



Researches Relevant to Theosophy

Vol. 1, No. 2

A quarterly publication devoted to the collection of researches in the sciences and humanities that are relevant to theosophical studies.

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This issue:

Robot Performs Eye Surgery

How Did Life Start on Earth

Army Research Finds Meditation Effective in Stress Reduction

1.4 Billion Years Ago, an Earth Day Was About 19 Hours

And more

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Editorial

The response to the first issue of Researches Relevant to Theosophy was very positive. We trust that the information had been helpful to speakers, writers, researchers and students of theosophy.

Scientific knowledge expands very fast that each day, some many new discoveries and inventions are made. We need to be selective in choosing what to keep track of.

It is hoped that more people will be involved in the gathering of research information. We appreciate your feedback. You may contact us at <http://theoscience.org/index.php/contact/> or comment on the website of [Researches Relevant to Theosophy](http://theoscience.org/index.php/contact/).

Researches Relevant to Theosophy

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Contributions to this publication are welcome. Email to the editors the title, date, source and summary of the research report, together with the full citation of the source or sources, whether website, book or article.



Technology
Health and
Medicine

Date: June, 2018

Source: *New Scientist*

Robot Performs Eye Surgery

For the first time, a robot guided by surgeons has performed an eye surgery on human beings. The surgery involved the removal of membranes from the retina. It was found that, compared to surgery by human hands, the robotic surgery caused less damage to blood vessels at the back of the eye. The trials were done to demonstrate that robots may be more effective in performing tricky surgeries that human hands find difficult to do.

Ophthalmologist Robert MacLaren of the University of Oxford stated that “Using the robot, we might also be able to directly unblock blood vessels of possibly inject things into the optic nerve.” These are operations that human hands will be unable to do because they require very fine motor control.

Source: *New Scientist*, June 18, 2018. <https://www.newscientist.com/article/2171807-a-robot-has-performed-eye-surgery-on-humans-for-the-first-time/>

Biology
Geology
Space Sciences

Due: June, 2018

Source: *New Scientist*

How Did Life Start on Earth?

Scientists have been speculating about the origin of life on earth four billion years ago. It could have started in places where the necessary ingredients and temperature would be present. An article in *New Scientist* reviews these possibilities. It is a quest started by Charles Darwin where he described a warm pond rich in chemicals, salt, with sources of light and heat.

So the possibilities include the following:

- Hydrothermal crater lake at 165 deg C
- Alkaline ocean vent with about 65 degrees C temperature
- Hot freshwater pool at 90 degrees C
- Geothermal field at 150 deg C
- Desert at 80 deg C
- Ice with concentrated brine at 0 deg C
- Impact crater at 2000 deg C

Source: *New Scientist*, June 13, 2018. <https://www.newscientist.com/article/mg23831820-400-the-epic-hunt-for-the-place-on-earth-where-life-started/>

Biology
Psychology
Health and
Medicine

Date: June, 2018

Source: *Science Daily*;
Frontiers in Physiology

Army Research Finds Meditation Effective in Stress Reduction

A research team in the University of Texas, Army Research Office, found that yoga meditation is effective in reducing stress. They found that “the long-term practice of meditation has the effect of making permanent the meditation-induced physiologic changes. . . . Meditators show a stronger executive control, that is, the ability to carry out goal-oriented behavior, using complex mental processes and cognitive abilities.” (*Science Daily*)

The researchers compared two types of meditation: yoga and Chi meditations. The Chi meditators “breath spontaneously while visualizing the opening and closing of a perfect lotus in the stomach.” The yoga meditators did a “sequence of breathing and chanting exercises while seated in a cross-legged position.” (*Frontiers in Physiology*)

Source: U.S. Army Research Laboratory. "Changes in stress after meditation." ScienceDaily. ScienceDaily, 21 June 2018. <www.sciencedaily.com/releases/2018/06/180621111955.htm

Frontiers in Physiology, May 29 , 2018. <https://doi.org/10.3389/fphys.2018.00626>

Space Sciences
Biology

Date: June, 2018

Source: *New Scientist*

Mars Has Complex Organic Material

NASA's Curiosity Rover has found methane coming out of the ground in summer, with complex organic molecules that may have been preserved for 3.5 billion years. The molecules could have been from meteorites or volcanic processes. There is also a possibility that they are from living organisms.

