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NEWS

February 25th 2022: WP Ethics in Chemistry Thematic Meeting (online):

The Pros and Cons of a Professional Ethos ('Oath') for Chemists

20 Members of the Working Party gathered to discuss whether and what kind of a professional ethos would be effective in implementing ethical and responsible conduct of chemistry in academia and industry. Past approaches have been introduced and possibilities for future efforts have been explored. Manifold valuable input, especially from the experienced honorary members, was collected to inspire future activities of the WP. Find the minutes of the meeting [here](#).

March 25th 2022: Steering Board Meeting (online)

The steering board discussed which steps to take with the outcome of the thematic meeting on a chemist's oath. Options for the WP's contribution to the ECC8 in Lisbon were explored.

April 8th 2022: Extended Steering Board Meeting (online)

The steering board, the advisors and honorary members recapped the thematic meeting and planned the next meeting, scheduled on May 4th. The organisation of a WP meeting at the ECC8 in Lisbon is brought on the way.

May 4th 2022: Thematic Meeting (online): Ethics and the Evolution of Consciousness

Hans Steisslinger introduces the concept of spiral dynamics and the organisation development of consciousness through various memes. Applied to integrity and ethics, this approach may help enlightening, explaining, and changing motivations of professional conduct in research and business. The presentation inspired a lively discussion on the meaning of the concept for future WP activities.

UPCOMING EVENTS

June 24th 2022: Thematic Meeting (online): Topic to be defined and communicated

August 28th – September 1st 2022: European Chemistry Congress in Lisbon, Portugal including contributions from members of the WP Ethics in Chemistry and a WP assembly.

EDITORIAL

Dear Reader,

These are turbulent times. Two pressing issues—climate change and the SARS-CoV-2 pandemic—have been joined by a terrible war in Ukraine. Chemists, as everybody else, experience these atrocities in their daily life: unusual weather patterns, political restrictions of individual freedom, rising prizes, and, perhaps, solidarity with Ukrainian refugees. Yet, somehow, all three issues have a connection with the science chemistry that is beyond the common impact. Are there sustainable solutions for climate-related issues that can be facilitated by chemical knowledge and expertise? Are there lessons to be learned from the global pandemic management about the role of science and its public acceptance as knowledge authority? What can the scientific community do to support their Ukrainian colleagues and protect their institutions and academic achievements?

The EuChemS working party *Ethics in Chemistry* has communicated prominently that it condemns the Russian aggressions against Ukraine. Our [open letter](#) on our website with signatures from almost all WP members illustrates that we stand together against crimes against humanity and for solidarity and peace. It may be too small a contribution to stop the Russian regime from pursuing their imperial goals. But it is an important demonstration of integral elements of professional integrity: communalism, peer support, and a defence of universal values. In this respect, it is a matter of *ethics in chemistry*.

Stay safe and healthy, and enjoy the read of this Newsletter issue!

Your WP EiC Steering Committee

Ethical behavior in Chemistry – Bridging the knowledge-action gap

by Hans W. Steisslinger

Chemistry has always been a science in between theory and application, between philosophy and craft, as Jeffrey Kovac rightly pointed out (in "Ethics in Chemistry - From poison gas to climate engineering", J. Schumer & T. Boersen, 2021, p 487). Through the evolution of the natural sciences in the last centuries, their beneficial and detrimental applications have mushroomed. This is certainly also true for chemistry.

Since the realisation of assured self-destruction of all life on the planet through application of science and engineering (Hiroshima & Nagasaki 1945), the ethical behavior of scientists has attracted a lot of scrutiny. Up to this day many attempts have been made to specially reign-in the destructive potential of the application of chemistry, be it chemical weapons or items for daily use or even end of life questions, e.g., palliative medicine. As a response, many Chemical Societies issued a code of ethics.

Although the threat of nuclear annihilation remains, the multiple poisoning of life on the planet continues. In other words: we have an insidious contamination and depletion of planetary natural resources at a biblical scale. And we still are seeing biological and chemical weapons being used as a means to wield power. Individually, every scientist understands that. But collectively we are creating exactly these outcomes. Why? In other words: why is there a huge knowledge - action gap?

