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Occupational Health

Occupational health has recently been in the news, as the provincially sponsored Special Committee on Occupational Health and Safety held public hearings. The majority of groups presenting to this committee felt that Nova Scotia's laws should be updated (last amended in 1926), and placed in one act under one jurisdiction. Perhaps it is time to look at the physicians' place in occupational health in Nova Scotia. When examining this field both good and bad trends become evident as we watch our rapidly evolving place in the health care sector.

Occupational health stimulates concerns in many areas including ethics and confidentiality, the place of allied health workers, the increasing use of salary rather than fee for service, the determination of priorities for health care dollars, and the promotion of both proved and unproved programs of preventive medicine. All these issues deserve exhaustive examination in the near future but a few thoughts on some of them might be appropriate.

In this issue of the *Bulletin* under One Physician's Opinion, one of the prominent problems in occupational medicine is outlined quite well. If you are paid by the employer, are you still working for the patient? There is nothing inherently wrong with working for a third party and in fact a recent editorial in the *Journal of the Society of Occupational Medicine* urges doctors to become even more involved in the management end of companies, moving to executive positions (more administrative than medical), and helping to increase production and profit.

Patients and physicians themselves must understand occupational medicine and the different types of doctors required, ranging from the epidemiologist to the general company physician or to the consultant with special expertise to bring to a particular situation.

He may not be the old personal physician that patients remember fondly, and frequently expect. For example, the objectives of a physician employed by a union may be quite different from one employed by the company in the same industry; or one employed by government, with its own set of priorities. In all cases the physicians' contract must be clear to everyone involved, especially the individual patient.

When a doctor is employed by a third party, including even an insurance company, then he is no longer working necessarily in the patient's interest.

The patient may benefit from this medical attention of course but, in occupational settings, may also lose not only insurability but ability to earn a living. Until we reach the utopia when illness does not mean hardship in many situations, it is important for patients to understand the difference between a personal physician and an occupational health facility. Lawyers often declare conflict of interest and remove themselves from a case. Perhaps it is time we adopted that attitude more often.

Of course nurses will have the same ethical difficulties as physicians when working for companies or institutions, as they increasingly do. While the Canadian Nursing Association is lobbying to become "first contact" persons in the medical system, this has occurred already in many industrial settings. In a situation where a physician is not present the company nurse may refer patients for alcoholic or psychological counselling, or to a hearing consultant after audiology screening. Many times, most we hope, the patient is referred through their personal physician; but here we have the duplication of a system of primary care that we should at least consider before advocating further expansion.

If physicians are to remain the primary contact person, then we must aim to do at least those things that industrial medicine with a nursing service only is trying to do. Occupational programs and services for hypertension monitoring, nutrition counselling, alcoholic and drug dependency referral, smoking cessation, physical fitness counselling, diabetic monitoring and audiometric testing as well as stress management are all being encouraged. All are fields that the usual general practitioner is aware of, but for which he lacks centralized, convenient facilities to perform a hundred percent of the time. Financially, he or she is not able to provide these facilities except in a limited and scattered way. Hopefully the Task Force on the Allocation of Health Care Resources will see this problem and, rather than fund a second system in industry or through independent nursing offices, will recommend physicians be supported adequately to supervise the above facilities.

The unions in industry as do even the individual worker want screening programs of every conceivable nature to protect their workers, and find potentially curable disease early. The pressure to do this must be coupled with scientific studies to show suitable cost benefit. Medical care should not be dictated by political pressure.

And of course, screening programs and other preventive medicine techniques should not be limited to industry if they are indeed practical and beneficial. Application to the whole population including the families of workers, means the community physician must and should be involved. Air pollution or radiation danger is not limited to workers in an

industrial town but affects everybody. Artificial divisions of population groups will be neither cost effective nor just.

Unfortunately the epidemiologic and community medicine skills necessary to do this job are not necessarily found in primary care physicians or in specialists that might also benefit from these skills. In the February issue of the *Canadian Medical Association Journal*, Andrew Harper discusses "Community Medicine for Clinicians in Canada; A Recommendation for Postgraduate Training". He advocates designing a year of clinical community medicine training and, in some instances, he thinks no added allocation of residency positions would be needed. Certainly this type of training could be useful in the occupational health area. However, we may be reinventing the wheel. The premise underlying his urge for more training, is that disease and illness are not an isolated phenomenon but are interrelated with the patient's social and physical environment and therefore need to be addressed within this context. This certainly is not a new concept and perhaps curriculum committees at the undergraduate level need to be reminded of what follows from that basic idea.

In setting priorities for health care dollars, we must recognize our responsibility to industry and to the workers of this province and recognize special on site needs and opportunities to identify problems. It would however make ultimate sense to meet this responsibility by using the present system of health care and education to maximum advantage. □

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The Development of Occupational Health Services in Nova Scotia

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The past decade has witnessed a revolution in the knowledge and experience, and in the complexity and controversy of occupational health and occupational health issues. A common theme, however, has developed from these issues: occupational health — the total work-related factors, effects and programs for the promotion of health, must be preventive in both the areas of industrial disease and in industrial accidents. This brief focuses on the development of the medical component of occupational services for Nova Scotia. The services are discussed in four specific areas: the functions of occupational medical services, current priorities in occupational health programs, specific considerations for such programs in Nova Scotia, and finally, future options including legislative options for Occupational Health in Nova Scotia.

Inherent to the success of Occupational Health Programs and to the well being of Nova Scotian workers are three important concepts. Firstly, Nova Scotia represents a unique industrial "mix" which will require varied, alternative strategies to deliver occupational health services to all workers. Secondly, the importation of programs, organization and regulation from other areas may not provide coverage for this unique industrial base. Finally, occupational health regulations in other provinces and countries have frequently had minimum impact on the health status of the worker, largely through failure to establish a functional manpower and resource framework through which programs and legislation can act, or best accomplish its goals. These issues are discussed in greater detail in each of the four specific areas.

OCCUPATIONAL HEALTH MEDICAL SERVICES

The *primary* prevention of occupational disease and disability and the maintenance of health occurs through specific aspects of occupational medical services. This goal can, in part, be attained through biological monitoring and other medical screening procedures, preplacement and ongoing medical examinations, regular review of workplace monitoring and medical surveillance data, and worker education and health prevention programs. Such services exist in two distinct forms, specialty or consultative services and services offered through family practitioners.

Specialist services in occupational medicine exist to provide medical expertise and information to government, industry, labour and the medical community. The success of this service depends, to a large extent, upon the establishment of a medical presence which must both act and be seen to act, in an independent advisory capacity. Because of the changing and developing nature of occupational health, this service must develop strong links with other investigative and information services such as epidemiological services both within government and within the medical community. Such links will aid in the identification of, as yet, unknown or

unrecognized occupational risks and in the development of programs for medical students who will subsequently be practising in Nova Scotia. Finally, the service must provide information to and co-ordinate efforts with volunteer agencies such as safety associations and the Nova Scotia Lung Association which provide support for specific occupational conditions.

The majority of direct occupational medical services for the prevention of disease and injury are currently offered and will continue to be offered through family practitioners. This occurs because few industries within the province are of sufficient size to support full-time medical practitioners, and because of the individual nature of important industries such as agriculture and fishing. The latter two industries, which form an important part of Nova Scotian economy, are typical of small operations with both potential exposures to toxic agents, and increased accident rates and, consequently, a need to provide information to both workers and their physicians. Continuing medical education programs and consultative services are required for physicians in these regards.

To summarize, occupational medical services are an inherent part of an overall occupational health program. The services must be preventive in orientation and recognize the potential health hazards of not only large, but small and individual industries.

PRIORITIES IN OCCUPATIONAL HEALTH PROGRAMMING

Priorities in occupational health programs must place equal, if not greater, support to occupational disease and its prevention than physical injury. For example, in its fiscal year 1983 Program Plan, NIOSH (U.S. Department of Health and Human Services), identifies eight of the ten leading work-related health problems as occupational diseases which include occupational lung disease, occupational cancer, cardiovascular disease, reproductive problems, neurotoxic illness, noise-induced hearing loss, dermatological problems and psychological disorders.¹ Similar concerns were expressed at the inaugural conference of the Canadian Council of Occupational Medicine.²

This emphasis on occupational disease has developed for well-founded reasons. Occupational disease represents the bulk of serious disabilities and premature adult deaths, a factor which is frequently not reflected in Workers' Compensation statistics. Moreover, given our current level of technological advancement and our knowledge in several areas regarding exposure limits, such diseases need not occur and, therefore, represent some of the best examples of completely preventable disorders, including conditions such as pneumoconiosis in miners, vibration-induced white finger in forestry workers, and dermatological abnormalities in solvent users such as dry cleaners and mechanics.

While these leading work-related problems established elsewhere are not directly referable to Nova Scotia, Nova Scotia does have the same type of industries and potential for exposures as occur in other provinces and countries. Obviously then, a similar type of prioritization for the identification, evaluation and control of occupational health problems and the dissemination of information is required. Undoubtedly, priority issues developed within the province will be similar to those identified above.

To summarize, program priorities in occupational health must continue to focus on disease, the principle preventable contributor to occupational morbidity and mortality.

SPECIFIC CONSIDERATIONS FOR PROGRAMMING IN NOVA SCOTIA

As indicated in the previous section, an approach to prioritization and identification of problem areas is an important component of future occupational health programming. Prioritization can be accomplished in several ways. Retrospectively, priorities can be established through the use of routinely compiled statistics such as Workers' Compensation annual reports. The limitation of this approach is that approximately 20% of industries are not represented by Workers' Compensation. This under-representation may be particularly significant for industries such as farming or fishing. Moreover, the specific injury focus of Workers' Compensation will miss the importance of illness and disease. Finally, while Workers' Compensation statistics are satisfactory for the administration of a no-fault insurance scheme, they will not provide meaningful information to identify occupational health program effectiveness or future problems.

Prospectively, priorities may be developed through materials inventory, including qualitative and quantitative use. Through knowledge of specific risks and the number of workers exposed to the risk, problem areas can be identified. This approach might be particularly useful in hitherto difficult to evaluate industries such as agriculture. Linkage of such information to occupational hygiene data and industrial surveys will improve the accuracy of these estimates.

Industrial prioritization has implications for physician education, manpower development and epidemiologic identification of unknown risks and hazards. Focusing medical school education and continuing medical education on key preventable provincial problems will more effectively utilize physician services to workers. The information will also be instrumental in the development of industrial hygiene and nursing staff specialized in specific areas. Finally, retrospective and prospective techniques can initiate more extensive investigation into previously unrecognized occupational health hazards.

To summarize, priorities that can be determined by several mechanisms will be an important factor in the future effectiveness and success of a provincial occupational health program.

FUTURE REGULATORY OPTIONS

Ideally, an occupational health program should include the following: management recognition of workers' legitimate interest in knowing the risks to which they are exposed, workers' recognition that total safety is an unavailable option, i.e. all productive activity is associated with some degree of

risk, and occupational health agency and physician encouragement of the free flow of information about potential health hazards. If these ideals were met, then the best method of control would be one of routine self compliance with established standards, subject to an open process of inspection and problem resolution with management and worker participation. Unfortunately, this model is not commonly encountered.

Two distinct regulatory philosophies have evolved to deal with occupational health activities. Flexible legislation, which is typified by the Scandinavian countries, describes the existence of a framework law without defined regulations. The law is applied to specific situations through joint committees often comprised of regulatory agency, labor, management and academic membership. The advantage of this mechanism is that it encourages local decision making, solutions, information dissemination and responsibility, and it allows flexibility regarding rapidly changing occupational exposure information. The success of this approach depends, in part, upon the nature of employer-employee relationships and upon employers' concern regarding the occupational health of their employees.

Nonflexible legislation describes a system of very specific, detailed regulations, incorporating mandatory compliance. This model is typified by the United States. It has the advantage of requiring less employer-employee organization and establishes very specific industrial performance criteria. The disadvantages are the lack of flexibility, in large part, because of the litigious nature of the system, the necessity of a large policing operation with the development of conflict in some circumstances, and the delayed ability of the system to respond to changing occupational health information.

Obviously, flexible versus nonflexible programs represent two ends of the spectrum. Various provinces and countries have chosen regulatory programs that fall, at some point, along this spectral line. Regardless of the approach adopted, the success or failure of such programs would appear to revolve about two factors. Firstly, occupational health programs will not function without the support of a well developed manpower infrastructure. Secondly, relationships, that is, employer-employee, employer-union, employer-government, that are strongly characterized by confrontation are likely to have minimum impact on improving occupational health in the workplace. The challenge of monitoring and improving the health of Nova Scotian workers lies, therefore, not in the establishment of specific regulatory programs, but in making those programs operational, in large part, through recognition of the unique characteristics of Nova Scotian workers and workplaces.

FINAL CONCLUSIONS

1. The unique characteristics of Nova Scotia workers and workplaces will require specific considerations for future occupational health programs.
2. The expansion of existing medical services, through qualified specialists and family physicians, are an inherent component of any successful occupational health program.
3. Occupational health programs must place increasing emphasis on occupational disease vis-à-vis injury —

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Occupational Medicine and The Family Physician

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Pictou, N.S.

PREAMBLE

Unlike the industrial heartland of Upper Canada or the Eastern Seaboard of the USA, few industries in Nova Scotia offer a work-related health service to their employees. This is, in part, due to legislative standards here in Nova Scotia; and also in part, due to our lack of big industries. Consequently little, if any, emphasis is placed on this branch of medicine during our training years. This is especially so of the Dalhousie Medical School.

My association with the Michelin Tire Manufacturing Plant at Granton, Pictou County since 1970 might, I hope, shed some light on the practice of Industrial-Occupational Medicine from the viewpoint of a G.P. engaged on a part-time basis by industry.

DEFINITION

The terms Industrial Medicine and Occupational Medicine can be used interchangeably and quite simply indicate the practice of medicine as it relates to a worker at his/her place of work. This then includes a very broad range of persons from those in primary industries (eg. coal mining) to manufacturing (eg. tire building), to service industries (eg. hospital workers), to office workers (eg. civil service).

Matters of health and/or sickness as it relates to the worker and his job are thus addressed on a firsthand basis. To be effective, this implies several basic assumptions:

1. that the physician work in an independent manner from the employer;
2. that confidentiality be respected at all times;
3. that the physician be fully familiar with the working environment and exact work posts; and
4. that the physician becomes fully knowledgeable of all work related hazards: noise, chemicals, light, physical and mental stress, etc.

PRACTICE

In my own instance, my colleagues and I at the Pictou Medical Clinic were approached by officials of Michelin Canada in late 1970 to establish an industrial health program for their tire manufacturing Plant at Granton, then under construction. New medical school graduates all, we knew little about this facet of medicine and soon learned that few others in Nova Scotia knew much more.

However we consulted the literature and fortunately I came upon the Ontario-Quebec Industrial Medicine Association and their conjoint annual scientific meetings. Here exposure to such eminent practitioners of industrial medicine as Dr. Pete Baillie (Bell Canada) Dr. David Brunett (Consolidated Batherst) and Dr. Tom Pendergast (T. Eaton Co.), plugged us into current concepts and methods of such an undertaking.

Together with Company personnel, who were familiar with Michelin's Medical setup's in their European Plants, we set up an in-plant Medical Centre and safety program. As well, we devised a pre-employment medical assessment and screening program, together with an ongoing review and screening program for production/administration employees.

Included in this was establishing a physical plant i.e. Medical Centre within the Plant, as well as engaging a nurse(s) to manage it. As well, a 24 hours stand-by arrangement was necessary as the Plant produces round the clock all year long, except for two-week summer shut down.

