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Arthur Norman Guthkelch: An Autobiographical Note

Norman Guthkelch, Paediatric Neurosurgeon.

I cannot remember the time when I was not interested in human and animal biology. One day, when I was about 6 years old, I wandered into the garden after lunch and noticed a house-sparrow half-hidden in the grass. It made little attempt to avoid me, and I realized that one of its wings was almost torn off and left a trail of blood in the grass when the bird moved. I was sad that I had no idea how to help it.

During the next few years, the bird occasionally reappeared in my imagination, always when I was thinking about “when I grew up”. I must have been about 12 years old when it appeared while my mother was present and I told her what I saw, adding that maybe I could learn to help animals when I grew up.

I was surprised, even shocked, by my mother’s reaction. But what about people?” she asked. From that day on, I was determined that I would become a doctor. At the time I had been allotted to the Classical side at school (Christ’s Hospital, [The Bluecoat School.] I was unable to persuade my teachers to let me change immediately to the science curriculum, but I was promised that if I obtained a scholarship to Oxford or Cambridge (and remained unmarried!) Christ’s Hospital would give me financial support to doctoral level.

In due course I won a scholarship in Classics to Balliol College, Oxford, with permission to study medicine, and the next few years were more or less routine. I was lucky to be a member of the last class taught by Sir Charles Sherrington, the world-famous neuro-physiologist, assisted by Jack Eccles, also a world-class neurophysiologist, and in my final year to be chosen as laboratory assistant to the young and ambitious Dr. (later Lord) Zuckerman. Unexpectedly, although I was surrounded by such distinguished scientists, it was not the lectures or even the tutorials that most attracted me. We were encouraged to keep up with the current biomedical journals and as I read the scientific literature I realized that modern science was no longer a matter of simply observing change, but also of measuring the parameters of change. I asked for, and got, permission to use the department’s calculating machine, using it to complete some long-forgotten undergraduate projects.

Years would elapse before I realized that something else was missing: without logic the most accurate observation is useless, even dangerous. Recent experience of our attitudes towards the medical diagnosis of child abuse – and our corresponding treatment of children and their parents – has only fortified that impression.

The year with Solly Zuckerman came to an end. Tempted by the offer of a full scholarship at the *University of Manchester*, I chose to do my clinical work at *Manchester Royal Infirmary*.

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As a student, I found myself entranced by the logic of neurology, but disappointed by what seemed its ineffective therapeutics. At that time, a student's exposure to neurosurgery was confined to six lectures given by Geoffrey Jefferson, the neurosurgeon, but these I found so interesting that I began to wonder how I could make my fascination known to him. One Friday afternoon I wandered into the OR (Operating Room), where he was performing an air-ventriculography. I cannot remember anything that Jefferson said or did on that occasion, but I left the OR convinced that I was going to become a neurosurgeon, and that Jefferson (alias 'Jeff', 'GJ' or, to his pupils, 'The Master') was going to teach me.

For most of my fellow-students at that time, formal medical education could, and usually did, end with taking one's primary medical degree, which at Oxford, but nowhere else in the world, is abbreviated to B.M., B.Ch. For me, the change from formal education to clinical practice was less important – the big change in my intellectual lifestyle had occurred when I was 18 and heard the good news that my scholarship did not entail first studying for a degree in Latin or Greek. Now it was just a matter of finding a suitable residency.

A second change was not under my control. By taking a medical degree I had become a pawn of the powers that arranged Britain's war-time medical services. But some choices were allowed. Within a few weeks of completing my medical degree, I was appointed to the first of a series of hospital residencies. These left me with sufficient leisure time to study for the standard surgeon's qualification – the F.R.C.S. - to which I added (probably unnecessarily) the Oxford Master of Surgery degree. I also "wrote up" for publication in the medical press two unusual clinical cases which I had diagnosed and helped to treat under the supervision of the attending surgeon.

Success in the higher surgical examinations together with publications in the *British Medical Journal* had made me a fairly obvious choice to be the next Resident Surgical Officer (i.e. Chief Surgical Resident) at *Manchester Royal Infirmary* and I was able to spend some time with Jefferson, who let me know that when my military service had been completed, he would see that I was appointed to a suitable civilian neurosurgical unit.