When chemists start to reflect upon their role in creating some of the disasters - whether they are blatantly obvious like Bhopal and Seveso, or more subliminal like the ubiquitous occurrence of Bisphenol-A and certain pesticides like Glyphosat - it becomes obvious that THE chemist doesn't exist. Chemists all over the world have different roles to play, such as:

- university teachers,
- designers of molecules and processes in industry,
- business leaders,
- state regulators,
- activists in NGO's like Greenpeace,
- consumers,
- fathers and mothers, i.e., members of civil society.

Each of these actors have moral agency – the power to be morally accountable for one's own actions and their consequences. But how do we reach moral agency to create more sustainable outcomes for the common public good, i.e., along the three trajectories of people-planet and

prosperity. Unless these three are maximized at the same time the moral dilemma remains.

Before we can look at the deeper drivers of behavioral change, let's first identify the three major ethical frameworks to deal with moral dilemma.

First, there is the deontological framework, according to which moral action is determined by the intended reason. The word is derived from the Greek word for duty (deon) and science (logos). Deontologists assert that actions are governed by the duty to do the right thing, no matter what the consequences. It is self-evident, that the definition of "right" is debatable. Following Immanuel Kant's categorical imperative, any action would be right, if it could be turned into a universal law. Protecting human welfare and our natural environment as a fundamental societal value would always take priority over economic profit. With this approach any risk of irreversibly harming human health is deemed non-ethical.

Second utilitarianism, as a form of consequentialist ethics, holds the notion that the consequences of an action determine whether it will be acceptable or not. The action which creates the most "utility" in the sense of "the greatest good for the greatest number". Jeremy Bentham, the founder of utilitarianism, described utility as "that property in any object, whereby it tends to produce benefit, advantage, pleasure, good, or happiness...[or] to prevent the happening of mischief, pain, evil, or unhappiness to the party whose interest is considered" (Wikipedia). Noteworthy is the fact that utilitarian reasoning doesn't attribute any moral status to creatures deemed unable to experience happiness. Therefore, it also places no direct value on biodiversity.

An approach taken quite often is, thirdly, the decision to sidestep ethical questions and instead engage in technical arguments as to how to interpret scientific evidence. It is assumed that science is objective and factually true. I won't go any further to elaborate on this approach and leave it to the reader to come to his or her own conclusions.

I do want to introduce the concept of the evolving human consciousness into the discourse on ethics in science. It is very meaningful because it embeds the three frameworks from above into a new context.

Life on earth has evolved from the molecular to the cellular level and all the way to the emergence of most complex forms of vertebrates and man. The arrow of evolution points towards higher complexity! Ralph Waldo Emerson

has compared life to a spiral staircase: we wake up and see ourselves on one step, realizing that there are steps below and steps above, which escape our view. The spiral reaches far, its end is open, its continuous and dynamic. Clare Graves, Don Beck and Chris Cowan expanded that metaphor into the concept of "Spiral Dynamics". They asked the fundamental questions: What drives human emergence? Why we are and what leads us to become something different? Is there an inner intelligence that runs through the minds of individuals, organisations and societies?

Spiral Dynamics deals with the psychology of human nature as an unfolding, emerging process, in which the

changing existential problems of mankind step by step lead to the subordination of lower behavioral patterns to higher ones. In essence, human thinking, feeling and willing develops in a discernible manner as the world around us becomes more complex and challenges us to keep up. At the same time we as humans are continuously changing the world as well – it is a reciprocal process.

In the working sessions of the Working Party *Ethics in Chemistry*, we will dive deep into the theory and application of Spiral Dynamics in order to tackle the key challenge to bridge the knowledge-action gap.