As time has passed, our concept of and degree of involvement has changed so that we have drifted farther from the yearly physical "medical" approach, to more a problem-oriented/risk-screening service. When one considers this Plant alone has in the neighbourhood of 2000 employees from administration, to production, to maintenance people, you can imagine the variety of medical situations encountered.

For the most part, the Company has been quite enlightened and allowed us to run a totally independent medical operation. This we do on a contractual basis and not as "the Company Doctor".

Currently, our health service works closely with safety "reps" throughout the Plant, an environmental hygienist, engineering services and the Plant Personnel Director and Plant Manager. Direct access to the Plant Manager we've found, is a must and this path has to be pursued in unusual circumstances.

Ready reference to Code of Practice concerning the use of chemicals is essential and a conscientious environmental hygienist is also essential. Michelin has provided us with an excellent one.

In addition Provincial Departments of Health and Labour personnel occasionally visit the Plant to assess TLV's of chemicals, etc.; and their standards are always respected and, I might add, surpassed in the Granton Plant.

THE WORKER

After an initial job interview, successful applicants come to the Medical Centre to be assured that they are 'fit' physically and mentally for the job they seek. A detailed health history and functional inquiry is conducted by the nurse and reviewed by the M.D. — Screening visual tests — acuity and color; audiogram and pulmonary function test are given by the trained nurse. A complete physical examination is done by the M.D., including an inhouse developed Lift test for back strength on all would-be production workers. This is followed by a chest film, urinalysis and any additional specific screening testing the M.D. desires. If all is well; an indication for employment is given by the M.D.

On a purely voluntary basis; 'medicals' are offered to all employees on the following basis thereafter: under age 40 —

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every 3 years; over age 40 — every year. On a regulated basis, 'medical's including hearing tests, are done on certain production workers. Executive sedentary administrative 'types' are encouraged to have a thorough medical yearly.

"Problem Workers" — i.e. work related injuries, absenteeism, exposure to hazardous work conditions, etc., are reviewed aggressively on an ad lib but regular basis. As a consequence, many workers are able to return to the workplace much earlier to light duties, etc., than would otherwise be the case. This, we feel, cuts down on lost man-days and increases productivity while at the same time benefiting the employee financially.

CONCLUSION

Quite obviously, as with any third party involvement, compromises have to be taken in delivering such a health service. However, in the main, it is my feeling that such an industrial health service is a benefit to employee and employer alike. As well, it provides an opportunity and adventure for the family physician that is both challenging and rewarding. □

THE DEVELOPMENT OF OCCUPATIONAL HEALTH SERVICES IN NOVA SCOTIA

Continued from page 36.

prioritization of occupational diseases within the province will be an important aspect of program success.

4. The success of further regulations on reducing occupational morbidity and mortality will depend, to a greater extent, on operational capabilities than on regulatory content. □

References

1. *NIOSH Program Plan by Program Areas — Fiscal Year 1983*. National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, Feb. 1983, DHHS Pub. No. 83-102.
2. *First Annual Conference of Canadian Council of Occupational Medicine*. Nov. 9-11, 1983, Toronto, Ontario.

CONGENITAL ANOMALIES REPORTING

The Department of Health and the Deputy Registrar General's Office, Province of Nova Scotia, has requested publication of the following information.

Family practitioners and obstetricians form part of a Canadian Congenital Anomalies Surveillance System (CCASS). This Surveillance System regularly provides us with very important and useful information.

A principal source of data for this Surveillance System is from the Physician's Notice of Birth forms (P.N.O.B.) which are completed immediately after the delivery of each baby. This has been required by law for some years, and these P.N.O.B. forms are also useful in tracing perinatal morbidity trends. Without their completion, doctors wishing to introduce new programs or services could be without information necessary to ensure that such a new program or service would be worthwhile.

Apparently, some of our colleagues, notably in the areas of Truro, Sydney and Yarmouth, but not exclusively, have not been fulfilling the "paper-work" part of their duties and responsibilities. Many of the P.N.O.B. do not show congenital

anomalies or whether there was a birth injury, or whether drops were put in the child's eyes, or whether a sero-diagnostic test was taken for the mother. Our legal responsibilities are set out in *The Vital Statistics Act* as follows:

Section 2 — Notice of Birth or Stillbirth

(2) "Every person who assists at the birth of a child or at a stillbirth in the Province shall, within twenty-four hours thereafter, deliver or mail to the division registrar of the registration division in which the birth or stillbirth occurs a notice of the birth or stillbirth in the prescribed form. R.S., c. 330, s.2."

Section 14 (4) — Duty of Medical Practitioner

(4) "The medical practitioner who was last in attendance during the last illness of the deceased or the coroner who conducts an inquest on the body or an inquiry into the circumstances of the death shall, upon the request of the funeral director complete a medical certificate in the prescribed form and cause it to be delivered to the funeral director."

Your compliance with the foregoing is requested. □

CORRECTION CANCER OF THE CERVIX IN NOVA SCOTIA* February 1984, 17-22.

*From the Division of Gynecological Oncology, Department of Gynecology and the Department of Radiotherapy, Victoria General Hospital, Halifax, N.S.

The authors of this paper are consultants to the Cancer Treatment and Research Foundation of Nova Scotia.

The Provision of Medical Services to the North Sea Oil Industry*

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In the licensed areas of the U.K. Continental Shelf Waters, all State Health Care as provided by the National Health Service stops at the limits of land. Beyond the low water mark of the U.K. shore, the oil industry has the responsibility for the health and safety of all personnel in the offshore location. (Figure 1) The major onshore treatment centres available from the National Health Service for Northern North Sea patients are in Aberdeen. In normal weather these can be three hours flying time away by helicopter from the North Sea installations; with bad flying conditions the time can be up to six or seven hours.



Figure 1

In 1977 three oil companies, along with the University of Aberdeen, appreciating the necessity for some type of co-ordinated medical care beyond the limits of land, decided to set up an organization dedicated to provide such a service. A commercial limited liability company called Offshore Medical Support (OMS) was established and affiliated with the Institute of Environmental and Offshore Medicine (IEOM), which is a Department of the University of Aberdeen. On behalf of the petroleum industry both organizations carry out service and academic functions. OMS is mainly service and IEOM is mainly academic. The affiliated organization has to carry out medical training programmes both for medical and non-medical personnel associated with the on- and offshore oil industry. Furthermore, the two organisations are actively

engaged in areas of relevant research across a broad spectrum of health interest. The medical services are offered on a structured basis in accordance with the Petroleum Industry's requirements and medical policies.

The oil industry has an occupational medicine obligation to its employees; the industry has set its standards; in some matters these are dictated by Government Health Authority. The oil industry may introduce even higher standards than required by statute. OMS in offering its services has required to be adaptable and flexible in meeting the various medical policies set by the Medical Departments of the Petroleum Companies. (Figure 2)



Figure 2

The Extent of the Responsibility

At any one time approximately 25,000 personnel are located offshore. Detailed arrangements have had to be made regarding the care of the individual offshore, not only at the worksite, but also his place of recreation and social activity when he is off shift. The provision of care for the ill or injured offshore has taken several years from inception to the current level of development.

Communication

One of the most important features in providing good health care in this situation is communication, and from the limitations of early days using VHF, it is now possible to have access to the most sophisticated communication systems available.

For example, it is now common practice on fixed oil producing installations to have the use of tropospheric scatter system and satellite communications. These allow very high quality voice communication, and also transmission of "television" pictures from an offshore installation to the doctor onshore.

*This paper was presented originally as part of a seminar organized by the Community Health Committee of the Medical Society of Nova Scotia, held in Halifax on September 29, 1983.

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Communication has to be accurate, precise, with no ambiguity or misleading possibilities; mainly because of good communication we are able to offer a high standard of care even though the workforce may be many hundreds of miles away from the major onshore treatment centres. The oil industry in its U.K. areas of endeavour is now providing one of the best co-ordinated health care schemes in the world; this acquired knowledge and experience is available for application to other parts of the world.

Transportation of the Patient

Another major advance in providing health care to the offshore industry has been the development of air transport to offshore installations; in recent times there has been the introduction of the Boeing 234 twin-rotor helicopter which now has a capacity of 44 passenger seats and a flying time of some three hours to the most remote field. The distance to the remotest field is in the order of some 400-450 miles from Aberdeen, and it is imperative to have good air support to the offshore locations. The major air carriers associated with the petroleum companies have spent considerable time in air support development including Search and Rescue for offshore working. Patient care has benefited by that effort.

The workforces associated with the industry have for many years been working in rigorous and difficult environmental conditions throughout the world and the particular problems that the North Sea has presented have been addressed on many fronts, both operationally by the petroleum companies and academically in terms of research. It is recognized that on-going research and development ahead of provision of medical service need to be conducted, and that not all the answers have been found at this time.

Fitness of Personnel Going Offshore

The supporting contractor services necessary for assisting the petroleum company in developing its oilfields have contributed greatly to the overall endeavour; innovation and the use of well tried and proven techniques have sustained the effort and success in retrieving crude and gas from the U.K. Continental Shelf Water Area. The individual medical requirements of the personnel associated with all those organizations have had to be addressed; certain employees, e.g. divers are regarded medically as high risk in comparison to others.

Certain job functions and disciplines have medical standards which have been regulated by law for offshore working. Those activities which have regulatory standards are extremely limited, and have been developed after many years of consultation and discussion. An example is the medical certification of the diver for offshore working; these are regulated by Statute.

As more fixed installations move into production and further and remote exploration takes place, it is recognized that new challenges will require further development medically in the essential interest of promoting a healthy and fit workforce.

Current Medical Provision of IEOM/OMS

- (i) The routine medical screening of personnel who will be located offshore;
- (ii) The Topside Medical Emergency Service, with doctors on-call round the clock able to advise and mobilize to

anyone who is ill or injured offshore. The patient can then be brought onshore and referred to the National Health Service in a co-ordinated operation. (Topside refers to all the facilities on an installation above the water line; the remainder is concerned with sub-sea);

- (iii) The Routine Diving and Emergency Service with duty diving physicians on-call 24 hours per day, and also a duty physician in the Medical Centre screening divers to the Statutory requirements of 'Fitness to Dive'; and
- (iv) An Offshore Doctor Service is provided to two of the major petroleum companies, whereby constant doctor presence is maintained offshore through rotation of a team of Medical Officers.

Management of a Patient Seriously Ill or Injured 400-500 miles from a Major Onshore Treatment Facility

Only two installations have doctors permanently stationed on them in the U.K. Continental Shelf; the others (about 70) have a qualified nurse offshore and a doctor onshore to whom the nurse can relate professionally.

The Role of the Medic and the Relationship with the Onshore Doctor

In the medical management of such patients, problems are usually discussed between the doctor and the medic over a generally secure communications system and where appropriate, results in the transfer of the patient to the onshore National Health Service system. In many cases the nurse/medic is afforded an area of authority and responsibility by the doctor which is in excess of the normal onshore professional relationship.

Due to the operational and logistic factors it is not possible to have a doctor present in all the offshore locations where medical problems may arise. The medic, a highly skilled professional, is undertaking doctor-approved procedures supported by Standing Orders, supplemented by immediate telephone instructions. It is important that the medic appreciates the importance of the responsibilities, and has the appropriate training in the procedures expected of him or her. It is also important that the medic will continue to receive training of the highest professional standards, including refresher training, as and when it is appropriate.

Dealing with Serious Illness or Injury Offshore

The offshore location with its surrounding hostile environment is not the ideal place for patients needing intensive management. The industry has made plans to cope with severe injury and illness to the individual, and through to the multiple casualty disaster situation. The planning and co-ordination for the management of such events have been addressed but require fine tuning for each incident, taking into account weather, air and marine support, and the type of emergency that the operator encounters. In dealing with medical emergencies the plan requires to include actions to be taken in recovering patients into the onshore treatment centre.

The quality of medical information passed from the remote worksite to the doctor is of major importance. It may be necessary for example to commit a helicopter air crew and helicopter landing facilities in the most terrible weather conditions; if the medical problem in the remote worksite is of a life-threatening situation the committing of an air crew and

associated personnel is justifiable. If a non-emergency medical condition is interpreted as a life-threatening situation an air crew, medical team and helicopter landing facility could be committed which is unnecessary; this is always very expensive but in addition to the cost, there is the threat to life of those in the helicopter particularly in bad flying weather. In such a situation the patient could be in a far more secure position than those who are mobilized to manage him, and have him flown onshore.

The procedure normally adopted in dealing with a one patient casualty situation is for the medic, as soon as possible, to establish communication with the onshore duty doctor. The best decisions are taken when the onshore doctor knows the rig medic with his professional strengths and limitations. The doctor then takes his decision how the patient's condition can be stabilized. The doctor may instruct the medic to have the man flown onshore as soon as possible or maybe even mobilize an emergency helicopter with a medical escort. In so doing the medic is not sacrificed from the operational worksite in the provision of medical support en-route to the onshore treatment centre.

Sometimes it is necessary for the doctor to proceed offshore to handle the medical emergency and before leaving he must have an accurate medical picture of the condition of his patient. The doctor in proceeding offshore must take decisions about equipment and drugs available to him, either already offshore or to be carried with him. Minimal standards of medical equipment and drugs are regulated by U.K. Government legislation.

The onshore management co-ordinating the medical support arrange *with the petroleum companies* the immediate despatch of the appropriate helicopter.

In the individual minor injury or illness most of the medical management is normally contained within the oil operator's health scheme for the offshore worker. However, there are occasions where the medic has to refer the patient to the hospital directly after consultation with the doctor or the patient requires to be seen by the onshore primary care physician for assessment and subsequent management.

Major Incidents

In a major incident, for example, where there may be a loss of structural integrity of the platform or a blow-out, it is obvious that one or two general primary care physicians may not be able to handle the resultant medical events. The industry has made arrangements for such circumstances. The procedure that one would follow in the U.K. Continental Shelf Water Area is that the medic in the offshore location would contact the oil company's duty doctor onshore and advise him of the medical situation at the worksite.

Specialist Team

The duty primary care doctor, having received the appropriate medical information, would then tie into a second layer of medical expertise. This is known in the U.K. as the "Specialist Team Service", which is managed by OMS on behalf of the United Kingdom Offshore Operators' Association.

Most of the medical consultants in the U.K. are full-time or part-time members of staff of the National Health Service or the University and have no responsibility to respond to an offshore emergency. However it has been agreed that,

provided the necessary arrangements have been made formally with industry, it would be appropriate for such individuals to proceed offshore and carry out the necessary medical management at the scene of a major accident, similar to the way in which such services would be arranged on land for a civil air disaster or train crash.

The consultants who have been formally contracted for the provision of this service have been taken offshore and have been familiarized with offshore installations, structures, barges and support vessels. They have gained experience in search and rescue winching techniques from helicopters, and they have been provided with transportable emergency aviation medical packs, including anaesthetic and resuscitation equipment. Furthermore, they have all been trained in the use of their medical equipment, and are aware of the conditions that are likely to prevail offshore at the major incident site which will be quite different to the hospital environment in which they are accustomed to working.

The duty onshore primary care doctor is a vital link in the alerting of the second layer of medical cover, and the importance is re-emphasized regarding the accuracy of medical information from the medic to the onshore doctor. The duty onshore primary care doctor will call on the arranged dedicated hospital line and inform the consultant in the hospital of the major offshore event. Steps from an accepted *modus operandi* will then be taken by onshore management to arrange such matters as air support and marine support to transport the team and its equipment to the location of the incident.

