


A SOCIOTECHNICAL ANALYSIS OF A PSYCHIATRIC HOSPITAL AND OF A MATERNITY HOSPITAL

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<p>International Centre for Environmental Health</p> <p>Fred O'Brien D.H.I., B.A., M.B.A., C.P.H.I.(C), Founding Director, International Federation of Environmental Health</p> <p>2 The Cloisters, Kilkee County Clare, Ireland V15 DK38</p> <p>www.iceh.net fred_o_brien@hotmail.com</p> 	<p>The environment is gifted with its own integrity and dynamic balance; and each and every person and the communities of people bear a responsibility for the care of the environment and of each other.</p> <p>Environmental health sustainability can never be established, never guaranteed, except by the diligent observance of the divinely established design of the created order. <i>See Pacem in Terris I, 1963.</i> As our great elder, Job, recommends, we should ask the animals, birds, plants and the fish of the sea and they will teach us. Which of these does not know that the hand of God has done this? In Creator's hand is the life of every living thing and the breath of every human being. <i>See JOB 12: 7-10</i></p>
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Finally, I dedicate these efforts to my wife Anne, to our children Jonathan, Mark, Diarmuid, Kieran, Frederick, Judith and David; and to my parents, Fred and Catherine O'Brien.



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R-L: Jonathan, Mark, Diarmuid, Kieran, Frederick, Judith, David, Anne, Kevin and Michael, taken in 2015. Sons and daughters of Fred and Anne O'Brien.

CHAPTER 1

1.1.1 INTRODUCTION

A widely accepted measure of a society's success is the measure to which it is industrialized.

Industrialization is seen as the universal means whereby social and cultural life can be improved. Previously a people's history, culture, education, art, self-awareness and sense of purpose marked them as mature or immature, fulfilled or unfulfilled. Mans need of:

a sense of assurance as to his identity,

a sense of community relating him to his fellowmen, and

a sense of the spiritual meaning and purpose of his life ⁽¹⁾

was catered to by directing the emphasis on ideas rather than on techniques, on education of the total person rather than on training people as specialized functionaries of industry. An understanding of self, of community, of the meaning of life and of the world about was recognized as important to enable one to achieve some level of freedom and self-direction. Myth, philosophy and religion offered man explanations in their own fashion and where the explanations sufficed enabled him to contend with his world in a meaningful way and left him with a sense of wonder and awe at the patterns he saw in reality.

The changes brought about by the industrial revolution were traumatic indeed. It transformed the economic situation; made new demands on human effort and on national resources; resulted in much disturbance to human life; altered class structure; and changed fundamentally ideologies and political systems.

Industrial growth has become the important goal of most countries, and training for employment is seen by many as the principal purpose of education. Human aspirations are geared towards employment.

An individual studying one of the liberal arts is asked, "What can you do with it?", rather than "What can it do with you?" Cultural advancement is seen as the fruit of slavery to industry. Individuals are seen as industrial resources. The social pressures on individuals are towards conformance with the industrial philosophy. Members must be moulded and processed to fit the system.

The accelerating nature of technological innovation is abundantly evident. If man's time on earth is taken as 240,000 years and if we imagine that those years take place in one hour, he spent fifty-five minutes of that time in Paleolithic (Old Stone Age) culture.

"Five minutes ago, he embarked upon the Neolithic culture, the cultivation of plants, the domestication of animals, the making of pottery, weaving, and the use of the bow and arrow; 3½ minutes ago he began the working of copper; 2½ minutes ago he began to mold bronze; 2 minutes ago he learned to smelt iron; ¼ of a minute ago he learned printing; 5 seconds ago the Industrial Revolution began; 3 1/3 seconds ago

he learned to apply electricity; and the time he has had the automobile is less than the interval between the ticks of a watch; i.e. less than one second.”⁽²⁾

Medicine and health services are intimately connected with science and technology. Medicine is based upon the achievements of theoretical medical disciplines in addition to owing much to the success of biology, physics and chemistry. Scientific and technological developments have magnified trends towards specialization. Medicine has become fragmented, and specialisms within specialisms have developed.

“Scientists, researchers, technicians, and other knowledge workers” are becoming increasingly prevalent in organizations. Integration of their efforts toward organizational accomplishment can be difficult.

There may be differences in value systems between scientists and managers. The former may be concerned with the effectiveness of a product or process, (i.e. striving for perfection), while the manager may be more interested in efficiency (i.e. cost as related to effectiveness).

Scientific and technological progress has proceeded, and are proceeding, on a variety of fronts, thus adding to the complexity. Automated information processes are being developed along with automated production processes. Advances in both areas have definite impacts on organizations and hence are important managerial considerations.⁽³⁾

Technological change, both in the nature and variety of machines, instruments and drugs used, and in the procedures of diagnosis, care and treatment given, have altered hospital care delivery systems. The changes occurring have had repercussions, not only for the patient, but also for all those involved in his care. Technological change appears to have a profound social dimension which highlights an important managerial consideration. Lawrence and Lorch posed the question in the following terms:

“What are the organizational implications of increasing rates of technological change? Should two product divisions dealing with different technologies and different markets be organized in the same way or differently? If differently, what should the difference be?”⁽⁴⁾

1.2 OBJECTIVES OF THE STUDY

The objectives of this project are:

1. To determine posited meaningful connections between technology and social structure in open systems.
2. To effect a comparative socio-technical analysis on a maternity and on a psychiatric hospital.
3. To provide insights into the question of how the therapeutic orientation and the available technology influences the organizational administrative structure of these hospitals.

1.3 CONTRIBUTION, SCOPE AND LIMITATION OF THE STUDY

Because the socio-technical open systems approach invites the researcher to seek an understanding of the appropriateness of an entities organizational pattern to achieve its objectives and the likely effects on the management process of any specific technical change that is being planned, the analysis together with recommendations will have most specific relevance to the particular entities studied.

Insofar as other maternity and psychiatric hospitals mirror the patterns of social and technical variables found it is proposed that the finding of this study will have relevance to such institutions. The application of the findings however, to other hospitals should be appraised, having due regard to their dynamic and unique nature as institutions interacting with their particular external environments.

The study does not seek to propose a one best way to organize maternity and psychiatric hospitals in all situations. It does however, propose an analytical model, the use of which will enable management to appraise the dynamic social and technical systems within the context of both the entities internal and external changing environment, such that incompatibilities in the social and technical variables existing or proposed will be highlighted, and remedies suggested. Such an appraisal should serve as a contribution to effective management of similar complex organizations.

CHAPTER 2

2.1 THE ‘MECHANISTIC’ AND ‘BEHAVIOURISTIC’ SCHOOLS OF MANAGEMENT THOUGHT

“Symbols help us to grasp things by analogy. For example, monarchy may be represented as a body with a soul dictatorship as a machine.”⁽¹⁾

The mechanistic and behaviouristic schools of Management thought are typically represented analogically to us by depicting the organization managed as a machine and as a less well-defined living organism respectively.

‘Mechanistic organization’ was a term employed by Tom Burns, a Sociology Professor at the University of Edinburgh, and G. M. Stalker, Psychologist, to describe what is, essentially, a bureaucratic organization. They found that organizational structures varied with the rate of change of the technology and that the mechanistic structure was typically found in large manufacturing firms having a slowly changing market and technology (relatively stable conditions).

“Everyone knew his job and its limits; little consultation was needed, and work flowed through clearly defined channels”⁽²⁾

The mechanistic concept has considerable appeal in a world of so many uncertainties. The machine and its parts are designed to function in a well-defined way. There is no room for confusion. If a component fails, it can be replaced. What better way to model an organization! Rules and procedures for the organization and its parts have all been written into the machines blueprint. The function of the parts is already geared to the attainment of the entity’s maximum performance.

To extend the use of analogy in the present context, it may be useful to look at a mathematical and poetic ‘explanation’ of an aspect of reality.

2.2 The Generation of Waves by Wind

2.2.1 Mathematical

$$S(\mu) = \frac{Ag^2}{\mu^5} \cdot e^{-b} (\mu_0/\mu)^4 \quad (3)$$

2.2.2 Poetic

*There are waters blown by changing winds to laughter
And lit by the rich skies all day. And after,
Frost with a gesture, stays the waves that dance
And wandering loveliness. He leaves a white
Unbroken glory, a gathered radiance,
A width, a shining peace, under the night.*

Charles Lamb

The mathematical and poetic modes of explanation have value and limitation and their comparative merits in representing reality and imparting knowledge is of epistemological significance. One might usefully compare the mechanistic approach to the mathematical explanation and the behaviouristic approach to the poetic explanation of reality. Mathematics works, it is objective, manageable and certain. Poetry has both an emotional and intellectual appeal; it induces wonder which is an incentive towards effort at further understanding of those less codifiable aspects of reality highlighted in the poet's imagery.

The behaviouristic approach, in contrast to the mechanistic one is organic and emphasizes the importance of treating people as people.

"The simple fact that people respond more to being regarded as people than machines and that such attitudes can have a greater effect on productivity and efficiency than rest periods, lighting conditions and even money was (and still is) a shock for many "mechanically minded managers!"" ⁽⁴⁾

The Hawthorne Studies (1927-1939) carried out at the Hawthorne Works of the Western Electric Company under Elton Mayo, Professor of Industrial Research at Harvard, was a milestone in industrial research. This research highlighted the importance of factors outside the job. The Hawthorne Studies "show the complete interrelatedness of various problems and demonstrate that changes in work environment, rest pauses, hours of work, hours in the working week, fatigue, monotony, incentives, employee attitudes, employee organization, both formal and informal, and employee-employer relations are all intimately related." ⁽⁵⁾

Action is the child of thought. In our day to day lives we are constantly beset by situations in which it seems we must live amid contrasting factors. At times they appear to be absolutely contradictory. If we try for one, we are bound to lose the other. If one becomes philosophical about these situations, then some explanation is in order concerning why such situations exist and whether or not they are truly irreconcilable. All too often the tendency has been in attempting a reconciliation to slip into abstractions. Instead of attempting to reconcile contrasting situations in some way which preserves the immediacy of our everyday experiences, the tendency is to come up with some "system" in which conclusions are deduced from definitions. Abstractions are so neat. As divorced from the data of human experience they are pure and perfect, self-contained, indestructible units unsullied by contact with the world. ⁽⁶⁾

The more codifiable and less codifiable aspects of reality require marrying to ensure that neither untempered logic nor formless chaos prevails. Management thinkers have pointed the way by acknowledging the contributions of their predecessors, and of the mathematical, physical, biological and behavioral sciences and of philosophy as they apply to individuals and groups at work in a changing technological and social environment.

CHAPTER 3

3.1 THE MANAGERS VIEW OF REALITY

“The manager’s view of reality exerts profound effects upon his every managerial act. His act in turn effects the achievement of both his own goals and those of the organization of which he is a member.” Douglas McGregor.

With the following story Ruben Nelson poses a challenging question with regard to the industrial engineering approach to management.

“A few years ago in Houston, an engineer was deeply caught up in the Nasa Apollo project. He had to work long hours, so his family life was somewhat disrupted. Often, when he came home his wife appeared to be as tired as he was. This surprised him, for he didn’t think that she had much to do. But to hear her tell it, there was far more to do than she had time for. Accordingly, one day he made special arrangements, took the day off, and spent it with his wife. But rather than go on a family picnic, or take her to dinner, he did a time and motion study of how she spent her day. He was able to determine decisively that his wife’s complaints of being overworked were unjustified and, being unable to hear and comprehend her complaints, he decided no longer to listen to them.”⁽¹⁾

Is this story a significant sign of the times? Or is it just a funny/sad tale to pass on at cocktail parties? I am inclined to take it as a sign and a portent – as only one example of the drift in our society towards treating human beings and human situations as technical problems to be solved by engineering solutions. In a multi-faceted world, we seek solutions which have no more facets than our machinery and our training will allow us to handle. We reduce our problems and possibilities to manageable proportions without seeming to notice that the “sanity” that we achieve is purchased at the cost of our humanity.

One interesting thing about the Houston story is that almost all of us who laugh at the ineptitude of our Houston hero would have sympathized with him had he been at work. Somehow this change of scenery changes everything. We expect a woman at home as wife to rebel if she’s treated as a thing, to be pushed through her paces according to some industrial engineer’s idea of “maximum efficiency”. If a wife walks out in such circumstances, we sympathize with her. Yet somehow, we expect the same woman in a factory as a worker to tolerate and even welcome such treatment. If she walks out in such a situation, we sympathize with management. Strange, isn’t it – maybe even a little crazy. We seem to have two dramatically different sets of decision rules, perceptions and expectations - one to guide our behavior when we are persons at home with friends and family, the other to guide our behavior in our public/official/work roles. This distinction between factory and family, between ourselves as functionaries and ourselves as persons, is widely recognized. It is well known and actively reinforced.

It is also interesting that this distinction is encompassed within the expectation that it is sane, sensible and important. We don't question it; we live in terms of it and use it. ⁽²⁾

Robert Graves' poem "In Broken Images" looks at two contrasting modes of viewing reality.

He is quick, thinking in clear images;
I am slow, thinking in broken images;
He becomes dull, trusting to his clear images;
I become sharp, mistrusting my broken images.
Trusting his images he assumes their relevance;
Mistrusting my images I question their relevance.
Assuming their relevance he assumes the fact;
Questioning their relevance I question the fact.
When the fact fails him he questions his senses;
When the fact fails me I approve my senses.
He continues quick and dull in his clear images;
I continue slow and sharp in my broken images.
He in a new confusion of his understanding;
I in a new understanding of my confusion.

Predictability and certainty may reside in elements of codifiable and quantifiable aspects of reality. Indeed, it is not difficult to abstract logically connected elements, obtain indisputable mathematical relationships and determine hard and fast rules. Such methods, however, do not capture all of reality nor do they plumb the depths of human knowledge and experience.

McLuhan makes the following observation in this matter:

"Descartes, as much as any one person, can be said to have initiated the stress on mechanization and rationalism which fostered the era of Newtonian physics and the allied notions of a self-regulating market and social institutions. He was explicitly motivated by a passion for exactitude and universal consent. He expressed his disgust with the age-old disagreements of philosophers and suggested that universal agreement was only possible in mathematics. Therefore, he argued, let mathematical laws become the procedure and norm of truth. Scientists and philosophers such as A.N. Whitehead and J. W. N. Sullivan are agreed that it was to this procedure that we owe our present mastery of the physical world and our equal helplessness in managing social and political affairs. Because mathematics can only provide descriptive formulas for practical material purposes. Entirely different methods are necessary if we are to escape from an inhuman specialism and to discover the means of orchestrating the arts and sciences in the fullest interest of individual and social life." ⁽³⁾

Organizations may employ sophisticated technology and have complex structures. The psycho-social dimension, however, is a fundamental characteristic of complex entities and requires analysis if management is to rationally orchestrate its resources to the attainment of the organizations ends. Georgopoulos sees the hospital as a human-social system in which account must be taken of the human factors.

"An organization like the hospital is not merely a technological arrangement wherein people work according to the demands of the work plan, or in accordance

with existing rules, regulations, and procedures, or in accordance with formal communication and authority lines and commands from above. It is a human-social system as well. It is a system whose members, unlike pieces of machinery and equipment, have (and use) the power to reason, to feel, to engage in informal relationships, and to make decisions – decisions which may be rational or non-rational, correct or incorrect, organizationally desirable or undesirable. No organizational work plan, however rationally and technologically perfect, can be effectively implemented without taking into account the human factors in the work situation – without proper recognition of the powerful social-psychological forces at work. Under the impact of recent experience and research, many hospital administrators, trustees, and others are becoming convinced that a hospital is basically, fundamentally, and above all, a man-system. It is a complex, human-social system. Its raw material is human; its product is human; its work is mainly done by human hands; and its objective is human – direct service to people, service that is individualized and personalized.”⁽⁴⁾

CHAPTER 4

4.1 TECHNOLOGY AND MAN

Galbraith sees technology as “the systematic application of scientific or other organized knowledge to practical tasks”.⁽¹⁾

Jacques Ellul using technique as his term states: “In our technological society, technique is the totality of methods rationally arrived at and having absolute efficiency (for a given stage of development) in every field of human activity.”⁽²⁾

Walker points out that technology has both an outer and an inner aspect. “Modern technology may be perceived as an environment within which we live, made up of external and tangible things which we modify from time to time and which modify us. Modern technology can also be viewed internally. In this sense it consists of skills of body and brain, of technical and administrative procedures, and of mental processes, both conscious and unconscious, some of them associated with value judgements which relate man’s outer world to his inner one.”⁽³⁾

Hickson sees Operations Technology as the equipping and sequencing of activities in the workflow. Workflow is defined as “producing and distributing the output”.⁽⁴⁾

For Perrow, Materials Technology is “the actions that an individual performs upon an object ... in order to make some change in that object”.⁽⁵⁾

Technology encompasses knowledge, activities and hardware. Marshall McLuhan perceives technology as having a profound influence on man as individual and on his social relationships with groups. The following selections provide insights in this regard.

