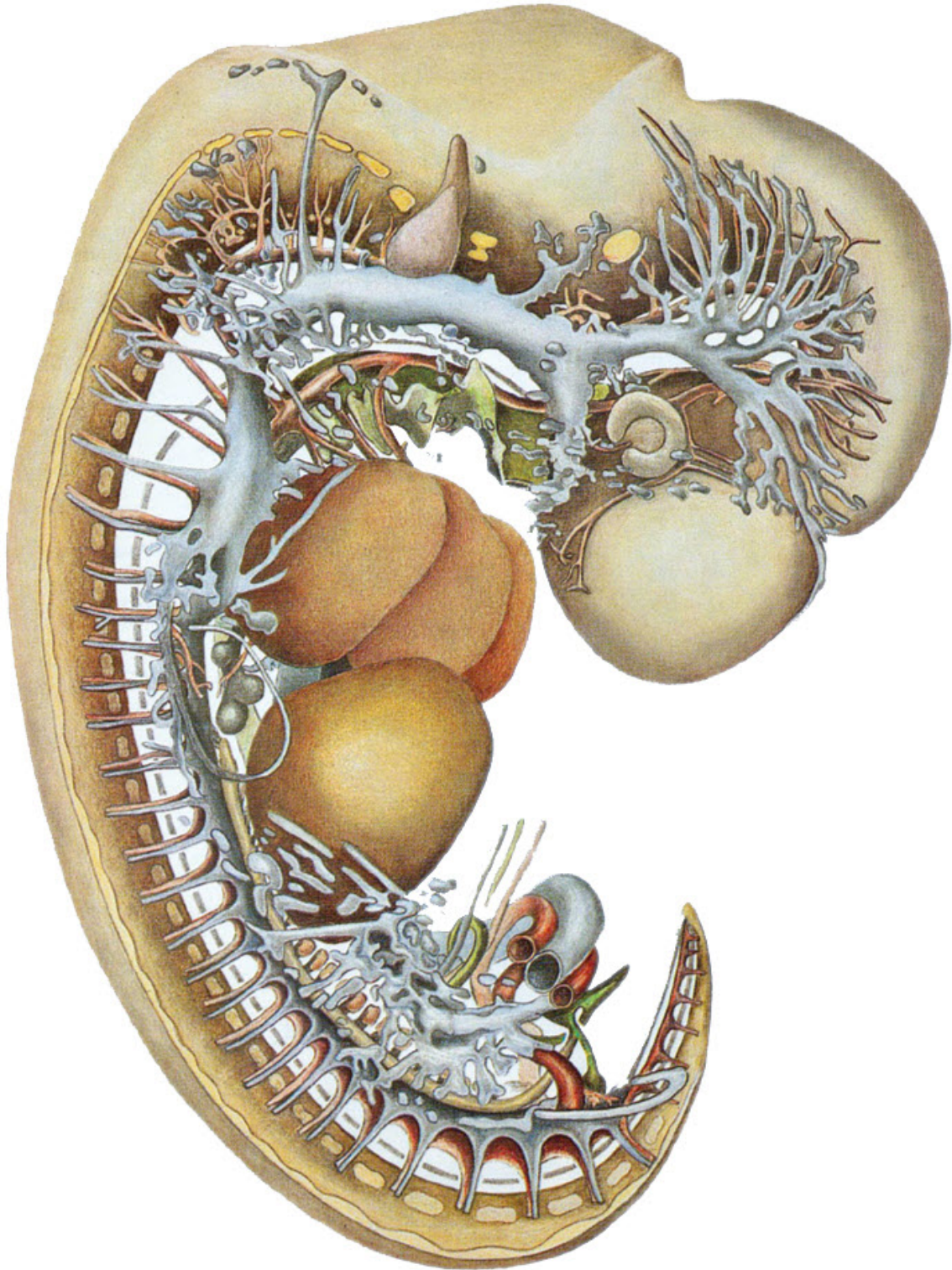




SUTHERLAND CRANIAL COLLEGE

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MAGAZINE



THE POTENCY OF EMBRYOLOGY

WELCOME

JOHN LEWIS

Once read a book that discussed how the people known as Polynesians came to inhabit so many remote islands scattered over a vast area of the Pacific Ocean. Since they all spoke the same language, anthropologists speculated that they must have been swept out to sea by storms while on fishing trips and carried by the currents to Hawaii, Easter Island, New Zealand and so on – and must have been extremely fortunate to chance upon these specks of land in a vast uncharted ocean the size of China and the old Soviet Union combined. They disregarded the Polynesians' own stories of great voyages of exploration undertaken by their ancestors; how they had relied upon a knowledge of the stars, the flight paths of migratory birds, the patterns of light and motion in ocean waves and currents. These ancient mariners, they said, could rise in spirit above their masts and see far beyond the horizon, and when all else failed would summon guardian spirits in the form of birds, fish, dolphins, whales, or sea dragons to point them to their destination. To the anthropologists these fanciful explanations were too far fetched to be believed.

It's all about belief systems. We take as the foundation of our thought processes what we have been taught, what we're familiar with, what our culture holds to be true. We don't like having our foundations shaken. We think we know something of the human body, what to do to help restore it to health, but how much do we actually know? We are conditioned to see things from a particular perspective and adopt that as the real version of events. We defend its truth, we challenge, ridicule and quash other views. We have schools, organizations, governing bodies, experts who speak at conventions, all promoting ideas that support the way we see things. We even have a method for testing and confirming our cherished ideas. But what if we are passing on to future generations only partial truths?

In this magazine you will find the subject of embryology approached from three different perspectives: the conventional molecular-genetic approach represented by Harvard embryologist Brandeis McBratney-Owen, Blechschmidt's biodynamic approach, and that of Charlotte Weaver, DO, a contemporary of Dr. Sutherland. Where does the truth lie? In one? In all? Weaver delivered her lectures in the late 1930s and, as Margaret Sorrell, DO, FCA, who compiled the work writes, 'She outlines the embryology of the developing human somewhat differently from our present-day understanding, different even from the norm of her time.' How much does it matter, from a treatment point of view, that advances in scientific knowledge, have shown some of the details she worked with to be incorrect? Does the science really matter that much?

COVER PHOTOGRAPH: *Blechschmidt reconstruction of 7.5mm embryo, viewed from right.*

With thanks to Frau T. Blechschmidt for permission to reproduce the image.

'I think that all the studies are man created studies, conducted from the perspective of the man studying it,' a colleague wrote when I emailed her about these three different versions of the same subject. 'I really love the Charlotte Weaver stuff because it starts to explain what I feel in treatment.' She challenged me, 'And you? Which version begins to describe your experiences? What else do *we* have in the end, apart from our own experiences?'

That's just the point. We don't need to look over our shoulders for confirmation or approval from 'experts' or disapproval from critics. Dr. Still said, 'Truth need not fear opinions.' The important thing is what *you* think and feel. Don't become too distracted by the idea that osteopathy must appear scientific to gain respectability. Scientific facts are invaluable, but science has yet to penetrate the mystery of nature's tendency towards health. Our work continually teaches us that healing comes from within the patient, and is magnified by the quality of the interaction we provide.

What if we simply acknowledge that we know very little? That the stories told by the human organism are often like those told by the Polynesians? Then we will come closer to the truth. That is the message of Dr. Still's osteopathy.

On the subject of Dr. Still, a few weeks ago a new graduate told me that his college regarded the founder of osteopathy as ancient history. At the BSO in the early 90s we learned something similar, embellished by unflattering comments about Still's rather odd ideas. Puzzled about why he should be held in such low esteem, I went to the library and took out his *Autobiography*. It was a revelation. I saw that this deep thinker was being grossly misrepresented. He seemed to have so much to say and no one was listening. I thought it curious that the version of osteopathy being taught differed from that of the man who founded our profession. The question was: does it matter? I spent between 1997 and 2002 in Kirksville, Missouri, trying to get to the bottom of the issue. I am deeply indebted to former KCOM president Dr. James M. McGovern and to Kirksville College for employing me and funding my research during that period. My findings will soon appear in a definitive biography of Still, the fruit of 13 years of honing and refining his true message. This work has not only transformed the way I practice, but also the way I see the world. Still saw osteopathy as a complete system of medicine, but above that he saw it as a philosophy. A different belief system, a different way of seeing the world to the dominant philosophy of Western society. A philosophy that differs from the one currently informing much of the teaching and regulation of osteopathy. Still's question was this: which is the best philosophy on which to base a system of healing? The SCC have asked me to present what I have learned as a one-day conference, on 19 March 2011, entitled 'The Timeless Teachings of A. T. Still.' Please come along - it may transform your understanding of osteopathy like it did mine. And convince you that, rather than being ancient history, Still remains the greatest asset possessed by our profession. If only we listen.

I hope you find the SCC Magazine a source of knowledge and inspiration. Thank you to all who have contributed. The trustees have decided to make the publication available to the whole profession via a free download, to enable all osteopaths, structural or cranial, to share in our spirit of enquiry. When one understands Still's message the distinction between the two approaches vanishes anyway.

CHAIRMAN

LIZ HAYDEN

As we are all only too aware, it has been a difficult time for the economy in the last two years. I am sure that many have felt the effects in our practices, and the trustees have been aware of the need to support impoverished osteopaths to help them gain the postgraduate training they need in osteopathy in the cranial field. The college has been working on a number of initiatives to offer financial support to our students, especially new graduates, and we are delighted to find that course numbers – particularly on Modules 1-3 – actually increased in the last year.

We keep a tight control on course finances so that we can offer value for money, but with our 1:4 tutor to student ratio our courses are inevitably more expensive than those without that high ratio.

Last year we reviewed the introductory course to make it a flexible two day Module 1 course that could be run at a very low price for small groups at local practices around the country. This has been a great success. 22 students took the course in the last academic year and most went on to take Module 2. The introductory Module 1 is also being offered to undergraduate colleges who do not have involuntary motion/cranial training in their curriculum. We are grateful to Alison Brown for her extensive work in this area.

In line with our commitment to support those with limited funds we are offering extensive discount schemes:

- £150 discount off Module 2 for new graduates.
- £75 voucher to use on future courses for those who attending Modules 2 and 3.
- £75 voucher for Module 1 students to use on Module 2 if ineligible for the new graduate discount.

We have reviewed our marketing strategy and hope that improved advertising helps to spread the word about the SCC and its courses.

You will hopefully have enjoyed the professional looking magazine created by John Lewis since taking over as editor for the last issue. We are grateful to John for his refreshing approach, and also to Lis Davies who produced an excellent newsletter for many years in the old format. The new publication is now being sent not only to all who have attended our courses, but can now be downloaded by anyone in the profession.

Lastly we have offered new graduates a limited number of scholarships for Module 1 and 2. This is a new initiative and the trustees are delighted to offer this help to some deserving new graduates. More about this elsewhere in the magazine.

OSTEOPATHIC PRACTICE STANDARDS

The GoSC Practice Standards Consultation ends on 30 November 2010. Visit Ben Katz's website www.shapingosteopathy.org and the GoSC website under 'Osteopathic Practice Standards Consultation Document,' and **MOST IMPORTANTLY** give feedback. This will affect us all so we must respond to ensure it is not to our detriment. **DO IT AS A MATTER OF URGENCY.**

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FREEMAN ON BLECHSCHMIDT

BATH EMBRYOLOGY CONFERENCE

3/4 JULY 2010

How does adult human body, its form and varied functions, arise from a single cell? To answer this question embryology has conventionally argued from a molecular standpoint: it's all in the genes. Dr. Brian Freeman, Senior Visiting Fellow, School of Medical Sciences, UNSW, Australia, disagrees. Blending current science with Dr. Erich Blechschmidt's innovative research, Brian argues that genes do not possess a blueprint for the adult form. 'The form of the organism differentiates *directly* under biodynamic forces,' he states unequivocally, 'not chemical-genetic information.' Differentiation could not occur without genes, but development involves much more than genetic information alone. Genes are not so much active as reactive. They are extremely stable components of the cell and so provide the chemical constants of that individual body's cellular metabolism.

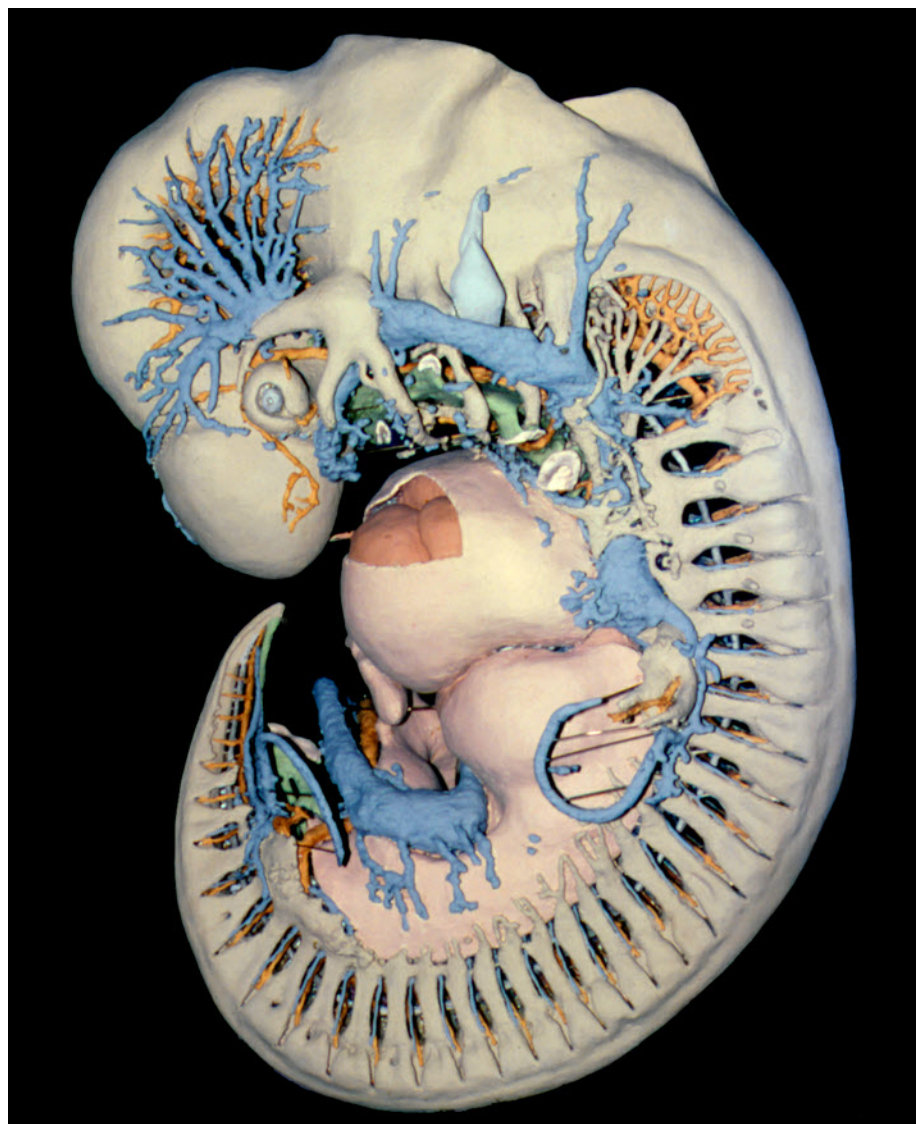
Blechschmidt recognized that in the developing embryo biological processes take place as spatially rearranging metabolic fields, in ordered yet dynamic movement, with ensembles of cells growing at differential rates as each part gradually takes up its final position, form, and internal structure. He arrived at this conclusion by undertaking the gargantuan, laborious and fiendishly difficult task of preparing thin microscopic slides (sections) of human embryos at various early stages of development, enlarging the sections, and transferring the images to polymer sheets to be cut out and stacked in sequence to make large three dimensional models, each about 80 cm high. These 'total serial-section reconstructions' – now housed in the Blechschmidt Museum at the University of Göttingen, Germany – enabled him to map the developmental movements that lead to the formation of the human body.