A medical team going offshore, whether it be a topside primary care, diving emergency, or the Specialist Team Service, will have a doctor in charge, and he will report back onshore to the appropriate medical personnel, both in industry and in the hospital service, so that the onshore medical preparations are properly planned and arranged. For example, in a major incident, that the appropriate surgical theatres, beds, linen are made available, and that the receiving facilities are adequate and that the appropriate operator's Medical Officers or Company Medical Officers are kept fully informed of any changes in the medical situation at the incident site.

Hyperbaric Medicine

In the discovery and production of oil and gas from the North Sea, the medicine of diving has had a special place. Diving procedures are varied and complex, but there are now tried and proven techniques for putting man at considerable depths to work. Should something go wrong medically at these workplaces it is important that the appropriate medical response is made.

Diving is conducted from fixed and floating installations in the North Sea and diving to depths in excess of 600 ft. is not uncommon. The normal method of diving is the saturation diving procedure, and these divers can be especially remote, not only being at their worksite on an installation, but in addition at pressure in a decompression facility. Doctors have to be appropriately skilled and equipped in dealing with these medical emergencies; in the patient management there may be a need for the doctor himself to go under pressure. In the United Kingdom and under OMS management in Aberdeen, there is a helicopter fly-away diver rescue system known as TUP, Transfer Under Pressure, and it is possible for this equipment to be flown offshore to recover a

diver at pressure to an onshore hyperbaric treatment centre. The equipment consists of a helicopter capsule made of titanium, which is used as an ambulance or can be used for evacuation purposes under certain exceptional emergencies and can take 6 to 8 divers at pressure. The other vital component of this equipment is the single-man carrying capsule, also manufactured in titanium, which affords the transfer of the diver from the decompression chamber at the worksite to the helicopter capsule which remains on a helicopter at all times. The single-man carrying capsule can be man-handled and also crane-lifted. The helicopter capsule inside the helicopter may have on-board a doctor or a Life Support Technician, already at pressure. The system is then flown back to Aberdeen, transferred to the onshore medical hyperbaric chamber under the control of the Consultant in Hyperbaric Medicine on the staff of the National Health Service. (Figure 3)



Figure 3

The United Kingdom Department of Energy's Diving Inspectorate, which from time to time issues Diving Safety Memoranda to the Diving Industry, states that when an engineering emergency takes place which has an in-built human factor, the appropriate personnel should alert the medical emergency team as soon as possible although there may be no immediate human danger. During several diving emergencies associated with the United Kingdom Continental Shelf Operations a pattern has emerged in which initial engineering problems have escalated into a patient care emergency.

By having the medical team advised of the engineering/operational situation this allows the onshore medical emergency service to be alerted.

Food Handling/Food Hygiene/Environmental Health

The offshore catering service to the Petroleum Companies is by way of contract with a professional Catering Company.

Obviously food handling and food hygiene can be a high risk area for the introduction of infection to the offshore workforce. Episodes of "food poisoning" have occurred on installations with vomiting and diarrhoea; in addition to the patient's discomfort this could cause expensive disruption to work patterns. Therefore guidelines have been agreed between the oil companies that should an outbreak of such illness be encountered on a platform certain procedures will

be implemented both offshore and onshore to contain and medically manage the event.

Care has also to be taken in the medical screening of the personnel who handle food offshore. Also consideration has to be given to the chef or galley hand who has experienced an intercurrent illness while on leave. Galley staff who have recently visited a country with a warm climate and poor hygiene could readily introduce an infective illness on an installation.

One can anticipate in such a large offshore workforce infection breaking out of a non-food related type. Environmental health guidelines are also ageeed for such events — for example, does one allow groups of infected workers to come onshore and travel to many and varied home destinations both in the U.K. and other countries? How do the appropriate Community Medicine specialists of the National Health Service become appraised of a problem offshore — where onshore such infectious illness would require to be formally notified in terms of law?

The guidelines that have been agreed between Government — the law makers — and the Petroleum Industry, make it clear how such events can be handled. The result is both parties have set rules in handling potentially difficult management problems, bearing in mind the time and distance factor. Furthermore plans are laid so that each party is clear what each other will be doing when such events arise.

Medico-Legal Aspects

Possible litigation is always lurking in the background. Litigation regarding standards of professional medical treatment is a complex and difficult problem when encountered. It can be of major concern to a nurse, medic or doctor to be under stress of having to act in a remote and on some occasions ill-equipped medical facility and knowing at the same time that given the wrong set of circumstances an individual, a next of kin or a company can sue him for the way in which he has professionally responded. It has always been advisable to try and alleviate such pressures on the medical team. Provision of insurance cover is necessary.

Conclusions

Medical emergencies will always occur with the large workforce engaged offshore. Every endeavour continues to be made to ensure that the safety and medical standards are being achieved prior to an event occurring. An organization involved in medical care offshore must afford the ill or injured to be managed in the most professional way and subscribe to continuity of patient care. □

ACKNOWLEDGEMENT

To Professor A. S. Douglas, Director of Medical Services, Offshore Medical Support Limited for his professional support in the preparation of this paper.

"In science the credit goes to the man who convinces the world, not to the man to whom the idea first occurs."
— Sir William Osler (1849-1919)

Educational Opportunities In Occupational Health

An Interview with John Prentice,* M.D.

Bulletin: *What is the D.O.H.S. and how long a course is it? Are there other Diplomas?*

Dr. Prentice: Currently, several diplomas in Occupational Health and Safety are offered in Canada. The D.O.H.S. from McMaster University is offered on both a full-time basis, beginning each September, finishing in December, and on a part-time basis, starting in January, completing the following December. A D.O.H.S. is also offered through the Institute of Occupational Health & Safety at McGill University. This course begins in September and runs one academic year.

The D.O.H.S. is a formal academic program providing an overview of current topical areas in Occupational Health. The program at McMaster utilizes a problem orientated approach allowing students to pursue their own interests in each of the problem areas. The course begins with an emphasis on Occupational Epidemiology and throughout its duration encourages an epidemiologic approach to problem solving in Occupational Health issues.

Bulletin: *What are the prerequisites for taking the course, if someone were interested in the occupational health field?*

Dr. Prentice: For physicians interested in the D.O.H.S., no specific pre-requisites are required. The class at McMaster is small — approximately 15 students, and attempts are made to balance the class with health professionals from various disciplines. As well, physicians require no additional pre-requisites for the McGill program, nor for most diploma programs in the United States and Great Britain. The diploma program provides a good background for physicians interested in Occupational Medicine on a part-time basis.

Bulletin: *Are there other courses of study leading to specialist qualifications in this field?*

Dr. Prentice: Beyond the diploma level, two year Masters Degrees in Occupational Medicine are offered through the University of Toronto and through McGill. These programs provide more intensive training in epidemiology and statistics, thereby developing the research and investigative capabilities of the Occupational Health physician. In the United States, a variety of Masters Degree programs are available for those interested in Occupational Medicine. As an example, the M.P.H. Degree at Johns Hopkins University allows physicians with a specific interest in Occupational Medicine, to complete their degree primarily in this discipline.

Going one step further, specialty recognition in Occupational Medicine is offered through two routes in Canada. The Royal College of Physicians and Surgeons Fellowship in Community Medicine, with subspecialty in Occupational Medicine, consists of four years of approved training.

Generally, this consists of two years of academic work in a Masters level program, followed by two years of supervised field training. The Canadian Council on Occupational Medicine Certification Program requires one year of academic training in Occupational Medicine, leading to a diploma or Masters Degree, plus one year Internal Medicine residency, plus two supervised years in full-time Occupational Health practice. Currently, these two bodies are deliberating regarding a common examination with joint recognition. Unfortunately, neither body offers complete specific programs to meet their examination requirements. Consequently, the onus is placed on the individual to establish and complete his or her own program to fulfill requirements for specialty recognition in Occupational Medicine.

Bulletin: *For the non-specialist physician who has a part-time interest in occupational medicine, are there other organizations of which he should be aware?*

Dr. Prentice: Several organizations and information systems exist for physicians with full and part-time interests in Occupational Medicine. The Occupational Medical Association of Canada is an organization that has been formed to meet the specific needs and interests of Canadian physicians interested in Occupational Medicine. This Association is growing rapidly in numbers, holds an annual meeting in November, and is open to all physicians with an interest in Occupational Medicine. In the United States, the American Occupational Medicine Association is similarly open to full-time and part-time physicians with an interest in Occupational Medicine.

The Canadian Centre for Occupational Health and Safety in Hamilton, Ontario exists as a unique nationwide information system in Occupational Health. Currently the Nova Scotia Department of Health provides computerized, on-line search for a limited number of data bases within the Canadian Centre. A more extensive information search can be obtained by contacting the Canadian Centre directly, and there is no cost for this service.

In addition to the regular information sources such as *Index Medicus*, regulatory and review agencies such as the U.S. Occupational Safety & Health Administration, the National Institute of Occupational Safety & Health, The American Conference of Governmental Industrial Hygienists, and the International Agency for Research on Cancer,

Dr. John Prentice, M.D., M.P.H. who writes in this issue of the *Bulletin*, has completed the D.O.H.S., the Diploma of Occupational Health and Safety from MacMaster University and has a knowledge of present educational avenues open to physicians interested in this field. He consented to answer questions posed to him by the *Bulletin*.

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Continued on page 44.

Occupational Health: The Doctor and Nurse as Informers

Jane F. Roseborough,* M.D.

"He who pays the piper can call the tune."
(English proverb of unknown origin.)

fink n. and v.i. (sl.) 1. n. Unpleasant person; informer; detective; strike-breaker. 2. v.i. Inform on. [20th c.; orig. unkn.]
(*The Concise Oxford Dictionary*, 1976 edition.)

"All they that take the sword shall perish with the sword."
Matthew 26:52.

Most doctors and nurses working in the field of occupational health are employed by companies. These positions are attractive for several reasons. Some doctors and nurses find it difficult to meet the traditional demands of their professions. Those with an interest in environmental medicine hope to put their knowledge to practical use. Others seize the only available way to earn a living in these times of dwindling opportunity.

Unfortunately, the degree to which a doctor or nurse will be allowed to adhere to the traditional ethics of their professions will depend upon the enlightenment of management. In most companies, the basic medical practices of confidentiality and "first do no harm" (*primum non nocere*) will have to be abandoned.

Perversions of traditional medical ethics result from the demands of management upon medical "personnel" to serve the perceived interests of "the company". Medical information is demanded by management as often in the emotional sphere as in the physical one. Many companies have a well-established policy of dismissing employees with "personal problems".

"Personal problems" is a catchall phrase which includes divorce, domestic difficulties, retarded children, single loneliness, and myriad other trials experienced by all of us at one time or another. "Personal problems" may be a primary reason for dismissal, or may be an excuse for getting rid of someone towards whom management or fellow employees have taken a personal dislike.

That such a barbaric custom should persist is incredible. The distressed employee has usually been doing a good job. Almost always he turns to the company health unit for sympathy and support, little realizing that he has taken an important step towards dismissal.

Nurses become company employees for the same reasons that doctors do. However, being further removed from executive functions, they are less aware of the ultimate uses to which their work is put. Nurses have been trained to serve doctors without question. Although this quality of discipline is admirable in the operating room, it has been perverted in the field of occupational medicine to serve the misguided purposes of management.

What can we do to reverse the unfortunate direction that occupational health has taken? We cannot expect enlightenment from businessmen. They do not have our knowledge

or training. Many will probably continue to pursue counter-productive management policies for decades to come.

The only solution seems to be to separate the practice of medicine completely from the business arena. Of course, this means renouncing the financial rewards. Doctors and nurses must cease to consider company employment as one of their career options. Employees must take all their physical and emotional problems to their family doctor. Family doctors must obtain a signed consent from their patient before releasing any information to the employer. University Departments of Occupational Health must take great care to remain financially independent of companies.

When we, as young people, enter the medical and nursing professions, we undertake to serve our patients. No matter what trials beset us throughout our lives, we must never betray this basic trust.

The doctor or nurse who chooses company employment suffers an unrecognized but corrosive loss of self-esteem. If this leads to personal or family problems, as well it may, then he will find that his own turn for dismissal has come! □

EDUCATIONAL OPPORTUNITIES IN OCCUPATIONAL HEALTH

Continued from page 43.

provide criterion and review documents at no, or minimal, cost. Although the quality of these documents varies widely, they can provide a convenient review for specific occupational exposures.

Further information on some of the above programs and information services can be obtained from the following address:

- 1) The Occupational Medical Association of Canada
P.O. Box 670
Fenelon Falls, Ontario
KOM 1N0
- 2) The Occupational Health Program
McMaster University
1200 Main Street West
Hamilton, Ontario
L8N 3Z5
- 3) The Canadian Centre for Occupational Health & Safety
260 Main Street East
Hamilton, Ontario
L8N 1H7
- 4) Institute of Occupational Health & Safety
McGill University
1130 Pine Avenue West
Montreal, P.Q.
H3A 1A3

*Address: 2 Chudleigh Ave., Toronto, Ontario M4R 1T2

Brief on the Health Effects of Herbicides, Insecticides and Pesticides and Safety and Training of Forest Workers

Presented to Judge Matheson, Commissioner,
Forestry Inquiry — Nova Scotia on April 22, 1983,
by The Community Health Committee of The Medical Society of Nova Scotia.*

INTRODUCTION

The Royal Commission on Forestry requested the Medical Society to submit a brief. The Society's Community Health Committee has studied the aspects of forestry as we believe they relate to health.

HERBICIDES

A study of the health effects of the forest industry very quickly leads one to forest spraying by herbicides. The main phenoxy herbicides are 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T). Both 2,4,5-T and 2,4-D were constituents of "agent orange" (a 50-50 mixture of the n-butylesters of 2,4,5-T and 2,4-D), which was used as a defoliant during the Vietnam War. A review of the health hazards of the phenoxy herbicides was previously reported in the *Nova Scotia Medical Bulletin*.¹

Commercial preparations of phenoxy acids contain contaminants called dioxins. TCDD (2,3,7,8-tetrachlorodibenzo-para-dioxin) which is found in 2,4,5-T has attracted particular attention because of its extreme toxicity. The Environmental Protection Agency (EPA) in the United States halted most of the herbicide 2,4,5-T spraying in 1979. This was because their study found a significant increase in the number of miscarriages among women in Alsea, Oregon, an area where large quantities of 2,4,5-T had been sprayed by helicopters in order to increase the production and efficiency of commercial forests.²

Conflicting reports of other effects may be related to different formulations of chemicals and contaminations used in spraying.

One of the latest and widely quoted studies appeared in *The Lancet* in May 1982. "Do Phenoxy Herbicides Cause Cancer in Man?"³ They report that two Swedish case-control studies have shown an increase risk of soft-tissue sarcomas in man exposed to phenoxy herbicides and chlorophenols during their application. A high incidence of soft-tissue sarcomas has also been observed among workers employed in the manufacture of these products in the U.S.A.

One of the most exhaustive literature searches and well organized summary that our committee could find was produced by a Dalhousie second-year medical student, Erich R. Sperker. Our committee felt that the 18-page bibliography and tables contained so much information and is so balanced in its judgement that the commission would find this very helpful. We attached it to our report as Appendix A.