READING CORNER

International Ethics in Chemistry: Developing Common Values across Cultures

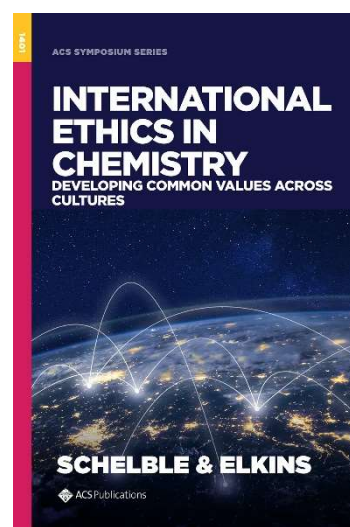
edited by Susan M. Schelble and Kelly M. Elkins

Publisher: ACS Symposium Series, 2021, 568 pages

ISBN: 978-0841297982; DOI: 10.1021/bk-2021-1401

URL: <https://pubs.acs.org/isbn/9780841297982>

"Developing International Ethical Standards and Values. In our global scientific enterprise, we must reconcile cultural differences to share scientific information. This work explores ethical issues across chemistry, focusing on chemical organizations and researchers and how they establish policies and educational strategies for professional ethics. Chapters focus on intellectual property, codes of conduct, relationships with employers and government, and safety in the laboratory and workplace. By viewing both the past and future, readers will find shared ethical best practices to address international challenges with enormous effects on human and planetary health."



CASE OF (UN)ETHICAL CHEMISTRY

Chemistry professor used university lab equipment to operate tests for Taiwanese drug syndicate

Zhang Enming (張恩銘), assistant professor at the Department of Chemistry at National Cheng Kung University (Tainan, Taiwan), has been prosecuted for using a university chemistry laboratory with advanced equipment, and having students unknowingly assist in testing imported and locally manufactured illicit drugs for purity, on behalf of a Taiwanese narcotrafficker. He was charged by the Taipei District Prosecutor's Office for manufacturing category 3 drugs and other crimes following an investigation into a drug manufacturing operation uncovered in Yilan County in early 2021. Heavily indebted due to a failed detergent business in China, Zhang was approached by the head of a Taiwanese drug syndicate, Xiao Guangzhe, who suggested to help pay off the debt in return for drug purity testing. Zhang used the laboratory's high magnetic field superconducting NMR spectrometer to test raw materials and drug ingredients to improve research and development for the production of illicit drugs at underground drug manufacturing operations at various locations around Taiwan. Telling his students and other faculty members that the substances being tested were ingredients for cosmetic lotions, Zhang even had students assist with the testing process. Based on physical evidence and that provided by witnesses, prosecutors determined that Zhang used his chemistry expertise to make petty profits with a one-stop drug production and trafficking testing process for the drug manufacturing group, and this seriously endangered society. Zhang was prosecuted for the crime of manufacturing category 3 drugs according to the "Regulations on the Prevention of Drug Hazards", and prosecutors requested the court impose a heavy sentence.

PROFILE

Prof. Dr. Erhard Meyer-Galow

Prof. Dr. Erhard Meyer-Galow was a chemist in various important positions in the chemical industry, such as CEO of Brenntag AG, Hüls AG, Stinnes AG and member of the board of VEBA AG. In 1998/99 he was president of the GDCh and played a major role in the launch of business chemistry. Today he is an author, speaker, founder and sponsor. He has been President of the Humboldt Society for the last three years and is now Honorary Consul of the Kingdom of Bhutan in Germany. For more information, visit his website at www.ligw.de.

The appointment as an honorary member of the "EuChemS Working Party on Ethics in Chemistry" is a surprising appreciation and honorable distinction for me. I sincerely thank all members of the group and especially Hartmut Frank who launched the initiative. It shows me that my intensive promotion of a new ethic is being noticed and valued. In this way, I am happy to comply with the request to present my personal view and experience for the newsletter. So, my contribution is to be understood as a further impetus to improve ethics and morality.