To consider embryonic growth from Blechschmidt's biomechanical perspective challenges the concept of body systems –

respiratory, cardiovascular, nervous, etc. – showing that such distinctions are artificial, for it is impossible to define where one system ends and another begins. All cells derive from one fertilized ovum, and the body functions only as one coherent whole. Since osteopathy looks at the body in terms of mechanical principles, perhaps it is not surprising that this approach appeals more to the osteopathic than to the medical profession.

Brian Freeman is the translator and editor of Dr. Erich Blechschmidt's *The Ontogenetic Basis of Human Anatomy: A Biodynamic Approach to Development from Conception to Birth*.

Brian's twelve lectures, delivered at the Bath City Hilton Hotel on 3-4 July 2010 were professionally filmed and edited to create an invaluable educational resource. The 6 DVD set can be purchased for £72.50 (p+p included) from www.BioBook.co.uk.



Total serial reconstruction of 7.5mm human embryo (Carnegie Stage 16, about 6 weeks after fertilization). Blechschmidt Collection, Anatomy Institute, University of Göttingen, Germany.

PHOTOGRAPH: BRIAN FREEMAN

INTERVIEW

BRIAN FREEMAN

SPEAKS TO JOHN LEWIS

John: How did you get interested in Erich Blechschmidt's work?

Brian: Well, as a young lecturer, sometime around 1981 or 1982, I was walking down the corridor in the medical building and noticed a rubbish bin outside the office of a professor who had recently retired. Sticking out of the bin was an article titled something like 'The First Three Weeks of Human Life.' I thought, 'this might come in handy some day' and fished it out of the rubbish. I noticed it was published by the drug company Roche and thought, 'oh, this is some pot-boiler blurb from a drug company,' and didn't read it for some time – not until I had to run an embryology course for undergraduates. The article was intriguing. Many of the terms the author used made no sense based on the Anglo-American textbooks of embryology that I was using. Not only did the author's words make no sense, the article actually confused me because the diagrams of embryos looked nothing like those in the textbooks. I wondered who is this author, this Blechschmidt?

I did a library search and found that he wasn't some harebrained occasional scientist-doctor with obscure ideas, but that his article was a condensation of his findings from decades of studying human embryos. I then started to locate a few of Blechschmidt's earlier articles and books in the university library, found that some of his work was in English, and learned that one book had been translated by a commercial company. So I bought this book and on studying it thought, this is different, this is interesting – it made sense to someone like me who had some training in physics and mathematics and was also interested in learning embryology. Through interlibrary loans I gradually read Blechschmidt's other monographs, including the now-famous embryology atlas that I hadn't even heard of or seen cited in conventional anatomy books.

John: Did you teach anatomy before teaching embryology?

Brian: My prime teaching was initially in histology and neuroanatomy, and then later in textbook embryology and gross anatomy. At that time academics in anatomy were segregated as histologists, embryologists, neuroanatomists, etc. I was actually originally employed to run neuroanatomy courses because my background had been in physiology, particularly neurophysiology, and comparative neurology. I first taught a course in embryology when an embryologist colleague went on leave. At the time – it must have been about '83 – I took a standard textbook approach to everything, but I had Blechschmidt's material accumulating in my mind and on my desktop. The more I read of him in English the more I thought I had to read the German original. I had learnt a bit of German as an undergraduate, so I felt compelled to pursue this study.

John: Did it help to read it in German?

Brian: Yes, because I felt closer to the original, and could learn about things that had never appeared in the English translations or had appeared in a form that was difficult to comprehend.

John: What is the essence of Blechschmidt's message/philosophy?

Brian: Well, it's basically that much of human anatomy is 'over' by around eight weeks after fertilization. This means that the window of opportunity for a rational account of human anatomy must be sought in the first eight weeks of human life. If one compares, using standard histological techniques, the growth movements of different regions or different organs in the human during this eight-week window, then common rules of development emerge according to the shapes and appearances of cells and the



Dr. Brian Freeman lecturing in Bath
PHOTOGRAPH: JOHN LEWIS

displacements of surrounding structures. This philosophy led Blechschmidt to postulate the various biodynamic fields and to the conclusion that the fertilized ovum is as much a human as the embryo at eight weeks, as the adult at eighty years. So to comprehend the uniqueness of human anatomy one needs to understand this uniquely-human early development without confusing or diluting it with the results of animal experiments. Actually, in the course of his investigations, Blechschmidt tested and disproved the so-called 'Biogenetic Law,' which Ernst Haeckel believed, and his followers still believe, would help account for human anatomy. [Haeckel postulated that the developmental history of the fetus is a recapitulation of the evolutionary history of the race, or that ontogeny is a recapitulation of phylogeny.]

John: Why do you feel that Blechschmidt's approach to embryology is important and what is wrong with the molecular approach?

Brian: In the molecular (or biochemical) approach, the form of the embryo and its organs is not important, or rather the form is often destroyed in order to analyze the chemicals. But we know that form is the essence of life – without form there can be no continuing life. Even if some chemical events happen to continue after the form is altered, this does not allow one to conclude that these same chemical events occur in the intact, living form. Biochemists claim that this is a 'strawman' argument that was put to rest in the 1940s when it was proved that certain chemical reactions occurred *in vitro* with



Brian gets to grips with his subject

similar kinetics as *in vivo*. But this argument of similar kinetics cannot apply to every reaction otherwise there would be no difference between living and dead states.

An historical analogy might help answer this question. The science of mechanics matured centuries before the science of chemistry – the world was secure with Newton's laws of motion at a time when chemists were still trying to turn lead into gold. Even Isaac Newton himself meddled with alchemy. I think that modern developmental biology is in a similar dark age of alchemy with certain acids in one part of the cell playing the role of the philosophers' stone. I think this is why so little progress has been made in over two hundred years of scientific embryology. We need a bio-mechanics of development before hanging all our notions and hopes on a bio-chemistry of development, even if we adorn this alchemical approach with the jargon 'molecular biology.'

Blebschmidt himself commented many times that one approach to human development can never deny another, and that both mechanical and chemical approaches must end up being consistent because it is always the one living entity at the core of the investigation. However, the biomechanical/biodynamic approach is more basic because it provides the spatiotemporal reference framework in which all the separate chemical entities must cooperate. If this framework is

altered experimentally, then a host of new effects will be brought into play making it difficult to determine which particular effects relate to the natural state. The best results in a biochemical investigation will be achieved if the living state is unaltered by the investigation. When this happens, the two approaches (biochemical and biomechanical) will merge. Perhaps by then there will be other approaches too, such as bio-electromagnetic.

John: In what way does Blebschmidt challenge orthodox embryology?

Brian: Academic human embryology is still impregnated with the conclusions and terminology of animal studies – words such as morula, gastrulation, morphogen, induction – which have no place in understanding human development. Worse are studies based on experimental tissue culture, which claim to prove the existence of trophic factors and cell migration in the embryo. Too much university teaching is based on schematic diagrams, such as the flat embryonic disc. There is evidence that some 'structures' in textbooks – a neurenteric canal, an exocoelomic cyst – are simply artifacts that arise during the processing of delicate water-rich tissues with strong chemical agents. Any consistent philosophy that indicates a pathway through this *mélange*, as Blebschmidt's does, must be iconoclastic and unorthodox. The challenging view will be resented and must simmer quietly in the background until sufficient people lose faith in the orthodox view and rediscover the rich lode of Blebschmidt's work. I really believe that a scientific revolution is necessary if there is to be progress in understanding human development.

John: It's not an easy thing to challenge the dominant paradigm. Did Blebschmidt get into trouble with orthodoxy?

Brian: Definitely. He refused to go to scientific meetings in Germany after some bad experiences or debates – I don't know

the details, in the 1950s possibly – and I was told that he just didn't go to meetings from then on. He simply stayed in his department working and learning from his embryos, producing the models, and publishing his main conclusions wherever he could. He was invited once to America and spoke there with one of his sons. He published monographs and many articles. He published in the Roche journal, perhaps because they printed quality photographs of embryos.

John: And what about you? Has your edited translation of his work been well received?

Brian: I had had no echoes from anyone after the book was published, except from a few craniofacial surgeons and some respiratory/thoracic/orthopedic surgeons who asked me to give lectures, and a few medical students who were enthusiastic. In fact, in my job, the translation had the opposite effect – some academics thought I was a nutter to have become mixed-up with Blebschmidt and his philosophy. At one stage my performance in teaching embryology was so questioned that my boss refused to rate my performance as 'satisfactory,' forcing me to be reviewed by the Vice-Chancellor. It was then demanded of me that, if I wanted to teach the biodynamic approach to embryology, I had to teach the molecular approach alongside it. I refused, saying I would not waste my time teaching an approach that I no longer believed in. The pressure built up and eventually I said, 'Fine, get someone else to teach embryology. Get who you like, I'll go and teach gross anatomy.' My bosses were nonplused – it was actually the worst thing to do because it just caused an even more negative reaction. If I hadn't had tenure at the time, I may not have had the courage to defend my academic freedom. But now it doesn't matter, I can say what I want to.

John: Does that mean you've now been accepted?

Brian: Well, not in the universities, but since I've retired I can go and talk anywhere really.

John: I presume you know a little about osteopathy and the way we work with patients.

Brian: Just a little. It was an osteopath who first persuaded me to lecture to other

osteopaths: Michael Solano. I feel grateful to him because, out-of-the-blue, he started encouraging me to teach this material.

John: Do you agree with the idea that the forces of embryology become the forces of healing in the adult?

Brian: Yes, in the sense that the dynamic forces that lead to the genesis of structures and organs and their physiological response patterns to stimuli, these forces continue in some way even after the structure is complete. I also think that disruption in the course of completing these structures, or disruption to the cyclical oscillation of opposing forces, sets in train a new response in the human that may manifest as a congenital anomaly or some other sort of pathology.

Some pathological processes could be reinterpreted in a biodynamic sense, because the pathology of organs could represent a 'natural' reaction to dynamic stimuli as well as chemical ones. For example, why do spicules of bone deposit in the tunica media of certain large arteries? This must occur because there are detraction fields at work there, not just biochemical entities. The biodynamics must involve the totality of forces acting – much more than just blood pressure – probably including the longitudinal stretch of the thoracic aorta with different patterns of breathing, as well as the transverse stresses and the viscosity of what's flowing or shearing against the vessel wall.

John: I'd like you to clarify something about the notochord. I think you were saying that the tip of the notochord, which lies between the pre- and post-sphenoid, is the natural reference point for embryonic growth movements. What do you mean by 'natural reference point'? Does the notochord grow upwards to terminate at this point?

Brian: The tip of the notochord (arising from the axial process of the embryo) is quiescent – there's no cell division here and no cell enlargement. So the tip represents a null (or fiducial) point to which the normal growth movements of other parts of the embryo can be referenced; so it's a 'natural reference' for defining directions and rates of movement. The answer to your second question is no: the tip of the notochord is

not growing, so it is already 'terminated' in the future sphenoid region. The notochord elongates by being added to from behind – it doesn't push its way into the sphenoid.

John: Sorry to labour the point, but from the embryology I've learned, I thought that the notochord began from the primitive pit. Isn't that down at S2? I thought it grew upwards from there.

Brian: Yes, it originates around there, but then one must ask anyone who says it grows upwards from S2 in the midline towards the sphenoid: what's the motor that's driving the elongation of the notochord? And you might get various answers, such as: 'Oh well, the cells of the notochord simply multiply.' But why does it grow in an elongated fashion then? Why does it not grow sideways? Why doesn't

'Some pathological processes could be reinterpreted in a biodynamic sense, because the pathology of organs could represent a 'natural' reaction to dynamic stimuli as well as chemical ones.'

the notochord have sprouts that stick out like a tree in winter, or something like that? We know that there is no cell division in the notochord itself; the only cell enlargement that occurs within it is due to water movement through osmosis as a consequence of the notochordal cells not being able to get rid of their waste products and having a high osmotic pressure. So where's the elongation coming from? It must be coming from the rest of the ectoderm, which is expanding in surface area, turning over and rolling into the funnel called the 'primitive pit.'

John: You mean it's elongating from the primitive pit in a caudal direction?

Brian: Exactly! The notochord is elongating in the axial direction because it's being added to from behind, like a queue at a ticket-window. The ectoderm grows in surface area mainly by interstitial growth (cell division all over the sheet) but the notochord elongates by appositional growth (addition of new cells at a specific place) only at the primitive pit area. As the embryo is growing mainly in a rostral direction, the notochord tries to keep pace and the primitive pit shifts further caudally. What's actually

happening is that the notochord is growing backwards from the future sphenoid region, which is sort of fixed.

John: So the way we've learned it – that the notochord grows upwards from the primitive pit – is wrong? You're saying it's actually the other way around.

Brian: Yes, it's wrong. A little point here: the back of the embryo is never flat like a disc, it's always curved. At the stage we're discussing, the embryo is curved like an 'S' with an inflection point where the curvature changes – that's in the region of the future sphenoid. That inflection stays fixed as the ectoderm folds or rolls over – the rolling rim rolls and rolls all the way down the back of the embryo towards the connecting stalk, leaving the inflection behind, now as the tip of the notochordal process. And so far does it roll, that the growth of the ectoderm must be even greater than what we anticipated because ectoderm is not only making this long sheet, it's also making the full extent of the notochord from the sphenoid region back to

the primitive pit at whatever age. The ectoderm is also pushing and enlarging its surface area 'cranially' and laterally to each side, but the surface growth in these directions is not as great as the extent to which the ectoderm rolls backwards into the funnel of the notochordal process and simultaneously elongates the whole embryo above the notochord.

John: What happens caudal to S2, which we're taught is the location of the caudal end of the notochord? You were indicating that not much research has been done into that.

Brian: The claim that the caudal end of the notochord is located at S2 in human embryos really needs to be reinvestigated and thought about. It's not that simple. There are global shifts in the tissues here. The extent of the primitive streak is shrinking relative to the rest of the embryo. The whole primitive streak tissue is kind of sliding and bending into the back of the primitive funnel/rolling rim area – the 'pit' if you want to call it that – to form a bud-like structure, incorrectly named a 'tail' bud. At the same time, the entire neural tube, its mesodermal bed, and its spinal ganglia are gliding headwards. This movement helps to

create buckling folds in the neural tube at the head end and an increasingly oblique orientation of the spinal ganglia. The categorical claim that the notochord extends from S2 to the sphenoid needs to be reinvestigated because I don't think we know enough of the movement of the bud-like region at the rump of the embryo relative to the 'pit' leading into the notochord and the ascent of the neural tube.