By the beginning of 1944 it was obvious that Britain, with much-needed support from the USA, was nearly ready to open the long-promised Second Front. Two neurosurgical units were planned. I was to lead the second, both being allotted to military hospitals where I found that my immediate superior, Andrew Loudon of Edinburgh, was an excellent surgeon with a no-nonsense personality and high professional standards. Andrew persuaded me to write up a modification in the management of traumatic quadriplegia, which was published in the *British Medical Journal*.

By August 1945 the war in Europe was over, I was demobilized, and was preparing myself for the likelihood of an extended period of under-employment, when a letter arrived from Geoffrey Jefferson (Professor of Neurosurgery at the University of Manchester). He wrote that he had arranged for his pre-war First Assistant at *Manchester Royal Infirmary*, Joe Schorstein, to go to

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Glasgow as Professor and Head of the neurosurgical service. Richard Johnson, who had returned from war service in Burma, was to be Jefferson's successor, and I was offered an appointment as Lecturer in Neurosurgery, which was understood to carry with it the virtual certainty of promotion to Consultant when and wherever a vacancy arose. I was considering whether to accept this offer when Jefferson called me into his office. He remarked that he was impressed with the amount of time I was spending with the children admitted to his service. He went on to remark that Britain had never had a pediatric neurosurgeon and he wondered whether I would be interested in such an appointment. Of course my answer was enthusiastically positive.

In due course I received an invitation to lunch with Sir Walter Cobbett, the chairman of the *Royal Manchester Hospital* Management Committee. This was, however, a time of transition. The traditional hospital management committees were to be terminated under the *National Health Service*, and the *Ministry of Health* had established offices in all the big cities. After agreeing to find room for the new neurosurgical service at the Children's Hospital, Sir Walter discovered that there was no Government fund which could be used to pay me a salary!

However, I had begun to develop a practice, particularly with the medico-legal fraternity, and it seemed certain, though details were lacking, that the new *National Health Service* would soon provide adequate remuneration. So when Sir Walter, looking rather embarrassed, mentioned the matter of compensation for my services, I replied that I would accept an honorary appointment, like the other attending clinicians, until the government became everyone's employer. It was a lucky answer. At the next meeting of the Board of Management I was appointed with the title of Honorary Neurosurgeon, with a seat on the House Committee.

Now I had a base: the question was how to use it. There was little literature on the subject of pediatric neurosurgery, and the only text-book in the English language was by Franc Ingraham and Donald Matson of Boston (Ingraham, & Matson, 1954). The field of pediatric neurosurgery generally seemed to present a dismal picture. The most common pathologies of the in-patients were *spina bifida* and hydrocephalus, in neither of which the ultimate result of treatment was really satisfactory. This prospect was daunting.

Fortunately for me, a second pediatric neurosurgical unit was established, and I decided that I wanted to find some neglected aspect of Pediatric neurosurgery to make my special study. I had no difficulty in doing so. Searching the literature, I found that whereas Britain was fairly well up-to-date in most fields, and Manchester in particular in pediatric radiation therapy, there was no record of the admission, in any of the hospitals, of an infant suffering from subdural hematoma. (Actually, such patients were being admitted, but mislabeled in the hospitals' statistics.) Within 5 years I was able to collect and publish a respectable number of cases of the British experience.

In Guthkelch (1953), I described 24 cases of subdural hematomas (or effusions) in infants at *Manchester Children's Hospital* in a four year period, which confirmed that this is not a rare condition. There was evidence of abnormal or difficult birth in 75% of the cases, higher than the

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25% identified by Ingraham and Matson (1944, 1949) which, in combination with the fact that these cases mostly presented in the first months of life, suggested that in most cases the cause is to be sought at or near the time of birth. In the 16 cases in which a comprehensive history was available, the history included birth trauma (8 cases), twins (2 cases), prematurity (2 cases) and head injury a fortnight before the onset of symptoms (2 cases). In the two remaining cases, the history was negative. Other cases involved purulent meningitis (5 cases) and sagittal sinus thrombosis (1 case). The most common presenting symptoms were convulsions, vomiting and irritability. Only half of the patients had enlargement of the head (sometimes previously noticed by the parents) or a bulging fontanelle. Ocular abnormalities (primarily retinal hemorrhages) were seen in 25% of cases; anemia was present in half. When tapped, the fluid was almost always xanthochromic, with a variable quantity of fresh blood. Intracranial venous thrombosis was of particular interest since there was an earlier report of bilateral subdural effusions after a febrile illness with otitis media (Penfield, 1923), and we had since learned that this may complicate any infective focus, however trivial and wherever situated in the body (Symonds, 1952). In most cases, with prompt and appropriate medical care, treatment was successful.