Source: New Scientist, June 16, 2018; <https://www.newscientist.com/article/2171106-mars-has-complex-organic-material-that-may-be-from-ancient-life/>

Biology
Psychology
Health and Medicine

Date: June, 2018

Source: *Quanta Magazine*

Theory Suggests That All Genes Affect Every Complex Trait

That certain specific genes cause the likelihood of certain diseases such as anemia is well-known. But it is beginning to appear that these clear connections are more of the exceptions than the rule. Researches that started 15 years ago have begun to reveal that human traits, such as the height of a person or susceptibility to schizophrenia, may be traced to very many genetic conditions.

Three researchers in Stanford University and University of Chicago have proposed an “omnigenic” model of complex traits. Drawing from a Genome-Wide Association Studies (GWAS) of three diseases, they “concluded that in the cell types that are relevant to a disease, it appears that not 15, not 100, but essentially all genes contribute to the condition. The authors suggested that for some traits, “multiple” loci could mean more than 100,000.” (Quanta Magazine)

Source: Quanta Magazine, June 20, 2018. <https://www.quantamagazine.org/omnigenic-model-suggests-that-all-genes-affect-every-complex-trait-20180620/>

Space Sciences
Geology

Date: June, 2018

Source: *New Scientist*

1.4 Billion Years Ago, an Earth Day Was About 19 Hours

Using statistical programs to analyze data from rock formations in the Atlantic Ocean and China, two geologists have concluded that the Earth’s rotation was faster before and a day was only 18.7 hours long. This was a time when, according to them, the moon would have been closer to the earth by about 40,000 kilometers, causing the earth to rotate faster.

Source: New Scientist, June 4, 2018 <https://www.newscientist.com/article/2170764-a-day-used-to-be-less-than-19-hours-long-1-4-billion-years-ago/>

Religion
Social Sciences

Date: June 2018

Source: Pew Research Center; Reuters

Denmark Bans Wearing of Face Veils in Public

The Parliament of Denmark has banned the wearing of face veils in public. This law will take on August 1, 2018. Violators will be fined 1,000 Danish crowns (US\$160) on the first offense, and 10,000 crowns on the fourth offense.

Other states who have banned the wearing of full-face veils are France, Belgium, Netherlands, Bulgaria and the German state of Bavaria.

Source: Reuters, https://www.reuters.com/article/us-denmark-religion/danish-lawmakers-ban-burqas-idUSKCN1IW1I5?utm_source=Pew+Research+Center&utm_campaign=63f64d304a-EMAIL_CAMPAIGN_2018_06_06_03_27&utm_medium=email&utm_term=0_3e953b9b70-63f64d304a-400417753

Biology
Psychology
Health and Medicine

Date: June, 2018

Source: *Science Daily*;
Frontiers in Physiology

Brains Grow New Neurons with Drug Injection

Scientists in the Peking University Health Science Center have developed drugs that seems to make brain support cells in mice to become active neurons that can connect with other cells. These cells are called astrocytes which are star-shaped cells. “There are 10 times more astrocytes than neurons, and while neurons die in stroke, the astrocytes around them survive,” says HongKui Deng who developed the drugs with his colleagues.”

Matthew Grubb of King’s College London says: “If it holds up it’s absolutely amazing, and has a lot of potential applications and exciting consequences. If you’ve got a degenerating brain, for example in Alzheimer’s disease, and you could get the brain to regrow neurons itself, it would be a huge step forward.”

Source: New Scientist, May 29, 2018. <https://www.newscientist.com/article/2170310-brains-grow-brand-new-neurons-after-experimental-drug-injection/>

Social Sciences
Religion

Date: September 2017

Source: Pew Research
Center

More Americans Say They’re Spiritual But Not Religious

In a survey conducted April 4-June 4, 2017, The Pew Research Center found that there are more Americans who consider themselves spiritual but not religious. 27% regarded themselves this way as compared to 19% in 2012. 48% think of themselves as both religious and spiritual, this group decreased from 59% in 2012. 18% consider themselves neither religious nor spiritual, Up from 16% in 2012.

Source: Pew Research, Sept. 6, 2017; <http://www.pewresearch.org/fact-tank/2017/09/06/more-americans-now-say-theyre-spiritual-but-not-religious/>

Psychology
Health and Medicine

Date: June, 2018

Source: *Science Daily*;
Cardiovascular Research

High Blood Pressure Can Cause Dementia

A new study in *Cardiovascular Research*, published by Oxford University Press, indicates that patients with high blood pressure are at a higher risk of developing dementia.