“Any invention or technology is an extension or self-amputation of our physical bodies, and such extension also demands new ratios or new equilibriums among the other organs and extensions of the body.”⁽⁶⁾

“By continuously embracing technologies, we relate ourselves to them as servomechanisms. That is why we must, to use them at all, serve these objects, these extensions of ourselves, as gods or minor religions. An Indian is the servomechanism of his canoe, as the cowboy of his horse, or the executive of his clock.”⁽⁷⁾

Having described how the telegraph foiled Crippen’s trans-Atlantic escape, he concludes:

“The Crippen case illustrates what happens to the best-laid plans of mice and men in any organization when the instant speed of information movement begins. There is a collapse of delegated authority and a dissolution of the pyramid and management structures made familiar in the organization chart. The separation of functions, and the division of stages, spaces and tasks are characteristic of literate and visual society and of the Western world. These divisions tend to dissolve through the action of the instant and organic interrelations of electricity.”⁽⁹⁾

“What makes a mechanism is the separation and extension of separate parts of our body as hand, arm, feet, in pen, hammer, and wheel. And the mechanization of a task is done by segmentation of each part of an action in a series of uniform, repeatable, and movable parts. The exact opposite characterizes cybernation (or automation), which has been described as a way of thinking, as much as a way of doing. Instead of being concerned with separate machines, cybernation looks at the production problem as an integrated system of information handling.”⁽¹⁰⁾

“One of the most startling consequences of the telephone was its introduction of a “seamless web” of interlaced patterns in management and decision-making. It is not feasible to exercise delegated authority by telephone. The pyramidal structure of job-division and description and delegated powers cannot withstand the speed of the phone to by-pass all hierarchical arrangements, and to involve people in depth. In the same way, mobile panzer divisions equipped with radio telephones upset the traditional army structure. And we have seen how the news reporter linking the printed page to the telephone and the telegraph created a unified corporate image out of the fragmented government departments.

Today the junior executive can get on a first-name basis with seniors in different parts of the country. “You just start telephoning. Anybody can walk into any manager’s office by telephone. By ten o’clock of the day I hit the New York office I was calling everybody by their first names.”⁽¹¹⁾

“Men could, for the most part, get through a normal life span on the basis of a single set of skills. The acquiring of new basic knowledge and skill by senior executives in middle age is one of the most common needs and harrowing facts of electric technology. The senior executives, or “big wheels”, as they are archaically and ironically designated, are among the hardest pressed and most persistently harassed groups in human history. Electricity has not only demanded ever deeper knowledge and faster interplay but has made the harmonizing of production schedules as rigorous as that demanded of the members of a large symphony orchestra. And the satisfactions are just as few for the big executives as for the symphonists, since a player in a big orchestra can hear nothing of the music that reaches the audience. He gets only noise.

The results of electric speed-up in industry at large is the creation of intense sensitivity to the inter-relation and inter-process of the whole, so as to call for ever-new types of organization and talent. Viewed from the old perspectives of the machine age, this electric network of plants and processes seems brittle and tight. In fact, it is not mechanical, and it does begin to develop the sensitivity and pliability of the human organism. But it also demands the same varied nutriment and nursing as the animal organism.”⁽¹²⁾

“The recent ages have been mechanical. The electric age is organic.”⁽¹³⁾

McLuhan sees technology as any development which makes man more efficient; the “media” are any developments which extend man’s senses, as the radio makes men able to hear speech uttered miles away. The “media” have a content, that is, the information conveyed by the words literally, and a “message”, that is “the change of scale or pace or pattern” that they introduce into human affairs. This message, which is also characteristic of technology, is more important than the content; in fact, McLuhan argues, “The medium is the message”. Anything which affects mankind’s actions is a medium, even a light bulb or a cigarette.

Each new medium (including technology) has a challenging and often numbing effect on man. Prior to the printing press (the “Gutenberg Galaxy”), man received information all at once, in patterns or “configurations”. In contrast, print transmits information lineally and sequentially, and man had to learn to think lineally and sequentially. Ear oriented man perceived reality orchestrated and ecological, eye enlarged man sees reality broken up and mechanical.⁽¹⁴⁾

In *Cybernation and Culture*, McLuhan sees man moving from the mechanical to the electric age as one moving from the world of the wheel to the world of the circuit. “And where the wheel was fragmenting environment, the circuit is an integrating environmental process...In the age of circuitry the consequences of any action occur at the same time as the action. Thus we experience a growing need to build the very consequences of our programs into the original design...By awakening to the significance of electronic feedback we have become intensely aware of the meaning and effects of our actions after centuries of comparative heedlessness and non-involvement.”

The invention of writing served “to detribalize and to individualize man. ‘But’ cybernation seems to be taking us out of the visual world of classified data back into the tribal world of integral patterns and corporate awareness...The extension of the nervous system in electronic technology is a revolution many times greater in magnitude than such petty extensions as sword, and pen, and wheel. The consequences will be accordingly greater...It is typical of our retrospective orientation and our inveterate habit of looking at the new through the spectacles of the old that we should imagine television to be an extension of our visual powers. It is much more an extension of the integrating sense of active touch.” That is, it puts us into immediate touch with massive amounts of integrated data.

While it has been feared that cybernation and automation will bring about centralism, in fact “automation abolishes the patterns and procedures of the mechanical age...Cybernation in effect means a new world of autonomy and decentralism in all human affairs.

The following McLuhanisms refer to a response to technology:

“The magic that changes moods is not in any mechanism. It is critical vision alone which can mitigate the unimpeded operation of the automatic.”⁽¹⁵⁾

“Have we submitted hypnotically to the hopper of mechanical processes?”⁽¹⁶⁾

“Let’s all get adjusted to the process of getting adjusted to what isn’t here any longer.”⁽¹⁷⁾

“You’ll never hit the jackpot unless you first become a slug for a machine.”⁽¹⁸⁾

Alvin Toffler⁽¹⁹⁾ looks at the causes and possible remedies of “future shock”, a phenomenon arising from the overload of the human organism’s physical adaptive systems and its decision making processes. Technological Society produces this problem because it is characterized by an overabundance of goods and ideas, constant mobility, and a rapid rate of “making and breaking relationships with the things, places, people, organizations and informational structures that comprise our environment”. Toffler sees the super-industrial Society extending the range of man’s freedom. The people of the future will enjoy greater opportunities for self-realization than any previous group in history. Such freedom, however, creates both psychological and social problems. “A Society fast fragmenting at the level of values and life style challenges all the old integrative mechanisms and cries out for a totally new basis for reconstitution. We have by no means yet found this basis. Yet if we shall face disturbing problems of social integration, we shall confront even more agonizing problems of individual integration. For the multiplication of life styles challenges our ability to hold the very self together.”

Toffler sees a need for the conscious regulation of technological advance. He sees reckless attempts to halt technology producing results just as destructive as reckless attempts to advance it, and the cultural styles of the future as an outcome of our technological choices. Thus, a “Society in which the pace of technological advance is moderated and guided to prevent future shock” will be one in which “political democracy and broad-scale participation are feasible”, while a society in which “masses of ordinary people are incapacitated for rational decision-making” will be one in which “powerful pressures lead toward political rule by a tiny techno-managerial elite”.⁽²⁰⁾

The belief that broad scale participation is required to moderate and guide the pace of technological change such that stress is reduced, is repeated in an article by Alexis Brook dealing with some aspects of stress that arise when changes are occurring in organizations.⁽²¹⁾

Brook says that “one of the most important factors for a healthy outcome is that the workforce basically trusts the management and believe in the organization’s future.”⁽²²⁾

and that “the effects of involvement in a period of change depend on several factors; the positive feeling that people have about it; the anxieties that it mobilizes in both the individual and the group of which he is a part; and the manner in which the change is conducted. This last factor is often the most significant”.⁽²³⁾

Revans⁽²⁴⁾ has shown that the most effective way of arousing hostility to change is to exercise unyielding pressures and not to listen to what the work force has to say.

Erich Fromm perceives man’s freedom reduced and his identity corrupted by technological society. He holds that the operation of the present technological system is programmed by two guiding principles -that technological “can” becomes technological “ought”; and that maximal efficiency and output must be secured. Hence both the autonomy of technique and the nature of the system are implicated in the resulting “human consequences”. These are: to “reduce man to an appendage of the machine, ruled by its very rhythm and demands” and to “transform him into Homo consumens, the total consumer, whose only aim is to have more

and to use more”.⁽²⁵⁾ Modern man is pathologically passive and suffers from a “low-grade chronic schizophrenia” characterized by the “growing split of cerebral-intellectual function from affective-emotional experience”, that results in the attempt to cultivate scientific “emotion-free thinking”.

Several studies indicate that automation brings a reversal of the extreme specialization of labour characteristic of mechanized (as distinct from automated) jobs, and, with this, a reduction in the alienation of the worker.

Blauner’s ²⁶⁾ investigation of blue collar workers in different industries concluded that, because automated technology gives the worker more responsibility, greater control over the work process, and a better sense of the job as a whole, it serves to diminish his alienation.⁽²⁷⁾ Shepard’s study of both blue and white collar workers confirms this conclusion.⁽²⁸⁾

Forbes sees technology as “wholly incapable of setting its own rules on the basis of its own logic within a completely closed circle...nor does every technological achievement carry within itself the imperative toward a further step. Mankind has selected an array of technologies that currently form its technological order, but has ignored others which continue to lie dormant. Undoubtedly, we will drop some technologies now in use, and thus change still further the existing technological order, which is necessarily in flux as it responds to the changing needs of mankind.”⁽²⁹⁾

Slater looks at a highly mobile society where temporary systems are the rule and where there is an acute need for constant adaptation. Man becomes separated from “enduring and significant relationships”, with feelings of alienation, anomie, and meaninglessness arising as a result. Because of extreme specialization, man becomes “a part in search of a whole”. But, paradoxically, the “inability to experience oneself lends...to a cry for more uniqueness, more eccentricity, more individuation, thus exacerbating, the symptoms”. In the environment of temporary systems, “internalized controls of a fixed kind rapidly become irrelevant”.⁽³⁰⁾

Extreme specialization, noted by Slater, is referred to by Jose Ortega y Gasset in the following terms:

“Now it turns out that the actual scientific man is the prototype of the mass-man. Not by chance, not through the individual failings of each particular man of science, but because science itself—the root of our civilization—automatically converts him into mass-man, makes of him a primitive, a modern barbarian. The fact is well known; it has made itself clear over and over again; but only when fitted into its place in the organism of this thesis does it take on its full meaning and its evident seriousness...when by 1890 a third generation (of scientists) assumes intellectual command in Europe we meet with a type of scientist unparalleled in history. He is one who, out of all that has to be known in order to be a man of judgement, is only acquainted with one science, and even of that one only knows the small corner in which he is an active investigator. He even proclaims it as a virtue that he takes no cognizance of what lies outside the narrow territory specially cultivated by himself and gives the name of “dilettantism” to any curiosity for the general scheme of knowledge...Previously man could be divided simply into the learned and the ignorant, those more or less the one, and those more or

less the other. But your specialist cannot be brought in under either of these two categories. He is not learned, for he is formally ignorant of all that does not enter into his specialty; but neither is he ignorant, because he is a "scientist" and "knows" very well his own tiny portion of the universe. We shall have to say that he is a learned ignoramus, which is a very serious matter, as it implies that he is a person who is ignorant, not in the fashion of the ignorant man, but with all the petulance of one who is learned in his own special line.⁽³¹⁾

And such is the behavior of the specialist. In politics, in art, in special usages, in the other sciences, he will adopt the attitudes of primitive, ignorant man; but he will adopt them forcefully and with self-sufficiency, and will not admit of—this the paradox—specialists in those matters."

CHAPTER 5

5.1 THE OPEN SOCIO-TECHNICAL SYSTEMS APPROACH

5.1.1 OPEN SYSTEM:

“The distinctive qualities of modern organization theory are its conceptual-analytical base, its reliance on empirical research data, and, above all, its synthesizing, integrating nature. These qualities are framed in a philosophy which accepts the premise that the only meaningful way to study organization is as a system.”⁽¹⁾

The properties of organizations as open systems have been described by Katz and Kahn⁽²⁾ and by Emery.⁽³⁾

Emery postulates the following premises which illustrate the main assumptions of this approach:

- 1) Management is about coping with exchanges between organization and environment.
- 2) The goals of organizations are conceptually inseparable from environmental processes.
- 3) The organization seeks to establish and maintain those forms of interdependence with the environment, which enables it to maximize its potential energy and capacity for work.
- 4) The task of management is to match the actual and potential capacities of the organization to the actual and potential requirements of the environment.

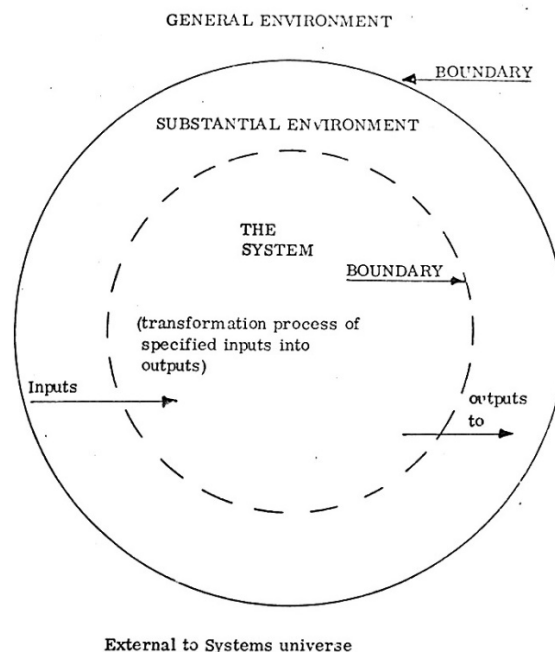
A model proposed by Lowe and McInnes⁽⁴⁾ which depicts the organization in its substantial environment is shown in Fig. 1.

The systems concept finds a useful explanation by use of the living organism analogy. From the most simple one-celled bacterium to the more complex living organisms one can observe the creature as an ‘open system’ made up of ‘sub-systems’. There are inputs, in the form of food, water, oxygen, and other material and energy sources. There are the transforming processes of metabolism; and there are outputs of energy and waste products. Sub-systems in complex organisms can be identified, e.g. circulatory, respiratory, digestive systems, etc. Human organizations can also be viewed as open systems interacting with their environment. A hospital is an open system made up of sub-systems. The patient may be perceived as moving from the Community through the Hospital and back to the Community, with some transforming process taking place within the Hospital system. Similarly, pupil nurses may be perceived of as entering the hospital, being transformed by information and practical experience, and leaving the entity as qualified nurses.

In health the living organism functions as a unified complex of sub-systems to the benefit of the total organism. Should an injury or disease attack any sub-system, the result has consequence within all the other sub-systems of the organism. If the organism cannot maintain the equilibrium – homeostasis – which determines its survival, it dies.

As already noted, human organizations exhibit certain properties akin to those noted in living organisms. An important consequence of viewing entities in this fashion is that it becomes most significant that no part of the organization be examined in isolation. The organization is a complex of sub-systems which are interconnected, interdependent and inter-related. If an adjustment is made to one sub-system, repercussions extend throughout the organization. If the substantive environment within which the entity operates changes, then the entity is affected and tends to adapt such that a healthy equilibrium is maintained. To a greater or lesser degree, the changes in the entity will affect the substantive environment.