*Chairman: — Donald C. Brown, B.Sc., M.D., C.C.F.P., F.C.F.P., A.B.F.P.; Committee Members: (Forestry Sub-Committee), Ian Cappon, B.Sc., Ph.D.; John Crocker, M.D., F.R.C.P.(C); Charles B. MacLean, M.D., M.C.F.P.; John Savage, M.B., B.Ch., B.A.O.; William Thurlow, M.D., F.R.C.S.(C); Noel Williams, M.D., F.R.C.P.(C), F.A.C.P.

Since 2,4,-D and 2,4,5-T were first used commercially in the 1940s, a large volume of literature has built up describing their toxicity and efficacy. It is widely held that at least 40,000 scientific papers have been written on 2,4,5-T alone, with probably an equal number on 2,4-D. Also several thousand books on herbicides could be added to this figure, making the total volume of information difficult to "examine and collate."⁴

In recent years there have been many detailed reviews and summaries of the scientific literature on the toxicology of 2,4-D and 2,4,5-T. These have covered many hundreds of scientific papers, and were mostly carried out by panels of leading medical and scientific personnel. They formed the basis of the Queensland review.

Part of the difficulty of evaluating the literature is that the earlier studies and case reports were done in the 50s and 60s before it was possible to measure these chemicals in human tissues. They also were done when Agent Orange in Viet Nam and others had many more contaminants. eg: 1-70 parts per million of TCDD in old agents used 20-30 years ago. Now manufacturers can keep contaminants (dioxin) below 0.01 ppm. The chemicals used in Nova Scotia have 0.005 ppm.

Three large studies done by multidiscipline and scientific committees in the U.S.A., U.K.⁵ and Queensland, Australia all had similar findings and recommendations. The American Council of Science and Health in March 1981 recommended that the current use of 2,4,5-T in rice fields and rangeland be continued and the suspended use in forests, railways and highways and landscaping be reinstated. They concluded that there is insufficient evidence to support a ban on 2,4,5-T.

Laboratory evidence of the toxicity of 2,4,5-T in animals cannot be used reliably to predict human health risk. However, the laboratory data strongly suggest that 2,4,5-T, like other potentially hazardous chemicals, should continue to be regulated.⁶

The Australian committee reported that statistical studies on large populations have never substantiated any connection between the use of 2,4-D and 2,4,5-T and the incidence of health problems.⁴ Monitoring programs have shown that approved use of 2,4-D and 2,4,5-T is not a hazard to food and water quality.⁴

Many studies done by government agencies or companies are not refereed or published in the scientific literature. Our committee believes that data used to support the registration of chemicals should be reported in the refereed scientific literature, so it can be available and read by all.

Having reviewed the major review studies already mentioned, and those cited in the bibliography and Appendix B, on weight of evidence the committee agreed that if the dioxin contaminants are kept less than 0.01 ppm, then spraying with

2,4-D and 2,4,5-T represents a relatively low risk to the health of Nova Scotians.*

The whole committee recommends that when spraying is going on in an area that information on where, when, what and how be available to the local physicians.

SAFETY AND TRAINING OF FOREST WORKERS⁷

The scope of woods work in Nova Scotia is diverse. The range of work includes: Providing the raw materials for saw mills, pulpmills and lumber exporting companies; silviculture programs under the jurisdiction of the provincial and federal governments; land clearing for roads, agriculture or industrial expansion; the farmer supplementing his income by working his wood lands; and the individual cutting his own fire wood.

The woods worker is usually self-trained, or has received a minimum of training by his fellow-employees or employer. The Nova Scotia Government, in coordination with the Federal Government should strive to establish a standardized training program to enable the woods worker to do his job safely and efficiently.

This committee supports the efforts already started by the Nova Scotia Forest Products Association and the Commercial Safety College regarding training courses for forest workers.

We feel that additional training programs should be considered, such as:

- a) On job training of present forest workers by travelling instructors, to upgrade skills and reinforce safe and efficient forest practices;
- b) Introduction of forest workers training courses at the vocational school level; and
- c) A series of safety courses to be given at the community level to educate the casual chain saw user in forestry safety practices.

Chain Saws

The surgeon on the committee, Dr. William Thurlow, carried out a study of serious wood-related accidents. Approximately ninety percent (90%) of all woods accidents that come to the emergency room are handled by the family physician under local anaesthesia and usually have a good outcome. The other ten percent (10%) require referral to a surgeon.

For the three-year period January 1, 1980 to December 31, 1982, Digby General Hospital treated eleven serious chain saw accidents to woods workers, and these were reviewed by Dr. Thurlow. Seven out of the eleven suffered permanent crippling injury to limbs and only one has no permanent reminder of the accident.

As a result of this study, experience and a review of the literature, we recommend the following:

- a) The mandatory use of all safety equipments, i.e. hard hats, screens for eye protection, ear protection, safety pants, boots and gloves;
- b) The mandatory use of chain saws equipped with all safety devices;

*One committee member disagreed and considered the risk to be moderate even without the dioxin contaminant.

- c) That it be illegal to sell commercially or repair chain saws without proper safety devices;
- d) The mandatory use of the "buddy system" when working in the woods; and
- e) The establishment of appropriate laws to enforce proper safety measures in woods work.

With the inclusion of forestry under The Industrial Safety Act, many of the above recommendations are being introduced into the forest industry. We applaud this action and encourage close monitoring of the industry to insure its success.

This committee would like to make the following recommendations concerning training and safety of the forest workers:

- a) Development of formal training courses for the forest worker.
- b) Development of an upgrading on-site training program in coordination with employers.
- c) Development of local safety courses to educate the casual chain saw operator.
- d) Upgrading the status of the forest worker to higher skill levels.
- e) Enforcing the mandatory use of safety clothing, equipment and practices as outlined by The Industrial Safety Act.
- f) Ongoing research of safety equipment, clothing, tools, etc., and establishment of communication channels to filter this information to the people working in the woods.⁷

Insecticides and Pesticides

The committee recognizes the use of many types of chemicals in the forest industry. These include the major pesticide groups, the herbicides and the insecticides.

The organophosphates and carbamates are both cholinesterase inhibitors that have a major role to play as insecticides. They act physiologically, by blocking an important enzyme involved in the transmission of impulses through all nerves in the body in addition to the brain. This enzyme is called cholinesterase.

Transmission of nervous impulses from nerve cell to nerve cell involves a chemical mediator (acetylcholine) which carries "the message" across the gap (synapse) from one nerve cell to the next, thereby maintaining an electrochemical connection. It is essential, in normally functioning nerves, that the mediator be "deactivated" or broken down, once it has passed its message. Failure of this to happen would lead to an uncontrolled continuous "firing" of the nerves and, since nerves regulate body functions, this would lead to "chaos" of body functions. The enzyme responsible for breaking down acetylcholine in the synapse is called cholinesterase. What the organophosphates or carbamates do is "tie up" the cholinesterase so that it can't do its job. This leads to the uncontrolled "firing" of nerves just mentioned and the "chaos" of body functions.

Inhibition of cholinesterase enzyme by the organophosphate pesticides seems to be by far the most important manifestation of acute chronic toxicity produced by this class of compounds. This cholinesterase inhibition results in a

well-defined clinical pattern of intoxication which can be diagnosed readily. Specific therapeutic measures are available and, provided they are pressed into action with sufficient speed and vigour, are highly effective.

Carbamate insecticides are also cholinesterase inhibitors and, as with the organophosphate group, the toxic potential of some members of this group is very great.

As with any poisoning, the clinical picture of organophosphorous or carbamate intoxication is dependent on the route of exposure and rate of absorption as well as on the chemical nature of the specific chemical involved. It is important to point out that in addition to the more "conventional" routes of entry to the body (ingestion and inhalation), these compounds can enter in appreciable (and toxic) quantities by penetrating the intact skin. Indeed, this is the principle upon which the deadly "nerve gas" chemical weapons were developed. The nerve gases are close relatives of organophosphate insecticides.

Initial signs and symptoms of intoxication by organophosphates or carbamates include: headache, nausea, abdominal pain, vomiting, diarrhea, sweating and weakness. In more severe poisoning there may be salivation, lacrimation, shortness of breath, cyanosis, muscle fasciculation, convulsions, cardiac arrhythmias, shock, coma and death. Death is usually due to respiratory failure. Poisonings, with these consequences, have been reported for handlers and applicators of these insecticides while milder symptoms have been reported in people working in the "fallout" zone (i.e. people that are sprayed), for example, apple pickers.

Unlike the organochlorine group which are relatively stable, which persist in the environment and can accumulate in the human body and therefore provide the threat of chronic toxicity, the organophosphates and carbamates are relatively unstable, do not persist in the environment, do not accumulate in the human body and therefore provide the greatest risk for acute (as opposed to chronic) toxicity. Therefore the poisoning risk is greatest for those in closest contact with the highest concentration of the compounds (handlers, mixers and applicators) and becomes less for those exposed more distantly in place and time.

The Medical Society of Nova Scotia believes that the use of organophosphates or carbamates constitutes a significant occupational hazard, and as such, their use should be only under licensed, regulated conditions, by skilled workers who are adequately trained, equipped and who are knowledgeable in the dangers of such insecticide use (there are many reports of workers unwittingly poisoning themselves because they didn't know the dangers of the product they were handling). Furthermore, the use of organophosphates and carbamates represents a significant potential hazard to the health of those who might otherwise be exposed by being in the spray zone or fallout zone or by ingesting sprayed foods too soon after spraying.

We recognize that there are a large number of chemicals in the carbamate group, not all of which may not be mutagenic. However, the following six which have been associated with certain spray programs and shown to have some mutagenic potential:

Carbaryl — positive mutagenicity tests and positive teratogenicity results in animal experiments.

Acephate — positive on mutagenicity tests.

Fenitrothion—positive on mutagenicity testing.

Mexacarbate (Zectran) — insufficiently tested to determine if it is a mutagen, carcinogen or teratogen. Its solvent Nonylphenol has been demonstrated to be a viral enhancing agent and is extremely toxic to Atlantic salmon. Current aminocarb formulations contain 2¹/₂ times as much solvent as active ingredient.

Not all organophosphate or carbamate compounds are necessarily mutagenic or carcinogenic or teratogenic. However, testing of other chemicals in these groups should continue to be done to see if a safer anti-budworm chemical exists.

Accordingly, we recommend the following with respect to the use of organophosphate or carbamate insecticides by the forest industry:

- a) That the insecticides be used only when necessary to control acute outbreaks of pests otherwise uncontrollable, (e.g. at the peak of spruce budworm infestation) and not use the compounds "prophylactically".
- b) That compounds be used (within reason) that are least toxic to humans and that are relatively non-persistent in the environment. These chemicals would not necessarily be the most inexpensive. In other words, cost should not be the major determinant of the insecticide selected.
- c) That alternate methods (some of which are now well-tested) be used to control pests before resorting to pesticide use. These methods include the use of chemical attractants (pheromones), sterilizing male flies, use of specific insect predators, competitors, parasites (for example, B.T. which has been shown to be safe), and the avoidance of monoculture techniques in silviculture.
- d) That a reassessment of cost-effectiveness in the use of insecticides in general be instituted. In the total equation for cost-benefit, it is often (and wrongly) assumed that a chemical should be used and furthermore, that a cheap chemical should be used.

"Cost" does not mean just the cost of controlling insect pests or the consequences of not controlling them, but also the human cost in terms of morbidity and mortality. These costs are rarely given enough weight in the equation.

- e) That, in addition to better regulation of the use of insecticides, adequate warning be given to the public and particularly to medical practitioners in the areas to be sprayed. This "warning" should include, where, when, how, how much and what type of compound (the formulations) to be used.
- f) Research should be done on those members of these groups which are not mutagenic, especially those that are effective against the infestation problems in this part of the country.
- g) More medical input be put in place at the National Regulatory level of Pesticide Licencing and Testing.
- h) Accidental spills will necessitate that proper medical emergency measures remain available.

We conclude by stating that, in our opinion, the use of certain organophosphate or carbamate insecticides can be

relatively safe if the principles of minimal use, proper safeguards and regulations and warning as outlined in the above recommendations, are followed.

SUMMARY

The recommendations and conclusions have been presented at the end of each section of our presentation. Our committee had the Inverness-Victoria Medical Society report on "Health Effects of Herbicides 2,4-D and 2,4,5-T" which was presented to the Forestry Commission on January 16, 1983. The Medical Society of Nova Scotia endorses their well referenced report.⁸

Attached to our submission, was Appendix B which lists twenty-six other references considered by the committee. Both Appendices A and B as well as the Inverness-Victoria Medical Society report⁸, are available for perusal at the Medical Society office. □

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Obstetrical Ultrasound — Update 1984

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Diagnostic ultrasound has been in regular clinical use for the last 30 years. Progress has depended largely on advances in equipment.

In the early years, only A (amplitude)-mode was available. Reflected echoes were presented in bi-stable form in one dimension only. The first "great leap forward" came with B (brightness)-mode presented two-dimensionally. Crude images were visualized and were the subject of much disparagement. Neuhauser made the perceptive observation that if ultrasound had been developed prior to the discovery of x-rays in 1895, its true worth would have been immediately recognized.

The advent of gray scale furthered the recognition of tissue characteristics, but equipment was cumbersome, non-portable, and techniques were time-consuming.

A third major advance came with high resolution real-time imaging, which provided portability, ease of orientation, together with the capability of capturing motion. Conceptually, this advance can be likened to fluoroscopy with a tomographic beam. Video-tape recording of moving structures has become an integral part of the technique, similar to that of cine-film or video-tape recording of a fluoroscopic procedure.

The next major imaging advances to be anticipated are the presentation of three-dimensional images, perhaps with holography or computerized reconstruction, and refined tissue characterization.

There has been no recorded instance of damage to any human being which could be ascribed to ultrasonography. A pulsed beam is utilized, which by comparison with a continuous beam, gives only a tiny fraction of the energy per unit time to the tissues insonated. The transducer emits the pulse for approximately 0.1% of the time and "listens" for the remaining 99.9% of the time. This physical fact appears to have been largely responsible for a remarkable safety record. In Germany, a pregnant woman cannot claim family allowance subsidy without proof of at least one prenatal ultrasound examination.¹

Advances in Doppler ultrasonography have occurred despite its more limited application. It appears now that continuous-beam Doppler has specific advantages in data acquisition and presentation but involves much greater energy transfer to tissues per unit time. A pulsed-beam is safer but is more limited in data acquisition. It appears that future development of Doppler, linked to simultaneous two-dimensional imaging, EKG and M (motion)-mode strip chart recording, will be valuable in studies of the heart, great vessels, ductus arteriosus, carotid arteries, peripheral

vessels, surgical vascular grafts, fetal heart, placenta, umbilical cord and suspected twin-to-twin transfusion.

Present trends in the application of diagnostic ultrasound in the fetus, infant, and child can be considered logically by beginning with ovulation and fertilization. Ian Donald, pioneer and doyen of the Scottish school of obstetric ultrasonography, predicted important advances in this context in the present decade. We can now identify maturation of ovarian follicles occurring naturally or with artificial ovulants which tend to produce multiple mature ova. The problem of infertility is transformed with the prospect of multiple pregnancies. Recent studies, mainly from Australia and the U.K., have established the technique of *in vitro* fertilization, which involves the use of ultrasonography. This technique is now available in the U.S. and Canada. If it becomes allied to recent advances in genetic engineering, another of nature's oysters — or can of worms — will be ready for opening!

