technology, the development of atomic energy was virtually inevitable.

The third part of the paper tries to account for the acceptance of criticisms that were long ignored. It is not that they have suddenly been discovered or suddenly become valid. It is not science that has changed; it is social values. The key social value that has been undermined is that of progress. This idea was controversial in the sixteenth and seventeenth century, but the proponents of progress won out. The value and the fact of progress became largely unquestionable and remained so until recently. Dr. Goldman states:

There can be no doubt that the idea of progress is itself up for revaluation today. In its train, it draws down for revaluation the human implications of advance in science and technology

One feature of recent Western intellectual history that seems to be of revolutionary significance for public attitudes towards science and technology is the profound undermining of classical notions of objectivity and rationalism that began with the formulation of non-Euclidean geometries in the mid-nineteenth century. This undermining progressed steadily over the next 125 years and has reached a point at which subjectivistic interpretations of science play a prominent role in philosophy of science today. Along the way, the original insight, that we could no longer make ontological inferences based on logical necessity (which I take to be the central implication of non-Euclidean geometry) found its way into conventional interpretations of mathematical-physical modelling generally and thus came to undergird the claim that scientific theories -- and even mathematical formalisms -- were in some measure arbitrary constructions of the human mind whose truth could in principle not be established either logically or empirically and which could be replaced at any time, on non-empirical grounds.

People have not discovered that science and technology are bankrupt. The present distrust of objectivity and rationality has led to a high regard for "mystical" and anti-intellectual approaches to the world. Science and technology operate in an intellectual and rational pattern, and so suddenly find themselves out of step with currently popular movements.

People appreciate good medical care, but still the progress of medical science has disturbed people and made them suspicious of science. In the past many questions in medical ethics were unanswered, but this was not disturbing then because we did not have the knowledge or the skill to implement a course of action based on any of the various answers to these questions. Medicine seemed completely benign because its own limitations allowed these questions to lie dormant. Now, the progress of medical science has turned these old questions into pressing problems. Suddenly medicine seems sinister because it has thrust old unanswered questions upon us.

No medical-ethical issue of significance is truly a consequence of technology. They are forced upon our attention by technology and in the process we are forced to acknowledge that, the persistent cries of physicians, philosophers and theologians over millenia notwithstanding, we have chosen to ignore these questions and have managed to avoid them nicely only for lack of any practical choice in the matter.

The connection with anti-technological attitudes is, I hope, manifest. It seems to me far more correct to say that with leisure, prosperity, freedom and power we are today forced to grapple with perennial ethical questions and choices that meaner existence kept in the province of abstraction, than to say that technology and science have turned ugly.

Dr. Goldman's excellent, thought-provoking paper will be printed in its entirety in the Proceedings of ITEST Conferences, Fall 1978. This volume, which is presently being printed will be sent to all dues-paid ITEST members as usual.

RELIGIOUS PRACTICE AMONG SCIENTISTS

(1979)

At an ITEST meeting on March 9th at Fontbonne College, St. Louis, Dr. John Cross of Saint Louis University mentioned some interesting statistics on the relation between scientists and religion. They largely confirm a suspicion that probably everyone has had, i.e., that, whatever may be the reason for it, science and religion do not seem to mix well. They also indicate what may not be so widely recognized: that social scientists show less religious affiliation than natural scientists and that psychologists show least of all. The statistics are from pages 86 to 93 of the revised edition (1975) of the book, The Social Psychology of Religion by Michael Argyle and Benjamin Beit-Hallahmi. All of the quotations in this report are taken from this source.

As a background, the statistics on these finishing high school and those attending college are given. They do not show great differences among religious groups. Jews are far ahead of all other groups, but Catholics, Protestants and those with no religious affiliation are almost even.

With all other variables, such as father's occupation and education, held constant, Protestants were found to be slightly more likely than Catholics to become college graduates... (Fox and Jackson, 1973).

However, wide differences appear with regard to scientists and religion.

Religious groups are not equally represented among members of different occupational groups. This is especially notable in the case of academics and scientists, where certain groups are over-represented, while other groups are severely under-represented. Another notable finding is the significant minority of scientists who declare themselves to be followers of no religion at all.

Knapp and Goodrich (1951) show the high percentage of successful scientists coming from American liberal arts colleges, and the very small number from Roman Catholic universities. They suggest that Protestant ideology is more in line with scientific activity.

A table is given showing the percentages of scientists and their background.