John: You mean the notochord may just continue to roll on down to the tail.

Brian: Yes, overlapping with tissues of the so-called 'tail' bud, and making a neural groove above it, which would account for all spinal cord segments right down to the end. It's just not clear. Species like the chicken, hamster and rat have very well-defined secondary neuralation and independent caudal neural tube development – never spinal ganglia though – and it's not obvious how the results from animal studies can be translated to the human embryo.

John: Rostral to the tip of the notochord the paraxial mesoderm does not form somites. Gray's Anatomy states that the facial skeleton derives not from paraxial mesoderm but from neural crest ectoderm.

Brian: To a lot of people this is a very important distinction. But when you start to realize that the entire ectoderm is making mesoderm, the special concept of 'mesectoderm' for cranial neural crest, from the work of Julia Platt in the 1890s to that of Nicole Le Douarin in the 1970s, becomes less significant. The claim that cranial neural crest is unique because it makes certain head cartilages, bones and musculoskeletal elements, loses its importance. You realize it's no big deal. It's simply middle-layer cells of the embryo (I mean middle in an anatomical sense) being stressed by local forces and making muscle or cartilage or whatever. Put it this way: before I understood Blechschmidt I used to teach that the cranial neural crest was really special because here ectoderm could turn into ligaments, bones, or blood vessels. Neural crest making bone and blood vessels – this was unique! But it's irrelevant. Ectoderm anywhere can become mesoderm and therefore blood vessels. And I bet even endoderm can make blood vessels and connective tissue in some places.

John: The Canadian embryologist Brian Hall wrote a book on the neural crest. I emailed him when I was trying to figure out where the paraxial mesoderm/neural crest boundary lies in the human cranium. He put me in touch with Brandeis McBratney-Owen at Harvard, who emailed me with her views. Where do you think this boundary lies?

Brian: I don't know. It really doesn't interest me because I don't believe that there is a boundary or something like that. I mean if the flank ectoderm leaves cells behind that become somites and if the cranial ectoderm leaves behind cells that can't make somites, then the real question is: why no cranial somites? And then the question becomes: what are the blood vessel patterns in the cranial region compared to the flanks with their segmental dorsal rami of the paired aortas? How is this head region bending? Is the skin flatter or can it be drawn in, in the sense of an intersomitic septum, allowing deeper tissues to bulge outwards? These are the things, the absence of which I would look for in the head region. As for neural crest – it is no different to other cells left behind to become the middle layer of the embryo. In fact there is an argument that neural crest in the flanks of the embryo appears after the ectoderm and the earlier-forming mesoderm have become quite differentiated and sophisticated. So the flank neural crest cells will not have a special driving 'influence' in the embryo but will be subservient to the behaviour of the cells that preceded them, that is, dependent on how the adjacent ectoderm, somites, and neural tube behave. So some neural crest cells are quite constrained.

John: What about the significance of tissue interfaces in developmental anomalies, for example hare lip, cleft palate?

Brian: Many developmental anomalies seem to represent the persistence of a state that the conceptus, or embryo, or fetus has passed through in normal development. Development is altered by perhaps a disturbing influence, a lack of a normal stimulus, a genetic or cytoplasmic anomaly, and the tissues respond as best they can. The earlier a disturbance occurs, the less likely the conceptus will continue to birth.

Cleft palate is a case of arrested development of the palate because it grows initially in a cleft state. Atresia in

different organs represents a persistence of the embryonic state where many tubular structures pass through a stage of self-occlusion during development. Coloboma in the eye is an arrest of an early stage of eye-cup development. Congenital 'holes in the heart' represent states of normal development, as does spina bifida, or talipes varus for the foot. Polycystic kidney represents a persistence of a normal stage in the embryonic kidney before corrosion fields develop between fluid-filled nephrons and the collecting ducts.

Many congenital anomalies may arise from a slowing of developmental processes; some may arise because of over-stimulation in the surface growth of the ectoderm – extra vertebrae and supernumerary digits come to mind.

Interfaces between tissues are always significant for anomalies because organs arise and develop according to the relative growth-displacements – growth movements – of adjacent and nearby tissues. However some congenital anomalies involve patterns of disruption involving organs that appear to be distant from one another. These syndromes may have a common cause in the dominance of the growing nervous system, which we know is the fastest growing tissue at certain times and is sensitive to disturbance. For example, hypospadias in male newborns may be associated with reduced head girth. Anything at all (virus, temperature, chemical, radiation, genetic error, etc.) that affects the dynamics of growth movements and their metabolic fields may lead to congenital anomalies.

John: Which brings us back full-circle to Blechschmidt's primary premise that the biodynamic and biochemical approaches (and, as you added, any other approach such as bio-electromagnetic) must be consistent and all must be taken into account for a complete understanding of the developing organism. As we say in osteopathy, structure and function are wholly interdependent.

Brian: Yes, and Blechschmidt would make an even stronger statement that the very function of a structure is the way it develops.

1. Blechschmidt, Erich. 2004. *The Ontogenetic Basis of Human Anatomy*. North Atlantic Books, p. 18.
2. Blechschmidt, Erich. 1972. 'The first three weeks after fertilization.' *Image Roche*, Basel (1972) 47: 17–24
3. Blechschmidt, Erich. 1977. *The Beginnings of Human Life*. Springer, New York.

POSTSCRIPT

BY

CONFERENCE ORGANISER

CHRISTIAN SULLIVAN



At the conclusion of the conference Christian gives thanks as Brian receives a standing ovation

FEEDBACK ABOUT Dr. Freeman's lectures continues to flow in. The main comments are the amazing clarity he brings to a topic that so many of us have wrestled with in personal study. For me there were many eureka moments where the penny really dropped for the first time, with several myth-busting revelations that really blew me away. Here are a few gems:

HENSEN'S NODE is an artefact of the preparation of embryos. What? I learned that Hensen's node is supposed to be a funnel-shaped opening, located at the future tip of the coccyx, where the kiss of the Breath of Life caused the involution of function and created mesoderm. Well it's a bit like that, but different. You have to look to the concept from the perspective of the greater degree of movement of the embryo's surface ectoderm relative to the underlying endoderm before you can understand that there is a place of stillness around which cells are added that may or may not become mesoderm. *The Ontogenetic Basis of Human Anatomy* clears this up nicely, with great illustrations.

CELL TYPES/FUNCTIONS are fixed: ecto-, endo-, or mesoderm. None of it; cells can exchange function and change into one another according to location. Dr. Freeman refers to *mesectoderm* and explains that the mesoderm is created by a transmutation of one cell type into another as a fluid process whereby the ectoderm leaves cells behind or squeezes them out as it lifts away from a firmer substrate. According to Dr. Freeman,

'location, form, structure' is the sequential process of embryonic development, with function resulting from growth movements. How exquisite – the cells are told what to be according to their location within the whole. They are not told what to be by the genes, a full understanding of which we are led to believe will solve all of mankind's ills. It is the whole that speaks to the cells. That sounds like the primary principle of osteopathy: 'the body is a self healing, self-regulating unit of function; the whole creates, manages and fixes the parts.' It is this principle that makes osteopathy a holistic practice, totally distinct from symptom based physical therapy approaches. Without this principle acknowledged, taught and practised, we are finished as a separate healthcare profession.

THE EMBRYONIC DISC of two cell layers is never flat. Hmm . . . so every picture I've seen in umpteen embryology books is wrong. I had already twigged that this must be so after studying Dr. Blechschmidt's text and fantastic drawings; but after having it so bluntly stated, with examples of the nonsense printed in contemporary textbooks flagged up by Dr. Freeman, I shall no longer refer to the embryonic disc as being flat. I loved his comment that no cells are ever rectilinear (cuboidal, columnar, etc) – there are no flat surfaces anywhere either in the embryo or the adult.

ANOTHER MYTH is that the central tendon of the diaphragm, and the cells that create both it and the cardiac tissue,

was once above the head before it swept down in an arc around the developing head/CNS. This erroneous view began 90-odd years ago by an interpretation of a drawing of an embryo, reproduced in textbooks ever since with further deceptive embellishments. Pretty well the opposite is the case – the head/CNS grows up in an arc around the area destined to be the heart/central tendon. The heart is formed in an exquisite fluctuating motion, a washing back and forth across the area of the future lower thorax, as a need to support the local metabolic activity is accommodated. Simple, sweet, and very clearly described by Dr. Freeman, with the use of his tie as a great teaching prop!

Dr. Freeman also falls firmly in the camp that the heart is not a pump but a reactive 'direction changing' vessel, and that circulation is driven by metabolic gradients in the same way that the circulation in the embryo begins its existence. This was a bit of a shock for me (I clearly don't read enough). The significance of this – and its corroboration of osteopathic teaching for the last century or more – is affirmation that pretty well all heart problems have their origin in compromised circulation somewhere else. (Dr. Still's goat and boulder story, chronic high sympathetic tone, etc., come to mind). Plus, it is great example of how function drives structure, as Dr. Littlejohn taught.

I hope that all osteopaths enjoy and appreciate Dr. Freeman's teaching as much as I have. Look out for details of a possible return visit in 2012.

BLECHSCHMIDT:

AN EMBRYOLOGY SUITED TO OSTEOPATHY

JAMES JEALOUS

I CHOSE THE NAME BIODYNAMICS for a new osteopathic curriculum because it was clear to me that Dr. Sutherland and such embryologists as Blechschmidt, Gasser, De Haan and Freeman had much in common.

The story begins in 1966 with my first course in Sutherland's work. I was intrigued but, like any university trained person, skeptical about cranial osteopathy. I graduated from Kirksville in 1970 after completing a fellowship in anatomy, did an internship, and went into rural practice as a GP. I made hospital rounds, delivered babies, made many house calls, and was on call most of the time. As an American DO I could prescribe drugs, but most of my care was osteopathically based, using mostly functional technique, nutrition, and long conversations directed towards Cause as the primary tools in practice.

Embracing skepticism, I set out to see if Magoun's book was accurate. I listened to the cranium in search of Primary Respiration and involuntary tissue motions. Functional cranial work (indirect) proved very helpful for my patients, but I did not understand why it was so powerful. I continued my research as a modest skeptic and was constantly involved in mentoring students in my office, some of whom offered to help me. We set out to dissect the dural system and get some good anatomy slides, only to find that the

dissections challenged the 3-sickle model. We found that there were two tents, and a dural sac that functions as a single unit. Plus in infants there was an epidural space, so the idea of ligaments in the cranium moving the bones had to be reconsidered.

As a result I began to research the growth and development of the dural system, and in doing so studied the 1978 Symposium

and books I realized that Blechschmidt and Sutherland were discussing the same fluid. I then began to explore a premise that the embryological forces of growth and development are present throughout life as healing and sustaining metabolic processes. This premise is the foundation of Biodynamics.

When I applied it in treatment the clinical results were much like what Sutherland said – 'uncanny.' My practice was overflowing with unexpected cures. Students pushed me for explanations and supported the project with dissections and study, often bringing articles that heightened our understanding.

UNDERSTANDING ANATOMY as metabolic movements changed my perception. Is anatomy static or dynamic? How does the answer fit into a model of healing and repositioning? I reread Dr. Still's description of 'what is anatomy' in his Philosophy of Osteopathy, pages 16-19. There it was again, the same premise. In his case he saw it directly; I was climbing a steep hill towards his words with limited experience.

In practice we continued to prove our premise that the embryological forces persisted throughout life, and younger physicians who worked with us gleaned the same remarkable results in their general practice.

Along the way some British osteopaths joined with us, and we formed a transatlantic study group that flourished with mutual respect and love. The



on the Development of the Basicranium from NIH. These studies contained descriptions of metabolic fields that behaved exactly like Sutherland's descriptions of Fluid Dynamics. I reread every word of Sutherland and began to read Dr. Erich Blechschmidt's studies. After five years of reading piles of articles

friendship of fellow travelers into an unknown, uncharted sea hastened the pace. The training began to take shape along with the realization that we could not condense twenty years of research and practice into 25 hours.

The Biodynamics courses began informally in 1990, as pieces, and formally in 1993. The courses are full to this day with interested professionals. There has been no promotion of these courses. Those who want to know come. This is how the profession has grown . . . mentors, students, professional friends and research that flow into practice. The proof is in the clinic, patients with all manner of disease being seriously helped.

Embryologists do not feel living systems. Sutherland did. There is, without a doubt, more about fluid dynamics to be learned from applied clinical osteopathy than from embryology. I say this not to create conflict but to point out that our hands are listening to a system that creates living functions and sustains them. We are listening to nature at work. We do not understand how but we can learn to communicate and cooperate with metabolic expressions that with time become as familiar as any natural landscape. The indwelling therapeutic forces that Dr. Still knew well were coming alive.

As clinicians our interest is in embryology in motion, its physiological wisdom.

THE MYSTERY OF FLUID DYNAMICS. Both Blechschmidt and Sutherland used their senses to observe fluid dynamics, Blechschmidt with a microscope, Sutherland with proprioception. Their outcomes were similar. If one compares their descriptions of fluid dynamics one arrives at images that are exactly the same. Both describe fluid compression activities, expansion activities, opposing physiological motion activities, et cetera. Sutherland studied the fluid when it was still, in dynamic pauses and when it was at work reorganizing lesion dysfunction. Sutherland saw that fluid could lesion, inhibiting osseous motion. This insight has far reaching implications.

The problem of the nature of the 'fluid' has been a dilemma for years. There are many reductionist theories that have failed. The fluid is not water-like. It is protoplasmic in nature and therefore has a livingness that has a decision making capacity. Both Blechschmidt and Sutherland observed this.

Protoplasm is the first moldable substance that can hold an image. Protoplasm becomes ectoderm, mesoderm and endoderm. That sounds simple except all the layers can become any of the other layers. The fact that the program is not set in stone and has the capacity for transmutation fits Sutherland's observations about 'fluid dynamics.' He also saw that at neutral all the fluid would interchange, resulting in powerful anti-inflammatory and transmutative phenomena. We have diverse bodily fluids arising from one fluid (protoplasm). The fact that protoplasm and its offspring can transmute raises more questions about the brain behind it all, because the CNS has not yet developed when this occurs. Embryology points to an extra-genetic cause for the form and functional organization of the organism.

FINDING CAUSE is an osteopathic principle. Cause is a mystery, a mystery of wholeness. Wholeness is a living reality that creates the parts which are an expression of the whole, nothing less. Parts are not the cause we are pointing at in osteopathy. Fluid is not a fluid in the usual sense of the word, it is a symbol of fluency.

WHY THE WORD BIODYNAMICS? In all contexts this word points to a Mystery. Life is dynamic. All of life as a whole is Life. Blechschmidt was able to prove that there were extra-genetic forces at work in the unfolding of embryonic life as a wholeness. This means something beyond today's science.

Osteopathy as envisioned by Still recognized something he called Life. Again, a wholeness, not the sum of the parts. The action of wholeness is a Mystery. No one can capture it with instruments. Blechschmidt states that something from outside the embryo influences its growth, a biodynamic principle.

“Biodynamic = Mystery beyond laws framed by human hands.”