Ultrasonographic studies of the implanted zygote will identify location, number of gestational sacs, development of the placenta and membranes, presence of a living fetus or a "blighted ovum". Now, ultrasonographic examinations of clinically normal pregnancies are not usual in the first trimester, but important advances will likely occur in the near future. Early amnion rupture appears to be associated with major limb-trunk malformations which are invariably fatal.² Delay in early fetal growth in diabetic pregnancies indicates an increased risk of congenital malformations.³ The incidence of twin gestational sacs in early pregnancy is about twice the incidence at term; the early loss of one sac with preservation of the remaining fetus may explain instances of spontaneous bleeding in otherwise normal "singleton" pregnancies.⁴ Retention of a very small dead twin can explain elevated amniotic alphafetoprotein in the presence of a normal live "singleton" fetus. Molar pregnancy and missed abortion can be reliably identified with ultrasonography before 16 weeks, though a distinction between the two may not be accurate.

As fetal parts become identifiable, the crown-rump length of the first trimester embryo is replaced by measurement of individual parts. The fetal skull is the most readily identifiable part and remains so throughout pregnancy. The biparietal diameter (BPD) at about 12 weeks is important in dating gestation in approximately 25% of pregnancies with known last normal menstrual period.⁵ Other measurements which can be regularly obtained are the occipito-frontal diameter of the skull, the abdominal girth or diameter, and the length of the femur, other long bones, and the vertebral column. Serial measurements will establish normal or abnormal growth patterns for an individual fetus. Using a combination of measurements of the head and abdomen, the weight of the fetus can be estimated to within ± 150 gm.⁶ In a non-diabetic pregnancy a fetus with a BPD of 9.2 cms or greater will not develop respiratory distress syndrome.⁷

As fetal organogenesis becomes detectable, an impressive list of abnormalities and normal standards can be compiled and the following classification may be helpful:

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Central Nervous System

Normal measurements of the lateral cerebral ventricles have been charted from the 16th week of gestation onwards. Hydrocephalus can thus be recognized early, often months before the cranium enlarges. Anencephaly and iniencephaly are identifiable at 14-18 weeks. Regarding spina bifida, caution is in order, since lumbar spina bifida aperta may not be manifest until 20 weeks.⁸

Cardiovascular System

Cardiac dysrhythmias alone, or resulting in cardiac decompensation manifested by hydrops fetalis, have been identified and treated in utero.⁹ Four chamber and short axis great vessel projections can be obtained. Structural cardiac defects have been identified.⁹ Doppler studies linked to two-dimensional imaging, cardiogram, and M-mode strip chart recordings have promise.

Gastrointestinal System

Since the fetus normally swallows amniotic fluid, obstructive lesions such as duodenal atresia and small bowel atresia can be diagnosed. The observation of hyperperistalsis in the obstructed bowel differentiates the loops from renal cystic conditions. Even meconium ileus progressing to perforation (the sudden appearance of ascites) has been diagnosed and emergency caesarean section performed.¹⁰ The diagnosis of fetal diaphragmatic hernia has also been reported.¹¹

Protrusion of Viscera

Omphalocele, gastroschisis, and ectopia cordis have been diagnosed.

Urinary Tract

Renal function as evident from a urine-filled bladder is recognizable in the second trimester. Potter syndrome with anuria can often be suspected at this time. Infantile polycystic disease — a lethal renal disorder — may be associated with some urine formation; in this condition the kidneys have been observed to triple their size in a two-week period at about 20 weeks gestation.¹² This is an intriguing observation, since these kidneys are not always strikingly large in the infant.

Musculo-skeletal System

Lethal and non-lethal forms of dwarfism have been diagnosed in the fetus. Polydactyly and cleft palate, which may be isolated or part of various syndromes, have been identified as may be joint contractures and dislocations.

Miscellaneous

Sacrocoxygeal teratoma, midline teratoma and goitre have been diagnosed.

Fluid Collections

Anasarca, ascites, pleural and pericardial effusions, cystic hygroma (often accompanying Turner syndrome) have been reported in the second and third trimesters. Pleural effusions, for example in chylothorax, with consequent pulmonary hypoplasia in the third trimester, are easy to recognize ultrasonographically.

Sex of the Fetus

It is important to establish the sex in certain genetic disorders, e.g. x-linked aqueduct stenosis, a recessive disorder presenting in males. Amniocentesis is the most reliable method of sex determination.

Multiple pregnancy

Twins are known to each have a smaller BPD than singletons. This has been established from the 16th week of gestation onwards. Twin-to-twin transfusion may be clarified in the future with Doppler studies.

Biophysical Profile

This is the name given to a composite assessment based on fetal movement, tone, reactivity, breathing movements and volume of amniotic fluid in the third trimester. In the absence of structural defects in the fetus, an abnormal result is usually interpreted as evidence of intrauterine asphyxia. Such asphyxia accounts for 35% of all perinatal deaths and over 80% of structurally normal still-births.¹³ Using this method in the detection and treatment of fetal asphyxia, the perinatal mortality rate (excluding major anomalies) has dropped from 12 per 1000 to less than 4 per 1000.¹³

Placenta

Grade III maturity changes in a non-diabetic pregnancy have almost never been associated with respiratory distress syndrome in the infant.¹⁴ Studies of abruptio have revealed an evolutionary process which may be manifested by the formation of subchorionic hematoma, intraplacental hematoma restricted to one or more cotyledons, and peripheral separation of the placental margin with organized clot.¹³ Location and morphology are now readily displayed. Studies of placental circulation with advanced Doppler techniques are on the horizon.

Umbilical Cord

A normally pulsating cord containing two arteries and one vein is often visualized. A single umbilical artery suggests associated abnormalities. Cord presentation and the risk of cord prolapse can be identified. Doppler studies of umbilical cord blood flow have an intriguing future.

Amniotic Fluid

Oligohydramnios and polyhydramnios are readily diagnosed, and a search for associated abnormalities is usually revealing. The presence of floating fragments of vernix caseosa is a normal finding as early as 24 weeks. Meconium in the hind-waters has been visualized just prior to labour. Chorio-amnionitis and membranous bands have the potential for being recognized ultrasonographically.

INTERVENTIONAL PROCEDURES

Amniocentesis is more refined when performed immediately after or simultaneously with ultrasonography. Fetal sensitization to Rh factor is reported after some amniocenteses. Intrauterine transfusion is now done expeditiously with real-time ultrasonography since the needle-catheter assembly can be seen as it enters the fetal abdomen.

Fetoscopy combined with blood and tissue sampling is now regularly performed with the aid of ultrasonography.

Intrauterine surgery is now a practical possibility. In animals, surgical correction has been performed in the fetus for diaphragmatic hernia, gastroschisis, and spina bifida.¹⁵ In the human fetus, hydrocephalus and obstructive uropathy have been the subject of successful surgical drainage.¹⁵ Selective termination of the life of one twin with Hurler syndrome at 24 weeks gestation and preservation of the remaining unaffected co-twin has been successfully performed.¹⁶

IN THE INFANT AND CHILD

In the newborn, particularly the small premature infant, most recent advances have been in cerebral, cardiac, and abdominal imaging. As portable equipment has become available, life-support systems are left undisturbed; sedation and transportation are avoided. For cerebral imaging, ultrasonography is now established as the initial approach; computed tomography (CT) is used in undiagnosed or complicated intracranial conditions. Patent ductus arteriosus in the very small premature infant is, however, difficult to diagnose, but Doppler techniques may hold real promise in this context. Certain abdominal conditions such as hydrops of the gallbladder, and hypertrophic pyloric stenosis are becoming recognizable.

In the infant and child, ultrasonography is even more valuable than in the adult, since the relative absence of retroperitoneal fat, the need for sedation or general anesthesia and the relatively greater hazards of ionizing radiation in the young all cause it to be preferred to CT. Ultrasonographic guidance of aspiration and aspiration biopsy of certain lesions may be used in children as well as in adults.

CONCLUSION

The advances described may be judged best according to the changes they prompt in the management of individual patients. It is clear that the greatest potential for radical changes in management are as follows:

- a) in ovulation and fertilization;
- b) in the identification of conditions, in the first and second trimester, where consideration of termination of pregnancy is valid;
- c) in the recognition of fetal and placental conditions in the third trimester which may require transfer of the patient to a centre equipped for pediatric surgery;
- d) in the newborn infant, especially when premature, with suspected intracranial and abdominal disease;
- e) in diseases of the heart and great vessels at all ages and it is here that Doppler ultrasonography has special application;
- f) in aspiration and aspiration biopsy of appropriate lesions.

As equipment becomes more refined, with increasing capability for tissue characterization, Doppler, and three-dimensional imaging, the functions of data acquisition manipulation and analysis will inevitably become more costly and more complicated.

More costly — yes, though if one considers the cost to society of just one life-time in a wheelchair, which might have been prevented, a certain perspective will be gained.

More complicated — yes, however the complexity will challenge physicians to maintain an ever-enquiring mind in exploring new techniques and in constantly upgrading their skills and knowledge. I have every confidence that this challenge will be successfully met as in the past.

These trends will also challenge medical administrators and funding agencies to maintain a continuous program of upgrading equipment in order to preserve the present high standards of health care to our patients. □

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Caring for Mentally Ill People in Nova Scotia

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It has been well established now by psychiatric epidemiologists that between 15% and 25% of the population suffer from mental illnesses, that primary care-givers carry a large part of the burden for this care, and that a considerable number of mentally ill people receive no formal care of any kind. These findings pose problems regarding the adequacy of the mental health services, regarding the kind of treatment being provided by primary care-givers and regarding the contributions being made by academic psychiatry. It is evident that much improved levels of cooperation and coordination are needed among all these professionals and that, to achieve this, a consensus on priorities is essential. The present article outlines some of the obstacles that stand in the way of such consensus and suggests steps for overcoming some of them. It is thought that primary care-givers could play a leading role in bringing about this progress.

INTRODUCTION

Epidemiologic research in psychiatry has yielded three major findings that have bearing on the practice of primary care — that is, on the work of general practitioners and family physicians.

1. The overall prevalence rate of clinically definable mental illnesses in the population at large is much higher than expected. Studies conducted in the United Kingdom, United States, Norway, Sweden, and numerous other countries, show prevalence rates that range from about 15% to about 25%.^{1,2,3} [ref. 1, pg. 13; ref. 2, pg. 691]. Data from Nova Scotia indicate a rate of about 20%, in other words the middle of the range.⁴

The size of these numbers immediately raises questions of validity. During the last thirty years, and particularly during the last fifteen, there has been a growing effort to render diagnoses in psychiatry more standardized and objective. One can therefore now say justifiably that the illnesses reflected in the above rates are those recognized by practising physicians and exclude the milder reactive conditions that are sometimes referred to as "worried well" or as being "problems of living". In the main, the criteria for inclusion are those of the International Classification of Diseases-9 and the Diagnostic and Statistical Manual-III of the American Psychiatric Association.

2. If the prevalence rates are accepted as clinically valid, they at once prompt questions about what kind of care all

these individuals are receiving and from whom. Answers to this constitute a second major set of epidemiologic findings: More people with mental illnesses are seen by general practitioners and family physicians than are seen by specialists.^{5,6,7} [ref. 5, pg. 115]. Thus, at a given time, some 2-3% of the population are being seen by psychiatric mental health services, while primary care-givers are seeing two or three times that many people with mental illnesses. In other words, although the psychiatrist spends all of his clinical hours seeing mentally ill people and the primary care-giver spends only part of his time in that way, nevertheless the primary care-giver sees a larger proportion of the mentally ill people in the population.

It may be noted also that a large amount of co-occurrence takes place among psychiatric and organic illnesses. About half of those people who have mental illnesses also have organic illnesses of serious proportions [ref. 2, pg. 692].

3. The final major finding chosen for mention here is that a sizeable portion of mentally ill individuals are not receiving treatment from either primary care-giver or psychiatrist. We would estimate this to be something in the order of 8% of the population. Many of these, furthermore, have chronic mental illnesses and are markedly impaired.⁸

Such findings need to be considered in the light of a number of background factors.

1. In no country, including Canada, have the plans for mental health services been drawn up in terms that, given the prevalence rates, are realistic. All services are far short of meeting the needs revealed by the figures, with the result that large numbers of mentally ill people are now underserved, badly served, or not served at all. There is also reason to suspect that the least ill consume a disproportionate amount of the resources available.

2. In many places, some members of the mental health professions have put distance between themselves and medicine, numbers of them strongly advocating that the mental health field should be "de-medicalized". Obviously, this does not take account of the fact that half of all mentally ill people have one or more serious organic disorders, nor of the fact that many more mentally ill people are now being treated for mental illnesses by primary care-givers than by mental health professionals. It is evident also that the mental health professions would be overwhelmed if they were to undertake responsibility for treating all those mentally ill individuals who are now being treated by general physicians, and if in addition, they were to turn attention to those who are not now being cared for by either the mental health or the medical care-givers.

3. Psychiatrists by and large are people who have sought training in order to practice one-to-one private psychiatry rather than to take responsibility for all the varied mental illnesses and varied social circumstances of a mental health clinic's catchment area. As a consequence, they are

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provided with little or no training in how to do consultation with other kinds of mental health professionals or with primary care givers; and they are provided with little understanding of the group phenomena and administrative processes with which they later come in almost daily contact if they work in a community clinic or centre. There are, of course, numbers of psychiatrists who understand these things well, but in the main they have had to learn for themselves, after — not during — their residencies.

4. The kind of psychiatry taught to medical students and interns, while it has much about it that is basic and essential, usually does not go the further necessary step of teaching them how to deal with the kinds of mixed psychiatric, organic, and social problems that will make up a large part of their future practices.

5. The stresses and strains in modern society, including its susceptibility to economic recessions, call for the rationalization of mental illness services and the development of much greater cost-effectiveness. The achievement of this will require considerably more cooperation and coordination than currently exist among all the participating professions.

When the three major epidemiologic findings and the five background factors are considered together, several clusters of serious questions arise. Some of these clusters may be described as follows:

- 1) Questions about the distribution of the mental health services in the population, particularly with regard to the availability of services and the appropriateness of what is offered;
- 2) Questions about the quality of the psychiatry practised by general physicians and other primary care-givers;
- 3) Questions about the kind of training provided by Departments of Psychiatry in Schools of Medicine, both to specialists and to primary care-givers, before and after graduation; and
- 4) Questions about provincial mental health policies and the administration of mental health services.

It is obvious that these questions call for answers, and equally it is obvious that whoever attempts to deal with them will face many challenges. In what follows we shall discuss three different sets of challenges: those characteristic of the mental health field; those found among the general and family practitioners; and those attributable to academic psychiatry. At the end, we shall offer suggestions regarding some of the steps that might be taken toward obviating.

The Mental Health Field

Nova Scotia has a distinguished record of concern for people with mental illnesses. It is one that goes back almost a hundred and fifty years and it has risen to a particularly high level three times: once around the middle of the nineteenth century; again between the two world wars; and yet again after World War II. The far-sighted nature of the latter period is reflected in the fact that as early as 1944, the Nova Scotia Commission on Provincial Development and Rehabilitation stated, with regard to mental illnesses:

It should be possible gradually to transfer the emphasis of the total program from the purely institutional and treatment side, as it affects those who are already mentally ill, to the preventive and clinical approach which concentrates on early diagnosis, early discovery of

incipient cases and preventive treatment which is designed to cut down the need for later institutional care [ref. 1, pg. 50].

During the nineteen-fifties, under the leadership of Dr. Clyde Marshall, the program of community mental health clinics was developed, so that by 1963 when President Kennedy initiated the Community Mental Health Centers Program in the United States, Nova Scotia already had in place nine of its ten projected centres. These were intended to make mental health services available to every part of the Province [ref. 1, pgs. 23-69].