Religious Affiliation	% of Scientists	% of Their Parents	% of U.S. Population
Protestant	23	53	66.3
Catholic	1	5	26.2
Jewish	9	23	3.0
None	45	8	2.1
Other	23	5	1.9

Two conclusions are drawn from the table.

First, there is a wide gap between the rates of religious affiliation in the US population in general, and that of American scientists. Second, American scientists are not equally recruited from different religious groups. The Catholic group is under-represented, and the Jewish group is over-represented among the families that these scientists came from.

There were also indications that the more eminent scientists and the more productive faculty members were less religious than others.

Social scientists seem to be less religious than the natural scientists. There seems to be an indication that the lack of religious affiliation among social scientists is not only the result of loss of belief during their study of the social sciences but also because those choosing to study the social sciences had already rejected religious beliefs. The table to support this follows.

Religious preference of mother, own late adolescent, and current (1967) religious preferences, for 429 American sociologists:

Preference	Protestant %	Catholic %	Jewish %	None %	Other %
Mother's	60.4	8.4	18.9	5.4	7.0
Late Adolescent	49.4	7.7	15.2	20.3	7.4
Current	37.5	6.5	12.8	35.7	7.5
US Population	66.3	26.2	3.0	2.1	1.9

Source: Glenn and Weiner (1969)

"Thus, early religious apostasy seems to be a factor in recruiting future social scientists (cf. Zelan, 1968)."

The psychologists seem to be the least religious of all groups.

Within the medical profession there is an interesting pattern of denominational preferences as Kosa (1969) found. Psychologists, who show a number of unconventional attitudes, are also generally low on measures of religiosity. Both Leuba (1934) and Struening and Spilka (1952) reported that among scientists and academicians psychologists are the least religious of all groups. Leuba (1934) studied the religious beliefs of 50 'distinguished psychologists' and 57 'lesser psychologists'. They were compared with natural scientists, sociologists and historians. The proportion of believers in God among the distinguished psychologists was the lowest of all groups studied (13.2 per cent). The percentage of believers for the 'lesser' psychologists was 32.1, and for the whole group it was 24.2.

The position of philosophers is treated rather briefly.

Finally Leuba (1934) found that he could not report the religious beliefs of philosophers, since they apparently could not understand the questions or agree with any of the alternative answers offered.

(Editor's note: Followers of the analytic and related schools of philosophy as well as some other currently strong schools consider the idea of God, of immortality, of soul, etc. as simply meaningless. A response from them that they do not understand a question about these could well be a politely worded negative response rather than a neutral response.)

These statistics seem impressive enough to indicate something even though it is difficult to isolate religion from other factors. The question of the effect of other factors has been raised.

Greeley (1967) thinks that the lack of scientific activity on the part of Catholics can be explained by the absence of scholarly tradition, able young Catholics entering the religious life, and economic factors. He found that graduates of Catholic colleges in the 1960s in the USA did not have anti-scientific attitudes. Wagner, Fisher and Doyle (1959) found no differences between Catholic and other students in preference for scientific and technical courses. Perhaps the Catholics are catching up, and differences in scientific achievement will eventually disappear.

This is a happy thought, but there may well be more to the question than the lack of a scholarly tradition. Interesting and valuable work could be done in this area.

REFLECTIONS AFTER A STAY IN FIJI

I (Fr. Lawrence Barry) have just returned from a four year teaching assignment at the Pacific Regional Seminary at Suva in the Fiji islands. I hope that some may find these reflections interesting. The reflections are personal rather than technical and I do not pretend that they are the result of any systematic survey.

A brief background may be helpful. Fijians are melanesian not polynesian people. They could easily pass for an American black; however, Fijians tend toward angular features and an American black with round features would not be mistaken for a Fijian. The islands were discovered by Captain Cook in the late eighteenth century. They became a British crown colony in the late nineteenth century, and they have been an independent member of the British Commonwealth of Nations for about ten years. Colonialism came late, and the islands experienced a relatively benevolent form of it -- good Victorians doing good deeds for humanity. The good points of British rule greatly outweighed the bad, and the bad were mistakes rather more than crimes.

The Fijians had been exposed to diseases for which they had no immunities, a factor which caused a sharp drop in their numbers. Workers were needed for the sugar cane fields, and, rightly or wrongly, Fijians were not considered suitable. More and more Indians were brought in from India. The practice had begun before the islands were a British colony and was continued until about the time of World War I. The Indians were very prolific, and their population grew rapidly. During this time the Fijians acquired immunities and their numbers began to increase. Now there are slightly more Indians than Fijians on the islands. This has presented the islands with a race problem and has complicated reactions to industrialization.