Still and Sutherland both sensed this principle. Sutherland actually asked his wife to paint a picture of a house under the sea, transparent to the motion of

Primary Respiration. This was his summation of years of research. An outside force passing through us creating and sustaining Life and our little life as we know it.

This Tide in the Sea around and through us was called Primary Respiration. It was our most immediate environment. It influences all indwelling healing and sustaining forces.

The similarities between Blechschmidt, Still, Sutherland and their followers is a direction we can respect. They were all men of integrity and service. Sutherland began as a skeptic, which is healthy. We are all skeptics in a way and that is how we learn to accept the Mystery.

Blechschmidt writes in *The Beginning of Human Life* that 'the Mystery is known only to the embryo.' This phrase touched me in a place that moves my whole quest for healing. The innocent know the Mystery. The embryo, a pure and innocent whole, became an archetype for what Still called the Health. This sense of something perfect in oneself, veiled in secrecy, open only to neutrality and innocence. This set my heart on fire in a way I can not explain – nor can I explain the Mystery – and now as I approach 70 the Mystery has a sensation, a presence in every patient. From there comes a fire that sustains and heals. A potency that transmutes exactly as Sutherland reported.

'OSTEOPATHY is only in its infancy, it is a great unknown sea just discovered, and as yet we are only acquainted with its shoretide.' A. T. Still. *Philosophy of Osteopathy*, preface.

Hedwig Verdonk to Dr. Anne Wales, age 100: “Anne, how did you manage to grow so old? Do you have a secret?”

Anne: “Yes. I have no enemies. Ire depletes the adrenals.”

CHARLOTTE WEAVER

PIONEER IN CRANIAL OSTEOPATHY

MARGARET SORREL

A 1912 graduate of the American School of Osteopathy, Charlotte Weaver (1884-1964) was a trailblazer in the field of cranial osteopathy. She researched and published, taught a postgraduate course to osteopathic physicians in her hometown of Akron, Ohio, lectured extensively in the US and Europe, and maintained a part time practice in Paris. So how is it that most of us know nothing of the contributions of this remarkable osteopath? We can only conjecture why she disappeared from our knowledge of cranial osteopathy. She and Sutherland were researching what we now know as the cranial concept at about the same time, and while it is clear that they knew each other, they never collaborated. Had they done so we would not have been working with such an incomplete concept for most of the last century.

While a student at Kirksville, Weaver became interested in the central nervous system and its embryonic development. A. T. Still personally encouraged her to research the circulation from the head through the spinal cord and back again – a topic that she related had been his ‘most consuming personal interest,’ though he lacked sufficient time to pursue it because ‘osteopathy had to come first.’

Some of Weaver’s ideas, terminology and definitions differ from our modern day understanding, but it is important not to dismiss her conclusions based on intermediate steps that might now appear to be ‘incorrect.’ Her contributions are compelling to study and the more time you spend trying to understand them the more powerful they become. Let me offer a few tidbits that might prompt you to dig on.

A detailed study of embryology led Weaver led to recognize the bones of the cranium as morphological vertebral units embryologically consistent with those of the axial skeleton.

She asserted that the skull bones represent three highly modified vertebrae,



Charlotte Weaver aged about thirty

possessing both articular surfaces and true cartilaginous intervertebral discs, that remain until puberty or later and occasionally throughout life.

In her model the centrum of the first cranial vertebra is the dorsum sellae, the second the basisphenoid, the third the basiocciput. She regarded each skull bone as a morphological component of one of the three cranial vertebrae, with the

borders of each vertebra forming the borders of the three brain vesicles (prosencephalon, mesencephalon and rhombencephalon).

As we ponder the existence of an articulation at the dorsum sellae/basisphenoid (composed in the adult of cancellous bone identical to that found in the basisphenoid), it is sobering to consider the number of patients we

have failed to treat appropriately because we were not aware of the significance of the anatomy of this region.

The first axial organ to form in the embryo is the notochord, extending through three morphologic regions: cephalic, pre-caudal, and caudal. Lateral to the notochord lies the paraxial mesoderm, from whose medial part arise the sclerotomes that form the osseous axis, and here the process of segmentation yields all bony vertebral components. Weaver believed that the bodies (centra) of the vertebrae and their respective discs derive from the notochordal sheath while all other parts derive from the vertebral bow.

To follow her arguments an explanation of terminology is useful. In the spinal region, once the paraxial mesoderm that forms the sclerotome has surrounded the notochord it is known as the 'vertebral bow.' The vertebral bow is composed of two parts, the 'hypochordal bow,' which gives rise to the transverse processes, and the 'neural arch,' which gives rise to the pedicles and their roots, the laminae, the spinous processes, the articular facets and the ribs. In the cephalic region, the continuation of the paraxial mesoderm is known as the 'basilar plate,'

a structure Weaver identified as comprising the forward extension of the notochord, the notochordal sheath, and the neural arch portion of the vertebral bow.

The basilar plate gives rise to the basilar portions of the occiput, sphenoid, and dorsum sellae. Weaver suggested that the cephalic portion of the paraxial mesoderm mirrors, with minor adjustments, the pattern of embryological development in the axial skeleton. She asserted that the point where the cephalic end of the growing notochordal plate comes to overlie the caudal end of the backward growing prechordal plate is crucial to the differentiation of the cranial vertebrae. She believed that the segmentation of cephalic vertebral units is mirrored in brain vesicle development also, and that the order of segmentation and timing of various embryonic stages provide answers about why various parts of these cephalic segments lie geographically anterior to their bodies, and why all flat bones of the skull ossify from membrane rather than cartilage.

Weaver asserts that several confusing ideas maintained by embryologists of her day were responsible for our failure to see the cranial portion of the developing

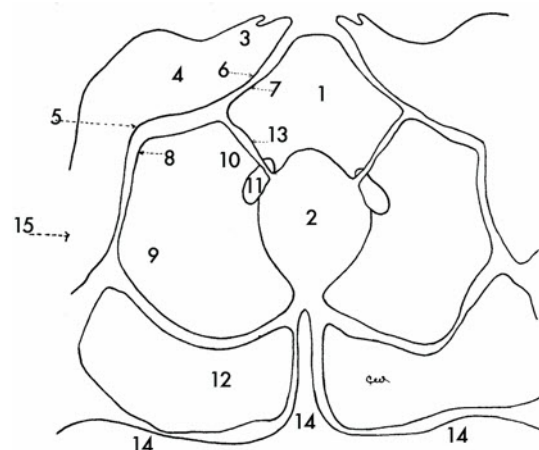
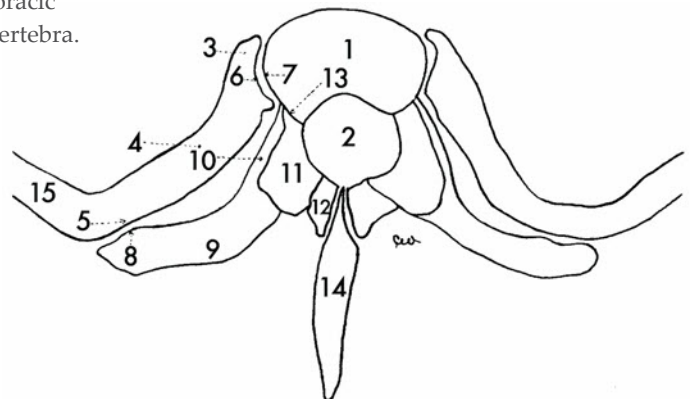


Margaret Sorrel, DO, FCA

embryo as analogous to that taking place in the axial skeleton. One of these concerns the differential identity of the prechordal plate (the most cephalad extension of the sclerotome that develops into the presphenoid) and the basilar plate. This confusion stemmed from other embryologists failing to see that embryo segmentation takes place cephalad of the atlas. In the modified vertebrae of the cranium the segmentation regularly

CHARLOTTE WEAVER'S schematic diagrams comparing the same morphological parts of: (top) superior surface of fifth thoracic vertebra, and (bottom) superior surface of third cranial vertebra.

1. Centrum of body.
2. Neural canal.
3. Head of rib.
4. Neck of rib.
5. Articular tubercle.
6. Articular facet.
- 7/8. Costo-articular facets.
9. Transverse process.
10. Pedicle of neural arch.
11. Intervertebral articular facet.
12. Lamina of neural arch.
13. Neurocentral suture.
14. Spinous process.
15. Shaft of rib.



maintains the separate identity of the hypochordal bow whereas the dorsal differentiations result, in reality, in a dedifferentiation of the hypochordal bow in which it fuses with and becomes lost in the vertebral bodies. A detailed explanation can be found in the book.

Weaver further concluded that the notochord, after traversing the basiocciput, basisphenoid and dorsum sellae, enters the sella turcica and contributes cells to the posterior third of the posterior lobe of the pituitary. She postulated that the posterior third serves as a 'neuromesodermal integrating center' that plays a role in the differentiation of the body's connective tissues.

In 1935 Weaver presented her thesis to the Board of Trustees of the American Osteopathic Association and, between 1936 and 1938, with their hearty endorsement published thirteen scientific papers in the *Journal of the American Osteopathic Association*.

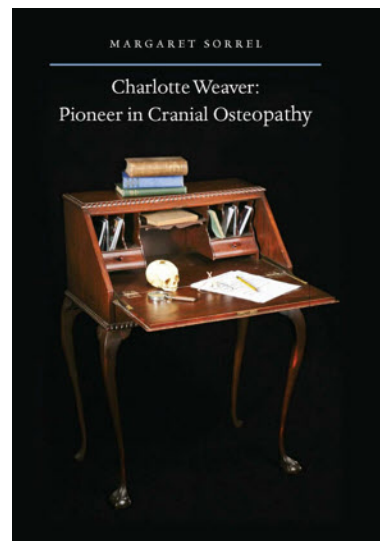
I personally became interested in Weaver's research in the 1990s and, in 1998, outlined her life and contributions at the Cranial Academy conference in delivering that year's Sutherland Memorial Lecture. Twelve years later I have just completed a book which I hope will be a springboard for practitioners all over the world to learn from a truly great osteopath. I hope scientists will take up some of the research projects she proposed but did not complete. And I hope that the new visual picture of anatomy that Weaver provides will contribute to a more complete understanding of the anatomy and function of the central nervous system, and the house that contains it, for those of us who have taken this up as our life's work.

The in-depth study I have done of Weaver's contributions has opened my eyes to levels of treatment that eluded me for many years. I now treat the region of the dorsum sellae through the tentorium and the anterior dural girdle. Colleagues have joined me in my study and their work too has been enhanced by this new vision of the structure and function of the cranium. Since our ability to treat is in large part based on our ability to hold anatomical images in our minds, this new conception of cranial anatomy can prove to be quite a gift.

I commend this study to each of you. May it enlighten your hands.

MARGARET SORREL'S *Charlotte Weaver: Pioneer in Cranial Osteopathy* can be purchased from the Cranial Academy: www.cranialacademy.org.

This multi-faceted book outlines Weaver's personal story, offers historical commentary on aspects of her relationship to Sutherland, and includes 'The Song of Osteopathy,' her epic poem about the life and path of A. T. Still – whom she knew personally. The main body of the text consists of reprints of Weaver's thirteen articles which, though often challenging, are made accessible by interpretive summaries written by Dr. Sorrel. A section is devoted to the motion dynamics of the dorsum sellae/basisphenoid articulation, illustrated by x-rays and photos and, since Weaver herself left no record of her techniques, possible treatment approaches to this region. Three



appendices contain a table of morphological parts of the three cranial vertebrae, Weaver's proposed research projects, and reprints of short articles that give a flavor of her work as an osteopathic family physician.

ROLLIN BECKER:

"Biokinetic energies or forces are always at work in all physiological and pathological processes. If we were to add an environmental force or kinetic energy to body physiology to produce a strain – such as a blow, a fall, or a twist – we would now have a specific a pattern of disability manifest within the body mechanism. It is now a biodynamic energy field plus an environmental energy field – the force it took to produce the strain. . . . To the outside observer watching our work, our hands are apparently lying quietly on the patient, but the motion, mobility, and motility we sense from within the patient is considerable, depending upon the problem. There is a deliberate pattern the tissues go through in demonstrating the strain within them. They work their way through to a point at which all sense of motion or mobility seems to cease. This is the point of stillness. Even though it is still, it is endowed with biodynamic power. This is the area of the potency for this strain pattern. This is a still point within this functioning unit. A change takes place at this time, which the physician records more with a sense of awareness that a change took place rather than actually being able to feel it."

Life in Motion, p175.

BOUNDARY ISSUES

PARAXIAL MESODERM / NEURAL CREST ECTODERM

A MODEL FOR CRANIAL TREATMENT

JOHN LEWIS

For the winter 2009/10 SCC Newsletter (Issue 30) I wrote an article called 'Somites, Segmentation, and Pharyngeal Arches,' exploring the 'boundary' between cranial bones derived from paraxial mesoderm and from neural crest ectoderm. I mentioned that we generally think in terms of a separation into the bones of cranial base and vault, or into bones that ossify in cartilage and those that ossify in membrane, and that perhaps we should also think in terms of bones derived from paraxial mesoderm and neural crest ectoderm, and the interface between the two.

I took as my guide *Gray's Anatomy*, 39th Edition, page 447: 'Head development is distinct from that of the trunk. Evolution of the vertebrate head was made possible by the origin of a novel cell population, the neural crest.' I said that the boundary between these two distinct cell lines is between the pre- and postsphenoid, where the rostral end of the notochord forms a hook-like extremity, and that the notochord is the organiser of axial segmentation, giving rise to four occipital sclerotomes in addition to those of the rest of the spine.

Gray's states that all bones caudal to the postsphenoid derive from paraxial mesenchyme and that all bones rostral to it derive from neural crest. The midline frontonasal NC mesenchyme gives rise to the frontal bone, ethmoid, nasals and premaxillae; the bilateral NC mesenchyme of the first pharyngeal arch, surrounding the primitive mouth, forms the mandibular and maxillary processes (the latter giving rise to the maxilla, zygoma, palatine, sphenoid lesser wings, squamous temporal, palate, malleus and incus). The stapes, styloid process, and hyoid come from the second and third arch.

When I wrote this I was unaware that the location of the NC-mesoderm boundary is an issue

occupying cutting edge scientific research. In trying to ascertain where this boundary lies (textbooks do not all agree) I purchased Dr. Brian Hall's *The Neural Crest and Neural Crest Cells in Vertebrate Development and Evolution* and contacted him because the picture still remained unclear. He told me that the boundary varies between species and suggested I contact Dr. Brandeis McBratney-Owen of Harvard University who had researched the subject. She replied:

My work focused on the boundary in the mouse cranial base (McBratney-Owen et al., 2008; *Development and Tissue Origins of the Mouse Cranial Base*; *Dev Biol.* 2008 Oct 1;322(1):121-32). Combining that with the published work done in chicks, we can make some hypotheses about humans. In the mouse, the boundary between neural crest and mesoderm derived bones is between the basioccipital and basisphenoid bones. Technically the cartilages that derive from these bones, the hypophyseal and parachordal cartilages respectively, are the true boundary. This boundary is also coincident with the cranial end of the notochord. Once ossification begins, the hypophyseal cartilage ossifies as the basisphenoid bone and does appear to have some mesodermal contributions in the caudal portion.