Yet, despite this foresighted, early start, the community programs in the Province have not been able to avoid the serious difficulties that later hampered similar programs in other provinces and states. Early start seems to have meant mainly early encounter.

One set of problems has to do with the fact that the mental health field is ill-defined. By this we mean lack of agreement about both boundaries and content among specialists, the medical profession, the public more generally, and government policy makers. As a consequence, the number and variety of goals set forth and promoted by individuals, groups, and governments have been unmanageable.

This is still the case. At the annual meeting of the American Psychopathological Association in March 1983, for example, several speakers referred to there being now over 250 forms of psychotherapy, each distinguished by a specific name. Many of these are vigorously pushed by their advocates, and yet it is obvious that the task of establishing programs for all of them is beyond the economic and manpower resources of this or, indeed, any other society.

In addition to being too ill-defined and too numerous, the goals of the mental health field are often incompatible due to being based on quite different philosophies and theories. Some, for instance, focus on the diagnosis and treatment of medically defined disorders, while others reject or ignore the concept of medical disorder and focus on the enrichment and enhancement of personality and on psychological well-being. Further, it is evident that some of the goals pursued in the mental health field are purely speculative or ideological, and lack supporting scientific evidence. Yet, these often appear to have the same standing as goals for which there is a reasonable degree of scientific support.

Recently in his presidential address to the American Academy of Psychoanalysis, John P. Spiegel observed in regard to that organization that it, as a

field of theory and practice designed to deal with conflict, is itself troubled with conflict, uncertain of its stability and future directions, and faced with diminishing prestige in the public eye. Its problems are manifold and chaotic.⁹

Finally, there is the question of which goals in the mental health field belong within the budgetary framework of government supported medical services. Some clearly do, but with regard to others, despite their being humane and admirable, serious questions must be raised about suitability. For example, might not programs focussed on enrichment of life and on social improvements be located more appropriately in social service, education, or community development programs? Or in voluntary organizations? As things are now, the psychiatric medical dollar often fails to reach people in need because it is being spent for other things.

In viewing these flaws in the mental health field, it is important that one not lose from view two other major attributes. One is the very real magnitude of the confronting problems, and the other is the very high degree of humane feeling and sincere desire to relieve suffering and improve the quality of life that has always pervaded the field. It is an area of human endeavour in which many people have struggled for years and years with great courage and goodwill.

Nevertheless, despite genuineness of intentions, the confused multiple goals have had an adverse effect on the organization and functioning of mental health centres and clinics. Because of strong differences of opinion among staff members, coordination and effective teamwork have often been lacking. Such differences, combined with the scarcity of adequately trained personnel of all kinds, has made the administration of mental health clinics exceedingly difficult and has led to troubling questions regarding the adequacy of the services provided.

THE PRIMARY CARE-GIVER

Turning now to the primary care-giver, he on his side has brought additional problems into the picture. While numbers of general practitioners are exceedingly competent in the way they diagnose, treat, or refer patients with mental illnesses, others dislike dealing with these individuals and avoid them as much as possible. Most physicians, of course, are between the two extremes, which means that overall they show some uneasiness and lack of consistency in dealing with mentally ill people. Numbers of physicians also hold negative attitudes toward non-medical mental health professionals — those in social work and psychology — and may even regard the psychiatrist himself as something less than a real doctor.

Ambivalence toward mental illnesses and lack of training in this field have their effect on the quality of care given by general practitioners. A recent paper based on a U.S. national sample shows a high rate of people with major depressions taking anti-anxiety medications and of infrequent use of anti-anxiety medications by people who do have general anxiety. The authors conclude that "... the majority of persons with serious psychiatric disorders still do not receive treatment, or the most appropriate treatment".¹⁰

Another set of complications arises from medicine's effort to preserve as much independence as possible from external control. Many physicians do not like it when psychiatrists in mental health centres are directly supported by the government on salaries. Objection has also been expressed by physicians to situations in which non-medical health professionals occupy administrative positions that give them power over doctors, and in which lay boards of directors have the authority, at least nominally, to hire and fire medical personnel. These feelings have all helped put distance between primary care-givers and mental health services.

Such attitudes and kinds of problems are far from limited to Canada, as indicated in the history of the community mental health centres in the United States. The scheme President Kennedy had a mind in 1963 was one in which "Private physicians, including general practitioners, psychiatrists and other medical specialists, would all be able to participate directly and cooperatively in the work of the center".¹¹ Not only did participation by private physicians fail to materialize, but there was an additional disappointment regarding

medical presence when the proportion of psychiatrists in the centers dropped markedly, leaving them for the most part manned by other mental health professionals.

ACADEMIC PSYCHIATRY

We come now to the fact that academic psychiatry has not so far offered as much help as it might either to mental health staffs or to general physicians in their coping with mental illnesses. This is despite the fact that psychiatry has traditionally taken pride in its concern for the "whole person", and has advocated an interdisciplinary team approach to assessment and therapy. Some of the reason for this absence of a constructive influence can be attributed to the concentration of academic psychiatry in large urban areas. In other words, it is part of a world-wide phenomenon whereby professionals pile up in metropolitan centres and leave other areas underserved.

In addition, however, is the fact that, until very recently at least, psychiatric trainees have demanded more than anything else that they be prepared for one-to-one psychotherapy and be made thoroughly acquainted with the relevant dynamic theories. Knowledge and skill in the use of medications is now also a *sine qua non*, but interest in the widening public health, social, community, and policy aspects of psychiatry remains comparatively small. Because trainees can vote with their feet and move elsewhere, this situation places constraints on departments of psychiatry and limits their ability to assert leadership in these latter aspects of psychiatric education. At the same time, however, it must be admitted that academic psychiatry is largely staffed by people whose goals and ideals are very similar to those of the residents, and that a self-confirming cycle has been established as former residents become academics.

Nevertheless, it seems fairly certain that the present situation cannot last much longer. This is only in part because psychiatric epidemiologic research will continue with greater and greater precision to demonstrate the maldistribution and skewed emphasis of the services now being provided to society by the mental health professions. It is also bound to come sooner or later from the public's reaction to these deficiencies. Such reactions will most certainly include demands for better targeted services, a more rational and coordinated distribution of work among the mental health and general medical professions, and lower costs. We do not think that one-to-one psychodynamic therapy will disappear, but we do believe that searching questions will be raised about its cost effectiveness and therefore about its most appropriate place in government budgets. Career opportunities in other kinds of psychiatry are, we think, going to become more common. This in turn will make it more feasible for academic psychiatry to broaden the range of the training it offers, and to prepare better its residents for working with other mental health professionals in correcting the imbalances and fulfilling the opportunities that lie in the mental health field.

SUGGESTION FOR ACTION

What we have said so far is perhaps sufficient to render three things clear: 1) The epidemiologic findings call for realignment and improved coordination among all the professions involved in caring for people with mental illnesses; 2) The primary care-givers have an important part to play; and 3) Serious obstacles remain to be overcome if

change is to be accomplished in a way that will benefit both the people who are mentally ill and the care-givers. The mental health professions, the primary care-givers, academic psychiatry and government are inevitably involved.

Speaking from the viewpoint of academic psychiatry, we think the time is now ripe for this field to become active in combatting its isolation and to offer programs that would be both valuable and practically available to all psychiatrists wherever located, and to the primary care-givers in their work with psychiatric patients. The resident training program of the Department of Psychiatry at Dalhousie is a potential source of supplemental staff who could be made available to all parts of the Province, and who could help mitigate some of the recruiting problems of the mental health clinics and, at the same time, help them become more attuned to the interests and needs of general practitioners and family physicians. As a result, communication, coordination and cooperation between centres and primary care-givers might be facilitated.

With regard to the primary care-givers, we would like to suggest the desirability of their clarifying just what kinds of mental illnesses are most appropriate for them to treat. This could be done through establishing a task force and developing a position paper. A scale of priorities would be of central importance in such a paper and it is fortunate today that psychiatry has some resources to offer that were not available in the past. Among these is the current surge of interest in nosology that has arisen during recent years and taken specific shape in DSM-III. There is a helpful, implicit hierarchy of seriousness among some of the resultant diagnostic categories so that schizophrenia, for example, is more serious than anxiety due to the fact that the prognosis is by and large much worse. DSM-III categories, therefore, could be taken as one set of criteria in terms of which priorities could be defined and weighted, and from this some clarification achieved regarding the primary care-giver's role.

In addition to clinical type, another set of criteria could focus on degree and duration of disability. Today, many more disabled patients are being treated on an ambulatory basis than formerly. At what point does the dividing line come between those who should be cared for by general and family physicians and those who should be looked after by specialists? — or handled through the combination of both?

The treatability of the different categories of mental illnesses constitutes another set of criteria. As is well known, there are now some medications and forms of treatment, such as chlorpromazine, lithium and behaviour modification, that are effective with a significant proportion of cases in some of the diagnostic categories. The question arises therefore: What treatments are feasible and appropriate for primary care-givers to offer?

The prevalence and incidence of disorders in the population provides the basis for still another group of criteria. These could be based on the common sense notion that, other criteria aside, the more widespread a disorder in the population, the more it should command attention. Anxieties and depressions are by far the most common categories of disorders, affecting about 12% of the population, or three-fifths of the total of all mental illnesses. It is no surprise, therefore, that they make up a considerable part of the primary care givers' practice. What should be the criteria for determining which cases it is most appropriate for him to treat?

In making these suggestions for developing priorities and criteria, we do not underestimate the disagreements that will arise among primary care givers and mental health professionals. There are, however, grounds for some optimism that in time these can be overcome. Many of those in the mental health field are much more aware now than formerly of its short comings; primary care-givers are moving toward more frank, less evasive and less idiosyncratic ways of dealing with mental illnesses; academic psychiatry is becoming more objective and less ideological; and epidemiology has developed to a point where it is now capable of gathering useful information about the distribution of mental illnesses in populations, about the factors associated with them, and about the impact of mental health services on their courses and outcomes.

The manner in which DSM-III was developed offers a model of a process whereby agreement on criteria and priorities might be achieved. Many prophets, including ourselves, would have said that the consensus represented by DSM-III was impossible. Yet Spitzer and his colleagues through a process of successive approximations, through meetings among all groups interested, whether in favour or in opposition, eventually were able to hammer out a consensus which, while not universal, was large enough to permit major advances in treatment, teaching, administration, and research. Something similar can be done with priorities, and in rationalizing the distribution of mentally ill people among the various kinds of care-givers.

Coordination among all these professions is needed in order to provide more effective care for the large numbers of mentally ill people we now know exist. There is also a possibility that such improved coordination will have benefits for many primary care-givers. This is not only in terms of more available and suitable psychiatric and psychologic consultation, but also through practical aid from mental health social workers and nurses. The primary care-giver might thus arrive at more satisfaction and accomplishment in an aspect of this work that he or she is in any case now already deeply into. □

ACKNOWLEDGEMENTS

Grateful acknowledgement is made to Health and Welfare Canada for support under National Health Research and Development grants 603-1042-48 and 6603-1145-44, and to the Sandoz Foundation. We also wish to thank Jocelyn LeClerc for work in preparing the manuscript.

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A Unique Case of Anorexia Nervosa with Muscular Dystrophy: Creative and Imaginative Psycho-Social Interventions Required

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Anorexia Nervosa is a complex syndrome. With its prevalence increasing, it has recently become the focus of much attention in both the psychiatric literature and public forums. There is particular complexity in its etiology and management with importance given to biological, psychological and sociological factors.

Newer theories have largely supplanted the psycho-analytic theories of fear of oral impregnation. A.A. Crisp, in London, speaks of "phobic avoidance" associated with the biological changes of puberty and the "terror of its social consequence" which include the sexual tensions and subsequent "desperate need to control". Hilde Bruch emphasizes the pervasive "paralyzing sense of ineffectiveness" with a struggle to gain a sense of control and personal identity. The dynamic considerations are often interwoven within a matrix of family constellations that thwart individuation and a personality of an obsessive above-average achiever. Garfinkel has noted that "cultural pressure to assume a thin body is one of the factors facilitating the development of anorexia nervosa in vulnerable adolescents". He also noted a marked increased prevalence in professional students.

Investigation continues for an increased comprehension of the disorder. The biological manifestations of endocrine changes with disturbances of body image and internal signals continue to be explored. The necessity of looking for subtypes, such as, primary versus secondary and the "ominous variant" of bulimic nervosa has been noted. Consideration is also given to the conceptualizations of anorexia nervosa as an affective variant or a borderline phenomena.

R.T. is an intelligent, articulate twenty-two year old single female. At nine years of age she was diagnosed with Muscular Dystrophy and has been confined to a wheelchair since the age of fifteen. Currently, R.T. can feed herself, write and turn over to her side, but otherwise, she is completely dependent for dressing and transfer. She lives in an apartment adjoining another shared by her parents and sibling.

R.T. developed classical symptoms of anorexia nervosa. She had a weight loss of approximately forty-five per cent which "began insidiously" six years previous to her hospitalization and subsequent diagnosis. At that time she weighed one hundred thirty pounds. Four years later she

weighed one hundred twenty pounds and of late, was admitted to our psychiatric unit with a weight of seventy-two pounds. Peculiar behaviours toward losing weight and handling food were noted. Examples included pushing on her stomach in the efforts to initiate more than twenty bowel movements per day, calorie counting a five hundred calorie maximum intake per day yet, at the same time, demonstrating great interest in recipes and supervising extravagant meals. Around the dinner table she would break up her muffins in tiny little pieces, "like a little racoon", however, she would also have the occasional eating binge. R.T. compulsively exercised by pushing her wheelchair as much as ten hours per day. She had a distorted body image and a fear of becoming obese. She also had secondary amenorrhea for three years. One feature of anorexia nervosa R.T. did not have, however, was the usual denial of illness. Consequently, clinical opinion was that at least one facet of her illness was a cry for help.

Many typical dynamics were present. Her sense of ineffectiveness was exemplified by such statements as feeling "boxed in", "I can't control my circumstances" and a wish to "gain some independence". Controlling made her "feel more like a normal person". She, therefore, stressed eating as "something I can still do myself". She feared obesity and felt that people perceived physical appearance important and stated, "Since I'm already in a wheelchair, I want the rest to be right". She talked superficially of sexual concerns. It was her feeling that she had to be realistic regarding the issue of never having a boyfriend. Interpretation of an administered Thematic Apperception Test (TAT) indicated denial of all aspects of sexuality and heterosexual relationships. The impression of an obsessive compulsive personality was congruent with her habit of compiling a one week list for daily activities. R.T.'s father was described as extremely dedicated to helping his children, but perceived as "aloof" and "scared" regarding direct physical care and emotional support. Her mother balanced "taking too much responsibility" with her "anger at the situation".

Despite the many typical dynamics of anorexia nervosa featured, salience must be given to the psycho-social restrictions imposed by the muscular dystrophy which forced a dependent situation with decreased social opportunities. R.T.'s sense of effectiveness could not help but be disrupted with the physical problems, lack of physical enjoyments, little social contacts, denial of usual sexual opportunities and lack of external modes for ventilating anger. She has never had a job. Despite her intelligence, R.T. could not proceed beyond grade nine due to the limitations of the educational system. The demands and restrictions of her family were and continue to be enormous. The psychological impact of her anticipated death in her mid teens and her fear of an

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expected transfer to a nursing home at the age of thirteen was incalculable. Even R.T.'s symptom presentation was affected by the muscular dystrophy as she had to push on her stomach to attempt initiation of bowel movements as she was physically unable to obtain laxatives.