The Fijians resent the presence of the Indians. One of the pieces of rhetoric of an extreme Fijian party was that the Indians should be sent back to India and England be made to pay for the transfer. The two races are at opposite poles in almost everything. The Fijian tends to be easy going, carefree, and fun loving. They are fond of sports -- boxing and rugby are favorites -- and they are usually physically strong and a naturally athletic. The army is predominantly Fijian. The Indian tends to be a go-getter, commercially with little taste for athletics. Also they are usually smaller than the Fijian. The Indian culture is a kind of block in which religion, family, friends, music, painting, shows, and business are closely linked. Indians do not assimilate readily. The Fijian culture is less structured but their strong regard for their traditions, the role of the chief, and the place of the extended family keep it from being the sort of society into which the Indians could be easily assimilated. Voting is gerrymandered against the Indian, and almost all the land is under the Fijian native land trust board, so that Indians cannot acquire land. Indian farmers can lease land for no more than five years. Needless to say most Indians are eager for training and education to fit them for places in commerce and industry.

The Fijians are proud of their identity as Pacificans as well as of their national and racial identity and of their culture. This pride is neither strident nor militant; it is rather the quiet and self-confident dignity of a friendly and courteous people. Their dignity, which was neither subservient nor militant, was a mildly shocking reminder of our own less fortunate race situation.

Times have changed rapidly. It was hard to realize that the great grandparents of some of the boys we were teaching at the seminary had been cannibals and had lived in a neolithic culture. It is popular in Fiji to refer to it as a developing country and to lament the fact that aid from overseas has not been more generous. It is even more popular to talk as if they were living the culture of their ancestors and wanted to continue to do this. Some changes have been resisted. There is no TV station in Fiji. Movies are severely censored. "Ham radio" is practically forbidden. The council of chiefs is strong in its insistence on Fijian traditions. The prevailing mentality is puritanical, authoritarian, and traditional. That apple which is not mentioned in the book of Genesis is still a problem for many of the young men coming into the seminary.

The country is not only developing but has developed. There is much praise for the exploits of their old sailing canoes, but about the only sailing boats in the islands are owned by European members of yacht clubs. The old ways of building are praised, but most of the people in the islands replaced their grass roof with corrugated iron at the first opportunity. Banking, shops, and light industry are rather well developed. A one hundred percent duty on automobiles has not slowed their sale as much as the government had hoped. Most Fijians are heavy smokers. Television is coming in slowly via video tapes. Problems of crime and unemployment are rising in the cities as young people leave the monotony of village life and the overbearing presence of the village chief. In the relatively isolated villages of the past, the chief provided protection against external enemies; he was the center of internal law enforcement; and he had a paternal role in providing for and guiding his people. Modern transportation, communications, rising expectations, and freedom have made many of his functions unnecessary or impossible. He remains what he was externally, but it is doubtful that all the traditional ceremonies in the world can maintain his reality in the face of the elimination or reduction of his most important functions.

The appeal to tradition was powerful, but in many ways it was a blind power. The Indian half of the population had a completely different set of traditions, were active in developments, and outnumbered the Fijians; yet those wishing to keep Fiji Fijian tended to pretend that the Indians did not exist. The appeal to tradition could obstruct. It has obstructed Fijian agriculture, so that the islands import millions of dollars worth of food even though they could be exporting as much. There seemed to be little willingness to face the consequences of the great change that had taken place and was still taking place. The dominant attitude seemed to be a vacillation between a desire to develop and a desire to stay as they were -- as if they could attain these two mutually incompatible goals by wanting to do so or by praising them both.

There can be a kind of reverse cultural shock upon return to the United States. There seemed to be a similar need to face present realities and future developments. I was reminded of how easy it is from within the U.S. to forget that the world is full of people who do not act or think like ourselves. Science and technology have become vast and abstruse, requiring specialization and technical terminology. Faced with such a forbidding and, in some ways, humiliating challenge it is tempting to take a short cut. A rhetorical castle in the air can be built out of nostalgia for good old days that probably never existed, claims to simple and direct knowledge, a bias toward what can pass for the natural and the simple, a disdain for science and technology, and a refusal to face the changes they have made and are making in the conditions in which we live. If this is linked with a failure to face the ambiguity of an attitude

that wants all that technology can offer while pretending to despise the technology, we can vacillate between our rhetorical castle in the air and our desire for progress in a way that can obstruct but cannot guide.