In the chick the neural crest-mesoderm boundary is also formed at the prechordal-chordal boundary but this is located between the basi-presphenoid and basi-postsphenoid (i.e. in the middle of the sphenoid complex), which differs from mice. But I note in my paper that I believe there are some problems with terminology use and homology of the cartilages/bones between chick and mouse. We can at least say the boundary for both mouse and chick respect the prechordal-chordal boundary.

So I find it most reasonable to say that in humans the nc-m boundary could be coincident with the prechordal-chordal boundary (as it is in both mouse and chick). In the human, the notochord extends into the posterior part of the sphenoid (homologous with the hypophyseal cartilage/basisphenoid bone of the mouse . . . and note in the human the notochord



actually is within cartilage while in mice it sits above the cartilage and does not go beyond the parachordal cartilage). So one could say the human notochord extends as anteriorly as it does in the chick (into the middle of the sphenoid region) and may thus have a nc-m boundary within the middle of the sphenoid (at the intra-sphenoidal synchondrosis (ISS) which is homologous with the presphenoidal synchondrosis of the mouse; the ISS is at the bottom of the sella turcica and fuses at birth in humans).

Alternatively the human could have the boundary between the same cartilages as the mouse (between the hypophyseal and parachordal) but then it would violate being coincident with the prechordal-chordal boundary. I would go with greater and lesser wings and pterygoid plates all being derived from NCC (those are NCC derived in mice).

The question really boils down to the hypophyseal cartilage – in humans, is it derived from NCC or mesoderm? I personally would stick with it being consistent with the prechordal-chordal boundary (so it would be mesoderm in humans but NCC derived in mice) but that is not observed fact, just my opinion.

Combining Dr. McBratney-Owen stress upon the importance of the prechordal/chordal boundary with where the ossification centres are located, my best guess is that in the human skull the mesoderm/neural crest boundary lies at the coronal suture (as does *Gray's Anatomy*). I surmise that the parietals, sphenoid greater wings and the major part of the temporal bones are of mesodermal origin, while the temporal squama, sphenoid lesser wings, frontal, and all facial bones are of neural crest origin.

But does the notion of a 'boundary' really matter? Brian Freeman thinks not. 'I see no need to draw a distinction between neural crest bone and paraxial mesoderm bone,' he wrote when I asked him. 'To me neural crest cells are nothing special at all – just polyingressed ectoderm cells that can be 'left behind' (translocated) anywhere in the embryo to become middle-layer cells. What they then do will depend on their location and when they got left behind relative to other cells in the middle layer.'

In his opinion the mesoderm-NC boundary is merely 'hypothetical.' He believes that 'there cannot be an actual (i.e., spatially definable) interface here.' And he adds, 'Given that I think that mesoderm arises anywhere in the body by polyingression, I consider that there is no discontinuity between, say, head and neck mesoderm. An example: some (e.g., in Leiden) believe that some limb bud mesoderm can arise directly from the limb bud ectoderm by being left behind as the limb ectoderm lifts and grows away from its substrate/bed of flank mesoderm. However this does mean that there is a definable or significant boundary between this mesoderm and flank/paraxial mesoderm somewhere, say, near the root of the limb bud. In other words the distinction of 'paraxial,' 'cranial,' and 'limb' mesoderm is not a functional (not significant for anomalies) but merely spatial in a general sense. The embryo does not care where it gets its mesoderm cells from or how they are dragged, shoved, or loosened by the overlying growth motors of the epithelial sheets – the embryo never had to read a textbook!'

I put to him that my copy of *Gray's Anatomy*, pages 493-4, states, 'The vault of the neurocranium is formed entirely by intramembranous ossification and its elements a frequently described as dermal bones. They are the frontal and parietal

bones, the squamous part of the temporal bones and the upper part (interparietal) of the occipital bone. The frontal and squamous temporal bones are of neural crest origin and the parietals are of mesodermal origin; the interparietal is mixed. The coronal suture thus forms the neural crest-mesoderm interface, as does the sagittal suture, due to a small tongue of neural crest tissue lying between the two developing bones. These tissue interfaces may be significant for initiating the signaling system that governs growth of the skull vault.'

He replied, 'I would be astonished if the hypothetical cranial neural crest/paraxial boundary lay along a suture because sutures arise according to the pattern of the dural girdles that, in turn, are occasioned by the total dynamics of brain growth, which is eccentric above the more solid cartilaginous basicranium and is buckling within the confines of a stretching skin. That is to say, sutures are as much a consequence of total growth, like everything else in the embryo – sutures are not determined by local conditions or interfaces or discontinuities.'

Nor, for that matter, does he see a need to distinguish between the bones that ossify in cartilage and those that ossify in membrane. He states, 'For every bone in our body the first sign of ossification occurs in a membrane. In the cranial base, ossification occurs initially in the perichondrium of the cartilage and later (and deeper) on the surface of the delicate matrix left by the dying chondrocytes (topologically also a kind of thin perichondrium or membrane). This is no different to say, the ossification in the distal epiphyses of our terminal phalanges in hand and foot or in the calvaria, which is intramembranous in each case.'

But he adds, 'If you mean 'boundary' in general, as say the normal tissue interface between endoderm and mesoderm or between ectoderm and mesoderm, Blechschmidt stressed that such a boundary/interface between a limiting (epithelial) tissue and an inner (connective) tissue must be significant for development and thus for many anomalies.'

Nevertheless, I cannot let go of the idea that from a treatment point of view there is indeed something valuable in the cartilage/membrane and mesoderm/neural crest interfaces, hypothetical or not. The big question for us as osteopaths is, how does the structure and function feel to our palpation?

I have applied the paraxial mesoderm-neural crest 'interface' as a model in treatment for the past year (along with the pre- and post-sphenoid refinement of the sphenoidal/occipital spheres of influence as taught on Module 6: The Dynamic Basicranium) and found it incredibly powerful for treating a host of problems. In fact I use it all the time, in patients of all ages, from infants to adults. I asked Module 6 course director Liz Hayden for her opinion on the matter. She wrote back:

'I was fascinated when John wrote his article about the mesoderm/neural crest boundary in the cranium. In practice I had been working with the concept of pre- and post-sphenoid and their spheres of influence, feeling as though they functioned independently – which is usually a feature of a different embryological origin. His research into the mesoderm and neural crest origins made perfect sense of what I had been palpating, and I am grateful to him for 'digging on' to clarify this. When we understand the embryological origin of tissues, we are able to connect to a memory of health that is more fundamental than when we just work with adult anatomy.'

What do *you* think?

EMBRYOLOGY: UNDERPINNING OUR OSTEOPATHIC APPROACH

A PERSONAL PERSPECTIVE

CLIVE HAYDEN

I was sorry not to be able to attend Brian Freeman's recent conference, but would like to share my thoughts about the importance of embryology to osteopathic practice. My real interest in embryology began in the late 80s when a group of us shared an extraordinary week at Bar Harbor in Maine with like-minded American osteopaths including Dr. Jim Jealous. Liz and I chose to do a presentation on conception (not literally!!) and the significance of the male and female genetic contribution to the developing child – so our interest was 'germinating' in this area of study. Others among this group were developing a burgeoning interest in embryology too, and Blechschmidt's work was being talked about a lot.

My ruling thought when I study embryology – or for that matter most osteopathically related topics – is, how is this relevant to clinical practice? There are so many examples of how



comprehending aspects of human development has informed my anatomical knowledge and osteopathic practice that I have come to appreciate that without some knowledge of embryology my understanding feels incomplete.

For example I can still remember the light-bulb moment when the descent of the heart from the cephalad end of the developing neural tube was explained to me. Especially when it was also explained that the primitive mesoderm became the pericardium and mediastinal membranes over the great vessels. The clinical implications became instantly clear: this is how the diaphragm connects with the cranial base and is a very probable link between tension states in the diaphragm (often stress induced) and headaches or migraines.

Other examples are the developmental phases of the sacrum and the innominates. To me the sacrum still behaves as five separate segments throughout life, as do the three parts of the innominates. Understanding the embryological origins of intra-osseous distortions that present in practice has improved my clinical effectiveness and given me a better understanding and palpatory awareness of the causes underlying the presentation of patients' symptoms. *This is SO IMPORTANT to me – how can we, as osteopaths, do the best possible job in helping our patients? Is osteopathy fulfilling its true potential in treatment?* These are potent and powerfully motivating questions. Seeking answers to them guide us on our lifelong learning quest, which includes understanding embryology, and ensures that we always have much to learn, which can only be a good thing.

Another example is how understanding the notochord as a primitive segmented tube, as in the lamprey fish, has helped my approach to the treatment of prolapsed IVDs. At times I consider the spinal column to be just that – a segmented tube. I consider the disc to be at the centre of a segment that encompasses the adjacent halves of the vertebral bodies above and below it, and then feel if the tube is kinked or folded through one particular disc, putting it under continual pressure. Understanding carries with it the key to change, as our awareness and our fingers can meet and recognise the functional disorder within the tissues. The response and subsequent improvement of that disc picture is enough for me to know that the approach seems to have helped the patient.

Likewise at times I also treat the limbs, particularly the lower extremity, as a tube that developed flexible areas that we call joints. Initially the limb forms as a rod and, by selective cell death, spaces are formed which develop into the joints. Understanding this enhances the feeling of tissue continuity throughout the limb, and provides an insight into how the anterior and posterior cruciate ligaments of the knee link the

intraosseous membrane between the tibia and fibula to the periosteum and central cortex of the femur. This enables me to treat the whole leg, and not to feel that its parts are separate entities.

Let me illustrate how embryology can inform treatment by briefly presenting a case history.

DURING THE LAST YEAR a 4-year old boy with unilateral torticollis and developing scoliosis presented in our practice. His younger brother had bilateral torticollis – interesting because it is not supposed to be a congenital condition and there was no reported family history of torticollis. The birth histories were not relevant because the elder boy was an elective caesarean and the younger a normal delivery. The mother had suffered with ME for a long time, a legacy of contracting psittacosis aged 10. As the cases were complicated I asked Liz to be involved, and we treated both boys and mother as 4-handed ‘doubles’ over the better part of a year.

What seemed important to our eventual understanding of the case was an apparent interruption in the development of both boys at a very early stage, approximately 19-24 days. That period encompasses the elongation of the heart-tube in the thorax. The relatively slower anterior growth induced by the dorsal aortae holds the foetus in flexion and helps to generate the compression that transforms the primitive mesoderm of the cranial base into cartilage. This is followed by a stage of lift or elevation of the face, with the contrasting stretch through the face giving rise to the membranous bone of the mandible and contributing to the development of the sternocleidomastoid muscles.

This stage appeared to have been interrupted in both boys and, in our opinion, contributed to their lack of the SCM development. Our suspicion was that in some way, the mother’s health issues had in some manner either affected her DNA (and consequently the boys development) or, in a similar manner to how German measles affects foetal development, she still carried a virus with teratogenic effects.

As I have mentioned, understanding the cause carries its own therapeutic response from the patient. When we palpated in the boys an apparently tight tethering of the heart, pericardium and great vessels, and considered the diagnostic developmental possibilities, substantial releases and changes occurred. Obviously the SCMs were not going to regenerate but it seemed that the treatment achieved a much healthier tissue state which, in both cases, alleviated the strain and load within the thorax and pericardium.

I could continue on to speak of the lungs, heart, RTM, face, mandible, hyoid, sternum, intestines, stomach – and everything else. In every case, studying their development contributes to informing my understanding of the type of motion present in each tissue and helps the effectiveness of my osteopathic treatment – and that for me is a huge thing.

Finally – and perhaps most importantly – when you have a palpatory recognition and awareness of the embryological derivations of a tissue, the answering response from the tissues is so much more potent than seems achievable. The ‘health’ (vigour or vitality, if you want other names) becomes engaged and the potential for change seems to hark back to recall the endless growth possibilities and zest for life inherent within the embryo.

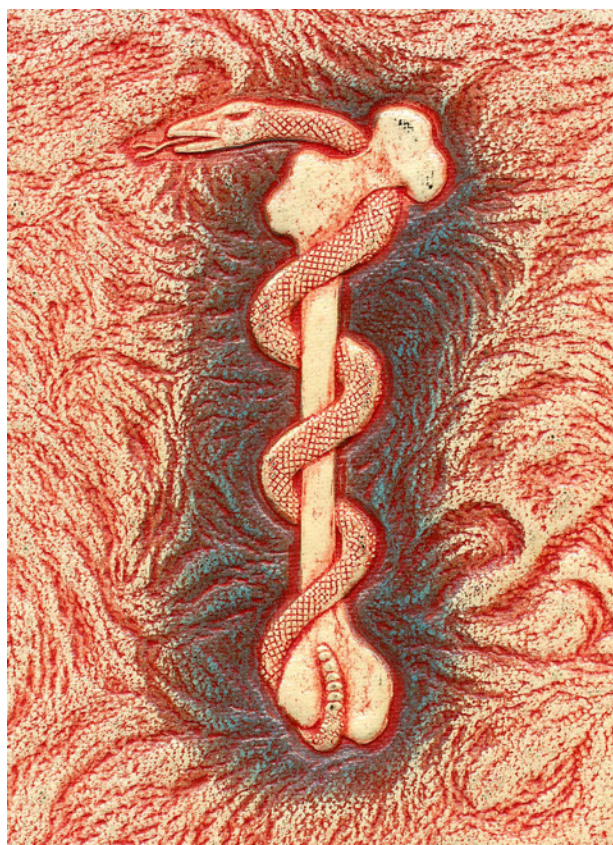
Anything seems possible!

CLASHING SYMBOLS

The staff of Asclepius, a rod entwined by a single serpent, is an ancient symbol associated with medicine and healing. The association: the ambiguous symbol of the serpent represents the dual role of the physician in dealing with life and death, sickness and health, as reflected in the ambiguous nature of drugs, which can either help or harm. (The ancient Greek word *pharmakon* means not only drug and medicine, but also poison.)

Often confused with the staff of Asclepius is the caduceus, a winged rod adorned by two entwined serpents beneath a pair of wings. The caduceus, a magic wand for performing incantations, symbolises Mercury (and his Greek counterpart Hermes), messenger to the gods and patron of merchants, travellers, rogues, vagabonds and thieves. By some misconception the U. S. Medical Corps adopted the caduceus as its symbol, and subsequently so did a number of other medical bodies.

The staff of Asclepius has been adopted as the symbol of many national medical associations including the American, British and Canadian. It is also the symbol of the American Osteopathic Association. I rather like the variation that appeared on the cover of the 1938 Kirksville College student yearbook, the *Osteoblast*, (below): a serpent entwined around a human femur. Now that’s what I call a proper osteopathic staff. JL



AN IDEA

WHOSE TIME HAD COME

COLIN DOVE

How much did Sutherland owe to Swedenborg for his model of the Primary Respiratory Mechanism?