Since, as a chemist, I worked exclusively in business after graduation, I will report on my experience with business ethics. I am happy about every effort to bring ethics and morality into the world. Even now, the new, strengthened initiative of the Working Party is worth getting involved with. It seems urgently necessary to me when I look at the undesirable developments of the past decades. Have all the ethics guidelines, seminars, training courses and lectures been of no use? And why is that so and how to improve the effectiveness of all initiatives? The depth psychology of C.G. Jung was an eye opener for me as he kept emphasizing that we can give up the ambition to change others. It won't work. All we can do is try to change ourselves, and that's difficult enough. When we tell others about our individuation, impulses for their change may arise.

I've also struggled for years. But then I found that when the individual comes under pressure, everything is forgotten and immorality increases. So it's obviously about resilience, resisting immoral offers to improve one's egocentric position. The cognitive decision on sustainable ethics does not last long. You have to grow on the inside in order to behave morally in the long term on the outside. So it's about leading yourself before you want to lead others.

Therefore, for me, ethics is a question of leadership and not just a question of appeals and guidelines for others. Of course, you can force others to behave ethically if you threaten punishment. But that is neither fruitful nor sustainable. You have to grow into ethics, from the inside

out. Ethics is then the result of an inner growth. The paths of inner growth are not aimed at ethics. It is about connecting to the lost wholeness. It is about "Transparency for the immanent Transcendence", as my teacher Karlfried Graf Dürckheim liked to define the meaning of life. Ethics is then just a by-product. It arises from clear deep heart-mind, the state of pure awareness, not-knowing, not-wanting and not rejecting. So, in my opinion, sustainable ethics need to take a detour via inner growth. Then and only then does the individual behave ethically well in the long term, not because they have to, but because they cannot do otherwise.

These insights and experiences on the one hand and the constantly increasing immorality in business have prompted me to write my book [Business Ethics 3.0 - The New Integral Ethics from the Perspective of a CEO](#), from which I try to convey the basics, as a kind of teaser. But in a way, the following can only be fragments. The book is intended to create a desire for change in business ethics which has thus far largely been practiced simply as damage control (Business Ethics 1.0). An advanced approach to business ethics took more proactive steps to clarify the mission and vision, resulting in companies developing ethical guidelines and ethics training (Business Ethics 2.0). But it is evident by observing actions in the marketplace that ethical behavior in business has only made marginal advances towards a New Ethic which encompasses sustainable moral behavior and ethical practices. Clearly something vital is still missing.

It is essential, first, that we recognize that those working in the economic sector of society understand that practices built upon unethical or immoral foundations can never result in personal or professional success or satisfaction. We must realize secondly that it is not possible to live and manage in an ethically and morally defensible manner by following an externally imposed set of rules. The third essential is that we recognize that sustainable ethical and moral practices arise not from a focus upon the energy draining striving for success and wealth at any cost, but

rather from inner peace, stability and balance in our life, qualities which result from the awakening of the awareness of our inner dimension. Only by drawing upon this inner resource can we establish a satisfying, peaceful work/life balance, one which leads us to lasting inner peace and freedom. This balance is essential for the development of the resilience which will allow us to withstand the temptations of the outer world; temptations which encourage us to act in a self-serving fashion, ultimately resulting in our suffering, anxiety and stress.

Our ego-mind is so dominant that we have separated ourselves from our inner sources; from our most important roots. We must first heal our wounds if we are able to embrace ethical practices in a sustainable fashion. To accomplish this we must bridge the gap to our soul and to our spirit. Our soul is our guide to the spirit. Therefore, the connection to the soul is essential for spiritual growth as a life purpose. The generalized immoral behavior currently rampant in society is evidence that all of the books, numerous appeals, guidelines and serious protestations for sustainable ethical and moral behavior have had no discernable effect upon individuals or the economy. If my teacher Karlfried Graf Dürckheim were still alive he would make the following observation:

It helps little to constantly preach about collective ethics and morality when the individuals that make up this collective are stuck in their rational one-sided egocentricity which constantly blocks their actual purpose in life, their individuation, and the balance of body, ego-mind, soul and spirit which is necessary in order for us to become a completely holistic person. The human in the Anthropocene has no consciousness of this aberration. He has completed the separation from the numinous. Therefore, as he does not know why he is suffering, he cannot build bridges to his soul that could lead him to the unconscious wherein lies the huge energy and creative potential which could expand his severely restricted consciousness. He has destabilized and weakened himself and now he is asked to entertain the upholding of ethics and moral behavior. It is all the more difficult as he is also suppressing his dark side because of the ethics dilemma, repressing it into the shadow out of which it then again and again bursts forth, expressing itself societally in an immoral, unethical fashion.