Our society has become urban, highly mobile, and one in which each part is interrelated and dependent on other parts. It has opened up possibilities for social strife, crime, and terrorism that were unconceivable fifty years ago. Even World War II could be made to look like a child's game in comparison with what our present capabilities can bring upon us.

We hate the thought of creating a 1984, but organization to meet the demands of our times need not be a 1984. Fundamental values are one thing, but the structures that implement them are another. It would be foolish to think that all of the structures that protected human values in past centuries will be adequate in the very different circumstances of the present and of the future. Unless we recognize and meet the needs of our own times, we may well blindly stumble into a 1984 or worse. Our own situation, except for its complexity and magnitude, is not that different from the problems of past and future facing the Fijians.

"THE END OF THE RAINBOW"?

A TV special on nuclear fusion, presented on Public Broadcasting Service on March 1st carried this title. It began with the famous song from the Wizard of Oz, and, mixing metaphors a bit, went on to ask if nuclear fusion was the pot of gold at the end of the rainbow.

The question was meant to be a real one. The presentation did not try to imply that nuclear fusion was impossible, but it did bring out the need to consider alternatives in case the problems of nuclear fusion cause long delays or even prove insurmountable. The hoped-for time table for the development of energy from fusion which was given in the presentation was slightly less optimistic than that given in the ITEST monograph on the nuclear power debate written by Frank Adams, S.J.

The TV presentation dramatized the need to consider alternatives: oil and gas: in short supply and polluting the atmosphere; coal: clumsy to use and highly polluting; solar power: too diffuse to gather efficiently and intermittent without any prospects for a capacity to store it in anything like large quantities; fission: some risk and the problem of the storage of waste material; fusion: paradise, if we can only find the key. The lesson seemed to be that there is no safe or sure course. There is risk no matter what is done, but there is no course with greater risk than that of simply keeping right on doing what we are doing now.

We can be grateful to Frank Adams for giving us his account of nuclear technology. This seems to be an area where emotional attitudes are rife and knowledge a bit scarce. We might hope that his account will help solve this particular scarcity. The nuclear power issue seems to be one to be lived through rather than solved analytically. Knowledge is so vast that specialization is a necessity, so that no one can be a master of everything and everyone has to learn to live with ignorance and make

decisions as best as possible on the basis of the knowledge we have or can acquire before the time of the decision. We can still avoid simplistic appeals to what is "obvious" and, while aware of our ignorance, be also aware that we are not the only ones whose knowledge is limited and use what we do have to make decisions in a responsible manner.

FROM HOOPLA TO SILENCE

Science, in the issue for 29 January 1979 carried a Book Review of Fish Protein concentrate by a team of four authors. It told the story of the attempt to develop fish protein concentrate as a solution for the problems of malnutrition in the world. The project began with high optimism in the early 1960's and was terminated in 1972. The story may be too familiar. First, there were sensational claims for the new product and the wonders it would accomplish while the social, cultural, economical, and political obstacles to its acceptance were ignored.

The handling by government agencies combined a promotional campaign with assignments of tasks to agencies that did not have the resources to perform them. The situation was made worse by a wooden application of regulations that were made for different conditions. The result was the death of the project. Fish protein concentrate was never a panacea for the world's malnutrition problem, but it might have helped.

Governmental Intervention and Regulation: A Theologian's Perspective -- Dr. David Truemper

(The following is a very brief excerpt from Dr. Truemper's paper for the ITEST March, 1978 Workshop. It will be printed in its entirety in the Workshop Proceedings.)

In twenty centuries of Christian existence times -- and governments -- have changed. The problem of how one shall account theologically for the authority of government has changed over the centuries. What was heroically asserted in New Testament times (e.g., by St. Paul in Romans 13, almost scandalously calling the emperor (the incumbent, one recalls, was the persecutor, Nero) "God's servant for your good") is likely to be treated as mere credulity today. Government as God's ministering agent of retribution is not a part of political theory today, and the heroic stance of a St. Paul or a St. Peter, or of the hosts of the martyrs, is the result of views not widely held in our time. The heroics of Dietrich Bonhoeffer or Max Josef Metzger are widely admired precisely because of their rarity. Modern Christians are a considerable distance removed from apostolic times and views, not least because their usual contact with government is in the form of dealing with a bureaucracy whose attention (or neglect) is neither benign nor malign but only bothersome -- in triplicate.