When I was a young boy at grammar school in the 1940s I had a wonderful geography mistress. Most of my teachers were past retirement age but had been asked to stay on as so many young men were away fighting in WWII. 'Katie' was no exception and, although past her prime, was still one of the finest teachers I have ever encountered. I thought she would be impressed when I suggested that the continents looked like part of a giant jigsaw puzzle, as if the pieces could fit together. She was horrified. Little did she or I know that the idea had first been put forward by Abraham Ortelius in 1596 and developed by Alfred Wegener in 1912. But even in my time it was an idea whose time had yet to come and no geological evidence was forthcoming until the 1960s, twenty years after my schoolboy dreaming. Now we all take the continental drift for granted. It is no longer fantasy although its timescale is unbelievably difficult to comprehend.

Our colleague Alison Brown is always very keen on 'attribution.' She feels that in lectures we too often talk about this or that idea without always knowing for sure who first propounded it. I think she developed this in a Faculty Supplement and I fully supported her. She would often say to me, 'Do you remember who first

taught you that?' It was sometimes yes and sometimes no.

I was reminded of Alison's question when, in August this year, Jeremy Gilbey posted on our website American osteopath David Fuller's article 'Swedenborg's Brain and Sutherland's Cranial Concept.' I had heard of Emanuel Swedenborg (1688-1772) before. Indeed I had heard another osteopath, Reuben Bell, talk about him when I was in Toronto in 2006, but Reuben is not only a minister of the Church of the New Jerusalem (a Swedenborgian based organisation) but also president of the Swedenborg Scientific Association. Nonetheless I think perhaps he was more interested in Swedenborg's theological writings than his earlier studies of the brain. The whole conference was about the role of spirit in osteopathy, which as you can guess does not even flirt with my boredom threshold! They asked me to contribute but I didn't feel I had anything to offer.

Later my friend Jane Stark, Canadian osteopath and osteopathic historian, lent me one of Swedenborg's books, *On Tremulation*, about how information is transmitted along the dural membranes. It was incredibly heavy going and I tended to pick at bits of it rather than read the whole book. There was no doubt, however, that a lot was familiar to me.

In a nutshell, for those of you who haven't read Fuller's article – and that is probably most of you since the SCC website is the most under-used resource I can think of – Swedenborg beat Sutherland to four out of the five phenomena on which the theory of osteopathy in the cranial field rests by about 200 years! Sutherland added the mobility of the sacrum between the ilia, otherwise Swedenborg was right on the money. Now the big question is did or did not Sutherland know about Swedenborg's

work either before or during his studies? Well, Fuller is in no doubt. I'll leave you to read the article yourselves: http://www.newphilosophyonline.org/journal/data/111d/Fuller_Article--New_Philosophy_October-December_2008.pdf

A version of it also appears in the June 2008 JAOA under the title, 'A comparison of Swedenborg's and Sutherland's descriptions of Brain, Dural Membrane and Cranial Bone Motion.'

Even more emphatic is an article by Theodore Jordan in his article, 'Swedenborg's Influence on Sutherland's 'Primary Respiratory Mechanism' Model in Cranial Osteopathy.' Jordan says, 'An overwhelming similarity between an 1882 English translation of Swedenborg's writings on brain physiology and components of Sutherland's PRM model strongly suggest that Sutherland borrowed ideas directly from the 1882 text.'

The English translation he mentions is almost certainly the one by Rudolph Tafel referred to by Christine Conroy on the SCC website:

<http://www.sutherlandcranialcollege.co.uk/scconline/membersforum/thread/?StrUniqueID=FC2EE5D3-B611-8D3B-718467AA7D1ABAB8>

Apparently, according to Alan Becker in a talk to the AAO Convocation in about 1989 or 1990, Still told Sutherland that the brain expanded and contracted and this required cranial joint motion. There is however no corroboration of this story and given the number of students at Kirksville at the time it would be unusual for this type of personal exchange between a student and the great man. We do know that Still had been influenced by Swedenborg and this has also been confirmed to me by John O'Brien, osteopathic historian and archivist, and

Christine Conroy (see above). I understand that Swedenborg was popularised in the USA through the nineteenth century American transcendental poets like Emerson and Thoreau. So Sutherland and Still would almost certainly be familiar with Swedenborg through this medium. Further, with Sutherland's wife Adah being a Christian Scientist, and that church's founder Mary Eddy Baker also known to have been influenced by the writings of Swedenborg, Sutherland was very likely to have been exposed to Swedenborg through that source. Still's office manager's father attempted to create a Swedenborgian based church in Kirksville, another possible link.

There is a further connection via the Swedenborg scholar Alfred Acton, a church minister, who translated Swedenborg's *The Brain* from Latin into English. We know he met Sutherland and discussed his work. The Lippincotts also knew Acton who addressed an osteopathic meeting of their study group at Moorestown, New Jersey.

Given these revelations and others it is inconceivable that Sutherland was not conversant in general principles with Swedenborg's work. However in my view both Fuller and Jordan over-egg the pudding. It would be nice to know just how much Sutherland owed to Swedenborg, but we never will. We will also never know why he didn't offer any attribution to Swedenborg – or come to that Charlotte Weaver – but he didn't. Maybe he took a leaf from his master A. T. Still who says in *Philosophy of Osteopathy* that he quotes no authorities except God, experience, and the great book of nature. Quite a cop-out!

There must be many like Emmanuel Swedenborg who are simply way ahead of their time and maybe some who are also right whose time never comes. Sutherland was born at the right time for his (?) theory and with an organiser like Anne Wales' husband Chester Handy (who I often laughingly refer to as Sutherland's 'road manager'), his ideas found fertile ground. There is something in what Jung called the collective unconscious that prepares the ground. I am left wondering that if Alison had been around at the time would there also have been a bit more attribution?

I am indebted to Jane Stark for her invaluable help and criticism in putting this article together.



SCC PRESIDENT COLIN DOVE BECOMES A D.O.

Having studiously avoided wearing academic dress for several decades, Colin got caught out on 5 June this year in the final stages of the conferment ceremony of the Collège d'Études Ostéopathique in Montreal. After awarding diplomas to a record sixty-nine new osteopaths, founder and principal Philippe Druelle surprised Colin with an Honorary Diploma for services to the college and to osteopathy.

Also present were Professor Michael Patterson, lately of Nova South-Eastern University, USA; Dr. Viola Frymann, celebrating her ninetieth birthday; Clive Standen, sometime principal of the BSO; and distinguished scientist Professor Uri Moskalenko, Director of Research at the Russian School of Osteopathic Medicine.

Picture, taken by Jane Stark, shows Colin, Philippe Druelle (left) and Prof. Mike Paterson (centre). The blue stuff from 'party poppers' is part of the Canadian carnival atmosphere of graduation.



A cracking little place in Norway PHOTOGRAPH: CAROLYN MCGREGOR

SPIRIT AND MATTER

CRANIAL ACADEMY CONFERENCE 2010

ANA BENNETT

Palm Springs provided an exotic location for this year's Cranial Academy conference. Billed as 'the ultimate desert playground' the city, sitting at the base of California's San Jacinto mountains, is an incongruous mix of desert landscape, palm trees, and verdant green golf courses. In June around 150 osteopaths gathered here for a program entitled enticingly, 'Spirit and Matter: Osteopathic Reflections on Function, Fluid and Fascia.'

Program director R. Paul Lee broadly outlined the intentions of the conference to explore, as part of the necessary task of 'digging on,' every aspect of the nature and spirit of the tissue matrix. He reminded us that both Still and Sutherland spoke about that 'unseen something' – what Still called 'Biogen,' the union of 'celestial' and 'terrestrial' forces – that brings life to the tissues. Dr. Lee proposed that Still probably knew about the primary respiratory mechanism and in referring to 'spirit' meant the same thing as Sutherland did in referring to the 'breath of life.' Dr. Lee went on to describe the PRM as the 'FedEx or UPS of the tissues, delivering health wherever it is needed,' and challenged physiologists to recognize it as a fundamental element of normal physiology.

Before the conference I knew next to nothing about Emanuel Swedenborg, but thanks to two lectures I'm better informed and, indeed, amazed the work of this incredible scientist and thinker, seemingly way ahead of his time (1688-1772). David Fuller, soon to publish a book on Swedenborg's influence on Still and Sutherland, explained that in searching for the soul's manifestation in the body the Swedish philosopher and Christian mystic described the expansion and contraction of the brain, the reciprocal motion of the dura, and the motion of the skull bones. Swedenborg even spoke about a spirituous fluid emanating from the

brain's grey matter flowing to animate the CSF and in turn the rest of the body. Dr. Fuller reminded us that osteopathy encompasses not only the physical mechanics of the body but also the spiritual aspect of the person. He mentioned that Sutherland had appreciated the spiritual component of Still's osteopathy (not in a religious way but in the sense of the unseen forces that promote life), but regretted that this aspect was being lost. 'How many of us have felt something more, something immaterial,' Dr. Fuller asked, suggesting that a closer understanding of Swedenborg's ideas might help us develop a better appreciation for the 'greater than material' aspect of osteopathy.

On the second day Mark Schuenke, assistant professor at UNECOM, lectured on the 'Microanatomy of the Extracellular Matrix.' After speeding skillfully through an overview of the ECM contents and related structures, he detailed recent research on the role of integrins in mechanotransduction. Integrins are transmembrane receptors with a large extracellular component. They lie part inside the cell and can transmit intracellular tensions out to the ECM. He described how forces transmitted in and out of the cell generate a variety of chemical responses, and cited recent research into how the actin cytoskeleton produces tension in both the cell and extracellular matrix, and affects cell function. He described a large protein that attaches to both the cytoskeleton and the nuclear membrane, providing a direct connection between the extracellular matrix and the nucleus, and related that experiments have shown that shear forces applied to integrins lead to an increase in gene transcription within the cell nucleus. Dr. Schuenke gave further fascinating glimpses of the complex interactions between cell and ECM – and presumably, by extension, between them and our hands too.

Dr. James Oschman gave a moving account of Nobel laureate Albert Szent-Györgyi, recently recognized for discovering the semiconductor nature of proteins, with whom he worked and who greatly influenced him. Oschman reviewed the progress made from the 'bag of fluid' model of the cell (in which, apparently, it would take 10,000 years to digest a muffin) to the current model. Citing the work of Donald Ingber, Alfred Pischinger and others, he referred to the matrix as a semiconducting electronic network and described the ground substance as a reservoir of electrons poised to assist in inflammation by neutralizing free radicals. Oschman said that electrons from the earth come up through the feet to pervade our whole body. He related that experiments have shown that grounding a person's bed lowers cortisol levels and reduces blood clumping – important since blood viscosity is now being tied to every cardiovascular disease – leading him and others to speculate that inflammation is perhaps related to an ungrounded body. Look at Oschman's and related websites: www.thelivingmatrix.com
www.energyresearch.us
www.eartninstitute.net

Elliott Blackman continued the theme with a standing practical session to sense whether a person is 'grounded,' learning to be aware of different fulcra and allowing them to shift.

Jaap van der Walt, professor of anatomy and physiology at the University of Maastricht, Holland, lectured on what he calls the 'phenomenological approach' to the embryo. He spoke intriguingly about the different germ layers not as 'anatomy' but as 'functional principles,' and proposed that 'germ layers represent a physiological and a psychological organization . . . three ways of being and interacting with the environment.' He has an interesting website: www.embryo.nl.

Mark Rosen detailed the background and history of spiritualism and spiritism, movements popular in Still's day and that clearly influenced him (apparently by 1897 spiritualism had more than 8 million followers in the US). Dr. Rosen made connections between spiritism's idea of a perispirit – a semi-material envelope uniting body and soul, containing matter, electricity and magnetic fluid (called the Neural Fluid) – and both Still and Sutherland's descriptions of CSF.

On day three Reuben Bell expanded upon Swedenborg, telling how this truly prolific and original thinker published 30 scientific and philosophical volumes (including 2 major works on the brain) and 35 books on theology. We learned that Swedenborg wrote of 'a formative substance and force that is identical with the principle which repairs the degeneration of the body,' and how this has parallels with the way Sutherland speaks about the wisdom of the tide and Still about spirit as substance. Dr. Bell advocates opening up Swedenborg's works to the osteopathic community for, while it is easy for us to describe the 'meat' (our patients' bodies), they provide a framework for describing the less tangible things to do with mind and spirit. Useful websites include:

www.swedenborg-philosophy.org
www.theisticscience.org/index.htm
www.highermeaning.org

In his second lecture, 'Metabolism in the Extracellular Matrix,' James Oschman spoke of Albert Szent-Györgyi's work in the field of electron transfer. Oschman described how the living matrix, evolutionally preceding the CNS, is the earliest living regulatory system,

something much older, mature and sophisticated than we realize. The matrix extends to places not reached by nerves and acts much faster than anything else. He went on to state that we are literally nurtured by the earth we walk on, for going barefoot replenishes electrons through our feet – in a grounded person the 'charge reservoir is continuously filled from the earth.' The extracellular matrix allows for charge transfer. 'Could electrons be the ultimate antioxidant?' Oschman asks. Mitochondria, which he says are 'all about protons and electrons,' can become electron deficient and if that happens they can't 'crank out' enough ATP.

Oregon allergy/environmental doctor and osteopath Paul Dart treated us to a lecture on 'Water and Primary Respiration.' Describing the extracellular matrix as the 'ground zero' for fluid exchange, he ran through the unique molecular and chemical properties of water, the tensegrity structure of the cell, the nature of intracellular and extracellular fluids, and gel/sol phase shifts. His slides illustrated how densely packed are the cytoskeleton, cellular organelles and macromolecules, helping me dispel any notion of cellular constituents floating around in a kind of nebulous soup. 'Metabolic substrates don't have to diffuse far in this sort of environment,' he said, 'because their enzyme pathways are attached in organized groups to the microfilaments of the cell's cytoskeleton.' Dr. Dart spoke about things that can instigate reversible sol/gel shifts in the extracellular matrix, to profoundly effect physical structure and fluid movement both inside and outside

the cell. He talked about ionic fluxes and proposed that the presence of cyclic changes in intracellular calcium ion concentrations might in part explain the inhalation and exhalation phases of the primary respiratory mechanism. He gave a helpful hint for perceiving the 'long tide,' suggesting that we 'look for its presence in the quiet spot at each end of the faster flexion/extension cycle, when the motion of inhalation. or exhalation is not present, but some subtler underlying expansion or recession continues to occur.' And he asked whether shifts between sol and gel might represent the physical aspects of the 'transmutation' described by Dr. Sutherland.

Andrew Goldman gave this year's Sutherland Memorial Lecture. In an inspiring and moving address he paid a heartfelt tribute to his two main teachers, Anne Wales and James Jealous, and shared personal experiences of learning from them and his own insights into the nature and spirit of osteopathy. The full text of this speech is usually published in the Academy's quarterly Cranial Letter.

Altogether a stimulating, thought provoking conference that has set me thinking in a new way about the ECM, interstitium, and mesoderm. A certain quality of the mesoderm has even started to permeate my awareness while treating. I've also been inspired to read some Swedenborg. I know it's a long way for us Europeans to travel, but next year's conference will at least be on the east coast.