Figure 1 The Entity in its Substantive Environment



The broken line dividing the system from its substantial environment is indicated as being permeable and representing an “open” system.

5.1.2 Socio-technical Systems

Organizations can be perceived of as structured socio-technical systems. “Technology is based upon the tasks to be performed and includes the equipment, tools, facilities, and operating techniques. The Social subsystem is the relationship between the participants in the organization. The technological and social subsystems are in interaction with each other and are interdependent”.⁽⁵⁾

There are social and psychological determinants involved in the formulation of the Social subsystem. The task requirements of the organization determine the technical subsystem.

Joan Woodward’s study of classical management theory found that line-staff specialization of functions, span of control, number of levels of hierarchy, and staff-worker ratios in 100 British firms had no particular significance as far as organizational success was concerned.⁽⁶⁾ What she did find, though, was that her data made sense when all of the firms studied were classified into three productive system categories, no matter what product was involved. The

first main productive system she calls “Unit and Small Batch Production”. This included the production of units to customers’ requirements, the production of prototype, the fabrication of large equipment in stages, and the production of small batches to customers’ orders. The second main productive system was “Large Batch and Mass Production”. This included the production of large batches, the production of large batches on assembly lines, and mass production. And finally, there was the “Process Production” system. This included the intermittent production of chemicals in multi-purpose plants and continuous flow production of liquids, gasses and crystalline substances.

The survey disclosed that “Management by Committee” was more common in process industry than in the less complex system. Secondly, “the small spans of control and the long lines of command characteristic of process industry meant that in this type of industry management structure could be represented by a long and narrowly based pyramid. In unit production the pyramid was short and broadly based.”

Woodward takes this “small spans of control” as a desirable attribute of the process system. This may be desirable from the control point of view, but over-supervision, or “breathing down the back of your neck” supervision, generally does not contribute toward good worker-supervisor relationships. Another finding was that the proportion of total turnover allocated to the payment of wages, salaries, and related expenditure varied with the type of production, the proportion of such costs becoming smaller with technical advance. In general, “industrial relations seemed to be better in process industry than in large batch and mass production”.

Burns and Stalker’s study into the organization of the electronics industry in Scotland in the 1950’s, underlined the importance of the marketing and social environment in which a firm operates.⁽⁷⁾ A firm operating in mechanistic manner had a good chance of remaining stable and successful if its product market also remained stable, but a turbulent economic environment required a far more informal organization that could quickly produce the appropriate multi-disciplinary task orientated work groups to meet the challenge of change (‘organic structure’). The principles of “reporting to only one boss, hierarchical and rigidly separated functional departments, detailed job descriptions and little delegated authority appear to militate against rapid change.

Their study led them to describe two ‘ideal types’ of management organization which are the extreme points of a continuum along which most organizations can be placed.

The mechanistic type of organization is adapted to relatively stable conditions. In it the problems and tasks of management are broken down into specialisms within which each individual carries out his assigned, precisely defined, tasks. There is a clear hierarchy of control, and the responsibility for overall knowledge and coordination rests exclusively at the top of the hierarchy. Vertical communication and interaction (i.e. between superiors and subordinates) is emphasized, and there is an insistence on loyalty to the concern and obedience to superiors.

The organic type of organization is adapted to unstable conditions when new and unfamiliar problems continually arise which cannot be broken down and distributed among the existing

specialist roles. There is, therefore, a continual adjustment and redefinition of individual tasks and the contributive rather than restrictive nature of specialist knowledge is emphasized. Interactions and communication (information and advice rather than orders) may occur at any level, as required by the process, and a much higher degree of commitment to the aims of the organization as a whole is generated. In this system, organization charts laying down the exact functions and responsibilities of each individual are not found, and, indeed, their use may be explicitly rejected as hampering the efficient functioning of the organization.

The almost complete failure of the traditional Scottish firms to absorb electronics research and development engineers into their organizations raised doubt as to whether a mechanistic firm can consciously change to an organic one. This is because the individual in a mechanistic organization is not only committed to the organization as a whole, he is also a member of a group or department with a stable career structure and with sectional interests in conflict with those of other groups. Thus there develops power struggles between established sections to obtain control of the new functions and resources. These divert the organization from purposive adaptation and allow out-of-date mechanistic structures to be perpetuated and 'pathological' systems to develop.

Pathological systems are attempts by mechanistic organizations to cope with new problems of change, innovation and uncertainty while rigidly adhering to their formal bureaucratic structure. They describe three of these typical reactions. In a mechanistic organization the normal procedure for dealing with a matter outside an individual's sphere of responsibility is to refer it to a superior. In a rapidly changing situation the need for such consultations occurs frequently; and in many instances the superior has to put the matter up higher still. A heavy load of such decisions finds its way to the chief executive, and it soon becomes apparent that many decisions can only be made by going to the top.

Thus there develops the ambiguous figure system of an official hierarchy and a non-officially-recognized system of pair relationships between the chief executive and some dozens of people at different positions below him in the management structure. The head of the concern is overloaded with work, and many senior managers whose status depends on the functioning of the formal system feel frustrated at being by-passed.

Some firms attempted to cope with the problem of communication by creating more branches of the bureaucratic hierarchy, e.g. contract managers, liaison officers. This leads to a system described as the mechanistic jungle, in which a new job or even a whole new department may be created, whose existence depends on the perpetuation of these difficulties. The third type of pathological response is the super-personal or committee system. The committee is the traditional way of dealing with temporary problems which cannot be solved within a single individual's role, without upsetting the balance of power. But as a permanent device it is inefficient, in that it has to compete with the loyalty demanded and career structure offered by the traditional departments. This system was tried only sporadically by the firms, since it was disliked as being typical of inefficient government administration; attempts to develop the committee as a super-person to fulfill a continuing function that no individual could carry out, met with little success.

Burns and Stalker maintain that it is necessary, for a proper understanding of organizational functioning, to conceive of organizations as the simultaneous working of at least three social systems. The first of these is the formal authority system derived from the aims of the organization, its technology, its attempts to cope with its environment. This is the overt system in terms of which all discussion about decision-making takes place. But organizations are also cooperative systems of people who have career aspirations and a career structure, and who compete for advancement. Thus decisions taken in overt structure inevitably affect the differential career prospects of the members, who will therefore evaluate them in terms of the career system as well as the formal system, and will react accordingly. This leads to the third system of relationships which is part of an organization – its political system. Every organization is the scene of ‘political’ activity in which individuals and departments compete and cooperate for power. Again all decisions in the overt system are evaluated for their relative impact on the power structure as well as for their contribution to the achievement of the organization’s goals.

The organizational structure, then, may be perceived of as evolving from a process of continuous development of the three social systems of formal organization, career structure and political system. Accordingly “A sense of the past and the very recent past is essential to anyone who is trying to perceive the here-and-now of industrial organization”. Adaptation to new and changing situations is not automatic. Many factors may militate against it; among the most important being the existence of an organization structure appropriate to an earlier phase of development. ⁽⁸⁾

A study carried out at the Durham Coalfields in connection with the change from autonomous team operated shifts of three or six men to large scale mechanization, which entailed having large numbers of workers operating on particular tasks, highlights the importance of the informal group. Before the introduction of the “long wall coal mining method” each team was responsible for all the tasks connected with mining at the coal face and they were paid as a group. With the introduction of mechanization these groups were broken up and the job was divided into simple operations, each group being responsible solely for its own particular task. They were also paid according to the operation they were performing. This introduced the question of status between the different divisions and also the problem of coordination. Triste⁽⁹⁾ et al were brought in by management because, despite the increased mechanization, production had hardly risen. They explained how they introduced a new system of operating which they called the “composite long wall system”. This system was a reversion to the principle of the autonomous work team to cover all aspects of the work at the face over all shifts. In this way they hoped to reduce the friction and consequent low production, and to solve the problem of coordinating all the different functions. The new composite teams were composed of forty-one men. The tasks were rotated between the members of the team – like the earlier small teams – and the team was responsible for the total operation. Despite the earlier difficulty of selecting these larger autonomous teams, the change was a success and production increased sharply.

“This study of the effects of technological change led Triste to develop the concept of the working group as being neither a technical system nor a social system, but as an

interdependent socio-technical system. The technological demands place limits on the type of work organization possible, but the work organization has social and psychological properties of its own that are independent of the technology. From this point of view it makes as little sense to regard social relationships as being determined by the technology as it does to regard the manner in which a job is performed as being determined by the social-psychological characteristics of the worker. The social and technical requirements are mutually interactive and they must also have economic validity, which is a third interdependent aspect. The attainment of optimum conditions for any one of these aspects does not necessarily result in optimum conditions for the system as a whole, since interference will occur if the others are inadequate. The optimization of the whole may well require a less than optimum state for each separate aspect.”⁽¹⁰⁾

CHAPTER 6

6.1 TECHNOLOGY AND HOSPITALS

Advances in medical technology have had many far reaching consequences. They have made possible treatments and cures that were never possible before and have made these available more as a matter of right than privilege. In consequence of these improvements and as a result of economic affluence and further advances the medical profession has become increasingly differentiated and specialized and is tending to concentrate its best efforts in regional urban centres. This has altered the older social organization of medicine that was built around the general practitioner. The increase in demand for medical services accelerates the process of differentiation and multiplies the levels of paramedical personnel between the doctor and the patient.

Hospitals have grown in size, they have become more specialized and complex. Their structure has been elaborated along three lines. They have generated separate departments to provide the differentiated services which specialization makes possible. They have built up a substantial system of administrative and professional controls. They have generated a vast range of supporting and helping personnel to supplement the work of professionals and administrators.

The specialized medical departments reflect the division of labour among doctors. As the body of medical knowledge has expanded and the ways of applying it have multiplied, its practitioners progressively have identified themselves with specialized fragments of knowledge. As these fragments have become autonomous, and as the tools of the trade associated with them have become more costly and complex, they have tended to find a place in the framework of the general hospital.

The high level of specialization is a relatively new phenomenon, but its end is not in sight. Already many fragmentations are occurring on the fringes of established specialties. Moreover, recent technological developments, such as those associated with uranium, may generate whole new departments like that of "Nuclear Medicine".

The existence of these departments within the hospital has some important consequences. They compete for scarce resources in the hospital, notably space, nursing and technical facilities, and a place in the budget. They require a formal system of records to keep track of their activities. They also necessitate some system of administration to achieve an appropriate level of coordination among the various specialties.

Large organizations tend to develop a departmental structure. Each main function of a big organization tends to become a department in its own right. Hospitals are no exception. In them, departmentalization has proceeded to a high degree; moreover, administrative departmentalization supplements technical specialization.

Departmentalization goes much beyond the medical specialties. The hospital is a household as well as a medical institution, and the household functions become specialized into departments. Housekeeping subdivides to the point where the laundry and kitchen become distinct entities, as do maintenance and plant and planning. Purchasing and accounting and finance separate into distinct departments. Personnel relations and public relations become distinct entities. Nursing services and social services become relatively autonomous. Pharmacy, radiological services, and laboratories emerge either as facets of medical specialization or as close supports of medical care. A department of medical records emerges which parallels the other systems of records required to maintain order in such a complex system.

The development of all these specialized activities in the hospital requires a controlling system of supervision, direction, and coordination. As in other large organizations this implies supervisory personnel, and managers of each of the specialized departments.

The role of the hospital administrator resembles in many ways that of the chief executive officer of large industrial organizations. But one special feature makes the hospital distinctive. The administrator exercises almost no control over the day-to-day working of the various medical departments of the hospital. The hospital has developed a dual pattern of authority.⁽¹⁾ It is not therefore, a “line” organization in the classic sense. From this basic feature there springs many anomalies of organization. For example, nurses are supervised by head nurses; nevertheless they carry out doctors’ orders in much of their daily work. There is no corresponding sense in which doctors carry out the administrator’s orders. This is not to say, of course, that doctors are individually autonomous in the hospital setting.

Stone says “if we look at the hospital problem – efficient hospital administration – with the searchlight of industrial experience upon it, we shall find that hospital administration is just as surely a business enterprise as any industry in the country. Every tactic and characteristic that have been approved for industry is applicable to the hospital administration, and more besides.”⁽²⁾

The Bradbeer Report entitled THE INTERNAL ADMINISTRATION OF HOSPITALS was published in London in 1954. In this report is set out the concept of hospital administration as being of a tripartite character. The view of the committee on this subject can be summarized as follows: (Para 20-22)

Hospital administration can be subdivided into:

- 1) Medical administration
- 2) Nursing administration
- 3) Lay or business administration

The concept of partnership among these three parts was to be regarded as fundamental although superficial variations were to be expected. No one part could do without the others. Co-operation was not enough: it must be willing co-operation springing from a consciousness of fellowship in a shared desire to serve.⁽³⁾

Geoffrey Robinson in *HOSPITAL ADMINISTRATION* deals with internal relationships in hospitals and says: "In most hospitals the atmosphere is good, but there is often the tale of a minor feud between, say, the secretary and the matron, one surgeon and another, the medical staff and the administration. This may stem from too rigid a line of demarcation between the responsibilities of the parties concerned and each resents the interference of the other. It is far better to blur the line of demarcation and, wherever possible, let the parties meet to discuss matters and sort out ways in which they can help each other."⁽⁴⁾ The author then goes on to explain the complexity of hospital organization because of its diverse purposes and the wide range of occupations of personnel who work for it.

Research by Revans⁽⁵⁾ in 1962 revealed wide variations in 'morale' between hospitals in the Manchester area. The variations were measured in terms of length of stay of staff, absenteeism, and similar indices. He found that high or low rates for hospitals were typically spread through all the occupational groups irrespective of status and type of job. From this he concluded that, in the kind of hospital he was studying, there was an organic quality that affected members of the staff at all levels and in every function. In subsequent investigations⁽⁶⁾ he established that the rates of labour turnover and the other chosen indices of morale were associated with the length of patients' stay. From this it was inferred that the organic quality of relations among the staff affects the recovery rate of the patient.

Revans and his research team identified significant differences in the kinds of communication between nurses, patients, doctors, and sisters. The content of communications was assessed in terms of frequency and length of contact as well as the kinds of items included. In general, the frequency of contact between the nurse, who was able to observe the patient for long periods, and the doctor, who saw the patient briefly when on his rounds, was a matter of moments or minutes. The important factor seemed to be whether the doctor, the nurse, and the sister were in a situation in which they could pass observations about the patient to one another. Where this was not the case, Revans discovered an association with the measures of morale and length of stay. These findings led Revans to focus upon the importance of internal communications to the morale of the hospital and length of stay of the patient.

These findings gave thrust to the launching of the Hospital Internal Communications Project, by Revans in collaboration with representatives of the King's Fund Hospital Centre, the (then) Ministry of Health, and ten participating hospitals in the London area. A unique form of organization was devised to enable each hospital to involve its own staff in devising and executing projects related to their own interests and perceived problems. For each hospital, this consisted of a 'supporting' team drawn from senior members of the medical, nursing, and administrative branches (e.g. consultants, matrons, and hospital group secretaries), and an 'operational' team composed of their deputies. Both teams initially attended courses in organization theory and research methods; a three-day appreciation course in the case of the supporting teams, and a one-month course for the operational teams. In addition, the hospital teams were able to draw upon the resources of a central team of social scientists for assistance with survey techniques, data collection, evaluation, and report-writing. The central team played an essential role in coordinating inter-team meetings and encouraging feedback activities within and between hospitals.

Revans conceives management as a problem-solving process in which certain kinds of knowledge are crucial. Management, he contends, is best learnt by doing, rather than by reading books and attending lectures. The important element is for the manager to collect the information himself, to make decisions, and to evaluate their outcome. Behavioural scientists in this project played a supporting and indirect role. The emphasis was upon the members of the institutions taking the major part in transforming their own situation.

Wieland and Leigh⁽⁷⁾, and Revans⁽⁸⁾ describe the Communications Project which extended over a four year period.

Coser⁽⁹⁾ compared the structure of a surgical and a medical ward and highlighted the role of technology in organizational structure.