While my recognition of infantile subdural hematoma as a British phenomenon had attracted some attention and financial support from the government, I was determined to share it with a study of another source of serious disability of children, namely *spina bifida*, with its frequent accompaniment of hydrocephalus. Throughout the 1960's I researched and documented the vicissitudes of the history of treatment of *spina bifida* in Guthkelch (1961, 1962, 1964, 1965) and in Doran & Guthkelch (1961, 1963). I realized that the accepted description of the neurological deficit, particularly at spinal level, was inaccurate. There was always an element of maldevelopment of the spinal cord. As a result, well-intentioned efforts to restore function to the afflicted child's paralyzed legs and bladder were only partly, if at all, successful, and even modest improvement too often disappeared as the child grew older and heavier. Ultimately, while popular and well-intended, the treatments, which often included multiple surgeries, were not only unavailing but costly and harmful. By supporting the work of a gifted researcher, Dr. Barson, I played some role in helping to correct the deficiencies in the existing anatomical descriptions of congenital deformity. Unfortunately, this prompted a shift in some areas from maximum intervention to one of neglect from birth to the point that the infant succumbed, resulting in a split between those who felt they must always give maximal service to all patients on ethical or religious grounds and those who supported what amounted to euthanasia. Instead of addressing these difficult issues and focusing on the appropriate treatment for individual patients, the government left this to the discretion of individual practitioners, with highly variable results. By chance, my appointment as a pediatric neurosurgeon coincided with news of the development of the first implanted plastic valves for the treatment of hydrocephalus. Two models, invented by John Holter and Pudenz respectively, were available, and both proved reasonably effective (Guthkelch, 1967, Pudenz, 1959). Almost overnight the outlook for these previously untreatable children changed to the realization that there was a promising means of control of their condition. However, it took some time for surgeons to realize that neither valve was free from

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complications, particularly infection, leading to a low-grade septicemia (Sekhar, Moosey & Guthkelch, 1982). This led to pressure on the hospitals to admit patients who were relieved of their acute symptoms, but were unfit to be discharged to anything but skilled nursing facilities. The resulting misuse of in-patient services as residential accommodation, was exposed by a Liverpool physician, Dr. Kempe (1964), in a witty paper entitled ‘The Golden Bed’.

Disappointed by the failure of the government to show any sign of modernizing my wards or operating room I resigned from the Royal Manchester Children’s Hospital in 1967, applied for, and obtained, an appointment as neurosurgeon to the newly opened general hospital in Kingston-Upon-Hull, a North Sea port some 200 miles north of London. Eight pleasant years followed, during which I enjoyed working in modern surroundings and continued to accumulate data about head injuries in infancy.

Pondering what to study next, I remembered some observations that I had made over the years, but had not considered for detailed study. In Ingraham’s book on the neurosurgery of infancy and childhood, he had noticed that when he examined young infants referred on account of increased intracranial pressure, he often found retinal hemorrhages. At this time I was fortunate to enjoy the services of a team of mature social workers, and when I mentioned what I had observed, we asked ourselves what might cause this phenomenon. We decided that parental roughness, if not actual violence, which further careful questioning identified as probably shaking, might be involved. Review of the clinical records revealed some marks of violence, especially bruising of the chest, but only one limb fracture. After further friendly questioning of their patients my social-worker colleagues agreed that parents in our part of the North of England saw nothing wrong in quieting a fretful child by shaking, a practice that has now ceased, due in large part, I believe, to parental education.