For bookings, information on courses, or to become a Cranial Academy member, see the website:
www.cranialacademy.org

*Ana tutoring on
Module 2/3 at the
Columbia Hotel,
London W2,
September 2010*

PHOTOGRAPH:
JOHN LEWIS



GP POSTGRADUATE EDUCATION

HOW TO GET INVOLVED

DR LAURA HOLLINGWORTH

GP APPRAISER, WALES

I discovered osteopathy by chance, through personal experience. It was not a topic taught, or even discussed, at any point of my medical training. I knew osteopaths treated back pain, but was unaware that osteopathy is a complete science and philosophy, with an extensive range of pathologies likely to benefit from treatment. I am aware that some GPs may steer patients away from osteopathic (and other) treatments into areas they are more familiar with, and which, in modern parlance, are 'evidence based.' I believe that this knowledge gap in the medical profession should be regarded as an opportunity for osteopaths to get involved in education. It is so long since I worked in hospitals that I only feel qualified to comment on GP education, and this article will be restricted to that. (Of course, this article can also be seen as a GP's attempt to educate osteopaths about General Practice.)

All UK General Practitioners are required to have an annual appraisal. We must submit a folder which includes evidenced education for the year, preferably with the impact of what we learned on patient care. Under the current guidelines fifty 'credits' should be achieved. An hour of education equals one credit and if 'impact' is demonstrated this may be doubled. The appraisal folder covers the following areas:

1. Knowledge, skills and performance (essentially educational activity).
2. Safety and quality (including significant event analysis, audit and record keeping).
3. Communication, partnership and teamwork (working with colleagues and patients).
4. Maintaining trust (e.g. dealing with

complaints).

5. Insights and reflections.
6. Patient satisfaction questionnaires.
7. Multisource feedback. (A recent addition. Don't ask!)

This article will focus on the educational component as an aid to getting involved. It is not intended to be comprehensive, more to give a rough idea of how GP education is delivered and organised. I admit to a much greater knowledge of the Welsh system than that of the rest of the UK and, having spent some time trying to find out about the English system, have developed a conviction that the Welsh system is better organized. Using the information given is therefore going to be easier for those in Wales than for the rest of you.

In-house education.

Most practices have regular in-house clinical meetings. These tend to cover areas of particular local interest or relevance to that practice. Many will have opportunities for speakers to present what they do to the GPs. In our practice we have had presentations from a private physiotherapist, hospital consultants, the local coroner, the Drug and Alcohol Service. These sessions are usually organised by the practice manager, so if you are interested in making a presentation, contact him/her with a brief outline of who you are, what you do, and what you would like to talk about. They are unlikely to give an instant answer as they will first run it past the GPs to see if they are interested. These meetings tend to be small (four to eight doctors), informal, and run in the daytime. Expect Q&As.

Local medical societies.

Many areas have at least one medical society. Their meetings usually run in the evenings and may be based on an area (e.g. Ynys Mon Medical Society), a nationality (e.g. Welsh Medical Society – but only if you speak Welsh for this one), or special interest groups (e.g. Freelance GPs, New Principals, Women's, Educational Charities). If your area has a Continuing Medical Education (CME)/ Continuing Professional Development (CPD) Coordinator (see below) they will know all the groups operating in their area and are the ideal way of finding out about them and who organises their meetings (usually a GP). Contact the organiser with a pitch if you are interested. The meetings tend to be bigger (ten to twenty GPs), but still informal. Standards of presentations these days are pretty high – use Powerpoint not slides, and certainly not acetates. Standing up and just talking is perfectly OK if you are a good speaker.

GP Vocational Training Scheme (VTS).

This is the training scheme for GPs, lasts three years, and is part hospital and part GP practice based. Throughout its duration the trainees attend a day release scheme for GP related educational activities. The educational component is organised by Programme Directors (PDs), and is part required elements and part at the discretion of the PDs. Contact the PDs through the local deanery (see below) if you are interested in getting involved at the early stages of GP education – catch them while they are young! Again this will be run during the day, with usually ten to twenty doctors present.

Deaneries, CPD Coordinators and PDs.

A Deanery is a regional NHS organisation responsible for postgraduate medical and dental training. Deaneries run the VTS scheme. They commission training to standards set by the Medical and Dental Councils, and the Postgraduate Medical Education and Training Board. To identify your local Deanery look up www.gmc-uk.org home, then click on education and training>postgraduate education and training>speciality including GP training>key interests>postgraduate deaneries. From your local deanery website you should be able to identify the PDs and how to contact them. In Wales use www.gp.cardiff.ac.uk CPD then click

'contact details for CPD Coordinators can be found here' (third line down). This lists all CPD coordinators in Wales, with the area they cover, and allows a direct messaging system to them. They know everything that is going on education-wise in their area, who runs it, and how to contact them. Again for Wales, the PDs can be found on www.gp.cardiff.ac.uk then click onto Speciality Training > Contacts and People > Programme Directors. For the rest of the UK I haven't found anything so easy. The CPD coordinator role is not universal throughout the UK but the deaneries are the best places to see if they are operational in your area.

If you get stuck ask a friendly GP. Most rarely bite and will know about education in their area, including the local medical societies and who best to contact. Also consider writing short reports to the GPs when you discharge a patient, stating what you have treated them for and how they have responded. Detail of the treatment is not necessary, but this will build up a knowledge, almost subliminally, in GPs about what you treat and its effectiveness.

Over the past year I have had personal or patient experience of successful osteopathic treatment of a variety of conditions including back and neck pain, headaches and migraine, dizziness, menstrual irregularity, IBS, infant colic, various shoulder problems, TMJ pain, bronchitis. When I refer patients I also ask for their consent to discuss their case with the osteopath. All the patients have agreed to this and there have been many positive comments about this communication. The patients evidently perceive this as being likely to improve their care, and I think they are right.

SCC MODUL 6: DIE DYNAMISCHE SCHAEDELBASIS PROITZE, NIEDERSACHSEN, DEUTCHLAND, MAI 31 - JUNI 2, 2010

EIN RUECKBLICK von
PETER JACOB LAMERSDORF

This three-day residential class, held in the charming farmhouse of a 300-year old watermill in the north German countryside, gave a comfortable and supportive frame for concentrated and relaxed learning.

Course director Liz Hayden started with a lecture on the nature of bone, showing very clearly the juicy and alive quality of the connective tissue within the bony structures. For me, this fluid aspect of the bones turned out to be the red line – the main theme – through this course.

Due to the very good translation of all the lectures I think some details will sink even deeper from hearing them twice – in English and in German – therefore passing through two different neurologic channels in our brains.

Detailed and very alive lectures on the anatomy and embryology of the cranium, the cranial nerves, and SBS patterns gave a good background for the practicals. The luxurious situation of having an experienced teacher monitoring only four students in all the practical work is the best way of learning I have found so far. And what a joy to find highly experienced people that obviously love their work and are ready to share with you. Thank you!

After class Alison Brown surprised us with a pub quiz of anatomy that brought out five very enthusiastic teams fighting for the honour of winning, but at the same time struggling from shortness of breath through laughing so much.

Sitting around a fire in the evening listening to Peter Cockhill and Kilian Draeger playing the drums gave space for thinking and sharing the impressions of the day.

Back in my practice I feel inspired in my work mainly by the personal contacts with the teachers and colleagues. They teach me what books can't.

Vielen Dank an die Lehrer, die die Reise zu uns auf sich genommen haben! Ich freue mich auf den nächsten Kurs. ('Thank you to the teachers for taking the effort of travelling to us and I look forward to the next class.')

Modul 6 faculty and students enjoy some warm German sunshine
PHOTOGRAPH: DAVID DOUGLAS-MORT



SCC MODULE 4: BALANCED LIGAMENTOUS TENSION

HAWKWOOD COLLEGE
13 - 17 MAY 2010

MARTIN GRUNDY

Six and a half hours! It was all going fine until I hit the black hole known as Birmingham. Vehicular constipation – ‘the weight of traffic’ – a diagnosis of stasis. By the time I reached Hawkwood my pelvis was as gridlocked as the road, my brain likewise, and I felt really lousy. Not a good start to SCC Module 4: Balanced Ligamentous Tension.

Thirty-six students and eleven faculty converged on Stroud from all over Britain and beyond. The course started with dinner – food is a recurrent theme at Hawkwood – and then an evening session that I bailed out of early. I was in no fit state to put my hands on anyone. Fortunately (or by good planning) the session ended with a practical on O/A disengagement and integration with C2/3. I leapt onto the table before anyone else had time to react and gratefully availed myself, before making my excuses and leaving my partner in the lurch. I fell into bed and slept like a baby – thanks, I have no doubt, to my newly disengaged O/A.

Day One proper started with Qi Gong – which highlighted just how disjointed my poor abused body felt. Then we tackled the spine – the *whole* spine plus ribs, starting with the neck and ending nine hours later at the coccyx. It was a taxing day, punctuated by coffee break (with home-made chocolate biscuits), lunch (delicious food and a break long enough to re-gather my thoughts for the afternoon), tea break (with sinfully irresistible cake), and dinner (light enough to allow peaceful sleep). I early fell into bed, feeling tired but vastly better than I had in the morning. My C/T was now functioning, a niggling rib lesion had been sorted, my L/S was no longer completely jammed, and I had sat on the knees of a couple of charming ladies while they did

delightful things with my pelvis and lumbar spine under the guise of ‘lap technique.’

Day Two’s Qi Gong felt distinctly easier – I no longer felt like a rusty ill-strung marionette. The morning (both sides of the coffee break with more of those amazing home-made biscuits) was spent playing with each other’s pelvis and getting into a variety of compromising positions. Oddly, none of them actually *felt* invasive – they just *looked* incriminating! After the usual high standard of lunch (I warned you food was a recurrent theme) we tackled the shoulder girdle, and by dinnertime I had full range of movement in my left shoulder for the first time in well over a year.

On Day Three we worked through the elbow, forearm, wrist and hand. ‘Still’s

wrist technique’ was extraordinarily simple and effective. After lunch we returned to the pelvis and worked via the hip to the knee. The standing ilio-sacral technique promises to be a key part of my toolbox in future.

Day Four saw us working through the ankle, hind-, mid- and fore-foot, all before morning break! By the time I had my coffee-time biscuits I could stand on my right foot without the ankle clicking and clunking for the first time since before I can remember – bliss. Then we set about undoing some of the damage wreaked by the previous night’s party by working on each other’s liver. Nothing, however, could undo the effects of the student performance of the ballet ‘Carmen’ which had started the night’s proceedings – the image of Carmen wearing his lipstick *all* evening will forever stay etched on my



Course director Susan Turner with students Daniel Rosenfels (from Vienna, standing) and Norman Baker

PHOTOGRAPH: JOHN LEWIS

brain. After lunch we looked at lymphatic drainage and after tea-break it was time to be checked over by the tutors to make sure we were still in one piece.

Funnily enough, the drive back home seemed a doddle in comparison with the trek down. I leapt out of the car sometime after 11pm without so much as a twinge, feeling as though I'd been given a whole new body. By the way, the full course title is 'W.G. Sutherland's Approach to the Body as a Whole' and by the end of it I felt as though the various bits of mine made a whole once more. I got so much more out of this course than I had expected.

My fellow students found Hawkwood's beautiful house and

surroundings 'inspiring and grounding,' and that it was 'good to get away to somewhere like this to study.' For me one of the wonderful things about the residential courses is the way a disparate group of individuals gets forged into a mutually supportive group working as a team – someone commented that they had been surprised at how well people got on with each other. Someone else remarked on the extent to which everything in the course was so grounded in anatomy: 'it made me excited about wanting to go back and look at anatomy again!'

As always on SCC courses the quality of the teaching and tutoring was remarked on by many: the way that 'tutors do not

over-correct, they are not always on your neck, they allow you to discover and feel for yourself', and how they provide 'non-judgemental support.' Several people were inspired by actually feeling the tissues change under their hands and trusting their palpation, feeling for themselves that such simple techniques are so very effective. This course provides a bridge between structural and cranial work and many people felt it would enable them to integrate different ways of working within their practice to make treatments more coherent.

Personally, I can't wait to do it again - the course contains so much that doing it once just doesn't seem enough.

MODULE 4 IMAGES



Tutor Lynn Haller prepares to do battle with the students



Martin Grundy (centre) with fellow students



Daniel Rosenfels needs a little caffeine to get into the zone



Denis McTurk limbers up for his leading role in Carmen
PHOTOGRAPHS: JOHN LEWIS

SCC NEWS

CHRISTIANA
SCHUMACHER

ONLINE FORUMS

Participants on the Module 2/3: Osteopathy in the Cranial Field course in September are invited to join our second online forum. The SCC now runs post-course forums after each module to provide the opportunity for students to continue learning with each other and their tutors.

After the last Module 2/3 course well over half the participants posted photos and discussed subjects including stillness, CV4, and fascia, as well as sharing new clinical experiences after returning to practice. Most of the activity takes place in the first eight weeks after the course when learning is crystallising, though the chat room remains open.

If you sign up for one of the SCC modules you will be automatically invited, via an email from Google groups, to join the forum specially created for your course. Do consider signing up – it's a great way to stay in touch and we can learn so much from each other.

NEW GRADUATE SCHOLARSHIPS

This year the SCC launched its first new graduate scholarships. Open to graduates from all osteopathic schools, these annual awards aim to provide financial support to those keen to study osteopathy in the cranial field at Module 1 or 2 level, depending on previous experience.

Applicants submit responses to questions ranging from personal experience of cranial osteopathy and aspects of osteopathy that inspire them, to reflections on strengths and weaknesses,

and how they see their osteopathic career developing.

The SCC Board of Trustees scrutinise the applications for evidence of a desire, in learning and self-reflection, to 'dig on' in the spirit of A. T. Still.

Choosing the winners proved extremely difficult. The quality of the applicants and their level of commitment impressed everyone. It was inspiring to read how graduates had overcome work pressures and financial difficulties, and we really appreciated the effort put into filling the application forms themselves. But we had to make a decision, and in the end awarded Jan Conheeny and Kelly Haines the Module 1 and 2 scholarships respectively. Congratulations to Jan and Kelly and thank you very much to all who applied.



Kelly Haines, winner of the first Module 2 new graduate scholarship, with course director Michael Harris

PHOTOGRAPH: JOHN LEWIS

Scholarship winner Kelly Haines writes:

“There aren't too many things that make me jump out of bed at the beginning of a busy working week but my R.T.M (rather tedious Monday) turned P.R.M (pretty ruddy marvellous) when I took a phone call saying that I had won the first Graduate Scholarship to study Module 2 in September. I'm sure my mechanisms were far from involuntary as I jumped around the room in celebration! I am so lucky and so grateful to the SCC for giving me the opportunity to study with some outstanding tutors. The London course was fantastic on many levels. I learned so much and now feel I have the skills and confidence to develop as a practitioner in the cranial field. Many thanks. “

MODULE 2/3

ALISON R BROWN

CLARIFIES WHY STUDENTS MUST TAKE IT TWICE

I'm just back from teaching on the London Module 2/3 course. It was such a joy to meet lots of osteopaths, some new, some known from previous SCC courses, and others from BCOM undergraduate teaching. It's great to see how people develop their osteopathy over the years – or even during a course.