Perrow⁽¹⁰⁾ has provided a most comprehensive and critical review of sociological studies of psychiatric and general hospitals.

CHAPTER 7

7.1 METHODOLOGY

The selection of a Maternity and of a Psychiatric Hospital for socio-technical analysis was suggested by the findings of industrial Sociologists with regard to the relationships of social structure and predictability of tasks in industrial organizations. Morse and Lorsch look at conclusions in this regard.

“Enterprises with highly predictable tasks perform better with organizations characterized by the highly formalized procedures and management hierarchies of the classical approach. With highly uncertain tasks that require more extensive problem solving, on the other hand, organizations that are less formalized and emphasize self-control and member participation in decision making are more effective. In essence...managers must design and develop organizations so that the organizational characteristics fit the task to be done.”⁽¹⁾

A preliminary examination of the procedures and outcomes of diagnosis, treatment and care in maternity and in psychiatric hospitals discloses that in the former they are, for the most part, predictable, while in the latter, a large measure of uncertainty prevails. The question begging an answer is, therefore, are highly formalized procedures and management hierarchies of the classical approach most appropriate to maternity hospitals, and participative control most suitable to psychiatric hospitals.

An analysis will not reveal an entity in itself. Rather it will reveal the entity as exposed to our method of questioning. The analytical model used in this study involved an examination of the following eight variables which are selected to identify broadly the main characteristics of the hospital care and treatment system and the environment in which it exists and to determine, if possible, where the main problems lie and where the main emphasis of further analysis needs to be placed. These are:

- 1) The Geographical Layout and Location
- 2) The Organizational Structure
- 3) The main inputs into the system – with Specifications where appropriate
- 4) The main outputs from the system – again with specifications where appropriate
- 5) The main transforming processes that take place with the system
- 6) The main types of variance affecting/disrupting normal work flow patterns, (significant variances)
- 7) The main characteristics of the relationship between the hospital system and the society in which it exists, and
- 8) The objectives of the system

The argument for involving management in an analysis of this kind, which is recommended by Revans, becomes more forceful when one reflects upon the implications of viewing the hospital organization as an open socio-technical system. Gross, in the following note, highlights the broad depth of knowledge and experience required if one is even to examine one position in the social structure.

“A position can be completely described only by describing the total system of positions and relationships of which it is a part. In other words, in a system of interdependent parts, a change in any relationship will have an effect on all other relationships, and the positions can be described only by the relationships.”⁽²⁾

The analysis was carried out by conducting a series of interviews with key personnel in both hospitals by making reference to the experts in the literature search, by examination of internal reports, and by examination of official government reports on hospital care matters. Both hospitals were visited on a number of occasions.

7.2 ANALYSIS

7.2.1 > Historical Background

St. Joseph’s Hospital, Limerick was opened in 1827 to cater for patients from the City and County of Limerick and Counties Clare and Kerry. It now caters for patients from Limerick City and County. The hospital was originally provided to accommodate 75 male and 75 female patients. In 1873 accommodation was increased to 225 male and 200 female beds. In 1934 it was further increased to 420 male and 305 female beds and in 1939 it was again increased to provide 490 male and 365 female beds. Total accommodation provided was 855 beds.

The Psychiatric Services of the Mid-Western Health Board are: 3 Psychiatric Hospitals at Ennis, Limerick and Clonmel, and the catchment area for each Hospital has been the County in which the hospital has been situated. It has been the practice over the years for the Psychiatric Hospitals to accommodate Mentally Ill, Mentally Handicapped and Geriatric Patients.

St. Munchin’s Regional Maternity Hospital is relatively new. It was opened to receive patients in October, 1960. It was the realization of a project first conceived when the newly-established Hospitals Commission, in its First General Report in 1934, recognized the urgent need for a new maternity hospital in Limerick. The bed complement is 114, made up of 83 maternity beds (this was increased from 64 in 1969) and 31 for pediatric cases. In addition there are 32 Maternity beds at St. Camillus Hospital, Limerick, giving a grand total of 115 Health Board Maternity beds in Limerick City.

7.2.2 > Geographical Layout and Location

St. Munchin’s Regional Maternity Hospital, Limerick, is located on the Ennis Road, on the Clare side of the River Shannon. It is within a five minute walk of Limerick City Centre and

is bounded on the south side by the Ennis Road and on the East side by Belfield Gardens. The Ennis Road, with a daily average passenger car unit flow in and out of Limerick in 1977 of 26,617 is the busiest traffic route in and out of Limerick, and is almost twice as busy as the next busiest traffic route, the Dublin Road. The Ennis Road is a major traffic bottleneck and is frequently subject to severe congestion. The hospital is about 3 miles from the Regional General Hospital.

- a. St. Joseph's Psychiatric Hospital is located at Mulgrave St., Limerick, on the main Limerick-Tipperary Road within a 15 minute walk of Limerick City Centre.
- b. Exhibit 1 indicates the location of both hospitals with the city. Exhibits 2 through 7 are layout plans of the hospitals.

The location of the Maternity hospital poses certain challenges with regard to transportation of patients, personnel and supplies. Transportation in emergencies may be severely impeded by the extent of traffic congestion. The distance separation from the Regional General Hospital coupled with the traffic challenge is a major disadvantage in the hospitals location. Plans are afoot to relocate this hospital adjacent to the Regional General, at Dooradoyle, Limerick.

The location of St. Joseph's Hospital, within the city is convenient to staff and outpatients living within the city limits; and with public transport in the region radiating from Limerick is a convenient centre to the outlying districts.

Architectural aspects of these buildings have relevance to the technical and social variables within both hospitals. Where hospitals are purpose built their design and layout is important both for their immediate first use purpose and for future uses. It is not uncommon for architects to fail to foresee, what may appear after the building is in use, obvious deficiencies in design and layout. Buildings are often designed to standard existing plans with little thought to changing needs. Additionally, designs are often chosen as a compromise between the greater deficiencies of the older structures and the desirable but economically unavailable features of the 'ideal' structure. To add to all of these considerations there is the element of changing technologies, changing demands for service, amendments to catchment areas, alterations in populations and in the mix of procedures carried out, and alterations in the determined priorities and methods of administering the service over time. Changing technologies will alter the significance of the relationships of geographical spaces within the structure to each other, and will determine the need for space allocation and layout to accommodate machines, specialized staff, individual and groups of patients as the technology of diagnosis and treatment classify, and the public who visit the institution.

While the challenge to the architect is demanding, it is an unfortunate fact that very frequently no consultation is undertaken with the staff, who have the most experience of structural defects in layout, is undertaken. The geographical layout is a variable that constrains and controls to a very large degree the possibility for adjustments in the technical and social mix of the organization.

In the maternity hospital the presence of a considerable number of single bed rooms require that where patients in these rooms are 'specialised' one nurse must be assigned to each room. The solid four wall feature with access only by door from a main corridor places limits on observation and monitoring possibilities. The combination of some single rooms into one larger unit - with solid lateral partitions to ensure privacy, and the strategic location of one nurse such that observation is feasible, would reduce the demand on the nursing complement. Similarly, there is great disadvantage in having the nurse's office opening onto the same corridor with no possibility of looking down the corridor from within the room. Such a layout calls for an intercom system. The call bell at bedsides causes a light to light-up in the corridor over the appropriate door. The width of corridors and doors determine the ease with which trolleys can be maneuvered. Access to toilets via wheelchair is limited by door width, room shape and layout.

In the psychiatric hospital the fact that the structure was built in another era, when attitudes to psychiatric illness were radically different, has required considerable effort to ensure a more suitable environment in keeping with the perceived needs of today. The Commission of Inquiry on Mental Illness of 1966 in the matter of physical environment had this to say:

"In the past, in this country as in other countries, many mental hospitals were places where large numbers of mentally ill were kept in custody and where success was judged not on the turnover of patients, but on the hospital's ability to keep down costs. Expenditure on furniture and furnishings, maintenance, catering, heating and sanitary facilities was minimal, with the result that in many hospitals or parts of hospitals, patients were accommodated under primitive conditions. Often, the excuse was made that mentally ill patients were oblivious of their surroundings and completely unaffected by them. In recent times, it has been found that few, if any, patients are oblivious of their surroundings and that, as far as the great majority, if not all, are concerned, the standards of accommodation and facilities with which they are provided have an important bearing on their response to care and treatment in hospital. Another argument used to excuse substandard conditions was that many patients had a poor domestic background and that they felt "more comfortable and at home" in surroundings which approximated to their normal living conditions. This contention has been disproved in many mental hospitals where improvements in living conditions have been followed by marked improvements in the patients' appearance and behavior. In any event, if this type of argument were accepted it would be desirable to provide in all hospitals, general as well as psychiatric, a variety of environments ranging from the primitive to the excellent to cater for all the patients likely to be admitted. The Commission is satisfied that a good environment is essential if the hospital for long-term care is to fill adequately its role as a centre for the treatment and rehabilitation of patients."⁽²⁾

Over the past fifteen years or so a scheme of renovations and ordinary maintenance improvements has been carried out by maintenance staff attached to the hospital. The reconstruction and improvement of the central kitchen has been completed and the reconstruction and improvement of sanitary annexes is proceeding.

A new Industrial Therapy Unit was opened in May, 1974.

A day centre operated from St. Joseph's Hospital, Limerick, was opened at Shelbourne Road, Limerick in early 1973.

A canteen for the use of patients and staff was opened in the hospital in March, 1976.

Many of the rooms which previously served as 'padded cells' have been converted into single carpeted rooms and furnished to ensure an increased level of comfort and privacy for some of the long-stay patients.

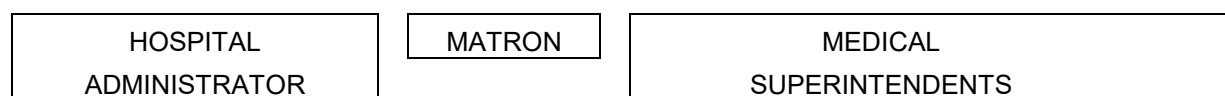
The 1966 Commission had this to say about the institutional environmental setting:

"The policy of segregating and isolating the mentally ill in large hospitals ignored the social factors. With the growing appreciation of the fact that institutional life can be emotionally, physically and socially disabling in its effects, there has come a realization that many disabled persons can be treated, with increased prospects of success, in their normal social environment, or in an environment as near as possible to normal."⁽³⁾

7.2.3 > The Organizational Structure

At the time of analysis there did not exist an organization chart for either of the hospitals. Communication flows were complex and the relationship among individuals within the structures in terms of responsibility and control required some clarification before charts could be drawn up. Exhibits 8 through 13 indicate the position of staff members within the respective structures. The maternity hospital exhibited a tripartite structure as follows:

TRIPARTITE ADMINISTRATIVE STRUCTURE



In the psychiatric arrangement the Chief Nursing Officer reports to the Chief Psychiatrist. This nursing post is a new position and was being filled at the time of analysis, thereby adding a layer to the nursing hierarchy.

7.2.4 > Inputs Into The System

(For the purposes of this study, the inputs and the outputs are restricted to patients.)

7.3 St. Joseph's Psychiatric Hospital:

In the past psychiatric hospitals in Ireland were expected to deal with far more than the psychiatric needs of their catchment areas because of inadequate, and often absent, Community Care Services. Many patients, whose primary needs were often shelter and food rather than psychiatric attention, were admitted as patients. In time many such patients reached the stage when they could no longer obtain full benefit from such hospitalization. However, they could not be discharged because of social and economic difficulties. For these and other such reasons many of the patients in St. Joseph's are there for reasons other than a need for in-patient psychiatric care.

The categories of patients who are not in need of psychiatric care include:

- a) Mentally handicapped adolescents and adults who are in Psychiatric hospitals because of lack of alternative adequate accommodation for them;
- b) Geriatric patients who are ambulant, and are not in need of nursing care;
- c) Geriatric patients in need of nursing care;
- d) Socially inadequate persons, who, while not needing psychiatric care, are in need of sheltered accommodation, possibly on a long-term basis;
- e) Persons, who, after treatment for a psychiatric condition, could have been discharged, following a rehabilitation program, but remained on because of social reasons.

In view of the foregoing and because of the socio-legal environment in which psychiatry as had to develop as person was rarely refused admission to a psychiatric hospital with the result that in-patient numbers continued to increase until the late 1950's. With the developments of drug therapy since then there has been a stabilizing of the hospital in-patient populations. Patient population statistics are given in the pages following.

Despite this stabilizing feature, St. Joseph's Hospital is grossly over-crowded by any reasonable standards. The desirable in-patient population determined by the Health Board is 550 patients. This figure is based on a realistic estimate of the numbers which can be accommodated, bearing in mind reasonable needs of patients and staff.

7.3.1 St. Joseph's Psychiatric Hospital

In-Patient Population at 31 st March	
--	--

Year	
1964	912
1965	886
1966	880
1967	844
1968	866

Admissions for year ended 31 st March	
--	--

Year	
1964	492
1965	549
1966	620
1967	627
1968	637

1969	859	1969	596
1970	856	1970	759
1971	842	1971	753
1972	825	1972	943
1973	828	1973	1,001
1974	805	1974	1,170
1975	802	1975	1,318
1976	798	1976	1,400
1977	790	1977	1,493
1978	788	1978	1,508

7.3.2 St. Joseph's Psychiatric Hospital

7.4 Total Number of Patients attending and Total Number of Attendances at Out-Patient Psychiatric Clinics

St. Joseph's Hospital, Limerick

Year ended 31st. March		
	A	B
1964	548	2,742
1965	712	3,562
1966	809	4,046
1967	848	4,246
1968	993	4,969
1969	1,105	5,529
1970	1,234	6,174
1971	1,335	6,677
1972	1,789	8,948
1973	1,446	7,232
1974	1,210	6,052
1975	1,179	5,902
1976	1,089	5,392

Note:

A = No. of Patients who Attended

B = Total Number of Attendances

7.4.1 ST. MUNCHIN'S MATERNITY HOSPITAL

Patient inputs and outputs are intimately related and the figures available are in the form of vital statistics. The typical patient arriving is the expectant mother experiencing labour pains. On the rare occasion (1 : 1000) one has the arrival of both mother and child at the hospital where parturition has occurred outside. Table A below provides details of births at the hospital over the period 1973 to 1977 together with the number of births assigned to the Region (Clare, Limerick City and County, and Tipperary North Riding). In the third row of the table the births at St. Munchin's have been calculated as a percentage of the Regional figures.

TABLE A: BIRTH STATISTICS

	1973	1974	1975	1976	1977
Regional Maternity Hospital	3,819	4,407	4,252	4,504	4,862
Total - Mid West Region	6,419	6,382	6,233	6,460	6,433
Births as % of Region	59.5	69	68.2	69.7	75.5

The number of marriages for the region is given in Table B

The analysis in Table A (percentage of Regional births occurring at the hospital) shows a substantial proportion of births in the region are taking place at the Regional Maternity. In addition, the figures reveal an increase in total births at the hospital over the period 1973 to 1977 of some 27.2%.

TABLE B: NUMBER OF MARRIAGES IN MID-WESTERN HEALTH BOARD REGION

	1973	1974	1975	1976	1977
CLARE	451	499	457	464	455
LIMERICK (CITY)	616	683	479	527	461
LIMERICK (COUNTY)	530	597	601	515	544
TIPPERARY (N.R.)	394	369	334	324	347
TOTAL	1,991	2,140	1,871	1,830	2,307

7.4.2 4. OUTPUTS FROM THE SYSTEM

Outputs of whole, complete, and healthy patients are aimed at in both hospitals. The measures of success in the Maternity Hospital in achieving this goal, is gathered indirectly from an examination of some vital statistics. Table C provides details of infant mortality and neo-natal deaths for 1976 for the eight Health Board Regions and for the twenty six counties. It can be seen from the table that the Mid-West Region has the lowest death rate in both categories, and by implication it can be claimed, in the absence of information to the contrary, that the patient 'outputs' in terms of health meet a high standard. Further analysis

could involve research into maternal deaths (a rare occurrence) and morbidity indices relative to preventable damage of the fetus and newly born.