The study involved patients from 40 to 65 who were subjected to MRI scan. “The result indicated that hypertensive patients showed significant alterations in three specific white matter fiber-tracts. Hypertensive patients also scored significantly worse in the cognitive domains ascribable to brain regions connected through those fiber-tracts, showing decreased performances in executive functions, processing speed, memory and related learning tasks.”

Source: Science Daily, June 13, 2018. <https://www.sciencedaily.com/releases/2018/06/180613101925.htm>

From Lorenzo Carnevale, Valentina D’Angelosante, Alessandro Landolfi, Giovanni Grillea, Giulio Selvetella, Marianna Storto, Giuseppe Lembo, Daniela Carnevale. Brain MRI fiber-tracking reveals white matter alterations in hypertensive patients without damage at conventional neuroimaging. *Cardiovascular Research*, 2018; DOI: 10.1093/cvr/cvy104

Health & Medicine
Biology

Date: June 2018

Source: *Science Daily*,
Radiology

Smoking and diabetes linked to brain calcifications

People who smoke and have diabetes may have a higher risk of having calcifications in the brain in the regions connected with memory. This was the result of a study of 1,991 patients in a Dutch hospital between 2009 and 2015, and published in the journal *Radiology*,

Source: Science Daily, June 12, 2018 from data provided by the Radiological Society of North America. <https://www.sciencedaily.com/releases/2018/06/180612185219.htm>

Esther J. M. de Brouwer, Remko Kockelkoren, Jules J. Claus, Annemarieke de Jonghe, Mirjam I. Geerlings, Thomas E. F. Jongsma, Willem P. T. M. Mali, Jeroen Hendrikse, Pim A. de Jong, Huiberdina L. Koek. Hippocampal Calcifications: Risk

Factors and Association with Cognitive Function. *Radiology*, 2018; 172588
DOI: 10.1148/radiol.2018172588

*Psychology
Health and
Medicine*

Date: May, 2018

Source: *Science Daily;
Psychological Medicine*

Depression Speeds Up Aging of Brain

Psychologists at the University of Sussex found a connection between depression and the rate of brain aging. Published in the journal *Psychological Medicine*, researchers gathered evidence from 71,000 participants of 34 longitudinal studies.

Source: Science Daily, May 24, 2018. <https://www.sciencedaily.com/releases/2018/05/180524081735.htm>

A. John, U. Patel, J. Rusted, M. Richards, D. Gaysina. Affective problems and decline in cognitive state in older adults: a systematic review and meta-analysis. *Psychological Medicine*, 2018; 1 DOI: 10.1017/S0033291718001137

Health & Medicine

Date: September 2017

Source: *Science Daily;
Frontiers of
Neuroscience*

Leg Exercise Important to Brain and Nervous System Health

Leg exercises are vital for the production of healthy neural cells. This is the finding of a study by Italian researchers involving restriction of the hind legs of mice for a period of 28 days. This resulted in the decrease of neural stem cells by 70 percent compared to a control group of mice which were free to roam. The particular area affected was sub-ventricular zone which has a role in maintaining nerve cell health and the production of new neurons.

Source: Science Daily, May 23, 2018; <https://www.sciencedaily.com/releases/2018/05/180523080214.htm>

Raffaella Adami, Jessica Pagano, Michela Colombo, Natalia Platonova, Deborah Recchia, Raffaella Chiaramonte, Roberto Bottinelli, Monica Canepari, Daniele Bottai. Reduction of Movement in Neurological Diseases: Effects on Neural Stem Cells Characteristics. *Frontiers in Neuroscience*, 2018; 12 DOI: 10.3389/fnins.2018.00336

Psychology
Health & Medicine

Date: May 2018

Source: *Science Daily; Annals of the New York Academy of Sciences*

Learning Music and Another Language Makes Brain More Efficient

“Musicians and bilinguals require less effort to perform the same task, which could also protect them against cognitive decline and delay the onset of dementia,” says Dr. Claude Alain of Baycrest’s Rotman Research Institute. This was their conclusion after doing brain-imaging studies of 41 young adults between 19-35 years old.

Source: *Science Daily, May 17, 2018; <https://www.sciencedaily.com/releases/2018/05/180517123254.htm>*

Claude Alain, Yasha Khatamian, Yu He, Yunjo Lee, Sylvain Moreno, Ada W. S. Leung, Ellen Bialystok. Different neural activities support auditory working memory in musicians and bilinguals. *Annals of the New York Academy of Sciences*, 2018; DOI: 10.1111/nyas.13717

Health & Medicine
Religion

Date: May 2018

Source: *Science Daily; Psychophysiology*

Breathing and Meditation Makes the Mind Sharper

Researchers in the Trinity College Institute of Neuroscience found that yogic breathing and meditation affects the levels of noradrenaline, a chemical messenger that helps the brain grow new connections.