The resulting paper (Guthkelch, 1971), described 23 cases, all but one involving children under the age of 18 months, admitted to the *Hull Royal Infirmary* in a three year period in which parental assault had been proved or strongly suspected. Subdural hemorrhage was found in 13 cases; in 5, there was no evidence of direct violence to the head. I also reported two personal cases in which I felt that there was strong reason to suspect that the subdural hemorrhage was caused by shaking rather than battering. In neither case was the shaking severe or malicious. In one, the mother was attempting to clear mucous from the baby’s throat because she feared he was choking; in the other, the parents admitted that they “might have” shaken the baby (one of twins) when he cried at night. Since I was astonished by the roughness with which some small children were handled by their parents during visiting hours, it seemed possible that some subdural hemorrhages in infants might be attributed to rough handling. My 1971 paper did not replace my 1953 study, which identified many causes for infant subdural hemorrhage, but rather suggested that some findings might be caused by rough handling. This was not a criminal issue; instead, it seemed that parental education was needed. My findings were consistent with Ingraham, who concluded that the trauma needed to cause subdural hemorrhage in infants need

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not be severe and was in most instances likely due to birth or low falls that had been quickly forgotten by parents or nursemaids.

Since I was aware of Dr. John Caffey's well-known interest in the radiology of child abuse, I sent him a copy of the paper which detailed our findings. There, so far as I was concerned, the matter rested. Unfortunately, there is a post-script to this story, one which should never have happened and which I discuss below.

In the meantime the political climate in Britain was deteriorating. Edward Heath, the Prime Minister, who had been my neighbor at Oxford, was a decent man, but unable to control his party or work with the opposition. For a while there seemed to be a chance of something approaching a revolution.

More practically, I was within a few years of compulsory retirement, but had already earned a reasonably adequate pension. To the surprise of my colleagues, I applied for and was offered, the headship of the Department of Neurosurgery at the newly opened *King Faisal Hospital* in Riyadh, Saudi Arabia.

A year of Saudi Arabia was enough. I was well paid, but the everyday evidence of corruption was depressing. Apart from one article on the moral implications of withholding treatment from babies born with *spina bifida* (Fernandez-Serrats, Guthkelch, & Parker, 1968), I had published nothing. But once again I was lucky. An old friend and neurosurgeon, Tony Raimondi of Chicago, became aware of my idleness and communicated with Peter Jannetta, of Pittsburgh, who needed a pediatric neurosurgeon. A visit to Pittsburgh was successful and I found myself once again a practicing neurosurgeon, this time with the rank of professor in the University.

During this time I was blissfully unaware that my paper on the potential effects of shaking infants was becoming quite widely known, with unforeseen consequences. I had made it clear, or so I thought, that the practice of shaking infants whose crying was difficult to control was dangerous and should be avoided since we thought it could lead to hemorrhage on the surface of the brain and other possible damage. However, we were at pains to keep our identification and treatment of these cases at a low key, and in only a fraction of them was it necessary to call the police.

Here in the USA the position could hardly have been more different. It has taken me literally years of enquiry to gain what may still be an inaccurate view of the reaction of authority to this potential source of injury to children. While it is important to recognize that symptomatic infants with no stigmata of violence may be suffering from subdural hemorrhage caused by rough handling, these findings alone do not constitute evidence of assault. Instead, as I previously made clear, there are many causes for subdural and retinal hemorrhage in children.

While it is easy to sympathize with care-givers who fear that some apparently harmless action has resulted in harm to one of their charges, it is less easy to excuse the exaggerations, omissions

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and/or falsifications in the medical and/or nursing records in cases involving allegations of shaking or other forms of abuse that I have encountered in recent years. Eventually I realized that in some institutions – if not all – the size of the government grant that the institution expects to receive depends partly on the number of cases of abuse the staff had claimed to identify during the previous year! I regret having to add that I also found flagrant misrepresentations of the literature, including of my own work, in the literature as well as in cases that reached the courtroom.