Statistics on outputs from the psychiatric hospital are well nigh impossible to analyze satisfactorily. The input figures already given indicate the magnitude of the treatment and care challenge in terms of numbers. In recent years there has been a sharp increase in the numbers of admissions, while in the same period, the number of patients in long term residence has declined. The average length of time spent by patients in the psychiatric hospital has declined. These trends look optimistic.

TABLE C: INFANT MORTALITY AND NEO-NATAL DEATH RATES, 1976

<u>HEALTH BOARD AREA</u>	<u>INFANT MORTALITY</u>		<u>NEO-NATAL DEATHS</u>	
	<u>TOTAL DEATHS</u>	<u>RATE PER 1,000 LIVE BIRTHS</u>	<u>TOTAL DEATHS</u>	<u>RATE PER 100 LIVE BIRTHS</u>
EASTERN	377	15.6	250	10.4
MIDLAND	56	13.8	34	8.4
MID-WESTERN	61	9.4	37	5.7
NORTH EASTERN	81	14	56	9.7
NORTH WESTERN	51	13.5	37	9.8
SOUTH EASTERN	126	16.5	93	12.2
SOUTHERN	167	16.3	114	11.1
WESTERN	79	12.8	55	8.9
IRELAND	998	14.6	676	9.9

7.4.3 5. THE MAIN TRANSFORMING PROCESSES THAT TAKE PLACE WITHIN THE SYSTEM

This study concentrates on the medical and nursing aspects of diagnosis, treatment and care of the patient. The ‘hotel’, maintenance and other aspects of the system are not examined.

Diagnostic processes in obstetrics and pediatrics are fairly objective and in most cases can be substantiated by appeal to objective measures such as biochemical test, or physical examination of one kind or another. Such measures do not exist for most of the psychiatric diseases. Schizophrenics and manic-depressive psychotics have been subjected to post-mortem examinations but no abnormalities have been found either in their brains or elsewhere which could be related to observed symptoms of disordered behavior. Examination of the blood, the urine and cerebro-spinal fluids and various other constituents of the schizophrenic human being during their lifetimes, have been carried out and no enduring abnormalities have been found. The history of Nosology and classification however goes back some two centuries or so and the patterns of abnormal and deviant behavior observed. These ailments are classified as “functional”. In contrast, the “organic” disorders on post-

mortem examinations show changes to the brain which can be directly relative to the memory loss, the confusion, the wavering, and the deterioration of intellectual performance which characterize the dementing group of disorders or dementia as they are called.

Arthur Koestler has pointed out “that how a patient is diagnosed and categorized depends on the psychiatric school, the ethnic background, and even the age group to which the doctor belongs. There is a ten times higher chance that a patient with complex symptoms will be classified as manic-depressive on admission to an English hospital than if he goes off his head in the United States. On the other hand, the American patient has a 33% better chance of being diagnosed as suffering from arteriosclerosis. Koestler quoted the divergence between diagnoses of British and US psychiatrists after looking at a filmed psychiatric interview. A young woman patient was thought by one-third of US psychiatrists to be suffering from schizophrenia, while another third thought she had a neurosis and the rest diagnosed a personality disorder. Amongst British doctors nobody diagnosed Schizophrenia, but 72% thought she had a personality disorder. Perhaps psychiatrists in a highly conformist society see paranoia where the British see only idiosyncrasy or mild eccentricity, and the US definition of neuroses has been so watered down that when a patient is in real trouble nothing less than a diagnosis of psychosis will do.”⁽³⁾

While the classification of patients presents many challenges, some general consensus appears to exist as to a major ‘cause’ of mental illness. The 1966 Commission have this to say:

“Most authorities now accept that while genetic factors, degenerative changes and toxic conditions are important, the main causative factor in most mental illness is the failure of the personality to cope with the stresses, mainly psychological and social, of everyday life.”⁽⁴⁾

The changing pattern of psychiatry has resulted in psychiatric hospitals becoming therapeutic centers in place of the former custodial institutions. The changing techniques of treatment, the greater emphasis on community care and the tendency towards the earlier discharge of patients have had a profound effect on the nurses’ role. The social aspects of treatment have become more prominent and this has required the marshalling of a new mix of skills on the part of psychiatric nurses. Treatment is directed to restore to the community as many patients as possible, and to provide for all patients lives as full and happy as their disabilities permit.

The task of identifying transforming processes is not an easy matter in psychiatry. Participating in therapeutic groups with patients, confidence training, instruction in the skills of personal relationships, and efforts to communicate and relate to patients, forms the major role of the psychiatric nurse at St. Joseph’s Hospital. Each patient is an individual human being and the transformation processes involved and the levels of success cannot be measured in objective terms. During the patients’ waking hours the nurse relates to individual patients by engaging in conversation, and to groups of patients by engaging in social interaction with them. Transformation processes are not predictable, are not uniform and the duration of time over which change takes place is not standard. The type and extent of

interaction and communication will vary from patient to patient and will be related to the capacity, receptiveness and willingness of the patient to socialize and to the skills and efforts of the nurse. The psychiatric nurse is also involved in such treatments as ECT and drug therapy and liaises with the families and employers of patients, with social workers, public health nurses and in consequence of the increasing emphasis on prevention and community care, with the general public.

A commentary on the therapeutic effect which may result from a “lucky intervention” and which highlights the empathic relationship and difficulty in codifying the occurrence is given in the following:

“Even the causal connection of biological events is not a simple one-to-one relationship but occurs via the intertwining of a number of reciprocal processes which are subject to complicated directives and structure each other at a number of different levels and according to different hierarchies. We may compare meaningful connections in the psychic field which tend to develop reciprocally as well as in polarities. In spite of all our knowledge our therapeutic attitude to these events which we cannot grasp as a whole is often that of an amateur faced with an apparatus he does not really comprehend. He tries it from all sides, observes where he goes wrong and after a number of failures, but sometimes at first go, he achieves success. In the same when observing a patient we suddenly may grasp a hopeful possibility, founded perhaps on something we know, but we can never exactly repeat what happened or calculate it precisely. In the end we cannot say how it came about or what the decisive point in the success was. On another occasion one cannot repeat it.

As a critical observer one is surprised at one’s own success because one does not know how one has managed it. Control experiments are of course lacking. In therapy of this kind, instinct plays a part in all that is known, an instinct which senses far more than conscious knowledge can ever tell one.”⁽⁵⁾

Exhibit 14 – The Role of the Psychiatric Nurse⁽⁶⁾ places the present transforming process in the context of change and recent thinking.

In the Maternity hospital the main transforming processes are more or less of a predictable kind.

“In hospitals...obstetrics and gynecology is a relatively routine department, which even has something resembling an assembly (or disassembly?) line, wherein the mother moves from room to room and nurse to nurse during the predictable course of her labour.”⁽⁷⁾

The nature of maternity services is changing. With the reduction in infant and maternal mortality and control of sepsis, other challenges come to the fore.

THE ROLE OF THE PSYCHIATRIC NURSE

28. In the past, the traditional role of the nurse in caring for the sick and incapacitated tended to be centered around the patient in a hospital bed or in assisting patients otherwise unable to care for themselves and whose every need had to be attended to. There is now an increasing emphasis on the need to encourage the patient, to help him towards independence, and to assist him to resume normal living. This need applies particularly to the psychiatric nurse as the nurse/patient relationship is of particular importance in his work. Research in the field of personal relationships has clearly shown the importance of this factor in relation to mental health problems. It follows that the quality of nurse/patient relationships, whether in the hospital or in the community, is something that is vital to the well-being of the patient. It also follows that this therapeutic potential must be developed in a positive way and not left to chance development. It need hardly be emphasized that in the hospital setting the nurse is the member of the therapeutic team who spends most time in close personal contact with the patient. The psychiatrist will, of necessity, spend relatively short periods with the patients in the deeper probing of their problems. The nurse on the other hand spends the full working day in the company of the patient. In addition to carrying out whatever the psychiatrist specifically directs, the nurse should be in a position to build up and develop those relationships which play such an important part in the treatment of mental illness.

29. The Working Party stresses, therefore, the need for more active involvement of nurses in positive therapeutic work with individual patients and with groups of patients. Towards this end - apart from lectures - nurses should be given more actual experience under specialized tuition to equip them with the necessary skills and confidence in improving personal relationships. These skills are crucial in psychiatric nursing and are different from the skills required of the general trained nurse. The most important task of the psychiatric nurse is to help the patient to develop his personality to its maximum potential. It is primarily the function of the psychiatric nurse to teach the patient the necessary skills in the dimensions of life where he had failed. This may mean teaching him not to under-estimate his own abilities; teaching him to identify himself with a group and feel that he is part of it and has a responsibility to society, and teaching him to establish friendships that are satisfying and lasting. The patient may have to learn to control his emotions, to accept disappointments, to develop insight and, in general, to cope with the realities of life.

30. Total care of the patient may be necessary in the initial phase of treatment when the patient may be either disturbed or anxious and unable to care for himself. For a time he may need the whole weight of responsibility lifted from him and to be cared for completely; this total nursing of the patient during the period when he is unable to care for his own needs is obviously important but it should clearly be seen that it consists of but a small part of psychiatric nursing.

31. The functions of the psychiatric nurse may be classified under the following broad headings:

- (a) Participating in positive therapeutic team-work with groups of patients or in work with individual patients in the hospital or other treatment center;
- (b) Taking part in the giving of physical treatments such as ECT, drug therapy;
- (c) Observing the patients with a view to anticipating any regressive changes in their condition and reporting to the psychiatrist or senior nurse;
- (d) Working with patients in the occupational or industrial therapy departments of the hospital;
- (e) Working with patients in special occupational or industrial therapy units outside the hospital;
- (f) Supervising patients in those units, seeing that the appropriate pressure is kept on them and that they are progressing satisfactorily through their re-training program;
- (g) Liaising with social workers, with the families or employers of patients and dealing with problems in the home or work situation;
- (h) Supporting the public health nurse in her responsibility for a group of families or individuals and helping with special skills as the occasion demands;
- (i) Assisting in running hostels, social clubs or similar centers and establishing and maintaining contact with voluntary organizations; and
- (j) Encouraging and assisting the patients in the community as required.

In addition to the above professional functions, the nurse, and particularly the senior nurse, will be involved in administration, staff training and development.

32. The range of functions mentioned gives some indication of what should be involved in the working day of the psychiatric nurse. It is clear that if psychiatric nurses are to undertake the range of duties envisaged, conditions must be such as will enable them to fulfill their role in the most effective way. The Working Party considers that the fundamental factors to be taken into account are, firstly, the therapeutic needs of the patient, secondly, the nature of the job to be done, thirdly, the adequate training and development of staff engaged in the work and, finally, the provision of a satisfactory working environment for the staff.

Greater emphasis is now being placed on ante-natal care and the need to ensure that all mothers seek such care. The work of the midwife in hospitals has changed as the facilities available for care during childbirth have become increasingly sophisticated. The expertise required has become that of monitoring progress by means of various technical aids as well as employing the traditional skills of the midwifery profession. In this environment the midwife is working as a member of the obstetric team and, as most births now take place in hospital, this has tended to erode the midwife's claim to be an independent practitioner concerned with a discrete area of work. Most midwives now work in close contact with obstetricians and pediatricians who have overall responsibility for the welfare of the mother and child, although immediate care of mother and child remains largely the concern of the midwife. An important aspect of this is the need to provide emotional and psychological support to the mother in what can appear to be a highly technical environment. It is also part of the midwife's role to communicate with the primary health care team to ensure continuity of care particularly following early transfer home in the post-natal period.

In the past couple of years there has been a great increase at St. Munchins Maternity Hospital in adopting the procedures of active management of labour. This involves active participation of the mother and has had a significant impact on the role of the midwife. The patient requires coaching in advance – thus there is an increase in ante-natal clinics. Additionally with the mother participating more actively, monitoring of the foetus becomes more significant. This results from the fact that foetal distress, should it present itself, will occur more rapidly. Additionally, with the introduction of sophisticated monitoring apparatus, the midwife requires to master the use of such equipment.

The main transforming processes involve imparting information to expectant mothers on foetal development, childbirth and infant care; monitoring the mother and foetus during pregnancy at the ante-natal clinics and during labour in the hospital; contacting the obstetrician re problems prior to, during and after labour. Assisting the mother prior to, during, and after delivery. Diagnosis, treatment and care procedures are fairly routine, predictable and amenable to planning.

7.4.4 6. THE MAIN TYPES OF VARIANCE AFFECTING/DISRUPTING NORMAL WORK FLOW PATTERNS (SIGNIFICANT VARIANCIES)

There are certain events that place significant challenges on the ability of any production system to pursue its objectives. In this part of the analysis the concern is with variances in the 'raw material' (patients). By variance is meant a deviation from some standard or specification. The concern is with the manifestation of a major challenge in the presentation of a patient exhibiting characteristics or needs so out of the ordinary as to place a major test on the system's ability to meet the needs of the situation.

In the maternity hospital there are a number of occurrences that can place a severe strain on the staff's ability to cope. A severe ante-partum haemorrhage in the community will result in the flying squad being called into action. Haematology, transport (ambulance), arrangement with blood bank and the deployment and removal of some key staff such as physicians and obstetricians will result.

Because the patient and foetus are at severe risk, an important resource of the hospital is set aside for their treatment and care. Should the hospital also be busy at the time, the challenge is even greater. A severe post-partum hemorrhage, either within or outside of the hospital, or the necessity for an emergency caesarian, where signs of foetal life are absent, or other reason determines, will also require the immediate attention of key personnel. The theatre may have to be made ready and a surgeon obstetrician and an anesthetist called. The call on medical and nursing staff resources may be great.

Variances as above will occasionally occur at St. Munchin's. In the event of an emergency staff commitment ensures a prompt response from those directed to the emergency and from those remaining. It is easy to appreciate that in an industrial situation where the raw material is inanimate the kind of commitment to the product and the level of co-operation in response to a severe challenge will not be the same as in the hospital situation where staff may be dealing with human beings in imminent danger. In the hospital the emergency will normally be for only a very short time and sisters from other shifts who sleep in, can be called to assist.

Variances identified at the psychiatric hospital included the following: -

On occasion a high risk patient might be admitted. For example, someone from the city jail with a criminal record. It might be considered necessary to put the patient on special and one or two nurses with the patient day and night.

This, in the past, required that staff were left short on other wards, and the situation might have continued for weeks thereby creating a strain, and tension among staff. The introduction of overtime has alleviated this problem by introducing additional staff to cover.

Another situation involves the absence without leave of a patient. Some patient's behavior in this situation might put them at risk. (e.g. The patient might go to sleep at the side of the road and could be exposed to the elements.) In this situation it might be decided to deploy four staff members to locate and return the patient to the hospital, thereby reducing the cover in some of the wards.

As already noted many of the patients in St. Joseph's Hospital are there for reasons other than a need for in-patient psychiatric care. Some two or three hundred patients might be more appropriately accommodated in a geriatric institution. In addition, many of the patients are actively involved in duties within the hospital and assist staff as part of the rehabilitation program. Where challenging situations as above arise, the individual attention of a staff member in a ward may be temporarily withdrawn with the patients fully aware of the need and with no dramatic loss or risk to patients. The 'raw material' is itself actively involved in adjusting to the variance challenge and can co-operate and assist in adjusting to the need. In the matter of persons outside the hospital attempting suicide I was informed that the provisions of the Mental Treatment Act and Regulations as amended restrict the involvement of the staff. It would be normal for the Gardai to get involved. This situation does not present a variance challenge at the hospital. Patients who have been admitted and are on leave for example, however would, if they attempted a suicide, be treated as under the care of the hospital and such a situation would involve a challenge to their resources. In the past twenty years or so I was informed that there was one possible but not confirmed suicide within the hospital. There have also been cases of suicides outside the hospital among persons who had a previous association as patients in the hospital.

All patients admitted with depression are considered as 'possibly suicidal'. Those considered possible suicidal are kept under a discreet surveillance by the nursing staff. Such procedures as collecting twine, removing boot laces, failure to take medication or phrases spoken such as "why was I born", or "I wish I were dead" are noted in appraising the patient. Those considered probably suicidal are specialed.