According to Michael Melnychuk and lead author of the study: “When we are stressed we produce too much noradrenaline and we can't focus. When we feel sluggish, we produce too little and again, we can't focus. There is a sweet spot of noradrenaline in which our emotions, thinking and memory are much clearer.”

Sources: *Science Daily, May 10, 2018. <https://www.sciencedaily.com/releases/2018/05/180510101254.htm>*

Michael Christopher Melnychuk, Paul M. Dockree, Redmond G. O'Connell, Peter R. Murphy, Joshua H. Balsters, Ian H. Robertson. Coupling of respiration and attention via the locus coeruleus: Effects of meditation and pranayama. *Psychophysiology*, 2018; e13091 DOI: 10.1111/psyp.13091

Environment
Biology
Health & Medicine

Date: May 2018

Source: *Science Daily*;
Scientific Reports

Air Pollution Causes Genetic Changes in Rat Brains

Scientists in the Nanomedicine Research Center at Cedars-Sinai found that long exposure to air pollution causes genetic changes in the brains of rats that may lead to disease development. An example of this is the presence of certain materials such as nickel in the air.

Source: Science Daily, May 8, 2018. <https://www.sciencedaily.com/releases/2018/05/180508095012.htm>

Julia Y. Ljubimova, Oliver Braubach, Rameshwar Patil, Antonella Chiechi, Jie Tang, Anna Galstyan, Ekaterina S. Shatalova, Michael T. Kleinman, Keith L. Black, Eggehard Holler. Coarse particulate matter (PM_{2.5-10}) in Los Angeles Basin air induces expression of inflammation and cancer biomarkers in rat brains. *Scientific Reports*, 2018; 8 (1) DOI: 10.1038/s41598-018-23885-3

Health & Medicine
Psychology

Date: April 2018

Source: *Science Daily*;
Journal of Neuroimaging

Tai Chi Improves Brain Metabolism

A study of six people who practiced Tai Chi showed “significant increase in a marker of neuronal health in the brain and significantly improved recovery rates of a metabolite involved in energy production in leg muscles.” (Science Daily)

Using magnetic resonance spectroscopy, a method of measuring brain and muscle chemistry with MRI machines, the researchers were able to quantify the improvements in the brain and body of practitioners. “The benefits of Tai Chi have been well known anecdotally; however research research such as our study can quantify these improvements using objective measures,” said Dr. Alexander Lin of Brigham and Women’s Hospital and Harvard Medical School, a senior author of the study.

Source: Science Daily, April 19, 2018; Journal of Neuroimaging

Min Zhou, Huijun Liao, Lasya P. Sreepada, Joshua R. Ladner, James A. Balschi, Alexander P. Lin. Tai Chi Improves Brain Metabolism and Muscle Energetics in Older Adults. *Journal of Neuroimaging*, 2018; DOI: 10.1111/jon.12515

Psychology
Health & Medicine

Date: April 2018

Source: *Science Daily*

Sitting is Bad for Your Brain

Researchers in the University of California in Los Angeles (UCLA) studied 35 people with ages 45-75 and compared their physical activity levels and the changes in their brain through high-resolution MRI scan. They found that those sitting for long on a regular basis appeared to exhibit thinning of the medial temporal lobe, a part of the brain involved in the formation of new memories.

Source: Science Daily, April 12, 2018;

University of California - Los Angeles. "Sitting is bad for your brain -- not just your metabolism or heart: Thinning in brain regions important for memory linked to sedentary habits." ScienceDaily. ScienceDaily, 12 April 2018.

<www.sciencedaily.com/releases/2018/04/180412141014.htm>.

Health & Medicine
Psychology

Date: April 2018

Source: *Science Daily*;
Psychology Research and
Behavior Management

Yoga in School Help Children Manage Stress and Anxiety

Health & Medicine

Psychology

Source: Science Daily, Tulane University

Date: April 10, 2018

A study of third graders in a New Orleans public school showed improvement in their anxiety levels and emotional health after they were enrolled in a yoga class for eight weeks.