My discovery of the misuse of my work – and that of others – was belated and coincidental. My last employment was a prolonged temporary job at the University of Arizona in Tucson to which city my wife and I had decided to retire. This time, I avoided any suggestion that I take on any regular clinical work. However, in 2011, following a letter that I wrote to the *New York Times* (Guthkelch, 2011), Professor Carrie Sperling, then the Director of the *Arizona Justice Project*, asked me to review the medical records of a case in which a father was serving a long jail sentence for assaulting his infant son. I reviewed the medical records, autopsy report, and radiology, and found no support for the claim that the baby had been shaken. Rather, the baby had been sickly from birth, with numerous epileptic seizures, aggravated by faulty intubation at the hospital. On the basis of multiple affidavits, including my own, the father was granted a new trial, and the charges were ultimately dismissed with prejudice, i.e., with no legal possibility of the father being tried again (*National Registry of Exonerations*, 2012).

Soon afterwards, my wife died after a long illness, leaving me with no particular reason to stay in Tucson, but where should I go? No problem! While working on the Phoenix case, I had read a detailed legal analysis of the problem of (alleged but) unobserved abuse by Deborah Tuerkheimer (2011), a former prosecutor in New York City and then a professor of law at *DePaul University*. (She has now moved to Chicago's *Northwestern University, School of Law*.)

I was already familiar with Deb's work. She had written important reviews of the problems raised by the prosecution of care-givers who appeared to have injured their charges when no other witnesses were present (Tuerkheimer, 2009, 2011). Coincidentally, Deb was working on a book pointing out the dangers of the uncritical application of the SBS concept in the diagnosis of (alleged) child abuse (Tuerkheimer, 2014), while I was helping with the defense of a father who was serving time for an alleged assault on his infant son. She remarked that there were at least two well-regarded retirement communities in northern Chicago, so my next four years were spent in the comfortable Three Crowns community in Evanston.

During that time I was contacted by students of Northwestern University's school of journalism, and thoroughly enjoyed listening to their uncensored views of the modern young person's civil obligations and expectations (Brennan & Castille 2012; Bisaro, 2013). I also wrote a short article on retinodural bleeding of infancy, published as an introduction to a review of the literature by law professors in the Innocence movement, Dr. Barnes, a pediatric neuroradiologist, and Dr. Squier, a pediatric neuropathologist (Findley *et al* 2013). I was also asked to review other cases.

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I reviewed materials in seven cases, and was dismayed to find that the same errors that had permeated the first case were present in various combinations in these cases: the failure to recognize illness, congenital conditions and other obvious causes for a child's collapse (including choking on a rubber band), incorrect assumptions, suboptimal medical treatment, and inaccurate or incomplete entries in the medical records. Many if not all of these cases resulted in what appeared to be false convictions, with at least one father serving a life sentence.

At the age of 99 I would be foolish to expect the time or ability to accomplish a significant change in human behavior. But, as W. S. Gilbert wrote: "In for a penny, in for a pound, It's love that makes the world go round." By chance I was introduced to Kim Hart, one of the founders and Executive Director of *National Child Abuse Defense & Resource Center*. It is the only organization in the U.S.A. which deals directly with parents and other care-givers accused of harming their charges. I had already decided that I needed a change of scene, and the possibility of helping Kim in her self-imposed social service was too unusual to be disregarded. For the last eight months I have lived with Kim's family and my familiarity with problems of trauma to the infant nervous system has helped her obtain two acquittals - one in the Chicago area and the other in Toledo, Ohio. It has also given me an unwanted glimpse into the culture of dishonest dealing and contempt for truth that can affect any profession, including our own, and that sometimes seems an inevitable sequel of Government support.

How to sum up a lifetime in medicine? My work has involved the serious concerns of working in the field of infantile subdural hematoma and with children with *spina bifida*. I have also been committed to distinguishing the identification of cruelty to children from misguided accusations against parents and carers that were splitting up families and were wrongly condemning innocents to life in prison or even to the death penalty. There is nothing more fulfilling than to be working on projects that matter to human welfare, to be, to the best of one's ability, making a contribution. Though not in any way wishing to underestimate the suffering of others which I have felt it my duty to seek to relieve, I can say that life is never more enjoyable than when one is working in the service of humanity. In being privileged to alleviate suffering, one finds the highest enjoyment. Without meaning the term "fun" in any way that is trite then, there is a sense in which I can leave the last word to my beloved, even if sometimes almost intolerably irritating, mentor, the pioneering Neurosurgeon, Sir Geoffrey Jefferson:

"At the end of it all, I can say, as a man should be able to say of his life's work:

"It has all been the greatest fun."

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