Broaching the question of attempted suicides within the system as a possible variance presented difficulties. Patients behaving violently require the attention of a number of staff but as already noted other patients facilitate a certain ease of adjustment to such challenges.

It is proposed that the use of the identification of key variances in terms of the nature of the raw material has more relevance in highlighting significant elements and relationships in the systems when one is dealing with inanimate raw material. Patients, other than those at imminent risk, can and will forego the attentions of staff when challenging situations occur. In the psychiatric hospital the event may even be therapeutic. Additionally, psychiatric patients can become actively involved in assisting staff in difficult situations. The question also arises with regard to the level of commitment to the patient by the nurse which is undoubtedly heightened in the variance situation when the patient is at risk.

7.4.5 7. THE MAIN CHARACTERISTICS OF THE RELATIONSHIP BETWEEN THE HOSPITAL SYSTEM AND THE SOCIETY IN WHICH IT EXISTS

Changes in technology and in organizational social structure occur in an interrelated fashion in consequence of and in consort with changes in the substantive environment. A dynamic relationship exists within the hospital subsystems and between the hospital system and many elements outside. Improved knowledge and attitudes, alterations in public demand,

amendments in the pattern of need and of delivery of related and complementary services in the community, demographic and economic changes, governmental policies and other factors all interact in the evolutionary development of hospital services.

“The Government’s principal long-term aim in the health area is to bring about a shift in emphasis in the services from the curing of illness to its prevention by means of positive programs designed to make people aware that their health is one of their principal assets.”⁽⁸⁾

Government policy, changing public attitudes and improvements in the methods of treatment and care of psychiatric patients has been accompanied by new trends in the delivery of service. In the past, care for the mentally ill was based almost entirely on the mental hospital. There is now a definite trend away from the hospital. In-patient care remains a vital part of the services and, in many areas the hospital continues to be the natural focus of psychiatric care. However, there is a marked tendency to regard in-patient treatment not as the first and main line of defense but rather as one of many lines of defense embracing various forms of hospital and community care. Permanent hospitalization is resorted to only when all other measures have failed, and even then the modern approach is to maintain active treatment, together with sustained attempts at rehabilitation, over a long period. Resources are concentrated to a greater extent on preventive services and on the preventive aspects of treatment services. The aim is to enable the patient to maintain himself, as far as possible, in his natural environment in the community, or, if he has to enter hospital, to discharge him as soon as his condition permits. Efforts are made to educate the public to adopt a more liberal and enlightened attitude towards mental illness. More facilities are provided for early diagnosis, advice, and treatment in the community through clinic, out-patient and domiciliary services. The growth of rehabilitation services and of after-care services for persons who have been discharged from hospital is encouraged. Day hospitals are provided in which patients are treated during the day, returning at night to their own homes. Night hospitals are organized for patients who work during the day, but who can be provided with necessary care and treatment by night.

The introduction of the tranquilizing drugs in 1954 created great possibilities for an increased emphasis on active treatment.

“Since then, other drugs are being added continually to the therapeutic equipment of the physician. These drugs have greatly facilitated the early discharge of patients, and many who formerly could have been treated only as in-patients are now treated in the community. The position arrived at today is unique in the history of psychiatry. Modern treatments frequently reduce the duration of the illness and a good measure of social recovery can be achieved in many cases where complete cure is not possible. An era of considerable hope has arrived. Doctors, nurses and public alike display a greater interest than ever before. Mental health has taken a leading part on the world stage. Emphasis has changed completely from custody to treatment.”⁽⁹⁾

Both hospitals are responsive to demographic trends and to changes in the prevalence of conditions calling on their services. The discussion document “Development of Hospital

Maternity Services”⁽¹⁰⁾ provides very useful demographic data and data on maternal and infant mortality, which highlights some causes of present needs and provides indications of future requirements.

The trends in both psychiatry and obstetrics are such that the walls of the institutions are “coming down”. Mental hygiene and health education which requires involvement of the community and its services with the hospital is altering the technology and vice versa.

“A hospital can encompass the whole range of the medical problems prevalent in a community only if the scope of its ministrations is broadened and enlarged conceptually. Modern societies must create a new type of medical institution that might be called a hospital without walls.”⁽¹¹⁾

7.4.6 8. THE OBJECTIVES OF THE SYSTEM

The principal aim of the psychiatric hospital is to restore to the community as many patients as possible. For those who cannot be restored to the community the aim is to provide for them as full and happy a life as their disabilities permit.

In the maternity hospital the major function is to ensure the safe delivery of mother and child and the discharge of both to the community in optimum health.

The principal aims noted above imply sub-aims for the patients and a relationship with the community.

Education of the expectant and delivered mother in relation to the processes of foetal and infant development and of childbirth such that she will be actively involved in ensuring the health of herself and child is another objective.

Education of psychiatric patients in social skills and of the public on attitudes and responses to mental illness is a further objective of the psychiatric hospital. This involves ensuring an appropriate liaison between community care personnel, voluntary organizations and patients’ families.

Within both hospitals there are objectives with regard to effective management of the services and with ensuring the fulfilment of the human resource requirements and the associated collaborative contribution of all staff.

CHAPTER 8

8.1 DISCUSSION

This study has looked at connections between technology and social structures. That we may be oblivious to the effect of the technological 'media' and that it may even affect our faculties of perception is a significant message of McLuhan. We may not "see the wood for the trees". Technology places demands on the individual and on groups and can work to the detriment of the individual. Our understanding of man and our perception of reality will affect our approach to management.

From the analysis of the institutions, certain major differences in the transforming processes and in the raw materials come to light. The tasks at the maternity hospital are (more or less) predictable, follow a uniform pattern and have a predictable outcome. The transforming processes are in large part concerned with a physiological process amenable to diagnosis and management, and occurring in a given sequence. Patients pass through the system and are constantly being replaced by new patients. Their stay is short term.

In the psychiatric hospital the tasks are not predictable, will not follow a uniform pattern and the outcome is not subject to objective measurement. The duration of stay is variable and many patients are long term. The transforming processes relate to less codifiable elements, and in terms of patient classification, are variable.

In terms of the structural organizational requirements the consensus of socio-technicians would prescribe the highly formalized procedures and management hierarchies of the classical approach to the maternity hospital, and a less formalized organization with emphasis on self-control and member participation in decision making for the psychiatric hospital. The maternity hospital structure seems to match this prescription. The psychiatric hospital, however, does not. Signs of an incompatibility between the technology and social structure at St. Joseph's were found.

The Condon Report of 1972 noted that "The transformation which has been taking place in the psychiatric services has been somewhat bewildering for many of those working in the service. This has applied to all classes of staff and not to the nurses alone."⁽¹⁾ The report continues in outlining the new role of the nurse and says "It is also necessary to define clearly the functions and responsibilities of the nurse.....There is much uneasiness on the part of nurses which it was felt mainly arose from the ill-defined role of the psychiatric nurse. This, in turn, has led to the feelings of insecurity and fears that the traditional role of the nurse was being encroached upon and eroded by new disciplines."⁽²⁾

Industrial unrest is evident by the withdrawal of psychiatric nursing services in 1971 and by resistance to certain proposed changes at and in connection with St. Joseph's Hospital. While male and female nursing staff share the same dining room they do not share the same tables and do not socialize with each other. The union has blocked the opening of a new psychiatric wing at the Limerick Regional Hospital which is now constructed some two years.

It is suggested that it is not the “ill-defined role of the psychiatric nurse” that is at fault but rather the failure to evolve a social structure compatible with the new technology of care and treatment. How such a structure may be designed and made possible, however, is not easy to determine. While the socio-technicists can speak in general terms of the characteristics of the match, one still must contend with the existing perceptions and aspirations of staff, of their skills and their attitude to changes in social structure. In any event the hierarchical structure has not been tackled as the variable requiring change.

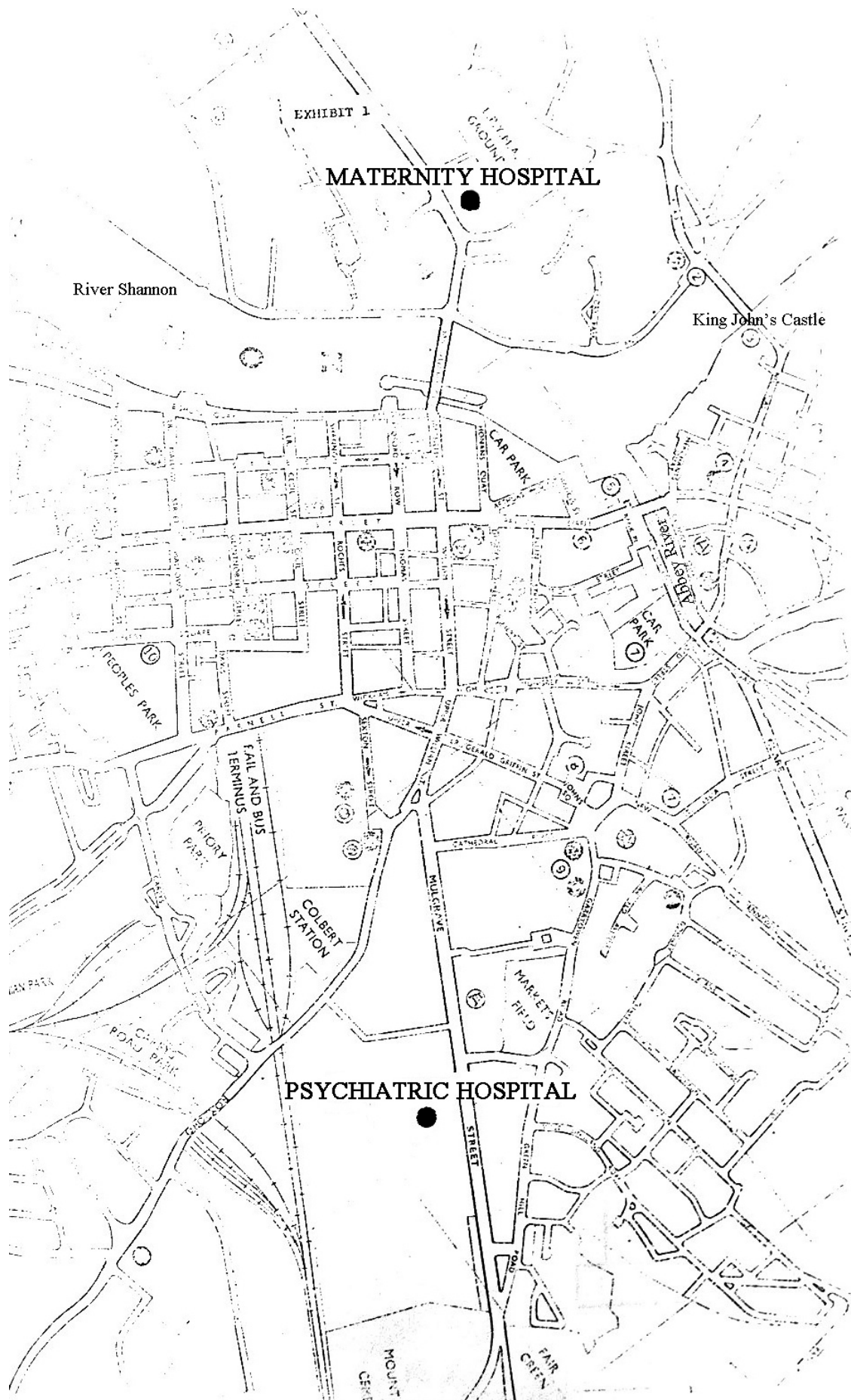
The tendency to define role boundaries appears to work against the need in organic administrative structures of ensuring a flexible approach to the carrying out of the work task. The mechanistic approach to which we appear to be culturally biased would have us ensure that each function is neatly packed and placed in its pigeon-hole. Additionally, persons who have worked in well-defined tasks may not wish to adapt to less well defined roles. In the transition period between the mechanistic and the organic structure, where the change is planned, staff appear to have to suffer to some extent the process of change, but hopefully transition processes will ensure that re-training and improved communication with existing staff will facilitate the transformation.

The selection and training of new staff members in the new skills and knowledge required should ensure that by a process of attrition the change to an organic structure will result. This will require conscious planning of structural changes.

Finally, I should like to quote William Murray.

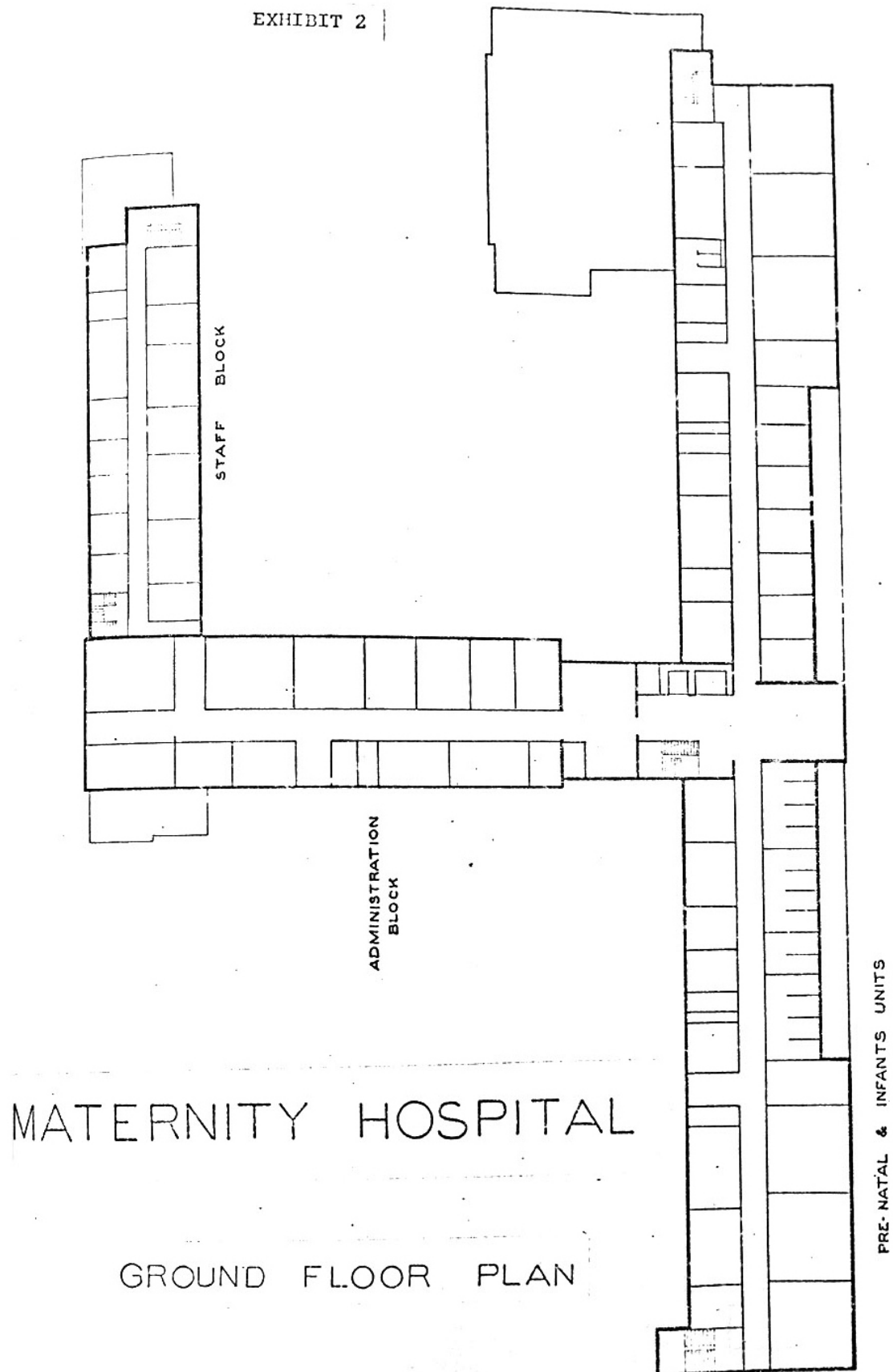
“To conclude, it is evident our society faces an important choice. On one hand, man can be conditioned to fit machines and machine models of administration, thus minimizing or eliminating his humanity. Or he can resist this attempted dominance by actively pursuing the study of different types of institutional forms and by developing the ability to select from a much large repertoire the type best suited for the requirements of society and of the particular institution – and at the same time foster his humanity. If society is serious about opting for the latter course, greater efforts are required from the social sciences, for it is apparent that the accelerating pace of technical change is not being matched by an equivalent input from the field of administrative research, particularly from sociology.