Biological, psychological and social environment therapies are obviously required for the management of such a complex problem. It is sufficient to say while in hospital R.T. received a multimodal treatment approach. Such an approach included close observation of her physical and biochemical status, a behavioural program of contingency conditioning, chlorpromazine, 25 mg per b.i.d. and individual and family psychotherapy. This resulted in an eighteen pound weight gain in a four week time period, and a physically healthier patient who evidenced increased insight, self-esteem and hope for the future.

The social-environment limitations, however, posed a more formidable problem which required avenues of help that departed from the routine use of community resources.

Equipped with increased insight, self-esteem and the knowledge that she was no longer living on "borrowed time" but, in fact, had a potential life existence of another ten to twenty years, R.T. had aspirations and a determinism to dramatically change her former life style.

Prior to her hospitalization, enjoyable activities of a typical day were articulated to include listening to records, writing in her journal, viewing documentaries and news programs on television and conversing with other family members. All such activities were perceived as passive and confined to the physical/social world of the apartment. Any excursion outside the setting, such as, 'dining in a restaurant, attending a play or shopping in commercial stores' was organized and conducted with family members and, as such, not frequent events. Outside social relationships were friends of the whole family, none particular to R.T. Little opportunity, was, therefore given for her to have any sense of individuation, interaction or mastery with or over her environment. Thus the process of her everyday life remained static.

Edwards *et al.* describe self estrangement as occurring:

"when we are not what we really could be — when we cannot love, play, run, work, spiritualize, relate, empathize as much as our potential allows"

At the time of discharge, R.T. was still limited to the primary role definitions of sister, daughter, patient and occasional family friend.

Congruent with discharge plans of providing R.T. with opportunities to gain a sense of effectiveness, independence and individuation, she was enthusiastic to realize her potential by procuring volunteer work outside of the home and attending university a few months later. A motorized wheelchair was obtained from a local organization to increase accessibility and provide her with maximum control of her own mobility.

Following a few frustrated and unsuccessful initial attempts by R.T. and members of her family to actualize her dreams, it was soon realized by professionals involved that without imagination, creativity and deviance from routine process and procedure, no alternatives were available for R.T. to integrate in an expanded social and physical environment.

Continually, those involved were and continue to be faced with the obstacles of prevalent social attitudes, architectural barriers, bureaucratic system regulations, ignorance of authority process, and procedure, lack of awareness of special needs and R.T.'s previous social conditioning.

R.T. had been encouraged to independently acquire volunteer work herself. She attempted twice. In her first attempt she was informed she was not suitable to work with needy, lonely individuals because of limited mobility. No consideration was given to the value of a potential personal relationship. She was disappointed and very discouraged following her second attempt. In this instance she discovered she would not be able to do the work due to the physical barriers in the building concerned.

Rollo May maintains: "the struggles with limits is actually the source of creative productions" and emphasizes that "our perception is determined by our imagination as well as the empirical facts of the outside world". His definition of imagination follows:

"It is the capacity to dream dreams and see visions, to consider diverse possibilities, and to endure the tension involved in holding these possibilities before one's attention."

Social work intervention was required to utilize such perceptions and skills. Efforts were also continually made to teach and encourage R.T. to also acquire and utilize creative and imaginative problem-solving abilities.

Volunteer work was acquired for R.T. through the process of personal networking rather than the normative formal application and referral process. The architecture of the building was most inaccessible for wheelchair access, however, the workers involved did not perceive any difficulty with the problem and routinely carried R.T. in her wheelchair with her bravery and direction up the steep, very long staircase. Complete assurance was also given by these personnel that they were quite prepared to communicate with R.T.'s mother by telephone, and immediately avail themselves for R.T.'s arrival, thus providing the opportunity for her to travel independently from the apartment to the office by a municipal transportation service equipped specifically for wheelchair transport. This was R.T.'s first solitary venture to the outside world.

It was hoped that R.T.'s pervasive sense of personal powerlessness could be altered. She frequently complained and expressed anger with the poor treatment she had received in the past. Particular was an institution of physical care in which she had recently resided. She saw no avenue to effect or influence any change.

Friere explains:

"As long as a reality is perceived as immutable and superior to the controlling powers of the people who perceive it that way, the tendency of such people is to take a fatalistic and disposing stance."

In the attempt to alter such perceptions, R.T. was instructed in the methods of advocacy writing and encouraged to compose a letter to the facility stressing the importance of her observations and experience with its resultant emotions with the purpose of advocating for change for future residents. This exercise also planted the perceptual seed that with persistence, rules, systems and procedures could possibly be altered.

R.T. confronted a 'bureaucratic maze' in her efforts to attend university. She did not meet any of the age or academic requirements for university entrance. She was considered too young for mature student status and the special high school equivalency examination which R.T. had written and passed was not recognized as valid. After numerous meetings and communications with various academic officials, R.T. was finally advised to 'prove her worth' by completing a non-credit course in the summer months at the university. She did this successfully achieving an A in the course, and gaining admittance to the full degree program.

Financial assistance was equally as difficult to attain until particular government officials were approached to consider and respond to R.T.'s special circumstances and needs. R.T. reflected on these administrative entanglements and stated, "The people involved were all very human, however, with the system you have to be A, B, or C, not D."

It was felt before R.T. could enter the academic environment that she required social introduction and assimilation with a university peer population. No organized system or agency provided such an opportunity or service. A volunteer with particular personality characteristics and attitudes amicable to R.T. was, therefore, requested from the Volunteer Department of the Out-patient Psychiatric Department, to meet the challenge of the task in her own unique way. The matching was a great success. The enthusiastic and outgoing volunteer, a medical student, quickly became a friend and introduced R.T. to her own network of friends and acquaintances. Within a very short time R.T. was attending student organized parties, venturing the streets of Halifax in her wheelchair, and comfortably meeting friends for lunch in restaurants.

Special considerations and adaptations to compensate for the problems unique to R.T.'s physical disability were required in order for her to attempt successfully and complete the academic challenges in and outside of the university setting. A personal attendant, acquired by the family through their own relationship network, accompanied R.T. to and from the home, in and out of the library, cafeteria and classrooms. The person provided psychological assurance as well as acted as a human physical extension for R.T.'s constraints. Disadvantaged by her manual limitations, special provisions were made for her to write her examinations outside of the location and time limitations imposed on the other able-bodied students. Her mother continued to play a primary role in the home for R.T.'s academic endeavours, acting as a typist for R.T.'s dictations. R.T. completed the full academic year achieving A's in all her courses.

As she explored and integrated an expanded social/physical environment the goals of increased individuation, independency and effectiveness were achieved to some extent following a consistent process. With each unique exploration R.T. likened the chronically ill patients studied by Coulton:

"Those who preferred order and clarity seemed to feel most distressed in environments that were not perceived as orderly. Although to many observers the patient's environment may have appeared very orderly, if it was new to the patient that order may not have been perceived by him."

With each new challenge or task, discrepancies occurred between R.T.'s desire for order and control over her

surroundings and her perception of the possibility of achieving that. Consequently, Mother, attendant, Social Worker, or close friend accompanied her for the purposes of providing some semblance of order and comfort for her distress acting as guides into her new reality. This often entailed assuming responsibilities that would later be transferred to her as she gained confidence, and assimilation with the situation.

Berger and Luckman in their phenomenological analysis of the reality of everyday life explain that for the transformation of R.T.'s subjective reality, dependence on these significant relationships, replicates the primary socialization of childhood and contend such dependency both normal and necessary. Community resources and referral processes rarely take this into account. Too often one hears "The person must take responsibility themselves."

As R.T. gained a sense of mastery of herself and the situation, she would assume such responsibilities or request assistance from those persons from her own personally acquired network. An example of this can be illustrated by R.T.'s now routine procedure of approaching each professor independently before the commencement of his/her course and introduce herself explaining her physical limitations and, therefore, necessary adaptations. She emphatically explains, "I want as much a fair chance as anybody else."

Today R.T. reflects that she is in "culture shock". She weighs one hundred twenty-six pounds but states that she still struggles with the anorexia nervosa. She has aspirations of attaining a career as a psychologist following completion of her university program. Her presence and person has already made a positive impact on the university community, as it has on her. She continues to explore new social and physical environments reflecting on her former life existence as "vegetation".

R.T.'s experience supports Gammack's statement that "Social Work needs to resist pressures to identify solely at the superficial level of common sense responses to social problems"... and argues that it must "exercise a particular kind of uncommon sense which cannot easily find expression in the machinery of local government service delivery" which Pearson depicts as "overcome by the hardening of organizational arteries." Creativity and imagination is required or R.T. states to this audience, "It won't work!" □

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A Retrospective View: 1943-1983

L. G. Dewar,* M.D., C.M., D.P.H., F.C.F.P.(C)

O'Leary, P.E.I.

On the first day of September 1943, it was my privilege to graduate in Medicine from Dalhousie University Medical School. On that occasion, Dr. B.P. Babkin of the Physiology Department of McGill University, Montreal, and formerly of the same Department at Dalhousie University, gave the address to the graduates in Medicine and Dentistry. His subject was "The Scientific Trend of Modern Medicine". While attending the Dalhousie Refresher Course last fall, it was my good fortune to find a copy of his address in *The Nova Scotia Medical Bulletin*, [22:219-225, 1943] which I read with much more interest than I probably evinced at the delivery forty years previously, when our military units were waiting for us and the great world of adventure was much more fascinating than a learned treatise on scientific medicine.

During the address, Dr. Babkin made the statement that in the past forty years he had witnessed an astounding progress in scientific medicine. I quote, "One may reasonably hope that half a century hence, that is during your lifetime, if the present pace of scientific progress is maintained, medicine will have become much more a science than an art." It is just forty years since that statement was made, and it would seem a suitable time to appraise the correctness of that assumption, and its impact on medicine today. The evidence would seem to indicate that the progress made is so great that the active brain of an imaginative man such as Dr. Babkin did not conceive its immensity. Perhaps if he were living today he might have some reservations about what has been attained. Dr. Trevor Hancock, the Associate Medical Officer of Health for the city of Toronto, speaking last fall to an Edmonton Health Conference stated: "Citizens must abandon their workshop of high-technology medicine before communities can combat suicide and mental illness. There is a tremendously powerful medical technological establishment out there. It is not easy to turn around that kind of a juggernaut."

Dr. Babkin in his address enumerated the grand medical discoveries of the previous forty years — the x-ray; radium; electrocardiograph; insulin; and advances in nutrition and endocrinology. He must have thought the recent development in antibiotics was a fly-by-night affair as no mention was made of Sulphonamide and Penicillin. He could perceive glimmers of light in the darkest corner of medicine, abnormal functioning of the nervous system, through the work of his mentors — Pavlov of Russia, and Liddell and Divorkin in America. He felt that the electronmicroscope would revolutionize Morphology, Physiology and Pathology. He made the statement in discussing radium that forty years before "the atom was an indivisible unit of matter." Little did he realize that within the very next year the atom would burst over Hiroshima and Nagasaki: the Second World War would terminate abruptly and forty years later science has advanced so far, in this respect, that the fate of life on this planet lies in jeopardy.

What could be reported to Dr. Babkin today with respect to scientific medicine? Much more than he could have contemplated and more than those who feel that the art of medicine is still important are prepared to applaud. Some glorious achievements illuminate the previous dark valleys where many fell prey to infections. Antibiotics not worthy of mention forty years ago have solved problems for many physicians and have become miracle drugs against tuberculosis and other bacterial menaces. Although not effective against viruses the immunologists have come to our rescue with pasteurian triumphs over polio, whooping cough and diphtheria to eliminate deaths and crippling on our paediatric wards.

While on the subject of drugs, how much easier has our therapeutic life become because of the panoply of new compounds available for the control of hypertension. Forty years ago, there were only phenobarbital and unsatisfactory diuretics. Psychiatric disease, a dark felon scarcely probed in Babkin's day, has been rid of many of its black humors by such neotropic drugs as the antidepressants and the tranquilizers, major and minor. The latter are not an unmixed blessing as the problem of chemical dependency becomes an ever greater challenge in therapeutics.

Although science has not yet solved the riddle of the cancer cell, great new discoveries can be reported in this field as the biochemists explore the mysteries of the cell nucleus and its programmed strands of desoxyribonucleic acid. Biochemical engineering is threatening to modify even the very pattern of life. Out of all this has come many new chemotherapeutic drugs which are proving effective in the fight against malignancy, especially for the battle against leukemia and some sarcomatous diseases.

Dr. Babkin termed endocrinology a truly twentieth century science and anticipated a substantial change in the face of medicine during the next few decades by developments in this field. The work of his fellow traveller, Dr. Hans Selye, at McGill University on stress, and other workers gave us pituitary and adrenal trophic substances such as cortisone and prostaglandins which have enabled us to combat in great degrees the problems of stress and anaphylactic related disease. Perhaps greater accomplishments in the realms of endocrinology and oncology will finally explain the mutagenic response of the living cell under stress. Because this is a prototype of the overall response of the organism to environmental strain, great modalities for therapeutics should evolve in cancer treatment and other stress related disease.

I have not mentioned the great advances in anaesthesia which new drugs have made possible, or the great strides in surgery especially in the cardiac, brain and transplant fields which this has allowed. Dr. Babkin would be pleased at the extent of progress his admonitions produced.

It could be boasted that all the advances in medicine from the Hypocratic era to 1943 would hardly equal what has occurred in the last forty years during which it has been my

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great privilege to practise the art. However, an even more fantastic advance has occurred during the last ten years in the diagnostic sciences which dwarf into insignificance the progress from the day of Dr. Roentgen and Madam Curie to about 1970. During the Canadian Medical Association meeting in Monaco this past year, a symposium on advances in diagnostic radiology was held by leading radiologists from Canada, the U.S.A., and Great Britain. It was a revelation similar to that of St. Paul on the road to Damascus or Cortes on the peak of Darien. It is possible that Dr. Babkin would have been amazed.

Computerized science is changing our lives daily. It has placed man on the moon and is exploring the reaches of outer space. It is transforming the market and the workplace causing serious sociological upheavals. Our educational system is no longer a simple log with a teacher on one end and a scholar on the other, but a computerized orientated program. The field of medicine is no exception and its full potential has been realized in the field of diagnostic science.

Transverse axial tomography was developed as a radiological technique in 1937, but contrast and definition were poor until the advent of the computer which increased enormously the resolution per available photon. However, this method is being superseded by newer devices such as digital radiology and nuclear magnetic imaging. Discrimination in soft tissue by this latter method exceeds C.T. Scanning by a factor as high as ten. Positron emission tomography is a refinement that extends the science into the realm of body function through the distribution of radionuclides.

So much for the scientific trend of modern medicine which it would seem that Dr. Babkin would accept as plenary progress. What about the art? Dr. Babkin warned us against empiricism which bedevilled the progress of medicine for many centuries. He admonished us to be idealistic and not introspective; to shun the materialistic with its egocentric limitations. Through the ages and especially in this present century, the art of medicine has been yielding to the great advances in science. Philosophers would not agree that all this was beneficial, and it can not always be said that the quality of life is enhanced even though it is prolonged. But pragmatism is a more sinister force and one which socialized medicine seems to have promoted in the past forty years. Most physicians who graduated in September 1943 went forth with the ideal to serve their fellow man, to ease his suffering, and prevent untimely death. Wealth and a larger share of the economic pie were not prominent considerations among those who were prepared to accept \$5.00 per day as a compensation for a Medical Officer in the Armed Forces. Recently, an official of the Dalhousie Medical School told me that many of the new graduates want to know where they can practise and make \$100,000 in the first year! A change has taken place during my years in practice, and indeed in my own attitude to economic matters which, I know, Dr. Babkin would not approve. What has caused the change? Has it been the advance of science or the interference of government in the provision of medical care? Whatever the reason, the art of medicine has been the loser. Perhaps the ancient Romans were not so wrong with their proverb "Homo, hominis lupus est". □

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Report of Dr. D. Mackintosh,* Medical Officer, County Asylum, Pugwash, N.S.