Erich Neumann, scholar of C.G. Jung, in his book "Depth Psychology and a New Ethic" (1990 Shambala Boston & London) explained in detail that our previous Christian ethic, in which we were only allowed to be good, has ended up in a dead end. The individual suppresses the dark, evil

content of our thoughts and actions. However, we remain aware of this content. Furthermore repression is worse. It disappears into our unconscious and is up to mischief there. Suppression and repression end up in the shadow of our person. So we can continue to walk through the world with a mask (persona) and show the outside world how good and nice we are. However, our shadow keeps pushing into the outside world as a projection and wreaking havoc. We simply have to admit that we have dark and light, good and bad parts of ourselves. Suppression and repression only make it worse. On the way to the real individual (the indivisible) it is always about the integration of the shadow. We must mindfully learn to recognize the rising of the shadow when it wants to rise and still remain in control of our lives.

Very often it is not simply the decision to do the good and prevent the bad. It is more complicated in life because of the *Principle of Double Effect*. Our actions most often have more effects than simply the desired one. Frequently the others may be undesirable. In order to assess, when this was occurring, scholastic ethics formulated the Principle of the Double Effect. This principle addresses the question of under which conditions one may agree with the undesired effects as well as the desired effects. Traditionally the principle is formulated as follows. The approval or causation of damage is permitted if:

- the action is not intrinsically evil,
- the damage is not specifically intended as a purpose,
- the damage is not specifically intended as a means to an end,
- in the approval of damage to occur there is a corresponding basic reason,

If anyone of these conditions is not met, then authorization for the action is not ethical. It therefore very often requires a well-founded consideration fed by inner wisdom for our ethically impeccable work in the world.

C.G. Jung demands that the life task of individuation be recognized and practiced. Shadow integration is just one aspect. This inner growth process succeeds in depth psychology through dream work and active imagination.

Spiritual paths such as meditation, contemplation and hundreds of other approaches can also lead to inner growth. I have personally been practicing Zen meditation for 40 years. For my friend Hans Peter Dürr, quantum physics and the loving dialogue with others were the sources of inner growth. If serenity, compassion and empathy grow through these paths, ethics and morality can only be the positive result of all efforts.

So I see ethics as a leadership task, for oneself and for leading others. Prerequisite is the own role model function and the dialogue. Then others may follow. Business ethics 1.0 was all about covering up and denying immoral acts. Business ethics 2.0 was more proactive and packed training and statements into wonderful ethics guidelines. The Ethics 3.0 presented by me tries to compensate for the deficits of the above-mentioned ethics approaches and offers a holistic approach in which the inner growth is in the foreground and ethics result from it.

Conclusion:

If I were to give the readers the most important personal key statements for an ethic that comes from within and that wants to be brought into the world as a leadership task, as a pledge, then I would formulate:

I vow to make the living more lively.

I am aware that all beings and the whole cosmos are connected to each other and are in constant interaction. With this expanded consciousness, I experience a lively exchange with my fellow human beings and nature.

All wisdom is created in us, including sustainable ethics. We don't have to reinvent them. We just have to prevent anything that destroys them.

I strive for an expanded consciousness that goes beyond mere thinking and knowledge and from which ethics and a sense of responsibility can grow.

I try to be mindful in my life so that I notice in time when the destructive evil wants to take over the constructive good.

Ethically good decisions bring me inner peace, wrong decisions do not.

With our very special knowledge and experience we chemists have a very important responsibility.

If I intervene in nature and society, I will reduce their suffering and make a positive contribution to evolution. Not because I have to, but because I can't do otherwise.

So it depends on each and every one of us. Day after day.