Instead of only carrying out post mortems on the smudged vapour trails left by technological change while waiting, Micawber-like, for the equivalent of a Kepler or an Einstein to turn up, a more adventurous and urgent approach is required which will assist society to predict and anticipate the consequences of different alternatives and provide tomorrow’s managers (if not today’s) with some tangible help in organizing and controlling their work. There will be no need for the prophet if the machines take over.”⁽³⁾



"There is an Isle"

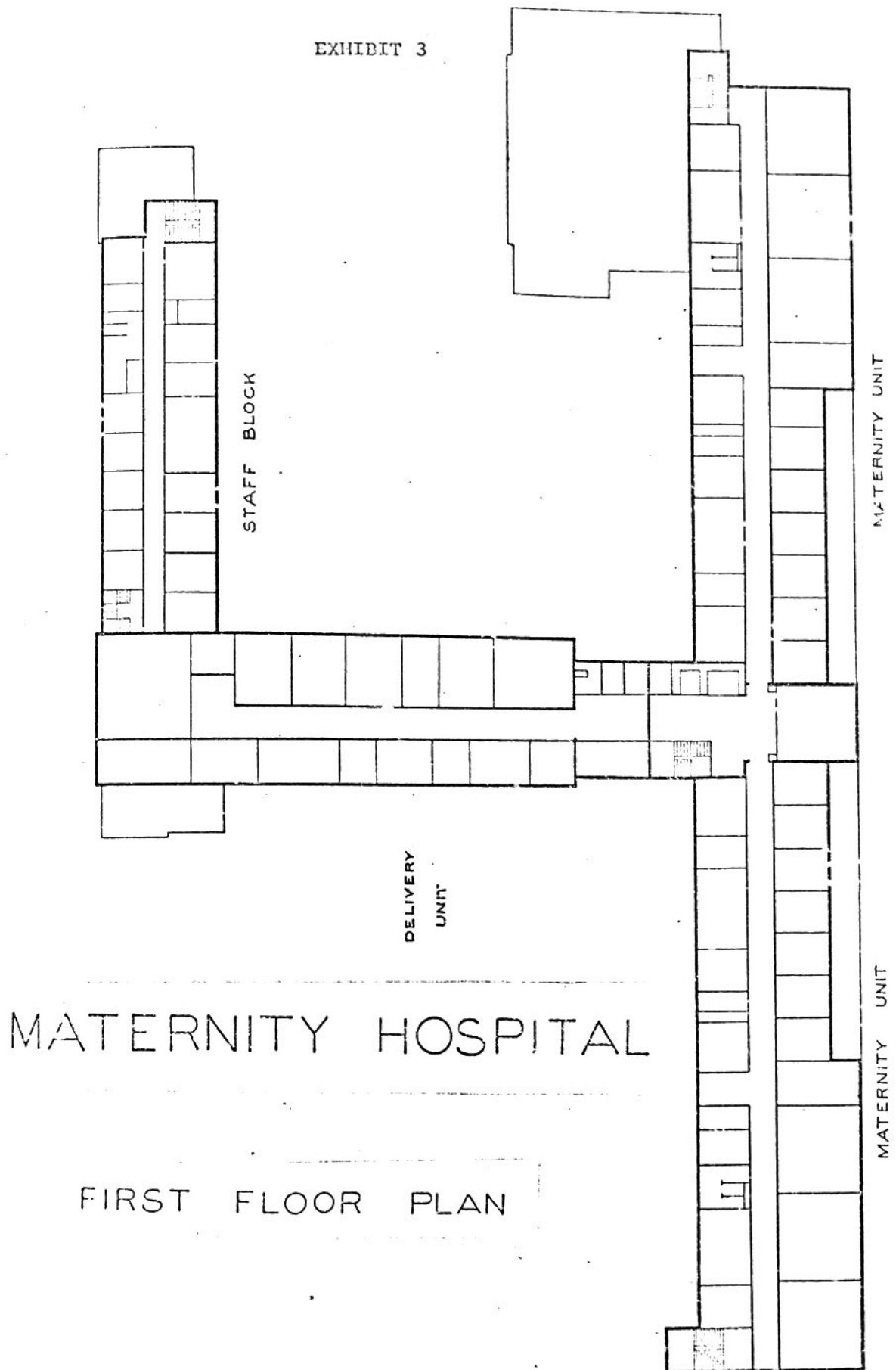
EXHIBIT 2



MATERNITY HOSPITAL

GROUND FLOOR PLAN

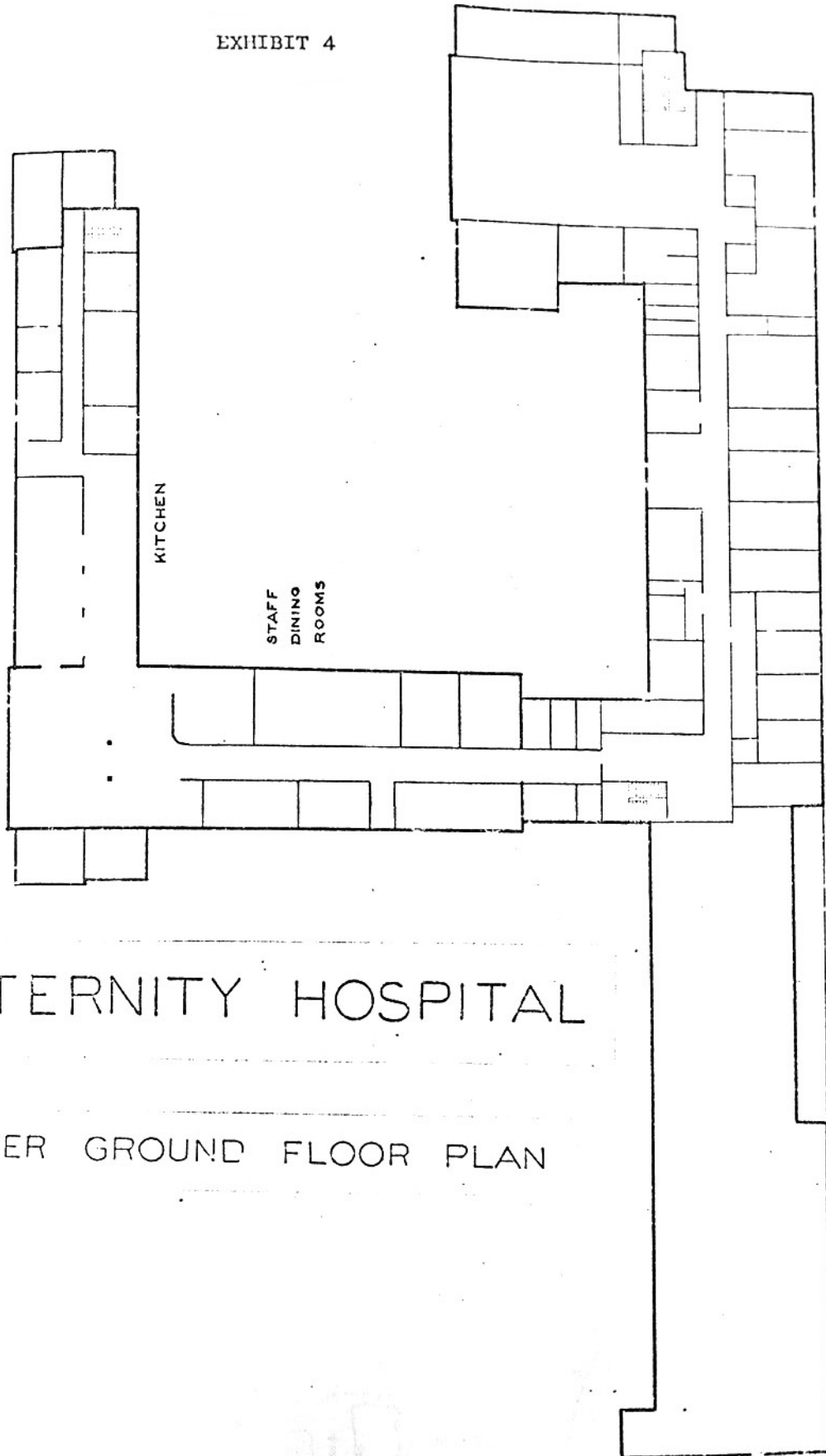
EXHIBIT 3



MATERNITY HOSPITAL

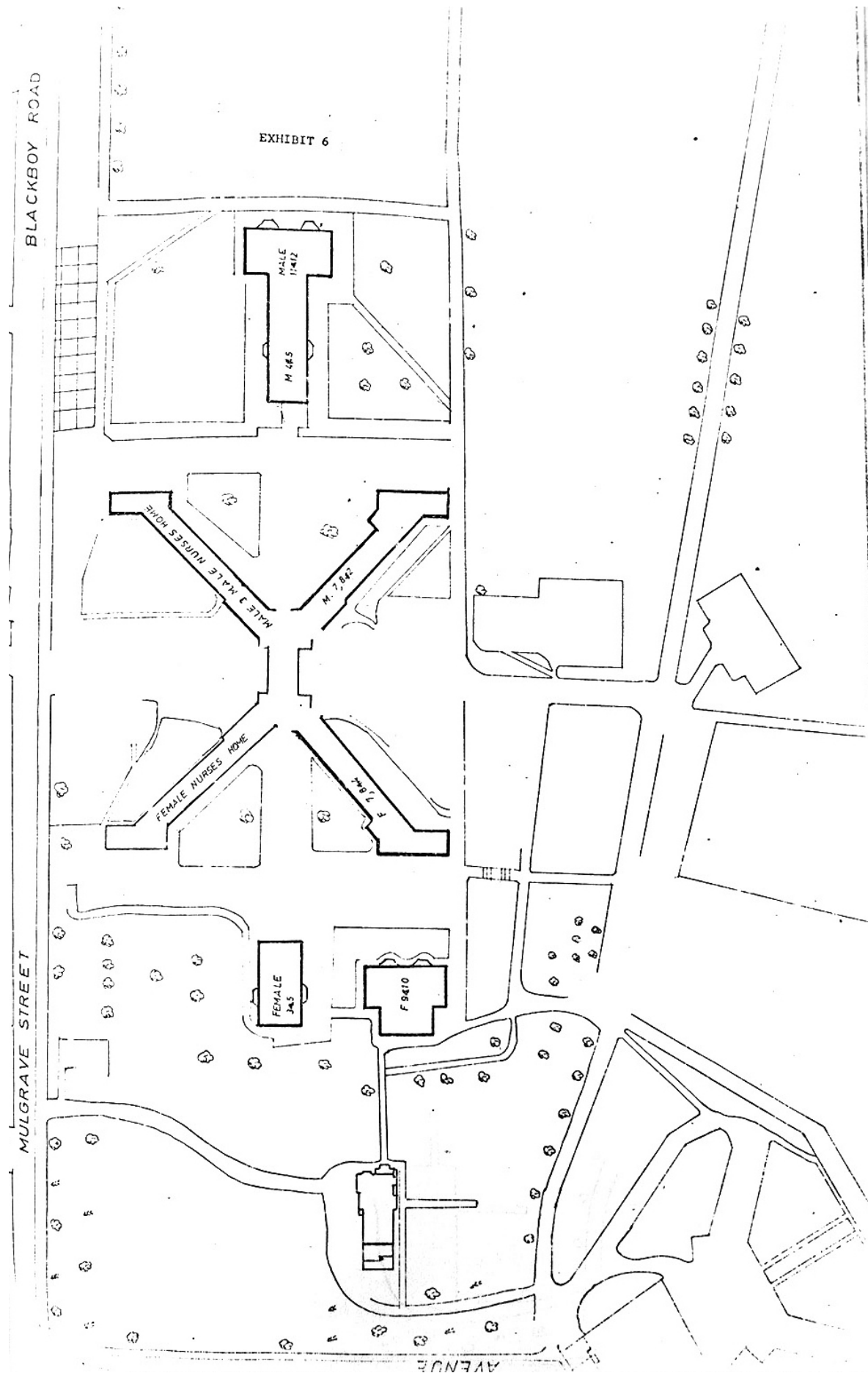
FIRST FLOOR PLAN

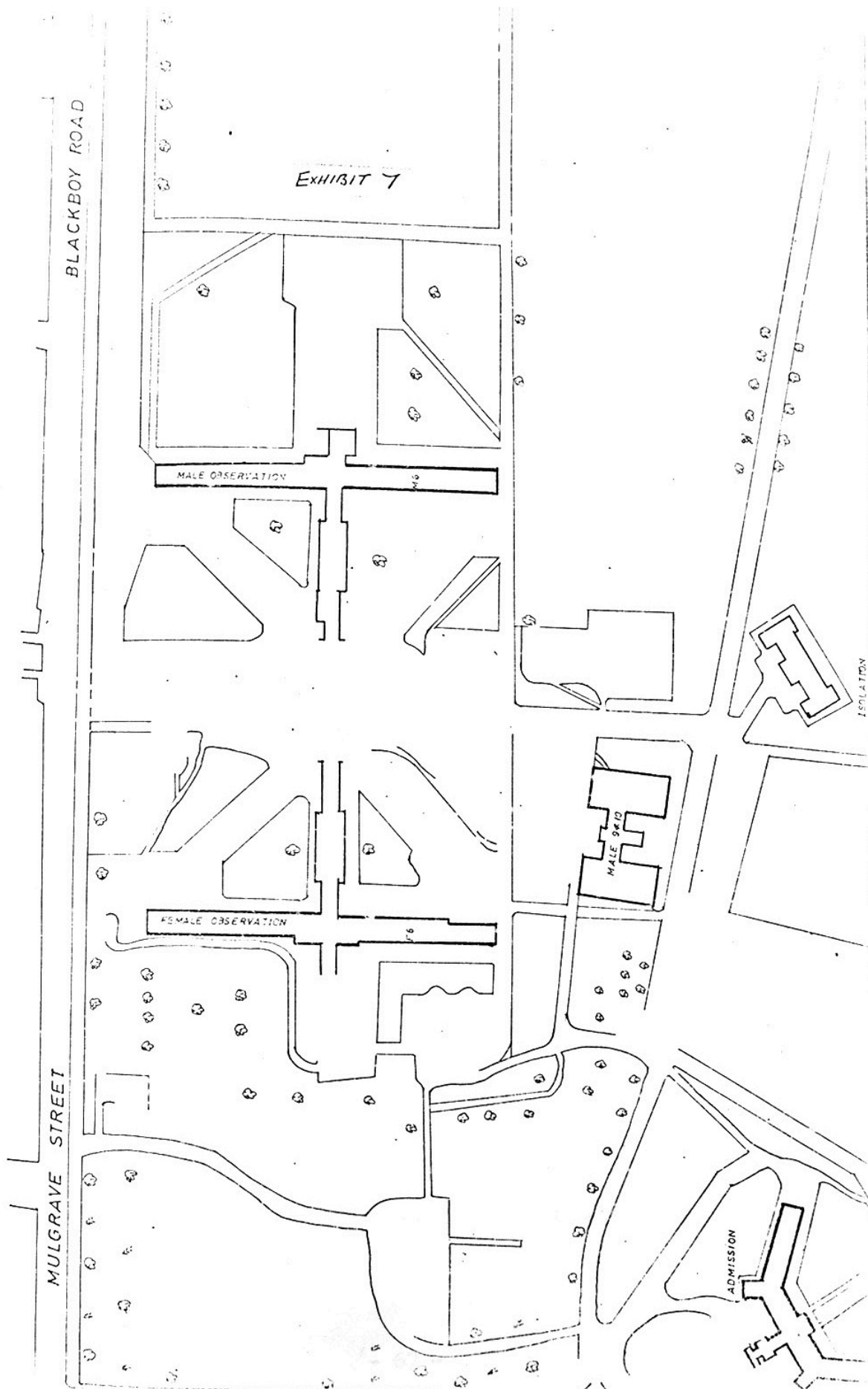
EXHIBIT 4



MATERNITY HOSPITAL

LOWER GROUND FLOOR PLAN





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EACH AND EVERY PERSON IS AN INTERNATIONAL CENTRE FOR ENVIRONMENTAL HEALTH:

We All Have a Part to Play

by Fred O'Brien

<p>International Centre for Environmental Health</p> <p>Fred O'Brien D.H.I., B.A., M.B.A., C.P.H.I.(C), Founding Director, International Federation of Environmental Health</p> <p>2 The Cloisters, Kilkee County Clare, Ireland V15 DK38</p> <p>www.iceh.net fred_o_brien@hotmail.com</p>	<p>The environment is gifted with its own integrity and dynamic balance; and each and every person and the communities of people bear a responsibility for the care of the environment and of each other.</p> <p>Environmental health sustainability can never be established, never guaranteed, except by the diligent observance of the divinely established design of the created order. See <i>Pacem in Terris</i> 1, 1963. As our great elder, Job, recommends, we should ask the animals, birds, plants and the fish of the sea and they will teach us. Which of these does not know that the hand of God has done this? In Creator's hand is the life of every living thing and the breath of every human being. See <i>JOB</i> 12: 7-10</p>
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An Arctic Contaminants Committee tour of the Territory of Nunavut commenced on January 12, 2004 with the purpose of disseminating its research findings in the newly formed (1999) Canadian northern jurisdiction. The multidisciplinary group visited 20 fly-in communities and sought to advise and engage in inclusive conversation the citizens of Nunavut on its public health message, including the implications for nutrition and environmental health. The Tour concluded on March 26, 2004.