Students are often surprised that they 'have to do Module 2/3 twice.' There seems to be genuine confusion about the nature of this course. It's very simple. It's called Module 2 the first time you take it and Module 3 the second time. The assumption is that people don't learn everything first time around. And not only from the lectures - the practicals are different too, since our experienced tutors have different expectations and challenges depending whether students are taking Module 2 or Module 3. The tutors are adept at tailoring instruction and comment to the individual, so within your group they may have different goals and suggestions for each student. I know it's possible to write learning objectives or descriptors for a particular theme at Module 1, 2 or 3 level, but I also know that learning Osteopathy in the Cranial Field isn't linear or predictable. So although it may seem that particular shifts need to happen before one becomes competent, these tend to occur at different times and in different ways for every person.

Historically the SCC ran only one Osteopathy in the Cranial Field course, which people took repeatedly. The college then developed the Pathway (Modules 5-9) to explore the different aspects of Sutherland's hypothesis and provide in-depth learning about the face, the RTM, and so on, and to refine centering, palpation, diagnosis and technique. Module 2 /3 provides the grounding for

CONGRATULATIONS

Fabiano da Silva has completed the SCC Pathway and become a Member of the Sutherland Cranial College (entitled to use post-nominal letters MSCC).

these courses and is similar in theme to the Basic Course taught by the Sutherland Cranial Teaching Foundation in America.

Most SCC students are expected to take Module 2/3 at both Module 2 and Module 3 level. Some are allowed to complete the course at Module 3 level first time around, but to do so you must have had extensive undergraduate training in Osteopathy in the Cranial Field or received mentoring from cranial osteopaths. These lucky few are notified by letter after the course that they have completed Module 3, are exempt from taking Module 2/3 a second time, and are eligible for Modules 5-9.

All the Module 3 students I spoke with last week said they found taking Module 2/3 for the second time a really worthwhile experience – a few even said it felt like a completely different course. Some wanted to concentrate on centering and palpation, and getting feedback. Others wanted to focus more on anatomy and be helped to develop a vocabulary for what they perceived. So much learning 'just happens' in osteopathic practice but you don't necessarily *know what you know* until you have external references – such as collegiate or tutor feedback. Then it seems easier to appreciate your capabilities, and to open (or push) the boundaries to further questioning and exploration. Uncertainty is so much easier to accept on a course than in practice life – and it feels creative to share doubts and dilemmas with like-minded colleagues. Hopefully this will continue after the course through the post-course forum or the SCC Pathway website.

Remember that osteopathic colleagues can give great feedback and suggestions, so do try and work with them. Practise together or treat one another.

SUE TURNER:

"When I asked Anne Wales if all of Dr. Sutherland's osteopathic manoeuvres could be summed up by balanced tension and fluid drive she said, 'No there is also pushing and pulling.' I still chuckle when I think of that."

THE TIMELESS TEACHINGS OF A.T. STILL

ONE-DAY CONFERENCE
BRISTOL, 19 MARCH 2011

JOHN LEWIS

Why 'timeless teachings'? Because Dr. Still based osteopathy on what nature and experience taught him. Truth - eternal, absolute - as opposed to man's transient theories. This man spent a lifetime trying to penetrate the mysteries of life and death, health and disease, and pass on what he learned for the benefit of mankind. He has much to teach us all.

He had been a doctor for ten years when, despite all medical efforts, three of his children died during an epidemic of meningitis. This devastating experience set in motion a quest to find a better way of practicing medicine, one that culminated in the dramatic 'discovery' that caused him to name 22 June 1874 the Birthday of Osteopathy.

Osteopathy grew solely by word of mouth, through results - and so quickly that after only a few years his message was already starting to become corrupted. Despite his insistence that for its own survival osteopathy needed to remain a totally independent system, many who did not understand his message soon took leading roles in the profession. Inexperienced graduates scattered far and wide, opened new schools, and took positions on governing bodies. Increasing regulation and conformity to the dominant medical system all contributed to dilute Still's teachings and philosophy. What happened then has strong parallels with what is happening now.

The day will not just be a series of lectures but an event. I will explain Still's philosophy and principles - they are not the same thing - and their implications for osteopathic practice, both structural and cranial. Guest speaker Norman Baker will demonstrate Still's simple, quick and effective method of correcting joints and guide a seated practical session.

My aim is to leave you feeling inspired and seeing osteopathy in a new light - in the way Still wanted you to see it.



The ROYAL SOCIETY of MEDICINE

BENEFITS OF MEMBERSHIP

CAROLINE TOSH

Nearly 20 SCC members/pathway students have now taken advantage of the special rates for associate membership of the Royal Society of Medicine. The RSM have now agreed to offer membership on an annual basis and, from 1 October 2010, will waive the usual £30 joining fee and reduce the cost of the first year of associate membership from £150 to £130 – a total saving of £50.

Membership offers many advantages, not least the RSM's range of seminars and courses, some free to members and most eligible for CPD. Members can access seven databases to search for articles and research items - on their own computer or at the RSM library (the largest postgraduate medical library in Europe) - and can also peruse the Society's extensive collection. Please call in advance if you would like one-to-one tuition or assistance from staff on database searching and document retrieval.

Further benefits include substantial discounts from publishers – for example 20% from OUP and 15% from Elsevier – and offers from British Airways, Hiscox, and others.

FORTHCOMING COURSES FREE TO RSM MEMBERS:

Introduction to Literature Searching

Friday 17 December 2010

Advanced Literature Searching

Wednesday 10 November 2010

Introduction to Evidence-Based Medicine

Thursday 2 December 2010

Introduction to Critical Appraisal

Thursday 6 January 2011



Royal Society of Medicine, 1 Wimpole Street, London W1

HOW TO APPLY FOR RSM COURSES:

Members please contact: library@rsm.ac.uk or 020 72902940

Non-members must first join the society.

Contact: membership@rsm.ac.uk or 020 7290 2991 and quote reference OSTEO10.

Queries please email Caroline: ctosh1@talktalk.net



RSM library



The ROYAL
SOCIETY of
MEDICINE

RESEARCH

BRIAN McKENNA

LITERATURE SEARCH COURSE REVIEW

KIRSTY MACFARLANE

I recently joined the Royal Society of Medicine as an associate member and, on 25 September, attended its half-day course 'Introduction to Literature Searching.'

The RSM's impressive library at 1 Wimpole Street, London W1, carries a vast number of databases, accessible directly on its intranet or from home via the internet:

Medline (5,000 journals); Embase (5,000 journals); Amed (produced by the British Library, 500 journals); CAB Global Health (3,500+ journals, 40% unique to this database); DH-Data (produced by the Department of Health, 300+ English-language journals); King's Fund Database (200+ English-language journals and newsletters); plus the Cochrane Library collection of 7 databases that provide the best available evidence on healthcare (including their Database of Systematic Reviews and Central Register of Controlled Trials).

The course taught how to:

- Access online resources
- Use the RSM resources
- Request library services
- Find 'grey' literature

Two experienced instructors shared lecturing duties, gave individual assistance during practical sessions, and detailed the strengths and weaknesses of each database. They assigned each student a networked PC, making the practical sessions 'live,' and guided us through 5 different searches, teaching how to enter the right search words and criteria to access the correct text. I had some trouble marshalling my left brain and didn't get the hang of it immediately, but with some encouragement was soon able to confidently negotiate the various search fields.

The last session on 'grey' literature ('semi-published,' unpublished and/or unavailable through the usual sources – for example, the text of a speech or presentation) proved very useful. Our helpful instructors gave us some useful internet addresses, including that of a site with access to free journals: <http://www.freemedicaljournals.com>.

The library staff and resources left an extremely favourable impression. All in all a very worthwhile course – and valid for 4 hours of CPD.

EFFECT OF OSTEOPATHY IN THE CRANIAL FIELD ON VISUAL FUNCTION - A PILOT STUDY

Mark E. Sandhouse, Diana Shechtman, et al.
JAOA Vol.10, No. 4, April 2010, 239-243.

Anecdotal evidence suggests that Osteopathy in the Cranial Field (OCF) can result in improved visual function. While some studies have described the effects of on intraocular pressure, visual fields, and binocular alignment of the eyes, few have described changes in visual function itself. In this pilot study, researchers gave a single session of OCF to a small group of adult volunteers aged between 18 and 35, and looked for evidence of an immediate, measurable, change in visual function.

To minimise the risk of distorted results the randomised, double-blinded clinical trial excluded those suffering from strabismus or active ocular or systemic disease, and only included subjects with refractive error ranging between 6 diopters of myopia and 5 diopters of hyperopia, regular astigmatism of any amount, and cranial somatic dysfunction.

29 volunteers were randomly assigned to the treatment group and a control group. The 15 subjects in the treatment group received one session of cranial osteopathy to correct cranial dysfunction; the 14 in the control group received a sham treatment consisting of light-pressure touch without any osteopathic intervention.

Results showed a statistically significant effect in the treatment group as compared to the control group. The researchers concluded that OCF may result in beneficial effects on visual function in adults with cranial asymmetry, but noted that more work needs to be done with a larger sample size, and longer intervention and follow up.

The abstract of the study can be found on PubMed: <http://www.ncbi.nlm.nih.gov/pubmed>. The full article can be requested from the RSM library or downloaded for \$5 from www.jaoa.org.

VOLUNTEER NEEDED

TO TAKE MINUTES at research sub-committee meetings. Interest in research useful but not essential. We meet approximately 4-6 times a year (usually on a Saturday) in the Home Counties – London or more often Oxford – and occasionally in the Bristol area. Reasonable travel expenses can be claimed. Please contact Clive Hayden: 01452 814695 or clivehayden814@btinternet.com

BOOK NOW for SCC MODULE 9: INTRODUCTION TO THE TREATMENT OF CHILDREN

4-6 February/4-6 March 2011

Directed by Susan Turner, DO, MA, MSCC, PGCE, this course is a must for anyone wishing to develop confidence and skill in treating infants and children.

Part 1: Paediatric Clinical Screening 4-6 February, Columbia Hotel

The Sutherland Cranial College is delighted to welcome Dr. Mary Anne Morelli Haskell DO (USA) to present this part of the course.

Dr. Morelli graduated from the College of Osteopathic Medicine of the Pacific in 1988. After completing a rotating internship and 3-year paediatric residency at Loma Linda University, she worked for 13 years with Dr. Viola Frymann DO at the Osteopathic Centre for Children, San Diego, California. She now runs her own private practice, treating children and their families for optimum health as well as a wide range of more serious conditions. An experienced teacher of Paediatric Osteopathy, she has taught not only with Dr. Frymann, but also for the Cranial Academy and at various osteopathic colleges in Italy and Australia. Her clear and accessible style, together with a warmth and love of the subject, make learning from her a real pleasure.

Dr. Morelli will teach how to examine babies and young children in the light of common and some rarer conditions encountered in practice. Paying special attention to the 'red flags' that indicate a need for medical referral, she will show how to assess when osteopathic treatment is appropriate and when it is necessary to work in cooperation with other health or educational professionals.

Topics include:

Overall examination of the neonate
Developmental milestones
Cardiovascular system
Upper and lower respiratory tract
Abdomen, including digestive tract and liver
Nervous system from both behavioural and physical points of view

Renal, endocrine, and immune systems
Musculo-skeletal system at different ages

Part 2: Osteopathic Care of Children 4-6 March 2011, Hawkwood College

With a strong practical emphasis the second part aims to impart confidence and nurture individual potential in palpatory skills and inner listening. Working in groups of four with experienced tutors, students will explore simple and logical rationales for treating the common conditions of infants and children that present in osteopathic practice.

Topics include:

Intrauterine development and physiological preparation for birth
Forces of labour, in normal and less usual presentations, and their potential for resolution
Physiological transition from prenatal to postnatal life, including that of the brain, and how we might best support these processes
Features of infant anatomy relevant to osteopathic examination
The importance of resolving excessive forces absorbed perinatally by the occiput and cranio-cervical junction
Prematurity and its common sequelae
Fever and compromised immunity
Otitis media
Asthma and coughs
Colic and other digestive problems
Breastfeeding

This popular course runs once every two years. Book early to secure your place.

Part 1 only: CPD 24 hrs/Fee £395
Parts 1 and 2: CPD 48 hrs/Fee £1250

If you have already taken Part 1 and would like to take Part 2 alone please contact the SCC office.

Those wishing to enhance their paediatric knowledge and skills can go on to take the post-SCC Pathway course Developing Paediatric Osteopathy, to be held at Hawkwood College on 7-9 October 2011.

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SUTHERLAND CRANIAL COLLEGE

COURSES 2011

Module 9 Introduction to the Treatment of Children

Part I Clinical Screening

3-6 February 2011

Speaker: Dr. Mary Anne Morelli (USA)

Columbia Hotel, London W2

THREE DAYS, non-residential

Part 1 only: CPD 24 hrs/Fee £395

Part II Osteopathic Care of Children

4-6 March 2011

Hawkwood College, Stroud

Course Director: Susan Turner

THREE DAYS, residential

Parts 1 and 2: CPD 48 hrs/Fee £1250

The Timeless Teachings of A. T. Still

Saturday 19 March 2011

Pierian Centre, Bristol

Speaker: John Lewis with guest lecturer Norman Baker

CPD 6 hrs/Fee £95

Module 2/3 Osteopathy in the Cranial Field

28 March – 1 April 2011

Course Director: Carl Surridge

Hinsley Hall, Leeds

FIVE DAYS, residential

CPD 40 hrs/Fee £1399

Module 4 Balanced Ligamentous Tension:

W G Sutherland's Approach to the Body as a Whole

12-16 May 2011

Course Director: Susan Turner

Hawkwood College, Stroud

FOUR DAYS plus preparatory evening, residential

CPD 32 hrs/Fee £1120

**SUTHERLAND CRANIAL COLLEGE
IS COMMITTED TO TEACHING
THE PRINCIPLES OF OSTEOPATHY
AS CONCEIVED BY
ANDREW TAYLOR STILL
AND DEVELOPED BY
WILLIAM GARNER SUTHERLAND**

Module 6 Dynamic Basicranium

24-26 June 2011

Course Director: Liz Hayden

Hawkwood College, Stroud

Fee £830tbc CPD: 24hrs

THREE DAYS, residential

CPD 24 hrs/Fee £830tbc

Module 2/3 Osteopathy in the Cranial Field

12-16 September 2011

Course Director: Michael Harris DO MSCC

Columbia Hotel, London W2

Fee £1149tbc CPD 48hrs

FIVE DAYS, non-residential

CPD 48 hrs/Fee £1149tbc

Paediatrics Post Pathway

7-9 October 2011

Course Director: Susan Turner

Columbia Hotel, London W2

THREE DAYS, non residential

CPD 24 hrs/Fee £799tbc

Rule of the Artery

4-6 November 2011

Course director: Maxwell Fraval, DO (Australia)

Hawkwood College, Stroud

THREE DAYS, residential (1:8 tutor to student ratio)

CPD 24 hrs/Fee £695

Module 1 Introduction to Cranial Osteopathy

Course director: Alison Brown

TWO DAY foundation course for groups of four students.

Location and time arranged to suit you.

Contact SCC office for more details.

CPD 16 hrs/Fee £275

Modules 5-9 can only be taken after completing Modules 1, 2 and 3

Further details on the website:

www.sutherlandcranialcollege.co.uk

Email: info@sutherlandcranialcollege.co.uk

Tel: 01291 622555