To the Warden and Councillors of Cumberland:

I beg leave to submit the following report as Medical Officer of the County Hospital for Insane for the year ending December 31, 1924.

*In nineteen twenty four
I can say but little more
Than I said in fateful words in twenty three;
After which I made admission,
To appease some opposition,
That my words and facts did not all agree.*

*This admission or retraction,
Though a laudable transaction,
Was intended more to palliate than beg;
Ne'ertheless I just may mention,
In support of my contention,
That I really had to stand upon one leg.*

*As regards our present status,
If you honestly look at us,
Leaving out of course the ones that always yelp,
You'll find comparative contentment,
With a little mild resentment,
Among the inmates and the management and help.*

*The death rate for the season,
No doubt for some good reason,
Which should not be forgotten or ignored:
Five women and three men
Make a total less than ten:
Either to be commended or deplored.*

*One death was from Bronchitis,
And two were from Carditis,
Two strokes from apoplexy did quick work,
One more was from retention,
The kind I will not mention
For fear that it might shock your lady clerk.*

*One more was from paralysis,
Which after strict analysis,
Was spinal working upwards from below:
Two more were found quite dead
Lying quietly in bed,
But what the deuce they died of I don't know.*

*We are getting too congested:
And it cannot be contested
That something must be done to make more room.
Brick and labor, will be cheap
And workmen would just leap
If they thought that there was going to be a boom.*

*All of which is now submitted,
Nothing purposely omitted,
As my customary annual report:
But if you do not like it
You're at liberty to strike it
From the records, failing adequate support.*

*Dr. D. Mackintosh practised in Pugwash, N.S. and died at the age of 85 years. His son, Dr. Arthur F. Mackintosh, practised in Amherst until his death in 1950. This report came to the attention of the Editor through one of his patients, who is married to the daughter of Dr. Arthur Mackintosh.

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Current Topics in Community Health

Prepared by: Dr. Frank M.M. White,
Department of Community Health and Epidemiology
Dalhousie University, Halifax, N.S.

ROYAL COLLEGE SPECIALTY RECOGNITION RECOMMENDED FOR OCCUPATIONAL MEDICINE

At its November meeting, the Committee on Specialties and Manpower adopted a motion recommending to Council that Occupational Medicine be recognized as a primary specialty for certification by the Royal College of Physicians and Surgeons of Canada. This action culminates more than seven years of intensive deliberations at the level of both the Committee and Council that, in the past, focused on endeavours to incorporate the specialty as a stream of special interest and training within the broad specialty of Community Medicine. Finding this solution unacceptable from the point of view of the adequacy and appropriateness of the training required and from the fact that it failed to provide a means of specifically identifying those qualified in Occupational Medicine, leaders of the specialty moved, in 1981, to set up the Canadian Board of Occupational Medicine (CBOM) to carry out their own training program, accreditation, credentialling and certifying examination functions.

Appearing before the Committee at its recent meeting, representatives of the CBOM while indicating general satisfaction and comfort with the new Board's progress to date, nonetheless expressed themselves as strongly supportive of the desirability of having all specialty recognition and specialty qualifications maintained under the aegis of the Royal College, as the long-standing national specialty certifying body for Canada, and it is their hope that this might continue to be the ultimate goal. At the same time, they emphasized the rapidly expanding manpower needs of the specialty as a result of the growing importance attached to it by industry, governments and the public, and the difficulties of attracting young physicians to consider full-time careers in a specialty without recognition and identification of their specialist status, equivalent to that of their peers in other specialties. They noted that the specialty has existed for a long period of time and that it has been recognized as such by most of the Western industrialized nations.

In their view, the specialty meets all the criteria and guidelines for specialty recognition prescribed by the College, including its own unique body of knowledge. While they acknowledge that there are a number of elements common to the training of specialists in both Occupational Medicine and Community Medicine, with important interfaces requiring close cooperation and collaboration on the part of both groups, they believe there are also widely divergent areas of knowledge and skills that are important to the occupational physician and which cannot be accommodated in a meaningful and relevant fashion within the mandatory training requirements of Community Medicine.

In response to questioning by the Committee, the CBOM spokesmen indicated that if the College were to agree to recognize the specialty as a separate and distinct entity, the CBOM would undoubtedly agree to withdraw from its role in

certifying the fully trained specialist in Occupational Medicine and confine its efforts to meeting the needs of the large numbers of partially trained physicians who had become involved in the field on a part-time basis at some mid-point in their careers, and who were unwilling or unable to embark upon a lengthy program of training at this stage in their lives.

Should Council accept the Committee's recommendation at its meeting in March 1984, further negotiations towards its implementation would then have to be undertaken with CBOM and with the Specialty Committee in Community Medicine, whose training requirements and examinations would undoubtedly have to be appropriately modified.

Source: *Annals RCPSC*. 1984; 17:1,66.

NOTABLE TRENDS IN CANCER MORTALITY: CANADA AND NOVA SCOTIA

Age standardized mortality rates for Nova Scotia are generally higher for both males and females than for Canada as a whole (Table I). The overall difference for females in 1981 is only slight (1.4%) but for males the difference is quite substantial (9.7%).

TABLE I

Cancer Mortality Comparison, Nova Scotia and Canada, 1981
(based on Age Standardized Mortality Rates per 100,000)

	MALE		FEMALE	
	Nova Scotia	Canada	Nova Scotia	Canada
Total Cancer	260.3	237.3	171.7	169.4
Digestive Cancer	69.7	69.6	51.7	45.0
Respiratory Cancer	104.7	90.2	28.5	25.9
Breast Cancer	—	—	35.9	39.8
Genital Cancer	15.6	13.3	24.0	20.6
Urinary Cancer	11.1	11.9	3.9	4.7
Other Cancer	59.2	52.3	27.7	33.4

Lung Cancer

From 1966 to 1981, male lung cancer mortality in Nova Scotia increased faster than in Canada generally (Figure 1). In 1966, the Nova Scotia rate was lower than most other provinces but, by 1981, it rose to become the second leading province in Canada. According to 1981 data, Quebec still has the highest male lung cancer mortality but this position will not last long — projections indicate that Nova Scotia will surpass Quebec before 1990.

Female lung cancer mortality is increasing rapidly in every province of Canada, and Nova Scotia (Figure 2) has the highest mortality rate, and one of the higher rates of increase.

The 1981 rate is ten times higher than the rate recorded for 1951. Based on this rate of increase, lung cancer mortality will surpass breast cancer mortality (whose rates are stable) by approximately 1987, at which time it will contribute about 25% of all female cancer mortality.

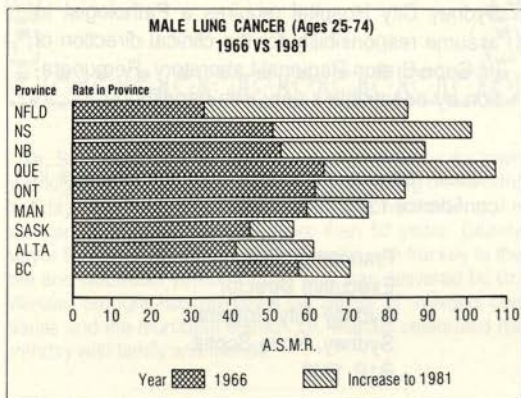


Figure 1

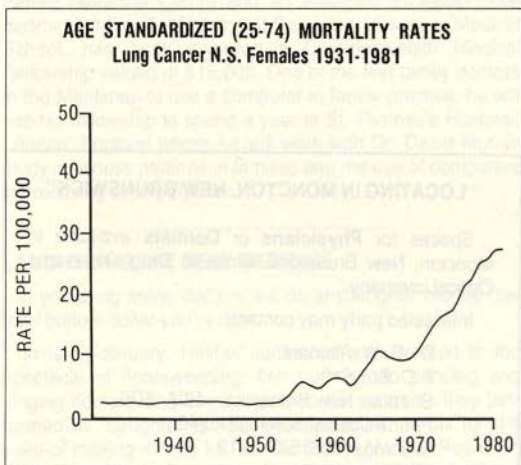


Figure 2

Stomach Cancer

In Nova Scotia, as well as in Canada as a whole, stomach cancer mortalities are decreasing for both male and female. However, the recent decreasing rate for Nova Scotia is slower than for most of the Canadian provinces. The 1966-76 data indicate that almost all counties of Nova Scotia had mortality rates similar to the national average, but 1973-79 data demonstrate significantly higher rates for 3 counties: Cape Breton, Inverness and Cumberland — for both males and females. (It is of interest that these counties include coal mining communities. An association between stomach cancer and coal mining has been noted elsewhere in the world.)

Discussion

Since lung cancer is usually rapidly fatal, incidence and mortality data are in close approximation. According to estimates from the United States Public Health Service,

eighty-five percent of lung cancer would be prevented if no one smoked cigarettes. The evidence for a causal association includes a clear dose response relationship based on number of cigarettes smoked, duration of smoking, inhalation and tar levels. The demographic distribution of this cancer internationally is associated with smoking habits. The prevalence of smoking in Nova Scotia is higher than in Canada generally, and smokers in this province are also more likely to smoke cigarettes with a high tar yield (more detail on these trends will be presented in a later issue). Although there has been evidence of an overall downward trend in smoking prevalence over the past decade, this is not true of the female population. Of particular concern, the prevalence of smoking has increased in teenaged girls, suggesting that tobacco industry strategists have identified this as a "favourable" market.

If it were not for increasing mortality from lung cancer, age standardized deaths from the combined category "all cancer" would be declining in males and females in both Canada and Nova Scotia.

Acknowledgement: Dr. D. Wigle and Dr. Y. Mao, Non-Communicable Disease Division, Bureau of Epidemiology, Health and Welfare Canada kindly provided information on age standardized trends in Nova Scotia and Canada.

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BOOK REVIEW — OCCUPATIONAL HEALTH NOTES

This is a small handbook (104 pages) written by Dr. Ronald Lees, Professor and Director, Occupational Health and Safety Resource Centre, Queen's University, Kingston, Ontario. First published in February 1980, this book is now in its fourth printing (December 1983).

The text is written for medical undergraduates, Family Medicine residents and community Family Physicians. According to the author "If our present system continues, and it seems more and more likely that it will have to, Family Physicians working part-time in industry will comprise about 85% of the occupational medical manpower".

This small volume may stimulate interest in some physicians to broaden their knowledge in the field of occupational medicine. Several more advanced texts are listed by the author.

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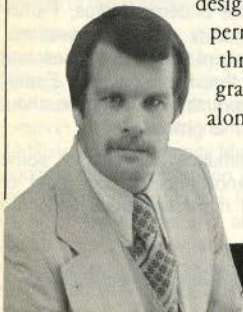
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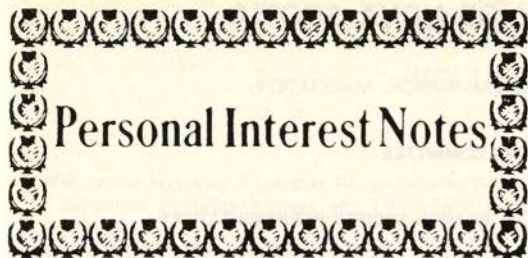
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Personal Interest Notes

Dr. Sam Marcus of Bridgewater was honored by the town of Bridgewater and the Municipality of Lunenburg on his 83rd birthday. Dr. Marcus has been practising medicine in the town and the municipality for more than 50 years. Deputy Mayor Ernie Volivar presented Dr. Marcus with the key to the town and Councillor Arthur Young, who was delivered by Dr. Marcus, brought him greetings on behalf of Warden Lee Nauss and the municipal council. Dr. Marcus celebrated his birthday with family and friends.

Dr. Richard MacLachlan, 35, a physician at Cowie Hill Family Medicine Centre and an Assistant Professor, Department of Family Medicine at Dalhousie University Medical School, has been awarded a Commonwealth Medical Fellowship valued at \$15,000. One of the first family doctors in the Maritimes to use a computer in family practice, he will use his fellowship to spend a year at St. Thomas's Hospital, London, England where he will work with Dr. David Morrell studying illness patterns in families and the use of computers in predicting such patterns.

LAUGHTER IS THE BEST MEDICINE

If you thing some doctors will do anything for money, bet your bottom dollar you're right.

In late February, Halifax audiences were treated to the spectacle of floorsweeping, fish gutting, tap dancing and singing doctors who threw dignity to the winds as they performed in "Laughter Is The Best Medicine" — all for the sake of making money for The Dalhousie Medical Research Foundation. And they succeeded. The annual charity show, directed by **Ron MacInnis**, raised about \$8,000 this year when it played to two sell-out houses in the Rebecca Cohn Auditorium, Dalhousie Arts Centre.

A patrons' dinner at \$50 a plate in the Faculty Club, prior to the second night's performance, netted about \$5,000 and, to gild the lily, Dalhousie Medical Alumni Association later that evening presented a jumbo-sized cheque for \$100,000 to the Foundation, thereby bringing the Medical Alumni's support for research to a full \$200,000 in the past three years.

The evening of music and laughter, subtitled "Take Two Pills and Come at Eight O'clock", had physicians of versatility.

Clad in dirty overalls, **Dr. Brian Hennen**, Professor and Head of the Department of Family Medicine, swept the stage between acts; dextrously fingered the keys of a Steinway grand piano, and was arrested for responding to a provocative tart-policewoman, played with relish by a sporting **Mrs. Helen Maxner**, from the Pathology Department.

Dressed up in evening wear, the Dean of Medicine, **Dr. J. Donald Hatcher** and three impressive, formal assistant deans, **Dr. S. C. Robinson**, obstetrician and gynecologist; **Dr. William Mason**, radiologist; and **Dr. Byron Reid**, family physician, banged away in a type of steel band medley on hanging bed pan, bottle, kidney dish and wash bowl, while The Tupper Band played on, conducted by **Dr. B.W.D. Badley**.

Dr. Dennis Johnston, dressed as a postman laconically dumped or delivered letters between acts; then he amazed everyone, when he and **Mrs. Ruth Goldbloom** (wife of Dr. Richard Goldbloom) zipped on stage dressed as saucy 10-year olds and tap danced a snappy routine fast enough to stop a jogger.

Haematologist **Dr. Ormille Hayne** played country and western with his high heeled, string-tied band. Children's heart specialist, **Dr. Douglas Roy**, gutted fish and spun yarns with CBC celebrity Jim Bennett; and scores of others played, sang, monologued and joked away two hours of solid entertainment. They were all boldly abetted by another assistant dean, anaesthetist **Dr. Emerson Moffitt**, who intermittently gassed the crowds with the punning wit for which he is well known in the Sir Charles Tupper Medical Building and operating theatres throughout Halifax hospitals, "jest to keep the surgeons cutting".

Barbara Hinds

OBITUARY

Dr. G. Ronald Forbes, (86) of Kentville, N.S. died on February 25, 1984. Born in Stewiacke, he graduated from Dalhousie University Medical School in 1926. He served in both World Wars and practised medicine in Kentville until he retired in 1974. He was a Senior Member of both The Medical Society of Nova Scotia and The Canadian Medical Association. We extend our sympathy to his wife and family.

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