"The intervention improved psychosocial and emotional quality of life scores for students, as compared to their peers who received standard care," said principal author Alessandra Bazzano, associate professor of Global Community Health and Behavioral Sciences at Tulane University School of Public Health. "We also heard from teachers about the benefits of using yoga in the classroom, and they reported using yoga more often each week, and throughout each day in class, following the professional development component of intervention."

source: Science Daily, April 10, 2018. <https://www.sciencedaily.com/releases/2018/04/180410100919.htm>

Alessandra N Bazzano, Christopher E Anderson, Chelsea Hylton, Jeanette

Gustat. Effect of mindfulness and yoga on quality of life for elementary school students and teachers: results of a randomized controlled school-based study. *Psychology Research and Behavior Management*, 2018; Volume 11: 81
DOI: 10.2147/PRBM.S157503

*Psychology
Health & Medicine*

Date: April 2018

Source: *Science Daily*;
Journal of Happiness Studies

Physical Activity Increases Happiness Level

A review of 23 studies on happiness and physical activity showed that there was a “positive direct or indirect association between happiness and exercise.” (Science Daily)

"Our findings suggest the physical activity frequency and volume are essential factors in the relationship between physical activity and happiness," Weiyun Chen of Michigan associate professor of kinesiology, said. "More importantly, even a small change of physical activity makes a difference in happiness." This was observed for those doing 150-300 minutes a week.

“The review of observational studies found that compared to inactive people, the odds ratio of being happy was 20, 29 and 52 percent higher for people who were insufficiently active, sufficiently active, or very active, respectively.”

Source: Science Daily, April 4, 2018. <https://www.sciencedaily.com/releases/2018/04/180404163635.htm>

Zhanjia Zhang, Weiyun Chen. A Systematic Review of the Relationship Between Physical Activity and Happiness. *Journal of Happiness Studies*, 2018; DOI: 10.1007/s10902-018-9976-0

Space Sciences

Date: May 2018

Source: *Science Daily*;
*Astronomical Society of
Australia*

Fastest Growing Black Hole Detected

Astronomers of the Australian National University have found a black hole that devours a mass that is equivalent to our sun every two days.

"This black hole is growing so rapidly that it's shining thousands of times more brightly than an entire galaxy, due to all of the gases it sucks in daily that cause lots of friction and heat," said Dr Wolf from the ANU Research School of Astronomy and Astrophysics.

Source: Science Daily, May 16, 2018; <https://www.sciencedaily.com/releases/2018/05/180516105218.htm>; Australian National University

Christian Wolf, Fuyan Bian, Christopher A. Onken, Brian P. Schmidt, Patrick Tisserand, Noura Alonzi, Wei Jeat Hon, John L. Tonry. Discovery of the most ultra-luminous QSO using Gaia, SkyMapper and WISE. *Publications of the Astronomical Society of Australia*, 2018

Physics
Space Sciences

Date: June 2018

Source: *Science Daily*;
Science

Einstein's Theory Validated in Another Galaxy

A team of astronomers led by Dr. Thomas Collett of the Institute of Cosmology and Gravitation at the University of Portsmouth, found confirmation of Einstein's theory of relativity in another galaxy through the observation of the deflection of light as it passes near another galaxy.

Dr Collett states: "We used data from the Very Large Telescope in Chile to measure how fast the stars were moving in E325 -- this let us infer how much mass there must be in E325 to hold these stars in orbit. We then compared this mass to the strong lensing image separations that we observed with the Hubble Space telescope and the result was just what GR predicts with 9 per cent precision. This is the most precise extrasolar test of GR to date, from just one galaxy."

Source: Science Daily, June 21, 2018. [https://www.sciencedaily.com/releases/2018/06/180621141043.htm?](https://www.sciencedaily.com/releases/2018/06/180621141043.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+science+daily%2Fspace_time%2Fcosmology+%28Cosmology+News+--+ScienceDaily%29)

[utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+science+daily%2Fspace_time%2Fcosmology+%28Cosmology+News+--+ScienceDaily%29](https://www.sciencedaily.com/releases/2018/06/180621141043.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+science+daily%2Fspace_time%2Fcosmology+%28Cosmology+News+--+ScienceDaily%29)

Thomas E. Collett, Lindsay J. Oldham, Russell J. Smith, Matthew W. Auger, Kyle B. Westfall, David Bacon, Robert C. Nichol, Karen L. Masters, Kazuya Koyama, Remco van den Bosch. A precise extragalactic test of General Relativity. *Science*, 2018; 360 (6395): 1342-1346 DOI: [10.1126/science.aao2469](https://doi.org/10.1126/science.aao2469)