Sylvia Cloutier of Iqaluit (second from right in photo), had a major role in the logistics of the visits, including organising flights, accommodation, community feasts and meetings. At one of the lay-overs she asked a question of Dr. James Talbot, Chief Medical Officer of Health (CMOH) of Nunavut, related to a serious car accident she had had as a teenager some years previously. She explained that the tibia and fibula bones of her leg were broken, protruding through the skin, and there was much bleeding. Having had a recent x-ray, which indicated all was healed, she sought an explanation as to how that could be possible. The CMOH outlined the body defense and healing systems eloquently and left the group in awe!

On December 24, 2004, some nine months after the ‘contaminants’ committee tour ended, the world woke up to a devastating story of a disastrous earthquake and tsunami originating deep within the earth’s crust off Indonesia, with close on a quarter million deaths and great environmental damage. News spread rapidly and reaction was swift with help arriving from all around the world and even from those within the areas affected. A healing cycle at the global level was truly unfolding!

Healing Cycle



Environmental Health Stewardship

*develop pattern of
human relationships*

- informed by -

pattern disclosed in nature

relationships between

<i>individuals,</i>		<i>and the community</i>
<i>families,</i>		<i>of the whole family</i>
<i>representative bodies</i>		<i>of humankind</i>
<i>and states</i>		

based on

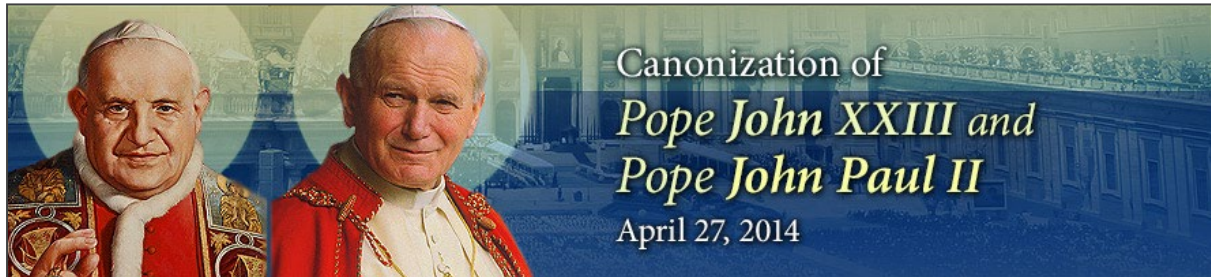
*environmental health 'science' and
international principles of human justice*

Reflecting on both stories recounted above some important truths are powerfully revealed:

- “The structure of animals is the work of a Master who is wise and loves the living” Niels Stensen (1638-1686); and
- Each and every person, made in the image and likeness of God, is called to be an International Centre for Environmental Health.

Reading The Signs Of Our Times

On April 27, 2014, Pope Francis canonized Pope John XXIII and Pope John Paul II. Their lives are truly a testament to their living out faithfully the call imprinted in each and every human person by the Creator; and of encouragement to us to read the signs of the times in the creation itself. May we be inspired by their teaching and example and become true carers of one another and of the environment, our home.



Peace on Earth —which man throughout the ages has so longed for and sought after— can never be established, never guaranteed, except by the diligent observance of the divinely established order. John XXIII *Pacem in Terris* No. 1

The Triune God ... giving himself in the Holy Spirit as gift to man, transforms the human world from within, from inside hearts and minds. Along this path the world, made to share in the divine gift, becomes... ever more human, ever more profoundly human. John Paul II *Dominum et Vivificantem* No. 59

But ask the animals and they will teach you, the birds of the air, and they will tell you; ask the plants of the earth, and they will teach you; and the fish of the sea will declare to you. Who among all of these does not know that the hand of the Lord has done this? In his hand is the life of every living thing and the breath of every human being.

Job 12: 7-10

Hence among the very serious obligations incumbent upon men of high principles, We must include the task of establishing new relationships in human society, under the mastery and guidance of truth, justice, charity and freedom—relations between individual citizens, between citizens and their respective States, between States, and finally between individuals, families, intermediate associations and States on the one hand, and the world community on the other. There is surely no one who will not consider this a most exalted task, for it is one which is able to bring about true peace in accordance with divinely established order.

John 23rd Para 163 Peace on Earth Encyclical

EUROPEAN CONFERENCE ON COOPERATION IN ENVIRONMENTAL TECHNOLOGY

13 -15 November 1991, Cologne


NETWORKING, TECHNOLOGY CENTRES AND ENVIRONMENTAL HEALTH:
TOWARDS A SCIENCE OF THE HEART

by

Fred O'Brien B.A. (Phil), M.B.A., D.H.I., C.P.H.I.(C)

Chairman

The International Federation of Environmental Health

<p>International Centre for Environmental Health</p> <p>Fred O'Brien D.H.I., B.A., M.B.A., C.P.H.I.(C) Founding Director, International Federation of Environmental Health</p> <p>2 The Cloisters, Kilkee County Clare, Ireland V15 CK38</p> <p>www.iceh.net fred_o_brien@hotmail.com</p> 	<p>The environment is gifted with its own integrity and dynamic balance; and each and every person and the communities of people bear a responsibility for the care of the environment and of each other.</p> <p>Environmental health sustainability can never be established, never guaranteed, except by the diligent observance of the divinely established design of the created order. <i>See <u>Pacem in Terris</u> 1, 1963.</i> As our great elder, Job, recommends, we should ask the animals, birds, plants and the fish of the sea and they will teach us. Which of these does not know that the hand of God has done this? In Creator's hand <u>is</u> the life of every living thing and the breath of every human being. <i>See JOB 12: 7-10</i></p>
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Fred O'Brien

In its preparation for the United Nations Conference on Environment and Development, to be held in Brazil in 1992, the General Assembly of the U.N. informed the world community that it was “deeply concerned by the continuing deterioration of the state of the environment and the serious degradation of the global life support systems, as well as by trends that, if allowed to continue, could disrupt the global ecological balance, jeopardize the life sustaining qualities of the earth and lead to an ecological catastrophe”.

Dr Wilfried Kreisel, Director of the Division of Environmental Health of the World Health Organization, in 1990 advised the international community that: “In every country on this planet man made environmental problems are being generated faster than we can solve or prevent those problems. In every country, environmental health capacity is inadequate to meet human needs. And when we look forward to this new decade, we know that the problems will be changing, only to become more complex, more critical, more urgent”.

Our environment, on a global scale, has become less manageable because of fundamental weaknesses in the strategies selected and by the conditionings and pressures exerted on men and women by dominating structures and mechanisms in the various spheres of society. The roots of the global environmental crisis can be traced to the emergence of a scientific and administrative approach largely insufficient for the analysis, programming and management of the environment. Science and technology must be directed towards the good of humanity and, accordingly, be governed by ethical and moral principles. The need for a philosophy and activity of technology transfer that can promote the development of a correct environmental perception and form the basis of a balanced behaviour in the pursuit of environmental health objectives is urgently needed today. Technology Centres

present tremendous opportunities for a form of networking that can help redress the very significant threats to the global environment by tapping the deep resources and broad range of expertise and experience of those men and women connected with such centres.

Networking Patterned on the Environment

“Now God has built the human form into the world structure, indeed even into the cosmos, just as an artist would use a particular pattern in her work.”

Hildegard of Bingen

Over the period 31 October to 2 November 1990, Aontas, the National Association of Adult Education of Ireland, held a workshop at the Lakeside Hotel, Killaloe. Some 45 people from different backgrounds, principally in the fields of adult education and environmental science, came together and outlined and discussed their approaches to developing a course in adult education on “Caring for the Environment”. As an outcome of the gathering a core network was established and a twenty week long course on “The World In Which We Live” was subsequently offered in a number of different centres around the country.

At the Killaloe workshop before very long it became apparent that the great variety of perspectives and attitudes present could result in much disagreement. Some felt that philosophy and ethics had no place in a proposed course while others considered them as essential ingredients. Some dismissed theology as irrelevant while others considered it as important in fostering a true guardianship of the earth. The great variety of viewpoints also included those who saw human development as fundamental to any approach while others considered environmental management approaches as too anthropocentric. The depth of feeling on these issues had the potential to create a significant barrier to communication and cooperation. In addition to the foregoing differences of opinion on what has been termed “soft science” there was a variety of scientific disciplines present with different concerns, approaches and priorities.

At an early stage it appeared to me that the differences in approach presented insurmountable obstacles. But I was wrong. On the afternoon of the second day we were taken on a guided tour of North Clare and visited the area known as the Burren, a unique environment where Alpine and Mediterranean plants and other life forms thrive. As we walked the road and the land of the area the backgrounds of the different participants came into play in interpreting the environment that we were observing. Agriculturalists, botanists, geologists, ecologists, those familiar with the local history and culture and others completed a picture of what we were looking at.

Finally I found myself with a small group looking down on a patchwork of ground about the size of a tabletop. It contained perhaps a hundred or more types of plants with all variety of beautiful flowers and within these a mix of living creatures, including insects, spiders and worms.

Having experienced this patch of the environment in terms of its great diversity and overall unity, in which interconnections, interrelationships and interdependencies revealed the importance of each element and the significance of the overall pattern, I was struck by the fact that a group of people could form a network, the model of which was the environment itself. Each member of this diverse group had an important contribution to make and our networking was of a pattern of nature.

The environment itself is a unifying force and the environmental crisis is an opportunity, particularly in the field of technology transfer, to establish a form of networking to the significant benefit of the world community. Human beings are distinguished by a special complementary capacity for service, which, when properly exercised, can renew the quality of the environment and promote the well being of all peoples. It is necessary to break down the barriers between the social partners influencing environmental health, and to promote a science of the heart where the complementary capacity for service in each individual is recognized, appreciated and encouraged.

Soft Science and Networking

“The manager’s view of reality exerts profound effects upon his every managerial act. His act in turn affects the achievement of both his own goals and those of the organization of which he is a member.” Douglas McGregor

The Commission of the European Communities Directorate General XII for Science, Research and Development recently announced its 1991-1994 Environment Framework Programme. The framework contains a radical change from previous programmes and for the first time promotes research in areas which have been referred to as “soft science”. Research proposals related to the environment are invited in areas such as:

- integration of environmental concerns in enterprises;
- perception of nature;
- cultural, ethical, religious and philosophical aspects;
- societal learning processes;
- socio economic indicators;
- management practices.

The inclusion of approaches touching on the wisdom of the ages drawn from culture, philosophy and spiritual perceptions is in recognition of a growing concern with the inadequacy of a mechanistic science of the head and the strongly held belief found in people generally that behind the world of appearance there is a deeper world to be looked at.

The city of Cologne and this area of Germany have a great tradition of excellence in science, philosophy and theology. In the 12th century Hildegard of Bingen outlined her understanding of the world. She argues that “the earth must not be injured, the earth must not be destroyed”, it evokes joy, wonder, praise, awe and especially love. Her approach delights in the “greening of the Earth” and her writings have been

recently translated into many languages and are popular with those interested in ecology.

The importance of the Greek philosophers in their examination of man and nature was communicated to Europe in large part by St Albert the Great and St Thomas Aquinas out of Cologne. "Absence of haphazard and conduciveness of everything to an end are to be found in nature's works in the highest degree" we read in Aristotle's "On the Parts of Animals". St Albert argues for an alliance between science and faith and St Thomas Aquinas gave us a profound philosophy of being which gets to the heart of all created things.

Can we have hearts of flesh and not of stone? The global environmental crisis is real. Can we have a global viewpoint combined with a deep concern to ensure that the application of science in enterprise development renews the environment and enhances the quality of human lives? Edith Stein, who lived in the Lindenthal sector of Cologne, observes in her work "The Problem of Empathy" that "the least mishap in our environment tends to excite us much more strongly than a catastrophe in another part of the world without our mistaking which event is more significant"(p 105) {Zum Problem Der Einfühlung, p 117}. We are all subject to influences that may distort our vision and Edith Stein was herself a victim of the Holocaust because of a heartless science which could not recognize the worth of people.

Within the hearts of men and women can be found a love stronger than death and a resource that can read the signs of our times. I am convinced that the environmental catastrophe that threatens can draw from the deep resources of the hearts of people and bind together the social partners, individual and corporate, in applying science and technology in a new world order.

This binding together is the crown of effective networking. Technology centres have set in place a collaborative activity involving concerned multidisciplinary teams. Distrust, antagonisms and selfishness which impel this planet to the brink of destruction are replaced when people exercise that special complementary capacity for service. The organisers of this conference are to be congratulated for promoting cooperation in environmental technology at an international level at this time of great challenge. May your commitment to development prosper because your work is of vital importance.

Note: 2019

Fred O'Brien now resides in Kilkee, County Clare, Ireland. He delights in the beauty of the local setting and is awed by the reality that all elements of the natural order concur in generation and conservation. In the following images drawn from a lecture by the renowned astrophysicist Arthur Eddington, he provides a mathematical and poetic model of the generation of waves by wind. This physical phenomenon is much evident in the local seaside town of Kilkee. These images are but two of the many 'models' that humans draw-on in exploring the real world and the physical environment on which our health relies.

The Generation of Waves by Wind:

Mathematical Model:

Maintenance against viscosity, by suitable forces applied to the surface.

If the external forces p'_{yy}, p'_{xy} be given multiples of $e^{ikx + \alpha t}$,

where k and α are prescribed, thence the value of η .

Thus we find where σ^2 has been written for $gk + T'k^3$ as before....

a wind of less than half a mile an hour will leave the surface unruffled.

At a mile an hour the surface is covered with minute corrugations due to capillary waves which decay immediately the disturbing cause ceases.

At two miles an hour the gravity waves appear.

“Our theoretical investigations give considerable insight into the incipient stages of wave-formation”.

Poetic Model: [From Rupert Brooks poem: *The Dead*]

There are waters blown by changing winds to laughter

And lit by the rich skies, all day. And after,

Frost, with a gesture, stays the waves that dance

And wandering loveliness. He leaves a white

Unbroken glory, a gathered radiance,

A width, a shining peace, under the night.

Fred's hope is to explore and write on how we are informed by patterns disclosed in nature to be in full solidarity with one another in all the professions, trades and disciplines so as to promote and maintain sustainable environmental health governance practices.

The full text of Eddington's contribution on the generation of waves by wind is found at Chapter 15: Science and Mysticism of Eddington's 1926/27 book.

<https://archive.org/details/natureofphysical00eddi>